Building/Fire Safety Codes Officers
Edmonton Regional Meeting
April 15th 2015

Room M5/M6, Common Wealth Recreation Centre
11000 Stadium Road, Edmonton, Alberta
AMA Regional Building / Fire SCO Meeting
Spring 2015
Edmonton and Northern Alberta Area

Date and Time:
Wednesday April 15, 2015
8:00 am – 4:00 pm

Location:
Room M5, M6 Common Wealth Recreation Centre
11000 Stadium Road, Edmonton, Alberta

Representatives:
Danielle Paradis, Administrator of Certification & M. Electrician Program, SCC
Judy Parker, Certification Coordinator, SCC
Jeremy Wagner, Field Fire Officer, OFC.
Ross Bennett, Field Fire Officer, OFC.
James Orr, Chief Building Administrator, AMA
Tina Parker, Senior Fire Code Advisor, AMA
Nabil Habashy, Field Building Inspector, AMA

Facilitators:
Nabil Habashy, Field Building Inspector, AMA
Trevor Brice, Chief Fire Administrator, AMA

AGENDA

8:00 am – 8:15 am  Call to order and Introductions

8:15 am – 8:45 am  General Updates
JAMES ORR, Chief Building Administrator, AMA
NABIL HABASHY, Field Building Inspector, AMA
TREVOR BRICE, Chief Fire Administrator, AMA
1. Adoption of 2014 ABC & AFC Code
2. Adoption of the National Energy Code

JUDY PARKER, Certification Coordinator, SCC
Danielle Paradis, Administrator of Certification & Master Electrician Program, SCC
1. Safety Codes Act
2. Training for 2014 ABC & AFC
3. Alberta Safety Codes Authority (ASCA)
4. Auditing for Accredited Agencies

8:45 am – 9:45 am  Guest Speaker
Ron Foxcroft, President / Owner, Fire Safety Services (Calgary) Ltd.
1. Counterfeit Paint Spray Booths
COFFEE BREAK
9:45 am – 10:00 am

10:00 am – 11:00 am Joint Building / Fire Session
General Code Concerns

11:00 am – 12:00 pm Professional Development for SCO’s
Judy Parker, Certification Coordinator, SCC

12:00 pm – 1:00 pm
WORKING LUNCH BREAK
Lunch provided by the Safety Codes Council
SCC Professional Development cont’d

1:00 pm – 2:00 pm Joint Building / Fire Session
General Code Concerns (care Occupancy see below)

COFFEE BREAK
2:00 pm – 2:15 pm

2:15 pm – 4:00 pm Concurrent Building / Fire Sessions
General Code Concerns

### Building – Room M6

<table>
<thead>
<tr>
<th>Topic</th>
<th>Details</th>
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<tbody>
<tr>
<td>1. ICF</td>
<td>The use of ICF as a non-combustible construction</td>
<td>AMA</td>
</tr>
<tr>
<td>2. Barrier Free</td>
<td>Feedback from BSCO for Barrier free applications</td>
<td>St.Albert</td>
</tr>
<tr>
<td>4. Modular Buildings</td>
<td>Incomplete modular buildings (permits and inspections)</td>
<td>Beaumont</td>
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<td>5. Screen rooms</td>
<td>Compliance</td>
<td>Beaumont</td>
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<tr>
<td>6. Louvered Roofs</td>
<td>Compliance</td>
<td>Beaumont</td>
</tr>
<tr>
<td>2. Care Occupancy</td>
<td>Province Guidance (Common Building/Fire Topic)</td>
<td>St.Paul Fire Department</td>
</tr>
</tbody>
</table>

### Fire – Room M5

<table>
<thead>
<tr>
<th>Topic</th>
<th>Details</th>
<th>From</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Fire Alarm</td>
<td>Installation, maintanance concerning audibility, replacement.</td>
<td>Acceptable Fire LTD</td>
</tr>
<tr>
<td>2. Care Occupancy</td>
<td>Province Guidance (Common Building/Fire Topic)</td>
<td>St.Paul Fire Department</td>
</tr>
</tbody>
</table>

**ADDITIONAL ITEMS:**

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**ADJOURNMENT**

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The 2014 editions of the Alberta Building Code and the Alberta Fire Code based on the 2010 National Building and Fire Codes were adopted at the end of February 2015 by provincial regulation. Also adopted by regulation is the National Energy Code for Buildings (NECB) 2011 edition. Key changes in the codes include:

- A new building class known as “B3” to address the demand for a more flexible range of care accommodation for an aging population. The B3 provides safe and affordable housing options for seniors and persons with disabilities.
- New provisions to allow for the construction and fire protection during construction of six-storey wood buildings entirely based on the national code requirements for the upcoming 2015 national building and fire code editions.
- New building protection against radon gas.

Each code has a coming into force date and a transition period. The coming into force date is the date on which the codes apply or may be used in Alberta. The transition period is to allow construction under the previous 2006 Alberta Building Code or under the new codes. All coming into force dates have a standard 6 month transition period to construct in the previous code provided a permit has been issued prior to the end of the transition period; or the safety codes officer is satisfied that the preparation of the plans and specifications for the project commenced prior to the coming into force date. The objective of this section is to prevent unnecessary and costly changes to construction already underway or plans that have been substantially developed for construction.

The timelines for the Alberta codes are:

<table>
<thead>
<tr>
<th>Codes</th>
<th>Coming into force or Implementation Date</th>
<th>Transition Period End Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alberta Building Code 2014</td>
<td>May 1, 2015</td>
<td>November 1, 2015</td>
</tr>
<tr>
<td>Alberta Fire Code 2014</td>
<td>May 1, 2015</td>
<td>No transition required</td>
</tr>
</tbody>
</table>

The National Energy Code for Buildings 2011 is available through the National Research Council Website. The Alberta Building and Fire Codes 2014 will be available from the National Research Council, both online and in hard copy, in April 2015 or possibly at an earlier date. Notice will be provided shortly as to when purchase orders may be made to the National Research Council. Municipal Affairs and the Alberta Safety Codes Council will be providing additional information over the next few weeks respecting purchasing, price of codes, training, code seminars and other related information and activities. It is important to take note that the codes cannot be used or enforced in Alberta until the coming into force or implementation date.

March 5, 2015
I.C.F. Formed Concrete as non-combustible/Fire walls Questions:

1) Can a concrete wall formed using I.C.F. forming material be used as a 2hr or less rated Firewall.

Answer:

**I.C.F. formed concrete walls cannot be used as a firewall.**

1. The EPS insulation that forms the outside of the wall is a combustible material

2. While there are some I.C.F. manufactures that have had their products tested and approved for up to a 4hr fire resistance rating, the materials used in the construction of the blocks (Plastic ties) do not meet the code requirement of Article 3.1.10.2, for the firewall to be constructed of non-combustible materials.

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2006 Alberta Building Code Definitions

**Firewall** means a type of fire separation of noncombustible construction that subdivides a building or separates adjoining buildings to resist the spread of fire and that has a fire-resistance rating as prescribed in this Code and has structural stability to remain intact under fire conditions for the required fire-rated time.

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

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

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**3.1.10.2. Rating of Firewalls**

1) A firewall that separates a building or buildings with floor areas containing a Group E or a Group F, Division 1 or 2 major occupancy shall be constructed as a fire separation of noncombustible construction having a fire-resistance rating not less than 4 h, except that where the upper portion of a firewall separates floor areas containing other than Group E or Group F, Division 1 or 2 major occupancies, the fire-resistance rating of the upper portion of the firewall is permitted to be not less than 2 h.

2) A firewall that separates a building or buildings with floor areas containing major occupancies other than Group E or Group F, Division 1 or 2 shall be constructed as a fire separation of noncombustible construction having a fire-resistance rating not less than 2 h.

3) Except as permitted by Sentence (4), the required fire-resistance rating of a firewall, except for closures, shall be provided by masonry or concrete.

4) A firewall permitted to have a fire-resistance rating not more than 2 h need not be constructed of masonry or concrete, provided

a) the assembly providing the fire-resistance rating is protected against damage that would compromise the integrity of the assembly, and

b) the design conforms to Article 4.1.5.18.

(See Appendix A.)

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Contributed By Larry Robinson, BSCO AMA
1. What are the key components in the Advantage ICF System®?
The Advantage ICF (insulating concrete forming) System consists of two layers of expanded polystyrene (EPS) insulation connected with web connectors molded into the EPS insulation.

2. Can I vibrate concrete in the Advantage ICF System?
Yes, concrete is supposed to be vibrated. The unique design of the Advantage ICF System can withstand full internal vibration as per concrete placing standards.

3. Why is your product 419 mm (16-1/2") high?
A typical basement wall height 6 courses at 419 mm (16½") high = 2514 mm (8'-3") plus sill plate at 38 mm (1½") provides overall height of 2552 mm (8'-4½") less the concrete floor slab thickness at 102 mm (4") provides a finish ceiling height of 2450
4. How high can I go with your product?
The Advantage ICF System can be used to form 152 mm or 203 mm (6" or 8") thick reinforced concrete walls. The National Building Code (NBC) of Canada provides prescriptive design requirements for above or below grade walls up to 3.0 m (10'-0") height. Consult your Advantage ICF System representative for other wall heights that may require specific engineering design input.

5. Can the product be used for above-grade applications?
Yes. A growing part of our business is above grade or whole building applications where building owners have recognized the advantages of energy efficient construction for their whole building.

6. What is the difference between a fire separation and a firewall?
Principal differences between a fire separation and a firewall relate to the construction materials that are permitted and the requirement for a minimum fire-resistance rating. The following NBC definitions will help to understand these differences:

1) Fire separation means a construction assembly that acts as a barrier against the spread of fire and smoke. NOTE: The fire-resistance rating of a fire separation may be waived in some cases on the basis of the presence of an automatic sprinkler system.

2) Firewall means a type of fire separation of noncombustible construction, which subdivides a building or separates adjoining buildings intended to resist the spread of fire. A firewall has a fire-resistance rating as prescribed in the Code and has structural stability to remain intact under fire conditions for the required fire-rated time.

3) Noncombustible construction means that type of construction in which a degree of fire safety is attained by the use of noncombustible materials for structural members and other building assemblies. Except for closures, the NBC states that required fire-resistance rating for a firewall shall be provided by masonry or concrete.

7. Can I use the Advantage ICF System for a party wall?
A party wall is defined in the NBC as a wall jointly owned and jointly used by 2 parties under easement agreement or by right in law, and erected at or upon a line separating 2 parcels of land each of which is, or is capable of being, a separate real-estate entity.

1) In a building of residential occupancy in which there is no dwelling unit above another dwelling unit, a party wall on a property line between dwelling units can be constructed as a fire separation having a fire-resistance rating not less than a 1 h.

2) Except as noted above for residential occupancy a party wall on a property line must be constructed as a firewall.

8. Can you use Advantage ICF to construct firewalls?
As noted above, the NBC requires that a firewall be constructed of non-combustible construction. The fire-resistance rating of a wall constructed with the Advantage ICF System is provided by the 152 mm or 203 mm (6" or 8") concrete wall thickness. However, the stay-in-place EPS insulation that forms the outside face of the wall is a combustible material. Therefore, acceptability for use in constructing a firewall must be confirmed with local code authorities at the time of building permit approval.

9. What goes inside?
Concrete with a 100 -150 mm (4" - 6") slump to provide a minimum 20 MPa (2900 psi) concrete strength reinforced as per design requirements.

10. How do you prevent wind from moving the forming system prior to the concrete pour?
The Advantage ICF System itself is light; therefore, we attach lumber bracing or a reusable metal scaffold to the wall when it is assembled. The Advantage ICF System Installation Manual provides additional details on bracing and scaffolding.

11. Does the concrete pressure cause blow outs in...
February 2, 2006

Francis Roma
Logix Insulated Concrete Forms Ltd.
327 – 801 Klahanie Drive
Port Moody, BC V3H 5K4

Dear Mr. Roma,

RE: Installation of Logix ICF in Non-Combustible Construction, Project # 3091401

INTRODUCTION

Intertek Testing Services NA Ltd. (Intertek) has reviewed, at the request of Logix Insulated Concrete Forms (ICF) Ltd., the requirements for Non-Combustible Construction as it relates to Insulated Concrete Forms (ICFs) under the 2003 International Building Code (IBC). This evaluation is based on past test reports, and Logix ICF Ltd. current application to ICC-ES to include multi-storey construction.

STANDARDS AND CRITERIA

• 2003 International Building Code
• ICC-ES AC12 "Acceptance Criteria for Foam Plastic Insulation"

EVALUATION

Section 3.3 of ICC-ES AC12 states that in some instances foam plastic can be permitted where non-combustible materials are required if conditions of the 2003 IBC, Section 2603.5 are met. This section has been summarized below, and evidence provided to demonstrate how Logix ICF complies for use in non-combustible construction.

1) 2603.5.1 Fire Resistance rated Walls: Where the wall is required to have a fire-resistance rating, data based on tests conducted in accordance with ASTM E119 shall be provided.

This report is for the exclusive use of Intertek’s Client and is provided pursuant to the agreement between Intertek and its Client. Intertek’s responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to copy or distribute this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.
The Logix ICFs achieved a 3 hour fire resistance rating when tested by Intertek in Intertek Test Report 3020964(d) dated June 2, 2004. A further study was conducted in which, the Intertek Letter dated November 11, 2003 showed that the presence of plastic ties in the concrete would not affect the ability of the wall to achieve a fire resistance rating of up to 4 hours.

2) **2603.5.2 Thermal Barrier:** Any foam plastic insulation shall be separated from the building interior by a thermal barrier meeting the provisions of Section 2603.4.

Section 2603.4 requires that the interior of a building be separated from the foam plastic by an approved thermal barrier of ½ inch (12.7 mm) gypsum wallboard or equivalent thermal barrier that will limit the average temperature rise of the unexposed surface to not more than 250°F (120°C) after 15 minutes of fire exposure. The thermal barrier must also be installed in a manner that will remain in place for 15 minutes based on UL1715 (UBC Standard 26-3).

ASTM E119 testing per Intertek Test Report 3020964(d) was conducted using a ½ inch gypsum wallboard, and results showed that the temperature rise after 15 minutes was less than 60°F on the unexposed side.

A standard room fire test per Intertek Test Report 3020964(a) was also conducted in accordance with UBC Standard 26-3, and results showed that the ½ inch gypsum wallboard remained intact.

3) **2603.5.3 Potential Heat:** The potential heat of the foam plastic insulation shall be determined by tests conducted in accordance with NFPA 259.

One of the polystyrene beads used in Logix ICF are Huntsmen Grade 40 and 54, for which Southwest Research Institute conducted testing per NFPA 259 and have reported in SwRI Project No. 01.03049.01.303. Results showed potential heat ratings of 17,293 Btu/lb and 17,269 Btu/lb for Grade 40 and 54 respectively.

4) **2603.5.4 Flame Spread and Smoked Developed Indexes:** Foam plastic insulation shall have a flame spread index of 25 or less and a smoke-developed index of 450 or less as determined in accordance with ASTM E84.

Flame Spread and Smoke Developed indexes have been obtained for Huntsmen Grade 40 and 54, one of the main polystyrene beads used in Logix ICF. These results are reported in Underwriters Laboratories Inc. Test Report 96RT6559, which show that various densities of Huntsmen polystyrene beads all achieve flame spread index ratings less than 25 and smoke-developed indices below 450 when tested in accordance to UL 723.
5) **2603.5.5 Test Standard**: The wall assembly shall be tested in accordance with and comply with the acceptance criteria of NFPA 285.

Testing to NFPA 285 is done on the finished wall assembly which includes the cladding (ex. Exterior Insulation and Finish System (EIFs)). This is a test that is primarily done by the cladding manufacturers to show conformance to NFPA 285 per the requirements of Section 3.3.2.1 and 3.3.2.2 of ICC-ES AC12. This is beyond the scope for an ICF manufacturer.

6) **2603.5.6 Label Required**: The edge or face of each piece of foam plastic insulation shall bear the label of an approved agency.

Logix ICFs are manufactured under a third party inspection and listing program by Intertek, and all complying Logix ICF are marked with the Intertek – Warnock Hersey Certification Mark.

Each ICF is labeled with the following information: Company Name & Contact Information, Manufacturer’s Location, Product Description, Complying Test Standards, Warnock Hersey Certification Mark, and Traceability Information (operator name, date, time).

7) **2603.5.7 Ignition**: Exterior walls shall not exhibit sustained flaming when tested in accordance with NFPA 268.

This section lists a few exceptions that result in the foam plastic insulation not requiring testing in accordance to NFPA 268. Logix ICFs meet the exceptions as a thermal barrier (½” gypsum wallboard) complying with Section 2603.4 is used.

**CONCLUSION**

It is Intertek’s professional opinion after reviewing Section 2603.5 of the 2003 IBC and the evidence shown above, that the Logix ICF meets the requirements for non-combustible construction for exterior walls of buildings of Type I, II, III or IV construction.

If you have any questions, please do not hesitate to contact us at 604-520-3321.

**INTERTEK TESTING SERVICES NA LTD.**
Warnock Hersey

Prepared By: ____________________   Reviewed By: _____________________
Kal Kooner, EIT   Peter Gildenstern, AScT
Engineer, Building Products   Asst. Mgr., Engineering Services

Enclosure
TWO-HOUR FIREWALLS

BACKGROUND
Historically, firewalls used to subdivide buildings into smaller units have been built using one of two types of construction: masonry block or solid concrete. These materials have been required for firewall construction by the Alberta Building Code since at least 1974.

Recently, advances in technology and construction practices have led to the development of proposed firewall assemblies that do not use masonry block or concrete. A provision was added to the Alberta Building Code 2006 in Subsection 3.1.10. that permits the construction of two-hour firewalls using noncombustible materials other than masonry or concrete.

Municipalities and the Safety Codes Council have expressed concern as to how a safety codes officer will evaluate a proposed firewall assembly to determine whether it meets the Code requirements. This STANDATA gives guidance to safety codes officers and designers in how to interpret the requirements in Subsection 3.1.10. for firewall assemblies that are constructed of noncombustible materials other than masonry block or concrete.

DISCUSSION
Sentence 3.1.10.2.(4) states that a two-hour firewall using noncombustible materials need not be constructed of masonry block or concrete. As the new appendix note and the intent statements from the National Research Council indicate, the intent of this Sentence is not to allow any type of construction for a firewall without proper damage protection and testing of the assembly. The appendix note states, “...it is also necessary to determine through testing whether failure of the damage protection component during a fire affects the performance of the fire-resistive component.”

The national standard for the evaluation of the fire-resistance rating of wall assemblies referenced in the Alberta Building Code 2006 is CAN/ULC-S101, “Fire Endurance Tests of Building Construction and Materials.” Clause 5.2.1.1. of ULC S101 states that once a fire endurance period is determined for a given assembly of materials, the Hose Stream Test shall be conducted on an alternate specimen that has been exposed to fire for no more than one hour. The theory behind this clause is that if a fire has been burning in a building for anything more than one hour, the building will be lost, so whether the fire separation can withstand the application of a firefighter’s hose stream after that time is

Unless stated otherwise, all Code references in this STANDATA are to Division B of the Alberta Building Code 2006.
irrelevant. This logic may be appropriate for standard fire separations, but is not appropriate in the case of firewalls that are used to subdivide buildings.

Firewalls have traditionally been built using masonry or concrete, which do not require the substitution of an alternate test specimen for the application of the Hose Stream Test in ULC S101. As such, in order to determine an equivalent level of safety in any proposed alternate solution to masonry or concrete, the test procedure for the assembly should be modified so as to not use an alternate test specimen for the application of the Hose Stream Test.

At present, there is no recognised Canadian standard for the evaluation of firewalls constructed of noncombustible materials other than masonry or concrete; consequently, it would be appropriate for a safety codes officer to request professional involvement on a project that is proposing to incorporate this kind of firewall. Firewalls require professional involvement for the structural design aspects, such as lateral stability and prevention of collapse, but there is no requirement for professional involvement on the damage protection aspect. Sentence 2.4.2.1.(8) of Division C gives the safety codes officer the authority to ask for an engineer to be involved in the evaluation of the damage protection features of the firewall.

The design of the damage protection features must be evaluated based on an equivalency to masonry or concrete. Masonry and concrete are inherently resistant to external damage, and any proposed firewall would have to meet or exceed the level of protection from physical damage provided by masonry or concrete. It would be the responsibility of the design professional to ensure that that evaluation has been performed.

All of the other requirements for firewalls in Subsection 3.1.10. and Article 4.1.5.18. still apply with regards to structural design and allowable materials. The commentary entitled “Structural Integrity of Firewalls” in the User’s Guide – NBC 2005, Structural Commentaries (Part 4 of Division B) published by the National Research Council contains additional information for structural designers in regards to impact loads, thermal expansion and structural integrity.

CODE REFERENCES

1. Sentence 3.1.7.1.(1) states:

<table>
<thead>
<tr>
<th>3.1.7.1. Determination of Ratings</th>
</tr>
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<tbody>
<tr>
<td>1) Except as permitted by Sentence (2) and Article 3.1.7.2., the rating of a material, assembly of materials or a structural member that is required to have a fire-resistance rating, shall be determined on the basis of the results of tests conducted in conformance with CAN/ULC-S101, “Fire Endurance Tests of Building Construction and Materials.”</td>
</tr>
</tbody>
</table>
2. Sentence 3.1.10.1.(1) states:

3.1.10.1. Prevention of Firewall Collapse
1) Except as permitted by Sentence (2), the connections and supports for structural framing members that are connected to or supported on a firewall and have a fire-resistance rating less than that required for the firewall, shall be designed so that the failure of the framing systems during a fire will not affect the integrity of the firewall during the fire.

3. Article 3.1.10.2. states:

3.1.10.2. Rating of Firewalls
1) A firewall that separates a building or buildings with floor areas containing a Group E or a Group F, Division 1 or 2 major occupancy shall be constructed as a fire separation of noncombustible construction having a fire-resistance rating not less than 4 h, except that where the upper portion of a firewall separates floor areas containing other than Group E or Group F, Division 1 or 2 major occupancies, the fire-resistance rating of the upper portion of the firewall is permitted to be not less than 2 h.
2) A firewall that separates a building or buildings with floor areas containing major occupancies other than Group E or Group F, Division 1 or 2 shall be constructed as a fire separation of noncombustible construction having a fire-resistance rating not less than 2 h.
3) Except as permitted by Sentence (4), the required fire-resistance rating of a firewall, except for closures, shall be provided by masonry or concrete.
4) A firewall permitted to have a fire-resistance rating not more than 2 h need not be constructed of masonry or concrete, provided
   a) the assembly providing the fire-resistance rating is protected against damage that would compromise the integrity of the assembly, and
   b) the design conforms to Article 4.1.5.18.
(See Appendix A.)

4. Appendix note A-3.1.10.2.(4) states:

A-3.1.10.2.(4) Firewall Construction. Inherent in the use of a firewall is the intent that this specialized wall construction provide the required fire-resistance rating while also being designed to resist physical damage—arising out of normal use—that would compromise the rating of the assembly. Traditionally, this has been accomplished by prescribing the use of noncombustible materials, which was in fact restricted to concrete or masonry. Sentences 3.1.10.2.(3) and (4) are intended to retain both of the characteristics of firewalls, while permitting greater flexibility in the use of materials and designs. The fire-resistance rating and damage protection attributes of a firewall may be provided by a single fire- and damage-resistant material such as concrete or masonry, by a fire- and damage-resistant membrane on a structural frame, or by separate components—one that provides the fire-resistance rating and another one that protects the firewall against damage.

If the firewall is composed of separate components, the fire-resistance rating of the fire-resistive component needs to be determined for this assembly on its own. In addition, if the damage protection component is physically attached to the fire-resistive component (for example, as a sacrificial layer), then for the purposes of determining
the overall performance of the assembly, it is also necessary to determine through testing whether failure of the damage protection component during a fire affects the performance of the fire-resistive component.

5. Article 4.1.5.18. states:

4.1.5.18. Firewalls
1) Firewalls shall be designed to resist the maximum effect due to
   a) the appropriate lateral design loads prescribed elsewhere in this Section, or
   b) a factored lateral load of 0.5 kPa under fire conditions, as described in Sentence (2).
2) Under fire conditions, where the fire-resistance rating of the structure is less than that of the firewall,
   a) lateral support shall be assumed to be provided by the structure on one side only, or
   b) another structural support system capable of resisting the loads imposed by a fire on either side of the firewall shall be provided.

6. Sentence 2.4.2.1.(8) of Division C states:

2.4.2. Professional Involvement
2.4.2.1. General

8) If the size or complexity of a project may give rise to special safety concerns, the authority having jurisdiction may require
   a) that all or part of the plans and specifications of a building be imprinted with a stamp or seal affixed by
      i) a professional engineer where engineering work is involved,
      ii) a registered architect where architectural work is involved, or
      iii) both a professional engineer and a registered architect, and
   b) that field reviews during construction of a building be performed by a
      i) a professional engineer where engineering work is involved,
      ii) a registered architect where architectural work is involved, or
      iii) both a professional engineer and a registered architect.

INTENT ANALYSIS
In addition to the requirements in the Alberta Building Code 2006, there is additional information available from the National Research Council on the intent statements for Sentence 3.1.10.2.(4).

Intent 1:
To limit the probability that the materials used to construct the assembly providing the fire-resistance rating of a firewall will be easily altered or damaged during use, which could lead to an inability of the firewall to control the spread of fire from an adjacent building to the subject building, which could lead to damage to the subject building.

Intent 2:
To limit the probability that the materials used to construct the assembly providing the fire-resistance rating of a firewall will be easily damaged by falling debris during a fire, which could
lead to an inability of the firewall to control the spread of fire from an adjacent building to the subject building, which could lead to damage to the subject building.

**Intent 3:**
To exempt certain materials from the application of Sentence 3.1.10.2.(3) if these materials and their application achieve the minimum level of performance required by Sentence 3.1.10.2.(4)

**INTERPRETATION**
Compliance with Sentence 3.1.10.2.(4) for a two-hour firewall that is constructed of noncombustible materials other than masonry or concrete can be obtained, provided:

1. The fire-resistance rating of the proposed assembly has been evaluated by a testing agency that has been accredited by the Standards Council of Canada for conformance to CAN/ULC-S101, “Fire Endurance Tests of Building Construction and Materials” and incorporated the damage protection features at the time of testing.

2. The damage protection features must be an integral component of the assembly being tested. External damage protection features such as fencing or other physical barricades would not be appropriate based on the evaluation of Intent Statement #2 from the National Research Council.

3. **The Hose Stream Test required by Clause 5.2. of CAN/ULC-S101, “Fire Endurance Tests of Building Construction and Materials” shall be conducted on the original specimen subjected to the fire endurance test referred to in Sentence (1). The duplicate specimen mentioned in Clause 5.2.1.1. shall not be permitted.**

4. The structural integrity aspects of the assembly have been designed by a professional engineer licensed to practice in the province of Alberta in accordance with Article 4.1.5.18. and the commentary entitled “Structural Integrity of Firewalls” in the User’s Guide – NBC 2005, Structural Commentaries (Part 4 of Division B) published by the National Research Council of Canada.

5. The damage protection features of the assembly have been designed by a professional engineer licensed to practice in the province of Alberta. The professional engineer must provide evidence to the authority having jurisdiction that the damage protection features will provide the necessary performance required by Clause 3.1.10.2.(4)(a) and will provide an equivalent level of performance as that of masonry or concrete. This evidence could be in the form of calculations, physical tests or research performed by others and must demonstrate to the satisfaction of the authority having jurisdiction that the firewall will be protected from damage due to any hazard present in the building during construction and occupancy, such as:

   a. fall, collapse, or expansion of stored items and building contents such as elevated vessels, racks, or shelving,
b. explosion of contents in the area of the firewall such as pressure vessels or flammable materials,

c. mechanical damage from vehicles, equipment or occupants,

d. fracture, penetration, and fragmentation that can be caused by a fire, sprinkler activation, or fire-fighting efforts,

e. collapse of adjacent roof and wall structures or adjoining buildings, or

f. any other factors that may affect the ability of the structure to comply with the intent of the Alberta Building Code.

This INTERPRETATION is applicable throughout the province of Alberta.
5.1.3.4 Deflection measurements of the test specimen shall be recorded at intervals not exceeding 1 min.

5.1.4 With the consent of the testing organization, the fire test may be continued, for information purposes, beyond the fire endurance period of classification when no structural failure has occurred or no hazardous situation exists.

5.2 HOSE STREAM TEST

5.2.1 Test Specimen

5.2.1.1 Where required in the determination of a fire endurance period, a duplicate specimen shall be exposed to fire, for a period equal to one-half of that intended as the fire resistance rating, but not for more than 1 h, immediately after which the test specimen shall be subjected to the impact, erosion, and cooling effects of a hose stream.

5.2.2 Procedure for Hose Stream Test

5.2.2.1 Within 3.5 min of the termination of the fire test, the test specimen shall be positioned in such a manner as to be able to apply the hose stream to the entire surface exposed to the fire test furnace. Position the tip of the nozzle at the specified distance from the centre of the test specimen. Adjust the nozzle hose stream to the specified pressure. During adjustment, the hose stream shall not contact the test specimen. Photograph both the exposed and unexposed sides of the test specimen before the hose stream is applied. Verbally announce and record the duration of the hose stream exposure, water pressure and water delivery system being used. Position personnel to obtain an unobstructed view of both the exposed and unexposed sides of the test specimen during the hose stream test.

5.2.3 Application of the Hose Stream

5.2.3.1 Commence the test by directing the hose stream at one corner of the test assembly first. Continue to direct the stream to the entire exposed face of the test assembly in accordance with this section. Pass the hose stream across the test assembly between 0.9 to 1.8 m/s. Movement from one side of the test assembly to the other constitutes one pass. When changing directions to make the return pass, change direction slowly and off of the test assembly but do not rest the hose stream off of the specimen during the test. Apply the hose stream horizontally, and then vertically covering the entire exposed face. The difference between the number of hose stream passes in the horizontal direction compared to the vertical direction, shall not exceed 10% of the total. Take at least one photograph of both the exposed and unexposed sides of the test specimen during and after the hose stream test. Terminate the application of the hose stream upon completion of the required duration of exposure as specified in Table 2 or after a failure occurs, whichever happens first, or upon the request of the sponsor.

5.2.4 Exemption

5.2.4.1 The hose stream test shall not be required in the case of constructions having a fire endurance period, indicated in the fire endurance test, of less than 1 h.
From: Steve Flieger [mailto:SFlieger@stalbert.ca]
Sent: Thursday, March 19, 2015 10:16 AM
To: Safety Services
Subject: Regional Meeting

I would like to attend the Building meeting in Edmonton.

Agenda item:

Barrier Free Relaxation why the AHJ is not contacted for feedback from AMA prior to the decision is made for a relaxation.

Steve Flieger, CD
Building Safety Codes Officer | Planning & Engineering

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The City of St. Albert email domain has changed to stalbert.ca. Please update your contacts.
When you know where and when please let us know so we can make the appropriate arrangements. Below is a list of items we could choose to discuss. We don’t expect to discuss all items but if they fit into the model of the discussion on that day then great.

1) **Secondary Suites**: A few items have risen from this. What defines a secondary suite? Yes separate living spaces, cooking facilities bla bla bla but we are seeing people have full kitchens, fridges, dishwashers, fire places, master suites, laundry facilities all in a basement but NO STOVE. By definition of some, this is not a secondary suite. But it is and can be used as one. Also does a secondary suite require a separate entrance? Building Code doesn’t say but the attachment above says YES FOR SURE and is agreed to by the Safety Codes Council and AMA representatives.

2) **Modular Buildings**: Being delivered to site incomplete and with deficiencies on the factor construction requiring correction. Who’s responsible, for what items and to what extent ….AMA, CSA or the Municipality?

3) **Screen Rooms**: See attachment. Engineering is from Florida. Question the ability of the product to function as a guard. Suncoast Sunrooms insists that the City of Edmonton accepts the bug screen material as a guard but we have not confirmed with nor have they provided us with any testing for the product as a guard.

4) **Louvered Roofs**: See attachment. These roofs are aluminum or poly carbonate and move. They open for full sun or close for no sun and no rain. The spans are greater than anything allowed under Part 9. They operate by a remote control, connected to a battery with a solar power charging device. Our concern is roof loading and wind uplifting. If the roof is closed and receives any amount of snow or possibly hail it will most likely collapse. On the opposite end, if closed, wind has the possibility to lift the structure up and blow it around. There is no engineering on the structure, no installation guide and is void of any apparent product testing or certification. Again the manufacturer expresses that this product is widely accepted in the City of Edmonton. They justify the lack of testing and structural investigation of this product towards being considered a pergola which has no roof load and thus requires no permits or other discretionary measures. We disagree.

Adam Bednarski
Secondary Suites

Questions:
1) What defines a secondary suite? Yes separate living spaces, cooking facilities, but we are seeing people have full kitchens, fridges, dishwashers, fire places, master suites, laundry facilities all in a basement but NO STOVE. By definition of some, this is not a secondary suite. But it is and can be used as one.
2) Does a secondary suite require a separate entrance?

What defines a secondary suite?
A basement development that includes a full kitchen, laundry, washroom and bedroom etc. does not automatically indicate that the space is being used as a secondary suite. A secondary suite must be applied for as a secondary suite: first through the local municipalities Development Land Use Bylaw and Zoning approvals, and then through building permit approvals as a “secondary suite”.

2006 Alberta Building Code Definitions
Secondary suite means a second self-contained dwelling unit that is located within a primary dwelling unit, where both dwelling units are registered under the same land title.

A-9.37. Secondary Suites. A secondary suite is only permitted where approved by the local authority, in accordance with municipal land use bylaws.

The requirements of 9.37 would not be applied to a basement development application based on the contents within the development plans alone. An example of this would be a basement development which includes an office or play room. The ABC does not require these rooms to provide an egress window within the rooms, because it is not the owners’ intention to use them as a bedroom. Similarly, the ABC does not require a basement development to mandate the construction requirements for a secondary suite if this is not the owners’ intentions.

Does a secondary suite require a separate entrance?
The Alberta Building Code states that a secondary suite shall provide a means of exit using one of two methods; either through an exit that leads directly to the outside or through a common shared exit that is separated from the adjacent floor areas.

The document entitled MLA Review Committee on Secondary Suites commented that it was recommended that only a separate exit be permitted, however this was only a recommendation and is not the wording of the ABC legislation.

2006 Alberta Building Code
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.

9.37.2.13. Protection of Exits
1) Every exit, other than an exit doorway, shall be separated from adjacent floor areas by not less than one layer of 12.7 mm thick gypsum wallboard or equivalent material on each side of the walls. (See Appendix A.)

Contributed by Stephanie Martin, BSCO AMA
Proprietary products such as sunrooms, guards and roof features are beyond the scope of the simplistic Code tables, and must be designed by professional engineers licensed to practice in Alberta.

Roger Clemens
Chief Plans Examiner
Building Permits and Inspection Services
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5th Floor, 10250 - 101 Street NW
Edmonton, Alberta T5J 3P4
When “Based on…” doesn’t meet the Mark
Understanding the importance of conformance with ULC Listed Fire Resistant Designs*

More and more Underwriters Laboratories of Canada (ULC) is finding that building designers who are submitting plans to approving authorities with fire resistant rated assemblies have presented these as being ‘based on the Design No. XXXX’ instead of using the actual listed design when submitting the assemblies for approval. A Design that is submitted as being ‘based on’ is not the Design that is listed by ULC. Seeing this qualifier on a design of it being ‘Based on…’ should signify to an Approving Authority that in some way the design has been changed from that which is contained in the listing to that which is being presented for approval. These designs are therefore not what ULC has listed as a Fire Resistant Design. But how can an Authority know that a design is accurately reflecting the exact design of the assembly as tested and listed by ULC?

Introduction to Fire Resistance Handbook & Designs
Most if not all Building, Fire and related field Officials know that Underwriters Laboratories of Canada (ULC) publishes a Fire Resistance Directory on an annual basis. Does each and every one of them sufficiently know how it works, how to use its contents and what it means when a Fire Resistance Rated Design is Listed?

The Fire Resistance Directory and the subject of resistance ratings, categories, and assemblies are not an easy task to cover. Different categories in the directory have to be treated differently. What may be applicable to wall assemblies may not be applicable for spray applied materials. Wall assemblies are treated very differently from columns, beam designs, floor and roof assemblies. This article and the examples used will provide for a general explanation on the challenges of accepting a ‘based on … design versus the actual design assembly as tested.

The ULC Fire Resistance listings, available for free online or the complete Fire Resistance Directory which can be purchased in electronic or softcover format, contains important information to aid in selecting and applying fire resistant assembly designs and includes floors, walls, roofs, beams and columns. These assemblies are designed to prevent a fire from spreading beyond its zone of origin. Underwriters Laboratories of Canada can create fire-exposure conditions that represent either a fully developed interior or exterior building fire or a hydrocarbon pool fire. The duration of the fire exposure may last up to 4 hours. Once a product is Listed, it appears in the directory which is then able to be referenced by hundreds of AHJs, code officials, and architects annually. A “Listing” by ULC is intended to provide data with respect to the ability of a product – in these cases a fire rated assembly design – to perform its required protective function. Review of such data enables the inspection authority to “approve” a Listed design for the specific purpose under consideration.

A note on the word ‘Approved’, as properly used in the fields of fire protection and accident prevention, is intended to mean ‘acceptable to the authority having
jurisdiction’. ULC exists to be of service to inspection authorities by supplying authoritative information on products or services. Its listings are intended to provide data with respect to the degree of hazard present, if any or the ability to perform its required protective function. Review of such data enables the inspection authority to ‘approve’ a Listed product or service for the specific purpose under construction. This is why ULC follows the long established policy of referring to products covered as being ‘Listed’ rather than ‘Approved’, since the two term are not always synonymous.

How a Design Listing works

A manufacturer designs, invents or finds a new type of steel ‘I’ beam, intumescent paint formulation, and fire stop flap …any of the hundreds of components that could be part of an assembly design. An architect innovates a new way to make a 1hr rated wall that for example incorporates only sustainable products. These individuals bring their design assemblies to our ULC Testing Facilities where ULC staff will work with them to have their products tested to the required National Standards and ensure conformity with the testing requirements and provide the data to support the 1hour, 2 hour etc. rating of the design. The Standard used for Fire Resistant Ratings is CAN/ULC-S101, Fire Endurance Tests of Building Construction and Materials. This Standard is critical for fire resistance rating acceptance in Canada as the National Building Code requires conformance with CAN/ULC-S101.

The ULC listed Design O600 (below) is an example of a specific design that has been tested to the requirements for a fire resistant design by ULC for conformity with the National Building Code of Canada. This Design, when implemented in the construction exactly as it is laid out in the design’s description, will provide a 1h fire resistance rating and the supporting data has been collected – based on the required testing Standards. The design will show the individual components that are required to bring the assembly together:

- Generic components are those that do have a specific listed product
- Components with a black dot • are a proprietary material(s) that are required to be a ULC listed component(s) and are critical to the assembly. Without these the assembly is not what is listed in the directory and what the test data supports as a fire resistant design

Further to just testing and listing the Design – ULC also ensures that when a design is tested for listing in Canada that the proprietary components that are required to be listed are available in Canada. ULC also provides market surveillance on these required components so that if they change in any way from the samples tested with the design – the design provider will be notified so that it can be retested or removed from the Handbook if no longer able to be constructed.

The example below shows that for Design O600 – the Beam, Sand-Gravel Concrete and Fluted and Cellular Steel Floor Units are all generic so any brand can be used but the Mastic and Intumescent Coating must be the listed Flame Control No. 50-44 by FLAME CONTROL COATINGS LLC. The use of any other Mastic or Intumescent Coating would invalidate this Design as it was not the assembly tested and therefore no way to know if it was in conformance or would perform as indicated for 1hr.
Design No. O600
November 14, 2002
Restrained Beam Rating - 1 h
Unrestrained Beam Rating - 1 h

Load Restricted — Assembly evaluated in accordance with Working Stress Design methods, for use under Limit States Design methods; refer to information under Guide *BXUVC*.

**Beam** — Beam-W200x36, Minimum Size.

1. **Sand-Gravel Concrete** — 2400±50 kg/m³.
2. **Fluted and Cellular Steel Floor Units** — Welded to beam.
3. **Mastic and Intumescent Coating** — (CAVNC). The use of Flame Control No. 50-44 requires proper ventilation during application and drying to minimize the possibility of an accumulation of flammable vapours. Such accumulation may be indicated by strong solvent odours. Applied in one coat to design thickness requirements. When fluted steel deck is used, the area between the steel deck and the beam top flange shall be filled.

**FLAME CONTROL COATINGS L L C**

**When a Design Listing no longer works**

Seeing how the Fire Resistance ratings work, how is it used to provide unlisted or untested designs in today’s construction projects? This is where the matter of “Based On...” enters. The term Based On is being used to misrepresent Fire Resistant Designs by listing the Design without providing for all the listed components critical to the assembly and categorically required for the Design to perform indicated in the listing – whether 1hr, 2hr etc. as listed. Any changes to the design invalidates it and you are left with something that has not been tested or supported by any data to show that it meets the fire resistance rating requirements as laid out in the Building Code.

Using the example listed below, Design F909 requires either COMSLAB™ 210 or COMSLAB™ 225 a listed steel flooring unit by Bailey Metal Products LTD for this specific design to meet the requirements for Fire Resistance as indicated on the design specification sheet. This, like any ULC listed Designs, is required to have all the components – generic AND Listed – otherwise it is not a ULC listed design, has not been tested to CAN/ULC-S101 and therefore does not conform to Canadian Code requirements.
1. Sand - Gravel Concrete — Normal-density concrete of 2400 ± 50 kg/m³ density and nominal 30 MPa compressive strength. Minimum concrete topping of D as measured from the top plane of the Steel Floor Units (see Item 4).
2. Wire Fabric — 152 by 152 - Min wire thickness MW18.7/MW18.7 welded steel wire mesh.
3. Rib Reinforcement — Steel reinforcing bar having a minimum yield strength of 400 MPa sized in accordance with deck manufacturer's load tables to meet structural requirements. Rebars to be adequately supported during construction to provide a 40 mm concrete cover.
4. Steel Floor Units — (CHWXC). Composite galvanized steel fluted units, with minimum design thickness of 0.953 mm and yield strength of 280 MPa. Adjacent units fastened at the bottom of common flute at 350 mm OC with side lap washers and 32 mm long self-drilling fasteners as per manufacturer's instructions. Shoring of the units and end connection to independently rated concrete beams as per manufacturer's instructions. Loading of the units to be in accordance with manufacturer's load tables based on simply supported conditions.

<table>
<thead>
<tr>
<th></th>
<th>Concrete Topping D = 64 mm</th>
<th>Concrete Topping D = 90 mm</th>
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<tbody>
<tr>
<td>Restrained Assembly Rating, h</td>
<td>1</td>
<td>1-1/2</td>
</tr>
<tr>
<td>Unrestrained Assembly Rating, h</td>
<td>1</td>
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<td>(Steel Deck Span ≤10 m)</td>
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<tr>
<td>Unrestrained Assembly Rating, h</td>
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<td>0</td>
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<td>(Steel Deck Span &gt; 10 m)</td>
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BAILEY METAL PRODUCTS LTD — Type COMSLAB™ 210 and COMSLAB™ 225

The following Design No. W301 shows us an example of where a choice of different proprietary components that are independently listed can be used and thereby provide a designer or builder with choice of product for this listed Design. Design No. W301 has been individually tested with each of the specific gypsum wallboards listed under component #4 for the design and all have passed the required testing (CAN/ULC-
S101). Any other gypsum used outside of the parameters and listing set for component #4 means you're not looking at listed Design No. W301 but rather an untested and therefore a non-ULC listed Fire Resistance Design and NOT the Design No. W301 that is listed in the Fire Resistance Handbook.

**Design No. W301**

*Load Restricted — Assembly evaluated in accordance with Working Stress Design methods, for use under Limit States Design methods; refer to information under Guide BXUVC.*

![Diagram](image)

1. Wood Studs — 38 mm by 89 mm, spaced 400 mm OC, effectively cross-braced.
2. Nailheads — Covered with joint finisher.
3. Joints — Covered with fibre tape and joint finisher.
4. Gypsum Wallboard — (CKNXC). Wallboard is 15.9 mm thick nailed 175 mm OC with 51 mm common nails. Panels to be installed vertically.

**CERTAINTEED GYPSUM CANADA INC**
**CERTAINTEED GYPSUM INC**
**CGC INC**
**GEORGIA-PACIFIC GYPSUM LLC**
**NATIONAL GYPSUM CO** — Types FSW, FSW-3
**THAI GYPSUM PRODUCTS PCL**

**Changing a component?**

Now, if a designer wanted to use another product as one of the required components and it is not listed to that design — they be required to have this now altered design tested and listed by a Standards Council of Canada Accredited Certification Body to ensure conformity with Canadian Code requirements. ‘Based on’ can’t be accepted as it’s not been tested to conform and close enough isn’t good enough when looking at Fire and Life Safety. If a specific product for a component is required on a construction — anyone can check the ULC Online Directory to verify if there is a design that uses it so as to meet their needs. When a ‘Based on’ design is accepted by an Authority - who will certify that the changed design will behave the same as the listed?

There are conditions that allow one to change a design but the requirements are listed under ULC/ORD-C263E, “Criteria for Use in Extension of Data from Fire
Endurance Tests”. This is used when a design such as the No. O600 (first example) which is a beam design is preferred to be used as a joist design. ULC/ORD-263E uses criteria based on generally accepted principles involving the extension of test data using simple considerations and requires supporting documentation from a Structural Engineer when presented to Authorities for approval. ULC/ORD-C263E does not cover assemblies obtained by substitution of one proprietary material for another proprietary material or for materials for which no fire test data is available. The requirements for proposed Alternate Solution would have to be applied to any such design changes for AHJ approval.

So, the difficult question in this situation becomes:

“Who holds the liability for an approval on a ‘based on...’ design that does not have any listing, certification or supporting documentation such as approval for Alternate Solutions as our Objective-Based Codes require?”

Since 2000, the Supreme Court of Canada decision of Ingles v. Tutkaluk is the leading authority on the duty of care owed by municipalities that conduct building inspections in which the Court held that: “municipalities owe a duty of care to all who it is reasonable to conclude might be injured by the negligent exercise of their inspection powers.”¹ ULC can only recommend that Authorities direct this and any other questions of this nature to their legal counsel or representatives.

**To Wrap Up**
To further summarize a few key points regarding ULC listed Fire Resistance Rated designs and the Handbook:

- Designs are listed as they were tested – with the components that are required listed with the design in the Handbook
- Proprietary materials that are required for the design AND listed cannot be substituted by another component that is not explicitly indicated in the Design
- Those individual components that are proprietary materials and are required to bear a listing mark are always indicated with a • (bullet).
- The ULC Online directory is the most current listing of any design. If a design has been updated, or removed – checking online will provide you with the most current listing of that Design

Always remember that construction of the Fire Resistant Rated Design must duplicate the illustrated design and the details included in the associated test in order to achieve the indicated fire resistance rating.

**Resources to help**
To assist with finding and reviewing ULC listed Fire Resistance Rated designs online – ULC has provided several avenues for support of AHJs, Designers and any member of the public. First, we have all of the designs listed online at the links below.

**ULC Online Directory**
[http://database.ul.com/cgi-bin/XYV/template/LISCANADA/1FRAME/index.html](http://database.ul.com/cgi-bin/XYV/template/LISCANADA/1FRAME/index.html)
ULC Online Fire Resistance Directory
http://database.ul.com/cgi-bin/XYV/template/LISCANADA/1FRAME/gothernbr.html

UL Online Directory (for US listed designs)
http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.html

Second, all of our publications can be purchased at our online store,

https://smp.gilmore.ca/RunCmd?cmd=UserLoginCmd&custId=871&userId=ccuser&password=ulcanada

And finally, ULC Supports Canadian Authorities Having Jurisdiction (AHJs) by providing technical support and standards interpretation. ULC’s Regulatory Services Department staff provides unmatched installation code support. Our Regulatory Services staff members are former regulatory officials — they know and understand your concerns. This means we can quickly resolve code enforcement issues related to installations of cUL and ULC certified products. Read more about our team at http://www.ul.com/canada/eng/pages/codeauthorities/ or contact us at 1-866-937-3852 or the numbers below.

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ULC Senior Regulatory Representative  
Telephone: 613-751-3404  
Toll Free: 1-800-595-9844 Press 1, then 4  
Email: Frank.Donati@ul.com

Pierre McDonald,  
ULC Senior Regulatory Representative  
Telephone: 780-419-3202  
Toll Free: 1-800-595-9844 Press 1, then 4  
Email: Pierre.McDonald@ul.com

* the subject of the UL Fire Resistance Designs are not covered in this article.