

## BC BUILDING CODE 2018

### WALK-IN COOLERS AND FREEZERS

NEWSLETTER | January 2015

Updated September 2021

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Walk-in coolers and freezers are typically constructed of factory assembled, non-loadbearing, wall and ceiling panels containing foamed plastic insulation. Due to the size of these components, they may be considered by some municipalities as part of the building structure rather than fixtures and are therefore regulated by Article 3.1.5.14 of the BC Building Code 2018 (“the Code”).

Article 3.1.5.14 of the Code addresses the use of combustibles insulation, including foamed plastic insulation, in buildings required to be of noncombustible construction and provides direction on protection of the combustibles insulation from adjacent occupied space. The level of protection is dependent upon factors such as location and flame spread rating of the insulation, major occupancy classification, and building height.

Generally, foamed plastic insulation with a flame spread rating of not more than 500 is permitted in the interior and exterior walls of a sprinklered, noncombustible construction building provided that the insulation is protected from adjacent interior spaces by a thermal barrier; for example, 1/2in gypsum board. The prescribed protection addresses the concern that in a fire situation, unprotected foamed plastic insulation may cause rapid flame spread and produce of excessive smoke and toxic gasses.

Article 3.1.5.7. specifically addresses factory-assembled, non-loadbearing interior or exterior wall or ceiling panels of the type used to construct walk-in coolers and freezers. This Sentence is an exception to the thermal protection of foamed plastic insulation prescribed in Article 3.1.5.15.; however, it may only be used in sprinklered buildings not more than 18m in height housing Group D (office), Group E (retail), or Group F (industrial) occupancies.

The Code specifically prohibits the use of these panels in Group A (assembly), Group B (care), or Group C (residential) occupancies where a walk-in cooler or freezer may be essential to the efficient functioning of restaurants, nursing homes, and hospitals. Except it is prohibited to provide exterior panels to be used in Group A (assembly) occupancy



It is impractical to comply with the acceptable solution and install thermal protection in the interior of a cooler or freezer. Gypsum board, for example, will deteriorate over time due to the cold, damp environment and does not lend itself to easy cleaning to the extent that may be required in the cooler and freezer.

Where the cooler or the freezer is considered a fixture, the Code does not apply. However, where the components of the cooler or freezer are considered part of the building structure, Article 3.1.5.14 is applicable and an alternative solution may be needed to address the protection of foamed plastic insulation in order to achieve the objectives of the Code. GHL has the required experience and expertise to review and provide recommendations related to Code compliance and fire safety provisions for the construction of walk-in coolers and freezers. Where necessary, GHL is able to develop alternative solutions to achieve the objectives of the Code.

#### About the Authors

**Naki Ocran (MASC, P Eng, CP)** Naki Ocran is a Professional Engineer and Certified Professional with 5 years experience as a Building Code consultant. Naki holds a Master of Applied Science Degree in Civil Engineering from Carleton University, specializing in Fire Safety Engineering, and a Bachelor of Science Degree in Civil Engineering from Drexel University in Philadelphia, PA. Naki has experience in developing Alternative Solutions and Building Code compliance with a special emphasis on fire modeling, evacuation modeling and heat transfer analysis. Naki is a registered member of Engineers and Geoscientists BC and sits as a member of the BC Codes Committee.

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*The information in this letter is for discussion purposes only. Refer to applicable Building Codes and Fire Codes for actual requirements. The designer should always check with the AHJ for local policies and interpretations regarding the foregoing.*

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