



Safety Codes Council

COUNCIL ORDER No. 0015470

BEFORE THE BUILDING SUB-COUNCIL

On December 1, 2016

IN THE MATTER OF the Safety Codes Act, Revised Statutes of Alberta 2000, Chapter S-1.

AND IN THE MATTER OF the Order Pursuant to Section 49(1) of the Safety Codes Act, issued August 15, 2016 by the Accredited Municipality (Respondent) against the Home Building Company (Appellant).

UPON REVIEWING the Issued Order **AND UPON HEARING** the Appellant and the Respondent; **THIS COUNCIL ORDERS THAT** the Order is **VARIED**.

From:

1. You are hereby ordered to remove the glazed openings at the left elevation or provide an alternative solution acceptable to the *authority having jurisdiction*, before September 15, 2016.
2. You are hereby ordered to install exterior gypsum board not less than 12.7 mm thick under the vinyl siding that is installed or provide another acceptable solution before September 15, 2016.

To:

1. You are hereby ordered to remove the glazed openings at the left elevation or provide an alternative solution acceptable to the *authority having jurisdiction* (AHJ), before September 15, 2016. An alternative solution may include a fire shutter installed at the inside of the exterior wall.
2. You are hereby ordered to install exterior gypsum board not less than 12.7 mm thick under the vinyl siding that is installed or provide adequate information in an alternative solution acceptable to the *authority having jurisdiction* (AHJ), to allow them to consider Protektor board as an alternative to gypsum board, before September 15, 2016. See Reasons for Decision at the end of this document.

Issue:

1. The Appeal concerns the installation of two glazed openings in an *exposed buildingface*, in a residence within the Accredited Municipality, AB, and the addition of fire shutters which the builder believes provide the necessary *closure* protection as prescribed by the 2006 Alberta Building Code (ABC).
2. The Appeal also concerns the application of Protektor board under the vinyl siding, which, the builder believes, is equivalent to gypsum board in terms of fire resistance of the wall assembly as prescribed in the 2006 Alberta Building Code (ABC).

Appearances, Preliminary, Evidentiary, or Procedural Matters:

3. Appearing for the Appellant, the Appeal Panel heard from the appellant.
4. Appearing for the Respondent, the Appeal Panel heard from the representatives for the Respondent.
5. Attending as observers were individuals for education purposes.
6. At the commencement of the hearing, the Appellant and Respondent confirmed there were no objections to any members of the Appeal Panel, and that the Safety Codes Council (Council) in general and the Appeal Panel in particular had jurisdiction to hear and decide the appeal.
7. The Appeal Panel Chair (the “Chair”) then explained the process to be followed in hearing this appeal, and read out a list of the written material before the Appeal Panel, consisting of the documents listed below in The Record, paragraph 8 as items a) to h). The Appellant and Respondent confirmed that there were no objections to any of the written material submitted to the Appeal Panel prior to the hearing.

The Record:

8. The Appeal Panel considered, or had available for reference, the following documentation:
 - a. Notice of Appeal
 - b. Acknowledgement letter dated September 22, 2016
 - c. Request for a Stay of the Order
 - d. Stay of the Order Letter dated October 7, 2016
 - e. Appeal Hearing Brief Preparation Guide
 - f. Written Notification of Hearing
 - g. Written Brief of the Appellant
 - h. Written Brief of the Respondent

Provisions of the Safety Codes Act:

9. The *Safety Codes Act* (S-1, RSA 2000), as amended provides, *inter alia*:

Part 1

Responsibilities

Owners, care and control

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

Vendors' duties

9 A person who is a vendor in the ordinary course of business,..., shall not advertise, display or offer for sale,..., any thing to which this Act applies unless that thing complies with this Act.

Part 5

Orders, Appeals

Council considers appeal

52(2) The Council may by order

(a) Confirm, revoke or vary an order, suspension or cancellation appealed to it and as a term of its order may issue a written variance with respect to any thing, process or activity related to the subject-matter of the order if in its opinion the variance provides approximately equivalent or greater safety performance with respect to persons and property as that provided for by this Act.

Provisions of the Alberta Building Code 2006 (ABC 2006):

10. The Alberta Building Code 2006 provides, *inter alia*:

Division B

9.10.15.3. Limiting Distance where Firefighting Facilities are Inadequate

- 1) Except for the purpose of applying Sentence 9.10.15.5.(11), a *limiting distance* equal to half the actual *limiting distance* shall be used as input to the requirements of this Subsection, where
 - a) the time from receipt of notification of a fire by the department until the first fire department vehicle capable of beginning suppression activities arrives at the *building* is greater than 10 minutes in not less than 10% of all calls to the building, and
 - b) any *storey* in the *building* is not *sprinklered*.

9.10.15.4. Glazed Openings in Exposing Buildingface

- 1) Except as provided in Sentence (6), the maximum aggregate area of glazed openings

in an *exposing buildingface* shall

- a) conform to Table 9.10.15.4.,
- b) conform to subsection 3.2.3., or
- c) be equal to or less than the *limiting distance* squared, where the *limiting distance* is not less than 1.2 m.

9.10.15.5. Construction of Exposing Buildingface of Houses

2) Except as provided in Sentences (3) and (4), where the *limiting distance* is less than 1.2 m, the *exposing building face* and any exterior wall located above the *exposing building face* that encloses an *attic or roof space* shall have a fire-resistance rating of not less than 45 min and

b) where the *limiting distance* is not less than 0.6 m and less than 1.2 m, the cladding shall

i) be of a noncombustible material conforming to Section 9.20., 9.27. or 9.28, or

ii) conform to Clause 3.2.3.7. (3)(c) or (d), or

c) the wall assembly shall satisfy the criteria of Sentences 3.1.5.5. (2) and (3) when subjected to testing in conformance with CAN/ULC-S134, "Fire Test of Exterior Wall Assemblies."

9.25.3.1. Required Barrier to Air Leakage

1) Thermally insulated wall, ceiling and floor assemblies shall be constructed so as to include an *air barrier system* that will provide a continuous barrier to air leakage

a) from the interior of the *building* into wall, floor, *attic or roof spaces*, sufficient to prevent excessive moisture condensation in such spaces during the winter, and

b) from the exterior inward sufficient to prevent moisture condensation on the room side during winter and to ensure comfortable conditions for the occupants.

(See Appendix A.)

9.25.3.3. Continuity of the Air Barrier System

6) Penetrations of the *air barrier system*, such as those created by the installation of doors, windows, electrical wiring, electrical boxes, piping or ductwork, shall be sealed to maintain the integrity of the *air barrier system* over the entire surface.

9.25.4.1. Required Barrier to Vapour Diffusion

1) Thermally insulated wall, ceiling and floor assemblies shall be constructed with a *vapour barrier* so as to provide a barrier to diffusion of water vapour from the interior into wall spaces, floor spaces or *attic or roof spaces*.

9.10.13. Doors, Dampers and Other Closures in Fire Separations

9.10.13.1. Closures

1) Except as provided in Article 9.10.13.2., openings in required *fire separations* shall be protected with a *closure* conforming to Table 9.10.13.1. and shall be installed in conformance with Chapters 2 to 14 of NFPA 80, “Fire Doors and Other Opening Protectives,” unless otherwise specified herein. (See also Article 9.10.3.1.)

Table 9.10.13.1.
Fire-Protection Ratings for Closures
Forming Part of Sentence 9.10.13.1.(1)

Required <i>Fire-Resistance Rating</i> of <i>Fire Separation</i>	Minimum <i>Fire-Protection Rating</i> of <i>Closure</i>
30 or 45 min	20 min ⁽¹⁾
1 h	45 min ⁽¹⁾
1.5 h	1 h
2 h	1.5 h
3 h	2 h
4 h	3 h

Notes to Table 9.10.13.1.:

⁽¹⁾ See Article 9.10.13.2.

3.2.3. Spatial Separation and Exposure Protection

3.2.3.1. Limiting Distance and Area of Unprotected Openings

1) Except as permitted by Articles 3.2.3.10. to 3.2.3.12., the area of *unprotected openings* in an *exposing buildingface* for the applicable *limiting distance* shall be not more than the value determined in accordance with

- a) Table 3.2.3.1.B. or Table 3.2.3.1.C. for an *exposing building face* conforming to Article 3.2.3.2. of a *building* or *fire compartment* which is not *sprinklered*, or
- b) Table 3.2.3.1.D. or Table 3.2.3.1.E. for an *exposing building face* conforming to Article 3.2.3.2. of a *sprinklered fire compartment* that is part of a *building* which is *sprinklered* in conformance with Section 3.2.

10) Unless a *closure* used to protect an opening in an *exposing buildingface* has a protective performance equivalent to that required for the wall assembly in which it is located, an equivalent area of *unprotected opening*, determined in accordance with the procedures of Sentence (9) shall be added to the greater of

- a) the actual area of *unprotected openings*, or
- b) the corrected area of *unprotected openings*.

3.2.3.5. Wall with Limiting Distance Less Than 1.2 m

1) Openings in a wall that has a *limiting distance* less than 1.2 m shall be protected by *closures* whose *fire-protection rating* is in conformance with the *fire-resistance rating* required for the wall.

- 2) Wired glass or glass block shall not be used for a *closure* referred to in Sentence (1).

Position of the Parties

Appellants

From the Appellants' submissions and testimony, and in response to questions posed by the Panel, the Appellants' position may be summarized as follows:

- 11.** As per article 9.10.15.3, above, the Appellant acknowledged that current firefighting facilities in the Accredited Municipality would not satisfy the 10 minute response time identified and as such, the limiting distance was adjusted accordingly.
- 12.** Given that fire shutters have been installed on the outside of the two glazed openings in the exposing buildingface, the appellant represents that the previous unprotected openings are now protected.
- 13.** The use of Protektor board should be considered equivalent to exterior gypsum board, as it satisfies the requirements of ULC S-101 and ULC S-102, and is recognized as equivalent to exterior gypsum board in 3 major municipalities.
- 14.** Maintenance information for the installed fire shutters was provided to the home owners.
- 15.** No information was provided to the Accredited Municipality regarding the durability of the installed fire shutters when exposed to local climate conditions. The fire shutters are 22 gauge steel.
- 16.** The home owners were made aware of the option of sprinklering the residence, but preferred the shutter option.
- 17.** The Appellant acknowledged that the Plans Examination Report confirmed no unprotected glazed openings would be permitted in the exposing buildingface, but believed and continues to believe, the fire shutters should be approved as appropriate closures. The Appellant acknowledged he received nothing in writing from the Respondent to say the fire shutters would be approved, and while working drawings show the fire shutters in place, the submitted permit drawings did not.
- 18.** Discussion with the Accredited Municipality included the possibility of removing the windows, sprinklering, or installing fire shutters. The appellant was led to believe the fire shutters would be approved. The fire shutters were not modified in any way during installation.
- 19.** Regarding the application of Protektor board, the builder and the Respondent discussed its appropriateness on several occasions through the process. It was initially accepted and only later did the town request additional information.
- 20.** When deciding on the fire shutters the builder researched appropriate products, and while this shutter was designed for commercial application, the supplier confirmed it could be used in a residential application.

- 21.** Reference in the Order to Sentence 9.10.15.5. (3) should have been (2), which all parties agreed did not represent a substantive change.
- 22.** The General Specifications and Detail identified on pages 27 and 28 of the Appellants written submission identifies ½ inch gypsum board on both the interior and exterior walls.
- 23.** The Accredited Municipality has accepted Protektor board in the past so it was used. Only later did the Respondent raise the issue of gypsum board.
- 24.** Protektor board allows the builder to ensure the structure is protected during construction. The issue with gypsum board is that for a period of up to two weeks, there is no protection. Protektor board is used for ease of construction.
- 25.** The Panel was asked to note the Test Report beginning on page 55 of the Appellant's written submission, which concluded that "the wall assembly with Protektor intumescent paint prevented through openings and flaming on the unexposed side for the required 15 minute time period..."
- 26.** Regarding the UL Online Certifications Directory on page 5 of the Appellants written submission, listing several Series numbers of Rolling Steel Fire Doors Certified for Canada, the Appellant confirmed he did not know which of the Series numbers identified, was the product used in this installation, but presumes one of them is the product used. Should the Panel members wish, the builder could obtain the Series number from the shutter itself.
- 27.** As per page 53 of the written submission (final paragraph), on July 22, 2014 the Accredited Municipality issued a permit based on the plans submitted, which clearly showed Protektor board was being used, and which was checked off by the plans examiner. There was no note under Spatial Separations to say that gypsum board would be required and no requirement was noted on the Site Inspection Report dated February 24, 2015 (page 60 of the submission). It was not until the builder asked that an Order be issued for this property that this was indicated as an issue of concern.
- 28.** The Appellant presented a timeline to emphasize this point. The permit was issued July 24, 2014. The High Intensity Residential Fire (HIRF) Seminar was held September 26, 2014. Inspections of the property occurred November 27, 2014, January 20, 2015 and February 24, 2015 throughout which there was no mention of the need for gypsum board. The final inspection occurred May 13, 2016, just before the homeowners moved in. The Order was not issued until August 2016.
- 29.** Throughout the process the builder was in discussion with the Respondent. They held off on other projects pending clarification but when this was not forthcoming, they asked that an Order be issued; believing the product (Protektor) was equivalent to gypsum board and as the home owners were anxious to move in.
- 30.** Initially they thought the Order would only deal with the fire shutters, but when it was issued, it included the sheathing.
- 31.** While the Appellant stated three major municipalities recognize Protektor board as equivalent to gypsum board, he was not aware which municipalities these were.

- 32.** The builder understood that Protektor board would satisfy both the Alberta Building Code (ABC), equivalency to gypsum board, and the Alberta Fire Code (AFC) requirement for protection of adjacent construction.
- 33.** There was some discussion regarding the difference, if any, between a glazed opening and an unprotected opening; after which there was agreement that the use of an appropriately installed fire shutter would render either, a protected opening.
- 34.** The builder acknowledges the need for fire shutter maintenance is the responsibility of the homeowners and cannot be controlled by him, but is confident the fire shutters address the matter of unprotected openings.
- 35.** Protektor board has been tested to CAN/ULC S-101 and S-102 standards and accepted. Some municipalities allow its use instead of gypsum board, some don't. The Appellant believes the Accredited Municipality is more concerned with liability than the safety of its residents.
- 36.** The intent of the code is to keep an inside fire from spreading to the outside and Protektor board achieves that.

Respondent

From the Respondent's submissions and testimony, and in response to questions posed by the Panel, the Respondent's position may be summarized as follows:

- 37.** When asked about the proposed exterior shutter, the Respondent approached Alberta Municipal Affairs (AMA) for clarification and was advised (see page 158 of written submission) fire shutters would be allowable under certain conditions. The Respondent believes some of these conditions could be satisfied with additional information from the vendor, or assessment by the Canadian Construction Materials Centre (CCMC); but that information has not been provided to allow for consideration of an alternative solution.
- 38.** AMA later reconsidered their position on the matter of "maintenance" which is why there was lack of clarification.
- 39.** The "maintenance" issue is discussed in e-mails on pages 163 and 164 of the Respondents written submission, and comes down to the need for penetration in an exterior wall (which cannot be protected) to allow for passage of a fusible link in a sleeve that is not impeded, that will activate the roll shutter in the event of fire.
- 40.** The Respondent is not aware that roll shutters have ever been used or approved for exterior use in a residence.
- 41.** In response to a question from the Appeal Panel, the Respondent said the reason the absence of gypsum board on the exterior wall was not raised as a deficiency (only an observation) in several inspection reports issued prior to the final report, was because at the time they were waiting to see if the owner wished to have the house sprinklered which they may have found acceptable.

42. Regarding the use of Protektor board, AMA made a presentation on the HIRF requirements and the appellant was there, as noted on page 167 of their written submission, so they were aware of the requirements. The Town asked Safety Codes Officers not to accept Protektor board as an alternative to gypsum board and this same information was sent out to the builders, although that communication is not included in their written submission.
43. While the Respondent acknowledges that reference to Protektor board was checked off on the drawings submitted with the permit application, it may be the plans reviewer believed this was simply for protection during construction.
44. The Respondent also acknowledged that Protektor board had been allowed in the Accredited Municipality by other inspectors and agencies in their employ or under contract, but they are concerned with retroactive approval of a product not consistently approved in the past.
45. The Government of Alberta issued a Notice on February 1, 2012 (page 156 of the written submission) stating that a number of products using fire-resistant coatings were being marketed as an alternative to gypsum board. The Notice continues, saying that when such a product is proposed for use to meet Sentence 9.10.15.5. (2), an application for alternative solution must be submitted to the authority having jurisdiction (AHJ) for consideration as a variance. No such application has been received.
46. The Government of Alberta recommended (February 1, 2012 Notice) that safety codes officers only consider such products as alternative solutions to gypsum board under combustible siding where it can be shown the proposed alternative adequately addresses Fire Resistance, Flame Spread, Water & UV Resistance, Freeze/Thaw Resistance, Water Vapour Transmission and Quality Control as identified in the Notice.
47. The Respondent has received no information as to the Water & UV Resistance of Protektor board, although it is presumed such information would be available from the manufacturer.
48. The parties were working toward consideration of an alternative solution but the Respondent never received enough information.

Reasons for Decision (Findings of Fact and Law):

The Appeal Panel makes the following findings:

49. The parties agree the two glazed openings at issue would not be code compliant without further measures being taken to address the spread of fire. The Appellant believes the fire shutters address this matter.
50. Wood-based sheathing materials treated with a fire-resistant coating may be considered by the AHJ under certain circumstances, as described in the February 1, 2012 Notice issued by the Government of Alberta.
51. Regarding the use of fire shutters, the Panel Members believe an alternative solution may be approved by the AHJ if the appellant can show code compliance by installing the

fire shutters on the inside of the residence, which is where the fire resistance rating for the exterior wall is determined. The Panel Members are not convinced such compliance can be achieved with the exterior installation because of the need for passage of a fusible link in a sleeve that is not impeded, that will activate the roll shutter in the event of fire.

- 52.** The panel further agrees it must be confirmed that any fire shutter used be certified to indicate compliance with the ABC. The Appellant is encouraged to work with the AHJ to provide any outstanding information, along with a formal request for an alternative solution / variance for the use of fire shutters as closures.
- 53.** Regarding the use of Protektor board in lieu of gypsum board on the exterior wall, under combustible siding, the Panel Members believe an alternative solution may be approved by the AHJ if the appellant can provide evidence the product adequately addresses the criteria outlined in the February 1, 2012 Notice from the Government of Alberta, these being; Fire Resistance, Flame Spread, Water & UV Resistance, Freeze/Thaw Resistance, Water Vapour Transmission and Quality Control. Some of this evidence is already in the possession of the AHJ and the Appellant is encouraged to work with the AHJ to provide the outstanding information, along with a formal request for an alternative solution / variance for the use of Protektor board in lieu of gypsum board.
- 54.** The Appeal Panel requires that for the AHJ to accept the use of Protektor Board as an alternative solution that the panels must be coated on both interior and exterior surfaces.

Signed at the City Edmonton)
in the Province of Alberta)
this 14th Day of December A.D. 2016)

Chair, Building Sub-Council Appeal Panel