


# BC BUILDING CODE INTERPRETATION COMMITTEE

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

**File No: 18-0091**

**INTERPRETATION**

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| Interpretation Date:        | March 16, 2021   |
| Building Code Edition:      | BC Building Code 2018  |
| Subject:                    | Voluntary Sprinkler Installation   |
|                             | Sprinkler System   |
| Building Code Reference(s): | 3.2.4.1.(1), 3.2.5.12, Division A 1.1.1.2.(1)  |
| <b>Question:</b>            | <p>Where an existing building is renovated and a sprinkler system is not required but it is voluntarily installed, must the sprinkler system comply with the requirements of the applicable NFPA standard (NFPA 13, 13R or 13D depending on the building), where it is installed in:</p> <ol style="list-style-type: none"><li>1. the entire building?</li><li>2. part of the building?</li></ol>  |
| <b>Interpretation:</b>      | <p>1. Yes.</p> <p>Sprinkler systems are required to comply with NFPA 13, 13R or 13D depending on the type of building as stated in Sentence 3.2.5.12.(1), other than for exceptions as stated in that Sentence. Article 3.2.5.12 does not distinguish between required and non-required sprinkler systems. Non-required sprinkler systems must comply with applicable NFPA requirements.</p> <p>The NFPA standards contain many requirements that relate to both the design and installation of sprinkler systems. Where an existing building is renovated, BCBC Division A Sentence 1.1.1.2.(1) states that the level of life safety and building performance shall not be decreased below a level that already exists. Non-compliance with NFPA requirements could reduce the level of life safety and building performance. For example, a sprinkler system that does not comply with NFPA requirements for pipe hangers may be more prone to water leakage, which could damage the building including the existing fire separations, and thereby reduce the existing level of both life safety and building performance. Also, a sprinkler system design that does not follow NFPA requirements could result in more sprinklers</p> <p></p> <p>Patrick Shek, P.Eng., CP, FEC, Committee Chair</p> |

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operating than in a code-conforming system, which could use too much of the available water supply and make the system ineffective because there would not be enough water for individual sprinklers or for manual hose response by firefighters.

Sentence 3.2.4.1.(1) requires a fire alarm system in a sprinklered building, only where the sprinkler system is required by Part 3. If the sprinkler system is not required by Part 3, a fire alarm system would not be required just because the building is being sprinklered voluntarily. However, if a fire alarm system is not installed in a sprinklered building, it cannot be considered as a sprinklered building with respect to other BCBC requirements. If the building has a fire alarm system, the requirements of Subsection 3.2.4 such as for sprinkler system supervision and annunciation are applicable regardless of whether the sprinkler system is required by Part 3.

2. Yes

As stated in the response to Question 1, sprinkler systems must comply with the applicable NFPA requirements as referenced in Sentence 3.2.5.12.(1), regardless of whether the systems are required. This also applies to partial system installation.

NFPA 13 – 2013 includes the following requirements:

#### 4.2 Limited Area Systems.

4.2.1 When partial sprinkler systems are installed, the requirements of this standard shall be used insofar as they are applicable.

4.2.2 The authority having jurisdiction shall be consulted in each case.

If a non-required sprinkler system is installed in only part of a building, the building cannot be considered as a sprinklered building with respect to the numerous BCBC requirements that refer to sprinklered buildings. The system installation must also comply with Division A Sentence 1.1.1.2.(1) as described in the response to Question 1.

In addition, the sprinkler system design in accordance with NFPA standards is based on the assumption of sprinkler system operation within the design area, i.e. the area in which sprinklers may operate during a fire. Except in a very small floor areas, the design area is only a portion of the floor area because the operating sprinklers will typically control the fire



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spread. If there is a partial sprinkler system adjacent to an unsprinklered area, with no fire separations between sprinklered and unsprinklered areas, the fire spread in the unsprinklered area may be uncontrolled and thereby cause excessive sprinkler activation in the sprinklered area. This could limit the effectiveness of the sprinklers by reducing the water discharge at each operating sprinkler, and also draw more water from the system which may reduce the available water supply for manual firefighting. As noted in the NFPA 13 excerpt above, the authority having jurisdiction must be consulted if a partial sprinkler system is proposed, and fire separations may be necessary between the sprinklered and unsprinklered areas.

Sentence 3.2.4.1.(1) requires a fire alarm system in a sprinklered building, only where the sprinkler system is required by Part 3. If the sprinkler system is not required by Part 3 a fire alarm system would not be required just because part of the building is being sprinklered voluntarily. If the building has a fire alarm system, the requirements of Subsection 3.2.4 such as for sprinkler system supervision and annunciation are applicable regardless of whether the sprinkler system is required by Part 3.



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