BC BUILDING CODE INTERPRETATION COMMITTEE

A joint committee with members representing

AIBC, APEGBC, BOABC, POABC

File No: 12-0019 **INTERPRETATION**

Interpretation Date:	February 18, 2014
Building Code Edition:	BC Building Code 2012
Subject:	*Combustible* components in exterior walls in noncombustible buildings
Keywords:	*Combustible* components, *noncombustible* buildings, exterior walls, exterior cladding
Building Code Reference(s):	3.1.4.2., 3.1.5.1.(1), 3.1.5.5., A-3.1.5.5., 3.1.5.12., 3.2.3.8.

Question:

This interpretation is an update to the previous Interpretation 06-0090 which was based on the 2006 BCBC. The 2012 BCBC has amended the wording of both Articles 3.1.5.5. and 3.2.3.8. with respect to the use of combustible components in exterior walls, including foamed plastic insulation.

For Part 3 buildings that are required to be *noncombustible* construction:

1. Does Article 3.1.5.5. apply when an exterior non-*loadbearing* wall assembly does not contain *combustible* cladding?
2. Does Article 3.1.5.5. apply when an exterior *loadbearing* wall assembly does not contain *combustible* cladding?
3. If an exterior non-*loadbearing* wall assembly contains combustible cladding, does Article 3.1.5.5. apply to the entire exterior wall assembly?
4. Can minor combustible components be installed in an exterior non-*loadbearing* wall that contains *combustible* cladding even though such components were not included in the CAN/ULC-S134 test assembly?
5. Are factory-assembled exterior wall panels that contain foamed plastic insulation as described in Sentences 3.1.5.12.(6) & (7) also subject to the requirements of Article 3.1.5.5.?
6. Is combustible cladding permitted on a *loadbearing* wall assembly?
7. For the purposes of Article 3.1.5.5., how is the term "cladding" defined?
8. Is foamed plastic insulation permitted in an exterior wall where the maximum permitted area of unprotected opening is not more than 10% of the exposing building face?

RJ Light

R. J. Light, Committee Chair

Interpretation:

1. No

   The wording of Article 3.1.5.5. has been amended in the 2012 BCBC to clarify that it only applies to exterior walls that contain "*Combustible* Cladding".

2. No

   Article 3.1.5.5. only applies to non-*loadbearing* exterior wall assemblies.

3. Yes

   Appendix A-3.1.5.5. clarifies that the required test, CAN/ULC-S134, "Standard Method of Test of Exterior Wall Assemblies" is to be conducted on the entire exterior wall assembly in order to assess the performance of the entire assembly. That is, the performance of some exterior cladding systems may depend on the wall assembly to which they are attached.

4. Yes, with conditions

   Combustible components that would have a negligible impact on the results of the CAN/ULC-S134 test can be installed in an exterior wall with combustible cladding, even though such components were not included in the test assembly. Refer to BC Building Code Appeal Board decision #1682.

   Combustible components that are described in Sentence 3.1.5.1.(2), Articles 3.1.5.2., 3.1.5.3., 3.1.5.6., 3.1.5.10., 3.1.5.11., 3.1.5.18., 3.1.5.19. and 3.1.5.20. are considered to have a negligible impact on the results of the CAN/ULC-S134 test.

5. No

   Factory assembled exterior wall panels that meet the requirements of either Sentence 3.1.5.12.(6) or (7) do not have to be tested to CAN/ULC-S134.

6. No, with the exception of gypsum board as permitted by Article 3.1.5.11.

   Sentence 3.1.5.1.(1) prohibits the use of *combustible* components in buildings that are required to be *noncombustible* construction, except as permitted by Sentences 3.1.5.1.(2) to (4) and Articles 3.1.5.2. to 3.1.5.21., 3.1.13.4. and 3.2.2.16.

R. J. Light, Committee Chair

Article 3.1.5.5. permits the use of combustible cladding on non-*loadbearing* exterior wall assemblies, but none of the other exceptions to Sentence 3.1.5.1.(1) address the use of combustible cladding on *loadbearing* exterior walls.

7. Since there are innumerable types of exterior wall assemblies it is difficult to clearly define for all wall types which portion of an exterior wall assembly constitutes the "cladding" component. In principle, combustible components, particularly foamed plastic insulation, that are located near the exterior surface of a wall assembly could represent a fire hazard for fire spread up the exterior face of the building. If there is no thermal barrier between foamed plastic insulation and the exterior surface of the wall assembly, there is a potential for fire spread up the face of the building.

   Some examples of combustible cladding would include EIFS, metal or glazing spandrel panels with sprayed foamed plastic insulation immediately adjacent to the metal or glazing.

8. No

   The wording of Sentence 3.2.3.8.(1) in the 2012 BCBC has been amended so that it only applies to exterior walls where the maximum permitted area of unprotected opening is greater than 10% of the exposing building face.

   Sentence 3.2.3.8.(1) prohibits the use of foamed plastic insulation in an exposing building face in a *building* that is more than 3 storeys in building height, unless the foamed plastic is protected on the outside face with not less than 25 mm thick concrete or masonry, or a *noncombustible* material that meets the test requirements of CAN/ULC-S101, including the additional requirements of Sentence 3.2.3.8.(2).

   Sentence 3.2.3.8.(1) applies to *combustible* buildings, *noncombustible* buildings, *loadbearing* walls and non-*loadbearing* walls when the building height exceeds 3 storeys.

   When the maximum permitted area of unprotected opening is not more than 10% of the exposing building face, the provisions of Sentence 3.2.3.8.(1) do not apply, so foamed plastic insulation is not permitted anywhere within the exterior wall assembly.

   Similarly the provisions of Sentence 3.2.3.8.(3) do not apply, so the use of combustible cladding systems that meet the requirements of Article 3.1.5.5. is not permitted when the maximum permitted area of unprotected openings is not more than 10% of the exposing building face. This is further clarified in the new Sentence 3.1.5.5.(2) of the 2012 BCBC.

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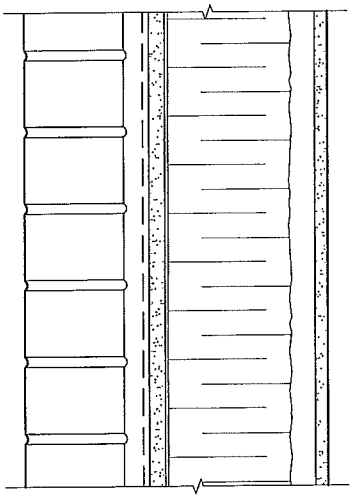
It should also be noted that Article 3.1.4.2. (for *combustible buildings*) and Article 3.1.5.12. (for *noncombustible buildings*) require a thermal barrier to protect the interior face of wall and ceiling assemblies that contain foamed plastic insulation.

Note: This Interpretation supersedes Interpretation 98-0012 which was based on the 1998 BC Building Code and 06-0090 which was based on the 2006 BC Building Code.

Refer to the attached drawings for examples of acceptable use of *combustible* components in exterior walls in a *building* that is required to be *noncombustible* construction and where the maximum permitted area of unprotected opening is greater than 10% of the exposing building face.

R. J. Light, Committee Chair

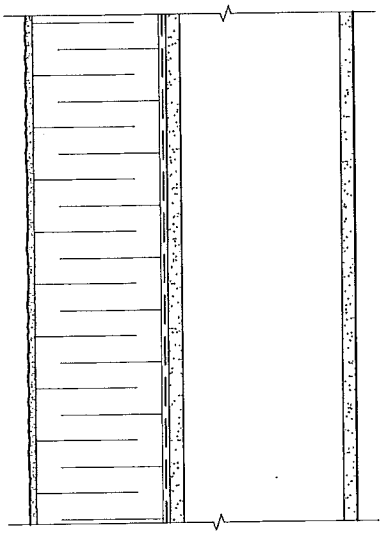
BRICK VENEER RAINSCREEN WALL ASSEMBLY



EXTERIOR
- Brick veneer
- 25 mm air space
- Self-adhesive membrane
- 15.9 mm gypsum sheathing
- 150 mm steel studs, with foamed plastic insulation
- 12.7 mm gypsum wall board
- Interior finish

INTERIOR

EXTERIOR INSULATION AND FINISH SYSTEM (EIFS) TESTED TO CAN/ULC-S134



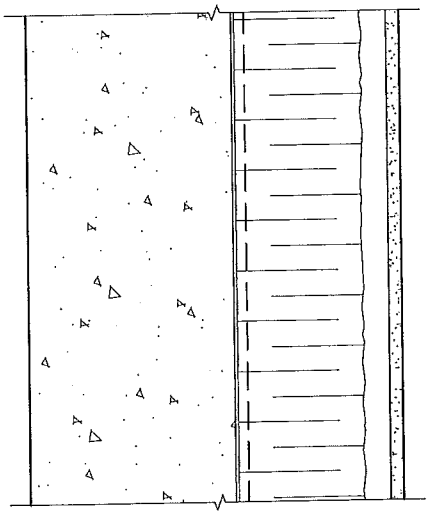
EXTERIOR
- 3 mm cementitious coating
- 125 mm (max) foamed plastic insulation
- 25 mm of 2 layers of cementitious coating, with integral reinforcing mesh
- 12.7 mm gypsum sheathing
- 150 mm steel studs
- 12.7 mm gypsum wall board
- Interior finish

INTERIOR

R. J. Light

R. J. Light, Committee Chair

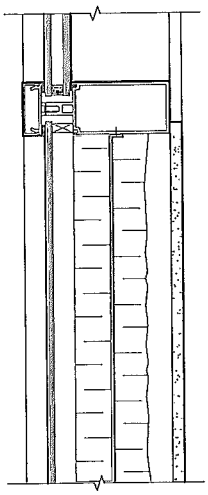
POURED-IN-PLACE CONCRETE WALL



EXTERIOR
- Poured-in-place concrete
- 12.5 mm space between inner face of concrete and steel studs
- 150 mm steel studs
- Foamed plastic insulation
- 12.7 mm gypsum wall board
- Interior finish

INTERIOR

GLAZED SPANDREL PANEL

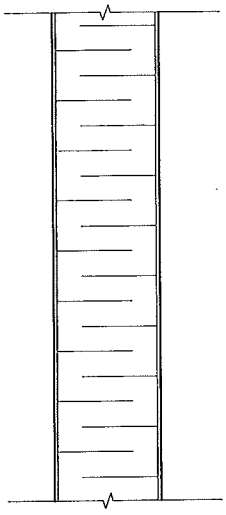


EXTERIOR
- Spandrel glazing
- Mineral fibre insulation (noncomb)
- Back pan sheet metal
- Foamed plastic insulation
- 12.7 mm gypsum wall board
- Interior finish

INTERIOR

R. J. Light, Committee Chair

FACTORY-ASSEMBLED EXTERIOR WALL PANEL PER SENTENCE 3.1.5.12.(6)



EXTERIOR

Sheet steel > 0.38 mm thick which remains in place for 10 minutes when tested to CAN/ULC-S101
Thermosetting foamed plastic insulation with FSR < 500
No air space
Sheet steel > 0.38 mm thick

INTERIOR

Building does not contain Group B or C major occupancy
Building height < 18m from grade to floor level of top storey

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