BUILDING CODE VARIANCE

STANDATA

November 2020

VENTED SOFFIT PROTECTION

PURPOSE

This variance provides an alternative solution for the protection of soffits where typical vented soffit materials are otherwise not permitted.

DISCUSSION

Sentences 9.10.14.5.(12), 9.10.15.5.(11) and 9.10.12.4.(2) and (3) of the National Building Code - 2019 Alberta Edition (NBC(AE)) require soffits in areas of concern to have no openings and be protected by specific thicknesses of sheet steel, aluminum, gypsum board, OSB, plywood or lumber to provide a higher level of fire protection. Having to provide solid (unvented) soffits in lieu of vented ones in areas of concern means that designers must achieve the ventilation required at the roof space's lower end(s) via alternative means. Although viewed as unideal by most designers, builders and owners, this is commonly accomplished by installing surface roof vents in the area of the lower ends of the roof space.

With the use of a material comprised of an intumescent coating on a vented substrate, it is possible to provide ventilation to a roof space through the soffit area, while simultaneously providing fire protection that meets or exceeds NBC(AE) requirements where openings in soffits are not permitted. The material is fastened to the underside of roof or floor projections, and a finished vented soffit material can be installed to cover it for aesthetic purposes. When elevated temperatures are present due to a fire, the intumescent coating expands to seal the openings within the vented substrate.

CODE REFERENCES

Sentence 9.10.14.5(12) states:

9.10.14.5. Construction of Exposing Building Face and Walls above Exposing Building Face

12) Where roof soffits project to less than 1.2 m from the property line, the centre line of a lane or public thoroughfare, or an imaginary line between two *buildings* or *fire compartments* on the same property, they shall
a) have no openings, and
b) be protected by
    i) not less than 0.38 mm thick sheet steel,

Unless stated otherwise, all Code references in this STANDATA are to Division B of the National Building Code-2019 Alberta Edition

Issuance of this STANDATA is authorized by the Provincial Building Administrator

[Original Signed]
Paul Chang

ii) unvented aluminum conforming to CAN/CGSB-93.2-M, “Prefinished Aluminum Siding, Soffits, and Fascia, for Residential Use,”
iii) not less than 12.7 mm thick gypsum soffit board or gypsum ceiling board installed according to CSA A82.31-M, “Gypsum Board Application,”
iv) not less than 11 mm thick plywood,
v) not less than 12.5 mm thick OSB or waferboard, or
vi) not less than 11 mm thick lumber.
(See Note A-3.2.3.6.(2).)

Sentence 9.10.15.5(11) states:

9.10.15.5. Construction of Exposing Building Face of Houses

11) Where roof soffits project to less than 1.2 m from the property line, the centre line of a lane or public thoroughfare, or an imaginary line between two buildings or fire compartments on the same property, they shall
a) have no openings, and
b) be protected by
i) not less than 0.38 mm thick sheet steel,
ii) unvented aluminum conforming to CAN/CGSB-93.2-M, “Prefinished Aluminum Siding, Soffits, and Fascia, for Residential Use,”
iii) not less than 12.7 mm thick gypsum soffit board or gypsum ceiling board installed according to CSA A82.31-M, “Gypsum Board Application,”
iv) not less than 11 mm thick plywood,
v) not less than 12.5 mm thick OSB or waferboard, or
vi) not less than 11 mm thick lumber.
(See Note A-3.2.3.6.(2).)

Sentences 9.10.12.4(2) and (3) states:

9.10.12.4. Protection of Soffits

2) Except as provided in Sentences (4) and (5), the construction described in Sentence (1) shall have no *unprotected openings* and shall be protected in accordance with Sentence (3), where the soffit encloses
a) a common *attic or roof space* that spans more than 2 *suites* of *residential occupancy* and projects beyond the exterior wall of the *building*,
b) a floor space where an upper *storey* projects beyond the exterior wall of a lower *storey* and
i) a *fire separation* is required at the floor between the two, or
ii) the floor separates *dwelling units* from each other or a *dwelling unit* from an ancillary space or a common space in a house with a *secondary suite*, or
c) a floor space where an upper *storey* projects beyond the exterior wall of a lower *storey*, and the projection is continuous across
i) a vertical *fire separation* separating two *suites*, or
ii) a wall separating *dwelling units* from each other or a *dwelling unit* from an ancillary space or a common space in a house with a *secondary suite*.

3) Protection required by Sentence (2) shall be provided by
a) *noncombustible* material having a minimum thickness of 0.38 mm and a melting point not below 650°C,

b) not less than 12.7 mm thick gypsum soffit board or gypsum board installed according to CSA A82.31-M, “Gypsum Board Application,”
c) not less than 11 mm thick plywood,
d) not less than 12.5 mm thick OSB or waferboard, or
e) not less than 11 mm thick lumber.
(See Note A-9.10.12.4.(3).)

APPLICATION

This variance applies to Part 9 buildings in which there is a requirement for solid (unvented) soffits constructed of specific materials, due to roof or floor projections being in areas of concern – typically, proximity to property line.

VARIANCE

This variance provides approximately equivalent or greater safety performance with respect to persons and property as that provided for by the Safety Codes Act, and the NBC(AE).

The use of materials comprised of an intumescent coating on a vented fiberglass or metal substrate are an acceptable alternative solution to the requirements of Sentences 9.10.14.5.(12), 9.10.15.5.(11) and 9.10.12.4.(2) and (3), provided the following conditions are met:

1. The material is tested by a laboratory accredited by the Standards Council of Canada, and documentation of the test results is provided to verify that the material performs equal to or greater than the performance of 11 mm plywood as specified in Table 1 of Appendix A.
2. The material is installed in accordance with the:
    a. Manufacturer’s installation instructions or
    b. Testing documentation

Appendix A

TESTING

Materials were exposed to a constant heat flux. A radiant heat flux of 50 kW/m^2 represents a fire severity equivalent to that of after 10 to 15 minutes in standard fire resistance test.

Table 1
Test results when exposed to a 50 kW/m² radiant heat flux for 15 minutes

Material	Time to Ignition (s)	Time to Flame-Out (s)	Time to Burn-Through (s)
11-mm plywood	48		490
	55	No flame-out	477
	58		461
(avg.)	***54***		***476***
Fiberglass mesh w/ intumescent coating	20	77	No burn-through[2]
	20	96	
	20[1]	89[1]	
(avg.)	***20***	***87***	
Metallic mesh w/ intumescent coating	15	75	No burn-through[2]
	17	65	
	None[1]	None[1]	
(avg.)	***16***	***70***	

Notes:
(1) Test conducted for 30 minutes.
(2) No plywood backing beyond the mesh. Average temperatures recorded were below 300 °C.

This VARIANCE is applicable throughout the province of Alberta.