


BC BUILDING CODE INTERPRETATION COMMITTEE

A joint committee with members representing
AIBC, EGBC, BOABC

File No: 18-0036

INTERPRETATION

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Interpretation Date:	October 20, 2020
Building Code Edition:	BC Building Code 2018
Subject:	Prevention of Smoke Circulation
Keywords:	Smoke, Duct-Type Smoke Detector, Fire Damper
Building Code Reference(s):	9.32.3.2.(4) & (5), 3.1.8.10, 9.10.9.14.(4), 9.10.9.6.(14), 9.10.13.13.(1) & (2)
Question: <ol style="list-style-type: none">1. Where a heating or ventilation duct system in a house with a secondary suite is required to be designed and installed to prevent circulation of smoke upon a signal from a duct-type smoke detector, is shut-down of the system fan sufficient to comply with this requirement?2. Is a fire damper required in the duct described in question 1, where the duct penetrates the fire separation between suites in<ol style="list-style-type: none">(a) an unsprinklered building?(b) a sprinklered building?	
Interpretation: <ol style="list-style-type: none">1. Yes. Sentence 9.32.1.2.(2) requires a self-contained heating season ventilation system serving a single dwelling unit or a house with a secondary suite to comply with Subsection 9.32.3. Sentence 9.32.3.2.(4) requires a heating or ventilation system in a house with a secondary suite to be designed and installed to prevent the circulation of smoke upon a signal from a duct-type smoke detector. There is no specific requirement for smoke dampers in this system. There is a similar requirement in Sentence 9.10.18.5.(1) that applies to other buildings regulated under Division B, Part 9, but it is applicable only to recirculating air-handling systems. Since Sentence 9.10.18.5.(1) does not address non-recirculating systems, there is no requirement for duct-type detectors in those systems. Fans in non-recirculating systems could be off or on at any time. Therefore, the Code requirements do not address non-powered movement of smoke through a duct system in a Part 9 building. The condition where a fan shuts down on a signal from a duct-type smoke detector is similar, since there will be no powered air movement through the duct.  _____ 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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2.

(a) Yes, in most cases a fire damper is required in an unsprinklered building.

Sentence 9.10.9.14.(4) requires a fire separation between dwelling units in a house with a secondary suite. The required fire-resistance rating of this fire separation varies depending on the installation of sprinklers or smoke alarms, with no fire-resistance rating permitted only if the building is sprinklered.

With one exception, Sentence 9.32.3.2.(5) requires fire dampers installed in accordance with Article 3.1.8.10, at ducts penetrating fire separations. The exception refers to Sentence 9.10.9.6.(14) which waives the requirement for fire dampers in ducts in a house with a secondary suite but only where the ducts are noncombustible and serve only one fire compartment. If the duct serves both the secondary suite and the main suite, fire dampers are required except as noted below.

Also, an additional waiver is permitted by Sentence 9.10.13.13.(2). A fire damper is not required where a noncombustible duct pierces a fire separation provided the duct has a melting point not below 760 C (i.e. a steel duct), the duct has a cross-sectional area less than 130 cm², and the duct supplies only air-conditioning or combined air-conditioning and heating units discharging air at not more than 1.2 m above the floor.

(b) No, a fire damper is not required in a sprinklered building.

Sentence 9.10.13.13.(1) requires fire dampers at ducts penetrating fire separations only where the fire separations are required to have a fire-resistance rating. This Sentence is not cross-referenced from Sentence 9.32.3.2.(5) which otherwise requires fire dampers at fire separations [see the response to question 2(a)], but it applies to fire separations in general. Clause 9.10.9.14.(4)(d) states that, in a house with a secondary suite, the fire separation between suites does not require a fire-resistance rating if the building is sprinklered. Therefore, in accordance with Sentence 9.10.13.13.(1), fire dampers are not required at fire separations between dwelling units in a sprinklered house with a secondary suite.

Some of the references in this Interpretation were part of a BCBC revision that came into effect in December 2019. In the BCBC revision, A-9.32.1.2.(2) in the Notes recommends that separate ventilation systems be provided for each dwelling unit in a house with a secondary suite, although it is noted that separate systems are more expensive and may be difficult to provide in an existing building.



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

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