AMA Regional Safety Codes Officer meeting Spring 2017
Introduction
Tom Lauder

Building safety codes officer (SCO) with The City of Calgary

One of two subject matter experts on Alberta Building Code Energy Efficiency, 9.36 and National Energy Code of Canada (NECB) in City of Calgary Building Regulations

Spent the last 15 months building Calgary’s implementation of 9.36 including forms, website, guidance documents and all internal training.

Currently the NECB plans examiner in Calgary.

Sat on the Safety Codes Council review panel for the 9.36 and NECB models to ratify course material and exams.

Currently supporting the field staff in the rollout of our 9.36 inspection pilot program and building a training program for NECB to roll out to all SCOs.
I. Intro
II. Prescriptive path
III. Trade-off
IV. Performance
V. Field inspections
VI. NECB
VII. Conclusion
Calgary’s approach to 9.36

Educate

- Group presentations began two years ago
- Individual office visits started about one year ago
- We reviewed sample submissions from many of our larger builders

Improve submission drawing quality

- Increased emphasis on calculations and detailing

Include an inspection component

- Code doesn’t achieve anything without site verification

Educate, again

- Engage slow adopters, carry out site training
Results to date

Nov. 1, 2016 – Feb. 24, 2017

787 permits received
657 by large volume builders - 188 awaiting review
  62% Performance path - 86 per cent issued
  26% Prescriptive - 98 per cent issued
  10% Trade-Off - 92 per cent issued

As of March 1, 2017 we have returned to achieving our 21-day service level agreement.
Prescriptive path
Prescriptive path challenges

The prescriptive path has largely been as straightforward as intended. The following items were identified as challenges at the beginning and continue to come up as smaller builders use 9.36 for the first time.

i. Rsi calculations
ii. Details
iii. Co-ordination
iv. HRVs
v. Electric water heaters
vi. Advanced framing
vii. Attached garages
There have been a number of occasional challenges that come up with Rsi calculations.

- Inclusion of interior finishes in calculations
- Use of 2x4 framing with 2x6 insulation
- Nominal versus effective Rsi
### Interior finishes included in the calculation

#### Table A-9.36.2.4.(1)D. (Continued)

<table>
<thead>
<tr>
<th>Interior Finish Materials(12)</th>
<th>Thickness of Material</th>
<th>Thermal Resistance (RSI), (m²·K)/W per mm</th>
<th>Thermal Resistance (RSI), (m²·K)/W for thickness listed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gypsum board</td>
<td>—</td>
<td>0.0061</td>
<td>—</td>
</tr>
<tr>
<td>Hardboard – medium-density (800 kg/m³)</td>
<td>—</td>
<td>0.0095</td>
<td>—</td>
</tr>
<tr>
<td>Interior finish (plank, tile) board</td>
<td>—</td>
<td>0.0198</td>
<td>—</td>
</tr>
<tr>
<td>Particleboard</td>
<td>—</td>
<td>0.0098</td>
<td>—</td>
</tr>
<tr>
<td>low-density (590 kg/m³)</td>
<td>—</td>
<td>0.0074</td>
<td>—</td>
</tr>
<tr>
<td>medium-density (800 kg/m³)</td>
<td>—</td>
<td>0.0059</td>
<td>—</td>
</tr>
<tr>
<td>high-density (1 000 kg/m³)</td>
<td>—</td>
<td>—</td>
<td>0.140</td>
</tr>
<tr>
<td>underlay</td>
<td>15.9 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plywood</td>
<td>—</td>
<td>0.00**</td>
<td></td>
</tr>
<tr>
<td>Flooring material</td>
<td>—</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carpet and fibrous pad</td>
<td>—</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carpet and rubber pad</td>
<td>—</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cork tile</td>
<td>3.2 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hardwood flooring</td>
<td>19 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Terrazzo</td>
<td>25 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tile (linoleum, vinyl, rubber)</td>
<td>—</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tile (ceramic)</td>
<td>9.5 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wood subfloor</td>
<td>19 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plastering</td>
<td>—</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cement plaster: sand aggregate</td>
<td>—</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>Gypsum plaster</td>
<td>—</td>
<td></td>
<td></td>
</tr>
<tr>
<td>low-density aggregate</td>
<td>—</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>sand aggregate</td>
<td>—</td>
<td>0.00</td>
<td></td>
</tr>
</tbody>
</table>

Notes to Table A-9.36.2.4.(1)D.:

1. The thermal resistance values given in Table A-9.36.2.4.(1)D. are generic values for the materials listed or minimum acceptable values taken from the standards listed. Values published by manufacturers for their proprietary materials may differ slightly but are permitted to be used, provided they were obtained in accordance with the test methods referenced in Article 9.36.2.2. For materials not listed in the Table or where the listed value does not reflect the thickness of the product, the thermal resistance value has to be calculated by dividing the material’s thickness, in m, by its conductivity, in W/(m·K), which can be found in the manufacturer’s literature.

2. RSI values can be interpolated for air cavity sizes that fall between 13 and 90 mm, and they can be moderately extrapolated for air cavities measuring more than 90 mm. However, air cavities measuring less than 15 mm cannot be included in the calculation of effective thermal resistance of the assembly.

3. Where strapping is installed, use the RSI value for an air layer of equivalent thickness.

4. Reflective insulation material may contribute a thermal property value depending on its location and installation within an assembly. Where a value is obtained through evaluation carried out in accordance with Clause 9.36.2.2.(4)(b), it may be included in the calculation of the thermal resistance or transmittance of the specific assembly.

5. Materials installed towards the exterior of a vented air space cannot be included in the calculation of effective thermal resistance of the assembly.

6. All types of cellular foam plastic insulation manufactured to be able to retain a blowing agent, other than air, for a period longer than 180 days shall be tested for long-term thermal resistance (LTTR) in accordance with CAN/ULC-S770, “Determination of Long-Term Thermal Resistance of Closed-Cell Thermal Insulating Foams.” This LTTR value shall be input as the design thermal resistance value for the purpose of energy calculations in Section 9.36. Product standards contain a baseline LTTR for a thickness of 50 mm, from which the LTTR for other thicknesses can be calculated.

7. An RSI 3.52 (R20) batt compressed into a 140 mm cavity has a thermal resistance value of 3.34 (R19). If installed uncompressed in a 152 mm cavity (e.g., in a metal stud assembly), it will retain its full thermal resistance value of 3.52 (m²·K)/W.

8. Expanded polystyrene insulation is not manufactured to be able to retain a blowing agent, and it is therefore not necessary to test its LTTR. See Note (6).

9. The thermal resistance values for wood species are based on a moisture content (MC) of 12%. In Canada, equilibrium moisture content for wood in buildings ranges from 6–14%. The difference between the thermal properties of wood species with 12% MC and those with 14% MC is negligible.

10. For wood species not listed in the Table, the RSI value of a wood species of equal or greater density (or specific gravity (relative density)) can be used since the thermal resistance of wood is directly related to its density (higher density wood has a lower thermal resistance).

Table A-9.36.2.4.(1)D. (Continued)

(1) 0.0085 is considered a common value for structural softwood (see also ASHRAE 2009, “ASHRAE Handbook – Fundamentals”).

(12) Materials installed towards the interior of a conditioned air space cannot be included in the calculation of effective thermal resistance of the assembly.
Use of 2x4 with 2x6 insulation

This challenge has a number of elements and may not be an issue above zone 7A.

i. Should it be acceptable to use insulation that is intended to be supported between 2x6 framing between 2x4 framing. The City is currently accepting this.

ii. The use of 2x6 values in the parallel flow portion of calculations in place of the actually proposed 2x4.

iii. The belief that the batt projecting beyond the framing would expand behind the framing to form a 1” layer of continuous batt.

This particular challenge seems to come up despite being addressed at an early stage.
Nominal vs effective Rsi calculations

Initially we had a large proportion of applications that didn’t take account of framing spacing properly, or even at all in some cases.

- Frame spacing now matters
- Frame percentage also plays a part
- 24”, 16” and 12” stud spacings will all have a different Rsi
- Code framing percentages are defined in the appendix
- Some software packages may not use code percentages

It is now important to know how the framing was being done in a particular design and communicate that to The City.
Details

Given the need to deal with effective Rsi calculations and to pay specific attention to airtight-ness, details are critical to properly communicating the design intent to The City, site staff and trades.

Calgary’s minimum requirement:

Provide the following architectural details indicating continuity of insulation and air barrier;

- Attic hatch, eaves/top of wall, upper floor rim joist, top of basement wall/main floor junction, slab/footing junction, Cantilever, Bonus room floor over attached garage including ducts, Typical outlet box detail, Typical window/door jamb.

And if applicable,

- Party wall meeting outside wall, Electric meter/vent pipe/duct in insulated wall, Skylight shaft walls, Slab edges in walkouts & heated slabs, Masonry Chimneys and Fireplaces.

We spent a large portion of our early education phase talking about these details, what they should show and what the potential challenges might be.
Detail - examples

These details are typical of the submissions we currently see.

- Pay attention to type of foam
- ½ lb works for air barrier but not vapor barrier.
- 2 lb is the norm for smaller areas like rim joists
- Bonus room floors/ceilings over garages are usually 1/2lb.
- Both types can usually not be combined.
Co-ordination

Coordination of drawings has been a topic across all compliance paths. Section 9.36 demands a greater level of detail:

- Drawings must match calculations
- Details should match drawings and calculations
- Recommend that builders standardize details and assemblies

The builders who have standardized are seeing no real delay to their applications.
HVAC & HRVs

The prescriptive path has not raised many issues regarding mechanical equipment:

Furnaces have been required to be 92 per cent efficient for around nine years already.

HRVs are not mandatory.

HRVs were quite common prior to Nov. 1, 2016.

An initial increase in HRVs has now slipped back a little.

Prescriptive values in zone 7A are not significantly above previous standard specification.
Electric storage water heaters

We have seen a significant jump in the use of these devices in Calgary.

Standby loss (SL) calculation causes confusion

Energy factor is the common measurement

This is also a problem in performance applications, as Hot 2000 uses EF not SL. More on this later.

An increase in the use of 75 gallon tanks with lower efficiencies.

<table>
<thead>
<tr>
<th>Component</th>
<th>Input</th>
<th>Standard</th>
<th>Performance Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Electric</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤ 12 kW (50 L to 270 L capacity)</td>
<td></td>
<td>CAN/CSA-C191</td>
<td>SL ≤ 35 + 0.20V (top inlet)</td>
</tr>
<tr>
<td>≤ 12 kW (&gt; 270 L and ≤ 454 L capacity)</td>
<td></td>
<td></td>
<td>SL ≤ 40 + 0.20V (bottom inlet)</td>
</tr>
<tr>
<td>&gt;12 kW (&gt; 75 L capacity)</td>
<td>ANSI Z21.10.3/CSA 4.3 and DOE 10 CFR, Part 431, Subpart G</td>
<td></td>
<td>SL ≤ (0.472V) - 38.5 (top inlet)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SL ≤ (0.472V) - 33.5 (bottom inlet)</td>
</tr>
<tr>
<td><strong>Heat pump water heaters</strong></td>
<td></td>
<td>CAN/CSA-C745</td>
<td>EF ≥ 2.0</td>
</tr>
<tr>
<td>≤ 24 A and ≤ 250 V</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Gas-fired</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 22 kW</td>
<td>CAN/CSA-P3</td>
<td></td>
<td>EF ≥ 0.67 – 0.0005V</td>
</tr>
<tr>
<td>≥ 22 kW</td>
<td>ANSI Z21.10.3/CSA 4.3</td>
<td></td>
<td>E ≥ 80% and standby loss ≤ rated input(V05(600 + 16.57 V))</td>
</tr>
<tr>
<td><strong>Oil-fired</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤ 30.5 kW</td>
<td>CAN/CSA-B211</td>
<td></td>
<td>EF ≥ 0.59 – 0.0005V</td>
</tr>
<tr>
<td>&gt; 30.5 kW</td>
<td>ANSI Z21.10.3/CSA 4.3 and DOE 10 CFR, Part 431, Subpart G</td>
<td></td>
<td>E ≥ 78% and standby loss ≤ rated input(V05 (600 + 16.57 V))</td>
</tr>
</tbody>
</table>

There’s an error in the tables for water tanks.

Ignore these brackets in the calculation.
Advanced framing

So far we have had one builder submit calculations indicating advanced framing.

Canadian Wood Council has referred us to the Engineered Wood Association guide to advanced framing for more detail.

Attached garages

Clause 9.36.2.1 states the following

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.

This is an Alberta-specific requirement:

Implies that only the walls and ceilings of an attached garage must meet the prescriptive requirements.

Significant increase over previous practice.

Possible that the garage may need to be insulated to a better standard than the house.

Appears to eliminate attached garages from the performance path.
Trade-off
Trade off challenges

Trade-off submissions thus far have been relatively challenge-free.

- Above grade only
- Walls for walls
- Windows for windows
- No mixing of walls and windows
- Must be identify different assembly types on the drawings
- Similar issues regarding framing percentages as the prescriptive path
This is the type of drawings that we see in trade-off submissions. As you can see, they clearly communicate the trade-off principle.
Performance path
Performance path

About 70 per cent of submissions received have used the performance path.

- Proper plans review is time consuming.
- Performance path allows for lower costs, so it is popular.
- Existing network of energy specialists that can provide models.
- Challenges between code models and Energuide models.
- Hot2000 only one of many acceptable software packages.
- No professional requirements for models per Part 9.
- Various areas where modelling rules and software methodology conflict.
Energy modeling theory vs reality

There is a belief on the regulatory side of the industry that the performance model will result in a significantly better house than the previous code requirements or even prescriptive path submissions. What it actually means is a technically code compliant house at lower cost. Hence the large percentage of applications we are seeing.

When compared to prescriptive submissions, a performance path house can result in a house that in many ways performs worse than a prescriptive house. Lower levels of insulation and looser installation of air barriers are two areas that we see.

In Calgary, most houses that are built using the performance path are roughly equal in specification to the houses being built in October. So while the 2014 requirements exceed the 2006 requirements, in Calgary most builders were already exceeding the 2006 standards.
Reference house

The reference house is to be modelled as a prescriptive house without an HRV. This means quite high Rsi values for the assemblies. In theory, this is a penalty. The following items counteract this:

• The reference house uses a minimum glazing percentage of 17 per cent (10-13 per cent is typical in Calgary).

• The SHGC for the reference model is set at a relatively conservative level.

• The reference house is modelled without orientation by equally distributing the 17 per cent glazing on all four cardinal directions. (9.36.5.14(5)). Another advantage.

These three items combined provide the performance path built-in advantages.
Proposed house

The proposed house has a number of things that it can take advantage of over the reference house.

- Orientation
- Area of windows and doors
- Thermal mass
- HRV
- Tankless water heaters
- Airtight-ness

In the proposed model, these items may reduce energy use. One or all of these things when used to your advantage would allow the reduction of insulation in the house and still be able to meet code.
Performance modelling

Hopefully this shows the level of detail that is involved in energy modelling. It is engineering without the need for a professional.

This creates some challenges:

- Staff training
- Time implications
- Additional recording for future additions/renovations
- Increased opportunities for error and omissions
Common issues with H2K reference models

The values on this page must be the same in both the reference and proposed models per (9.36.5.4(9))

- The orientation of the house often fails to match the site plan
- These number must be the same at 0.4 often the lower shows as 0.84 (the software default)
- These values must be as shown as this replicates the internal heat gain schedule in table 9.36.5.4
The windows in the reference model need to be equally distributed across all four elevations.

This means there should only be four windows in the reference model all the same size and all at prescriptive standard. (1.6 in Calgary - 1/1.6=0.625).

The doors should be aggregated and included in this calculation but often are not.

If the reference model has any other configuration of windows, it’s not correct.
**Reference model – Rsi values**

The Rsi values for the reference house are to be the same as a prescriptive house that does not have an HRV.

### BUILDING PARAMETERS SUMMARY

<table>
<thead>
<tr>
<th>Component</th>
<th>Area m² Gross</th>
<th>Area m² Net</th>
<th>Effective (RSI)</th>
<th>Heat Loss MJ</th>
<th>% Annual Heat Loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ceiling</td>
<td>117.21</td>
<td>117.21</td>
<td>10.43</td>
<td>4793.16</td>
<td>3.95</td>
</tr>
<tr>
<td>Main Walls</td>
<td>250.39</td>
<td>202.98</td>
<td>3.08</td>
<td>30421.32</td>
<td>25.09</td>
</tr>
<tr>
<td>Exposed floors</td>
<td>32.30</td>
<td>32.30</td>
<td>5.02</td>
<td>2922.28</td>
<td>2.41</td>
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<tr>
<td>South Windows</td>
<td>23.71</td>
<td>23.71</td>
<td>0.62</td>
<td>18951.64</td>
<td>15.63</td>
</tr>
<tr>
<td>East Windows</td>
<td>11.85</td>
<td>11.85</td>
<td>0.62</td>
<td>9475.82</td>
<td>7.82</td>
</tr>
<tr>
<td>West Windows</td>
<td>11.85</td>
<td>11.85</td>
<td>0.62</td>
<td>9475.82</td>
<td>7.82</td>
</tr>
<tr>
<td><strong>ZONE 1 Totals</strong></td>
<td><strong>76040.06</strong></td>
<td></td>
<td></td>
<td><strong>62.72</strong></td>
<td></td>
</tr>
</tbody>
</table>

### INTER-ZONE Heat Transfer: Floors Above Basement

<table>
<thead>
<tr>
<th></th>
<th>Area m² Gross</th>
<th>Area m² Net</th>
<th>Effective (RSI)</th>
<th>Heat Loss MJ</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>75.81</td>
<td>75.81</td>
<td>0.695</td>
<td>9628.70</td>
</tr>
</tbody>
</table>

### ZONE 2: Basement Component

<table>
<thead>
<tr>
<th>Component</th>
<th>Area m² Gross</th>
<th>Area m² Net</th>
<th>Effective (RSI)</th>
<th>Heat Loss MJ</th>
<th>% Annual Heat Loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walls above grade</td>
<td>18.31</td>
<td>18.31</td>
<td>-</td>
<td>3025.01</td>
<td>2.49</td>
</tr>
<tr>
<td>Basement floor header</td>
<td>10.19</td>
<td>10.19</td>
<td>3.08</td>
<td>1803.67</td>
<td>1.49</td>
</tr>
<tr>
<td>Below grade foundation</td>
<td>151.14</td>
<td>151.14</td>
<td>-</td>
<td>17112.70</td>
<td>14.11</td>
</tr>
<tr>
<td><strong>ZONE 2 Totals</strong></td>
<td><strong>21941.37</strong></td>
<td></td>
<td></td>
<td><strong>18.10</strong></td>
<td></td>
</tr>
</tbody>
</table>
Reference model – airtight-ness

AIR LEAKAGE AND MECHANICAL VENTILATION

Building Envelope Surface Area: 579.55 m²

Air Leakage Test Results at 50 Pa (0.2 in H₂O) = 2.50 ACH

Equivalent Leakage Area @ 10 Pa = 696.78 cm²

Terrain Description
- @ Weather: Open flat terrain, grass
- @ Station: Anemometer:
- @ Building Site: Suburban, forest
- Height of the highest ceiling: 6.3 m

Local Shielding:
- Walls: Heavy
- Flue: Light

Leakage Fractions:
- Ceiling: 0.200
- Walls: 0.650
- Floors: 0.150

Normalized Leakage Area @ 10 Pa: 1.2023 cm²/m²

Estimated Airflow to cause a 5 Pa Pressure Difference: 111 L/s

Estimated Airflow to cause a 10 Pa Pressure Difference: 174 L/s

Air tight-ness should be set at 2.5 for the reference house.
Reference model - HRV

The reference house must be modelled without an HRV so this section should be empty.

<table>
<thead>
<tr>
<th>CENTRAL VENTILATION SYSTEM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System Type:</strong></td>
</tr>
<tr>
<td><strong>Manufacturer:</strong></td>
</tr>
<tr>
<td><strong>Model Number:</strong></td>
</tr>
<tr>
<td><strong>Fan and Preheater Power at:</strong></td>
</tr>
<tr>
<td><strong>Fan and Preheater Power at:</strong></td>
</tr>
<tr>
<td><strong>Preheater Capacity:</strong></td>
</tr>
<tr>
<td><strong>Sensible Heat Recovery Efficiency at:</strong></td>
</tr>
<tr>
<td><strong>Sensible Heat Recovery Efficiency at:</strong></td>
</tr>
<tr>
<td><strong>Total Heat Recovery Efficiency in Cooling Mode:</strong></td>
</tr>
<tr>
<td><strong>Low Temperature Ventilation Reduction:</strong></td>
</tr>
<tr>
<td><strong>Low Temperature Ventilation Reduction: Airflow Adjustment</strong></td>
</tr>
</tbody>
</table>

Vented combustion appliance depressurization limit: 5.00 Pa.

### Ventilation Supply Duct

| Location: | Main floor |
| Length: | 4.9 m |
| Insulation: | 4.0 RSI |

| Type: | Flexible |
| Diameter: | 6.0 mm |
| Sealing Characteristics: | Sealed |

### Ventilation Exhaust Duct

| Location: | Main floor |
| Length: | 4.9 m |
| Insulation: | 4.0 RSI |

| Type: | Flexible |
| Diameter: | 6.0 mm |
| Sealing Characteristics: | Sealed |
Heating systems are rarely an issue in the reference model. Water heating is largely the same but there are two points to watch on water heating.

Gas and oil-fired tankless heaters are permitted by 9.36.5.16 to be modelled in the reference house as a regular tank versions.

Hot2000 deals in energy factors, and electric tanks are measured in standby loss. This requires two equations in order to arrive at the correct energy factor.
The table to the right gives the equation to calculate the reference house standby loss while the equation below allows you to convert the standby loss to energy factor.

To approximate EF from $E_t$, SL and $P_{WH}$, 

$$EF = \frac{43.3}{E_t} + SL \left( 0.0864 - \frac{43.3}{E_t P_{WH}} \right)$$

where

EF = Energy Factor

$E_t$ = Thermal Efficiency (as a fraction, not %)

SL = Standby loss (W)

$P_{WH}$ = Water heater input power (W).

When using the above equations to determine the EF of an electric storage hot-water heater assume an $E_t$ of 0.98. If determining the EF of a tankless hot-water heater, assume an SL of 0 W.
The actual energy use number in both the reference and proposed models is the sum of the highlighted values. Lights and appliances are excluded for code purposes. This is a common issue a lot of modellers don’t know where to pull the actual target energy use or calculated energy use number from.

<table>
<thead>
<tr>
<th>Month</th>
<th>Space Heating</th>
<th>DHW Heating</th>
<th>Lights &amp; Appliances</th>
<th>HRV &amp; FANS</th>
<th>Air Conditioner</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Primary</td>
<td>Secondary</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jan</td>
<td>14358.4</td>
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<td>2289.3</td>
<td>2268.2</td>
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<td>Ann</td>
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<td>27845.4</td>
<td>27596.7</td>
<td>1579.1</td>
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</table>
Comparing reference and proposed models

While it is necessary to make sure certain items are consistent between both models its usually not necessary to compare reference to proposed. It’s more useful to compare the reference model to the code and the proposed model to the drawings.

• The reference model is a notional model that represents a baseline for comparison. It’s usually relatively easy to verify the reference model was built correctly.

• The proposed model while having to follow the rules of 9.36.5 does not have to meet any minimum standard for assemblies or systems.

• Provided the model is built correctly and energy use is equal to or less than the reference model compliance has been established.

• The means of compliance must now be reflected on the drawings.
Proposed model - windows

Windows in the proposed model can be done either of two ways.

Note the variation in the numbers. This is acceptable provided the drawings reflect the value for each specific window.

The software allows manual input of window U-values as demonstrated by the reference house; this is a preferable and more accurate method.

<table>
<thead>
<tr>
<th>Label</th>
<th>Type</th>
<th>#</th>
<th>Window Width (m)</th>
<th>Window Height (m)</th>
<th>Total Area (m²)</th>
<th>Window RSI</th>
<th>SHGC</th>
<th>ER*</th>
</tr>
</thead>
<tbody>
<tr>
<td>South</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>02-Window1-I14</td>
<td>CG-P3EAv-1-coat</td>
<td>1</td>
<td>1.50</td>
<td>0.80</td>
<td>0.90</td>
<td>0.636</td>
<td>0.3901</td>
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<td>03-NkPatioDr-I5</td>
<td>CG-PatioDr-2EA</td>
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<td>2.08</td>
<td>2.24</td>
<td>4.66</td>
<td>0.657</td>
<td>0.4033</td>
<td>24.0</td>
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<tr>
<td>07- Bonus Side</td>
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<td>1.00</td>
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<td>01-02-Bonus Rm</td>
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<td>1.44</td>
<td>0.721</td>
<td>0.4030</td>
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<tr>
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<td>0.617</td>
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<td>0.37</td>
<td>0.610</td>
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<td>1</td>
<td>1.20</td>
<td>1.20</td>
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<td>0.721</td>
<td>0.4030</td>
<td>30.9</td>
</tr>
</tbody>
</table>
The Rsi values from the proposed model must match the assemblies in the drawings.

Issues arise here depending on whether the values are manually input or software calculated.

Manually input values should correspond to each assembly on the drawings.

Look out for tall, zero lot or walkout walls.

Hot2000 makes assumptions about framing percentages that are significantly below the appendix tables.
Field inspections
The following slides highlight examples of installations which do not fully meet the requirements of Section 9.36.2.10.

This applies to applications using prescriptive and trade off path in all cases and performance path when the chosen air tightness standard is 2.5ACH. It will not apply to performance path applications where the air tightness is chosen to be 3.2 ACH or any value less than 2.5 ACH.
The insulation cannot be compressed to accommodate the pipe, the full Rsi value of the wall must be maintained.

- Structural support required to the poly joints (9.36.2.10(5c))
- Red tuck tape not acceptable (9.36.2.10(2a))
The air and vapour barriers are to be sealed to the window frame.

The joint between the window and the wall is to be insulated to the same standard as the window (U1.6).

Low expansion spray foam or backer rod and sealant would be acceptable.

9.7.6.1(3) & 9.36.2.10(9)
The rim joist is required to be insulated to the same value as the wall.

All joints in ducts to be sealed.

9.32.3.11(8)

9.36.2.5(1)
In order to maintain continuity of insulation, the full value of the wall is required to be met at the face of the frost wall.

Spray foam is an adequate air barrier, provided an adequate thickness is maintained.

9.36.2.5(8)
All joints in the air barrier are to be lapped, sealed and structurally supported.

Red sheathing tape is not compatible with poly.
Red tuck tape is not an approved product for sealing polyethylene air or vapour barriers.

All sealing materials, including tape, must be compatible with the materials they are being used with.

Note the CCMC report number on the packaging and the tape itself.
Red sheathing tape is not compatible with poly

Structural support is required

Seal penetration of poly hat
Structural support will be required behind the joint in the poly

9.36.2.10(5)
Full insulation value is required behind services in wall

Structural support will be required behind the poly joint above and below the panel

9.36.2.5(1)
The Rsi value of the wall cannot be reduced at the duct, pipe wrap is not an acceptable solution

9.36.2.5(1)

Either use a duct insulation at the same Rsi of the wall or use a high performance insulation behind the duct e.g. rigid insulation board
Heat recovery ventilators

In order to take advantage of the Rsi reduction permitted for a heat recovery ventilator, the installed equipment must meet the code requirement for efficiency.

Most equipment is fitted with rating plates outlining the key data for the equipment. This example is from an active HRV.

9.36.3.9(3)
National Energy Code for Buildings in Canada (NECB)
There are a number of situations where NECB may apply in place of 9.36.

- House exceeds 600 m² floor building area.
- House containing mechanical systems not listed in the prescriptive tables.
- A house that contains a business occupancy over 300 m² in aggregate floor area.
- A house more than three storeys.

These are likely to be rare but worth watching out for.
NECB follows the same principles as 9.36, however, there are some differences.

- Different scope to 9.36, no renovations included.
- Lighting and electrical distribution are included.
- Prescriptive and trade off paths apply separately to each system.
- Trade off rules for envelope different to 9.36.
- Simple trade off for envelope not permitted in additions.
- U-Values in place of Rsi values.
Part 3 buildings are more complex than typical residential buildings and this has an impact on NECB applications

Part 3 Envelope – this is often simpler than 9.36

Part 4 Lighting – prescriptive is simple, trade off is very complex

Part 5 HVAC – Like lighting

Part 6 Service Hot Water – very similar to 9.36

Part 7 Electrical Distribution – very small part

Part 8 Performance modelling – like 9.36.5, this has no technical requirements, only modelling rules.

Given that there will be professional involvement in most NECB files, the level of review required will be for The City to decide.
Conclusion
Conclusion

9.36 and NECB combined are one of the biggest technical changes to the code system in many years.

Together they can result in significant changes to construction in Alberta.

Their effect may be overtaken by other motivators, such as the carbon levy.

There is discussion in certain parts of the province about mandatory energy labelling.

Resources required to do 9.36 and NECB properly may not be fully understood or available.

Should move the code emphasis away from purely life safety toward building quality.

Should feed into a discussion about both SCO education and the training/licensing of builders and designers.
Future direction

Increasing performance requirements in upcoming code cycles.

Movement toward construction methods other than wood framing and batt insulation.

Tighter houses leading to issues of condensation and mould.

Greater awareness of the public about the quality of their homes.

Energy labelling of homes.
QUESTIONS/DISCUSSION
Alberta Municipal Affairs
Spring Electrical Regional Meeting 2017
1. Chief Electrical Inspector – Clarence Cormier, Community and Technical Support (Edmonton)

2. Electrical Technical Advisor – Bob Hall, Community and Technical Support (Edmonton)

3. Senior Electrical Inspector – Kevin Glubrecht, Community and Technical Support (Red Deer)

4. Electrical Inspector – Cameron Doram, Community and Technical Support (Red Deer)

5. Electrical Inspector – David Phillips, Community and Technical Support (Edmonton)

6. Electrical Inspector – Gregg Marshall, Community and Technical Support (Calgary)

7. Electrical Inspector – Steve Eagles, Partnership Support (Red Deer)
Staying Current in the Electrical Loop

[Diagram of a simple electrical circuit with a 1.5 V battery and a light bulb]
How to Stay Current in the Electrical Industry

- IAEI - International Association of Electrical Inspectors
  http://www.iaei.org/

- EIAA - Electrical Inspectors Association Alberta
  https://www.eiaa.ca/

- Solar Energy Society of Alberta
  http://www.solaralberta.ca/

- ECAA - Electrical Contractors Association
  http://www.ecaa.ab.ca/

- Contact City / town inspections and permitting department – local Authority Having Jurisdiction (AHJ)
  http://www.municipalaffairs.alberta.ca/permits
How to Stay Current in the Electrical Industry Cont.

• Alberta Municipal Affairs  
  http://www.municipalaffairs.alberta.ca/  
  Call Center: 1.866.421.6929  
  Email safety.services@gov.ab.ca

• Safety Codes Council  http://www.safetycodes.ab.ca/
EIAA MISSION STATEMENT

- The Electrical Inspectors Association of Alberta will promote the uniform understanding and application of the Rules and Regulations adopted under the Safety Codes Act. This shall be done without bias and with fairness. We will assist in the formulation of standards, technical, professional knowledge and procedures upon well-grounded information, in achieving safe electrical installations, in the interest of safety, to life and property.

- How to get involved: [https://www.eiaa.ca/](https://www.eiaa.ca/)
Safety Codes Act

Responsibilities
The Safety Codes Act established a unifying administration to ten safety disciplines with each have their own safety codes to keep the public safe in the places they live, work and play.

For more information on a particular discipline, click one of the links below:

- Building
- Fire
- Electrical
- Gas (Natural and Propane)
- Plumbing
- Private Sewage
- Boilers and Pressure Vessels
- Elevators
- Amusement Rides
- Passenger Ropeways
Safety Codes Act Cont.

Province of Alberta

SAFETY CODES ACT

Part 1
Responsibilities

Owners, care and control

5 The owner of any thing, process or activity to which this Act applies shall ensure that it meets the requirements of this Act, that the thing is maintained as required by the regulations and that when the process or activity is undertaken it is done in a safe manner.

1991 cS-0.5 s5

Design duties

6 A person who creates, alters, has care and control of or owns a design or offers a design for use by others shall ensure that the design complies with this Act and that it is submitted for review or registered if required by this Act, and if the design is deregistered, the person shall provide notice of its deregistration in accordance with the regulations.

1991 cS-0.5 s6
Manufacturers’ duties
7 A person who manufactures any thing or undertakes a process or activity to which this Act applies shall ensure that the thing, the process or the activity complies with this Act.

1991 cS-0.5 s7

Contractors’ duties
8 A contractor who undertakes construction, operation or maintenance of or builds or installs any thing to which this Act applies shall ensure that this Act is complied with.

1991 cS-0.5 s8

Vendors’ duties
9(1) A person who is a vendor in the ordinary course of business, other than as an employee or an agent, shall not advertise, display or offer for sale, for lease or for other disposal, or sell, lease or otherwise dispose of, any thing to which this Act applies unless that thing complies with this Act.

(2) A person who sells, leases or otherwise disposes of a thing referred to in subsection (1) shall provide any warnings or instructions required by this Act.

(3) No person shall advertise, display or offer for sale, for lease or for other disposal, or sell, lease or otherwise dispose of, any thing that is prohibited from being sold by the regulations.

1991 cS-0.5 s9
Electrical Code

New Electrical Codes Already In Force Under the Regulation
Electrical Code Regulation

SAFETY CODES ACT

ELECTRICAL CODE REGULATION

Alberta Regulation 209/2006
With amendments up to and including Alberta Regulation 126/2015

Office Consolidation

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Alberta Queen’s Printer
7th Floor, Park Plaza
1001 106 Avenue
Edmonton, AB T5E 2T7
Phone: 780-427-6940
Fax: 780-427-6941
Email: qpl@qpl.ab.ca
Shop on-line at www.qpl.alberta.ca
Electrical Code

Go back, we're not ready for change.
ELECTRICAL CODE REGULATION

This notice is intended for all Albertans who may have cause to use the Electrical Code Regulation.

Codes in Force under the Regulation
The Electrical Code Regulation was recently amended by Alberta Regulation 128/2015. Changes will take effect January 1, 2016, at which time the following codes will be in force:

- **CSA C22.1-15 – Canadian Electrical Code, Part 1** – This code provides the minimum safety standards for the installation and maintenance of electrical equipment.
- **Code for Electrical Installations at Oil and Gas Facilities – 5th Edition, 2015** – This code applies to electrical installations used in the search, transmission or production of oil, natural gas and related hydrocarbons, and it provides area classification guidelines.

Information on Purchasing the Codes
The Canadian Electrical Code may be purchased directly from the Canadian Standards Association at [www.shop.csa.ca](http://www.shop.csa.ca), or from applicable electrical wholesalers and post-secondary institutions.

The Code for Electrical Installations at Oil and Gas Facilities and the Alberta Electrical Utility Code will be available for purchase from the Alberta Queen’s Printer at [www.qp.alberta.ca](http://www.qp.alberta.ca).

The Electrical Code Regulation 209/2006, with amendments up to and including Alberta Regulation 126/2015, will be available for purchase or download from the Alberta Queen’s Printer at [www.qp.alberta.ca](http://www.qp.alberta.ca).

October 16, 2015

For more information, please call 1-800-421-6929, or visit [www.manufacturers.alberta.ca](http://www.manufacturers.alberta.ca).

New Electrical Code

• Codes can be ordered online from CSA at:
  http://shop.csa.ca/
New Electrical Code

• The Alberta Electric Utility Code is published and it was announced September 1, 2016. A copy can be purchased from the Alberta Queens Printer.

• The date the code will come into effect according to section 65 in the Safety Codes Act and the new automatic adoption policy will be May 1, 2017. The 2015 overhead and underground standards will also apply as they are referenced in the 5th edition of the AEUC.
STANDATA’S

What is a STANDATA?

• Electrical STANDATA, developed jointly by Alberta Municipal Affairs and the Safety Codes Council. These information bulletins contain interpretations, clarifications, recommended practices or province-wide variances on Codes and Standards matters related to the Safety Codes Act.

• STANDATA is a living document that is constantly changing. It is recommended to subscribe.
How do you receive STANDATA’s?

• To receive STANDATA notifications, please go to: 
  http://municipalaffairs.alberta.ca/am_list_subscription_services.cfm and complete the posted subscription form.

• Once the form is submitted you will be automatically notified when new STANDATA or other related information is posted on the Safety Services site.

• Links to currently posted STANDATAAs can be viewed at: 
  http://www.municipalaffairs.alberta.ca/cp_index.cfm
How to Subscribe for an Electrical STANDATA:

- Go to the website: http://www.municipalaffairs.alberta.ca/1840
STANDATA’S Cont.

- Select the discipline you are wanting to subscribe to http://www.municipalaffairs.alberta.ca/cp_gas
STANDATA’S Cont.

- Fill out the required information
- Click subscribe when completed

http://www.municipalaffairs.alberta.ca/am_list_subscription_services
Questions
2017 Submissions
Electrical Equipment manufactured or built in Alberta

Question

• Is a permit required to build the product in Alberta if the product is to be sold outside Alberta?

STANDATA/Electrical Code Regulation

– Section 2 - Electrical Systems Equipment

• (2) No person shall manufacture, install, sell or offer for sale any equipment related to electrical systems for use in Alberta unless the equipment has been
  – (a) certified by a certification body in accordance with the certification body’s terms of accreditation with Standards Council of Canada, or
  – (b) inspected by an inspection body in accordance with the inspection body’s terms of accreditation with Standards Council of Canada
Electrical Equipment manufactured or built in Alberta Cont.

PERMIT REGULATION

• Exemptions
  – 2 This Regulation does not apply to the following:
    a) an accredited corporation operating within the scope of its terms of accreditation;
    b) equipment and materials regulated under the Elevating Devices, Passenger Ropeways and Amusement Rides Permit Regulation (AR 28/2012);
    c) equipment, materials and systems regulated under the Pressure Equipment Safety Regulation (AR 49/2006). AR 204/2007 s2;17/2015

• Permit required
  – 3 (1) Subject to subsection (2), a person shall not start any undertaking for which a permit is required under this Regulation unless a permit has been issued.
Electrical Equipment manufactured or built in Alberta Cont.

Answer

• An SCO could ask the person(s) manufacturing the product for a proof of sale. This would indicate and prove the product is intended to be sold/used outside of Alberta.

• If a receipt can not be produced, then all applicable codes and standards in Alberta would have to be followed. It is the responsibility of the contractor, or accredited corporation to provide this information upon request. It is also advised these parties and local AHJ have a working relationship. This working relationship will aid in ensuring there is no confusion with this process.

• For further information on this item contact Alberta Municipal Affairs at 1-866-421-6929 or email safety.services@gov.ab.ca and ask to speak to our partnership expert David Ramsay.
Bathroom Luminaires

Question

• Are hanging luminaires permitted to be installed over a bathtub? What code rule allows or doesn’t allow this installation?

Code rule:

Section 0 Definitions

– **Damp location** — an exterior or interior location that is normally or periodically subject to condensation of moisture in, on, or adjacent to electrical equipment and includes partially protected locations under canopies, marquees, roofed open porches, and similar locations.

– **Wet location** — a location in which liquids may drip, splash, or flow on or against electrical equipment.

30-318 Luminaires in damp or wet locations

1) Luminaires installed in damp or wet locations shall be approved for such locations and be so marked.

2) Luminaires suitable for use in wet locations shall be permitted to be used in damp locations as well.
30-606 Lampholders in wet or damp locations

1) Where lampholders are installed in wet or damp locations, they shall be of the weatherproof type.

**Building Code (reference only, please consult with a Building Duty Officer for further information)**

– The following is for protection of the walls around the bathtub and may help in determining “wet location”

9.29.2. Waterproof Wall Finish

• 9.29.2.1. Where Required
  
  1) Waterproof finish shall be provided to a height of not less than
     a) 1.8 m above the floor in shower stalls,
     b) 1.2 m above the rims of bathtubs equipped with showers, and
     c) 400 mm above the rim of bathtubs not equipped with showers
Answer

• The fixture shall be approved for location and if installed in wet or damp locations, they shall be of the weatherproof type as per 30-606 and other rules such as GFCI protection may apply
Question

• Is a NuTek outlet box considered a Rigid a PVC outlet box?

Code Rules

30-302 Supports

4) Where the weight of a luminaire does not exceed 23 kg, the luminaire shall be permitted to be supported by a ceiling outlet box attached directly to the building structure or by a ceiling outlet box attached to a bar hanger.

6) Rigid PVC boxes shall not be used for the support of luminaires unless they are marked as being suitable for the purpose.
Certificate of Compliance

Certificate: 1390394 (LR.5043-2005)  
Project: 70015879  
Issued to: Thomas & Berre Limited  
700 Thomas Ave  
St.-Jean-sur-Richelieu, QC J2X 2M9  
Canada  
Attention: P. Pierre Aubin  

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators ‘C’ and ‘US’ for Canada and US or with adjacent indicator ‘US’ for US only or without either indicator for Canada only.

Products  
Class 4411 CUS - OUTLET BOXES AND FITTINGS - Boxes  

Non-metallic outlet boxes with integral clamps:  
Cat Nos. WCT-N, WSW, WSWN, FWOW for use with non-metallic sheathed cables Nos 14/2, 14/3, 12/2, 12/3, 10/2, 10/3 AWG.  
Cat Nos. WCT-F, WCT-W for use with non-metallic sheathed cables Nos 14/2, 14/3, 12/2, 12/3 AWG.  
Cat Nos. WRD-W, WRD-F for use with non-metallic sheathed cable Nos 10/3, 8/3 AWG.  
Cat Nos. WSWBX, FWOWBX for use with armored cables Nos 14/2, 14/3, 12/2, 12/3 AWG.  
Cat Nos. 4-WSW, 4-FSWW for use with non-metallic sheathed cables Nos 14/2, 14/3, 12/2, 12/3 AWG.

Issued by: Michael Chung
NuTek outlet box Cont.

CLASS 4411 B1 - OUTLET BOXES AND FITTINGS - Boxes - Certified to US Standards

Non-metallic outlet boxes with integral clamps:

Cat Nos: WCOT-N, WSW, WSWN, FWSW for use with non-metallic shielded cables Nos 14/2, 14/3, 12/2, 12/3, 10/2, 10/3 AWG.

Cat Nos: WCOT, F-WCOT, 2-WSW, 2-FWSW, 3-WSW, 3-FWSW for use with non-metallic shielded cables Nos 14/2, 14/3, 12/2, 12/3 AWG.

Cat Nos: W-PRD, F-PRD for use with non-metallic shielded cables Nos 10/2, 12/3 AWG.

Cat Nos: WSW/EX, FWSW/EX for use with armored cables Nos 14/2, 14/3, 12/2, 12/3 AWG.

APPLICABLE REQUIREMENTS

CSA Std. C22.2 No 18.2 - Non-metallic Outlet Boxes

UL Std. 514C - Non-metallic Outlet Boxes, Flush Device Boxes and Covers.
Answer

• NuTek outlet boxes are not considered Rigid PVC as per manufacturer’s specifications. They are classified as non-metallic outlet boxes as per CSA certificate of compliance. Therefore 30-302(6) does not apply to NuTek brand non-metallic outlet box;

• 30-302(4) might be useful to installers and is provided as a courtesy.
In-situ Modification

Question(s)
• What are the requirements when converting fluorescent fixtures to LED fixtures?
• Are Permits required?
• Are the fixtures required to be re-certified?

• STANDATA
  • Retrofitting Luminaires for Energy Conservation or Similar Programs
    – As indicated above, repairs or alterations to certified equipment, if not done properly, may void certification.

  – REMOVED FOR MODIFICATION When all luminaires are removed from the ceiling and modified either on site or at a remote location, these locations can be termed a 'defined factory location'.
IN-SITU MODIFICATION It may be more practicable to modify the luminaires without removing them from the ceiling.

A suitable label showing the following information is to be placed on each luminaire:

- Identification of the party responsible for the modifications
- New Electrical Ratings
- New Bulb Type and Size (if applicable)
- Date Code
- Reference to the Certification Body’s File Number
In-situ Modification Cont.

• Permit Regulation
  ❖ Electrical Discipline
    Electrical permit
    • 8 (1) A permit in the electrical discipline is required to install, alter or add to an electrical system.
    • (2) Despite subsection (1), a permit is not required for the following:
      » (e) the replacement of electrical equipment with units of a similar type if the replacement is made for the purpose of maintaining the system and does not modify the ratings or characteristics of the electrical installation.

• It is important to note the permit issuer can set additional requirements as explained in Part 2 - 22 of the Permit Regulation. For this reason you must always consult with the local AHJ.
In-situ Modification Cont.

Answer

• Converting a luminaire from fluorescent to LED is known as in-situ modification. Contractors should always contact the local AHJ before performing or quoting jobs to find out additional requirements that are specific to each area. In addition to the job requiring a permit, the fixtures may be required to be recertified and this is determined by the C.B
  – Example 1: Replacing existing fluorescent tubes with LED tubes that utilize the existing ballast, no re-wiring. Contact your local AHJ, as permitting requirements vary from municipality to municipality. Fixture certification is a different matter handled by C.B’s/I.B’s.
    • In the above scenario it is Municipal Affairs opinion the fixture would not require re-certification or permits.

  – Example 2: Removing the ballast and connecting the tombstone directly to line voltage. Contact your local AHJ, as permitting requirements vary from municipality to municipality. Fixture certification is a different matter handled by C.B’s/I.B’s.
    • In the above scenario it is Municipal Affairs opinion the fixture would require re-certification and permits.
In-situ Modification Cont.

Example 3: Using an approved kit to modify the fluorescent to use LED lamps. Contact your local AHJ, as permitting requirements vary from municipality to municipality. Fixture certification is a different matter handled by C.B’s/I.B’s.

- In the above scenario it is Municipal Affairs opinion the fixture would require permits, however because an approved kit was used and compatible with the existing fixture re-certification most likely not required.

The above examples are Municipal Affairs opinions only. In all cases of in-situ modification contact your local AHJ, C.B, and I.B/s to ensure all requirements are met.
These slides are to get you thinking of the near future if the federal government goes ahead with Marijuana Legalization.

Question

• What electrical requirements will be required in the facilities?
• Zoning?

Recommendation

• Currently we have NEC for reference. Based on the Class I Division I location, all equipment in the extraction room must be rated for use in Class I Division I locations. Depending on the type of exhaust system provided, this could be the entire room or the area inside of a hood or booth.
Cannabis Extraction Facilities Cont.

- Comments
- Questions
- Thoughts
- Concerns
Question

- Does the CE Code permit the typical wired wall switch be eliminated and replaced with a wireless switch?

Wireless Switches
Wireless Switches Cont.

**Code Rules**

- **30-500 Lighting equipment at entrances (see Appendix G)**
  - An exterior luminaire controlled by a **wall switch** located within the building shall be provided at every entrance to buildings of residential occupancy.

- **30-502 Luminaires in dwelling units (see Appendix G)**
  - (1) Except as provided in Subrule (2), a luminaire controlled by a **wall switch** shall be provided in kitchens, bedrooms, living rooms, utility rooms, laundry rooms, dining rooms, bathrooms, water closet rooms, vestibules, and hallways in dwelling units.
  - (2) Where a receptacle controlled by a **wall switch** is provided in bedrooms or living rooms, such rooms shall not be required to conform to the requirements in Subrule (1).
• 30-504 Stairways (see Appendix G)
  – (1) Every stairway shall be lighted.
  – (2) Except as provided for in Subrule (3), three-way wall switches located at
        the head and foot of every stairway shall be provided to control at least one
        luminaire for stairways with four or more risers in dwelling units.
  – (3) The stairway lighting for basements that do not contain finished space nor
        lead to an outside entrance or built-in garage, and that serve not more than one
        dwelling unit, shall be permitted to be controlled by a single switch located at the
        head of the stairs.

• 30-506 Basements (see Appendix G)
  – (1) A luminaire shall be provided for each 30 m² or fraction thereof of floor area
       in unfinished basements.
  – (2) The luminaire required in Subrule (1) that is located nearest the stairs shall
       be controlled by a wall switch located at the head of the stairs.
Wireless Switches Cont.

- **30-510 Garages and carports (see Appendix G)**
  - (1) A luminaire shall be provided for an attached, built-in, or detached garage or carport.
  - (2) Except as provided in Subrule (3), luminaires required in Subrule (1) shall be controlled by a **wall switch** near the doorway.
  - (3) Where the luminaire required in Subrule (1) is ceiling-mounted above an area not normally occupied by a parked car, or is wall-mounted, a luminaire with a built-in switch accessible to an adult of average height shall be permitted to be used.
  - (4) Where a carport is lighted by a luminaire at the entrance to a dwelling unit, additional carport lighting shall not be required.
Answer - This item was reviewed by the ESC (Electrical Sub Council) for their input.

- Municipal Affairs opinion is that although these devices are approved equipment, they do not meet the intent of Rules 30-500 – 30-510 as a minimum prescriptive requirement.
  - These devices could be use in addition to the requirements of Rules 30-500 – 30-510, however, not as a replacement.

- Wireless “switches” are transmitters. These “switches” (transmitters) are also re-locatable, therefore the CE Code requirement of where switches are to be located cannot be considered enforceable. Therefor they do not meet the minimum requirements as stated in the code.

- It was decided at this time that a STANDATA will not be issued. Persons not agreeing with Municipal Affairs opinion’s are advised to go directly to Part one with a submission.
Question

• Is there a regulatory expectation of how ampacities of 5KV + Shield Cables will be determined?

Code Rules

• **4-004 Ampacity of wires and cables**
  
  – (1) The maximum current that a **copper** conductor of a given size and insulation is permitted to carry shall be as follows:
    
    • (g) shielded cables rated 5 kV to 46 kV in sizes No. 2 AWG to 1000 kcmil, as specified in Tables D17A to D17N for the configurations described therein and the conditions described in Table D17, or as calculated by the IEEE 835 calculation method.
  
  – (2) The maximum current that an **aluminum** conductor of a given size and insulation is permitted to carry shall be as follows:
    
    • (g) shielded cables rated 5 kV to 46 kV in sizes No. 2 AWG to 1000 kcmil, as specified in Tables D17A to D17N for the configurations described therein and the conditions described in Table D17, or as calculated by the IEEE 835 calculation method.
Answer

- IEEE 835 could be used, a computer program exists that uses this standard. Variables are entered including; elevation, temperature and other criteria from the tables. Information is entered and a number is generated regarding the required ampacity.

- Table D17A to D17N could be used if all conditions of use for the tables are met.

- Both could be accepted. It is worthy to note on pg 575 in the CE Code and in most locations, elevations in Alberta are above the 300 m requirement as stated in Table D17 which states the conditions of use for Tables D17A to D17N.
EMT Luminaire Support

Question
• Can EMT be used as a luminaire support?

Code Rules
• CE Code 2015
  – 12-3012 Boxes, cabinets, and fitting supports
    1) Boxes, cabinets, and fittings shall be fastened securely in place.
    2) Boxes and fittings having a volume of less than 1640 mL shall be permitted to be attached to a firmly secured exposed raceway by threading or other equally substantial means.
12-1110 Support of luminaires

- Rigid PVC boxes shall not be used for the support of luminaires unless they are marked as being suitable for the purpose.

30-302 Supports

1) Every luminaire shall be securely supported.
2) Where a luminaire weighs more than 2.7 kg or exceeds 400 mm in any dimension, it shall not be supported by the screwshell of the lampholder.
3) Where the weight of a luminaire does not exceed 13 kg, the luminaire shall be permitted to be supported by a wall outlet box attached directly to the building structure or by a wall outlet box attached to a bar hanger.
4) Where the weight of a luminaire does not exceed 23 kg, the luminaire shall be permitted to be supported by a ceiling outlet box attached directly to the building structure or by a ceiling outlet box attached to a bar hanger.
5) Where the weight of a luminaire prohibits the installation methods specified in Subrule (3) or (4), the luminaire shall be supported
   a) independently of the outlet box; or
   b) by a fixture hanger provided with an integral outlet box suitable for the purpose.

6) Rigid PVC boxes shall not be used for the support of luminaires unless they are marked as being suitable for the purpose.
EMT Luminaire Support Cont.

Answer

• 2-024, 30-302(5)(b) state equipment is to be used for its specific purpose. If the contractor can prove by showing an ESCO the manufacturers specifications and prove the connector / coupling / EMT can support the weight of the fixture being installed, the installation could be accepted. If this information cannot be supplied, the installation should not be accepted.

• Threaded equipment exists; therefore threaded pipe is one method that could be used to suspend a fixture.

• It is worthy of note and in such cases, the responsibility should be put on the installer to demonstrate the equipment is suitable for the purpose. The code is written in the permissive, while some rules tell us what not to do, generally the code outlines what is acceptable, not what is unacceptable.
EMT Luminaire Support Cont.

- Could be Acceptable
EMT Luminaire Support Cont.

- Not Acceptable

12-3004 Terminal fittings
(3) The fittings shall not be used at outlets for luminaires.
EMT Luminaire Support Cont.

- May not be Acceptable
Residential Receptacles

Question

• Is an outdoor receptacle located on a 3rd story balcony required to be on a dedicated branch circuit?

Code Rule

• **Canadian Oxford Dictionary**
  – *Porch* — a covered shelter projecting in front of the entrance of a building.
  – *Balcony* — a platform enclosed by a wall or balustrade on the outside of a building, with access from an upper-floor window or door

• **CE Code 2015**

  *Definitions*
  – *Dwelling unit* — one or more rooms for the use of one or more persons as a housekeeping unit with cooking, eating, living, and sleeping facilities.
  – *Single dwelling* — a dwelling unit consisting of a detached house, one unit of row housing, or one unit of a semi-detached, duplex, triplex, or quadruplex house.
Residential Receptacles Cont.

- **Receptacles**

  **26-712 Receptacles for dwelling units**
  
  - This Rule applies to receptacles for dwelling units (including single dwellings) as follows:
    
    - (a) except as otherwise provided for in this Code, in dwelling units duplex receptacles shall be installed in the finished walls of every room or area, other than bathrooms, hallways, laundry rooms, water closet rooms, utility rooms, or closets, so that no point along the floor line of any usable wall space is more than 1.8 m horizontally from a receptacle in that or an adjoining space, such distance being measured along the floor line of the wall spaces involved;
    
    - (b) at least one duplex receptacle shall be provided in each area, such as a balcony or porch, that is not classified as a finished room or area in accordance with Item (a)

  **26-714 Receptacles for single dwellings**
  
  - This Rule applies to receptacles for single dwellings only as follows:
    
    - (a) for each single dwelling, at least one duplex receptacle shall be installed outdoors so as to be readily accessible from ground or grade level for the use of appliances that need to be used outdoors;
26-726 Branch circuits for single dwellings
- This Rule applies to branch circuits for single dwellings only as follows:
  • (a) outdoor receptacles readily accessible from ground level and installed in accordance with Rule 26-714(a) shall be supplied from at least one branch circuit dedicated for those outdoor receptacles

Answer
- The balcony receptacle could be on with a general house circuit due to being inaccessible from ground level.

- **Example:** If you have a deck 3 feet off the ground, and the deck railing is built in such a way you could reach through the railing to access the receptacle.
- In the above example it is our opinion this receptacle could be considered as being readily accessible from ground level. Rule 26-726 could apply.
Hotels/Motels with Cooking Facilities

Question

• Is a hotel room with cooking facilities considered a dwelling unit? Could the following apply; 26-710, 26-712, 26-720, and 26-724?

Canadian Oxford Dictionary

- Hotel — an establishment providing accommodation, meals, and other services for travellers and tourists.
- Motel — a roadside hotel designed primarily for motorists, typically having the rooms arranged in low blocks with parking directly outside.
CE Code

• Definitions
  – Dwelling unit — one or more rooms for the use of one or more persons as a housekeeping unit with cooking, eating, living, and sleeping facilities.

Answer:

• A hotel/motel room with cooking facilities could fit the definition of a dwelling unit, therefore rules regarding receptacle locations for dwelling units could apply.

• With added cooking facilities in a hotel/motel room, considerations should be made when performing the service calculation.

• Appendix B
  – Rule 8-208
  • For the purpose of this Rule, a motel unit with cooking facilities may be considered an apartment.
Grounding Electrodes

Question
• When installing a ground plate in frozen ground, what should be considered to ensure an effective ground?

CE Code 2015
• Definitions
  – *Grounding electrode* — a buried metal water-piping system or metal object or device buried in, or driven into, the ground to which a grounding conductor is electrically and mechanically connected.
Grounding Electrodes Cont.

- Code Rule

Grounding electrodes

10-700 Grounding electrodes (see Appendix B)

2) Manufactured grounding electrodes shall
b) in the case of a plate electrode, be
   » (i) in direct contact with exterior soil at no less than 600 mm below grade level; or
   » (ii) encased within the bottom 50 mm of a concrete foundation footing in direct contact with the earth at not less than 600 mm below finished grade.

5) Where a local condition such as rock or permafrost prevents a rod or a plate grounding electrode from being installed at the required burial depth, a lesser acceptable depth shall be permitted.
Answer

• The CE Code 2015 is clear on how plate electrodes are to be installed. If the SCO is of the opinion an effective ground can not be established they should request a test be done to ensure continuity.

• If this test fails a better grounding system would be required and possible engineer involvement.

• Options exist; Many different methods are available in industry to achieve effective grounding, even in frozen ground.
Grounding Electrodes Cont.

Canadian Electrical Code Handbook reference

- Rod electrode driven into the earth
  - At least two rods
  - At least 3 m

- Plate electrode directly buried in the earth
  - Minimum 600 mm below finished grade level
  - 0.2 m² total surface area

- Plate electrode having 0.4 m² of surface area placed within the bottom 50 mm of a concrete footing

- Concrete footing installed a minimum of 600 mm below finished grade level
## AFCI Summary Sheet in dwelling units for 15A/20A Receptacles

<table>
<thead>
<tr>
<th>AFCI protection required</th>
<th>AFCI protection NOT required</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>15A/20A receptacles</strong></td>
<td></td>
</tr>
<tr>
<td>- Washer/Microwave/Hallway</td>
<td></td>
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<tr>
<td>- Out door receptacles attached to dwelling</td>
<td></td>
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<tr>
<td>- Receptacle <strong>not</strong> located within 1 m of a wash basin, in a bathroom or washroom, 26-710(f) (see STANDATA on 26-724(f)(i))</td>
<td></td>
</tr>
<tr>
<td>- Family room / Living Room/Bedrooms</td>
<td></td>
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<tr>
<td>- Undeveloped basement</td>
<td></td>
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<tr>
<td>- Attached garage/car port</td>
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<tr>
<td>- Built in appliances (could be dishwasher or cappuccino maker)</td>
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<tr>
<td>- Utility room/Hot water tank</td>
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<tr>
<td>- Sewer receptacle (i.e. attached to dwelling)</td>
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<tr>
<td>- Central Vacuum</td>
<td></td>
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<tr>
<td>- Gas range</td>
<td></td>
</tr>
<tr>
<td>- Refrigerator/Freezer not in Kitchen</td>
<td></td>
</tr>
<tr>
<td>- Refrigerator/Freezers and located in Kitchen 26-712(d)(i)</td>
<td></td>
</tr>
<tr>
<td>- Receptacle located within 1 m of a wash basin, in a bathroom or washroom, 26-710(f) (see STANDATA on 26-724(f)(i))</td>
<td></td>
</tr>
<tr>
<td>- Detached garage/carport (does not fit definition of dwelling unit)</td>
<td></td>
</tr>
<tr>
<td>- Sump and required to be a single receptacle 26-724(f)(ii)(A)</td>
<td></td>
</tr>
<tr>
<td>- Out door receptacle not attached to dwelling, could include a sewer receptacle (i.e. on a post and not attached structurally)</td>
<td></td>
</tr>
<tr>
<td>- Kitchen Counter 26-712(d)(v)</td>
<td></td>
</tr>
<tr>
<td>- Island/peninsula 26-712(d)(iv)</td>
<td></td>
</tr>
<tr>
<td>- Gas range adapter - a device fed by a 40A 220v branch circuit.</td>
<td></td>
</tr>
</tbody>
</table>
AFCI Protection Required

Question:

• Are fridges, freezers required to be AFCI protected?

Code Rule:

26-712 Receptacles for dwelling units
   (d) in dwelling units there shall be installed in each kitchen
   (i) one receptacle for each refrigerator;

26-724 Branch circuits for dwelling units (see Appendix B)
   (f) each branch circuit supplying 125v receptacles rated 20A or less shall be protected by a combination-type arc-fault circuit interrupter, except for branch circuits supplying
   (i) receptacles installed in accordance with
      (B) Rule 26-712(d)(i)

Answer:

• If located in the kitchen AFCI not required, if located outside the kitchen AFCI required.
AFCI Protection Cont.

Question:

• Does a detached garage fit the requirements under 26-724 requiring AFCI protection?

Code Rule:

26-724 Branch circuits for dwelling units (see Appendix B) This Rule applies to branch circuits for dwelling units (including single dwellings) as follows:…

Definitions:

• **Dwelling Unit** — one or more rooms for the use of one or more persons as a housekeeping unit with cooking, eating, living, and sleeping facilities.

• **Single Dwelling** — a dwelling unit consisting of a detached house, one unit of row housing, or one unit of a semi-detached, duplex, triplex, or quadruplex house
Answer:

- Dwelling unit and single dwelling is a defined term in the Canadian Electrical Code, Part I this is the definition that must be used when interpreting this rule.

- Municipal Affairs Opinion
  - an attached garage is attached structurally to the dwelling. AFCI protection is required.
  - Detached garage – AFCI Not required
General Discussion Items

- What are other regions doing, or asking for from houses that are moved from one location to another?

- The Residential No-Charge Energy Savings Program offers direct, no-charge installation of energy efficient products across the province, in rural and urban houses, apartments and condos.
  
  - [https://www.efficiencyalberta.ca/residential-no-charge/](https://www.efficiencyalberta.ca/residential-no-charge/)
General Discussion Items

• Non-Certified Products
  – What are you doing in your area?
    – We receive quite a few calls on companies selling non-certified products

• Accessibility to Electrical equipment
  – 2-122 Installation of electrical equipment (see Appendix G)
    • Electrical equipment shall be installed so as to ensure that after installation there is ready access to nameplates and access to parts requiring maintenance.
  – 2-312 Accessibility for maintenance (see Appendix G)
    • Passageways and working space around electrical equipment shall not be used for storage and shall be kept clear of obstruction and arranged to give authorized persons ready access to all parts requiring attention.
General Discussion Items

• Multi-Family Services
  – SCO’s looking for consensus for across Alberta
Questions
The End

THANK YOU
AMA Regional SCO Meeting
Building, Fire, Electrical, Plumbing, Gas & Private Sewage

April 5, 2017
8:30 am – 4:00 pm

Calgary (Okotoks)
Best Western Plus Okotoks Inn & Suites
100 Southbank Road
Heritage Ballroom
AMA Regional SCO Meeting
Building, Fire, Electrical, Plumbing, Gas & Private Sewage
April 5, 2017
8:30 am – 4:00 pm

Best Western Plus Okotoks Inn & Suites
100 Southbank Road
Okotoks
Heritage Balloon

Facilitators:  Geoff Brownlie, Technical & Community Specialist, AMA
              Stephanie Martin, Technical & Community Specialist, AMA

AGENDA

8:30 am  Call to Order and Introductions  Stephanie Martin, AMA
8:35 am – 8:45 am  AMA General Updates  Geoff Brownlie, AMA
                  • Builders Licencing
                  • Administrative Penalties
                  • Reorganization of Public Safety
                  • Visual Signal STANDATA
                  Q & A
8:45 am – 9:45 am  Planning 202 B and the Safety Codes Permit  Jeff Laurien, Municipal Services
                   Q & A
                   David Ramsay, AMA

COFFEE BREAK
9:45 am – 10:00 am
Sponsored by the Safety Codes Council

10:00 am – 11:30 am  Safety Codes Council  Danielle Paradis, Safety Codes Council
                      • Fire SCO Certification
                      • Building SCO Certification
                      • Professional Development for SCO’s
                      • ACT System: New Technology to Modernize Services
                      Q & A

LUNCH
11:30 am – 12:30 pm
Sponsored by the Safety Codes Council

*** See Individual Building / Fire / Electrical / Plumbing & Gas & Private Sewage Agendas ***
*** For Afternoon Meeting Information ***
AMA Regional SCO Meeting
Building Break-Out Session
12:30pm – 4:00 pm
Heritage Ballroom

Facilitator: Geoff Brownlie, AMA

AGENDA

12:30 pm – 1:00 pm  General Updates from AMA
- Chief Building Administrator
- Harmonization of the Code
- Persons with Developmental Disabilities (PDD)
- Food Trucks Standata
- 2014 New Standata
Q & A

1:00 pm – 2:00 pm  Discussion Topics / Questions
- A440.4 Window Installations
- ASHRAE 62 Addendum N
- Commissioning
- Section 9.36 Air Change Requirements
- Attached Garages and RSI Values
- DC 315
- Tiny Homes
- Sprinkler Systems in Attic Spaces
- Micro-Breweries
- Professional Technologists
- Professional Schedules
- Fabric Covered Structures
- Farm Buildings

COFFEE BREAK
2:00 pm – 2:15 pm
Sponsored by Safety Codes Council

2:15 pm – 4:00 pm  Energy Code Presentation

Tom Lauder, BSc, SCO
City of Calgary

*** MEETING AJOURNED ***

*** Meeting Minutes will be posted on the Safety Codes Council website ***
AMA UPDATES – Building Session

Chief Building Administrator
AMA has a new Chief Building Administrator in place; Paul Chang.

Paul has an extensive background in the building, plumbing and gas disciplines as both a journeyman and safety codes officer and more recently attained safety codes officer levels in the fire discipline. Paul was a Building & Mechanical Inspector for the City of Yellowknife for 18 years when he joined Municipal Affairs in 2006 as a Building Inspector for Field Services, Safety Services Branch. Since 2009, Paul has worked in Edmonton as a senior building technical advisor in Codes & Standards unit, alternated as the Chief Building Administrator and been instrumental in a wide range of projects and issues not only in the building discipline but across several disciplines regulated under the Safety Codes Act.

Paul has held a wide range of code committee responsibilities including past member of the former National Sub-Committee on Plumbing under the Provincial/Territorial Policy Advisory Committee on Codes (16 years), the National Standing Committee on Building & Plumbing Services for the development of the National building and plumbing codes (17 years), the Canadian Advisory Council on Plumbing (16 years) and the Canadian Standards Association Strategic Steering Committee on Plumbing Products and Materials (3 years).

Harmonization of the Alberta Code
This is a priority ongoing process between Code update and Harmonization using the NBC 2015 as a Base document. The comparison review and analysis between the NBC 2010 –NBC 2015, as well as comparing to the ABC 2014 for Alberta specifics and where we can update and Harmonize towards the National Codes. We are intending to have the initial review analysis available to the Building Sub-Council in the next few months.

At this time, we are planning to publish one more version of the ABC prior to the goal of automatic code adoption of the NBC 2020 with a supplement to address the retained Alberta Specific requirements. The NBC 2020 expected publication date may be around December 2020 or January 2021. Automatic code adoption would come into effect one year after publication.

Section 3.8 and Part 7 has a number of Alberta Specifics and at this time is being retained, such differences would go into the supplement.

Administrative requirements have Alberta Specifics that will be retained.

There is a ULC standards committee currently drafting up a National Standard for Relocatable Structures, using ABC Part 10 as the seed document. This should address ABC specific Part 10.

Only the Edmonton Airport Vicinity is currently affected by ABC Part 11 and there is currently a review in process for the AVPA, this may address the retention of Part 11 in the ABC.

This is a brief overview of the extensive review process and all items may not have been captured, but to give you an idea of our direction towards updating and Harmonization.
Persons with Developmental Disabilities (PDD)
A new Ministerial Order was issued and has become effective as of December 30, 2016. The government recognizes the importance of the home, and supporting individuals to live safe inclusive lives in their communities. With these principles in mind, PDD sites with 3 or less occupants can be reviewed under the fire code safety requirements that normally apply to a residence; such as smoke alarms. (See attached documentation)

Buildings Used for Growing, Processing, or Handling of Marijuana
Growing marijuana inside a building can present hazards to building occupants. Growing operations can have higher humidity levels which can cause damage to building materials and result in excessive mold growth. Workers may also be exposed to pesticides and fertilizers used to keep the crops healthy.

Buildings used for the growing, processing or handling of marijuana should be categorized as F1, F2, or F3 occupancies depending on the type of operations being carried out within the building or portion of the building. The Alberta Building Code is applicable to these buildings and these buildings should not be classified as "agricultural".

Other considerations which should also be reviewed are the ventilation systems, which should be in conformance with Part 6, and any other compliance related regulations including those identified within Part 3 and Part 5 of the ABC.

Application of Energy Efficiency Requirements to Existing Buildings
The National Energy Code of Canada specifically states that the energy code is applicable to new buildings and additions. The application of ABC Section 9.36 was enacted on November 1, 2016.

Applying energy codes to existing buildings which were not constructed according to ABC Section 9.36 requires that the work being done be evaluated because each project presents a unique set of economic conditions or constraints.

In some renovations, the installation of new equipment or renovations using current Energuide products and construction practices would be more energy efficient that the existing building conditions.

The installation of building equipment and materials less efficient than required for Energy Codes could be acceptable for:
• the replacement of existing building services (i.e. SWH, or A/C units),
• services installed at a later date (e.g. A/C units), and
• relocation of service equipment within the building.

The installation or construction of building envelope components with lower efficiencies could be permitted for:
• maintenance or repair of envelope components (i.e. broken panes, failed sealed units, roof boards), and
• components installed for renovations where the in-place roof, wall and floor framing remain unaltered, and the in-place windows and doors remain unaltered.

Building envelope components installed during a renovation should be insulated and made airtight to 9.36. to the greatest extent reasonably practical.

Where a renovation generates a requirement for Alberta New Home Buyer Protection in obtaining a building permit, Section 9.36 of the 2014 ABC should be applicable.

Wind Data for Low-Rise Buildings Guideline
The STANDATA accepting the values within the “Guideline for Specifying the Required NAFS Rating of Fenestration in Low-rise Buildings Applicable to Part 9 of Division B of the Alberta Building Code 2014” as prepared by Berkeley Vadocz Engineering Inc. which was issued on May 11, 2016 is going forward to accept the use of the document as written.

Link to document:

ABC 2014 Table 9.36.4.2. Formula Correction
The formula from Table 9.36.4.2. for service water heater performance requirements has an error. The placement of the brackets in the formula is incorrect and should have been stated as such:

\[
\frac{\text{Rated input of Watts}}{800 + 16.57 \times \sqrt{V}} \leq \text{rated input}
\]

CSA-A277-16 Procedure for Certification of Prefabricated Buildings, Modules, and Panels
The CSA-A277 standard referenced within the ABC is the 2008 edition. This standard has recently been updated regarding the scope and content to align with the requirements of the 2014 ABC. Updated information is areas such as energy performance, thermal performance, trade-offs related to thermal resistance performance, Occupancy classifications, and Part 10 of the ABC have been made.

Thanks Paul
To utilize the requirements of the new 2016 edition of the CSA-A277 standard, legislation must be changed through the issuance of a STANDATA.

Professional Schedules
Revised professional schedules are being looked at to incorporate additional references for energy code application, and other aspects of a design. The current schedules still apply to the NECB as each Professional of Record would have the responsibility within their discipline in coordinating the applicable NECB documentation from any sub-
consultants on the project. The Coordinating Professional also has the oversight as related to professional schedules and involvement.

**Tall Wall Generic Engineering Details**
This Standata is being updated to recognize the acceptability of the values within the “Guidelines for the Construction of Residential Tall Walls” (Revised January 2016) (Amendment 1 – June 29, 2016) prepared by: Grubb Engineering Corporation, published by: The Alberta Housing Industry Technical Committee (AHITC)

**Spans for Joints, Rafters, and Beams**
This Standata is being updated to recognize the acceptability of the values within the “The Span Book” 2009 Edition published by the Canadian Wood Council.

**Oil and Gas Processing Facilities**
This Standata is currently being reviewed in conjunction with Industry. AMA is in consultation with the Association of Accredited Corporations of Alberta (ACCA).

**Interior Stairways for Roof Access**
AMA is consulting with Occupational Health and Safety for any updated information or to address any possible inconsistencies between our acceptable alternative solution and OHS requirements. The standata will provide information on differing types of ladders which will meet the intent of the ABC for roof access.

**Roof Anchors - Changing to a Bulletin as this is identifying a code requirement which is Alberta Specific.**
AMA is consulting with Occupational Health and Safety for any updated information or to address any possible inconsistencies between this bulletin and OHS requirements.

**Barrier-Free Design Requirements: Relaxations**
This STANDATA is developed to clarify questions regarding when a request for relaxation of barrier-free requirements is deemed appropriate.

A non-inclusive list of examples of various occupancy types where people with disabilities are unemployable for reasons of safety, and may be exempt from providing barrier-free design requirements
Joint STANDATA Development
The Building Administrator is working in conjunction with Administrators of other disciplines related to Joint Standatas which are cross-discipline related.

Food Trucks
A STANDATA has been proposed to address all portable/temporary food service and cooking equipment (including but not limited to food trucks, vending trucks, chip trucks, burger wagons, doughnut shacks, mobile/portable food vending units, hot dog carts etc installations in Alberta which utilize electricity, wood charcoal, propane or natural gas as energy for cooking.

The thought process being that all mobile cooking operations (MCO's) once stationary and used to produce, cook or sell and or distribute food, become a temporary facility supporting an occupancy and containing equipment within the scope of a relevant code, are subject to the Safety Codes Act for the time that it is stationary and in use for a purpose(s) noted above.

Although these structures may not be classified as a “building” in the traditional sense, there are provisions within the ABC for commercial cooking equipment, ventilation and fire suppression which should be reviewed under the ABC; as well as other requirements falling under the Fire, Electrical, Gas, and Plumbing Codes.

The STANDATA is currently our for possible comment by all the relevant SubCouncils.
Re: Application of Safety Codes for Residences under the Persons with Developmental Disabilities (PDD) Program

To Whom It May Concern:

Earlier this year, in response to concerns raised by the PDD community and stakeholders about the PDD Safety Standards Regulation, an eight-member external consultation team comprised of disability and broader community representatives led the development and implementation of a consultation on how to support the safety and inclusion of persons with developmental disabilities. The consultation took place from February to July of this year, and heard from over 2,000 individuals, family members, service providers, and advocates for persons with developmental disabilities about what safety and inclusion mean for them.

During this consultation, our government repealed the PDD Safety Standards Regulation. As a result, Municipal Affairs placed a pause-period on inspections of accommodations of individuals receiving services from the PDD program. Municipal Affairs also issued a temporary exemption of their residences from care standards under the Safety Codes Act until December 30, 2016. The exemption also applied to the August 2015 Approved Guideline (STANDATA) for residences of adults with developmental disabilities. The pause-period on inspections and temporary exemption allowed for the continued work of the consultation team and government on the appropriate assessment of these accommodations in place of the repealed regulation.

On October 26, 2016, Human Services released the PDD Safety Standards Consultation Team’s final report, “Supporting Safe and Inclusive Lives.” This report is guiding the Government of Alberta’s actions to enable Albertans with developmental disabilities to live safely, inclusively, and with dignity at home and in their communities.

The PDD Safety Standards Consultation Team recommended principles that reflect a respectful, inclusive approach to the interpretation and application of safety codes. This includes that the starting point of any safety code assessment of housing where adults with developmental disabilities live will be from a residential standard, regardless of how services are funded, as is the case with any other home.
With these principles in mind, the August 2015 STANDATA is withdrawn and no longer in force or effect. Through a Ministerial Exemption Order, the Exemption Regulation under the Safety Codes Act has been amended effective December 30, 2016, to ensure that a residential standard is applied to the homes of adults with developmental disabilities. Municipal Affairs is, therefore, advising that no further inspections should take place in these homes unless there is a request, an incident, or complaint, as with any other home.

The Ministerial Exemption Order continues to support safety for persons receiving PDD services in their homes. The building and fire code safety requirements that normally apply to residences will continue to apply to homes where individuals with developmental disabilities live. For example, smoke alarms will be required, as is the case in all homes.

The Ministerial Exemption Order does not apply to PDD services or other buildings that fall under the Supportive Living Accommodation Licensing Act. The Ministerial Exemption Order also does not apply to homes where the person is detained as part of a service plan for their own protection or public safety. In these cases, the risk to life safety is unacceptable, and the building and fire codes apply in full, including sprinklers. PDD service providers under Human Services will continue to assess and identify detention situations to the municipality or authority responsible to enforce the Safety Codes Act. Detention situations make up a very small percentage of these accommodations and can be managed on a case-by-case basis with Municipal Affairs and Health.

Our government recognizes that it will take collective action to support safety and inclusion. This includes Human Services, Municipal Affairs, Health, and Advanced Education. Most importantly, it means listening to and working with Albertans who are receiving supports and services from the PDD program and their family members or guardians.

We know that nobody knows about these issues facing persons with developmental disabilities better than those who face them every day. That’s why we are pleased to have the opportunity to move forward with solutions proposed by the disability community. We want to build on the goodwill and spirit of collaboration from the PDD Safety Standards public consultation this past year. We will continue to pursue open, meaningful communication between our government and the disability community that will build trust as we work to support the safety and inclusion of Albertans with disabilities.

Our government recognizes the importance of the home and wants to support individuals to live safe inclusive lives in their communities. With these principles in mind, we will work with municipalities and the community to ensure the health and safety of Albertans.
For additional guidance on this Ministerial Exemption Order, please contact Alberta Municipal Affairs at 1-866-421-6929.

Sincerely,

[Signature]
Hon. Danielle Larivee
Minister of Municipal Affairs

[Signature]
Hon. Irfan Sabir
Minister of Human Services
Response to the PDD Consultation Team’s Final Report
Advice to MLA

Background information:
- In response to concerns raised by the PDD community and stakeholders about the PDD Safety Standards Regulation, an eight-member external Consultation Team comprised of disability and broader community representatives led the development and implementation of a two-phased engagement on how to support the safety of individuals with developmental disabilities.
- Phase One took place from February 18 to March 14, 2016, with a focus on listening to participants’ opinions and their experience with the Regulation and gathering ideas for how to address safety. Consultation participants included:
  - Albertans with developmental disabilities and their families/guardians;
  - PDD service providers and advocacy organizations;
  - Health and safety professionals;
  - Housing and tenant groups, including landlords; and
  - Municipalities.
- On April 1, 2016, Minister Sabir released the Consultation Team’s Phase One Summary Report and accepted all three recommendations to:
  1. Repeal the PDD Safety Standards Regulation in its entirety.
  2. Implement a coordinated approach across relevant ministries – including working with municipalities – to ensure clarity, consistency, and alignment in and implementation of the repeal of the regulation.
  3. Extend the consultation team’s mandate to oversee phase two of the Safety Standards Consultation.
- Phase two of the consultation took place from June 12 to July 6, 2016, and focused on more targeted conversations on ideas for safety based on feedback gathered in phase one.
- The Final Report made 11 recommendations to government on how to improve safety of individuals with developmental disabilities. The recommendations fall under five categories: the PDD program; staff training and education; accreditation standards for agencies; Safety Codes Act (SCA) application and interpretation; and other ideas to support safety.
Response to the PDD Consultation Team’s Final Report
Advice to MLA

- The PDD Safety Standards consultation team recommended principles that reflect a respectful, inclusive approach to the interpretation and application of safety codes. This includes that the starting point of any safety code assessment will be from a residential standard, regardless of how services are funded, as is the case for any other home.

Current status:
- As recommended by the PDD Safety Standards consultation team, the Minister of Municipal Affairs has withdrawn the STANDATA Upgrading of Existing Non-Conforming Houses under the Persons with Developmental Disabilities Safety Standards Regulation, issued in August 2015.
  - The STANDATA is a guideline to improve fire and life safety in existing residential detached and semi-detached single-family dwellings that have undergone a “change of use” to a home where an individual with a developmental disability lives, while being supported by the PDD program.
  - PDD stakeholders view the STANDATA as the reason their homes were classified as care occupancies instead of residences.
- Effective December 30, 2016, the Exemption Regulation under the Safety Codes Act has been amended through a ministerial order to ensure that residences where adults with developmental disabilities live are not subject to care or treatment standards under the building and fire codes. The starting point of any safety codes inspection will be from a residential standard, and inspections should not occur unless there is a request, an incident or complaint.
  - This order does not apply to homes where the person is detained as part of a service plan for their own protection or public safety and cannot exit the home in an emergency. In these cases, the risk to life safety is unacceptable, and the building and fire codes will apply in full, including sprinklers.
    - PDD service providers under Human Services will continue to assess and identify detention situations to the municipality or authority responsible to enforce the Safety Codes Act. Time is needed to get this in place. Human Services will work with the community to upgrade as needed.

December 2016
This order also does not apply to PDD services or other buildings that fall under the Supportive Living Accommodation Licensing Act (SLALA). When there are four or more people living in the same residence, SLALA still applies, and related inspections will continue for these specific residences. SLALA has its own set of standards that apply regardless of how the services/supports are being funded, meaning it is not specific to PDD.

The building and fire code safety requirements that normally apply to residential homes would continue to apply to homes where individuals with developmental disabilities live. For example, smoke alarms would be required as is the case in any other home in Alberta.

Key Messages:

- Our government is committed to supporting the safety and inclusion of individuals with developmental disabilities, while respecting their rights to live with dignity at home and in their communities.
- A ministerial order, effective December 30, 2016, ensures that a residential standard is applied to the homes of adults with developmental disabilities.
- This means that safety codes inspections will not occur unless there is a request, an incident or complaint, as with any other home.
- The order continues to support safety in the home of individuals receiving PDD services.
  - Residential building and fire code safety requirements such as smoke alarms are required as with any other home in Alberta.
  - The order does not apply to homes where the person is detained as part of a service plan for their own protection or public safety. In these cases, the risk to life safety is unacceptable, and the building and fire codes apply in full, including sprinklers. PDD service providers under Human Services will continue to assess and identify detention situations to the municipality or authority responsible to enforce the Safety Codes Act.
  - The order also does not apply to PDD services or other buildings that fall under the Supportive Living Accommodation Licensing Act.
Questions & Answers: Response to PDD Consultation Team’s Final Report
Advice to MLAs

What is being announced?
- The final report from the Persons with Developmental Disabilities (PDD) consultation team recommended that residents of adult individuals with developmental disabilities should be treated no different than any other home when interpreting and applying safety codes.
- A ministerial order, effective December 30, 2016, ensures that a residential standard is applied to the homes of adults with developmental disabilities.
- This means that safety codes inspections will not occur unless there is a request, an incident or complaint, as with any other home.
- The August 2015 technical interpretation (known as “STANDATA”) that supported the now repealed PDD Safety Standards Regulation administered by Human Services will be withdrawn at the same time the amended exemption order is issued.

What other measures support safety in residences of adults with developmental disabilities?
- The ministerial order continues to support safety in the homes of individuals receiving PDD services.
  - Residential building and fire code safety requirements such as smoke alarms are required as with any other home in Alberta.
  - The order does not apply to homes where the person is detained as part of a service plan for their own protection or public safety. In these cases, the risk to life safety is unacceptable, and the building and fire codes apply in full, including sprinklers.
    - PDD service providers under Human Services will continue to assess and identify detention situations to the municipality or authority responsible to enforce the Safety Codes Act.
    - Time is needed to get this in place. Human Services will work with the community to upgrade as needed.
  - The order also does not apply to PDD services or other buildings that fall under the Supportive Living Accommodation Licensing Act.

Has anything changed in situations where four or more individuals are residing in the same house?
- No. When there are four or more people living in the same residence, the Supportive Living Accommodations Licensing Act (SLALA) still applies, and related inspections will continue for these specific residences. SLALA has its own set of standards that apply regardless of how the services/supports are being funded, meaning it is not specific to PDD.

What difference is this going to make for Albertans with developmental disabilities served by PDD?
- The exemption order will ensure that the interpretation and application of safety codes to residential standards is applied consistently in homes occupied by people with developmental disabilities. This means their homes will only require those building or fire code safety measures that are required as with other home in Alberta.
- The recognition that residences of adults with developmental disabilities are like any other home supports the inclusion of individuals with developmental disabilities in the community and respects their rights to live with dignity.
Questions & Answers: Response to PDD Consultation Team’s Final Report
Advice to MLAs

What challenges does this announcement address?
- The March 2016 Exemption Order, which exempts residences of adults with developmental disabilities from being assessed as care and treatment occupancies under the Safety Codes Act, expires December 30, 2016. If the Exemption Order was to expire without an alternate solution, municipalities would apply institutional care and treatment standards such as sprinklers to these residences.
  - This may result in landlords refusing to rent to adults with developmental disabilities because of the costs to upgrade their buildings and would impose an institutional environment for adults with developmental disabilities.
  - The announcement also reinforces that adults with developmental disabilities have a right to live with dignity in homes of their choosing.
- The amended ministerial order provides certainty for municipalities and the legal authority to clarify that accommodations of adults with developmental disabilities are residences and not care facilities when interpreting and applying safety codes.

Which stakeholders will be supportive of this announcement?
- PDD stakeholders have maintained that the application and interpretation of the safety codes to care and treatment standards was discriminatory and incorrect. Members of the PDD community and PDD stakeholders will be supportive of the ministerial order as it clarifies that their homes are held to a residential standard and not a care facility standard.
- Municipalities will be supportive of the certainty the order provides for interpreting and applying safety codes to residences of adults with developmental disabilities that are not under the Supportive Living and Accommodation Licensing Act.

Which stakeholders will not be supportive of this announcement?
- Municipalities may have concerns about the scope of the order where around-the-clock care is required for persons receiving PDD services in non-detention situations.
  - The building and fire code safety requirements that normally apply to residential homes would continue to apply to housing where individuals with developmental disabilities live. For example, smoke alarms would be required as is the case in all homes.
  - Human Services indicates that detention situations make up a very small percentage of these accommodations and can be managed on a case-by-case basis with Municipal Affairs and Health.

When does the regulatory change take effect?
- The ministerial order takes effect December 30, 2016.

How much will this program/initiative cost?
- There are no costs associated with the ministerial order.

What are the next steps?
- Municipal Affairs, in partnership with Human Services, has informed municipalities, safety services stakeholders and the PDD community and its stakeholders about the ministerial order.
- PDD service providers under Human Services will continue to assess and identify detention situations to the municipality or authority responsible to enforce the Safety Codes Act.
Questions & Answers: Response to PDD Consultation Team’s Final Report
Advice to MLAs

What should Albertans do next (call to action)?

- For more questions about the ministerial order, please call Municipal Affairs’ Safety Services main line toll free at 1-866-421-6929.
- For questions about the Persons with Developmental Disabilities (PDD) program, please call 780-427-1177 (ext. 3).
CSA A440.4 Window Installations

Question 1?
Does the ABC regulate the installation of windows?
The 2014 ABC mandates, with a couple exemptions, that the installation of windows, doors and skylights shall conform to the CAN/CSA-A440.4 – 2007 “Window, Door and Skylights Installation” standard. The two exemptions noted are the ability to use treated plywood as a shim, and that the installation must also conform to the window manufacturers instructions.

The standard speaks to installation requirements regarding components such as fasteners, flashing and capping, insulation materials, shims, general installation practices regarding anchorage and continuity of the wall, clearances, thermal breaks, air leakage control, vapour diffusion control, precipitation ingress control, and sealing.

Question 2?
What is an acceptable method of connecting an air barrier and vapour barrier to windows and doors to meet the Code, Sentence 9.7.6.1.(3)?
Sentence (3) requires windows and doors to be sealed to the air and vapour barrier. The ABC references window installations within the CSA-A440.4 standard, which identifies some acceptable methods for sealing of the air barrier to these openings.

Options provided in the standard are:
1) Interior sealant method
   This method involves sealing the window, door, or skylight frame to the rough opening framing.
2) Polyethylene-wrap method
   This method involves applying a polyethylene skirt around the perimeter of the window, door, or skylight frame before it is installed into the rough opening and then folding back and sealing the skirt to the polyethylene in the wall when the window, door, or skylight is installed.
3) Drywall method
   This method involves sealing drywall (gypsum board) to the window, door, or skylight frame.
4) Foam method
   This method involves the injection of polyurethane foam into the rough opening gap. It is recommended for use as an air barrier as well as an insulation material.
5) Exterior sealant method
This method involves sealing the window or door frame to the exterior finish.

Background Information:
2014 Alberta Building Code
9.7.6. Installation
9.7.6.1. Installation of Windows, Doors and Skylights
1) The installation of windows, doors and skylights shall conform to CAN/CSA-A440.4, “Window, Door, and Skylight Installation,” except that
a) shims used to support windows, doors and skylights are permitted to be made of treated plywood, and
b) protection from precipitation for walls incorporating windows or doors and for roofs incorporating skylights, and the interfaces of these walls with windows or doors and of roofs with skylights, shall conform Section 9.27.

2) The installation of manufactured and pre assembled windows, doors and skylights and the field assembly of manufactured window and door combination units shall conform to the manufacturer’s instructions.

3) Windows, doors and skylights shall be sealed to air barriers and vapour barriers.

9.25.4. Vapour Barriers
9.25.4.2. Vapour Barrier Materials
1) Vapour barriers shall have a permeance not greater than 60 ng/(Pa·s·m2) measured in accordance with ASTM E 96/E 96M, “Water Vapor Transmission of Materials,” using the desiccant method (dry cup).

2) Where the intended use of the interior space will result in high moisture generation, the assembly shall be designed according to Part 5. (See Appendix A.)

3) Where polyethylene is installed to serve only as the vapour barrier, it shall comply with Clause 4.4, Thermal Stability, and Clause 5.7, Oxidative Induction Time, of CAN/CGSB-51.34-M, “Vapour Barrier, Polyethylene Sheet for Use in Building Construction.”

4) Membrane-type vapour barriers other than polyethylene shall conform to them requirements of CAN/CGSB-51.33-M, “Vapour Barrier Sheet, Excluding Polyethylene, for Use in Building Construction.”

6) Where foamed plastic insulation functions as the vapour barrier, it shall be sufficiently thick so as to meet the requirement of Sentence (1).

CAN/CSA A440.4 Window, Door and Skylight Installations
4.7 Insulating materials
4.7.1 Foams
Foam used as insulation around a window shall be a commercially available one- or two-component polyurethane foam.
One-component polyurethane foams shall comply with the requirements of CAN/ULC-S710.1, and two-component polyurethane foams shall comply with CAN/ULC-S711.1.

4.7.2 Fibrous-type insulation
Mineral- or glass-fibre insulation shall comply with the requirements of CAN/ULC-S702.

4.8 Polyethylene

4.8.1 Polyethylene installed to serve as the airtight element of the air barrier system shall comply with the requirements of CAN/CGSB-51.34.

4.8.2 Polyethylene installed to serve only as the vapour barrier shall comply with the requirements of CAN/CGSB-51.34 or with Article 9.25.4.2 of the NBCC. (See Annex A.)

5 General principles

5.1.1 General requirements
The general requirements for the practice of installing windows, doors, and skylights include health and safety considerations in order to provide satisfactory structural performance and control of air leakage, condensation, and rain penetration, for
(a) thermal comfort (in the occupied interior space); and
(b) the prevention of indoor air quality problems caused by pollutants released from biological growth or decomposition of building materials.

These requirements shall apply to the installation of new and retrofit windows, doors, and skylights.

The concept of critical barriers, terrain, moisture index, and exposure is discussed in Annex A. Guidance on the application of these concepts to determine an appropriate moisture penetration control strategy and examples of appropriate details for each exposure rating are provided in Annex A.

5.1.2 The completed installation of windows, doors, and skylights shall control the following:
(a) moisture flow (liquid and vapour);
(b) condensation;
(c) insect entry;
(d) thermal transmission;
(e) air flow;
(f) rain penetration; and
(g) movement due to wind pressure differentials.

5.3 Continuity with the wall
Continuity shall be maintained between elements in the window, door, or skylight and the wall to provide resistance to rain penetration, air leakage, heat transfer, and vapour diffusion.

6 Preparation of openings and mounting procedures

6.1.3 The sheathing membrane shall be folded into the rough opening at the top and sides, and corner inserts shall be installed at the top corners to lap under the membrane at the top of the opening and over the membrane at the sides.
6.1.4
Except as provided in Clause 9.3, the sheathing membrane shall be folded into the rough opening at the bottom, and corner inserts shall be installed at the bottom corners to lap under the membrane at the sides of the opening and over the membrane at the sill.

7 Insulating at the frame-to-wall or frame-to-roof junction (thermal barrier)
7.1 Insulation placement
After the window, door, or skylight is mounted in the rough opening, the gap between the unit and the rough opening shall be filled with insulation around the full perimeter, from the interior to at least the plane of the exterior glazing, so that cold air is not allowed to bypass the thermal break and the effects of convection are minimized. Special care shall be taken at shim locations to ensure continuity of the insulation.

7.3 Foam insulation
Where polyurethane foams are used, they shall be installed in a manner that hinders distortion of the frame and facilitates its smooth operation. Materials shall remain compressible and shall allow for differential movement without separation.

7.4 Glass- or mineral-fibre insulation
Where glass- or mineral-fibre insulation is used, it shall be loosely packed in the gap and shall not be forced into the gap. The insulation shall not be compressed into the gap in a manner that lessens its insulation effectiveness, or in a manner that exerts pressure on the frame, distorting it or impeding its operation.

8 Air leakage control at the frame-to-wall or frame-to-roof junction (air barrier)
8.1.1
The plane of air tightness in the wall or roof assembly shall be sealed to the air tightness plane in the window, door, or skylight assembly.

8.2 Interior sealant method
Note: This method involves sealing the window, door, or skylight frame to the rough opening framing.
8.2.1
This method shall be used only where the airtight element of the air barrier system in the wall is sealed to the rough opening framing.

8.3 Polyethylene-wrap method
Note: This method involves applying a polyethylene skirt around the perimeter of the window, door, or skylight frame before it is installed into the rough opening and then folding back and sealing the skirt to the polyethylene in the wall when the window, door, or skylight is installed.
8.3.1
This method shall be used only where
(a) polyethylene is installed in the wall and is intended to serve as the airtight component of the air barrier system; and
(b) the window, door, or skylight frames are wood.

8.5 Drywall method
Note: This method involves sealing drywall (gypsum board) to the window, door, or skylight frame. (See Figures in Annex A for examples.)
8.5.1
This method shall be used only where the interior wall finish is drywall and is intended to serve as the airtight component of the air barrier system.

8.6 Foam method
Note: This method involves the injection of polyurethane foam into the rough opening gap. It is recommended for use as an air barrier as well as an insulation material. (See Figures in Annex A for examples.)

8.6.1
This method shall be used only where the airtight component of the air barrier system in the wall or roof is sealed to or turned into the rough opening. The foam shall make contact with both the air barrier and the window, door, or skylight frame to ensure continuity of the air barrier system.

8.7 Exterior sealant method
Note: This method involves sealing the window or door frame to the exterior finish.

8.7.1
This method shall be used only where the exterior finish is intended to serve as the airtight element of the air barrier system, as in the case of a face-sealed assembly.
Legend:
WF = frame width

Note: R-point can be in different locations.

<table>
<thead>
<tr>
<th>Frame construction</th>
<th>Jamb</th>
<th>Sill</th>
<th>Anchor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Min. A, mm*</td>
<td>Max. B, mm</td>
<td>Max. WF for 3 shims, mm (S1 to S3)</td>
</tr>
<tr>
<td>Wood</td>
<td>50</td>
<td>800</td>
<td>2000</td>
</tr>
<tr>
<td>Aluminium</td>
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<td>800</td>
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<td>PVC</td>
<td>200</td>
<td>600</td>
<td>1600</td>
</tr>
<tr>
<td>Fibreglass</td>
<td>100</td>
<td>800</td>
<td>2000</td>
</tr>
</tbody>
</table>

*When exterior finish is dark coloured, add 50 mm to the above indicated A distance.

Figure 2
Shimming and anchoring a horizontal sliding window
(See Clauses 6.4.3.1 and 6.4.4.1.)
Figure 13
Shimming and anchorage of nailing flange windows
(See Clauses 6.4.3.1 and 6.4.4.1.)
- Framing
- Wall sheathing
- Sloped wood sub-sill (optional)
- Sheathing paper
- Sill membrane
- Corner membrane
- Shims

- Jamb membrane

(a) Install sub-sill flashing

(b) Prepare window opening

- Sheathing paper
- Window

(c) Install window

(d) Install sheathing paper

Maximum exposure rating: MODERATE

Figure A.9
Example concealed barrier installation — Vinyl siding — Window sill/jamb detail
(See Clause A.3.)

(Continued)
Figure A.10
Example of concealed barrier installation — Vinyl siding —
Window head/jamb detail
(See Clause A.3.)
(Continued)
ASHARE 62 Addendum N

Question?
The 2014 Alberta Building Code has removed the use of Addendum N as a means of calculating ventilation rates. If addendum n is no longer valid, what (if anything) has replaced this document?
Addendum N has been removed, and cannot be used as a means of determining ventilation rates under ASHRAE 62. There is no document which has replaced Addendum N.

For situations where the appropriate use has not been identified in ASHREA 62, the calculations within ASHRAE 62 can be used to determine the appropriate ventilation rate, or the use of a similar occupancy combined with some engineering judgement should suffice.

Correspondence from NRC

As you can see, Part 6 of the NBC continues to reference ASHRAE 62 – 2001 except addendum 'n' for ventilation rates only. Although updates of the standard had been published they were deemed problematic. This was concluded as a result of a comprehensive technical review of the 2001, 2004 and 2007 editions of the document. The Standing Committee on HVAC and Plumbing is presently revisiting this reference in light of new changes to the document (ASHRAE 62.1 – 2016) and anticipate related changes in the next edition of the NBC. I trust this helps in understanding the intent of the reference.

Regards,
Diane Green
Technical Advisor, Codes Canada/NRC Construction
1200 Montreal Road, Bldg. M-23A, 2nd Flr.
Ottawa, Ontario K1A 0R6
www.nationalcodes.nrc.gc.ca

The ventilation rates in any version of the standard are best estimates based on ASHRAE's definition of "acceptable", the definition of which is complicated. Addendum "n" introduced a new concept, that of splitting the occupant-generated contaminant contribution from the building materials contribution. This splitting resulted in different rates compared to the pre-Addendum "n" rates. One cannot say whether the pre-addendum rates were excessive or the post-addendum rates are deficient. All one can say is that the rates differ and the ongoing research and more recent empirical data are hopefully getting the rates to an acceptable balance amongst the various criteria used to make that judgement. It was agreed, by consensus, to continue with the pre-addendum rates until then.

For simplicity, the use of similar occupancies combined with some engineering judgement should suffice. It must be remembered that at best, the rates are estimates based on complicated and somewhat malleable criteria.

The views expressed in this response are those of the staff of Codes Canada of the National Research
Council Canada who assist the committees that are responsible for the preparation of the Codes Canada publications. These views should not be considered as official interpretations of legislated requirements based on the National Building Code, National Fire Code, National Plumbing Code, or National Energy Code for Buildings. The final responsibility for an official interpretation rests with the authority having jurisdiction.

Regards,
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Background Information:
2014 Alberta Building Code
6.2.2. Ventilation
6.2.2.1. Required Ventilation
2) Except in storage garages covered by Article 6.2.2.3., the rates at which outdoor air is supplied in buildings by ventilation systems shall be not less than the rates required by ANSI/ASHRAE 62, “Ventilation for Acceptable Indoor Air Quality” (except Addendum n).
Commissioning

Question?
Since ULC/CSA-S1001 is not a referenced standard, can this document be enforced? Who is allowed to provide verification that the commissioning has been completed? At what stage is commissioning of the integrated fire and life safety systems to be completed – prior to occupancy?
The registered professional and the owner are responsible for ensuring commissioning is completed in a manner that they deem appropriate and are willing to accept responsibility for. It is not up to the local AHJ to prescribe how it is achieved although the local AHJ will need to evaluate the final product for compliance with code and if satisfied accept as part of the process.

CAN/ULC S1001 is referenced in the 2015 NBCC/NFCC but not required in the Alberta Building Code 2014. CAN/ULC S1001 is a good place to start as this is where codes will be going. There is work underway on the ABC Schedules to address commissioning requirements which may provide clearer guidance once issued.

Background Information:
2014 Alberta Building Code
2014 Alberta Building Code requirements
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.

2015 NBC
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).)

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 (ie. Fire alarm systems, sprinklers, standpipes, smoke control, ventilation, pressurization, door hold-open devices, elevators, 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 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 documentation 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.

2010 NBC Intent Statements

Intent 1:
To limit the probability that integrated life safety and fire protection systems will not meet proper standards, which could lead to such systems not performing in the way intended in a fire situation, which could lead to an inadequate water supply to fire suppression systems or a fire not being suppressed or controlled, which could lead to the spread of fire to other parts of the building, which could lead to harm to persons.

Intent 2:
To limit the probability that integrated life safety and fire protection systems will not perform as originally intended in a fire situation, which could lead to persons not being promptly notified of the fire situation, which could lead to delays in the evacuation or movement of persons to a safe place, which could lead to harm to persons.

QUALIFICATIONS
Participants in the Integrated Testing Plan
- Design Professionals, Installing Contractors, Verifying Parties
- Knowledge and experience in the design, installation, and operation of their relevant systems
- Regulations may exist for licensing and/or certification of these individuals

Integrated Testing Coordinator
The integrated testing coordinator must be:
- Knowledge and experience of integrated systems, operation under normal and fire conditions, and methods of validation
- Licenses and Certifications?
  * Standard can't dictate professional qualifications

38
• Only required IF required by federal, provincial, territorial or other regulations,
• Could also be in Owner's contractual requirements

TESTING REQUIREMENTS

Systems Considered
• Fire Alarm System
• Mass Notification Systems
• Elevators
• Emergency Generators
• A/V and Lighting Control Systems
• Notification Systems
• Sprinkler Systems
• Standpipe Systems
• Fire Pumps
• Water Supplies
• Water Supply Control Valve
• Freeze Protection Systems
• Fixed Fire Suppression Systems
• Cooking Suppression Systems
• Hold-Open Devices
• Electromagnetic Locks
• Smoke Control Systems
• Hazardous Protection Monitoring
• Smoke Alarms

DOCUMENTATION

Integrated Systems Testing Report
• Final Integrated Testing Report consists of the
  • Integrated Testing Plan
  • Documentation collected during Implementation Phase
  • Integrated Testing Forms for Initial Test
  • Integrated Testing Forms for Re-Tests

LIFE CYCLE TESTING

Periodic Integrated Systems Testing
• Routine Integrated Systems Testing throughout the building's life cycle
• Ensure system integrations are maintained
• 1 Year Confirmation Test
• 5 Year Periodic Testing
Airtightness
Under ABC Section 9.36

Question?
The wording of 9.36.5.10.(9)(a) requires the construction to comply with 9.25, while clause (b) requires the air barrier system to comply with 9.25.3., 9.36.2.9., and 9.36.2.10. What is the intent of sentence (a) and does the word construction also include the RSI Values in Table 9.25?

Section 9.36 and the airtightness requirements within 9.36.5. provide different levels of construction requirements surrounding the building envelope, when utilizing performance modeling.

When the air change rate of 2.5 is identified in the modeling report, the air barrier system should be constructed to meet the requirements of 9.25.3, 9.36.2.9, & 9.36.2.10. These articles require the air barrier system to be constructed to address continuity, airtightness and proper installation practice (backing behind all joints etc.) in the air barrier system.

When the air change rate of 3.2 is identified in the modeling report, clause (b) requires that the construction comply with Section 9.25. The intend of the clause, is to remove the need for compliance to 9.36 air barrier requirements, and to permit compliance to Subsection 9.25 only. Under this requirement, the previous construction and installation requirements for the air barrier and vapour barrier systems within 9.25 would only be applicable, with no requirement for 9.36 compliance. However, the clause is only referring to the air and vapour barrier installations, and is not intended to include compliance to the RSI values noted in Table 9.25.2.1. The previously required RSI values noted within Table 9.25.2.1. for Thermal Insulation Requirements remain inapplicable for construction after November 1, 2017 and the enforcement of energy efficiency requirements, as stated in sentence 9.25.2.1.(3), because the required RSI values for insulation installation are addressed within Article 9.36.2.6.

Background Information:
2014 Alberta Building Code
9.36.5.10. Modeling Building Envelope of Proposed House
9) The airtightness value used in the energy model calculations for the proposed house shall be
a) 3.2 air changes per hour at 50 Pa pressure differential, where the construction complies with Section 9.25,
b) 2.5 air changes per hour at 50 Pa pressure differential, where it can be shown that the air barrier system is constructed in accordance with Subsection 9.25.3. and Articles 9.36.2.9. and 9.36.2.10., or
c) where airtightness is tested in accordance with Sentence (11),
i) the number of air changes per hour at 50 Pa pressure differential, and
ii) the equivalent leakage area (see Appendix A).

9.25.1. General

9.25.1.1. Scope and Application
1) This Section is concerned with heat, air and water vapour transfer and measures to control condensation.

2) All walls, ceilings and floors separating conditioned space from unconditioned space, the exterior air or the ground shall be
a) provided with
   i) thermal insulation conforming to Subsection 9.25.2. and Section 9.36.,
   ii) an air barrier conforming to Subsection 9.25.3. and Section 9.36., and
   iii) a vapour barrier conforming to Subsection 9.25.4., and
b) constructed in such a way that the properties and relative position of all materials conform to Subsection 9.25.5.

3) Insulation and sealing of heating and ventilating ducts shall conform to Sections 9.32., 9.33. and 9.36.
Insulation in Attached Garage
Under ABC Section 9.36

Question 1?
To what insulation value are the external walls of an attached garage required to be insulated to?

Under the prescriptive requirements within 9.36.2., the exterior walls of an attached garage, whether the garage is heated or unheated, are required to be insulated to the same values as that of the remaining house. This is an Alberta specific requirement found within STANDATA 06-BCI-023 which was intended to reference the pre-existing HIRF requirements for an attached garage, and the requirement for the exterior walls of an attached garage to be constructed with insulation, poly and drywall to ensure moisture concerns would not be present should a homeowner wish to heat an attached garage at a later date.

Where a house has been installed with an HRV, the RSI values specified for buildings with HRV's should be used for the RSI values in the attached garage. For buildings without HRV's, the RSI values specified in Table 9.36.2.6.A for non-HRV installations should be used in the attached garage.

Question 2?
Performance modeling under HOT2000 does not include design considerations for attached garages. When omitted from modeling design, how should these areas of an attached garage be constructed?

The intent of sentence (8) is to ensure protection is provided under the HIRF requirements, and to ensure future development or heating of the attached garage does not create moisture concerns. This protection should be installed on all residential dwelling units whether designed under the prescriptive or performance method.

When a house utilizes performance modeling for the design, the construction of the attached garage walls should be equal to the design of the remaining house walls. This could mean that walls could be installed with R-22 or values lower or higher depending on the model design.
Question 3?
Does a below grade attached garage need to be installed with the building envelope requirements as stated in 9.36.2.1.(8)?
The intent behind providing a complete building envelope within an attached garage was to ensure the protection requirements under HIRF were maintained. Where an attached garage is located below grade, the same HIRF considerations would not be a concern, and therefore, the garage should not be required to provide a building envelope along the exterior walls.

Question 4?
The ABC requirements seem to mandate that a wall must be insulated where there is exterior air. Where municipalities are enforcing 9.36. for the garage, are they enforcing the requirements around the foundation wall?
As noted in question #1 above, the building envelope is an Alberta specific requirement which was added to the ABC to address the Alberta specific requirement for insulation, and vapour barrier within an attached garage as per STANDATA 06-BCI-023. The requirement for the building envelope was not intended to include the foundation wall construction, as the STANDATA was developed to address possible moisture concerns which could occur because the walls were covered by drywall in heated garages, rather than a need for the garage to be considered as a conditioned space.

Attached garages, even when heated, should still be reviewed as unconditioned spaces, and therefore should not be required to provide a building envelope along the foundation wall.

Background Information:
2014 Alberta Building Code
9.36.2. Building Envelope
9.36.2.1. Scope and Application
1) Except as provided in Sentences (2) and (6) to (8), this Subsection is concerned with the loss of energy due to heat transfer and air leakage through materials, components and assemblies, including their interfaces, forming part of the building envelope where it separates conditioned space from unconditioned space, the exterior air or the ground.
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.

9.36.5.4. Calculation Methods
5) The energy model calculations shall account for the following space-heating temperature set-points:
a) 21°C in all living spaces above the basement,
b) 19°C in basements and common spaces, and
c) 15°C in crawl spaces intended to be conditioned spaces.

11) The energy model calculations shall account for heat transfer through elements separating conditioned space from unconditioned space, the exterior or the ground.

STANDATA 06-BCI-023
DISCUSSION
The amendments to the Alberta Building Code 2006 addressing high-intensity residential fires include a requirement to provide a drywall finish (or other similar performing material), along with insulation and vapour barrier to the interior of attached garages.

The requirement for the interior finish was added to delay the spread of a fire originating in an attached garage and to give occupants extra time to evacuate the associated dwelling unit. The requirement for insulation and a vapour barrier was added to the amendments as a precautionary measure due to the presence of the interior finish. It was felt that homeowners who purchase a house with a finished garage may be unaware that there was no insulation in the walls. If that homeowner were to then provide heat to the garage, thinking that it was in fact insulated, condensation would form within the exterior wall assembly which could lead to deterioration of the garage structural supports and the potential for the formation of mould and mildew.

Sentence 9.25.2.1.(1) and Table 9.25.2.1. contain requirements for insulating heated garage, but does not contain any requirements for an unheated garage. This STANDATA has been developed to clarify what minimum insulation values are to be supplied in unheated attached garages.

INTERPRETATION
Due to the possibility of the attached garage being heated after the homeowner takes occupancy, the walls and ceilings of unheated attached garages shall be insulated to the same minimum insulation values in Table 9.25.2.1. as a heated garage.

If the fire protection of the garage walls and ceiling is provided by a material meeting the criteria of Clause 9.35.4.1.(2)(c) and the material does not create a concealed space between the wall studs or roof trusses, the insulation and vapour barrier described in Article 9.35.4.4. would not be required.
DC 315 Update

Update on DC 315 Intumescent Coating from CCMC

Dear Building Officials,

In response to questions from Building Officials across Canada concerning the Canadian Construction Material Centre’s (CCMC) evaluation report “CCMC 14036-R DC 315 Intumescent Coating” manufactured by International Fireproof Technology Inc. (IFTI), CCMC is providing the following technical clarification as was requested by many.

Key Points

1. It is the Technical Opinion of CCMC that DC315 intumescent coating complies with the NBC 2015 for the protection of foamed plastics as outlined within the CCMC Report 14036-R. (see “CCMC’s Technical Opinion” below)

2. CCMC Evaluations are impartial, neutral and science-evidence based, and provides an opinion of a product’s National Building Code 2015 (NBC 2015) compliance, without commercial interest. (see Technical Due Diligence below)

3. DC315 was evaluated against NBC 2015 Clause 9.10-17.10.(1)(a) for the protection of foamed plastic and was found to be an acceptable Alternative Solution. (see “Code Analysis” below)

4. Provincial & Territorial Authorities were consulted to validate the NBC 2015 interpretation and to ensure that the CCMC Evaluation was consistent with their acceptable building practices. (see “Provinces and Territories Consultation” below)

5. CCMC Report 14036-R establishes that DC315 meets or exceeds the minimum level of performance required by the NBC 2015 prescribed thermal barriers and ½” regular gypsum. (see “Prescribed Thermal Barriers” below)

6. NBC 2015 Division A, Clause 1.2.1.1.(1)(b) describes the compliance path used to determine if a product can be considered an Alternative Solution to a Division B Acceptable Solution based on Objective and Functional Statements. (see “Alternative Solution Analysis” below)

7. The evaluation of DC315 was based on thorough mechanical and durability testing at an accredited lab and fire testing was also conducted at NRC’s National Fire Laboratory. (see “Testing” below)

8. CCMC values its partnership with Building Officials across Canada, and will continue to provide updates as required or requested. (see “Regular Communication with Canada’s Building Officials” below)
CCMC’s Mandate
As a result of the 1990 Memorandum of Understanding between the National Research Council (NRC) and the Provinces and Territories (PTs), the CCMC was created and centralized at NRC in Ottawa as Canada’s official national construction product evaluation service. CCMC’s mandate is to provide technical opinions on innovative, non-standardized construction products for compliance with Canadian building codes, while protecting the health and safety of Canadians. On behalf of the PTs, for use by Authorities with jurisdiction (AHJ), the CCMC develops test protocols and produces evaluations of innovative construction products, materials and systems (i.e. alternative solutions). The PTs also requested that CCMC provide a listing service for standardized construction products. CCMC views itself as a partner to the PTs to support local Building Officials in addressing code compliance for alternative solutions, and assisting the construction industry in obtaining product acceptance across Canada.

CCMC’s Technical Opinion on CCMC 14036-R
It is the opinion of the CCMC that the “DC 315 Intumescent Coating,” when installed as a thermal barrier over spray urethane foam insulation, in accordance with the conditions and limitations stated in CCMC 14036-R, complies with the National Building Code 2015 and also complies with NBC 2010 for the same relevant articles. CCMC stands behind its technical opinion regarding the product’s code compliance as an alternative solution.

Prescribed Thermal Barriers
We understand that Building Officials have concern with respect to the NBC 2015 continuing to reference fibreboard, particle board, OSB, waferboard, etc., as ‘acceptable solutions’ as a thermal barrier over foamed plastic (NBC 2015 9.29.4 to 9.29.9). Based on consultation with the PTs and opinion of NRC fire experts, the CCMC 14036-R evaluation report provides the NRC/CCMC opinion that this intumescent coating over spray urethane foam is an alternative solution to a minimum thermal barrier with a performance level of 10 minutes prior to flash-over occurring (this was found to be 10 times greater than the performance of the current minimum panel products specified in the NBC). This provides AHJs an alternative solution to the code prescribed minimum. For AHJs seeking equivalent protection to that which would be provided by 12.7mm (1/2”) drywall performance (common practice), the CCMC evaluation (14036-R) report indicates a 20-minute performance solution for this intumescent coating when installed over spray urethane.

Technical Due Diligence
Being a Federal Government organization and part of NRC, CCMC’s due diligence on all evaluations are impartial, neutral and science-evidence based. CCMC uses the same objective, factual and rigorous process on all evaluations and provides an expert, unbiased opinion on code compliance without commercial interest of the products evaluated.

National Building Code Analysis
In this particular case, a manufacturing company submitted an intumescent coating (for which there is no product standard in the NBC 2015) for product evaluation as an ‘alternative solution’ to Clause 9.10.17.10.(1)(a) of the NBC 2015, when applied over spray urethane foam compliant to CAN/ULC S705.1 (as per 9.25.2.2.(1)(h)). Non-standardized products are often referred to as ‘innovative’ as they are not regulated by a product standard that would define their minimum physical properties,
performance and durability. As they are not standardized, they are proprietary and each must be evaluated on a case-by-case basis to ensure code compliance.

The first part of the CCMC evaluation process involves a code analysis to determine the applicable code sections for this product's usage. For thermal barriers over foam plastics the summary of the code analysis is as follows:

(i) As per sentence 9.10.17.10.(1) there are 3 ‘acceptable solutions’ for thermal barrier over spray urethane foam insulation outlined in Clauses (a), (b) and (c). Clause (a) deems any of the interior finishes outlined in 9.29.4. to 9.29.9. as acceptable protection for foam plastics. Clause (b) allows for sheet metal as protection and Clause (c) allows for thermal barriers meeting 3.1.5.15.(2) as protection of foam plastics in Part 9 buildings;

(ii) As per 9.29.4. to 9.29.9., interior finishes must meet respective product standards;

(iii) As per 9.25.2.3.(7), where insulation may be subject to mechanical damage it shall be protected by a covering of either gypsum board, plywood, particleboard, OSB or hardboard; and

(iv) As per 9.10.17.1., interior finishes shall have a surface flame spread rating of 150.

Alternative Solution Analysis

Based on the compliance path as per NBC 2015 Division A, Clause 1.2.1.1.(1)(b), an ‘Alternative Solution’ can be used that will achieve the minimum level of performance required by the acceptable solutions in Division B defined by applicable Objectives(O) and Functional Statements(FS). More specifically,

(i) For an alternative solution to 9.10.17.10.(1)(a), Protection of Foam Plastics: The O/FS relate to minimizing the risk of accidental ignition, limiting severity and effects of fire and retarding effects of fire so that persons may move to a safe place during a fire;

(ii) For an alternative solution to the interior finishes outlined in 9.29.4. to 9.29.9: The applicable O/FS relate to having to meet a product standard requirements to resist deterioration of expected in-service environment(F80); and

(iii) For an alternative solution for mechanical damage protection in 9.25.2.3.(7): The O/FS relate to requirements to resist deterioration of expected in-service environment (F80).

The current intent statement of the Clause (NBC 2015 9.10.17.10.(1)(a), Protection of Foamed Plastics) relates to the probability of the foam insulation being ignited and contributing to early growth and spread of fire. The intent published in the 1995 User’s Guide elaborates further in the case of a room fire where the foam insulation is to be shielded by a wall/ceiling finish so as to not have a premature ‘flash-over’ condition.

Province and Territory Consultation

In keeping with CCMC’s role to provide a nationally recognized technical opinion for decision-making by the local AHJs, we consult the PTs when validating NBC 2015 interpretations. For the evaluation of DC 315 Intumescent Coating (CCMC 14036-R), CCMC consulted the PTs on the following two items:

1. The interior finishes specified in 9.29.4 to 9.29.9. - The PTs were asked whether they considered the code specified minimum interior finish to be an acceptable benchmark for an alternative solution or whether the current common practice finish would be required.

2. The jurisdictional requirements of the protection of wood stud/ceiling members. - All the acceptable solutions for protection of foam plastics (9.29.4. to 9.29.9.) are panel products and when installed they effectively protect the wood wall stud/ceiling joist member. As a result, the
PTs were asked whether the intumescent coating should cover the foam and the wood stud/ceiling member or just the foam insulation within the cavity.

The results of this consultation, which can be used by the local AHJs in their decision-making, is presented in Appendix B of CCMC 14036-R.

Testing
CCMC understands that most AHJs do not have the means to complete the required technical analysis to identify an innovative product’s equivalent performance to code prescribed minimums. This is why testing for this product was conducted by NRC’s National Fire Laboratory and reviewed by NRC’s fire experts. The CCMC 14036-R outlines the NRC/CCMC technical opinion and provides AHJs a 10-minute or 20-minute performance option for this product based on PTs consultation. These options are related to an alternative solution to the Code ‘minimum’ stated in NBC 2015 9.10.17.10.(1).a) and 3.1.4.2.(1).a).

Regular communication with Canada’s Building Officials
CCMC values its partnership with Building Officials across Canada. CCMC has increased its outreach to Building Officials via your respective associations and will continue to do more in the future. In 2017, CCMC plans on launching a Building Official Helpdesk supported by regular technical updates and we invite building officials to contact CCMC directly for clarification on CCMC evaluations which may be causing confusion in the marketplace.

For additional information regarding the evaluation Report CCMC 14036-R DC 315 Intumescent Coating or any other evaluation reports, please contact us at 613-993-6189 or ccmc@nrc-cnrc.gc.ca and consult the CCMC registry of product evaluations.

Thank you again for your comments and we look forward to continue working with you,

Dino Zuppa,
CCMC Manager
Tiny Homes

Question?
Does the ABC apply to Tiny Houses?
Tiny Homes are small structures which are used as a house for all four seasons. These homes are typically built to the size of a Recreational Vehicle standard, on wheels or directly on foundations. These buildings can be constructed on or off site; by a manufacturer, homeowner or contractor; on a chassis or on a foundation; either way the intended use is for year round occupancy unlike a recreational vehicle.

Buildings intended for four season residential use regardless of size should have development approval.

The Canadian Manufactured Housing Institute (CMHI) has recently investigated the issue surrounding tiny houses, and developed a paper called “Tiny Houses in Canada’s Regulatory context: Issues and Recommendations”. This document researched the concept, the realities and the compliance issues, and developed some recommendations for the construction of these buildings to establish consistent policies regarding the regulation of these houses. However, until changes are made within legislation, if the intended use of the structure is to have a permanent home being manufactured (CSA A277 Certification) or individually constructed, these tiny houses are required to be in compliance with the ABC.

Items to consider when reviewing tiny house construction are:

a) Under the ABC, manufactured buildings are required to comply to the CSA A277 standard.

b) Alberta Transportation regulates trailers not exceeding 2.6m wide, 4m high, or 20m in length and does not regulate the structure sitting on the trailer chassis.

c) ABC requires conformance with items such as but not limited to:

   a. Ceiling heights,
   b. Hallway widths,
   c. Doorway widths,
   d. Stairs, handrails and guards,
   e. Egress windows,
   f. Smoke alarms and CO alarms,
   g. Foundations and anchorage,
   h. Ventilation, and
   i. Energy Efficiency

Background Information:
Working Group Discussion Document:
Tiny Houses In Canada’s Regulatory Context: Issues and Recommendations
Application of Sprinkler Systems in Attic Spaces

Question 1?
Can an intumescent coating be allied to meet NFPA 13 in lieu of membrane protection and/or sprinkler protection?
The topic of NFPA 13 and Section 8.15.1. for concealed spaces within has come up in industry a number of times and some jurisdictions have accepted Alternative Solutions for suppression in lieu by considering the space to be a concealed space.

NFPA 13, specifically, 8.15.1.2.10 speaks to "concealed spaces where rigid materials are used and the exposed face having a flame spread index of 25 or less, and the materials have been demonstrated not to propagate fire more than 10.5' (3.2m)".

Is there a no limiting size of the concealed space referenced?
In review of NFPA 13 and from discussion with an NFPA Engineer, it does not seem that there is a size limitation for spaces meeting the conditions specified; if the concealed space is in accordance with Section 8.15.1.2.10, then sprinklers can be permitted to be omitted; yet this is still a controversial topic throughout the country.

The reference in NFPA 13 does not speak to a number of other facets that should be considered such as:

- Assembly testing vs. one component including the truss material being nominal lumber, its connections being the gang plates and nailing holding the gang plates, the Orientated Stand Board (OSB) as the roof sheathing membrane and any other material within the attic space as part of the assembly such as any Fire stop materials on the individual trusses being used to compartmentalise the attic space. Typically testing has only been shown on a single product such as OSB where they believed this product to be the most stringent.
- Suitability of the proposed products and other intumescent coatings that are proposed in a similar fashion are also in question.
- The environment in which the product is applied and further testing for that environment such as: Freeze/Thaw Resistance, suitability/compatibility and any reactivity on the substrates (truss gang plates as an example), and
- Quality Control measures for conditions such as site applications and ensuring the appropriate coverage in hard to reach areas such as truss heels etc.

So the suitability of intumescent coatings in an attic space still has a number of issues to be resolved if considered through an alternative solution here in Alberta for suppression or does it?
Question 2?
Can an attic be considered a concealed space? What does the Alberta Building Code 2014 say about concealed space and the omission of sprinklers?
Although the topic of what is concealed space is open to interpretation in NFPA 13, which causes some controversy, the answer here in Alberta is quite clear, and comes from the information provided in the 2014 Alberta Building Code.

Although the 2014 Alberta Building Code does not define an attic or concealed space, the legislation specifically references both attic spaces and concealed spaces as individual and separate areas of building construction. Because both are referenced separately within 3.2.5.12.(10), it should be interpreted that each word is defining a different and specific area, and should not be considered as meaning the same space.

Additionally, the question has been raised on if the wording of sentence 3.1.11.5.(1), where it states "or roof assembly of combustible construction, in which sprinklers are not installed," can be used to justify the removal of sprinkler systems in attics where the concealed space is separated into compartments meeting the size requirement specified. This sentence is not applicable to the installation requirements for sprinkler systems, and is speaking specifically to concealed spaces where a sprinkler system installation has not been required based on the classification of the building.

Background Information:
2014 Alberta Building Code
3.2.5.12. Automatic Sprinkler Systems
2) Except as provided in Sentences (10) and (11), NFPA 13R, "Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height," is permitted to be used for the design, construction and installation of an automatic sprinkler system installed
a) in a building of residential occupancy throughout that
  i) is not more than 4 storeys in building height and conforms to one of Articles 3.2.2.47. to 3.2.2.54., or
  ii) is not more than 3 storeys in building height and conforms to Article 9.10.1.3., or
b) in a building of care occupancy with not more than 10 occupants that is not more than 3 storeys in building height and conforms to one of Articles 3.2.2.42. to 3.2.2.46.

10) Notwithstanding the requirements of Sentence (2) regarding the installation of automatic sprinkler systems and except for buildings constructed in accordance with Article 3.2.2.50., in buildings of combustible construction, sprinklers shall be required in
a) porches and balconies,
b) public corridors,
c) stairs that are open and attached,
d) attics and floor/ceiling spaces,
e) penthouse equipment rooms,
f) elevator machine rooms,
g) concealed spaces dedicated exclusively to and containing only dwelling unit ventilation equipment,
h) crawl spaces,
i) closets or storage rooms on exterior balconies, and

54
j) other concealed spaces that are not used or intended for living purposes or storage and do not contain fuel-fired appliances. (See also Article 3.1.11.5. for requirements on the protection of concealed spaces in buildings conforming to Article 3.2.2.50.)

11) A concealed space referred to in Sentence (10) need not be equipped with sprinklers, provided the concealed space meets one of the criteria described in Clause 8.15.1.2 of NFPA 13, “Installation of Sprinkler Systems.”

3.1.11.5. Fire Blocks in Horizontal Concealed Spaces
1) Except for crawl spaces conforming to Sentence 3.1.11.6.(1) and as required in Sentence (3), horizontal concealed spaces within a floor assembly or roof assembly of combustible construction, in which sprinklers are not installed, shall be separated by construction conforming to Article 3.1.11.7. into compartments that are not more than
a) 600 m² in area, with no dimension more than 60 m, if the exposed construction materials within the space have a flame-spread rating not more than 25, and
b) 300 m² in area, with no dimension more than 20 m, if the exposed construction materials within the space have a flame-spread rating more than 25. (See Appendix A.)
Micro-Breweries and Distilleries
Update

Question?
Can a distillery be classified as an Occupancy other than an F1 Occupancy?
Although distilleries are listed as an F1- High Hazard Occupancy, the specific use of the building can be looked at to determine if other classifications can be permitted.

The Alberta Fire Code provides some clarification on the classification of a building. The AFC indicates that beer, wine, and spirits which contain less than 20% by volume alcohol are not considered to be flammable liquids and are not regulated under Section 4.10 of the AFC for Distilleries. Buildings used for the storage of closed containers of these types of distilled beverage alcohols can be classified as medium-hazard industrial occupancies.

Therefore, it would be reasonable for a proposal by a professional, to be made by demonstrating through empirical data that the risks associated with the amounts of combustible or flammable materials are sufficiently low and can justify a different occupancy classification.

Background Information:
2014 Alberta Fire Code
Section 4.10. Distilleries
4.10.2. General
4.10.2.1. Building Classification
1) Except as provided in Sentence (2), buildings or parts of buildings in which distilled beverage alcohol is distilled, processed or stored in bulk shall be classified as high-hazard industrial occupancies.

2) Buildings or parts of buildings used for the storage of closed containers of distilled beverage alcohols shall be classified as medium-hazard industrial occupancies.

1.4.1.2. Defined Terms
Distilled beverage alcohol means a beverage that is produced by fermentation and contains more than 20% by volume of water-miscible alcohol.

Closed container means a container sealed by means of a lid or other device such that neither liquid nor vapour will escape from it at ordinary temperatures.

A-4.10.1.1.(1) Beer, wine, and spirits that contain less than 20% by volume alcohol are not considered to be flammable liquids and are not regulated by this Section. Section 4.10. does not apply to wineries where distilled beverage alcohol is used to fortify wine.
Professional Technologists

Question?
Can someone other than a Professional Engineer sign the A, B, & C Schedules?
A P. Tech can sign the A, B, and C schedules which fall under his/her approved scope of practice. However, P. Tech's cannot take responsibility for designs which fall outside of their approved scope of practice, unlike a traditional professional engineer or architect who can take responsibility for any aspect of a design if they feel they have competence in that additional field.

P. Tech's should be providing SCO's with a copy of their certification under ASET, and the Engineering and Geoscience Professions Act as confirmation of their certification and scope of practice. If a P. Tech does not / cannot provide this information, confirmation can be obtained by contacting Alexa Warkentin of ASET.

Background Information:
2014 Alberta Building Code
2.4.3. Schedules of Professional Involvement
(See Appendix B.)

2.4.3.1. Owner
1) Before beginning construction, the owner shall
a) retain a coordinating registered professional to coordinate all design work and field reviews of the registered professionals required for the project in order to ascertain that
   i) the design will comply with this Code and other regulations made pursuant to the Safety Codes Act, and
   ii) the construction of the project will substantially comply with this Code and other regulations made pursuant to the Safety Codes Act, (see Appendix A),

b) retain registered professionals of record to complete design work and field review required for the project, and

c) provide the authority having jurisdiction with letters in the forms set out in Schedules A-1, A-2, B-1 and B-2 (see Appendix A).

1.4.1.2. Defined Terms
Registered architectural professional means an individual who is authorized to engage in the practice of architecture under the Architects Act and its Regulations.

Registered engineering professional means an individual who is authorized to engage in the practice of engineering under the Engineering and Geoscience Professions Act and its Regulations.

Registered professional means an individual who qualifies as a
(a) registered architectural professional, 
(b) registered engineering professional, or 
(c) licensed interior designer.

ASET
P.Tech.
A Professional Technologist (P.Tech.) member has the right to practice engineering or geoscience independently in accordance with established methodologies and specifications including existing codes and regulations. With this right, a member is able to sign off and stamp their own work, or work completed under the professional technologist's supervision and control and within the professional technologist's approved scope of practice.

APEGA
Joint Boards
The joint boards and committees of APEGA and the Association of Science and Engineering Technology Professionals of Alberta (ASET) work together to manage the Professional Technologist (P.Tech.) designation. In particular, they define and agree on each Professional Technologist's scope of practice so that the differences in the scopes of practice between a Professional Member (Professional Engineer or Professional Geoscientist) and a Professional Technologist are clear to other professionals and the public. Scopes of practice also clearly define limitations and for what each Professional Technologist is permitted to take responsibility.

Professional Technologists can practice engineering or geoscience independently, using established methods and specifications, such as existing codes and regulations. Professional Technologists can also stamp and sign off on their own work when it is within their scope of practice, as per ASET's regulations.

Reference Materials

APEGA website
https://www.aPGA.ca/about-apega/boards-and-committees/joint-boards/

ASET website
http://www.aset.ab.ca/Become-a-Member/Professional-Pathway/Designation-Requirements/Become-a-Member/P-Tech.aspx

ASET Contact
Alexa Warkentin
Professional Practice Coordinator
780.425.0626 (Ext. 508)
Email: alexaw@aset.ab.ca
Registered Professionals & Schedules

Question?
Can schedules be provided by more than one Registered Professional of Record for each element of a design within the same discipline? I.e., Architectural, Electrical, Mechanical etc.

Permit applications for projects requiring professional involvement, including the submittal of professional schedules, should include a single set of schedules from the registered professional of record where professional schedules are deemed necessary.

The intent behind having one schedule per discipline is to ensure that all aspects of the specific discipline have been reviewed by a single entity. Without one overseer, there is potential for overlap of items, or items being missed.

There are some situations where the registered professional of record for a project will not feel competent or qualified to take responsibility for every aspect of the design. In these situations, a specialty engineer can become involved with the design for this or any portion of a design they feel competent in. An example of this type of situation would be the mechanical plans. Quite often a separate engineer takes responsibility for the design of the sprinkler system specifically while leaving the remaining portions of the mechanical designs under the responsibility of another registered professional.

In situations like these, the SCO should not be accepting separate schedules from each professional for their portion of the work. A single set of schedules provided from a single registered professional of record who is taking responsibility for coordination of the design and review to ensure every aspect of the project under that discipline (i.e., mechanical) have been reviewed, is what is required. The registered professional of record is not taking responsibility for the work of the other registered professionals, rather they are responsible for the coordination of the project and take on the role of the overseer, and coordinator to ensure all areas of the design and site review have been covered.

To ensure compliance has been achieved through design and field reviews, the registered professional of record can ask the specialty professional(s) for assurances for their portion of the work. Assurance can be provided to the registered professional of record through documentation such as a “Letter of Commitment, or a Letter of Compliance”. These documents could take the form of a B-1 or B-2, or a C-1 or C-1
schedule and are submitted to the Registered Professional of Record and not to the SCO.

Background Information:
2014 Alberta Building Code
2.4.3. Schedules of Professional Involvement

2.4.3.1. Owner
1) Before beginning construction, the owner shall
a) retain a coordinating registered professional to coordinate all design work and field reviews of the registered professionals required for the project in order to ascertain that
   i) the design will comply with this Code and other regulations made pursuant to the Safety Codes Act, and
   ii) the construction of the project will substantially comply with this Code and other regulations made pursuant to the Safety Codes Act, (see Appendix A),
b) retain registered professionals of record to complete design work and field review required for the project, and
c) provide the authority having jurisdiction with letters in the forms set out in Schedules A-1, A-2, B-1 and B-2 (see Appendix A).

1.4.1.2. Defined Terms
Registered professional of record means a registered professional retained to be responsible for the integrity and completeness of the design and field reviews of one or more of the following elements of a project:
(a) architectural,
(b) structural,
(c) mechanical,
(d) electrical, and
(e) geotechnical.

Registered professional means an individual who qualifies as a
(a) registered architectural professional,
(b) registered engineering professional, or
(c) licensed interior designer.

Responsibilities for Engineering Services for Building Projects - March 2009
3 GENERAL PROJECT REQUIREMENTS AND ORGANIZATION
Professional services may be performed by engineers and architects employed by different organizations or by separate departments within a large organization.

Coordination of the engineering work and construction activities requires special care and attention. To produce quality engineering work, members of a project team need to understand and accept their respective responsibilities for integrity and completeness in the design and construction process. They must participate in the established quality control procedures for the specific assignment and communicate with other members of the project team. Finally, they must document their actions to provide a record for checking purposes or audit by their professional peers.

1. Allocation of responsibilities on building projects is not always well defined.
2. On any particular building project, there are several engineering disciplines and many contractual parties involved.

3. There can be various contractual parties and many potential types of contractual arrangements. For example, a design professional could be a prime consultant or a sub-consultant, and could be engaged by an owner, constructor or sub-constructor.

4. In addition, there are many types of “project delivery methods”, each with its peculiarities (e.g. traditional design-bid, fast-tracked, design-build, etc.).

5. Some aspects of professional responsibilities are not always clearly defined – they may not be specifically attached to a particular discipline or to a particular registered professional of record.

6. Certain aspects of design for building construction are sometimes undertaken without involvement of design professionals where, in fact, there should have been such involvement.

Consequently, there is a potential for some responsibilities to be unassigned or to be unclear.

3.7 GENERAL RESPONSIBILITIES OF ORGANIZATION PARTICIPANTS
Organization participants have different responsibilities, as outlined below.

3.7.3 All Registered Professionals of Record
As defined in the Alberta Building Code, the registered professional of record in each discipline is:
- Responsible for coordinating the design and field reviews; and
- Responsible for integrity and completeness of the design and field review in their respective discipline.

“Integrity and Completeness” is considered to mean:
- Responsibility is assigned or delegated for all aspects within the discipline;
- The divisions between the respective areas of responsibilities are clearly defined and avoid overlaps;
- The design criteria or assumptions are consistent among the different areas within the discipline;
- Work is delegated to specialty professionals as required; and
- Reviews are made where required to determine if delegation was understood.

The registered professional of record may rely on a specialty professional to be responsible for design and field review of elements in the respective disciplines. Nevertheless, the registered professional of record has the overall responsibility to ensure that all design is undertaken as is necessary to achieve a system that meets acceptable engineering standards. In addition, the registered professional of record must require the other members of the design team to sign and seal the documents for such elements.

A professional engineer, as required under the Code of Ethics, must only undertake work for which he or she is competent or qualified. Therefore, a registered professional of record is entitled to assume that if a professional engineer undertakes an assignment
for a portion of the work within the discipline then the specialty professional is assumed to be competent and qualified. However, if evidence arises that suggests the specialty professional is not competent or qualified, then the registered professional of record must undertake such additional work to ascertain whether the person is competent.

G-2 LETTERS OF COMMITMENT AND COMPLIANCE FROM COORDINATING REGISTERED PROFESSIONAL, REGISTERED PROFESSIONAL OF RECORD AND SPECIALTY PROFESSIONALS

The coordinating registered professional coordinates all the registered professionals of record providing services on the specific project. The coordinating registered professional does not take responsibility for work that the registered professionals of record are covering.

The coordinating registered professional may also coordinate and rely on the specialty professionals, such as a civil engineer, if they do not come under one of the registered professionals of record.

Similarly, the registered professionals of record do not take responsibility for the work of other registered professionals working in the specific discipline for which he or she is responsible. However, the registered professional of record is responsible for coordination to ensure all areas are covered (in regard to design and site review). Attachment of qualifying letters to the schedules explaining the inter-relationship with other professionals in the specific discipline may be acceptable to the authority.

Often the specialty professional is appointed during the construction phase. In this case, Schedule C and accompanying letters would give closure to the responsibility of the applicable aspects. It would indicate who is the specialty professional, whether field reviews were needed and certify that they were done.

The coordinating registered professional and the registered professional of record should establish with the various specialty professionals a clear written understanding of the respective areas of responsibility. Often this is done through the applicable contract documentation. For example, the responsibility of a specialty professional responsible for design and field review of a pre-engineered building could be specified in contract documents prepared by the structural engineer of record.

If the coordinating registered professional or registered professional of record is relying on design or field review of a specialty professional, the coordinating registered professional and/or registered professional of record should attach supporting documentation to Schedules C-1 and C-2. This would not only establish the responsibility of the coordinating registered professional and registered professional of record. It also would help to clarify what is expected of the specialty professional and would help ensure that all areas of responsibility are covered.

For example, the coordinating registered professional and registered professionals of record could ask the specialty professional to provide:

- A “Letter of Commitment” addressed to the coordinating registered professional or registered professional of record as appropriate, in a form similar to Schedule B-1 or B-2, to acknowledge responsibility for design by the specialty professional. If required by the coordinating registered professional or registered professional of record, the letter should also confirm that the specialty professional is undertaking responsibility for field review of the applicable aspects of the project.
• A “Letter of Compliance”, addressed to the coordinating registered professional or registered professional of record as appropriate, in a form similar to Schedule C-1 or C-2, to confirm that the specialty professional has performed the necessary field review and that the applicable aspects of the project substantially comply with the specialty professional’s design. (This letter would only be required in cases where the specialty professional is required to perform field review).

Links to Reference Material

Responsibilities for Engineering Services for Building Projects - March 2009
https://www.apega.ca/assets/PDFs/building-projects.pdf

Guideline for Relying on Work Prepared by Others – March 2013
https://www.apega.ca/assets/PDFs/others-work.pdf

Contact Information

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Fabric Covered Structures

Question?
Are fabric covered structures required to meet Energy Code requirements? And if not, would this apply to all occupancy classifications?
There are exemptions permitted within the ABC and the 2011 NECB which permit buildings to be constructed, without meeting the applicable energy code requirements.

The ABC gives an SCO the authority to permit a building which is intended to be in place for a limited time only, for an occupancy which may, because of its nature exist for a short time, to warrant only selective compliance with this Code.

Although the ABC and NECB do not exempt tent structures specifically from meeting energy requirements, the Appendix note within the NECB provides clarification on some examples of building which could be reviewed and considered as being exempt from meeting some Part 3 and energy code requirements. There are situations where it would be appropriate to exempt the building envelope requirements, but require that the electrical, HVAC, and service water heating requirements still be met.

Fabric covered tent structure should be reviewed on an individual basis to determine the use of the space, and if the design and intended use of the building warrants exemption(s) from the energy code requirements.

Background Information:
2011 National Energy Code of Canada for Buildings
2.2.1. Administration
2.2.1.1. Conformance with Administrative Requirements
1) This Code shall be administered in conformance with the appropriate federal, provincial or territorial regulations or municipal bylaws or, in the absence of such regulations or bylaws, in conformance with the Administrative Requirements for Use with the National Building Code of Canada 1985.
2) The authority having jurisdiction may exempt a building or part thereof from some or all of the requirements of this Code where it can be shown that the nature or duration of the occupancy makes it impractical to apply them. (See Appendix A.)
A-2.2.1.1.(2) Exemptions Due to Special Occupancy Requirements. The intended use or nature of the occupancy of some buildings may be such that compliance with certain Code requirements could limit or prevent these buildings from performing their intended function. Sentence 2.2.1.1.(2) permits the authority having jurisdiction to review such special cases and to permit deviations. Only the nature of the occupancy, rather than economic or other factors, should be considered in permitting such deviations.

As it would be difficult and onerous to include every single potential exemption in this Code, Sentence 2.2.1.1.(2) addresses unforeseen circumstances with a general statement. The following lists of possible exemptions to requirements in Parts 3, 4 and 5 of Division B are not exhaustive.

Examples of buildings that could be exempted from complying with some Part 3 requirements:
- horticultural, silvicultural and botanical greenhouses, and greenhouses used for research could be exempted from the requirements related to fenestration performance and area;
- buildings in which permanent processes continuously produce enough heat such that no other heating source is required could have their insulation requirements reduced to the extent that the processes can still provide all of the required heating;
- industrial buildings where processes impose large ventilation requirements could be exempted from airtightness requirements;
- buildings in which only sufficient radiant heating is provided to improve conditions locally for the occupants without temperature control of the ambient air, such as bus shelters or bleacher areas in some ice arenas.

Examples of buildings that could be exempted from complying with some Part 4 requirements:
- The application of the lighting requirements in Part 4 may adversely affect the use of spaces with special functional requirements; as such, some exceptions to these requirements may be necessary. Except for particular types of process lighting, however, it is unlikely that a space or lighting system would be exempt from all the requirements in Part 4. Some necessary exceptions to particular requirements are identified in the Code. Exemption should be determined on a case-by-case basis, taking into consideration the space’s function, available technologies and cost-effectiveness.

Example of buildings that could be exempted from complying with some Part 5 requirements:
- buildings or rooms in which the processes or activities call for temperature or humidity conditions outside the normal range required for comfort.

2014 Alberta Building Code
9.36.1.3. Compliance and Application
(See Appendix A.)
2) Subsections 9.36.2. to 9.36.4. apply to
a) buildings of residential occupancy to which Part 9 applies,
b) buildings containing business and personal services, mercantile or low-hazard industrial occupancies to which Part 9 applies whose combined total floor area does not exceed 300 m², excluding parking garages that serve residential occupancies, and
c) buildings containing a mix of the residential and non-residential occupancies described in Clauses (a) and (b).

3) Subsection 9.36.5. applies only to
a) houses with or without a secondary suite, and
b) buildings containing only dwelling units and common spaces whose total floor area does not exceed 20% of the total floor area of the building. (See Appendix A.)

4) Buildings containing non-residential occupancies whose combined total floor area exceeds 300 m² or medium-hazard industrial occupancies shall comply with the NECB.

5) Except as required by Sentence 9.36.2.1.(8), buildings or portions of buildings that are not required to be conditioned spaces are exempted from the requirements of this Section. (See Appendix A.)

A-9.36.1.3.(5) Exemptions. Examples of buildings and spaces that are exempted from the requirements of Section 9.36. include seasonally heated buildings, storage and parking garages, small service buildings or service rooms and unconditioned spaces in buildings. However, note that, where a building envelope assembly of an exempted building is adjacent to a conditioned space, this assembly must meet the requirements of Section 9.36.

Conditioned space means any space within a building the temperature of which is controlled to limit variation in response to the exterior ambient temperature by the provision, either directly or indirectly, of heating or cooling over substantial portions of the year.

1.1.1. Application of this Code
1.1.1.3. Temporary Use

1) Except for buildings constructed under Part 10 of Division B, the authority having jurisdiction may allow, for a limited time only, the erection or relocation and existence of a building for an occupancy which may, because of its nature, exist for a short time, under circumstances which may warrant only selective compliance with this Code. (See Appendix A.)

A-1.1.1.3.(1) Temporary Use. An authority having jurisdiction has the discretionary power to allow the temporary use or occupancy of a building even though the building may not comply entirely with all requirements of the Alberta Building Code. Exceptions to compliance with all requirements are permitted in cases where buildings are intended for use and/or occupancy for short periods of time. This reasonable approach allows tents or air-supported structures to be erected and occupied at carnivals, circuses, sideshows, auctions, religious outdoor events, etc. It also allows for more permanent structures, although still temporary in nature, to be used as school rooms, trailers on car dealer lots, storage sheds, office accommodation at construction sites, or shelters to house plants during the spring season at shopping centres. “Temporary” is usually thought of as being under three years.
Farm Buildings

Question?
When do “Farm building(s)” fall outside the scope of the ABC, and when is permitting under the SCA required?

Review of a building may determine that the building can be classified as a “farm building”; and therefore the construction of the building may not require permitting under the Safety Codes Act. However, this does not mean that a “farm building” is not required to be constructed to the legislative requirements of a Building Code. Farm buildings under the scope of the National Farm Building Code of Canada (NFBC) Article 1.1.1.3. are required to conform to the appropriate requirements within the National Building Code of Canada 1995 unless specifically exempted within the NFBC legislation.

Although both pieces of legislation require the building to be constructed to a specific standard of Code, permitting in only required under the SCA and the ABC.

The classification of a building such as a greenhouse, does not automatically classify a building as a “Farm Building”. The wording of “greenhouse” refers only to the use of the space, and does not determine what legislation is applicable.

Buildings should be reviewed through a review of five aspects within zoning, use, occupant load and occupancy to determine which legislation is applicable. The aspects which should be considered are:

1) Does the building fall within the definition of a farm building as noted within the Permit Regulation; occupied for an agricultural operation, and located on land designated for agricultural use as a permitted or discretionary use under the local Land Use Bylaw?
2) Does the use of the building fall under those identified in the ABC as one falling under the definition of a farm building eg. housing livestock vs manufacturing, processing, etc.?
3) Does the building contain a low human occupant load as is referenced within the National Farm Building Code of Canada as one person per 40m²?,
4) Will the building be accessed or utilized by the public eg. retail sales? and
5) Is the building housing a marijuana grow operation?

Determining the appropriate land use is not as simple as ensuring that the land has been designated as Agricultural Land, as has been common practice in the past. Under the Permit Regulation, the definition of agricultural land is taken from the Agricultural Operations Practices Act. The definition of agricultural land is land, the use of which for agricultural is either a permitted or discretionary use under the land use bylaw of the municipality.
Therefore, review of the local Land Use bylaw to determine if the use of the building as agricultural is a permitted or discretionary use is needed. Appropriate land use zoning should be determined through confirmation from the Planning or Development Department.

The classification of a building is based on its intended use within the space. Each proposed use should be reviewed to determine if the use falls within those identified within the Permit Regulation and NFBC definitions, and the Appendix’s. Some examples of farm building uses which have been identified are buildings for the housing of livestock, storage or maintenance of equipment, or storage of materials or produce.

Only agricultural operation uses such as those listed in the Permit Regulation should be looked at as possibly meeting the definition of a farm building. Other operations relating to secondary processing, manufacturing or sales of product(s) for example, fall outside the scope of the definition of a “farm building” and fall under the scope of the Alberta Building Code.

Farm buildings are permitted to contain either a high or low occupant load. Farm buildings can contain high occupant loads in buildings such as horticultural or livestock produce or auction barns; and low occupant loads in others such as poultry housing, and horse exercise and training facilities where no bleachers or viewing areas are provided. However, Sentence 1.1.1.1.(5) of the Alberta Building Code specifies that the ABC is not applicable to buildings of low human occupancy associated with the operation of a farm or acreage where the building is used for housing of livestock, storage or maintenance of equipment, or for storage of materials or products. Buildings of high human occupancy should fall under the requirements of the ABC.

Buildings which can be accessed and used by the public also fall under the scope of the ABC rather than the National Farm Code of Canada (NFCC).

Marijuana grow operations although possibly only containing growing operations like a greenhouse, have an increased level of humidity as well as the increased level of potential health risks due to pesticides and fertilizers. Because of these concerns, buildings used for marijuana grow operations should not be considered as farm buildings, and should fall under the scope of the ABC in all situations. (STANDATA currently under development)

Review of a building may determine that the building can be classified as a “farm building”, and therefore the construction of the building does not require permitting under the Safety Codes Act. However, this does not mean that the building is not required to be constructed to the legislative requirements of a Building Code. Farm buildings under the scope of the National Farm Building Code of Canada (NFBC) Article 1.1.1.3. are required to conform to the appropriate requirements within the National Building Code of Canada 1995 unless specifically exempted within the NFBC legislation.

When reviewing a building to determine if it falls under the scope of the ABC, or if it can be classified as a “Farm Building”, an SCO should be looking to each of these four
items for clarification. Once reviewed, if the building(s) falls within the scope of the ABC, for any of the four points, the building should no longer be considered as a farm building, and permitting under the SCA and conformance to the ABC is required.

**Background Information:**

**Permit Regulation**

**Interpretation**

1(1) In this Regulation,

(i) "farm building" means a building located on agricultural land as defined in the Agricultural Operation Practices Act that is occupied for an agricultural operation as defined in the Agricultural Operation Practices Act, including, but not limited to,

   (i) housing livestock,
   (ii) storing, sorting, grading or bulk packaging of agricultural products that have not undergone secondary processing, and
   (iii) housing, storing or maintaining machinery that is undertaken in the building;

**Agricultural Operations Practices Act**

**Definitions**

1 In this Act,

(a.1) "agricultural land" means

   (i) land the use of which for agriculture is either a permitted or discretionary use under the land use bylaw of the municipality or Metis settlement in which the land is situated or is permitted pursuant to section 643 of the Municipal Government Act,

**2014 Alberta Building Code**

**1.1.1.1. Application of this Code**

5) This Code does not apply to

a) a building of low human occupancy associated with the operation of the farm or acreage on which it is located, where the building is used for the

   i) housing of livestock,
   ii) storage or maintenance of equipment, or
   iii) storage of materials or produce, (See Appendix A.)

**A-1.1.1.1.(5)(a) Farm and Acreage Buildings.** Farm and acreage buildings include, but are not limited to, produce storage facilities, livestock and poultry housing, milking centres, manure storage facilities, grain bins, silos, feed preparation centres, farm workshops, and horse riding, exercise and training facilities not used by the public. Farm buildings may be classed as low or high human occupancy, depending on the occupant load.

Examples of farm buildings likely to be classed as low human occupancy as defined in Article 1.2.1.2. of the National Farm Building Code of Canada are livestock and poultry housing, manure and machinery storage facilities, and horse exercise and training facilities where no bleachers or viewing areas are provided.

Examples of buildings that would be classed as other than low human occupancy include farm retail centres for feeds, horticultural and livestock produce, auction barns and show areas where bleachers or other public facilities are provided. Farm work centres where the number of workers frequently exceeds the limit for low human occupancy are also in this category.
It is possible to have areas of both high and low human occupancy in the same building, provided that the structural safety and fire separation requirements for high human occupancy are met in the part thus designated.

**National Farm Building Code of Canada**

1.2.1.2. Defined Words and Phrases

*Low Human Occupancy (as it applies to farm buildings)* means an occupancy having an occupant load of not more than one person per 40 m² (431 ft²) of floor area during normal use.

Farm Buildings means a building or part thereof which does not contain a residential occupancy and which is associated with and located on land devoted to the practice of farming, and used essentially for the housing of equipment of livestock, or the production, storage or processing of agricultural and horticultural produce or feeds. (See Appendix).

**Appendix Note** – Almost word for word to the ABC Appendix-1.1.1.1.(5)(a).

1.1.1.3. Conformance to National Building Code

1) *Farm buildings shall confirm to the appropriate requirements in the National Building Code of Canada 1995 except as specifically amended or exempted by the provisions of this Code.* (see Appendix A).

**Appendix A Explanatory Material for the National Farm Building Code of Canada 1995**

A-1.1.1.3.(1) Application. Notwithstanding Subsection 2.1.5. of the National Building Code of Canada 1995, farm buildings are required to conform to the appropriate requirements in the National Building Code except as specifically amended or exempted by provisions of this Code. Part 9 of the National Building Code provides detailed requirements for the construction of small buildings up to 600 m² per floor and 3 storeys in height which apply to all occupancies except assembly, institutional and high hazard industrial. All other buildings must be designed to satisfy the requirements in the remainder of the National Building code of Canada 1995. Section 2.5. of the National Building code provides for equivalent design and performance criteria. This may apply where the design of a farm building or component is supported by evidence of sound engineering practice.

**Additional Information:**
See attached documents from the Rocky View County Land Use Bylaw C-4841-97 regarding possible Land use zones like residential, commercial and industrial which have agricultural operations noted as either a permitted or discretionary use.
(iii) 15.0 m (49.2 ft.) from any road, internal subdivision or road, service.

c) Yard, Side:

(i) 45.00 m (147.64 ft.) from any road, County;
(ii) 60.00 m (196.85 ft.) from any road, highway;
(iii) 15.00 m (49.21 ft.) from any road, internal subdivision or road, service;
(iv) 6.00 m (19.69 ft.) all other.

d) Yard, Rear:

(i) 30.00 m (98.43 ft.) from any road;
(ii) 15.00 m (49.21 ft.) all other.

46.6 Minimum Habitable Floor Area, excluding basement

(i) 92.00 sq. m (990.28 sq. ft.) single storey dwelling;
(ii) 92.00 sq. m (990.28 sq. ft.) split level dwelling, the total area of two finished levels;
(iii) 74.00 sq. m (796.53 sq. ft.) split entry or bi-level on the main floor;
  18.00 sq. m (193.75 sq. ft.) finished lower level;
(iv) 92.00 sq. m (990.28 sq. ft.) combined floor area, two storey dwelling;
(v) 92.00 sq. m (990.28 sq. ft.) main floor for dwelling, moved-in.

46.7 Maximum height of buildings

(i) principal building - 10.00 m (32.81 ft.);
(ii) accessory building - 5.50 m (18.04 ft.).

SECTION 47 FARMSTEAD DISTRICT (F)

47.1 Purpose and Intent

The purpose of this District is to provide for a single parcel of land containing an existing Farmstead from an unsubdivided quarter section.

47.2 Uses, Permitted

Accessory buildings less than 80.00 sq. m (861.11 sq. ft.) building area
Agriculture, General
SECTION 53  GENERAL BUSINESS DISTRICT (B-2)

53.1 Purpose and Intent

The purpose of this District is to provide for a wide range of business and associated uses which are compatible with each other and do not adversely affect the surrounding land use.

53.2 Uses, Permitted

Agriculture, General
Government Services

53.3 Uses, Discretionary

Agricultural Support Services
Animal Health Care Services
Auctioneering Services
Automotive, Equipment and Vehicle Services
Cemetery and Interment Services
Commercial Communications Facilities - Type “A”, Type “B”, Type “C”
Dwelling Unit, accessory to the use
General Industry Type I
General Industry Type II
Health Care Services
Licensed Medical Marijuana Production Facility (See Section 20 for regulations)
Outdoor Storage, Truck Trailer
Personal Service Businesses
Signs
Storage Area
Truck Trailer Service
Warehouse
Warehouse Stores, excluding hazardous goods

53.4 General Regulations

The General Regulations apply as contained in Part 3 of this Bylaw as well as the following provisions:

(a) All parcels having this land use designation on the date of adoption of Bylaw C-6517-2007 (October 2, 2007) remain in full force and effect; however, this land use district is no longer available for any redesignation applications subsequent to that date.

53.5 Minimum & Maximum Requirements

(a) Minimum Yard, Front:

(i) 6.00 m (19.69 ft.).
SECTION 58    NATURAL RESOURCE INDUSTRIAL DISTRICT (NRI)

58.1 Purpose and Intent

The purpose and intent of the District is to provide for the development of industrial uses related to non-renewable natural resource extraction and processing.

58.2 Uses, Permitted

Accessory buildings less than 250.00 sq. m (2,690.98 sq. ft.) building area
Government Services

58.3 Uses, Discretionary

Agriculture, General
Commercial Communications Facilities - Type “A”, Type “B”, Type “C”
Dwelling - accessory to a use listed in this district
Dwelling, Moved In - accessory to a use listed in this district
Gas-fired Thermal Electric Generation Plan
Natural Resource Extraction/Processing

58.4 General Regulations

The General Regulations apply as contained in Part 3 of this Land Use Bylaw as well as the following provisions:

(a) Minimum yard, front setback to operations, including excavations and stockpiles:

   (i) 30.00 m (98.43 ft.) from any road, County;

   (ii) 60.00 m (196.85 ft.) from any road, highway;

   (iii) 30.00 m (98.43 ft.) from any road, internal subdivision;

   (iv) 15.00 m (49.21 ft.) from any road, service adjacent to a road, highway;

   (v) 10.00 m (32.81 ft.) from any road, service adjacent to a road, County.

(b) Minimum yard, side setback to operations, including excavations and stockpiles:

   (i) 30.00 m (98.43 ft.) from any road, County;

   (ii) 60.00 m (196.85 ft.) from any road, highway;

   (iii) 15.00 m (49.21 ft.) from any road, service adjacent to a road, highway;
(ii) accessory buildings: 5.50 m (18.04 ft.).

(c) Maximum dwelling units per lot is two.

(d) Total building area for all accessory buildings - 90.00 sq. m (968.75 sq. ft.).

(e) Maximum number of accessory buildings is two (2).

60.7 Special Requirements

Prior to issuance of a Development Permit or building permit for development of a site not serviced by a public piped water system and/or a public piped sewer system, the Development Authority must be satisfied that an adequate sewage disposal system exists and that the method of sewage disposal would not be a public health hazard.

SECTION 61 HAMLET COMMERCIAL DISTRICT (HC)

61.1 Purpose and Intent

The purpose and intent of this District is to provide for business and personal service uses.

61.2 Uses, Permitted (Excepting the Hamlet of Bragg Creek, as per 61.9)

Accessory Buildings (less than 35.00 sq. m (376.74 sq. ft.))
Churches
Government Services
Grocery Store
Health Care Services
Home-Based business, Type I (in an existing dwelling)
Personal service business
Post Offices
Restaurants
Retail Store

61.3 Uses, Discretionary

Amusement and Entertainment Services
Animal Health Care Services
Automotive, Equipment and Vehicle Services
Auctioneering Services
Child Care Facilities
Commercial Communications Facilities - Type "A"
Drinking Establishment
Dwelling unit accessory to the business use
Greenhouses and ancillary uses.
Liquor Sales
Offices
Outdoor Cafe
49.6 Minimum Habitable Floor Area, excluding basement

(a) 140.00 sq. m (1,506.95 sq. ft.) single storey dwelling;
(b) 140.00 sq. m (1,506.95 sq. ft.) split level dwelling, the total area of two finished levels;
(c) 121.00 sq. m (1,302.43 sq. ft.) split entry or bi-level and the main floor; 28.00 sq. m (301.39 sq. ft.) finished lower level;
(d) 150.00 sq. m (1,614.59 sq. ft.) two storey dwelling, combined floor areas;
(e) 140.00 sq. m (1,506.95 sq. ft.) main floor - dwelling, moved-in.

49.7 Maximum height of buildings

(a) principal building - 11.00 m (36.09 ft.);
(b) accessory buildings - 6.50 m (21.32 ft.).

49.8 Maximum Dwelling Units per lot is one (1) Dwelling, single detached, and one (1) Accessory Dwelling Unit.

49.9 Maximum total building area for all accessory buildings – 120.00 sq. m (1,291.67 sq. ft.)

49.10 Maximum number of accessory buildings – Two (2).

SECTION 50 RESIDENTIAL TWO DISTRICT (R-2)

50.1 Purpose and Intent

The purpose of this District is to provide a residential use on a small parcel of land which accommodates minor agricultural pursuits and required accessory buildings.

50.2 Uses, Permitted

Accessory buildings less than 150.00 sq. m (1,614.59 sq. ft.) building area
Dwelling, single detached
Home-Based Business, Type I
Keeping of livestock (See Section 24 for regulations)
Private swimming pools

50.3 Uses, Discretionary

Accessory buildings greater than 150.00 sq. m (1,614.59 sq. ft.) building area and less than 225.00 sq. m (2,421.87 sq. ft.) building area
Accessory Dwelling Unit (may be a Secondary Suite, a Suite within a Building, or a Garden Suite)
Bed and Breakfast Home
Child care facilities
Commercial Communication Facilities - Type "A"
Dwelling, moved-in
Health Care Practice
Home-Based Business, Type II
Keeping of livestock (See Section 24 for regulations)
Kennels, Hobby
Market Gardens and Greenhouses on parcels greater than 6.00 hectares (14.83 acres) in area where there is a surface supply of water
Private Riding Arena on parcels greater than 6.00 hectares (14.83) acres in area
Signs
Special Care Facilities
Special Events Parking
Tree Farms on parcels greater than 6.00 hectares (14.83 acres) in area where there is a surface supply of water

50.4 General Regulations

The General Regulations apply as contained in Part 3 of this Bylaw, as well as the following provisions.

50.5 Minimum and Maximum Requirements

(a) Parcel Size:

The minimum parcel size shall be 1.60 hectares (3.95 acres) or the area in title at the time of passage of this Bylaw.

(b) Yard, Front:

(i) 45.00 m (147.64 ft.) from any road, County;
(ii) 60.00 m (196.85 ft.) from any road, highway;
(iii) 15.00 m (49.21 ft.) from any road, internal subdivision, or road service.

(c) Yard, Side:

(i) 45.00 m (147.64 ft.) from any road, County;
(ii) 60.00 m (196.85 ft.) from any road, highway;
(iii) 15.00 m (49.21 ft.) from any road, internal subdivision, or road service;
(iv) 3.00 m (9.84 ft.) all other.

LUB 11/12/2012
AMA Regional SCO Meeting
Building, Fire, Electrical, Plumbing, Gas & Private Sewage

April 5, 2017
8:30 am - 4:00 pm

Calgary (Okotoks)
Best Western Plus Okotoks Inn & Suites
100 Southbank Road
Heritage Ballroom
AMA Regional SCO Meeting
Building, Fire, Electrical, Plumbing, Gas & Private Sewage
April 5, 2017
8:30 am – 4:00 pm

Best Western Plus Okotoks Inn & Suites
100 Southbank Road
Okotoks
Heritage Balloon

Facilitators: Geoff Brownlie, Technical & Community Specialist, AMA
Stephanie Martin, Technical & Community Specialist, AMA

AGENDA

8:30 am Call to Order and Introductions Stephanie Martin, AMA

8:35 am – 8:45 am AMA General Updates Geoff Brownlie, AMA
- Builders Licencing
- Administrative Penalties
- Reorganization of Public Safety
- Visual Signal STANDATA
Q & A

8:45 am – 9:45 am Planning 202 B and the Safety Codes Permit Jeff Laurien, Municipal Services
David Ramsay, AMA
Q & A

COFFEE BREAK
9:45 am – 10:00 am
Sponsored by the Safety Codes Council

10:00 am – 11:30 am Safety Codes Council Danielle Paradis, Safety Codes Council
- Fire SCO Certification
- Building SCO Certification
- Professional Development for SCO’s
- ACT System: New Technology to
  Modernize Services
Q & A

LUNCH
11:30 am – 12:30 pm
Sponsored by the Safety Codes Council

*** See Individual Building / Fire / Electrical / Plumbing & Gas & Private Sewage Agendas ***
*** For Afternoon Meeting Information ***
AMA Regional SCO Meeting
Building Break-Out Session
12:30pm – 4:00 pm
Heritage Ballroom

Facilitator: Geoff Brownlie, AMA

AGENDA

12:30 pm – 1:00 pm  General Updates from AMA
- Chief Building Administrator
- Harmonization of the Code
- Persons with Developmental Disabilities (PDD)
- Food Trucks Standard
- 2014 New Standard
Q & A

1:00 pm – 2:00 pm  Discussion Topics / Questions
- A440.4 Window Installations
- ASHRAE 62 Addendum N
- Commissioning
- Section 9.36 Air Change Requirements
- Attached Garages and RSI Values
- DC 315
- Tiny Homes
- Sprinkler Systems in Attic Spaces
- Micro-Breweries
- Professional Technologists
- Professional Schedules
- Fabric Covered Structures
- Farm Buildings

COFFEE BREAK
2:00 pm – 2:15 pm
Sponsored by Safety Codes Council

2:15 pm – 4:00 pm  Energy Code Presentation
Tom Lauder, BSc, SCO
City of Calgary

*** MEETING AJOURNED ***

*** Meeting Minutes will be posted on the Safety Codes Council website ***
AMA Regional SCO Meeting

Fire Break-Out Session
12:30pm – 4:00 pm
Heritage Ballroom

Facilitator: Tom Harnos, OFC

AGENDA

12:30 pm – 2:00 pm  Discussion Topics / Questions
  • Community and Technical Support (Organizational Scope)
  • STANDATA
  • S.A.F.E. Registry
  • Harmonization

COFFEE BREAK
2:00 pm – 2:15 pm
Sponsored by Safety Codes Council

2:15 pm – 4:00 pm  Discussion Topics / Questions
  • Food Trucks
  • General discussion and questions

*** MEETING AJOURNED ***

*** Meeting Minutes will be posted on the Safety Codes Council website ***
AMA Regional SCO Meeting
Electrical Break-Out Session
12:30pm – 4:00 pm
Pinnacle Meeting Room

Facilitator: Clarence Cormier, Chief Electrical Administrator,
Community & Technical Support, AMA
Gregg Marshall, Community & Technical Support, AMA

AGENDA

12:30 pm – 2:00 pm  Discussion Topics / Questions
- Presentation - Clarence Cormier
- AMA & STANDATA Updates
- Questions from the floor

COFFEE BREAK
2:00 pm – 2:15 pm
Sponsored by Safety Codes Council

2:15 pm – 4:00 pm  Discussion Topics / Questions
- Staying Current – SCA responsibilities, STANDATA
- Alberta Built Products
- Bathroom Luminaires
- Non-Metallic Outlet Boxes
- In-situ Modification
- Cannabis Extraction Facilities
- Wireless Switches
- High Voltage Cable Ampacity
- EMT and Luminaire Support
- Outdoor Receptacles
- Hotels/Motels with Cooking Facilities

*** MEETING AJOURNED ***

*** Meeting Minutes will be posted on the Safety Codes Council website ***
AMA Regional SCO Meeting
Plumbing, Gas & PSDS Break-Out Session
12:30pm – 4:00 pm
Summit Boardroom

Facilitator: Perry Wager, AMA
Joe Petryk, AMA

AGENDA

12:30 pm – 2:00 pm Discussion Topics / Questions

- furnaces used for temporary or construction heat.
- 75 foot hose length for construction heaters
- water reuse, including the Standata for toilets, urinals, subsurface irrigation as identified in the 2015 NPC
- venting emergency floor drains
- Private Sewage SOP Update/status-concerns
- PSDS and water well separation distances

COFFEE BREAK
2:00 pm – 2:15 pm
Sponsored by Safety Codes Council

2:15 pm – 4:00 pm Discussion Topics / Questions

- uncertified appliances, field approvals and the B149.3
- gas engines and turbines
- plumbing code regulation-automatic code adoption, removal of all existing amendments
- fueling stations-LNG, CNG, hydrogen, propane. Does the local authority having jurisdiction understand their responsibilities and the requirements for a B149.1 permit
- PSDS Certification status of Installers

*** MEETING AJOURNED ***

*** Meeting Minutes will be posted on the Safety Codes Council website ***
AMA Update – Joint Session

Builders Licencing
Ensuring that builders are held accountable for the integrity and safety of their construction is a key component of the safety system in Alberta. However, even with the existing systems in place, we still hear complaints from homeowners and the construction industry about poor construction resulting in repair costs and other negative impacts to Albertans. A builders licensing program could address gaps such as:

- Anyone can be a builder,
- No mechanisms to remove poor builders,
- Data and information to research a builder is lacking,
- Low levels of consumer awareness and knowledge, and
- Blurred accountability and track record.

Several other provinces have implemented builders licensing programs, including British Columbia, Columbia. Ontario, and Quebec. AMA is currently seeking feedback on how to develop a builder licensing program in Alberta which supports the needs of consumers and builders to fill the gaps in our current safety system.

Administrative Penalties
Awaiting approval from Cabinet to have Administrative Penalties come into proclamation.

Reorganization of Public Safety
Our Public Safety Division recently completed a restructuring, with the Office of the Fire Commissioner, Safety Services, and Central Operations branches being reorganized into two key branches: Community and Technical Support, and Strategic and Systems Support.

The reorganization was designed to meet several outcomes over the next few years. Those include the development of data and information systems and enhancement of accountability frameworks, including developing agreements with delegated administrative organizations and re-thinking those relationships to enhance public safety.

It was also meant to strengthen compliance systems, including the introduction of administrative penalties, and the introduction of builder licensing. Finally, it is aimed at providing more integrated support to communities, focusing on consistency and proactive response.

The division continues to review the effectiveness of the restructured units and make adjustments as needed. The reorganization will help position PSD to respond to new and existing challenges for years to come.

There would not be any changes in the services we currently administer. Our Branch will be Community and Technical Support.

Previously the disciplines were in separate groups such as:

- Building-Technical Advisors/Professionals and Building Administrator- Codes & Standards-Building, Fire Barrier Free & Energy under Director James Orr and
- Building Field Inspectors, Senior Field Inspector and Senior Code Analyst- Safety Codes Application under Director Chris Contenti.
- Similarly, for the other disciplines Administrators and Technical Advisors working group were under a different director than the "Field Inspectors"
Moving forward under the Director:
James Orr
Director, Standards Development & Technical Support
Building/Fire, Energy & Accessibility
Community & Technical Support, Public Safety Division
Alberta Municipal Affairs

This will include the Building, Fire, and Barrier-Free Administrators, Technical Advisors (Professionals), Senior Technical Advisors, and Technical Advisors. No longer referred to as “Field Inspectors”

Moving forward under the Director:
Harry Li, P.Eng
Director, Standards Development & Support - Mechanical
Community and Technical Support
Public Safety Division
Alberta Municipal Affairs

This will include Electrical, Elevating Devices, Passenger Ropeways & Amusement Rides, Plumbing and Gas, and Private Sewage Administrators, Senior Technical Advisors, and Technical Advisors. No longer referred to as “Field Inspectors”

Visual Signals
The intent of the changes made within the 2014 ABC Code through the BFSC, the BSC and AMA was to recognize that the hard of hearing population may be everywhere.

The thought process that has been discussed by this office is:
- Sentence 3.2.4.20.(1) is applicable generally to all buildings with a fire alarm system, and
- Sentence 3.2.4.20.(2) is applicable to residential suites only.

Fire alarm systems required within sentence (1), including their visual signal devices should be installed in conformance with the CAN/ULC-S524 “Installation of Fire Alarm Systems” standard. An appropriate number and location(s) of visual signal devices should be installed so that the signal is visible throughout normally occupied floor areas and areas of high ambient noise (exceeds 87 dBA).

For residential suites, a minimum of one visual signal device per unit which is visible within the principle living area should be required. Conformance to the S524 standard and the area design limitations may require additional devices to be installed within larger suites or suites where the layout does not permit the visual signal to be seen through-out the normally occupied floor area. Lighting intensities throughout the floor area should be designed to follow the S524 requirements. (STANDATA soon to be released)
Builder licensing engagement

Provide input on a builder licensing program designed to strengthen consumer protection in residential home construction.

Status: Closed
Ministry responsible: Municipal Affairs

Overview

This engagement is to determine the best approach for developing a builder licensing program for Alberta’s residential construction and renovation industry.

Builder licensing could require builders to demonstrate they are in good financial standing and have the competencies and skills to work in residential home construction. Combined with mandatory home warranties, builder licensing would improve builder accountability and residential construction quality.

Builder refers to individuals and companies who construct residential buildings, and could include aspects of renovations to homes and condominiums.

Goals of a builder licensing program

Licensing builders could help to prevent issues before they occur. In order to engage in residential home construction, builders may be required to maintain an active license to demonstrate they possess the competencies, skills, and financial health so as to not pose a significant risk to homebuyers.

Establishing a builder licensing program in Alberta may:

- protect consumers by helping them make more informed decisions
- give Albertans peace of mind that their home is being built to a safe standard
- increase accountability for builders
- improve the business practices of builders
- improve builder competencies
- increase the quality of residential construction
- increase consumer protection in the homebuilding market
- align Alberta with several other provinces across Canada

Engagement outcomes

Focus groups and an online survey were open to the public until March 14, 2017. The following groups were consulted during the engagement:

- home owners and consumers
- builders
- renovators
- architects and engineers
- warranty providers
- municipalities
- trades unions
- external government stakeholders
- other provinces such as British Columbia that have builder licensing in place and can provide information on what worked well, and what challenges were encountered

The feedback from the stakeholder engagement will inform the development of an effective builder licensing program in Alberta. Feedback will be compiled and posted online.

Contact
builderlicensing@gov.ab.ca
1-866-421-6929

Builder Licensing: Discussion Guide

Prepared by

Public Safety Division
Alberta Municipal Affairs
Taking a Look at Residential Construction

The residential construction market in Alberta has changed considerably in the last 25 years.

- Alberta has roughly 12 per cent of Canada’s population, but 25 per cent of Canada’s housing starts.
- On a per-capita basis, Alberta has significantly more housing starts than British Columbia, Ontario, or Quebec.
- The average Alberta house price in 1990 was around $110,000. In 2015 it was closer to $400,000.
- The construction industry, including both residential construction and non-residential, makes a significant contribution to Alberta’s economy, accounting for nearly 12 per cent of provincial gross domestic product (GDP) in 2015, and 11.3 per cent of total employment in Alberta.
- There are approximately 4,000 residential home builders operating in Alberta.
- Builders can vary significantly in size – some build several hundred homes per year while others build just a few homes every couple of years.

### Canadian Housing Starts (Units) per 1,000 Population

![Graph showing Canadian housing starts per 1,000 population from 1990 to 2015 for Quebec, Ontario, Alberta, and British Columbia.](image-url)
Ensuring the Integrity, and Safety of Construction

Ensuring that builders are held accountable for the integrity and safety of their construction is a key component of the safety system in Alberta. Government has many mechanisms in place to ensure the safety and quality of residential home construction in Alberta. Some of those mechanisms include:

- Codes and standards which are set by national and international bodies and are adopted into Alberta law.
- Issuance of permits by municipalities or accredited agencies.
- Inspections by safety codes officers to ensure compliance with codes and standards.
- The issuance of orders and administrative penalties to enforce compliance.
- An appeals board set up to hear any appeals on decisions made with respect to orders, administrative penalties, or compliance-related activities.

In addition to these mechanisms, the *New Home Buyer Protection Act (NHBPA)* came into force on February 1, 2014, and established minimum coverage for mandatory home warranty following a series of issues in residential construction. By requiring home builders to ensure warranty is in place for new homes, homeowners have some recourse if they encounter problems.

Even with these above protections, we still hear complaints from homeowners and the construction industry every year about poor construction resulting in repair costs and other negative impacts to Albertans. The residential home building industry in Alberta has a number of gaps that could be addressed through a builder licensing system. These gaps include:

- Anyone can be a builder;
- No mechanisms to remove a poor builder;
- Data and information to research a builder is lacking;
- Low levels of consumer awareness and knowledge; and
- Blurred accountability and track record.
What is Builder Licensing?

Several other provinces have implemented builder licensing systems, including British Columbia, Ontario, and Quebec. Builder licensing is also prevalent in other countries such as the United States and Australia.

Municipal Affairs is seeking your feedback on how to develop a builder licensing program in Alberta that supports the needs of consumers and builders and fills the gaps in our current safety system. Builder licensing would require builders to have an active licence in order to build. They may also need to demonstrate that they are in good financial standing and have the necessary skills to work in residential home construction. Builders who do not meet these requirements or who violate the terms of their licence, could have their licence revoked so they cannot build homes in Alberta.

Key Elements of a proposed builder licensing program have not yet been determined. The feedback received through focus groups and the online survey will help to inform the development of a made-in-Alberta builder licensing program. However, builder licensing could involve:

- Builder application process involving disclosure and declaration of:
  - Corporate history
  - Build experience
  - Financial claims and court proceedings
- One Builder License and Track Record
- Publication of Builder Record and Declaration
- Provision to remove or suspend builders and issue orders
- Integrated system in which:
  - Permits can be denied or revoked;
  - Non-compliant builders can be prevented from getting warranty;
  - Licensing can be withheld from non-compliant builders.

Scope of Builder Licensing

In addition to determining what components a builder licensing system should include, government must determine the scope of builder licensing. Construction work occurs over a large continuum that includes everything from complete new builds involving multiple permits and multiple trades, major structural changes requiring permits, minor changes that do not require a permit (e.g. moving a light fixture or putting up drywall), to basic remodelling (e.g. painting, flooring, etc.). As described in the chart below, existing programming is in place across this continuum, and builder licensing can be scaled to the level necessary to address gaps.
Outcomes of this Discussion

1. Help government better understand consumers’ experiences with the residential construction industry.

2. Strengthen government’s understanding of any gaps that may currently exist within the residential construction industry.

3. Help government understand how to best optimize safety and minimize risk through implementing a builder licensing program for the residential construction industry.

4. Inform the development and define the parameters of a builder licensing program to best address those gaps.
Administrative Penalties for Non-Compliance

Changes to the Safety Codes Act Allow For Administrative Penalties for Non-Compliance

Recap and background:

Recent changes to the Safety Codes Act have allowed for the development of a designated authority to manage permitting and inspection in open areas in Alberta. This means that municipal districts and counties who remain unaccredited and contract their permitting and inspection services to a permitting agency, fall under the supervision of the Alberta Safety Codes Authority (ASCA). ASCA sets the framework under which permitting and inspections are carried out in these regions.

Another change to the Safety Codes Act is the mechanism under which penalties can be assessed against either homeowners or contractors for non-compliance with the regulatory framework for onsite wastewater and other disciplines that fall under the Act.

Below is the framework being developed for the administration of penalties in the Province. It was anticipated that the process would be ready for implementation in late fall of 2016, and is now awaiting approval from Cabinet to come into proclamation.

Administrative Penalty Framework under the Safety Codes Act

An additional enforcement tool under the Safety Codes Act Administrative Penalties

Monetary penalties levied by administrative action to address non-compliance

• Three key roles:
  1. To modify behaviour and considerations about safety
  2. To compel compliance; and
  3. To punish non-compliance

• Powers of administrative penalties will be the responsibility of a Minister-appointed employee of the province (Administrator).
• Penalties may range up to a maximum of $100,000 or up to $10,000 per day.

Administrative Penalties

• Are not tickets.
• Will not be issued by safety codes officers, municipalities, agencies or ASCA
• Not to be used in lieu of charges under the Act
• Cannot be in addition to charges under the Act

Some possible criteria for issuing Administrative Penalties

• As under the New Home Buyer Protection Act, the Administrator could consider:
– previous enforcement actions under the Act for contraventions of a similar nature by the person or the organisation’s directors or officers
– the severity and extent of the contravention
– the extent of the harm caused by the contravention or the degree of risk of harm
– The economic benefit derived from the contravention Fair Trading Act model
– Seriousness of contravention or failure to comply
– Degree of willfulness or negligence in the contravention or failure to comply
– The impact on any person adversely affected by the contravention or failure to comply
– Whether or not the person who receives the notice of administrative penalty has a history of non-compliance

Appeals

• Appeals would be made to the Municipal Government Board who also administer appeals under the New Home Buyer Protection Act
• Processes will match where possible those under NHBPA
• Decisions still to be made on criteria, timelines, fees and surety
• Those initiating the request for an Administrative Penalty will be required to attend appeal hearings

Notifications

• Administrative Penalties would be published on the Ministry’s website
• Initiators of Administrative Penalties will be notified of results.

Timing and enforcement

• Deadline for serving a regulated person with written notice is 3 years from the date of the offence.
• The Administrator may file a copy of the notice of administrative penalty, if any, with the clerk of the Court of the Queen’s Bench
• This will provide an additional opportunity for enforcement and collection

Next Steps

• Regulation is currently being drafted by Legislative Counsel
• Final review of draft regulation in upcoming weeks
• Testing of process for issuance and appeals
• Additional review of processes with stakeholders
• Final Regulation presented to Minister.
• Minister presents Regulation to Executive Council
• Administrator appointment made regulation in force Fall 2016
VISUAL SIGNALS

PURPOSE
The purpose of this Standata is to clarify the intended locations for Visual Signal Devices under the Alberta Building Code 2014 (ABC 2014).

DISCUSSION
Safety codes officers and code users have raised issues with the lack of clarity as to the required number and location of visual signal devices. Situations have developed where visual signals are installed in locations that are not necessary for compliance or alternatively, visual signals are omitted from locations that are necessary for compliance and public safety. This interpretation is designed to provide a consistent application of the ABC 2014.

CODE REFERENCES
Article 3.2.4.5. states:

3.2.4.5. Installation and Verification of Fire Alarm Systems
1) Except as permitted by Articles 3.2.4.11. and 3.2.4.20., fire alarm systems, including the voice communication capability where provided, shall be installed in conformance with CAN/ULC-S524, "Installation of Fire Alarm Systems."

Article 3.2.4.20. states:

3.2.4.20. Visual Signals
(See Appendix A.)
1) Visual signal devices shall be installed in addition to audible signal devices in buildings required to have a fire alarm system and shall conform to CAN/ULC-S526, "Visible Signal Devices for Fire Alarm Systems Including Accessories."
2) Visual signal devices required by Sentence (1) shall be installed so that the signal from at least one device is visible within a suite in which they are installed.

APPLICATION
Sentence 3.2.4.20.(1) applies to all buildings with a fire alarm system.
Sentence 3.2.4.20.(2) only applies to residential suites.

INTERPRETATION
1. Sentence 3.2.4.20.(1) is interpreted as requiring visual signals visible throughout occupied floor areas (areas which may be considered not occupied may include but are not limited to service rooms, storage rooms, and janitor closets) and areas of high ambient noise (i.e. exceeds 87 dBA), in addition to audible signals. The appropriate number and location of visual signal devices shall comply with CAN/ULC-S524.

Unless stated otherwise, all Code references in this STANDATA are to Division B of the Alberta Building Code 2014.

Issue of this STANDATA is authorized by the Building Administrator

[Original Signed]
Paul Chang

Alberta Municipal Affairs – Community & Technical Support, 16th Floor, 10155 –102nd Street, Edmonton, Alberta, Canada, T5J 4L4
Phone: 1-866-421-6929 Email: safety.services@gov.ab.ca Website: www.municipal_affairs.alberta.ca
2. For buildings required to have a fire alarm system, Sentence 3.2.4.20.(2) is interpreted as requiring a minimum of one device to be located within a residential suite. The visual signal shall be visible within the residential suite's principal living area (i.e. living room); which is intended for use by all occupants of the suite.

This INTERPRETATION is applicable throughout the province of Alberta.
Vision

**ALBERTA:** a safe place to live, work, and play.
Agenda

• Why are we doing this?
• Fire Certification Survey
• Changes for SCO's
• New SCO's/Students
• Scopes of Practice
• Training
• NFPA 1031/1033 certification
• Questions
Why are we doing this?

- Fire Certification and Training Working Group
  - Working group created to address concerns expressed to the Fire sub-council by Alberta Fire services
  - Previous concerns about training and training availability
  - Need to differentiate scopes of practice
- Since 1994 the scopes of practice have not been clearly defined.
  - Example: Group A and Group B Level 1
  - Group A Certification was standalone
Changes for SCOs

- Scopes of practice for each Group and Level have changed.
  - No need to take new training if SCO is wanting to stay certified at the same level.
- New Group E certification for issuing permits or inspection petroleum storage tanks.
  - B2 certification scope will no longer include tanks.
- Group D 1 & 2 SCOs grandfathered. No new certifications will be issued.
Changes for SCOs

• Two-year transition period, from **2017-2019** to allow time for additional training
• **May 2019**
Fire certification survey

• 522 respondents (29%) response rate
• Overall, respondents supported the proposed changes.
• For example:
  – On average, approximately two thirds of respondents agreed or strongly agreed with the proposed defined scopes of practice for Group B and C Fire SCOs.
  – Approximately 84% agreed or strongly agreed with establishing Group A as the entry requirement for Groups B and C certifications.
Do you work for:

- Accredited Municipality with less than 5000 population
- Accredited Municipality with 5001 - 10,000 population
- Accredited Municipality with 10,001 - 50,000 population
- Accredited Municipality with 50,001 - 100,000 population
- Accredited Municipality with over 100,000 population
- Accredited Agency
- Accredited Corporation
- Government of Alberta
- Another organization but not as a Fire SCO
- Retired
- Unemployed
What certification(s) do you hold? (You may choose more than 1)
For students or new SCOs

- Group A is a prerequisite for Groups B and C
- Firefighting Experience is not a prerequisite for any Fire SCO certification.
  - No experience requirement in any of the standards (NFPA)
  - No objective or consistent means of measurement
Changes to scope of practice

Proposed Structure

Group A
- Group B Level 1 Inspector
  - Group C Level 1 Investigator
  - Group B Level 2 Inspector
  - Group C Level 2 Investigator
  - Group E Petroleum Tank Inspector

*Entry Qualification:
- Fire Group B Level 2 Certification
  OR
- Grade 12 or equivalent plus minimum 2 years' experience installing and/or testing tanks and CPCA PM 1 or PM 2 Certification
Changes to scope of practice

Group A Certification

• A Group A SCO is an entry-level fire inspector and investigator.
• Establish operational occupant loads for any building in-scope and where the occupant load is less than 150 people.
• Conduct investigations where:
  – Fire loss is estimated to be less than 1 Million dollars;
  – There is no death or injury requiring medical attention and/or;
  – The fire is not expected to be arson.
• Investigate unsafe conditions in all buildings
Changes to scope of practice

Group A Certification

- Inspect small assembly, residential, business and personal services, mercantile and low hazard industrial buildings (less than 600 M²) These Buildings:
  - Are not an assembly occupancy with an occupant load greater than 150 people; and
  - Cannot be a group classification of B1, B2, B3 (penitentiary, hospital or care facility) or F1, F2 (industrial high and medium hazard buildings such as chemical warehouse and spray-paint operation)
  - These buildings may not have fire alarm systems, standpipe systems, sprinkler systems or other automatic fire suppression systems with the exception that they may have a commercial wet chemical kitchen fire suppression system.
Changes to scope of practice

Group B (Fire Inspector)

- Inspect any building other than high-hazard industrial occupancies and “high buildings” as described in 3.2.6.1(1) of the Alberta Building Code;
- Conduct investigations according to the scope of buildings defined in Group A;
- Establish operational occupant loads for any building with an occupant load of less than 300 people.
- Investigate unsafe conditions in all buildings
Changes to scope of practice

Group B (Fire Inspector)

- Can issue and enforce orders for buildings defined for Group B1
- **Cannot** issue permits for petroleum storage tank installations; and
- **Cannot** issue variances (alternative solutions).
Changes to scope of practice

Group B Level 2

- Inspect any classification of building;
- Establish occupant loads for any buildings;
- Issue orders, variances (alternative solutions), enforce orders and investigate unsafe conditions in all buildings.
- Conduct investigations according to the scope of Group A.
Changes to scope of practice

Group C Level 1 (Investigator)

- Investigate the origin and case of fires where:
  - Fire loss is estimated to be less than 2 million dollars;
  - No death has occurred;
  - The fire is not suspected to be arson.

- Investigate unsafe conditions in all buildings.
Changes to scope of practice

Group C Level 1 (Investigator)

- Establish occupant loads according to scope of Group A;
- Inspect buildings defined in Group A;
- **Cannot** issue orders or variances (alternative solutions), enforce orders or issue permits for storage tanks.
Changes to scope of practice

Group C Level 2 (Investigator)

- Investigate the origin and case of fires in all buildings;
- Investigate unsafe conditions in all buildings;
- Establish operational occupant loads according to the scope of Group A;
- **Cannot** issue orders or variances (alternative solutions), enforce orders, or issue permits for storage tanks.
Changes to scope of practice

Group E  
Petroleum Tanks

- Inspection of new and existing above ground tank, piping and dispensing installations and removals related to the storage of flammable and combustible liquids;
- Inspection of new and existing underground storage tanks, piping and dispensing installations and removals;
- Investigate unsafe conditions related to petroleum storage tanks only;
- Issue permits and variances (alternative solutions) for storage tanks cannot investigate fire origin and cause.
1031 and 1033 Certification

- Equivalences
- Practical Requirements
Training

• Changes to Fire SCO Training Program
• Changes to Fire SCO Training Delivery
  – Each student is assigned a course advisor for questions and mentoring
  – Courses online through Council rather than Lakeland College
  – More options for practical evaluation
    • Local fire departments with appropriate resources, or
    • Lakeland College or other training institutions approved by the Office of the Fire Commissioner
Questions?

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