AMA Regional SCO Meeting
Building, Fire, Electrical, Plumbing, Gas & Private Sewage
Friday October 14, 2016
8:30 am – 4:00 pm

Grande Prairie – Coca Cola Center
KMSC Law Meeting Room A&B
10205 98 Street

Facilitators

Geoff Brownlie, Senior Building Inspector, AMA
Stephanie Martin, Building Inspector, AMA

AGENDA

8:30 am – 8:35 am Call to order and Introductions Geoff Brownlie, AMA

8:35 am – 9:00 am Safety Codes Council Updates Allison Karch, Safety Codes Council
- Accreditation & Certification updates
- Training updates
- ACT Project – Accreditation, Certification, and Training Management Platform
- Sub-Council updates
- ASCA updates
- Council priorities for 2017-2020

9:00 am – 9:30 am Presentation David Ramsay, AMA
MGA and Codes. Where do they connect?

9:30 – 10:00 am Administrative Penalties Geoff Park, AMA

10:00-10:15 am COFFEE BREAK Coffee Sponsored by Company Name

10:15 - 11:15 am Fire Alarm Monitoring as per ULC 561 Brian McBain, Senior Regulatory Affairs Representative, ULC
Overview of Safety Services Discussion Feedback

11:15 - 11:45 am Overview of Safety Services Discussion Feedback David Ramsay, AMA
Allison Karch, Safety Codes Council

11:45 - 1:00 pm LUNCH Lunch Sponsored by Company Name

*** See Building / Fire / Electrical / Plumbing & Gas & Private Sewage Agendas ***
For Concurrent Afternoon Meeting Locations and Information

Alberta Municipal Affairs (AMA)
Phone: 1-866-421-6929
E-mail: safety.services@gov.ab.ca

Alberta

Safety Codes Council
Phone: 1-780-413-0099
E-mail: www.safetycodes.ab.ca/
AMA Regional SCO Meeting
Concurrent Building Break-Out Session
1:00 pm – 4:00 pm
KMSC Law Meeting Room A

Facilitators
Geoff Brownlie, AMA

AGENDA

1:00 pm - 1:20 pm  Fire Safety Plans & SCO Authority (Confirm)  Tina Parker, AMA
1:30 pm - 2:00 pm  Updates from AMA  Geoff Brownlie, AMA
2:00pm – 2:30 pm  Discussion Topics from Floor
• Air Barrier Tightness
• Hot Water Heating Systems
• R Value vs U Value

2:30 – 2:45 pm  COFFEE BREAK  Coffee Sponsored by Safety Codes Council

2:45 pm - 4:00pm  Discussion Topics from Floor
• Combustion Air for Appliances
• Commercial Kitchen Exhaust and MUA
• Conditioned Space vs Unconditioned Space
• Application of Energy Requirements to Secondary Suites
• Farm Buildings
• Plan Reviews and Permit Conditions
• Radon Mitigation
• School Washrooms
• Secondary Suite Exits
• Sprinklering of Crawl Spaces NFPA 13
• Pull Stations on Exits Update
• Bedroom Egress Windows
• Firewall Construction

*** ADJOURNMENT ***
Meeting Minutes will be posted on the Safety Codes Council website
http://www.safetycodes.ab.ca/SCO/Pages/Regional-Meetings.aspx

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CONSTRUCTION SITE FIRE SAFETY PLANS

INTRODUCTION
This STANDATA has been developed to allow building safety codes officers to accept fire safety plans for construction and demolition sites as required under Section 5.6. of the Alberta Fire Code 2014 where fire safety codes officers are not readily available.

DISCUSSION
Requirements for fire safety plans at construction and demolition sites are regulated under the Alberta Building Code 2014 (ABC) and the Alberta Fire Code 2014 (AFC). Under ABC 8.1.1.1., which applies to all buildings regulated by the ABC, fire safety at construction and demolition sites shall conform to Section 5.6. of Division B of the AFC. Article 5.6.1.3. of the AFC, which sets out criteria for fire safety plans, requires that a fire safety plan shall be prepared for the site and accepted in writing by the fire department and the authority having jurisdiction prior to commencement of construction and demolition. The AFC defines the authority having jurisdiction as a fire safety codes officer.

ISSUE
Article 5.6.1.3. is an Alberta specific code requirement and creates an unintended restriction for the acceptance of fire safety plans. The wording of 5.6.1.3. does not specifically provide for the option of a building safety codes officer accepting fire safety plans. In some areas of the province, a fire safety codes officer and fire department staff are not readily available or accessible or may not be prepared for this undertaking. Both the Chief Building Administrator and the Chief Fire Administrator support and encourage the practice for building and fire safety codes officers and the fire department to accept construction site fire safety plans as part of a joint risk management process.

While the intent of the 2014 changes to Article 5.6.1.3. was to provide a clear method for information dissemination and enforcement, this code requirement will be reassessed as part of Alberta’s national/provincial code harmonization project for the next Alberta building and fire code editions. In the duration, a variance is necessary to provide authority for building safety codes officers to accept fire safety plans, where fire safety codes officers and fire departments are not readily available, as a matter of public safety.
CODE REQUIREMENTS
Alberta Fire Code 2014

5.6.1.3. Fire Safety Plan
1) Except as required in Sentence (2), prior to the commencement of construction, alteration or demolition operations, a fire safety plan, accepted in writing by the fire department and the authority having jurisdiction, shall be prepared for the site and shall include
   a) the designation and organization of site personnel to carry out fire safety duties, including a fire watch service if applicable,
   b) the emergency procedures to be followed in the event of a fire, including
      i) initiating a fire warning,
      ii) notifying the fire department,
      iii) instructing site personnel on the procedures to be followed once the warning has been initiated, and
      iv) confining, controlling and extinguishing the fire,
   c) measures for controlling fire hazards in and around the building (see Appendix A), and
   d) a maintenance procedure for firefighting measures required in Section 5.6.
2) Prior to the commencement of construction, alteration or demolition operations that occur in an existing building required to have a fire safety plan conforming to Section 2.8., the revised fire safety plan shall take into account the changes occurring to the building and shall be accepted in writing by the fire department and the authority having jurisdiction.
3) Where construction, alteration or demolition involves hot work, a fire safety plan, accepted in writing by the fire department and the authority having jurisdiction, shall be prepared for the site.

Alberta Building Code 2014

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

VARIANCE
A building safety codes officer exercising powers pursuant to their designation of powers and terms of employment in accordance with the Safety Codes Act, may accept fire safety plans as authorized under Article 8.1.1.1. of the ABC and in accordance with the terms and conditions of Section 5.6 of Division B of the AFC throughout the Province of Alberta. This variance applies to building safety codes officers employed by an accredited municipality, accredited regional services commission, accredited agency, accredited corporation, the Alberta Safety Codes Authority and section 33(1) safety codes officers appointed by the Minister for the administration of the Safety Codes Act anywhere in Alberta.

This variance also recognizes the existing authority for building and fire safety codes officers to inspect requirements common to both the ABC and AFC including construction site fire safety plan compliance throughout the construction process.
UpDATES
From James.
Relaxation Requests for Barrier-Free Design Requirements V2

DISCUSSION

Barrier-free design requirements apply to all buildings as specified in Article 3.8.1.1. Application. All new builds, including additions, are expected to comply with all barrier-free design requirements. There are various occupancy types where people with disabilities are unemployable for reasons of safety, and would be exempt from providing barrier-free design requirements.

CODE REFERENCES
1. Article 3.8.1.1. states:

3.8.1.1. Application
   1) The requirements of this Section apply to all buildings except
      a) detached houses, semi-detached houses, houses with a secondary suite,
         duplexes, triplexes, townhouses, row houses and boarding houses, which
         are not used in social programs such as group homes, halfway houses
         and shelters (see A-1.4.1.2.(1), Secondary Suite, in Appendix A of
         Division A),
      b) relocatable industrial accommodations,
      c) buildings of Group F, Division 1 major occupancy, in which only the
         requirements dealing with hearing sensory disabilities would apply, and
      d) buildings that are not intended to be occupied on a daily or full-time basis,
         including automatic telephone exchanges, pumphouses and substations,
         in which only the requirements dealing with hearing sensory disabilities
         would apply.
      (See Appendix A.)
   2) Buildings required to be barrier-free must comply with all requirements
      designed to assist persons with physical, sensory and developmental disabilities.

2. Sentence 2.2.1.4.(1) of Division C states:

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

1) The Chief Building Administrator may grant relaxation of one or more of the requirements of Section 3.8. of Division B if an owner can demonstrate to the satisfaction of the Chief Building Administrator that
   a) the specific requirements are unnecessary, or
   b) extraordinary circumstances prevent conformance.

INTERPRETATION

1. All additions and new buildings will automatically be denied relaxation for any of the barrier-free design requirements. The application form for barrier free relaxation has been revised identifying only renovations to existing.

2. The occupancy types that are exempt from providing barrier-free design requirements include but are not limited to:

   - Fire & EMS cormitories including washrooms and showers
   - Industrial buildings used for heavy equipment maintenance and/or storage
   - Workers' facilities or camps located on industrial sites, i.e., drilling or mining sites
   - Waste Management Facilities
   - Abattoirs
   - Recycling Centres – operations-sorting areas
   - Food/beverage service kiosks
   - Limited use, limited access washroom facilities, i.e., transit turnarounds

Alternate use occupancies:
- Portable/modular classrooms as overflow for schools, where barrier-free facilities are provided elsewhere,
- Temporary structures – 3 years or less of occupancy/use where barrier free design requirements are shown to be unnecessary.

If there is any question or concern with other new builds that may be exempt from compliance with barrier-free requirements, please contact Alberta Municipal Affairs 1-866-421-6929 or safety.services@gov.ab.ca

This INTERPRETATION is applicable throughout the province of Alberta.
Pre-Assessment for Relaxation of Barrier-Free Requirements

Municipality ______________________ SCO/Plans Examiner ______________________

Date Reviewed by AHJ ____________________ AHJ Phone # ______________________

AHJ Building Project/Reference # ______________________

Name of Client ______________________ Type of Business ______________________

All new buildings and additions will automatically be denied relaxation for any of the barrier-free design requirements in the ABC Section 3.8.. The application form for barrier-free relaxation has been revised identifying only renovations to existing construction.

The following documents shall be initialised by SCO/Plans Examiner and must accompany the application for Relaxation of Barrier-Free Requirements:

☐ A floor plan showing existing layout including identified rooms/spaces/areas, measurements and orientation of washroom fixtures, if applicable, to request a relaxation.

☐ A floor plan showing proposed changes, if available.

CODE REQUIREMENT REQUESTED TO BE RELAXED

☐ Access to the building

☐ Access to and supply of washroom facilities

☐ Other (please specify) ______________________

Reason: _____________________________________________

______________________________

______________________________

______________________________

If the above information is not attached, the Application for Relaxation of Barrier-Free Requirements will not be processed by Safety Services.

NOTE: A request for Relaxation of Barrier-Free Requirements is not a guarantee a relaxation will be granted.

Please mail, email or drop off the required documents accompanied with a $105 fee made out to the Government of Alberta to the address listed above. If you need to speak with the Barrier-Free Administrator, please call for an appointment. Thank you.

TO BE COMPLETED BY GOVERNMENT OF ALBERTA ONLY

RELAXATION: ☐ APPROVED ☐ DENIED BY ______________________
BACKGROUND TO THE PREPARATION OF THE GUIDELINE

In article 9.7.4.3 Performance Requirements, the 2014 Alberta Building Code requires that performance grades for manufactured windows, doors and skylights within the scope of the NAFS standard be selected according to CSA A440S1 "Canadian Supplement to AAMA/WDMA/CSA 101/1.S.2/A440, NAFS – North American Fenestration Standard/Specification for Windows, Doors, and Skylights" so as to be appropriate for the conditions and geographic location in which the window, door or skylight will be installed.

CSA A440S1 provides a simplified method for determining the Specified Wind Load and Specified Driving Rain Wind Pressure for selecting the NAFS performance grade and water resistance. The simplified method uses the most conservative exposure factors and internal and external gust factors and pressure coefficients for High Rise buildings from User's Guide – NBC 2010: Structural Commentary I.

The use of parameters intended for high rise buildings results in values that are conservative for housing and small buildings compared to the values that would be generated under Part 4 of the code by reference to Structural Commentary I. This in turn requires much higher ratings for the fenestration products than is necessary to meet the actual environmental loads. This can mean significantly increased costs to supply products with the higher ratings, and in some cases products that meet the higher ratings may not be available.

The CSA Technical Committee on Performance Standards for Windows studied this matter in November 2015 and addressed it by approving an update to CSA A440S1 to be published sometime in 2016. However the updated version will not be recognized until the next Alberta Building Code.

In addition to the simplified method for determining Specified Wind Load and Specified Driving Rain Wind Pressure CSA A440S1 also explicitly allows values calculated in accordance with the more detailed methods in User’s Guide – NBC 2010: Structural Commentary I. The design pressures in this guideline were prepared by a registered professional engineer in accordance with the latter method.

The Provincial Working Group

The Canadian Home Builders’ Association Alberta sponsored a Provincial Working Group to consider this issue, consisting of manufacturers’ representatives, builders' representatives, representatives of the Safety Codes Council and Alberta Municipal Affairs, the City of Calgary, the City of Edmonton, the Alberta Building Officials Association, RDH Building Science, and the British Columbia Building Safety and Standards Branch.

The working group decided that the best approach would be to calculate a table of required NAFS Performance Grade ratings for Part 9 buildings in Alberta municipalities similar to the one British Columbia adopted in Table C-4 of the 2012 BCBC introduced in Revision 8. Because making
changes to the 2014 ABC is not feasible, it was proposed that such a table be provided in a
guideline document.

The Provincial Working Group commissioned Berkeley Vadocz Engineering Inc. to create this
guideline which is aligned with the amendments approved for the next update to CSA A440S1.

OBJECTIVE OF THE GUIDELINE

The objective of the guideline is to provide an engineered set of Specified Driving Rain Wind
Pressure and Specified Wind Load values for Part 9 buildings for all municipalities having Climatic
Data in Table C-2 of the code, so that code users do not have to commission engineering services
on a case-by-case basis. The required NAFS ratings based on the Design Loads are also provided.

More accurate and possibly lower values can be calculated by a professional engineer under Part
4 of the Code by reference to Structural Commentary I.

SCOPE AND LIMITATIONS

This guideline contains values for the Specified Driving Rain Wind Pressure and Specified Wind
Load certified by Berkeley Vadocz Engineering Inc., a specialty professional engineering firm
employing professionals registered in the Province of Alberta. These values may be used in a
municipality when permitted by the authority having jurisdiction.

Use of this document is limited to Part 9 Residential buildings subject to the scope and limitations
listed below. Users of this document are responsible to familiarize themselves with the meaning
of the terminology used.

• The values in the table apply only to buildings up to 10 metres in height as defined in
Appendix item 1.
• The Specified Wind Loads do not apply to buildings located on Hills, Ridges, or
Escarpments when the conditions for wind speed-up are met as defined in Appendix item
2.
• The Specified Wind Loads and Specified Driving Rain Wind Pressures are based on an
Open Terrain condition.
• Lower values are possible for buildings in Rough Terrain. For Rough Terrain values, consult
a qualified registered professional when permitted by the authority having jurisdiction.
• The guideline does not apply to skylights or sloped glazing as those products must also
consider snow loads and higher suction pressures.
• Reference climate loads shall be in accordance with the values established by the
authority having jurisdiction or, in the absence of such data, the climatic values provided
in Appendix C of ABC 2014.
• The reference climate loads used to create the table in this guideline are from Appendix
C of ABC 2014.
How to use the table

1) Look up the municipality you are in or the closest one to it in the left hand column.
2) Record the required NAFS Design Pressure (DP), Performance Grade (PG), and Water Resistance from the three right hand columns of the same row.
3) Manufactured windows and doors selected for construction need to meet or exceed the Specified NAFS ratings.

About the NAFS ratings

- The NAFS ratings are based on the allowable values in NAFS-11 Table 5.7, Gateway Requirements, and Table 5.4, Canadian (only) optional Performance Grades (PG).
- The NAFS Design Pressure must be equal to or greater than the Specified Wind Load.
- The required Performance Grade is based on the NAFS Design Pressure.
- The required Water Penetration Resistance must be equal to or greater than the Specified DRWP, but cannot be lower than the value associated with the Performance Grade in NAFS-11 Tables 5.7 and 5.4.

Berkeley Vadocz Engineering Inc. does not assume responsibility for errors, oversights, or consequences resulting from the misuse of the information contained in this guideline.

Berkeley Vadocz Engineering Inc.

![Signature]

David Vadocz, P.Eng., Principal
Specialty Structural Engineer

The Canadian Home Builders’ Association Alberta and Berkeley Vadocz Engineering would like to acknowledge the practical advice, input, and review by the following individuals and organizations during the creation of this document:

- Al Jaugelis BScArch RDH Building Science Inc., CSA Technical Committee on Performance Standards for Windows.
- City of Calgary, Building Regulations Division
- Alberta Building Officials Association
- City of Edmonton, Development Services, Building Regulations

Date of Issue: May 11, 2016
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Date of Issue: May 11, 2016
APPENDIX:

1. Building Height $h$
   $h$ is the height of the top of the window or door above grade in metres.

   grade means the lowest of the average levels of finished ground adjoining each exterior wall of a building, except that localized depressions need not be considered in the determination of average levels of finished ground.

2. Wind Speed-up over Hills, Ridges, and Escarpments
   Buildings sited on the upper half of an isolated hill, ridge or escarpment constituting an abrupt change in the general topography may experience wind speed-up leading to increased wind loads that can be determined by a professional engineer.

   This is only a concern when buildings and other site conditions and location of structures meet ALL off the following conditions:

   a) The hill, ridge or escarpment is isolated and unobstructed by other similar topographic features of similar height for 100 times the height $H$ of the topographic feature or 3km, whichever is less. This distance shall be measured horizontally from the point at which the height $H$ is determined.
   b) The hill, ridge or escarpment protrudes above the height of other terrain features within a 3km radius by a factor of two or more.
   c) The building is located in the upper one-half of a hill or ridge or near the crest of an escarpment as shown in Figure 1.
   d) The incline of the slope is greater than 1 in 10 ($H/L_h \geq 0.2$ in Figure 1)

Figure 1
Definitions:

Escarpmemt: A cliff or steep slope generally separating two levels or gently sloping areas.

Hill: A land surface characterized by strong relief in any horizontal direction.

Ridge: An elongated crest of a hill characterized by strong relief in two directions.

Lh: Distance upwind of crest of hill or escarpment to where the difference in ground elevation is half the height of hill or escarpment.
NOTICE

Application of Energy Efficiency Requirements and Enforcement Dates

This notice serves as a reminder that the transition period for voluntary application of the National Energy Code for Buildings (NECB) 2011 and Section 9.36. Alberta Building Code (ABC) 2014 for housing and small buildings ends on November 1, 2016.

Where an application for a building permit for a site-constructed building is received on or after November 1, 2016, the building design must comply with the requirements of the NECB 2011 or Section 9.36. ABC 2014 as appropriate. Please see the April 2016 Interpretation STANDATA - Application of Energy Efficiency Requirements and Enforcement Dates for details on application of the NECB 2011 and Section 9.36 ABC.

Energy codes are an important component of climate change strategies in Alberta, Canada and globally. For this reason, owners, builders and designers are encouraged to voluntarily apply energy efficiency requirements during this transition period. Alberta and other provinces and territories are committed to the expeditious adoption of future editions of the national energy codes and improved energy efficiency standards.

September 2016

For further information contact Municipal Affairs, Safety Services Branch toll-free at 1-866-421-6929.
APPLICATION OF ENERGY EFFICIENCY REQUIREMENTS AND ENFORCEMENT DATES

INTRODUCTION

This STANDATA has been developed to provide interpretations respecting the application of energy efficiency requirements under Section 9.36, Alberta Building Code 2014 (ABC 2014) and the National Energy Code of Canada for Buildings 2011 (NECB 2011).

A key update is the clarified enforcement date of November 1, 2016 for energy efficiency requirements.

ISSUE #1

Extension of Transition Period

Input from municipalities, construction industry, professionals, safety codes officers and the Building Sub-Council of the Safety Codes Council has indicated that the May 1, 2016 mandatory application of the NECB 2011 will not be practical or feasible. The substantive changes required to accommodate energy efficiency with respect to design, training and verification necessitates a relatively short extension. There has also been considerable confusion respecting the transition period for energy efficiency between voluntary usage and mandatory application of the energy codes.

Interpretation

The May 1, 2016 transition period for voluntary application of the NECB 2011 is extended to November 1, 2016. This extension provides consistency with the mandatory application date for Section 9.36. ABC 2014, which is also November 1, 2016.

A clarified condition for demonstrating compliance as of November 1, 2016 is also required for both NECB 2011 and Section 9.36. ABC 2014. Where an application for a building permit for a site-constructed building is received by the authority having jurisdiction before November 1, 2016, the design of the building is not required to comply with the requirements of Section 9.36. ABC 2014 or the NECB 2011 as appropriate.

Energy codes are an important component of climate change strategies in Alberta, Canada and globally. For this reason, owners and designers are encouraged to voluntarily apply energy efficiency requirements during this extended transition period. Alberta and other provinces and territories are committed to the expeditious adoption of future editions of the national energy codes and the corresponding improved energy efficiency standards.

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 Chief Building Administrator

[Original Signed]
James Orr

Alberta Municipal Affairs – Safety Services, 16th Floor, 10155-102 Street, Edmonton, Alberta, Canada, T5J 4L4
Safety Codes Council, Suite 1000, 10665 Jasper Avenue, Edmonton, Alberta, Canada, T5J 3S9
ISSUE #2

Manufactured homes and energy efficiency
Manufactured homes and other factory-built structures, unlike site-constructed buildings, are typically not constructed using a building permit process. Factory-constructed buildings may be constructed long before the buildings are placed on site. Consequently, the information or evidence to demonstrate compliance with respect to enforcement dates for factory-constructed buildings and site-constructed buildings are not the same.

Interpretation

Site-Constructed Buildings
Where an application for a building permit for a site-constructed building is received by the authority having jurisdiction before November 1, 2016, the design of the building is not required to comply with the requirements of Section 9.36. ABC 2014 or the NECB 2011 as appropriate.

Where an application for a building permit for a site-constructed building is received on or after November 1, 2016, the building design must comply with the requirements under Section 9.36. ABC 2014 or the NECB 2011 as appropriate.

Manufactured Homes and Other Factory-Constructed Buildings
Where a manufactured home is constructed prior to November 1, 2016, the building design is not required to meet the requirements of Section 9.36. ABC 2014. The builder will be required to provide the homeowner and permit issuer with appropriate documentation that proves that the construction completion date occurred prior to November 1, 2016. In cases where the home is not substantially completed in the manufacturer’s facility, the manufacturer’s record of completion date will be used.

A manufactured home that has had its factory-related construction completed on or after November 1, 2016, will be required to meet the requirements of Section 9.36. ABC 2014.

Factory-constructed buildings other than manufactured homes will not be required to meet the energy efficiency requirements (Section 9.36. ABC 2014 or NECB 2011 as appropriate) provided the factory-related construction is completed before November 1, 2016. Similar to manufactured homes, appropriate documentation demonstrating date of completion must be provided to the owner and permit issuer.

A factory-constructed building that has had its factory-related construction completed on or after November 1, 2016, will be required to meet the requirements of Section 9.36. ABC 2014 or NECB 2011 as appropriate.

ISSUE #3

Safety Codes Officer Authority to Inspect and Enforce Energy Efficiency Requirements
Safety codes officers designated in the building discipline have raised questions with Municipal Affairs respecting their authority to inspect and enforce energy efficiency requirements under the NECB 2011 and to a lesser extent Section 9.36. ABC 2014.

The specific reference to the Alberta Building Code, specific editions of the Alberta Building Code or omission to reference the NECB 2011 in an accredited authority Quality Management Plan (QMP) or the safety codes officer designation of powers is creating confusion respecting the valid authority of a building safety codes officer to inspect and enforce energy efficiency requirements.
Interpretation

A safety codes officer may only exercise their powers and perform their duties in accordance with their designation of powers and their terms of employment. The designation of powers certificate for a building safety codes officer references the term "Building" and lists the powers under the Safety Codes Act (Act) that the safety codes officer is authorized to exercise. The Act provides authority to make regulations respecting "buildings" and the Building Code Regulation (31/2015) references both Section 9.36. ABC 2014 and the NECB 2011. This means that a building safety codes officer has authority to inspect and enforce Section 9.36. ABC 2014 and NECB 2011 subject to the certification of competency (group and levels) that the safety codes officer has attained and the actual implementation period for energy efficiency requirements. As a building safety codes officer is designated in the "Building" safety system, a building safety codes officer retains the authority to inspect and enforce energy efficiency. As training is made available in May 2016, safety codes officers will be required to take that training in order to retain their certification.

Terms used within the QMP are not relevant to the authority of the safety codes officer to exercise powers and perform duties with respect to energy efficiency requirements. A review of the QMP wording will be jointly undertaken by the Safety Codes Council and Municipal Affairs to identify and adjust terms that may cause confusion for accredited authorities and safety codes officers.

ISSUE #4

Documentation of Design Compliance for Energy Efficiency and NECB 2011

Industry stakeholders and accredited authorities have raised questions respecting the acceptable means for demonstrating design compliance with the NECB 2011. There is a belief circulating that because the professional schedules do not specifically reference energy efficiency or the NECB 2011, the professional schedules cannot be used for documenting design compliance to the NECB 2011.

The ABC 2014 references the requirement for professional schedules, but the actual professional schedule forms are not part of the mandatory sections of the ABC 2014 or any previous building code edition. This means professional schedule forms may be changed at any time without amending the ABC 2014 or Building Regulation. Currently, the Building Sub-Council of the Safety Codes Council is working with stakeholders and Municipal Affairs to revise and modernize the professional schedules. This is why the terms related to energy efficiency were not identified on the professional schedules when energy efficiency code requirements were adopted.

Interpretation

The professional schedules are acceptable as documentation of professional involvement related to NECB 2011 and energy efficiency regulated under the Building Code Regulation. While there is no requirement to specifically reference energy efficiency in the professional schedules, the identification of energy efficiency provides certainty and confidence for both the authority having jurisdiction, designers, owners and other persons and organizations in the safety system.

The absence of a reference to energy efficiency on the professional schedule forms is not relevant to the validity of the professional schedules for the NECB 2011 or any other code. Under Article 2.4.3.1., Division C ABC 2014, the design of a project shall comply with the ABC 2014 and "other regulations made pursuant to the Safety Codes Act"; and, "the construction of the project will substantially comply with this Code and other regulations made pursuant to the
Safety Codes Act." This means that the professional schedules are subject to the Safety Codes Act and any applicable regulations and codes under the Act including the NECB 2011 and energy efficiency under the Building Code Regulation.

Buildings constructed to the NECB 2011 or buildings assessed by a safety codes officer to require professional involvement (i.e. because of complexity or risk) require evidence of professional involvement under the A, B and C schedules as referenced in the ABC 2014. The owner and professional have an obligation to satisfy the authority having jurisdiction that energy efficiency requirements have been considered and confirmed.

This INTERPRETATION is applicable throughout the province of Alberta.
# Heating Degree Day (HDD) Values for locations within Alberta

**Zone 6 HDD Values**  
- 4000 – 4999
**Zone 7A HDD Values**  
- 5000 – 5999
**Zone 7B HDD Values**  
- 6000 – 6999
**Zone 8 HDD Values**  
- 7000+

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Airtightness

Question #1
How do we get 9.36.2.9. Airtightness inspected? What if installation has already been covered by spray foam?
Upon enforcement of ABC Section 9.36, the local AHJ will have the opportunity to determine if or how additional inspections will be required. If the air barrier has been covered and cannot be viewed during an inspection, the local AHJ has the authority to ask for the air barrier to be uncovered, so that the inspection can take place.

Question #2
Many SCO’s are concerned that installing an air barrier around the joist ends similar to what is shown in the diagram is not industry norm and are not sure how to enforce the requirements.
Article 9.36.2.10 identifies additional areas and joints where sealing of the air barrier must be made airtight. These Sentences provide options for sealing of these areas, and indicate that the seal can be achieved by either ensuring the joints between the structural members are sealed, or by covering with an air barrier, and sealing to the adjacent air barrier material.

Background Information:
2014 Alberta Building Code requirements
9.36.2.9. Airtightness
1) The leakage of air into and out of conditioned spaces shall be controlled by constructing
   a) a continuous air barrier system in accordance with Sentences (2) to (6), Subsection 9.25.3.
   and Article 9.36.2.10.,
   b) a continuous air barrier system in accordance with Sentences (2) to (6) and Subsection
   9.25.3. and a building assembly having an air leakage rate not greater than 0.20 L/(s·m²) (Type
   A4) when tested in accordance with CAN/ULC-S742, “Air Barrier Assemblies – Specification,” at
   a pressure differential of 75 Pa, or
   c) a continuous air barrier system in accordance with Sentences (2) to (6) and Subsection
   9.25.3. and a building assembly having an air leakage rate not greater than 0.20 L/(s·m²) when
   tested in accordance with ASTM E 2357, “Determining Air Leakage of Air Barrier Assemblies.”
   (See Appendix A.)

2) An air barrier system installed to meet the requirements of Sentence (1) shall be continuous
   a) across construction, control and expansion joints,
   b) across junctions between different building materials and assemblies, and
   c) around penetrations through all building assemblies.

9.25.3.2. Air Barrier System Properties
2) Where polyethylene sheet is used to provide airtightness in the air barrier system, it shall conform to CAN/CGSB-51.34-M, “Vapour Barrier, Polyethylene Sheet for Use in Building Construction.”
9.36.2.10. Construction of Air Barrier Details
1) Materials intended to provide the principal resistance to air leakage shall conform to CAN/ULC-S741, “Air Barrier Materials – Specification.”

5) Where the air barrier system consists of flexible sheet material, all joints shall be
   a) lapped not less than 50 mm,
   b) sealed (see Appendix A), and
   c) structurally supported.

6) Sealant material used for the purpose of creating a continuous air barrier system shall
   a) be a non-hardening type, or
   b) conform to
      i) Subsection 9.27.4.,
      ii) CAN/ULC-S710.1, “Thermal Insulation – Bead-Applied One Component Polyurethane
          Air Sealant Foam, Part 1: Material Specification,” or
      iii) CAN/ULC-S711.1, “Thermal Insulation – Bead-Applied Two Component Polyurethane
          Air Sealant Foam, Part 1: Material Specification.”

7) Penetrations by electrical wiring, outlets, switches or recessed light fixtures
   through the plane of airtightness shall be constructed airtight
   a) where the component is designed to provide a seal against air leakage, by
      sealing the component to the air barrier material (see Appendix A), or
   b) where the component is not designed to provide a seal against air leakage,
      by covering the component with an air barrier material and sealing it to the
      adjacent air barrier material.

8) The joints between the foundation wall and the sill plate, between the sill plate and rim joist,
    between the rim joist and the subfloor material, and between the subfloor material and the
    bottom plate of the wall above shall be constructed airtight by
    a) sealing all joints and junctions between the structural components, or
    b) covering the structural components with an air barrier material and sealing it to the adjacent
       air barrier material.

9) The interfaces between windows, doors and skylights and wall/ceiling assemblies shall be
    constructed airtight by sealing all joints and junctions between the air barrier material in the wall
    and the window, door or skylight frame. (See Appendix A.) (See also Subsection 9.7.6.)

10) Cantilevered floors and floors over unheated spaces or over the exterior shall be
    constructed airtight by one of the following methods or a combination thereof:
    a) sealing all joints and junctions between the structural components, or
    b) covering the structural components with an air barrier material and sealing it to the adjacent
        air barrier material.

11) Interior walls that meet exterior walls or ceilings whose plane of airtightness is on the interior
    of the building envelope and knee walls that separate conditioned space from unconditioned
    space shall be constructed airtight by
    a) sealing all junctions between the structural components,
    b) covering the structural components with an air barrier material and sealing it to the adjacent
        air barrier material, or
c) maintaining the continuity of the air barrier system above or through the interior wall or below or through the knee wall, as applicable.

12) Steel-lined chimneys that penetrate the building envelope shall be constructed airtight by blocking the void between required clearances for metal chimneys and surrounding construction with sheet metal and sealant capable of withstanding high temperatures.

13) Masonry or concrete chimneys that penetrate the building envelope shall be constructed airtight by mechanically fastening a metal flange or steel stud that extends not less than 75 mm out from the chimney and sealing the air barrier material to it with a sealant capable of withstanding high temperatures.

14) Ducts that penetrate the building envelope shall be constructed airtight by sealing the penetration through the building envelope. (See Appendix A.)

15) Plumbing vent stack pipes that penetrate the building envelope shall be constructed airtight by
a) sealing the air barrier material to the vent stack pipe with a compatible sealant or sheathing tape, or
b) installing a rubber gasket or prefabricated roof flashing at the penetration of the plane of airtightness then sealing it and mechanically fastening it to the top plate.

16) Where a party wall meets the plane of airtightness, that junction shall be constructed airtight by sealing any voids within the party wall at the perimeter to the adjacent air barrier material and by
a) sealing all junctions between the structural components, or
b) covering the structural components with an air barrier material and sealing it to the adjacent air barrier material.

17) Where the concrete in a flat insulating concrete form wall acts as the air barrier, the continuity of the plane of airtightness shall be maintained between the concrete and adjacent air barrier materials.

A-9.36.2.10.(5)(b) Sealing the Air Barrier System with Sheathing Tape. One method of sealing air barrier materials at joints and junctions is to apply sheathing tape that has an acceptable air leakage characteristic, is compatible with the air barrier material and resistant to the mechanisms of deterioration to which the air barrier material will be exposed. Where an assembly tested to CAN/ULC-S742, “Air Barrier Assemblies – Specification,” includes sheathing tape as a component, the sheathing tape will have been tested for compatibility and resistance to deterioration and will be referenced in the manufacturer’s literature as acceptable for use with that air barrier assembly.
### A-9.25.5.1.(1) Air and Vapour Permeance Values

The air leakage characteristics and water vapour permeance values for a number of common materials are given in Table A-9.25.5.1.(1). These values are provided on a generic basis; proprietary products may have values differing somewhat from those in the Table (consult the manufacturers’ current data sheets for their products’ values).

The values quoted are for the material thickness listed. Water vapour permeance is inversely proportional to thickness: therefore, greater thicknesses will have lower water vapour permeance values.

#### Table A-9.25.5.1.(1) Air and Vapour Permeance Values

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<td>plywood (from 9.5 mm to 18 mm)</td>
<td>negligible – 0.01</td>
<td>40 – 57</td>
</tr>
<tr>
<td>fibreboard sheathing</td>
<td>0.012 – 1.91</td>
<td>100 – 2900</td>
</tr>
<tr>
<td>17-mm wood sheathing</td>
<td>high – depends on no. of joints</td>
<td>982</td>
</tr>
<tr>
<td>Insulation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>27-mm foil-faced polyisocyanurate</td>
<td>negligible</td>
<td>4.3</td>
</tr>
<tr>
<td>27-mm paper-faced polyisocyanurate</td>
<td>negligible</td>
<td>61.1</td>
</tr>
<tr>
<td>25-mm extruded polystyrene</td>
<td>negligible</td>
<td>23 – 92</td>
</tr>
<tr>
<td>25-mm expanded polystyrene (Type 2)</td>
<td>0.0214</td>
<td>86 – 160</td>
</tr>
<tr>
<td>fibrous insulations</td>
<td>very high</td>
<td>very high</td>
</tr>
<tr>
<td>25-mm polyurethane spray foam – low density</td>
<td>0.011</td>
<td>894 – 3791</td>
</tr>
<tr>
<td>25-mm polyurethane spray foam – medium density</td>
<td>negligible</td>
<td>961</td>
</tr>
<tr>
<td>Membrane-type materials</td>
<td></td>
<td></td>
</tr>
<tr>
<td>asphalt-impregnated paper (10 min paper)</td>
<td>0.0673</td>
<td>370</td>
</tr>
<tr>
<td>asphalt-impregnated paper (30 min paper)</td>
<td>0.4</td>
<td>650</td>
</tr>
<tr>
<td>asphalt-impregnated paper (60 min paper)</td>
<td>0.44</td>
<td>1800</td>
</tr>
<tr>
<td>water-resistive barriers (9 materials)</td>
<td>negligible – 4.3</td>
<td>30 – 1200</td>
</tr>
<tr>
<td>0.15-mm polyethylene</td>
<td>negligible</td>
<td>1.6 – 5.8</td>
</tr>
<tr>
<td>asphalt-saturated felt (#15)</td>
<td>0.153</td>
<td>290</td>
</tr>
<tr>
<td>building paper</td>
<td>0.2706</td>
<td>170 – 1400</td>
</tr>
<tr>
<td>spun-bonded polyethylene film (expanded)</td>
<td>0.9593</td>
<td>3646</td>
</tr>
<tr>
<td>Other materials</td>
<td></td>
<td></td>
</tr>
<tr>
<td>brick (6 materials)</td>
<td>negligible</td>
<td>102 – 602</td>
</tr>
<tr>
<td>metal</td>
<td>negligible</td>
<td>negligible</td>
</tr>
<tr>
<td>mortar mixes (4 materials)</td>
<td>negligible</td>
<td>13 – 690</td>
</tr>
<tr>
<td>stucco</td>
<td>negligible</td>
<td>75 – 240</td>
</tr>
<tr>
<td>50-mm reinforced concrete (density: 2330 kg/m³)</td>
<td>negligible</td>
<td>23</td>
</tr>
</tbody>
</table>

#### Notes to Table A-9.25.5.1.(1):

(1) Air leakage and vapour permeance values derived from:
ABC 9.36 - Hot Water Heating Systems

Question?
Is the requirement for insulation for the first 2 meters on a hot water pipe a must?
When would it be applicable?
Sub-Section 9.36.4 is concerned with the efficient use of energy by systems used to heat service water for household use. For this purpose, the ABC has included a prescriptive requirement for the inlet and outlet piping of a heating vessel to be insulated with at least 12mm thick insulation. Designs utilizing NECB are also required to provide insulation around the piping, unless the piping system is within a dwelling unit, feeds only that dwelling unit, and is not part of the suction-line piping for a direct expansion system.

Background Information:
2014 Alberta Building Code requirements
9.36.4.4. Piping
1) The first 2 m of outlet piping downstream and of inlet piping upstream leading from a storage tank or heating vessel shall be covered with piping insulation that is at least 12 mm thick.

2) All piping forming part of a continuously operating recirculating service water heating system shall be covered with piping insulation that is at least 12 mm thick.

3) Where piping forming part of the service water heating system is located outside the building envelope or in an unconditioned space, it shall be insulated to a thermal resistance not less than the effective thermal resistance required for the exterior above-ground walls.

Functional Statements - 9.36.4.4. Piping
(1) [F93,F96-OE1.1]
F93 To limit the amount of uncontrolled thermal transfer through system components.
F96 To limit the unnecessary demand and/or consumption of energy for service water heating.

OE1 Resources
An objective of this Code is to limit the probability that, as a result of the design or construction of the building or facility, resources will be used in a manner that will have an unacceptable effect on the environment. The risks of unacceptable effect on the environment due to use of resources addressed in this Code are those caused by - OE1.1 – excessive use of energy

2011 National Energy Code of Canada for Buildings
5.2.5.3. Piping Insulation
1) Except as provided in Sentences (2) to (5), piping forming part of an HVAC system shall be thermally insulated in accordance with Table 5.2.5.3.
2) Except for suction-line piping of direct expansion systems, piping located within conditioned space in a dwelling unit and serving only that dwelling unit need not comply with Sentence (1).
ABC 9.36
U value vs R-Value

Question?
What is the difference between U value and R value and how do you calculate both? Can you provide some examples of these calculations.

R Value is used in Industry
RSI Value is used in the Codes
U value is used by window and door manufacturers

U-Values gauge how well a material allows heat to pass through. The lower the U-Value, the greater a product's resistance to heat flow and the better its insulating value.

For Example:
1) R Value of 22. What are the U and RSI values?
   a) R Value divided by 5.678263 = (R 22 / 5.678263) = 3.87 RSI
   b) U Value = 1 / RSI (1 / 3.87 RSI) = 0.26 U Value

2) RSI Value of 10.43 (Ceilings and Attics). What are the R and U Values?
   a) RSI 10.43 X 5.678263 = 59.22 R Value
   b) 1 / RSI 10.43 = 0.1 U Value

3) U Value of 1.6. What are the R and RSI Values?
   a) 1 / U 1.6 = 0.625 RSI
   b) 0.625 RSI X 5.678263 = 3.5 R Value

Background Information:
2014 Alberta Building Code requirements
9.36.1.2. Definitions
For the purpose of this Section, the term “overall thermal transmittance,” or U-value, shall mean the rate, in W/(m²-K), at which heat is transferred through a building assembly that is subject to temperature differences. (See Appendix A.)

3) For the purpose of this Section, the term “effective thermal resistance,” or RSI value, shall mean the inverse of the overall thermal transmittance of an assembly, in (m²-K)/W. (See Appendix A.)

A-9.36.1.2(2) Overall Thermal Transmittance. The U-value represents the amount of heat transferred through a unit area in a unit of time induced under steady-state conditions by a unit temperature difference between the environments on its two faces. The U-value reflects the capacity of all elements to transfer heat through the thickness of the assembly, as well as, for instance, through air films on both faces of above-ground components. Where heat is not transferred homogeneously across the area being considered, the thermal transmittance of each component is determined: for example, the thermal transmittance values of the glazing...

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and the frame of a window are combined to determine the overall thermal transmittance (U-value) of the window.

**A-9.36.1.2.(3) Conversion of Metric Values to Imperial Values.** To convert a metric RSI value to an imperial R-value, use $1 \text{ (m}^2\cdot\text{K})/\text{W} = 5.678263 \text{ h} \cdot \text{ft}^2 \cdot \text{°F}/\text{Btu.}$. "R-value," or simply the prefix "R" (e.g. R20 insulation), is often used in the housing industry to refer to the imperial equivalent of "RSI value." Note that R-values in Section 9.36. are provided for information purposes only; the stated metric RSI values are in fact the legally binding requirements.
Combustion Air for Appliances

Question?
Does the ABC require appliances to have air into the appliance (furnace) or can an SCO accept air into the mechanical room with the bucket? Many installers in the North say that they have problems with incoming air frosting up the appliance inlet when they bring air in from the outside.

The ABC specifies that an outdoor air supply duct must be installed between the outdoors and the furnace. The outdoor air supply duct must be connected either not less than 3m upstream of the plenum connection to the furnace, or be connected through an acceptable mixing device in the return air plenum. Additionally, starting on November 1, 2016 within 9.36, the outdoor air vent will also be required to provide a motorized damper.

Compliance accepted through non-prescriptive means should require an approved Alternative Solution, by meeting the intent of the ABC, and by demonstrating compliance paths either meeting or exceeding the ABC requirements.

Background Information:
2014 Alberta Building Code requirements
9.32.3.4. Ventilation Systems Used in Conjunction with Forced Air Heating Systems (See Appendix)
1) Where outdoor air is to be introduced to the dwelling unit through a forced air heating system, the provision of outdoor air shall comply with this Article.

5) An outdoor air supply duct shall be installed between the outdoors and the furnace return air plenum and shall be connected
   a) not less than 3 m upstream of the plenum connection to the furnace, as measured along the length of the duct, or
   b) through an acceptable mixing device installed in the return air plenum.

6) The outdoor air supply duct required by Sentence (5) shall incorporate a flow-regulating damper.

Supply duct means a duct for conveying air from a heating, ventilating or air-conditioning appliance to a space to be heated, ventilated or air-conditioned.

9.32.3.4. Ventilation Systems Used in Conjunction with Forced Air Heating Systems
F40,F43,F50,F52-OH1.1]
(a) [F43,F50,F53-OS3.4]
(b) [F43,F50,F81-OS3.4]
F40 To limit the level of contaminants.
F43 To minimize the risk of release of hazardous substances.
F50 To provide air suitable for breathing.
F52 To maintain appropriate relative humidity.
F53 To maintain appropriate indoor/outdoor air pressure differences.
9.36.3.3. Air Intake and Outlet Dampers
2) Except as provided in Sentences (3) and (4) and except in locations with fewer than 3500 heating degree-days as listed in Appendix C, every outdoor air intake duct or opening shall be equipped with a motorized damper that remains in the “open” position if the damper fails.

9.36.3.3. Air Intake and Outlet Dampers
(1) [F91,F95-OE1.1]
(2) [F91,F95-OE1.1]
F91 To limit the amount of uncontrolled air leakage through system components.
F95 To limit the unnecessary demand and/or consumption of energy for heating and cooling.
Commercial Kitchen Exhaust and MUA

Question #1
Are Make-Up Air Units and Exhaust fans required for Commercial kitchens?
Ventilation systems comprising of both exhaust fans and a supply of make-up air are required to be installed where commercial cooking equipment is installed. Typically this has been achieved through the installation of an exhaust hood meeting NFPA 96 and a supply of replacement air provided by an interconnected make-up air unit.

Question #2
Where residential cooking appliances are installed in a non-residential building, is make up air and ventilation still required?
The requirement for ventilation systems and make-up air are also noted as a requirement under Part 9. Kitchens are to be provided with a ventilation fan, which must also be provided with make-up air unless the remaining appliances within the house are non-spillage-susceptible.

Background Information:
2014 Alberta Building Code requirements
6.2.2. Ventilation
6.2.2.1. Required Ventilation
1) Except as provided in Sentence (3), all buildings shall be ventilated in accordance with this Part.

6.2.2.7. Commercial Cooking Equipment
1) Systems for the ventilation of commercial cooking equipment shall be designed, constructed and installed to conform to NFPA 96, “Ventilation Control and Fire Protection of Commercial Cooking Operations,” except as required by Sentence 3.6.3.1.(1) and Article 3.6.4.2.

6.2.3.11. Makeup Air
1) In ventilating systems that exhaust air to the outdoors, provision shall be made for the admission of a supply of makeup air in sufficient quantity so that the operation of the exhaust system and other exhaust equipment or combustion equipment is not adversely affected.
2) Makeup air facilities required by Sentence (1) shall be interlocked with the exhaust devices they serve so that both operate together.

Pull info from NFPA 96

9.32.3.7. Supplemental Exhaust
(See Appendix A.)
1) Except as provided in Sentences (2) and (3), a supplemental exhaust fan with a rated capacity not less than 50 L/s shall be installed in each kitchen.
A-9.32.3.7. **Supplemental Exhaust.** The CAN/CSA-F326-M standard requires a certain amount of exhaust from kitchens to capture pollutants at the source. When the principal ventilation fan air intake is not located in the kitchen, a separate kitchen exhaust fan must be installed [see Sentence 9.32.3.7.(1)]. However, when the principal ventilation fan is located in the kitchen but is connected to multiple inlets, there will not be enough exhaust from the kitchen. Therefore, a separate kitchen exhaust fan is required in this circumstance as well, unless the exhaust rate of the principal ventilation fan can be increased when additional kitchen ventilation is needed [see Sentence 9.32.3.7.(3)].

The bathroom is another possible location for an air intake of a principal ventilation fan. As with the kitchen, if this option is not chosen, a separate bathroom exhaust fan must be installed [see Sentence 9.32.3.7.(4)].

Supplemental exhaust fans, which in most instances are located in kitchens and bathrooms, are required to be coupled to supply fans of similar capacity. The make-up air is necessary so that operation of the supplementary exhaust fan(s) will not depressurize the house [see Sentence 9.32.3.8.(2)]. See also Appendix Note A-9.32.3.8.

**Makeup Air Requirements**
Depressurization caused by the principal ventilation system itself is not an issue in houses with balanced systems (that is, non-exhaust-only systems). However, the operation of other exhaust devices, such as stove-top barbecues, can cause depressurization. Therefore, in a house with spillage-susceptible appliances, any such exhaust devices, including the required supplemental exhaust fans, must be provided with makeup air [see Sentence 9.32.3.8.(2)].

In the past, the Alberta Building Code and other codes and standards have tended to rely on the passive supply of makeup air through makeup air openings. This is no longer considered to be a reliable approach in the context of a simple, prescriptively described system without sophisticated controls on depressurization. Therefore, the makeup air must be provided by a supply fan that is automatically activated whenever the exhaust device that requires the makeup air is activated [see Sentences 9.32.3.8.(2) and (3)].

The need for makeup air can be avoided by not using spillage-susceptible combustion equipment.

9.32.3.8. **Protection Against Depressurization**
2) Except as provided in Sentences (6) to (8), any mechanical air exhausting device, other than the principal ventilation fan operating at a rate not greater than the permitted by Table 9.32.3.3., shall be provided with outdoor makeup air supplied by a fan rated to deliver outdoor air to the dwelling unit at a rate
   a) not less than the exhaust capacity of the device, and
   b) not greater than that exhaust capacity plus 10%.

8) The provision of makeup air as described in Sentence (2) is not required for mechanical exhausting devices operating a subfloor depressurization system installed for the purpose of reducing the risk of radon ingress.
Conditioned Space vs Unconditioned Space

Question?
Conditioned space vs unconditioned space, what is the difference between the two?
The ABC refers to spaces as being either conditioned space, unconditioned space, or the exterior. By definition, a conditioned space is any space within a building where the temperature is controlled through heating or cooling.

For example:
1) unheated garage – unconditioned space
2) unheated crawl space – unconditioned space
3) attic – unconditioned space

Background Information:
2014 Alberta Building Code requirements
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.
Secondary Suite Development and ABC 9.36

Question?
If you have an existing dwelling unit built before the new energy code comes into effect, upon application of a secondary suite after Nov. 2016, how would an SCO do a plan review? Would the construction of the secondary suite fall under Part 9 or Section 9.36 as the construction of the existing house may not meet 9.36?
The ABC has exemptions which are permitted for existing construction under Article 1.1.1.2. Where an existing single dwelling unit develops a secondary suite after the implementation of Energy Efficiency requirements, the same thought process would also be used.
Existing construction would already be in place for exterior frost walls, insulation and vapour barrier, floor slab, windows and doors. If these items were being renovated, the AHJ would have the authority to ask that they meet the current Code, or to accept the level of building performance as being maintained.
New construction would be required to meet the current code legislation. For example, the installation of a new second furnace.

Background Information:
2014 Alberta Building Code requirements
1.1.1.2. Application to Existing Buildings
(See Appendix A.)
1) This Article applies to a building that has been legally built, occupied and used before 01 May 2015.
2) If a building is altered, rehabilitated, refurbished, renovated or repaired, the level of life safety and building performance shall not be decreased.
4) A change in occupancy or alteration of any building constructed before 01 May 2015 shall be permitted if the level of safety and building performance proposed are acceptable to the authority having jurisdiction.

A-1.1.1.2. Application to Existing Buildings. This Code is most often applied to existing buildings when an owner wishes to rehabilitate a building, change its use, or build an addition, or when an enforcement authority decrees that a building or class of buildings be altered for reasons of public safety. It is not intended that the Alberta Building Code be used to enforce the retrospective application of new requirements to existing buildings or existing portions of relocated buildings. For example, although the Alberta Fire Code could be interpreted to require the installation of fire alarm, standpipe and hose, and automatic sprinkler systems in an existing building for which there were no requirements at the time of construction, it is the intent of the Safety Codes Council that the Alberta Fire Code not be applied in this manner to these buildings unless the authority having jurisdiction has determined that there is an inherent threat to occupant safety and has issued an order to eliminate the unsafe condition, or where substantial changes or additions are being made to an existing building or the occupancy has been changed.....
...Whatever the reason, Code application to existing or relocated buildings requires careful consideration of the level of safety needed for that building. This consideration involves an analytical process similar to that required to assess alternative design proposals for new construction. See Clause 1.2.1.1.(1)(b) and its Appendix Note for information on achieving compliance with the Code using alternative solutions.

In developing Code requirements for new buildings, consideration has been given to the cost they impose on a designer in relation to the perceived benefits in terms of safety. The former is definable; the latter difficult to establish on a quantitative basis. In applying the Code requirements to an existing building, the benefits derived are the same as in new buildings. On the other hand, the increased cost of implementing in an existing building a design solution that would normally be intended for a new building may be prohibitive.

The successful application of Code requirements to existing construction becomes a matter of balancing the cost of implementing a requirement with the relative importance of that requirement to the overall Code objectives. The degree to which any particular requirement can be relaxed without affecting the intended level of safety of the Code requires considerable judgment on the part of both the designer and the authority having jurisdiction.
Farm Buildings

Question?
What does and does not constitute a farm building? Can storage of personal items be included in the use of a farm building?
The definition of a “farm building” and the examples provided in the Appendix, provide clarification towards the intended use of the building, and that the building is being used for a form of agricultural operation. This would include livestock housing, horse riding facilities where no public is permitted, and farm workshops.

Buildings associated with the residential dwelling such as a garage or accessory building which is associated by use to the dwelling would not fall under the definition of a farm building. This would include such uses as storage areas for items related to the operation of the dwelling rather than the farm, storage of personal vehicles, and storage of recreational vehicles such as quads etc. if their use is not related to the farm operations.

Although permitting for a farm building may not be required, meeting the legislative requirements of the current Alberta Building Code or the National Farm Building Code of Canada would still be applicable for the construction of the building.

Background Information:
Permit Regulation
FARM BUILDINGS
"farm building" means a building located on agricultural land 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;

2014 Alberta Building Code requirements
A-1.2.1.2.(1) Definition of Farm Buildings.
Farm buildings as defined in Article 1.2.1.2. of the National Farm Building Code of Canada include but are not limited to produce storage and packing facilities, livestock and poultry housing, milking centres, manure storage facilities, grain bins, silos, feed preparation centres, farm workshops, greenhouses, farm retail centres, and horse riding, exercise and training facilities.

5) This Code (ABC 2014) 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,

A-1.1.1.1.(5)(a) 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.

**Low Importance Category Buildings**

Low human-occupancy farm buildings are defined in the National Farm Building Code of Canada 1995 as having an occupant load of 1 person or less per 40 m² of floor area. Minor storage buildings include only those storage buildings that represent a low direct or indirect hazard to human life in the event of structural failure, either because people are unlikely to be affected by structural failure, or because structural failure causing damage to materials or equipment does not present a direct threat to human life.

**Section 1 from the Agricultural Operation Practices Act, Chapter A7**

“Agricultural Land” means land the use of which for agriculture is either a permitted or discretionary use under the land use bylaw of the municipality or Métis settlement in which the land is situated or is permitted pursuant to the *Municipal Government Act*.

**Permit Regulation**

“Single Family Residential Dwelling” means a residential dwelling for a single family that includes, if applicable, a residential garage or accessory structure associated by use to the dwelling, if the garage or structure is situated on the same parcel of land as the dwelling.
 ISSUE

Municipal Affairs has received numerous complaints regarding the manufacture, sale, auctioneering, advertising and use of steel building systems without the required certification to CSA A660 standard for “Certification of Manufacturers of Steel Building Systems.” In particular, there are examples of steel building systems in rural areas where buildings are purported to be farm or agricultural buildings when in fact the purpose or use of these buildings is commercial or other use regulated by the Alberta Building Code (ABC).

This bulletin is to emphasize the importance of compliance to the CSA A660 standard by responsible persons under the Safety Codes Act including manufacturers, designers, vendors and owners, as well as to provide guidance for safety codes officers and local authorities in applying the requirements of the Alberta Building Code (ABC) 2014 for steel building systems.

DISCUSSION

CSA A660 is referenced under Article 4.3.4.3. ABC 2014 and requires steel building systems to be manufactured by companies certified to the CSA A660 standard. Steel building systems are defined in the CSA A660 standard as, “an integrated assembly of manufactured steel primary structural components, secondary structural components of any material, and cladding of any material, specifically designed by the manufacturer to support and transfer loads and provide a complete or partial building shell.”

The CSA A660 standard requires that the manufacturers’ production facilities, staff and quality assurance systems be certified by an independent certification agency. The manufacturer will provide a “Certificate of Design and Manufacturing Conformance” signed and sealed by a registered professional for each building project. Complying with the CSA A660 standard ensures that the manufacturer has been audited to the following items:

(a) personnel;
(b) design and engineering;
(c) materials control;
(d) fabrication;
(e) warehousing, packaging and shipping;
(f) erection responsibility; and
(g) plant quality program.

Steel building systems under the ABC

The goal of public safety is paramount. This standard was developed to assist regulatory officials in reviewing building permit submissions incorporating steel building systems, and provide confidence to persons that the steel frame building has been designed in accordance with applicable safety codes and standards.

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 Chief Building Administrator

[Original Signed]
James Orr

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Phone: 1-866-421-6929 Email: safety.services@gov.ab.ca Website: www.municipalaffairs.alberta.ca
Safety Codes Council, Suite 1000, 10665 Jasper Avenue, Edmonton, Alberta, Canada, T5J 3S9

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Sentence 4.3.4.3.(1) ABC 2014 requires certification of manufacturers of steel building systems to the CSA A660 standard. The requirement for certification was first included in ABC 2006 and applies to steel building systems that fall within the scope of ABC 2014 as described in Sub-section 1.1.1. of Division A. Even though the ABC does not apply to farm buildings as noted in Sentence 1.1.1.1.(5) of Division A, safety codes officers have a duty to confirm through the permitting and inspection process that such buildings are in compliance with the ABC and certified to the CSA A660 standard. The ABC reference and description for farm buildings that are exempt from the ABC are set out in this bulletin.

Manufacturers of steel building systems who are not certified to the CSA A660 standard are guilty of an offence under the Safety Codes Act and subject to enforcement and penalties. Penalties for an offence include a maximum of $100,000 for a first offence to imprisonment for a term not exceeding 6 months and a maximum of $500,000 for a second offence to imprisonment for a term not exceeding 12 months. Other responsible persons such as owners, professionals, designers, vendors and contractors may also be subject to the same enforcement and penalties.

How Do I Find Out if a Manufacturer is Certified to CSA A660?

A list of certified manufacturers can be accessed through the web site of the Canadian Welding Bureau (CWB Group) at [https://www.cwbgroupp.org/services/certified-directory-search](https://www.cwbgroupp.org/services/certified-directory-search) or under Certified Directory Search. Be advised that this list can change frequently as new companies are certified.

CODE REFERENCES

1. Sentence 4.3.4.3.(1) states:

4.3.4.3. Steel Building Systems

1) Steel building systems shall be manufactured by companies certified in accordance with the requirements of CSA A660, "Certification of Manufacturers of Steel Building Systems."

2. Sentence 1.1.1.1.(5) Division A states:

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.)

3. Appendix A states:

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.
Plan Reviews and Permit Conditions

Question?
Should comments on Building Plans at issuance be included on the Permit Conditions?
The Safety Codes Act is the document which legislates that terms and conditions may be included in a permit. Although it is not a requirement to provide permit conditions to the applicant, it would seem appropriate that any comments or noted deficiencies outside the legislative requirements of the ABC found during a plan review, would be reiterated to the client within the permit conditions to advise the client of these items at the design stage, rather than waiting to address them during construction and the following site inspections.

Including comments from a plan review as permit conditions also provides an SCO with legislative backing for enforcement should the owner or contractor deviate or contravene the permit conditions.

As a measure of good practice, permit conditions should also be reviewed by an SCO during site inspections to ensure all noted deficiencies, revisions, or necessary documentation identified at the plan review stage and noted within the permit conditions have been addressed and in place for the file.

Background Information:
Safety Codes Act
Permit issues
44(1) On receipt of an application, a safety codes officer or other person designated by an Administrator may issue a permit to a person who complies with the requirements of this Code or issue a permit with respect to a thing, process or activity if it complies with the requirements of this Act.

(2) A safety codes officer or other person designated by an Administrator may include terms and conditions in a permit.

2014 Alberta Building Code
2.2.10.6. Deviations
1) The owner shall not deviate nor authorize a deviation from the requirements of this Code or the conditions of a permit without first obtaining permission in writing to do so from the authority having jurisdiction.

2.2.10.7. Permit Revoked
1) The authority having jurisdiction may revoke a permit if
a) there is a contravention of any condition under which the permit was issued,
b) the permit was issued in error, or
c) the permit was issued on the basis of incorrect information.
Radon Mitigation

Question?
Can the radon mitigation system requirements be met using gravel under the slab and a 2 x 2 pit filled with washed rock?
The ABC requires the rough-in for radon mitigation to be completed through the prescriptive requirements of granular material and a pipe as described in sentences 9.13.4.3.(1) & (3). Gravel alone does not meet the prescriptive requirements. The sentence also requires the installation of a pipe installed through the floor at or near the center of the floor. A pit or collection chamber could be installed at this central location, however a pipe located through the floor for the future connection of depressurization equipment would still be required.

Background Information:
2014 Alberta Building Code requirements
9.13.4.3. Providing for the Rough-in for a Subfloor Depressurization System
(See Appendix A.)
1) Floors-on-ground shall be provided with a rough-in for subfloor depressurization consisting of
   a) a gas-permeable layer, an inlet and an outlet as described in Sentence (2), or
   b) clean granular material and a pipe as described in Sentence (3).
2) The rough-in referred to in Clause (1)(a) shall include
   a) a gas-permeable layer installed in the space between the air barrier and the ground to allow
      the depressurization of that space,
   b) an inlet that allows for the effective depressurization of the gas-permeable layer (see A
      9.13.4.3.(2)(b) and (3)(b)(i) in Appendix A), and
   c) an outlet in the conditioned space that
      i) permits connection to depressurization equipment,
      ii) is sealed to maintain the integrity of the air barrier system, and
      iii) is clearly labelled to indicate that it is intended only for the removal of radon from below the
      floor-on-ground.
3) The rough-in referred to in Clause (1)(b) shall include
   a) clean granular material installed below the floor-on-ground in accordance with Sentence
      9.16.2.1.(1), and
   b) a pipe not less than 100 mm in diameter installed through the floor, such that
      i) its bottom end opens into the granular layer required Clause (a) at or near the centre of the
      floor and not less than 100 mm of granular material projects beyond the terminus of the pipe
      measured along its axis (see A-9.13.4.3.(2)(b) and (3)(b)(i) in Appendix A),
      ii) its top end permits connection to depressurization equipment and is provided with an airtight
      cap, and
      iii) the pipe is clearly labelled near the cap and, if applicable, every 1.8 m and at every change in
      direction to indicate that it is intended only for the removal of radon from below the floor-on-ground.
Use this Section to specify a radon mitigation rough-in system, as listed below.

The radon mitigation rough-in system is to be designed, inspected, photographed and tested by a Canadian National Radon Proficiency Program (C-NRPP) Certified Mitigation Professional, obtained by the Prime Consultant.

Alberta Infrastructure has mandated the rough-in system in new Government of Alberta owned and supported permanent buildings, with the qualification that our department be open to alternative solutions proposed by the Certified Mitigation Professional. The “rough-in” is considered the benchmark. A roughed-in suction pit and cage sub-slab depressurization method is to be used for the system.

Edit, remove from or add to this Section in consultation with Alberta Infrastructure- Technical Services Branch- Building Environment Unit specialists in radon control procedures (Phone: 780-422-7472, 780-422-7600 and 780-422-7440).

This Master Specification Section contains:

.1 This Cover Page

.2 Specification Section Text:

1. General
   1.1 Intent
   1.2 References
   1.3 Administration Requirements
   1.4 Delivery, Handling and Storage
   1.5 Environmental / Site Conditions
   1.6 Warranty
   1.7 Performance Requirements
   1.8 C-NRPP Inspection Requirements

2. Products
   2.1 Manufacturer
   2.2 Geotextile Fabric
   2.3 Gas Permeable Venting Layer
   2.4 Membrane Barrier System
   2.5 Suction Pit and Cage
   2.6 Collection Pipe Extensions from the Suction Pit and Cage

3. Execution
   3.1 Installation
1 General

1.1 INTENT

.1 This section describes the minimum requirements for the supply and installation of a radon mitigation rough-in system.

.2 The radon rough-in system is to be designed, inspected, photographed and tested by a Canadian National Radon Proficiency Program (C-NRPP) Certified Mitigation Professional, obtained by the Prime Consultant.

.3 If, after the building is completed and occupied, long term radon testing results indicate the rough-in system needs to be activated, the installed components provide radon gas extraction points from within the building. Follow Health Canada guidelines for long term radon testing. The Building Owner would then need to extend the extraction points to the outside of the building and mechanically vent the radon to the outside, so that radon levels are controlled within the building.

.4 If the system is activated, it must be capable of reducing and maintaining the radon concentration to as low as practicable below 200 Becquerels per cubic metre (Bq/m3) within the building, as per Health Canada guidelines.

1.2 REFERENCES

.1 Alberta Building Code 2014.


.3 ASTM applicable standards.


1.3 ADMINISTRATIVE REQUIREMENTS

.1 Pre-Installation Meeting:

.1 Contractor to arrange for a site meeting with the (C-NRPP) Certified Mitigation Professional to review existing conditions and all requirements related to materials, material handling and storage, installation, scheduling, testing, and quality assurance and control, to confirm compliance with manufacturer and installation requirements.
Submittals:
.1 Submit component product information to the (C-NRPP) Certified Mitigation Professional related to the system design drawings and specifications. This includes the geotextile fabric, gas permeable venting layer, membrane barrier system, suction pit and cage, collection/extension/riser piping, and sealing methods for the slab perimeters and penetrations.

.2 Provide final as-building drawings to the (C-NRPP) Certified Mitigation Professional that indicate the final locations of the collection/extension/riser pipes and the suction pits and cages.

Quality Control:
.1 Component installation for the radon mitigation rough-in system is to be done by competent and skilled workers having a minimum of two (2) years experience installing vapour barriers, sealants and waterproofing membranes.

.2 Installation workers are also to obtain appropriate training on radon mitigation systems from the (C-NRPP) Certified Mitigation Professional and the component product manufacturers.

.3 (C-NRPP) Certified Mitigation Professional to have on-going meetings with the Contractor to discuss and confirm compliances with the system design drawings and specifications.

1.4 DELIVERY, HANDLING AND STORAGE

.1 Ensure all products delivered to the site meet manufacturer’s quality requirements. Remove and do not use any defective products. Store and handle materials as per manufacturer’s requirements, recommendations and safety data sheets. Protect materials from construction and weather related damage using appropriate coverings and adequate ventilation.

1.5 ENVIRONMENTAL / SITE CONDITIONS

.1 All products and materials are to be stored at temperatures and environmental conditions that conform to manufacturer guidelines.

.2 Perform installation work only when the weather conditions are within installation guidelines established by manufacturer.

.3 Do not proceed with membrane barrier system installation until confirmation by the (C-NRPP) Certified Mitigation Professional that the substrate preparation and condition is suitable.
4. Do not proceed with the concrete slab pour until confirmation by the (C-NRPP) Certified Mitigation Professional that the membrane barrier system preparation and condition is suitable.

1.6 WARRANTY

1. Provide a two (2) year warranty against slab perimeter and penetration sealing defects and/or deficiencies, and confirm that the materials meet performance specifications and installation requirements.

2. Review all manufacturer’s requirements for warranty period before the commencement of work. Ensure that all materials and installations are in conformance with manufacturer and warranty requirements, system design, and requirements of this specification.

3. All slab perimeter and penetration sealing defects and/or deficiencies that occur within the warranty period are to be corrected promptly by the Contractor at no expense to the Building Owner and the Province.

1.7 PERFORMANCE REQUIREMENTS

1. Installation of the geotextile fabric, gas permeable layer, suction pits and cages, collection/extension/riser pipes, membrane barrier system, and sealing methods for the slab perimeters and penetrations for the building concrete in contact with the soil, is to comply with manufacturers requirements, system design, and the requirements of this specification.

2. All system components are to be chemically compatible with the soil environment (ASTM E154-88).

3. The radon rock (gas permeable venting layer) is to be a minimum 100 mm layer of clean, coarse, aggregate meeting Size #5 specifications as defined in ASTM C33 / C33M - 16 Standard Specification for Concrete Aggregates, and as stated in the EPA/625/R-92/016 - 1994 Radon Prevention in the Design and Construction of Schools and Other Large Buildings document. Other venting types may be proposed by the Certified Mitigation Professional in the system design.

4. The radon membrane barrier system (also is the vapour barrier) is to be a minimum, 10 mil polyolefin based resin sheet membrane, meeting the requirements of ASTM E 1745-11. Other membrane barrier systems may be proposed by the (C-NRPP) Certified Mitigation Professional in the system design.

5. Radon membrane barrier system is to be overlapped and sealed at all perimeters and floor slab penetrations to provide a continuous seal of the building area in contact with the soil, as per manufacturer requirements, system design, and the requirements of this specification.
.6 Install and seal floor drains, suction pits/cages and collection/extension/riser pipes in accordance with EPA/625/R-92/016 - 1994 Radon Prevention in the Design and Construction of Schools and Other Large Buildings.

1.8 C-NRPP INSPECTION REQUIREMENTS

.1 Four (4) inspections of the system components and rough-in installations will be performed by a (C-NRPP) Certified Mitigation Professional. The results of these activities will be photographed and documented in written inspection reports prepared by the Professional and provided to the Building Owner and Province.

.2 The inspections are as follows:

.1 The (C-NRPP) Certified Mitigation Professional will inspect and document all relevant materials and products brought to the site for the purposes of radon mitigation rough-in system (1st inspection).

.2 The (C-NRPP) Certified Mitigation Professional will inspect, document and approve the completed installation of collection/extension/riser pipes, suction pits and cages and gas permeable venting layer, prior to the membrane barrier installation (2nd inspection).

.3 The (C-NRPP) Certified Mitigation Professional will inspect, document and approve the integrity of the membrane barrier system. They are also to conduct depressurization testing of the membrane barrier system after completed installation, prior to the concrete slab pour over the membrane to seal it (3rd inspection and testing).

.4 The (C-NRPP) Certified Mitigation Professional will inspect, document and approve the completed installation of slab perimeter and penetration sealing and capping and labeling of the riser pipes, once the concrete slab pour is completed (4th inspection).

2 Products

2.1 MANUFACTURER

.1 No specific product manufacturers for the radon mitigation rough-in system are identified. All products shall conform to the applicable ASTM standards and the EPA/625/R-92/016 - 1994 technical design document, and as indicated in the design drawings and specifications. Materials and components included for use are to be approved by the (C-NRPP) Certified Mitigation Professional.

2.2 GEOTEXTILE FABRIC

.1 The geotextile fabric is to be installed on the subsoil below the radon rock gas permeable venting layer. The geotextile fabric protects the gas venting layer from being contaminated with fines from the subsoil. Other geotextile fabric layers can be proposed by the (C-NRPP) Certified Mitigation Professional in the system design.
.2 The geotextile fabric is to have the following physical characteristics:
.1 Non-woven fiber construction with an apparent opening size of 0.15mm.
.2 Unit weight of 340g/m² (ASTM D5261)
.3 Grab tensile strength of 1100 N (ASTM D4632).
.4 Elongation of from 45 to 105% (ASTM D4632).
.5 Trapezoid tear resistance of 450N (ASTM D4533).
.6 Puncture resistance of 700N (ASTM D4833).
.7 Mullen Burst of 3600Pa (ASTM D3786).

2.3 GAS PERMEABLE VENTING LAYER

.1 The gas permeable venting layer (radon rock) is to be a minimum 100 mm layer of clean, coarse, aggregate meeting Size #5 specifications as defined in ASTM C33 / C33M - 16 Standard Specification for Concrete Aggregates, and as stated in the EPA/625/R-92/016 - 1994 Radon Prevention in the Design and Construction of Schools and Other Large Buildings document. Other types of venting layers may be proposed by the (C-NRPP) Certified Mitigation Professional in the system design.

2.4 MEMBRANE BARRIER SYSTEM

.1 The radon membrane barrier system (also the vapour barrier) is to be a minimum, 10 mil polyolefin based resin sheet membrane, meeting the requirements of ASTM E 1745-11. Other membrane barrier systems may be proposed by the (C-NRPP) Certified Mitigation Professional in the system design.

.2 All membrane seams are to be prepared, overlapped and sealed as per the manufacturer’s recommendations.

.3 Supply and install Blueskin WP 200, or an approved alternative by the (C-NRPP) Certified Mitigation Professional, as a transition between the radon membrane and upturn onto grade beams, foundation walls, footings or any item that penetrates the finished floor slab. Joints are to be designed to accommodate anticipated movement.

.4 The membrane is to be terminated with an upturn at the perimeter grade beams, foundation walls, footings and strip footings, and terminate between the beam, wall or footing and finished floor slab. Membrane is to terminate midway through the floor slab and be sealed and secured using Blueskin Termination Bar, mechanically fastened to the beam or footing on 300mm centers. Sealant to be applied to junction between membrane to footing, wall or beam, above Termination Bar.
.5 Gas tight seals are to be provided around the surfaces of all vertical penetrations. Such surfaces are to be prepared as per manufacturer’s requirements to facilitate membrane adherence. Use Blueskin WP 200, sealants and construction tape as required to provide a continuous seal between radon membrane and any pipe, conduit or other item that penetrates the floor slab.

.6 Once concrete floor slab has cured sufficiently to allow work to proceed on it, apply sealant to all penetration junctions on the top side of the finished floor slab.

2.5 SUCTION PIT AND CAGE

.1 The suction pits and cages are to be designed by the (C-NRPP) Certified Mitigation Professional. This method exposes void areas in the gas permeable venting layer to facilitate depressurization, if required.

.2 The suction pit area is to be sized to fit a galvanized metal suction pit cage. The cages are used to prevent the gas permeable venting layer from entering the suction pits.

.3 Ensure that a vertical collection riser pipe extends from the suction pit and cage to 300 mm above the finished floor slab. Horizontal collection/extension pipes may be required in the system design.

2.6 COLLECTION, EXTENSION AND RISER PIPES

.1 The collection, extension and riser pipe locations are to be designed by the (C-NRPP) Certified Mitigation Professional, and shown on the design drawings. Collection pipes are to be placed into the clear granular material / gas permeable venting layer having a minimum, thickness of 100mm.

.2 The collection, extension and riser pipes are to consist of a minimum Schedule 40 non-perforated smooth walled 100mm (inside) diameter rigid pipe of PVC, High Density PE or ABS construction.

.3 The collection, extension and riser pipes are to be installed in accordance with the EPA/625/R-92/016 - 1994 Radon Prevention in the Design and Construction of Schools and Other Large Buildings document.

.4 A single vertical riser pipe is to be installed at each suction pit and cage location and extend from the suction pit and cage to 300mm above the finished floor slab.

.5 The system design by the (C-NRPP) Certified Mitigation Professional may use collection piping or sleeves to draw radon gas from multiple sub-slab areas to a single suction pit, to minimize the number of suction pits. This would require holes to be created, as shown in the design, through the perimeter grade beams, foundation walls, footings and strip footings to allow piping to run through.
3 Execution

3.1 INSTALLATION

.1 Contractor to review footing, wall and grade beam building construction drawings, and review radon mitigation rough – in system design drawings and specifications to ensure proper understanding before installation. Discuss with the (C-NRPP) Certified Mitigation Professional as required.

.2 All installation work is to be inspected and documented by the (C-NRPP) Certified Mitigation Professional.

.3 Each individual sub-slab area isolated by building footings, foundation walls or grade beams is to be connected to an installed radon roughed-in mitigation system. The system design may use collection piping to draw radon gas from multiple sub-slab areas to a single suction pit, to minimize the number of suction pits.

.4 Prepare sub-grade surface prior to installation of the geotextile fabric, suction pits and cages, and collection, extension and riser piping, as per the elevations specified in the building construction drawings and radon mitigation rough – in system design drawings and specifications.

.5 Place geotextile fabric layer over the entire sub-grade surface, with sufficient overlaps as per the manufacturer’s requirements.

.6 Construct and install the suction pits and cages as close to the center of the sub-slab area as practicable, as per the radon mitigation rough – in system design drawings and specifications and manufacturer’s requirements.

.7 Install collection/extension/riser pipes in locations as per the radon mitigation rough – in system design drawings.

.8 The collection pipes are to be placed within the gas permeable venting layer.

.9 All pipe joints are to be solvent welded and fully inserted into coupling or fitting to ensure joint integrity as per manufacturer’s instructions.

.10 If the riser pipe penetrations through the floor slab cannot be installed in the center of the sub-slab area, an extension pipe must be installed so that it extends from the center of the suction pit and cage to the preferred pipe slab penetration location.
Riser pipe floor slab penetrations are not to interfere with planned future use of the interior space. Confirm riser pipe penetration locations with the C-NRPP Mitigation Professional on site prior to installation.

The space around the riser pipe installations must be considered for possible future pipe extensions. Future exterior exhaust locations are to be located a minimum of 2.0 meters from any opening in the building or adjacent building.

Riser pipe installations are to ensure the same sized exhaust pipe extensions can be made to the exterior of the building through the wall or roof system, if required in the future.

The gas permeable venting layer (radon rock) is to be a minimum 100 mm layer of clean, coarse, aggregate meeting Size #5 specifications as defined in ASTM C33 / C33M - 16 Standard Specification for Concrete Aggregates, and as stated in the EPA/625/R-92/016 - 1994 Radon Prevention in the Design and Construction of Schools and Other Large Buildings document.

The gas permeable venting layer (radon rock) is to be constructed by placing, grading and compacting (if required structurally) it over the entire sub-grade surface, geotextile layer and collection/extension/riser piping. Ensure the suction pit and cage area remains clear of the gas permeable venting layer (radon rock).

At completion of the substrate, component and gas permeable venting layer, the Contractor is to contact the (C-NRPP) Certified Mitigation Professional to inspect the installation of this portion of the system. Results are to be documented by the (C-NRPP) Certified Mitigation Professional.

When acceptance of the substrate, component and gas permeable venting layer installation has been provided by the (C-NRPP) Certified Mitigation Professional, the membrane barrier system construction can commence.

Membrane barrier system is to be placed over the gas permeable venting layer (radon rock). All membrane overlaps and sealing is to be done as per the manufacturer’s requirements and specifications.

Membrane barrier system installation is to be performed by trained qualified installers using manufacturer’s recommended techniques and equipment.

Membrane barrier system is to be a minimum, 10 mil polyolefin based resin sheet membrane, meeting the requirements of ASTM E 1745-11.

Membrane barrier system is to be installed and sealed around all vertical penetrations with sufficient overlap and using Blueskin, sealant and construction tape or chemical welded seams as per manufacturer’s requirements and specifications. An approved alternative to the Blueskin may be made by the (C-NRPP) Certified Mitigation Professional in the system design drawings and specifications.
.22 At completion of the membrane barrier system, Contractor is to contact the (C-NRPP) Certified Mitigation Professional to inspect the integrity of the membrane barrier system and conduct depressurization testing of the system. Results are to be documented by the (C-NRPP) Certified Mitigation Professional.

.23 When acceptance of the radon mitigation rough-in system installation has been provided by the (C-NRPP) Certified Mitigation Professional, the floor slab construction can commence.

.24 Care must be taken not to puncture the membrane excessively during floor slab construction. To limit membrane puncture during floor slab construction, items such as rebar chair supports designed with a wide base (instead of legs) are to be used to better spread the rebar load.

.25 Once concrete floor slab has cured sufficiently to allow work to proceed on it, clean joint surfaces in accordance with manufacturer’s instructions and seal all finished floor slab perimeter cold joints and any other floor slab penetration junctions between dissimilar materials using high quality sealants suitable for use on each subject material surface. Test sealant to confirm adhesion with all surfaces prior to use. Joints are to be pre-designed to accommodate anticipated movement.

.26 The above slab exposed open top of the riser pipes must be capped and 100% solvent welded to provide a complete seal.

.27 The above slab exposed riser pipe and cap are both to be labeled to identify them as part of the “Radon Mitigation Rough-in System”.

.28 At completion of the slab perimeter and penetration sealing and capping and labeling of the exposed riser pipes, Contractor is to contact the (C-NRPP) Certified Mitigation Professional to conduct feasibility and fan flow estimate tests (please refer to Chapter 4, Health Canada – Reducing Radon Levels in Existing Homes: A Canadian Guide for Professional Contractors). Results are to be documented by a (C-NRPP) Certified Mitigation Professional.

.29 When acceptance of the installation of the slab perimeter and penetration sealing and capping and labeling of the exposed riser pipes has been provided by the (C-NRPP) Certified Mitigation Professional, the passive radon mitigation rough-in system is considered complete.

.30 Deficiencies in the radon mitigation rough-in system are to be corrected in accordance with this specification and as per instructions from the (C-NRPP) Certified Mitigation Professional.

END OF SECTION
School Washrooms

Question?
Proposals have been made for schools to provide gender neutral washroom facilities. How should washrooms be labelled in a school and how are the calculations done to ensure the required number of facilities have been provided?

The provisions in the Alberta Building Code 2014 that address water closet (toilet) numbers for each sex are based on the wording of the National Building Code 2010.
The Alberta Building Code requires that water closets are to be provided for each sex. The Appendix note to this Sentence, however, better clarifies the intent: "It is deemed that rooms each containing a single water closet available for both males and females would satisfy the intent of the Code. The total number of water closets must be adequate for the total number of occupants."

So while the wording of Section 3.7.2.2.(1) suggests that dedicated washroom facilities exclusive to each sex are required, the Appendix note qualifies that a gender-neutral washroom (washroom available for both females/males) containing a single water closet would satisfy the intent of the requirement as well.

Where a room containing a single water closet (such as a gender-neutral washroom) is provided, a lockable, full-height door is required. This requirement for the design of the room as stated, is an Alberta-specific requirement not contained within the National Building Code.

For Example: An establishment could therefore install individual gender-neutral universal toilet rooms in lieu of sex-specific washroom facilities as long as the total number of required washrooms based on the total occupant load is still provided.

Additionally, washroom areas containing multiple water closets constructed with individual stalls meeting Sentence (17) with full height doors capable of being locked from the inside and full height walls to ensure unwanted visual surveillance was mitigated would also be acceptable.

Background Information:
2014 Alberta Building Code requirements
3.7.2.2. Water Closets
1) Except as permitted by Sentence (4), water closets shall be provided for each sex assuming that the occupant load is equally divided between males and females, unless the proportion of each sex expected in the building can be determined with reasonable accuracy. (See Appendix A.)

A-3.7.2.2.(1) Water Closets. Sentence 3.7.2.2.(1) assumes that there will be a sufficient number of persons in the building to justify the provision of separate water closet facilities for both males and females. In some circumstances overall low occupant loads would not require more than one water closet for males and one water closet for females and yet the building has
more than one storey. It is deemed that rooms each containing a single water closet available for both males and females would satisfy the intent of the Code. The total number of water closets must be adequate for the total number of occupants. Requirements for barrier free accessibility also need to be considered. If the entrance storey is accessible and the upper storeys are not required to be accessible, a room in the accessible storey must meet the requirements of Section 3.8. and can serve both males and females. If provided, a non-accessible room, designed to serve both males and females, in each non-accessible upper storey would be acceptable. Sentence 3.7.2.2.(4) permits a single water closet to serve both males and females if the total occupant load is low.

17) If a room contains
a) not more than 1 water closet, the doorway to the room shall be provided with a full-height door that is capable of being locked from the inside, or
b) no fewer than 2 water closets or at least 1 water closet and 1 urinal, the room shall be designed so that water closets, urinals and lavatories are not visible from the entrance to the room.

3.2.1.1. Functional Statements
F130 To limit unwanted visual surveillance.
Secondary Suite Exits

Question?
Can the principle exit for a secondary suite exit through the attached garage of the house?
The previous 2006 Alberta Building Code was very clear that at least one exit was to be provided for each dwelling unit: which lead directly to the outside. This specific wording was not included in the current 2014 ABC, however it is the intent of the 2014 ABC to ensure that each unit in a house with a secondary suite be provide with an exit which leads directly to the outside.
The definition of an exit and the examples provided in Appendix A, provide further clarification that a door from a secondary suite, through a garage area, would not meet the intent of a means of egress leading directly to an exit stair or directly to the outside. Although not as clearly worded as the 2006 ABC, the 2014 ABC provides an article which is intended to provide the same requirement. This Article is found under 9.9.7.5.(1), and requires that access to exiting for suites cannot be through other dwelling units, service rooms, or other occupancies.

Background Information:
Previous 2006 Alberta Building Code requirements
9.37.2.11. Means of Egress
1) Except as permitted in Sentence (2), each dwelling unit shall be provided with at least one exit that leads directly to the outside.

2) Dwelling units may share a common exit meeting the requirements of Article 9.37.2.13.

Current 2014 Alberta Building Code Requirements
Exit means that part of a means of egress, including doorways, that leads from the floor area it serves to a separate building, an open public thoroughfare, or an exterior open space protected from fire exposure from the building and having access to an open public thoroughfare. (See Appendix A.)

Appendix A - Exit
Exits include doors or doorways leading directly into an exit stair or directly to the outside. In the case of an exit leading to a separate building, exits also include vestibules, walkways, bridges or balconies.

9.9.7.5. Independent Access to Exit
1) Required access to exit from suites shall not be through any other dwelling unit, service room or other occupancy.

F10 To facilitate the timely movement of persons to a safe place in an emergency.

9.9.9.1. Travel Limit to Exits or Egress Doors
1) Except as provided in Sentences (2), (3) and (4), every dwelling unit containing more than 1 storey shall have exits or egress doors located so that it shall not be necessary to travel up or down more than 1 storey to reach a level served by
a) an egress door to a public corridor, enclosed exit stair or exterior passageway, or
b) an exit doorway not more than 1.5 m above adjacent ground level.

9.9.9.3. Shared Egress Facilities
2) Where a dwelling unit is located above another dwelling unit or common space in a house
with a secondary suite, the upper dwelling unit shall be provided with a second and separate
means of egress where an egress door from that dwelling unit opens onto an exterior
passageway that
a) has a floor assembly with a fire-resistance rating less than 45 min,
b) is served by a single exit stairway or ramp, and
c) is located more than 1.5 m above adjacent ground level.

9.9.2.4. Principal Entrances
1) Except for doors serving a single dwelling unit or a house with a secondary suite including
their common spaces, at least one door at every principal entrance to a building providing
access from the exterior at ground level shall be designed in accordance with the requirements
for exits.

9.9.9.2. Two Separate Exits
1) Except as provided in Sentence 9.9.7.3.(1) and except for dwelling units in a house with a
secondary suite, where an egress door from a dwelling unit opens onto a public corridor or
exterior passageway it shall be possible from the location where the egress door opens onto the
corridor or exterior passageway to go in opposite directions to 2 separate exits unless the
dwelling unit has a second and separate means of egress.
Sprinklering of Crawl Spaces

Question?
Is a crawl space required to be sprinklered under NFPA 13?
Under the 2014 ABC, sprinklers are required to be installed in crawl spaces. Because the ABC is the overarching legislation, the specific installation location requirements within NFPA 13 and NFPA 13R would be superseded, and therefore sprinkler heads should be installed for any building designed under the ABC and either of these standards. NFPA 13R permits sprinkler heads to be omitted in crawl spaces under Section 6.6.6. NFPA 13 does not permit sprinklers to be omitted in crawl spaces.

Background Information:
2014 Alberta Building Code requirements
3.2.5.12. Automatic Sprinkler Systems
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
j) other concealed spaces that are not used or intended for living purposes or storage and do not contain fuel-fired appliances.

NFPA 13R
6.6 Location of Sprinklers.
6.6.6* Sprinklers shall not be required in attics, penthouse equipment rooms, elevator machine rooms, concealed spaces dedicated exclusively to and containing only dwelling unit ventilation equipment, crawl spaces, floor/ceiling spaces, noncombustible elevator shafts where the elevator cars comply with ANSI A17.1, Safety Code for Elevators and Escalators, and other concealed spaces that are not used or intended for living purposes or storage and do not contain fuel-fired equipment.

NFPA 13
8.1* Basic Requirements.
8.1.1* The requirements for spacing, location, and position of sprinklers shall be based on the following principles:
(1) Sprinklers shall be installed throughout the premises.
Pull Stations and Lower Exits Update

Question?
Residential buildings more than 3 storeys in building height are being designed with the main floor suites having egress doors that lead directly to the street. These doors permit the occupants to not have to use the public corridor in the case of an emergency, and therefore have no access to a pull station. The wording of the 2014 ABC clause 3.2.4.17.(1)(b) requires that a pull station be installed in "every floor area near every exit". Would the exterior doors (ie. patio door) on the main floor suites require a pull station?

Further review and discussion on this question was brought forward to NRC. Interpretation provided by NRC determined that an exterior egress doorway such as a patio door installed in a suite of a building referenced under sentence 3.2.4.17.(1) would not meet the intent of the sentence, or the definition of an exit (required or not), and would not require the installation of a pull station at these locations.

Background Information:
3.2.4.17. Manual Stations
1) Except as permitted by Sentences (2) and (3), where a fire alarm system is installed, a manual station shall be installed in every floor area near
   a) every principal entrance to the building, and
   b) every exit.

2) In a building that is sprinklered throughout, a manual station is not required at an exterior egress doorway from a suite that does not lead to an interior shared means of egress in a hotel or motel not more than 3 storeys in building height, provided each suite is served by an exterior exit facility leading directly to ground level.

3) In a building that is sprinklered throughout, a manual station is not required at an exterior egress doorway from a dwelling unit that does not lead to an interior shared means of egress in a building not more than 3 storeys in building height containing only dwelling units, provided each dwelling unit is served by an exterior exit facility leading directly to ground level.

4) In a building referred to in Sentences (2) or (3), manual stations shall be installed near doorways leading from shared interior corridors to the exterior.

NRC Response
Your question:
This issue specifically deals with clause 3.2.4.16.(1)(b). This same wording appears in article 3.2.4.16. of the 2015 NBC. This requires that a pull station be installed in "every floor area near every exit". Prior to the 2005 NBC the requirement was for a pull station at each "required" exit. The term "required" is no longer in the NBC. The situation at hand where this is causing difficulty is when there are main floor suites of a multistory building that have access to exit
doors in the interior to a corridor and also exterior doors to a patio or common area that leads to the street. The situation also occurs where a high rise building is built on a podium which includes townhouses that have access to an interior corridor as well as to a common area or patio that leads to the street. We have interpreted this article to require a pull station at the swinging door (sliding door would not count as exit door) that leads to the exterior patio or common area that leads to the street. We consider this door to be an exit that the occupants could use. Without a pull station at this door they could exit the building in a fire scenario without informing the remainder of the building of the hazard. We however, appear to be in a minority of municipalities that are enforcing this requirement in this way. We are also receiving a lot of kickback from the industry. We would appreciate if you could confirm or correct our interpretation of this article. We will endeavor to convey the confirmation or correction of the interpretation to other AHJs in the province and elsewhere when received.

**Codes Canada response:**

The requirements for manual stations were revised in the 1995 edition of the National Building Code. Two proposed changes (OCC 145 and 228) on this issue were submitted for the 1993 public consultation. Following the consultation, the Standing Committee on Occupancy (SCO) decided to withdraw OCC 228 and to address comments on OCC 145. OCC 145, was developed by a group on sprinkler systems. The reason behind the change was:

As part of the proposal to increase the number of buildings in which sprinklers would be installed, it is proposed to require rudimentary fire alarm systems in a number of small residential buildings. These changes will permit the installation of a fire alarm system without having to install pull stations in residential buildings at the doors from suites that lead directly to the outdoors. However, pull stations would be required at the exits from interior corridors.

Further clarification of the intent of the Code that it should not be possible to leave the building by a normal exit without passing a manual pull station is also provided. Even though the principal entrance may not have been designed as an exit facility, many of the building occupants will be most familiar with this as the usual egress route and will tend to use it in an emergency.

Sentences 3.2.4.16.(2) and (3) were introduced for Group C buildings that would not have been required to have a fire alarm system if they were not sprinklered (see Sentences 3.2.4.1.(5) and (6) of the NBC 2015), and where "each suite has direct access to an exterior exit facility leading to ground level."

In addition, one of the comments raised by the public, which is related to your question, received the following response from the SC-O that clarifies the intent of Clause 3.2.4.16.(1)(b).

Regarding a comment questioning permission not to exempt patio doors for high buildings, it was noted that these are not normally designated as exits.

Therefore, Clause 3.2.4.16.(1)(b) was not intended to apply to patio doors that are not designated as exits. As an aside, a door designated as an exit, must comply with many code provisions, such as:

- Article 3.4.1.8. on transparent doors,
- Article 3.4.5.1. on exit signs,
- Article 3.4.6.11. on door threshold and obstruction of doors by hangings or draperies,
- Article 3.4.6.12. on door swing, and
- Article 3.4.6.16. on door release hardware.
Bedroom Egress Windows
ABC Sentences 9.10.14.4.(3)&(4) & 9.10.15.4.(3)&(4)

Question #1
How are SCO's interpreting this clause? What if the bedroom window is larger than .35 sq. m.?
A response provided by NRC on this question has confirmed that a bedroom window larger than 0.35 sq. m. such as a slider window would still meet the intent of sentence (3) and would be permitted to be used. However, in discussion with a representative from the NRC, it is not the intent that the window would be a large window. The egress opening as well as the remaining window pane should be constructed as close to the 0.35 sq. m. size as possible. For example, a window with an opening area meeting 0.35 sq. m and with a fixed window area of a similar size area to 0.35 sq. m. would meet the intent of the exemption.

Question #2
Is this sentence saying that any number of bedroom egress windows need not be considered, and can they be within 2 m horizontally and vertically of another opening?
The exemption noted within sentence (4) permits the egress windows referred to in sentence (3) to be placed closer than 2 m horizontally and 2 m vertically to other unprotected openings.

Background Information:
2014 Alberta Building Code requirements
9.10.14.4. Openings in Exposing Building Face
3) Except for buildings that are sprinklered and for openable windows having an unobstructed opening equal to 0.35 m2 installed in accordance with Sentences 9.9.10.1.(1) and (2), where the limiting distance is 2 m or less, individual unprotected openings shall be no greater than a) the area stated in Table 9.10.14.4.B., or b) where the limiting distance is equal to or greater than 1.2 m, the area calculated by

\[
\text{Area} = 0.24 (2 \times LD - 1.2)^2
\]
4) The spacing between individual unprotected openings described in Sentence (3) that serve a single room or space described in Sentence (5) shall be not less than a) 2 m horizontally of another unprotected opening that is on the same exposing building face and serves the single room or space, or b) 2 m vertically of another unprotected opening that serves the single room or space, or another room or space on the same storey.

9.10.15.4. Glazed Openings in Exposing Building Face
3) Except for buildings that are sprinklered and for openable windows having an unobstructed opening equal to 0.35 m² installed in accordance with Sentences 9.9.10.1.(1) and (2), where the limiting distance is 2 m or less, individual glazed openings or a group of glazed openings in an exposing building face shall not exceed 50% of the maximum allowable aggregate area of glazed openings determined in Sentence (1).

4) The spacing between individual glazed openings described in Sentence (3) serving a single room or space described in Sentence (5) shall be not less than a) 2 m horizontally of another glazed opening that is on the same exposing building face and serves the single room or space, or b) 2 m vertically of another glazed opening that serves the single room or space, or another room or space on the same storey.

2010 NBC User's Guide
Areas and Spacing of Individual Openings (NBC Sentences 9.10.14.4.(3) & 9.10.15.4.(3))
Because the requirements that limit the maximum opening areas assumed that smaller openings would be evenly distributed over the exposing building face, the NBC also limits the area of individual openings and their proximity to one another wherever the limiting distance is 2 m or less. Exceptions are provided for sprinklered buildings and for openable bedroom windows with an unobstructed openable area of 0.35 sq meters where the window is installed to fulfill the requirements in NBC Subsection 9.9.10. for emergency egress.

NRC Response
Re: 2010 NBC and 2014 ABC Articles 9.10.14.4.(3) & 9.10.15.4.(3)
Dear Ms. Martin:
Sentence 9.9.10.1.(1) generally requires every bedroom in an unsprinklered suite to have at least one window or door opening to the outside that is large enough and easy enough to open so that it can be used as an exit in the event that a fire prevents use of the building's normal exits.

Sentence 9.9.10.1.(2) states that the window referred to in Sentence 9.9.10.1.(1) shall a) provide an unobstructed opening of not less than 0.35 m² in area with no dimension less than 380 mm, and b) maintain the required opening during an emergency without the need for additional support.

"unobstructed opening equal to 0.35 sq m...." means the minimum unobstructed opening specified for escape. If a window utilizes a slider style window, the overall glazed window area would have to be larger.

The intent of Sentence 9.10.15.4.(3) is to exempt those bedroom windows from the restrictions stated in the Sentence.