

# BC BUILDING CODE INTERPRETATION COMMITTEE

A joint committee with members representing  
**AIBC, EGBC, BOABC**

**File No: 18-0019**

**INTERPRETATION**

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Interpretation Date:	November 26, 2019
Building Code Edition:	BC Building Code 2018
Subject:	Motorized fire/smoke dampers in high residential buildings
Keywords:	Fire dampers, smoke dampers, high residential buildings
Building Code Reference(s):	3.1.8.7.(1), 3.1.8.7.(2)(a), 3.1.8.9.(2)(a)(iii), 3.2.6.2.(6), 3.2.7.9.(1)(c),

## Question:

Are combination smoke/fire motorized dampers required at the air-transfer openings on each floor of a high residential building for the public corridor air supply ducts?

## Interpretation:

No (with conditions)

Sentence 3.1.8.7.(1) requires a fire damper at air-transfer openings that penetrate an assembly required to be a fire separation. The vertical duct shaft that supplies air to a public corridor to separate floor areas is required to be a fire separation, so non-motorized fusible link fire dampers at the air-transfer openings on each floor level of a high building would satisfy this requirement.

Except as permitted by Article 3.1.8.9., Sentence 3.1.8.7.(2)(a) requires a smoke damper at air-transfer openings that penetrate an assembly required to be a fire separation between a vertical duct shaft and a public corridor.

Sub-clause 3.1.8.9.(2)(a)(iii) waives the requirement for a smoke damper for ducts or air-transfer openings that form part of a smoke control system. The ducts must be noncombustible branch ducts having a melting point above 760° C.

Except as required by Article 3.2.4.12., Sentence 3.2.6.2.(6) requires that air-handling systems used to provide make up air to public corridors serving residential suites shall not shut down automatically upon activation of the fire alarm system so as to maintain corridor pressurization.

Article 3.2.4.12. requires the corridor make up air fan that serves more than 1 storey to shut down if a duct-type smoke detector within the supply duct is activated.



Patrick Shek, P.Eng., CP, FEC, Committee Chair

The views expressed are the consensus of the joint committee with members representing AIBC, EGBC and BOABC, which form the BC Building Code Interpretation Committee. The Building and Safety Standards Branch, Province of BC and the City of Vancouver participate in the committee's proceedings with respect to interpretations of the BC Building Code. The purpose of the committee is to encourage uniform province wide interpretation of the BC Building Code. These views should not be considered as the official interpretation of legislated requirements based on the BC Building Code, as final responsibility for an interpretation rests with the local *Authority Having Jurisdiction*. The views of the joint committee should not be construed as legal advice.

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Since Sentence 3.2.6.2.(6) requires that air-handling systems used to provide make up air to public corridors serving residential suites remain running during a fire alarm, this air-handling system could be considered to be part of a smoke control system, provided that it meets the design requirements for smoke control systems including:

- The fans must be provided with an emergency power supply from an emergency generator per 3.2.7.9.(1)(c) which is capable of operating under full load for not less than 2 hours,
- The vertical corridor supply duct must be enclosed in a vertical service space which is constructed as a fire separation with a 2 hour fire resistance rating similar to a smoke shaft as described in Notes to Part 3 - A-3.2.6.6.(1) – (3)(a), and
- The corridor supply fan must always remain running to maintain a positive pressure between the vertical duct shaft and the corridor.
- A manual control switch for the corridor supply fan is provided at the central alarm control facility.

Therefore, as per Sub-clause 3.1.8.9.(2)(a)(iii), motorized smoke dampers are not required at air-transfer openings between corridor supply duct shaft and a public corridor, provided the building is a high building, the corridor serves residential suites and the ducts are noncombustible having a melting point above 760° C.

These air-transfer openings are required to be protected with non-motorized fusible link fire dampers per Sentence 3.1.8.7.(1) and Article 3.1.8.10.

A duct-type smoke detector is also required within the duct per Article 3.2.4.12.

**The Intent Statement for Sentence 3.1.8.9.(2) is as follows:**

To exempt certain branch ducts from the application of Sentence 3.1.8.7.(2), which would otherwise require smoke dampers or combination smoke/fire dampers, on the basis that the lack of smoke dampers or combination smoke/fire dampers in this case will not lead to a significant spread of smoke.

**The Intent Statement for Sentence 3.2.6.2.(6) is as follows:**

To limit the probability that smoke from a fire in a suite will spread into the public corridor, which could lead to delays or ineffectiveness in emergency response operations, which could lead to the spread of fire beyond its point of origin and delay evacuation or impede moving to a safe place, which could lead to harm to persons.

It should be noted that motorized smoke dampers are required in low rise buildings at air-transfer openings on each floor for the public corridor air supply ducts.



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