



BOABC – 2024 BCBC Lunch and Learn Fire Protection & Firestopping of Outlet Boxes

April 25, 2024

Hosted by: Ken Kunka, BCQ

Promoting Building Safety and Professionalism



Overview

Information presented today does not directly represent the opinions of the Building Officials Association of BC.

This presentation is conceptual and for informal educational purposes only. The presenters and association takes no responsibility for application of any concepts or interpretations in this presentation to specific projects.

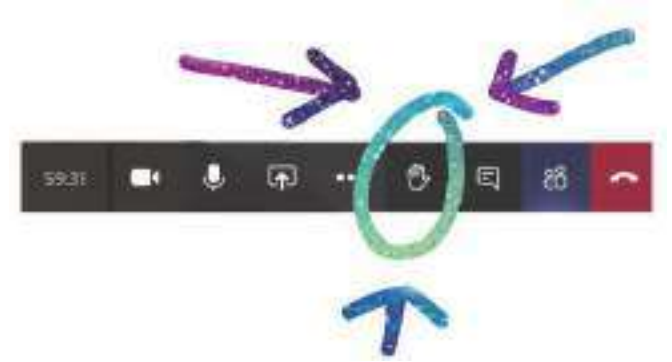
(it may ask more questions than provide answers)

The slides must not be considered complete or exhaustive. Code provisions have been generally represented and may not reflect all exceptions.

Presenting from Summerland, on the ancestral and unceded territory of the Syilx People in the Okanagan Nation.



Rules of the Room



- Registration will be tracked
- Presentation is not recorded but PowerPoint will be posted
- Please use raise hand icon if you have a question or comment
- PUT IT in the CHAT
- Please mute your microphone
- You may need to turn off your camera
- Please follow up by email if you have specific question or example to share with the membership.
 - kkunka@boabc.org



Poll Question #1

What is your level of BOABC Qualification?

- Level 01 Building – 18%
- Level 02 Building – 10%
- Level 03 Building – 38%
- Level 01 Plumbing – 24%
- Level 02 Plumbing – 6%
- Other – 4%

Poll Question #2

What region are you from?

- Lower Mainland – 54%
- South Central Interior – 20%
- Kootenay – 5%
- Northwest – 1%
- Central North Interior – 1%
- Vancouver Island North – 10%
- Vancouver Island South – 8%



April 25– Fire Protection

Today

- What's New Update and Training
- Interpretations and Appeals
- Infill Challenge
 - Fire Protection & Water Supply
- New Firestop Requirements
 - Part 3 & 9 Changes
 - Member Question 9.10.5.1/9.10.9.6.
 - 9.10.9.8.

Lunch and Learns

CPD Eligibility: 1

point/presentation (Category A4). You will need to self report this point. Initial next to the presentation and then save it as a pdf to upload as proof. Previous Lunch and Learns can be found:

<https://boabc.org/cpd-opportunity-lunch-learn-webinars/>



2024 NEW Code - Code Updates

If you attended the in-person training at the River Rock in November, **you are not** required to register for the online code update courses.

2024 Building & Plumbing Code Update Courses



[Learn More](#)

Building (includes Energy) & Plumbing - [Register now](#)

\$375 plus GST

Building Only (includes Energy) - [Register now](#)

\$325 plus GST

Plumbing Only - [Register now](#)

\$125 plus GST

Energy Only - [Register now](#)

\$125 plus GST

Get the word out – Open to non-members



2024 BC Code Appeals - Interpretations

March 2024 – Cooling Requirements

BC Code Appeals - binding

British Columbia
Home / Farming, natural resources and industry / Construction industry / Building Codes & Standards / Building Code Appeal Board

MORE TOPICS

Building Codes & Standards

Building Act

BC Codes

Building Code Appeal Board

Publication Date: October 6, 2023

The Building Code Appeal Board reviews appeals of local authority decisions related to building regulations. You can submit an appeal to the board for review.

Interpretations – not binding

BC Building Code Officials' Association

Calendar Online Learning Information

About Membership Qualification Certification Exams Education & Interpretations 2024 Conference Contact Us

Building and Plumbing Code Interpretations

2016 BC Building Code Interpretations Index

2012 BC Building Code Interpretations Index

2006 BC Building Code Interpretations Index

1996 BC Building Code Interpretations Index

WHAT'S NEW

2024 BOABC Conference Registration is Now Open

The 2024 Conference is Production-Ready for online registration. Registration is now open. For more information, visit www.boabc.org.

BC BUILDING CODE INTERPRETATION COMMITTEE
A joint committee with members representing
ABC, EGBC, BOABC

File No: 24-0007 INTERPRETATION Page 1 of 2

Interpretation Date:	March 10, 2024
Building Code Edition:	BC Building Code 2024
Subject:	Cooling System in a Dwelling Unit
Keywords:	Dwelling Unit, Cooling
Building Code Reference(s):	9.33.2.1.(2), 9.33.3.1.(2)

Question:
Can required cooling facilities for a dwelling unit be roughed-in for future installation, instead of being installed as a completed system when the unit is constructed?

Interpretation:
No

The BCBC 2024 contains new requirements for cooling of dwelling units. Sentence 9.33.2.1.(2) states:

2) Except where determined according to Article 9.31.5.3, or good engineering practice according to Article 6.1.1.1, was there it to be unnecessary, dwelling units intended for use in the summer months or a continuous basis shall be equipped with cooling facilities conforming to this Section. (See Note A-9.33.2.1.(2))

Article 9.33.5.1, referenced above, states the method of determining the design capacity of heating and cooling appliances, except that the design temperatures shall conform to Subsection 9.33.3. In that Subsection, Sentence 9.33.3.1.(2) states:

2) At the outside summer design temperature, required cooling facilities shall be capable of maintaining an indoor air temperature of not more than 26°C or at least one living space in each dwelling unit.

Patrick Shek
Patrick Shek, P.Eng., P.Eng. (M), Committee Chair

The views expressed are the consensus of the committee with members representing ABC, EGBC and BOABC, which form the BC Building Code Interpretation Committee. The Committee 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 practice and interpretation of the BC Building Code. These views are not to be construed as the official interpretation or engineering judgment made on the BC Building Code, or that responsibility for an interpretation rests with the local authority issuing a permit. The views of the joint committee should not be construed as legal advice.



2024 BC Code – Technical Bulletins



Search

Menu

[Farming, natural resources and industry](#) / [Construction industry](#) / [Building Codes & Standards](#) / [BC Codes](#) / [Technical Bulletins](#)

MORE TOPICS

BC Codes

[BC Codes 2024](#)

[BC Codes 2018](#)

[Errata & Revisions](#)

[Technical Bulletins](#)

[Code Interpretations](#)

[Other Code Resources](#)

[Letters of Assurance](#)

[BC Public Review](#)

[National Model Codes](#)

Technical Bulletins

✦ Last updated on April 19, 2024

The technical bulletins provide more detail and help clarify code provisions for builders and building professionals.

Technical bulletins

[Expand all](#) [Collapse all](#)

[BC Building Code 2024](#) ▼

[BC Plumbing Code 2024](#) ▼

[BC Building Code 2018](#) ▼

[BC Fire Code 2018](#) ▼

Technical bulletins

[Expand all](#)

[Collapse all](#)

BC Building Code 2024

- B24-01 [Adaptable Dwellings Transition \(PDF\)](#)
- B24-02 [Seismic Design Delay Period \(PDF\)](#)
- B24-03 [Radon \(PDF\)](#)
- B24-04 [Windows, Doors, and Skylights \(PDF\)](#)
- B24-05 [2024 Edition of the BC Codes \(PDF\)](#)
- B24-06 [Self-Service Storage Buildings \(PDF\)](#)
- B24-07 [Relocated Buildings \(PDF\)](#)
- B24-08 [Overheating \(PDF\)](#)



Construction Codes Harmonization



CBHCC

Canadian Board for Harmonized
Construction Codes

CCHCC

Comité canadien de l'harmonisation
des codes de construction



About the Canadian Board for Harmonized Construction Codes

The Canadian Board for Harmonized Construction Codes (CBHCC) is responsible for the development of Canada's National Model Codes, which contain objectives related to health, safety, the protection of buildings from fire and structural damage, and the protection of the environment.

The CBHCC, which is made up of representatives from provincial, territorial, and federal public services, approves the content of the National Model Codes and works within a system of groups that provide oversight, advice, and develop proposed changes.

Volunteers requested for 2030 Code
<https://cbhcc-cchcc.ca/en/volunteer-to-serve-on-a-code-development-committee/>



BOABC 2024 Conference

2024 BOABC
Conference
Registration is Now
Open



[Learn More ▶](#)

2024 Conference



The 2024 Conference for the Association will be taking place May 26 to 29, 2024 at the River Rock Casino Resort.

www.boabc.org

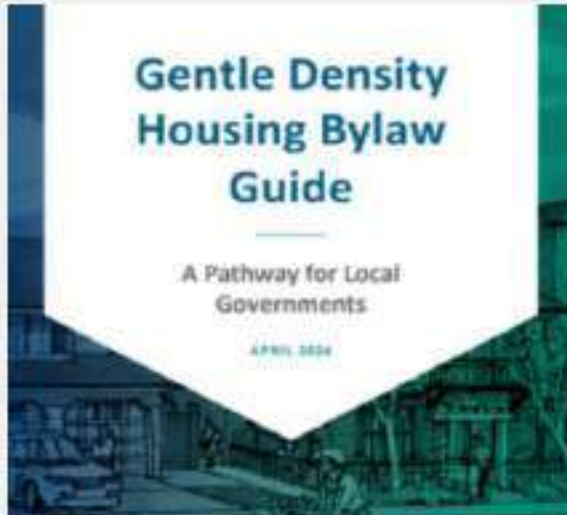
May 26 to 29



What's New at the Association

What's New

CPD Opportunity –
Introducing the Gentle
Density Housing Bylaw
Guide



[Learn More ▶](#)

CPD Opportunity –
Free Webinar: Are
Appeals Appealing?



[Learn More ▶](#)

CPD Opportunity –
Mastering Bylaw
Prosecutions



[Learn More ▶](#)

Don't forget L&L
with Jeff Locke
Oct 21, 2021



Are Appeals Appealing?

[Home](#) / [News](#) / CPD Opportunity – Free Webinar: Are Appeals Appealing?

CPD Opportunity – Free Webinar: Are Appeals Appealing?

Are appeals appealing? A guide to Building Code Appeal Board processes and outcomes.

Did you know the Building Code Appeal Board reviews appeals of local authority decisions on whether a matter conforms to a provincial building regulation, including the BC Building and Plumbing Codes?

CHBA BC hosts Building Code Appeal Board Chair, Don Peddie, as he explains the appeal application process and outcomes.

Provider: CHBA BC

Date: Thursday, May 9, 2024

Time: 10:00 am – 11:00 am (PST)

Location: Online (Zoom)

Cost: Free

Registration: [Register online](#)

CPD Eligibility: 1 point – Category A4 (you will need to self-report this point)

Hosted by CHBA BC
Will this result in more
questions and appeal
applications?



Gentle Density Housing Bylaw Guide

[Home](#) / [News](#) / CPD Opportunity – Introducing the Gentle Density Housing Bylaw Guide

CPD Opportunity – Introducing the Gentle Density Housing Bylaw Guide

Across North America, communities are reconsidering zoning rules that have prevented people adding a second small dwelling on their property for an aging family member, or pooling resources with friends to build and live together in a multiplex. These bylaw updates can unlock the potential to build housing in greater numbers and varieties in existing neighbourhoods to better accommodate our growing and changing population.

With our partners at Urban Systems and supported by CMHC, Small Housing has developed the Gentle Density Housing Bylaw Guide: A pathway for local governments. The guide focuses on documenting the "story so far" in the paths being chosen by local governments in British Columbia as they consider changes to their zoning bylaws to allow 'small-scale multi-unit housing', as a way to chart potential paths forward for communities in other provinces as they too seek to adjust their zoning rules to achieve a better fit with the needs of the people who want to live there.

Want to explore a practical work plan and find out about additional resources for updating your zoning bylaw for gentle density housing? Join us Monday, April 29, for a 50-minute webinar to learn more about the Guide and how it can help unlock housing in communities from coast to coast to coast.

Provider: Small Housing BC

Date: Monday, April 29, 2024

Time: 11:00 AM - 12:00 PM (Pacific)

Location: Zoom Webinar

Cost: Free

Registration: [Register online](#)


CPD Eligibility: 1 point – Category A4 (you will need to self-report this point)

Pass on to your
Planners



Small Housing BC

Small Housing BC

 Gentle Density
Toolbox

About ▾

Resources ▾

Add a Resource

Planners' Forum 



Find reliable information & resources on gentle density housing right here, in one place.

Welcome to the Gentle Density Toolbox, an online hub dedicated to catalyzing the next wave of gentle density housing initiatives.

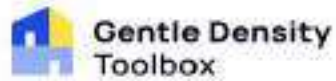
Whether you're developing policies or preparing to build your backyard infill, we've got support for you.


<https://smallhousing.ca/>



Small Housing BC

Small Housing BC 



About 

Resources 

Add a Resource

Planners' Forum 

Home / Resources

Find Resources by Audience

Tailor the Gentle Density Toolbox to specific audience types to explore content designed for your interests.



Planners



Designers & Builders



Citizen Developers



Related Professionals

Building Officials?

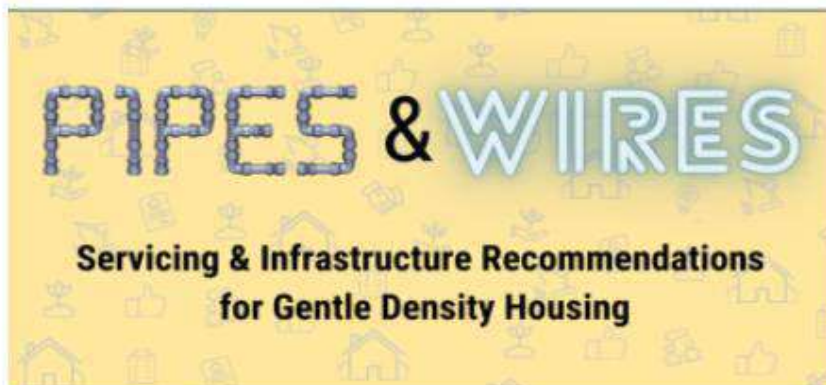


Infrastructure Challenges



GENTLE
DENSITY
NETWORK

August 2, 2023 at 11:00 AM PT
Online Webinar



smallhousing.ca/gentle-density

<https://www.youtube.com/@smallhousingbc7625/videos>

Is increased density for Part 9 related projects - satisfactorily addressed by the Code?

- Fire Dept Access
- Water Supply – Fire Exposure

Who is at most risk?

- Developer
- City
- Emergency Responders?
- Property owner
- Renter
- Neighbours





Fire Department Access

9.10.20.3. Fire Department Access to Buildings

- 1) Access for fire department equipment shall be provided to each *building* by means of a *street*, private roadway or yard. (See Notes A-9.10.20.3.(1) and A-3.2.5.6.(1).)
- 2) Where access to a *building* as required in Sentence (1) is provided by means of a roadway or yard, the design and location of such roadway or yard shall take into account connection with public thoroughfares, weight of firefighting equipment, width of roadway, radius of curves, overhead clearance, location of fire hydrants, location of fire department connections and vehicular parking.

Does anyone know why this wording is so vague, compared to Part 3?



Infill - Fire Department Access

A-9.10.20.3.(1) Fire Department Access Route Modification. In addition to other considerations taken into account in the planning of fire department access routes, special variations could be permitted for a house or residential building that is protected with an automatic sprinkler system. The sprinkler system must be designed in accordance with the appropriate NFPA standard and there must be assurance that water supply pressure and quantity are unlikely to fail. These considerations could apply to buildings that are located on the sides of hills and are not conveniently accessible by roads designed for firefighting equipment and also to infill housing units that are located behind other buildings on a given property.

A-3.2.5.6.(1) Fire Department Access Route. The design and construction of fire department access routes involves the consideration of many variables, some of which are specified in the requirements in the Code. All these variables should be considered in relation to the type and size of fire department vehicles available in the municipality or area where the building will be constructed. It is appropriate, therefore, that the local fire department be consulted prior to the design and construction of access routes.

Figure 60. Access to multi-tenanted building with no internal access

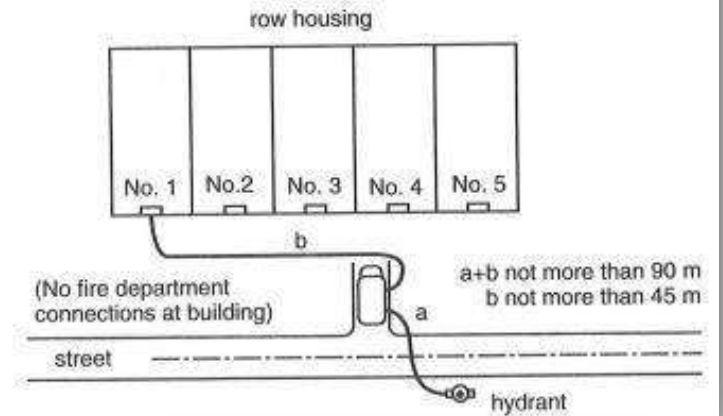
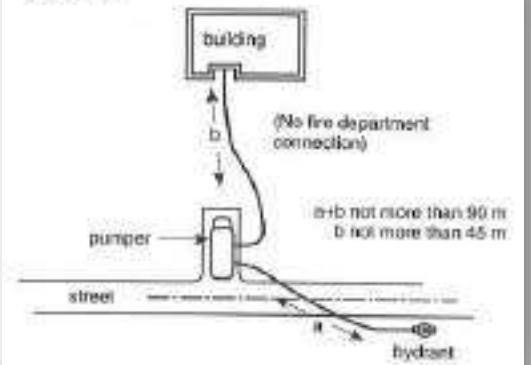


Figure 61. Distance from pumper to building





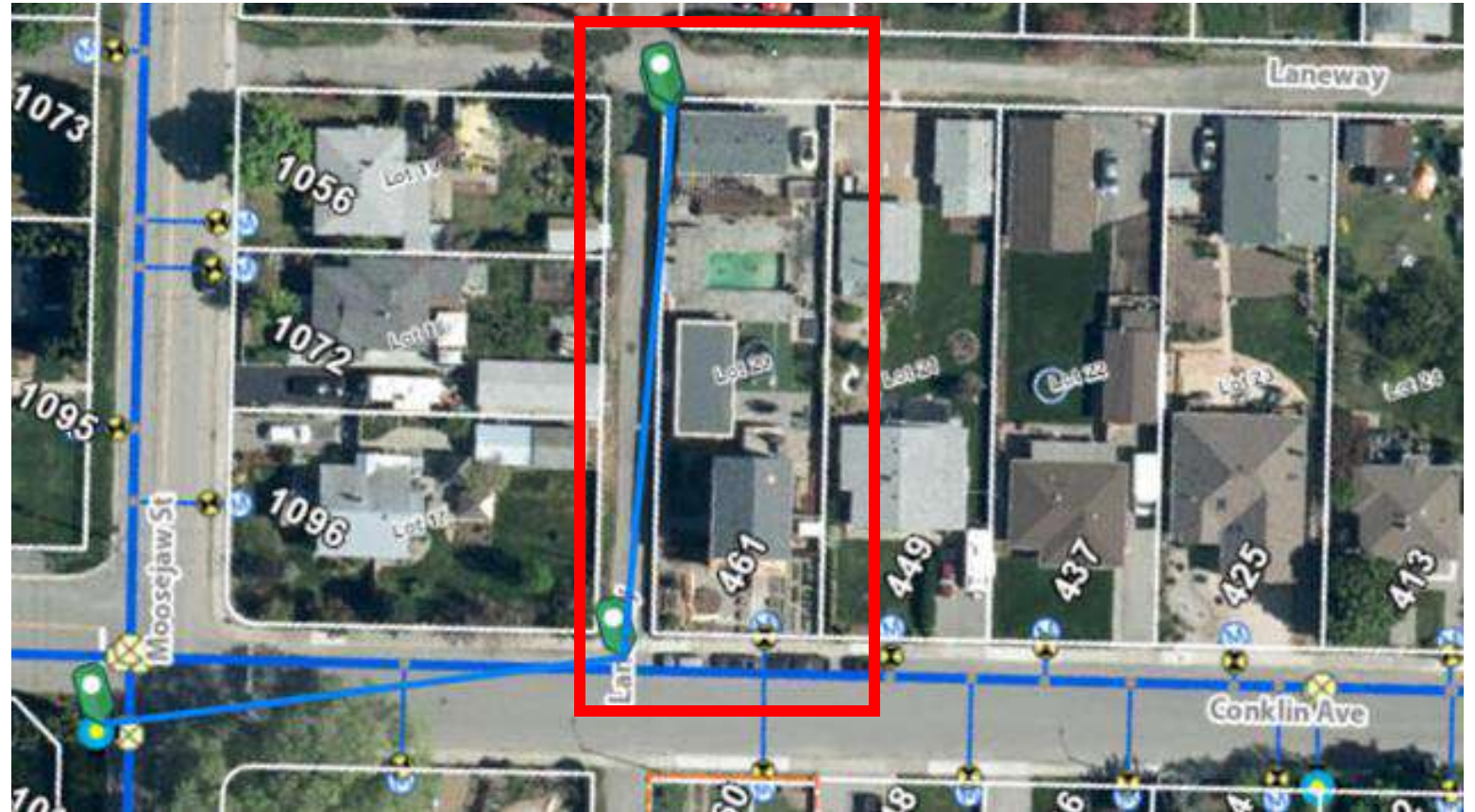
Fire Department Access

New house (w/ potential suite), accessory building (ADU potential) and ADU laneway house. 4 Units -Not Sprinklered.

56m from hydrant to front of property then 60m to rear ADU principle entrance.

This laneway ADU scenario does not seem to meet the intent of 9.10.20.3.

Is this a problem under current Codes? Options?





Edmonton - Fire Department Access

City of Edmonton
Development Services
Safety Codes, Permits & Inspections

3rd Floor
10111 104 Avenue NW
Edmonton, AB T5J 0J4
Canada
edmonton.ca



SMALL BUILDING ACCESS POLICY B19-04

For Part 9 buildings and one-storey Part 3 buildings not exceeding 600 sq m in building area

PURPOSE:

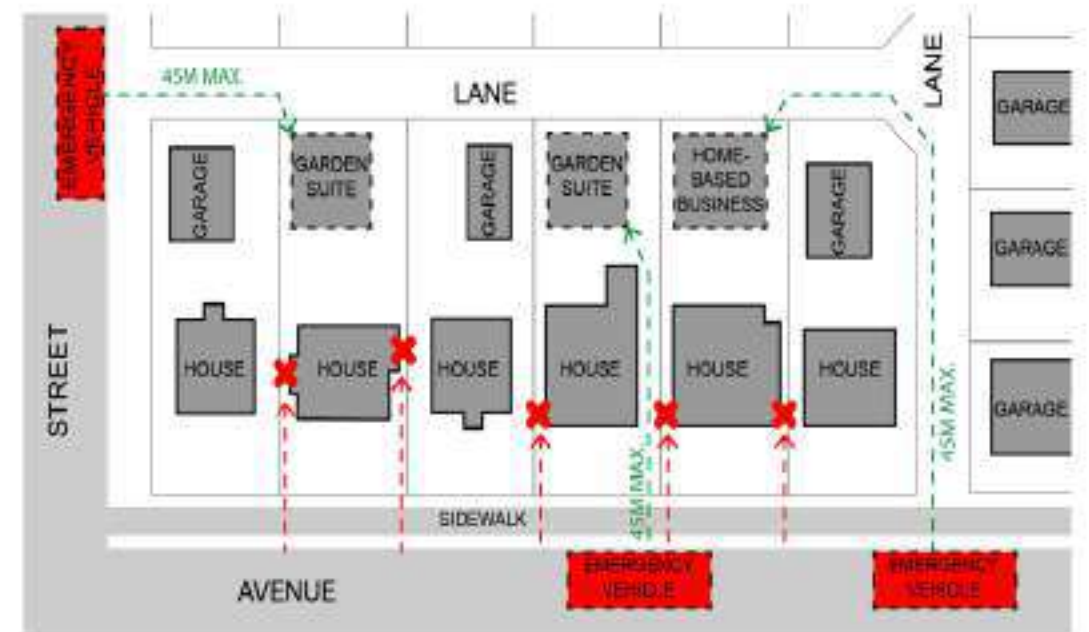
This document was developed in conjunction with Edmonton Fire Rescue Service (FRS) and provides guidance for design of acceptable emergency access in Edmonton, as referenced in Division B of the National Building Code - 2019 Alberta Edition (NBC2019(AE)) and applicable to Part 9 buildings and one-storey Part 3 buildings up to 600 sq m in building area. Typical necessary minimum access provisions for a variety of projects are outlined. Examples include, but are not limited to:

- a house with a secondary suite entrance that is inaccessible through the house front door common area
- a garden suite
- a home-based business using a separate isolated house entrance or accessory structure
- a row house, stacked row house or apartment with dwelling entrances remote from the street
- a temporary school portable module placed behind an existing school.

In contrast to the prescriptive NBC(AE) Part 3 Access Route Design requirements for firefighting and emergency response purposes, Part 9 requirements are more general and descriptive. There are more Part 9 buildings than Part 3 buildings in Edmonton. This, in conjunction with fewer fire protection requirements in NBC2019(AE) for Part 9 buildings, constitutes a greater risk in terms of frequency and consequence of a fire event for these types of buildings.

Examples:

Access to garden suite or home-based business in backyard of mid-block house, where the lane does not meet the minimum requirements for access route (NBC(AE):3.2.5.6., 9.10.20.3.):



A.9.10.20.3.(1) Fire Department Access Route Modification. In addition to other considerations taken into account in the planning of fire department access routes, special variations could be permitted for a house or residential building that is protected with an automatic sprinkler system. The sprinkler system must be designed in accordance with the appropriate NFPA standard and there must be assurance that water supply pressure and quantity are unlikely to fail. These considerations could apply to buildings that are located on the sides of hills and are not conveniently accessible by roads designed for firefighting equipment and also to infill housing units that are located behind other buildings on a given property.

A-3.2.5.6.(1) Fire Department Access Route. See below.

https://www.edmonton.ca/sites/default/files/public-files/assets/PDF/B19-04_Small_Building_Access_Policy.pdf?cb=1625655590



Small Scale Infill – Water Supply Fire Fighting – Exposure Control

Increased density via laneway houses, duplexes and townhouses are triggering reviews of water supply for insurance purposes in most communities– outside scope of the Code.

Designs compliant with basic Part 9 are increasingly being required to add additional hydrants, fire suppression, reduce combustibile design, add firewalls. This is adding costs to developments, however increased density adds additional risks that perhaps the Code is not fully taking into account.

The assumption can be made, that local governments would zone appropriately for uses and ensure basic water supplies are adequate for the allowable use – building type? Is this valid?

The Code is silent on this item for Part 9 vs Part 3 – 3.2.5.7, with many local governments referring to FUS, which is an old standard for calculating fire loads.



Small Scale Infill – Water Supply Fire Fighting – Kelowna Solution



Bulletin: Subdivision and Development Fire Flows

ISSUED: MARCH 11, 2024

This information is submitted for reference only. Please refer to the applicable bylaw for the complete regulation.

Properties must comply with all applicable Bylaws & Regulations of the City of Kelowna and conform to the B.C. Building Code.

Development Engineering
2151 Water Street
Kelowna, BC V1Y 1A6
TEL: 250-469-8035
development@kelowna.ca

Purpose

To inform developers, consulting engineers, building contractors, and homeowners about an amendment to the [Subdivision, Development and Security \(SDS\) Bylaw No. 7900](#) related to providing sufficient water supply for firefighting as a condition of Subdivision Approval or Building Permit issuance.

Background

Adequate water supply for fire protection is an inherent expectation of City of Kelowna residents. Water supply requirements for subdivision or development have been [updated](#) and are contained in [SDS Bylaw 7900](#). The City's [Fire and Life Safety Bylaw No. 10760](#) as well as the [BC Building Code](#) and [BC Fire Code](#) contain fire protection requirements for some buildings and buildings under construction. The requirements of these standards have been integrated and incorporated into [SDS Bylaw 7900](#), with greater clarity and consistent requirements around the technical assessment of adequate water supply to be provided as a condition of Subdivision Approval or Building Permit issuance.

Additionally, [Council Policy 383: Water Supply Level of Service](#) allocates available water on a priority basis. Water available for fire flow is prioritized first for public fire department use for exposure control and wildfire interfaces and secondly for private use for suppression systems installed and maintained in accordance with the BC Building Code.

Definitions

Available Fire Flow (AFF): the minimum flow rate for firefighting purposes, provided by City water network model for the 30-yr growth medium day demand scenario, at a minimum 20 psi residual and maximum 4 m/s water distribution velocity.

Required Fire Flow (RFF): the amount of water needed for firefighting purposes for a given structure, as calculated by the Fire Underwrites Survey (FUS) Method outlined in the ["Water Supply for Public Fire Protection"](#).

Exposure Control: the action of protecting adjacent structures from a fire and containing that fire to a subject property. The FUS RFF calculation consists of a base amount, which is used to extinguish a fully-involved structure fire, as well as an Exposure Adjustment Charge component, which is the additional flow that is added to the base amount for the purpose of Exposure Control.

Background

Adequate water supply for fire protection is an inherent expectation of City of Kelowna residents. Water supply requirements for subdivision or development have been [updated](#) and are contained in [SDS Bylaw 7900](#). The City's [Fire and Life Safety Bylaw No. 10760](#) as well as the [BC Building Code](#) and [BC Fire Code](#) contain fire protection requirements for some buildings and buildings under construction. The requirements of these standards have been integrated and incorporated into [SDS Bylaw 7900](#), with greater clarity and consistent requirements around the technical assessment of adequate water supply to be provided as a condition of Subdivision Approval or Building Permit issuance.

Additionally, [Council Policy 383: Water Supply Level of Service](#) allocates available water on a priority basis. Water available for fire flow is prioritized first for public fire department use for exposure control and wildfire interfaces and secondly for private use for suppression systems installed and maintained in accordance with the BC Building Code.

Building Permit Requirements

All new buildings in a public water supply area **resulting in 3 or more units on a lot must be provided with sufficient water for firefighting purposes.** This is assessed in two ways, depending on if the building is sprinklered or non-sprinklered. Larger buildings with less than 3 units may also trigger this requirement.

Small Scale Infill – Water Supply Fire Flow calculations for BP's



Poll question # 3 - Does your community trigger Fire Flow calculations prior to BP issuance (duplex or over?)

- Yes – 12%
- No – 31%
- Unknown – 46%
- Higher minimum unit trigger – 11%

Poll question

Small Scale Infill – Water Supply Domestic Service



Increasing density via Secondary Suite or Carriage house.

Typically, only one service is permitted to a single-family zoned lot, therefore the total new hydraulic load will exceed the original ¾" service.

Challenges arise with existing landscaping and additional cost for installation of the new service – on and off site.

Squamish-Lillooet Regional District				
Plumbing Fixture Unit Count for Single Family Dwellings				
Site Address:	Permit #			
Fixture	Minimum Size of Supply Pipe in Inches	Hydraulic Load Fixture Units	Number of Fixtures	Total
Bathroom group with a 8 1/2" flush tank (based on a 1/2" size bathtub supply pipe)	3/4	3.8		
Bathroom group with greater than 8 1/2" flush tank (based on a 1/2" size bathtub supply pipe)	3/4	5		
Bathroom group with more than 3 fixtures		Add additional fixture to the fixture load for bathroom group		
Bathtub with or without shower head	1/2	1.4		
Bathtub with TV spout	3/4	10		
Bidet	3/8	2		
Clothes washer 3.5 hp	1/2	1.4		
Dishwasher, conventional	Refer to manufacturer's recommendations			
Dishwasher, compact	3/8	1.4		
Free bath	1/2	2.5		
Free tub	3/4	3		
Free tub, combination hot and cold	1/2	2.5		
Lavatory, 6.3 LPM or less	3/8	0.7		
Lavatory, greater than 6.3 LPM	3/8	1		
Sink, bar	3/8	1		
Sink, kitchen domestic, 8.3 LPM	1/2	1.4		
Sink, kitchen domestic, greater than 8.3 LPM	3/8	2		
Sink, laundry (1 or 2 compartments)	3/8	1.4		
Shower head, 8.3 LPM or less per head	1/2	1.4		
Shower head, greater than 8.3 LPM per head	1/2	3		
Shower, spray, dual-head, dual jet per head	Refer to manufacturer's recommendations			
Water closet, 6 LPM or less with flush tank	3/8	2.2		
Water closet, greater than 6 LPM with a flush tank	3/8	3		
Water closet, with direct flush valve	1			
Irrigation, 1/2" supply	3/4	8 (7 gpm)		
Irrigation, 1" supply	1	17 (17 gpm)		
Domestic Fire Protection Sprinklers				
		Total Fixture Units:		
		Water Pipe Size:		
		3/4	18 FU	
		1	31 FU	
		1 1/4	67 FU	



Infill – Water Supply Domestic Service

Poll Question #4

Does your community require an increased water service on the private side of property line.

- Yes – 35%
- No – 17%
- Depends – 48%

Poll Question #5

Does your community require an increased water service on the public (city) side of property line.

- Yes – 18%
- No – 28%
- Depends – 54%



Low Scale Infill – Water Service Street to Property Line

There are number of communities that have internal policies – do you have one?

Langford has created a higher ratio to trigger City service upgrade – does seem appropriate to reduce digging up city infrasture?

What are the risks to L/G?



Fixture Hydraulic Load Calculations

Complete the following to determine City Water Service Pipe Size and Private Water Service Pipe Size requirements (see sheet for instructions)

Table A - Fixture Hydraulic Load Calculation for Water Service Pipe Size - Single Family Dwelling, Garden Suite or Duplexes indicate all buildings or areas serviced by your metered water connection. Each meter connection requires a separate form.
 Single family dwelling Duplex Secondary lane Garden Suite

Fixture or Device	Fixture Units (FU)	City of Fishburne (CU)	Load (L x R)
Bedroom Group - three fixtures only (1 toilet, 1 basin and 1 bathtub or 1 shower stall + 1 washroom group)	3.8		
Bathroom	3.8		
Dishes Washer	1.4		
Dishwasher	1.8		
Wash DBO - 3" (kitchen sink)	2.8		
Sink, Bar	1		
Sink, Bathroom (secondary or basin)	0.7		
Sink, Kitchen	1.8		
Sink, Laundry (1 or 2 compartments)	1.4		
Shower stall (1 shower valve)	1.4		
Water closet (toilet)	1.2		
Use TOTAL to determine Size Requirements in Tables B and C		TOTAL LOAD =	

Table B - City Water Service Pipe Size (Street to Property Line)

MAX ALLOWED TOTAL LOAD	Required Pipe Size	Select One	(Internal Use) PSR Initial	
			Existing	Required
16.4	Existing 3/8" (meter size)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23.6	Existing 3/4" (meter size)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21	New 3/8"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
43	1"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
146	1 1/2"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Table C - Private Water Service Pipe (Private Property)

MAX ALLOWED TOTAL LOAD	Required Pipe Size	Select One	Completed by Applicant	
			Existing	Required
7	3/2"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16	3/4"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31	1"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
57	1 1/2"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Table B - City Water Service Pipe Size (Street to Property Line)

MAX ALLOWED TOTAL LOAD	Required Pipe Size	Select One	(Internal Use) PSR Initial	
			Existing	Required
16.4	Existing 3/8" (meter size)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23.6	Existing 3/4" (meter size)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21	New 3/8"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
43	1"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
146	1 1/2"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Table C - Private Water Service Pipe (Private Property)

MAX ALLOWED TOTAL LOAD	Required Pipe Size	Select One	Completed by Applicant	
			Existing	Required
7	3/2"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16	3/4"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31	1"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
57	1 1/2"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>





Member Question – Water Supply

1. Does a Secondary Suite require its own Hot Water Supply - Separate water tank?

Put it in the Chat?

9.31.4.2. Hot Water Supply

1) Where a piped water supply is available a hot water supply shall be provided in every *dwelling unit*.

9.31.6. Service Water Heating Facilities

9.31.6.1. Hot Water Supply

1) Where hot water is required to be supplied in accordance with Article 9.31.4.2., equipment shall

- a) provide an adequate supply of hot water, and
- b) be installed in conformance with Part 7.



Fire Protection 2024 BCBC

-Firestopping Updates-
Penetrations of Outlet
boxes

Recap – 2024 BCBC

9.10.9. Fire Separations and Smoke-tight Barriers between Rooms and Spaces within Buildings

9.10.9.1. Application

- 1) This Subsection applies to
 - a) *fire separations* required between rooms and spaces in *buildings*, except between rooms and spaces within a *dwelling unit*, and
 - b) reserved.

9.10.9.2. Continuous Barrier

- 1) Except as permitted in Article 9.10.9.3., a wall or floor assembly required to be a *fire separation* shall be constructed as a continuous barrier against the spread of fire and retard the passage of smoke.
- 2) Reserved.
- 3) Except as provided in Sentence (6), the continuity of a *fire separation* where it abuts another *fire separation*, a floor, a ceiling, or a roof shall be maintained by a **firestop** that, when subjected to the fire test method in CAN/ULC-S115, "Standard Method of Fire Tests of **Firestop** Systems," has an FT rating not less than the *fire-resistance rating* for the abutting *fire separation*. (See Note A-3.1.8.3.(2).)

Code Amendments are designated with vertical lines

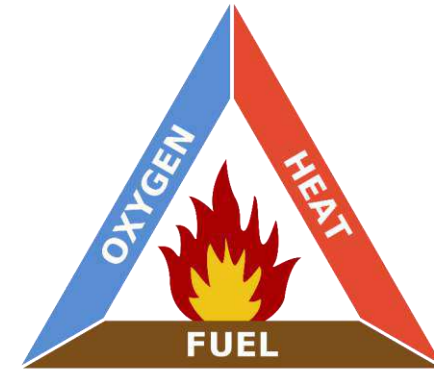
- Bold vertical indicates a unique BC Code change or existing requirement not in NBC.
- Light vertical indicates an amendment from the 2020 NBC

Lines are found on both sides of the page as they alternate for a printed version to always be on the outside margin.

Recap – 2024 BCBC

Fire Protection

The Fire Protection section of the BCBC for all buildings including houses is founded on principles intended to establish provisions that provide a reasonable level of life safety and property protection to occupants of premises and safety to fire fighters and emergency responders engaged in emergency operations.



Control fire and smoke by keeping it in the box and control elements of fire

How fire spreads

- Convection
- Radiation
- Conduction

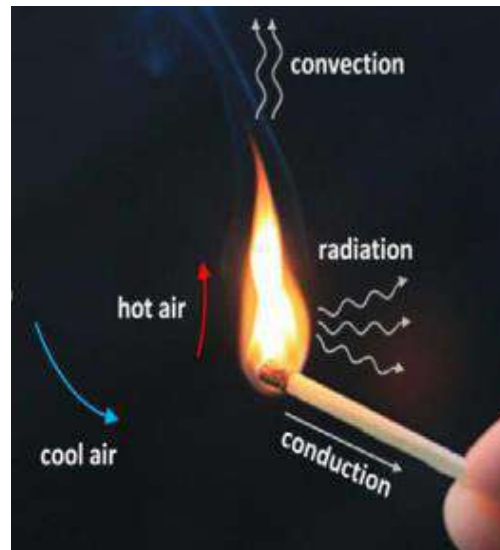


Image: [Fire triangle](#) by Gustavb / [CC BY-SA 3.0](#)



Recap – 2024 BCBC

Fire separation means a construction assembly that acts as a barrier against the spread of fire. (See Note A-1.4.1.2.(1).)

Fire Separation (A-1.4.1.2.(1))

It is generally understood that the term “fire” refers to all products of combustion, including heat and smoke. Although a fire separation is not always required to have a fire-resistance rating, it should act as a barrier to the spread of smoke and fire until some type of response is initiated. If the fire-resistance rating of a fire separation is permitted to be waived on the basis of the presence of an automatic sprinkler system, it is nonetheless the intent of the Code that the fire separation be constructed so that it will remain in place and act as a barrier against the spread of smoke until the sprinklers have actuated.

Fire-resistance rating means the time in minutes or hours that a material or assembly of materials will withstand the passage of flame and the transmission of heat when exposed to fire under specified conditions of test and performance criteria, or as determined by extension or interpretation of information derived therefrom as prescribed in this Code. (See Sentence **D-1.2.1.(2)** in Appendix D of Division B.)

D-1.2.1 Limitations

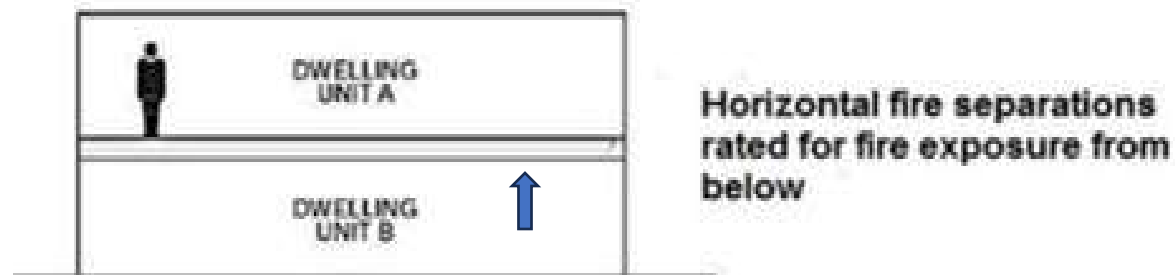
2) Since it is not practicable to measure the fire resistance of constructions in situ, they must be evaluated under some agreed test conditions. A specified fire-resistance rating is not necessarily the actual time that the assembly would endure in **situ** in a building fire, but is that which the particular construction must meet under the specified methods of test. (**situ** - in the natural or original position or place.)



Recap – 2024 BCBC

9.10.3.3. Fire Exposure

- 1) Floor, roof and ceiling assemblies shall be rated for exposure to fire on the underside.
- 2) Exterior walls shall be rated for exposure to fire from inside the *building*, except that such walls need not comply with the temperature rise limitations required by the standard tests referred to in Article 9.10.3.1. if such walls have a *limiting distance* of not less than 1.2 m, and due allowance is made for the effects of heat radiation in accordance with the requirements in Part 3.
- 3) Interior vertical *fire separations* required to have *fire-resistance ratings* shall be rated for exposure to fire on each side.





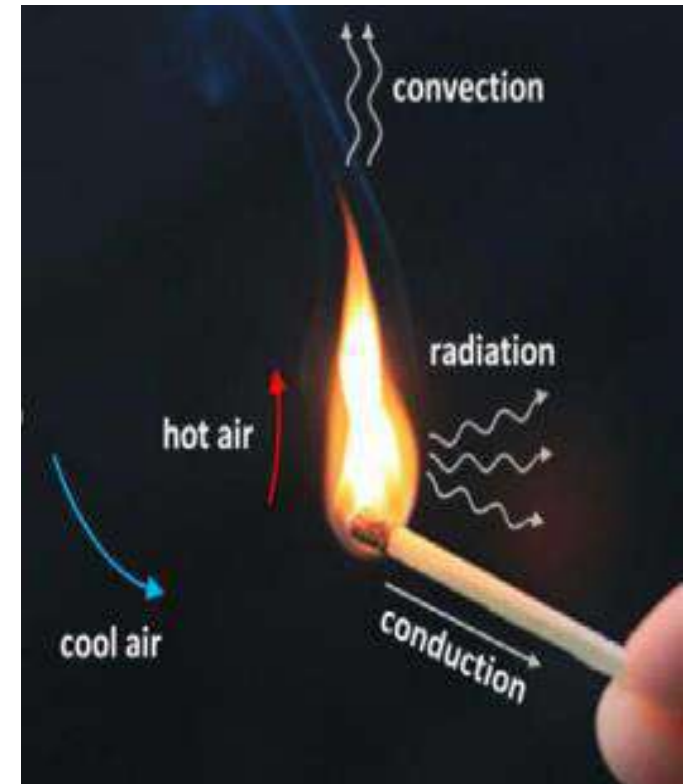
Recap - Firestopping - F & T Ratings.

Firestop means a system consisting of a material, component and means of support used to fill gaps between fire separations or between fire separations and other assemblies, or used around items that wholly or partially penetrate a fire separation.

F Rating – Flame Rating - The F-Rating for a firestop system indicates the number of hours that the assembly will prevent flames from passing through to the other side of the barrier.

T Rating – Thermal Rating - the time for the temperature to rise 181C (325F) above ambient temperature on the non-fire side.

FT Rating – both rating criteria have been satisfied



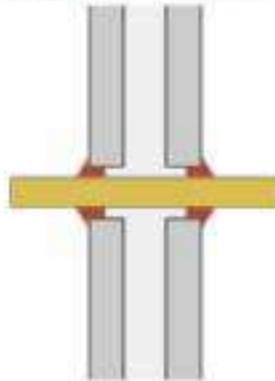


Recap - Firestopping - Penetrations

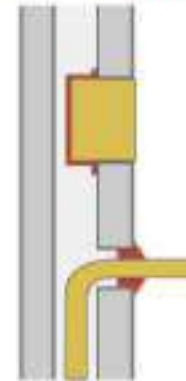
Through Penetration Firestop systems are those that protect penetrations that pass all the way through the barrier, whether it is a wall or a floor. In general, both sides of the penetration are sealed with the proper system.

Membrane Penetration Firestop systems protect penetrations that pass through part of the barrier, but not the entire barrier. Some examples are outlet boxes, sink drains, or conduit that leads from a back-box to the space above the ceiling. Membrane penetrations use the same products and similar details to protect the opening, but there are exceptions that allow them to be unprotected if the opening is small. Another way of saying this is that there are limits to the size and density of unprotected membrane penetrations within a rated separation.

Through Penetration



Membrane Penetration



Through Penetration Firestop at left; Membrane Penetration Firestop at right



Firestopping Requirements – 2024 BCBC



2020 NATIONAL BUILDING CODE OF CANADA FIRESTOP REQUIREMENTS
<https://ask.hilti.ca/en/series/2020-national-building-code-of-canada-firestop-requirements-fs201-c/5x8dcd/2020-national-building-code-of-canada-firestop-requirements-fs201-c/bccxej>.

Please refer to the BOABC Code Update modules for Part 3 and 9.

Also note Hilti webinar video reviewing the 2020 NBC changes, which are now harmonized (mostly) into the 2024. This covers majority of Part 3 major changes.

Register for Hilti account to view videos.



ASK HILTI

ASK

LEARN

ARTICLES

Search videos and expert advice

Home / Learn / On Demand / Firestop changes in the 2020 National Building Code of Canada (FS320-Canada) - series

2020 NATIONAL BUILDING CODE OF CANADA FIRESTOP REQUIREMENTS (FS201-C) - VIDEO

2020 NBC Code changes of interest

- General changes
 - Firestop definition
 - Firestop test standard reference
- Joints
 - Joint firestopping requirements
 - Curtain wall firestopping requirements
 - Annex explanations about “Fire Separation Continuity”
 - Exception for joints between gypsum boards
 - Annex revision
- Penetrations
 - Fire rating of penetration firestops
 - Restrictions on “cast-in-place” exception
 - Exceptions to the need for FT ratings
 - Elimination of cable exceptions
 - Non-metallic outlet boxes
 - Outlet box separation option
 - Transitions between combustible and noncombustible pipe
 - Exception for 50Pa testing of combustible pipes

The 2024 Firestopping Changes are a harmonization to the 2020NBC and alignment (on the most part) between Part 3 and Part 9.

Note some modifications in 2024 BCBC



Standards edition the same – 2024 BCBC

What difference does it make?

- 2018 edition
 - New section 9 on Perimeter Joint Firestop Systems
 - Must be tested per ASTM E2307
- 2011 (R2016) edition: nothing on curtain wall joints
- 2020 NBC would have liked to reference CAN/ULC test for CW
 - without 2018 test standard: not possible

Workaround for 2020 NBC:
direct reference to ASTM E2307

ULC	CAN/ULC-S115-11	Standard Method of Fire Tests of Firestop Systems	3.1.5.19.(3) 3.1.8.3.(3) 3.1.9.1.(1) 3.1.9.1.(2) 3.1.9.1.(3) 3.1.9.1.(6) 3.1.9.1.(7) 3.1.9.3.(1) 3.1.9.3.(2) 3.1.9.3.(4) 3.1.9.4.(4) 3.1.9.4.(7) A-3.1.8.3.(2) A-3.1.11.7.(7) 9.10.9.2.(3) 9.10.9.6.(1) 9.10.9.6.(2) 9.10.9.8.(1) 9.10.9.8.(6)
-----	-----------------	---	--



Member Question- 9.10.

I was hoping you could maybe touch on 9.10.5.1 and its relation to 9.10.9.6.

These two sections of the code appear to create confusion between inspectors.

*There are also appeals and interpretations that reference both 9.10.5.1 and 9.10.9.6 and then some that only reference one or the other.

***Perhaps with such significant changes in the Code – these interpretations should be re-evaluated? (KK)**

9.10.5.1 Permitted Openings in Wall and Ceiling Membranes

- 1) Except as permitted in Sentences (2) and (3), a membrane forming part of an assembly required to have a fire-resistance rating shall not be pierced by openings into the assembly unless the assembly has been tested and rated for such openings.
- 2) A wall or ceiling membrane forming part of an assembly required to have a fire resistance rating is permitted to be pierced by openings for electrical and similar service outlet boxes, provided such outlet boxes and the penetrations conform to Article 9.10.9.8.
- 3) A membrane ceiling forming part of an assembly assigned a fire-resistance rating on the basis of Table 9.10.3.1.-B or Appendix D is permitted to be pierced by openings leading to ducts within the ceiling space, provided the ducts, the amount of openings and their protection conform to the requirements of Appendix D.

9.10.9.8. Penetrations by Outlet Boxes or Service Equipment in Concealed Spaces

Table 9.10.3.1.-B

Fire and Sound Resistance of Floors, Ceilings and Roofs (1)

Forming Part of Article 5.8.1.3., Sentences 9.10.3.1.(1) and 9.10.5.1.(3), and Article 9.11.1.3.

Appendix D Fire-Performance Ratings

9.10.9.6.. General Requirements for Penetrations of Fire Separations

(See Note A-3.1.9.)

- 1) Except as required by Sentence (2) and Articles 9.10.9.7. and 9.10.9.8. and as permitted by Article 9.10.9.9., penetrations of a required fire separation or a membrane forming part of an assembly required to be a fire separation shall be
 - a) sealed by a firestop that, when subjected to the fire test method in CAN/ULCS115, "Standard Method of Fire Tests of Firestop Systems," has an F rating not less than the required fire-resistance rating for the fire separation,
 - b) tightly fitted or cast in place, provided the penetrating item is made of steel, ferrous, copper, concrete or masonry, or
 - c) sealed to maintain the integrity of the fire separation.(See Note A-9.10.9.6.(1).)
- 2) Penetrations of a firewall shall be sealed at the penetration by a firestop that, when subjected to the fire test method in CAN/ULC-S115, "Standard Method of Fire Tests of Firestop Systems" has an FT rating not less than the fire-resistance rating for the fire separation.

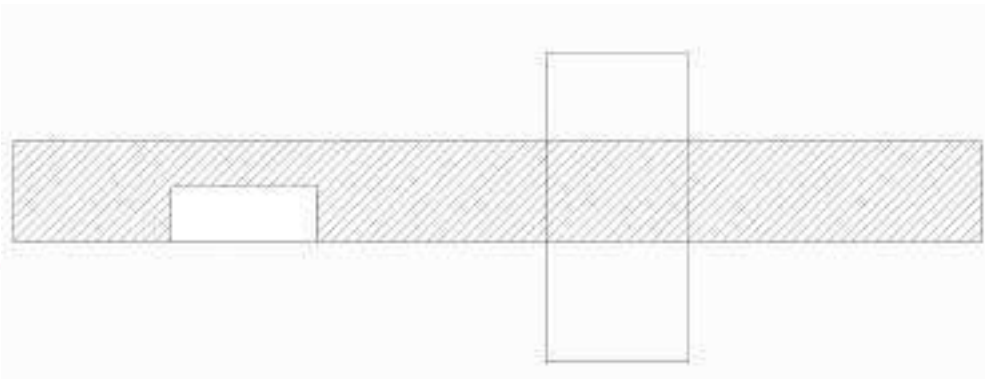
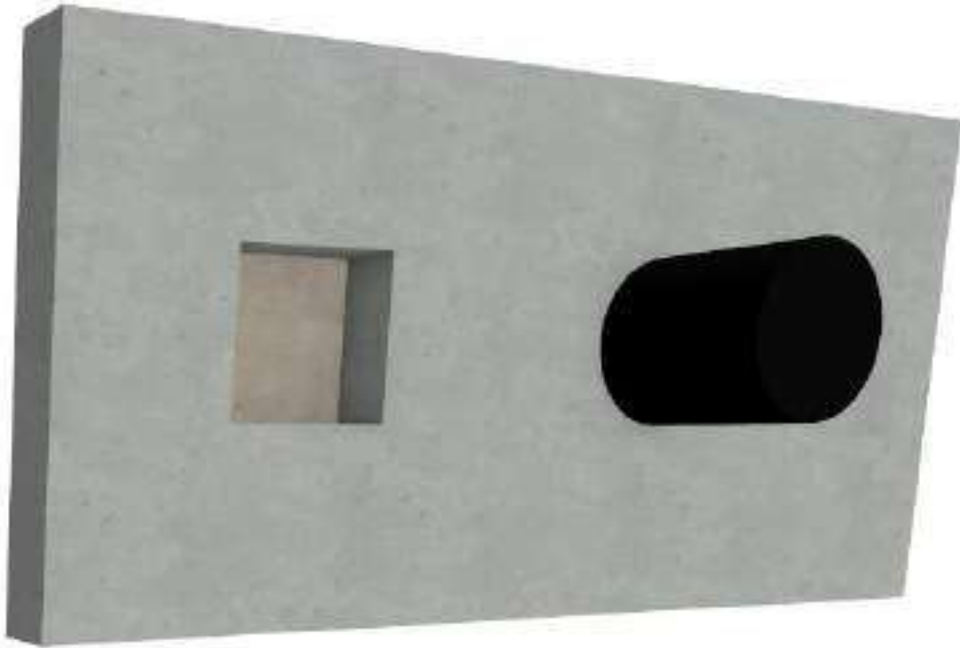
9.10.9.7. Piping Penetrations (See Note A-3.1.9.)

9.10.9.8. Penetrations by Outlet Boxes or Service Equipment in Concealed Spaces

9.10.9.9. Penetrations by Raceways, Sprinklers and Fire Dampers



Openings vs Penetrations



9.10.5.1.

pierced by openings into the assembly

Pierced = punctured or perforated

Openings – windows, doors, pipes, wires, hvac?

9.10.9.6.

penetrations of a required fire separation or a membrane

Penetration - the action or process of making a way through or into something



Openings vs Penetrations

What elements in this Secondary Suite F/S is an opening for penetration?



9.10.5.1.

pierced by openings into the assembly

9.10.9.6.

penetrations of a required fire separation or a membrane



GOOD REVISION TO ANNEX ON PENETRATIONS

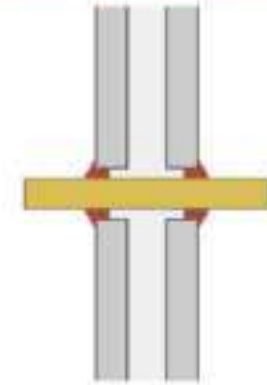
A-3.1.9. Penetrations. In the application of Subsection 3.1.9., a building service or structural element is considered to penetrate an assembly if it passes into or through the assembly. In some situations a service item enters an assembly through a membrane at one location, runs within the assembly, and then leaves the assembly through a membrane at another location.

The term “membrane penetration” usually designates an opening made through one side (wall, floor or ceiling membrane) of an assembly, whereas the term “through-penetration” designates an opening that passes through an entire assembly. Firestopping of membrane penetrations and through-penetrations involves installing an assemblage of specific materials or products that are designed, tested and fire-resistance-rated to resist for a prescribed period of time the spread of fire through the penetrations.

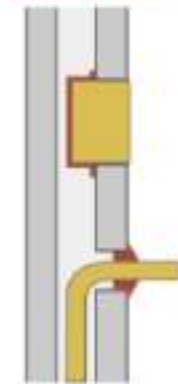
Products for firestopping within a barrier are required to address movement of the assembly and to control smoke spread; as such, the flexibility of the material used at the flexible joints as well as the nature of the assembly and its potential movement must be taken into consideration.

Penetrations.

Through Penetration



Membrane Penetration





Member Question- 9.10.

A-9.10.9.6.(1) Penetrations of Fire Separations. Sentence 9.10.9.6.(1), like Article 3.1.9.1., is intended to ensure that the integrity of fire separations is maintained where they are penetrated by various types of service equipment.

For buildings regulated by Part 3, firestop materials used to seal openings around building services, such as pipes, ducts and electrical outlet boxes, must meet a minimum level of performance demonstrated by standard test criteria.

A similar approach is applied to buildings regulated by Part 9 when complying with Clause 9.10.9.6.(1)(a). In addition, because of the type of construction normally used for Part 9 buildings, it is assumed that the requirement to maintain the integrity of the fire separation is satisfied by the use of generic firestop materials such as mineral wool, gypsum plaster or Portland cement mortar to seal penetrations in accordance with Clause 9.10.9.6.(1)(c).

The use of the terms “tightly fitted” and “cast in place” in Clause 9.10.9.6.(1)(b) is intended to emphasize that there are to be no gaps between the building service or penetrating item and the membrane or assembly it penetrates.



Section 9.38. Objectives and Functional Statements

9.38.1. Objectives and Functional Statements

9.38.1.1. Attributions to Acceptable Solutions

1) For the purpose of compliance with this Code as required in Clause 1.2.1.1.(1)(b) of Division A, the objectives and functional statements attributed to the acceptable solutions in this Part shall be the objectives and functional statements listed in Table 9.38.1.1. (See Note A-1.1.2.1.(1).)

???



(3) [F30 - OS3.1] [F10 - OS3.7] (2) [F20 - OS2.1]

9.10.5.1. Permitted Openings in Wall and Ceiling Membranes	
(1)	[F03 - OS1.2] [F04 - OS1.3]
	[F03 - OP1.2] [F04 - OP1.3]
Provision	Functional Statements and Objectives ⁽¹⁾
(2)	[F04 - OS1.3]
	[F04 - OP1.3]
(3)	[F04 - OS1.2, OS1.3]
	[F04 - OP1.3]

Objective Statements
Fire Safety
OS1.2 fire or explosion impacting areas beyond its point of origin
OS1.3 collapse of physical elements due to a fire or explosion
Fire Protection
OP1.2 fire or explosion impacting areas beyond its point of origin
OP1.3 collapse of physical elements due to a fire or explosion
Functional Statements
F03 To retard the effects of fire on areas beyond its point of origin.
F04 To retard failure or collapse due to the effects of fire.



Section 9.38. Objectives and Functional Statements

9.38.1. Objectives and Functional Statements

9.38.1.1. Attributions to Acceptable Solutions

1) For the purpose of compliance with this Code as required in Clause 1.2.1.1.(1)(b) of Division A, the objectives and functional statements attributed to the acceptable solutions in this Part shall be the objectives and functional statements listed in Table 9.38.1.1. (See Note A-1.1.2.1.(1).)

(3) [F30 - OS3.1] [F10 - OS3.7] (2) [F20 - OS2.1]

9.10.9.6. General Requirements for Penetrations of Fire Separations	
(1)	[F03 - OS1.2]
	[F03 - OP1.2]
(2)	[F03 - OS1.2]
	[F03 - OP1.2]

Objective Statements

Fire Safety

OS1.2 fire or explosion impacting areas beyond its point of origin

~~OS1.3 collapse of physical elements due to a fire or explosion~~

Fire Protection

OP1.2 fire or explosion impacting areas beyond its point of origin

~~OP1.3 collapse of physical elements due to a fire or explosion~~

Functional Statements

F03 To retard the effects of fire on areas beyond its point of origin.

~~F04 To retard failure or collapse due to the effects of fire.~~



Member Question- 9.10.

So, what are the differences between 9.10.5.1 and 9.10.9.6.?

Please send answers to:

kkunka@boabc.org



Penetrations by Outlet Boxes or Service Equipment in Concealed Spaces

Mass Timber

3.1.6.17. Penetration by **Outlet Boxes**

- 1)** The minimum dimensions stated in Table 3.1.6.3. need not apply at cutouts in vertical or horizontal structural mass timber elements where **outlet boxes** are installed in accordance with Article 3.1.9.3. (See also Note A-3.1.9.2.(1).)
- 2)** The exposed surfaces of the cutouts described in Sentence (1) need not be protected in accordance with Sentence 3.1.6.4.(1).
- 3)** **Outlet boxes** on opposite sides of a structural mass timber element having a *fire-resistance rating* shall be separated by a distance of not less than 600 mm.

3.1.6.17. Penetration by Outlet Boxes	
(3)	[F03 - OS1.2]
	[F03 - OP1.2]



Penetrations by Outlet Boxes – 3.1.9.3.

3.1.9.3.

Penetration by **Outlet Boxes**

(See Note A-3.1.9.3.) (See also Note A-3.1.9.2.(1).)

Note - references to “outlet boxes”, “combustible or “non-combustible

1) Except as provided in Sentence (3), **outlet boxes** are permitted to penetrate the membrane of an assembly required to have a fire resistance rating, provided they are sealed at the penetration by a firestop that has an FT rating not less than the fire-resistance rating of the fire separation when subjected to the fire test method in CAN/ULC-S115, "Standard Method of Fire Tests of Firestop Systems."

A-3.1.9.3. Outlet Boxes. For the purposes of Article 3.1.9.3., **outlet boxes** include, but are not limited to, electrical boxes, junction boxes, high and low voltage outlets, switches, enclosures for electrical equipment, laundry boxes, and shower diverters.

A-3.1.9.2.(1) Service Equipment Penetrations. The provisions dealing with **outlet boxes** assume size, quantities and concentrations of partial depth penetrations that would not significantly affect the fire resistance of the assembly, including the temperature rise on the unexposed side of a wall. Sentence 3.1.9.2.(1) is not intended to allow large electrical distribution and control boxes to be recessed into an assembly required to have a fire-resistance rating unless they are firestopped as described in Sentence 3.1.9.3.(1).

The installation of fire dampers, smoke dampers or combination smoke/fire dampers is intended to comply with Subsection 3.1.8. and Sentence 3.1.9.1.(5), and the conditions of their listing and labeling, which may or may not permit the installation of firestopping around the duct.

3.1.9.3. Penetration by Outlet Boxes	
(1)	[F03 - OS1.2]
	[F03 - OP1.2]
(2)	[F03 - OS1.2]
	[F03 - OP1.2]
(4)	[F03 - OS1.2]
	[F03 - OP1.2]

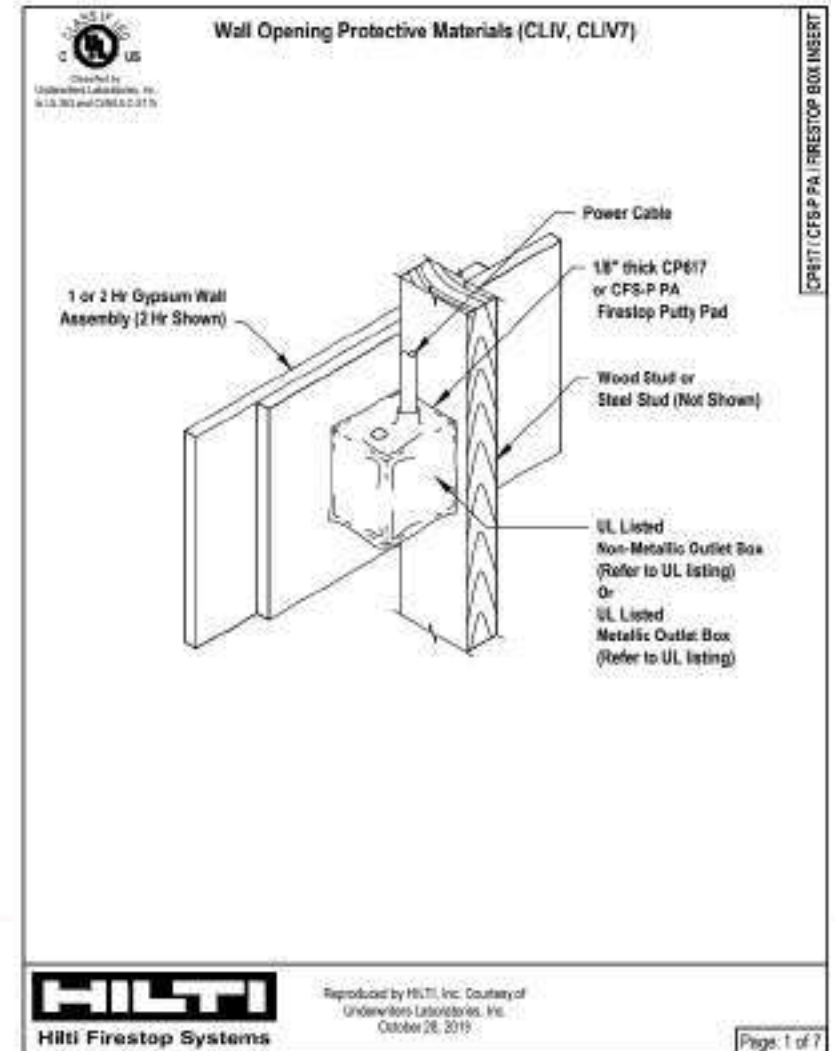


Penetrations by Outlet Boxes or Service Equipment in Concealed Spaces

CAN/ULC-S115, "Standard Method of Fire Tests of Firestop Systems,"



Images provided by Hilti Canada





Penetrations by Outlet Boxes – 3.1.9.3

2) *Combustible outlet boxes* are permitted to penetrate the membrane of an assembly required to have a fire-resistance rating, provided they are sealed at the penetration by a firestop that, when subjected to the fire test method in CAN/ULC-S115, "Standard Method of Fire Tests of Firestop Systems" has an FT rating not less than the fire-resistance rating for the fire separation.

3) Except as provided in Sentences 3.1.9.1.(2) and (3), *noncombustible outlet boxes* that penetrate a vertical fire separation or a membrane forming part of an assembly required to have a fire-resistance rating need not conform to Sentence (1), provided

- a) they do not exceed
 - i) 0.016 m² in area, and
 - ii) an aggregate area of 0.065 m² in any 9.3 m² of surface area, and
- b) the annular space between the membrane and the noncombustible electrical outlet boxes does not exceed 3 mm.

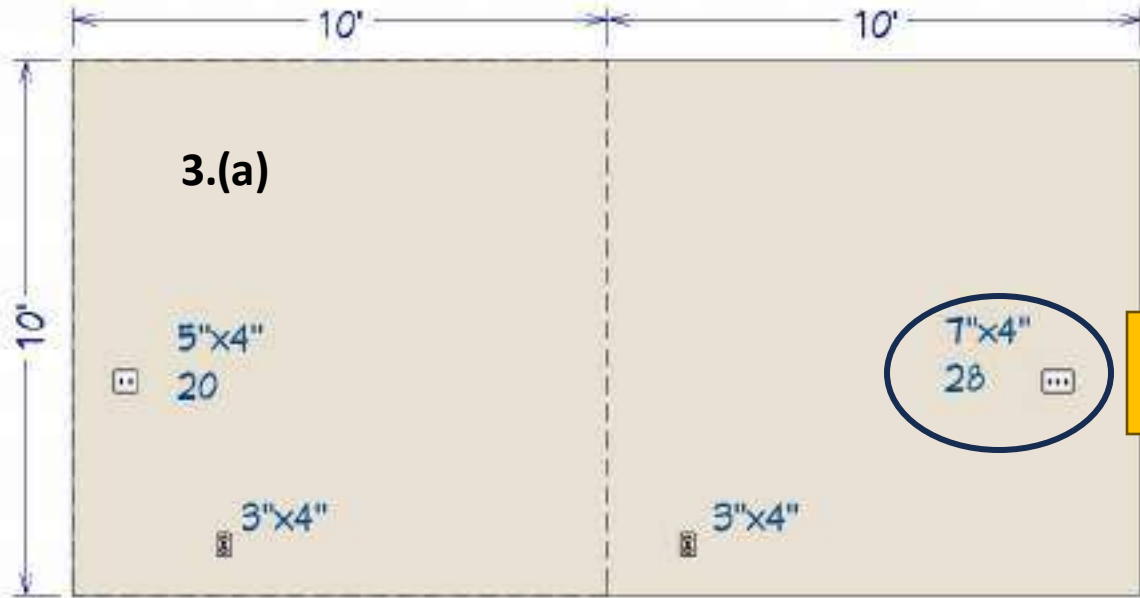
4) *Outlet boxes* on opposite sides of a vertical fire separation having a fire-resistance rating shall be separated by

- a) a horizontal distance of not less than 600 mm,
- b) a fire block conforming to Article 3.1.11.7., or
- c) a firestop installed on each outlet box that has an FT rating not less than the fire-resistance rating of the fire separation when subjected to the fire test method in CAN/ULC-S115, "Standard Method of Fire Tests of Firestop Systems."

Is this "and" or "or"



Penetrations by Outlet Boxes – 3.1.9.3.(3) & (4)



0.016 sqm = 25 sq in
 0.065 sqm = 100 sq inches
 9.3 sqm = 100 sqft

3.(b)

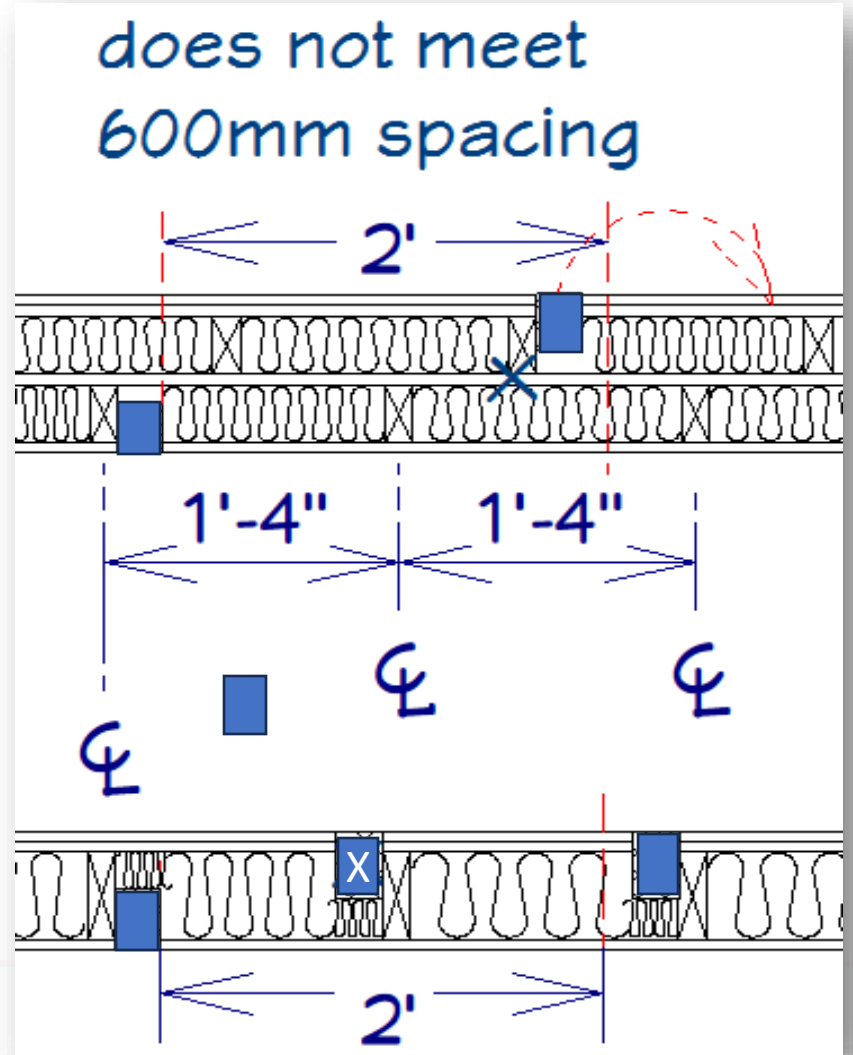
Max 3mm (1/3") Annular space.

Thickness of a toonie is 1.75mm



Over 25sqin

4.(a)





Penetrations by Outlet Boxes 9.10.9.8.

9.10.9.8. Penetrations by Outlet Boxes or Service Equipment in Concealed Spaces

1) Except as provided in Sentences (2) to (5), outlet boxes are permitted to penetrate the membrane of an assembly required to have a *fire-resistance rating*, provided they are sealed at the penetration by a *firestop* that, when subjected to the fire test method in CAN/ULC-S115, "Standard Method of Fire Tests of Firestop Systems," has an FT rating not less than the *fire-resistance rating* of the *fire separation*. (See Note A-9.10.9.8.(1).)

2) Except as provided in Sentence 9.10.9.6.(2), noncombustible outlet boxes that penetrate a *fire separation* or a membrane forming part of an assembly required to have a *fire-resistance rating* need not conform to Sentence (1), provided

- a) they do not exceed
 - i) 0.016 m^2 in area, and
 - ii) an aggregate area of 0.065 m^2 in any 9.3 m^2 of surface area, and
- b) the annular space between the membrane and the *noncombustible outlet boxes* does not exceed 3 mm.

A-9.10.9.8.(1) Large Recessed Outlet Boxes. Outlet boxes that exceed the area limits specified in Sentence 9.10.9.8.(2) or (3) do not need to be sealed at the penetration by a firestop in accordance with Sentence 9.10.9.8.(1) if they are installed in a recessed enclosure with a construction that maintains the continuity of the fire-resistance rating of the fire separation or membrane. Any penetrations of the enclosure by wiring or cables must comply with all applicable requirements.

Large + 0.016sqm?



Penetrations by Outlet Boxes or Service Equipment in Concealed Spaces

3) Except as provided in Sentence 9.10.9.6.(2), **combustible outlet boxes** that penetrate a *fire separation* or a membrane forming part of an assembly required to have a *fire-resistance rating* need not conform to Sentence (1), provided

- a) the **outlet boxes** are
 - i) separated from the remainder of the space within the assembly by an enclosure of not more than 0.3 m^2 in area made of *fire block material* conforming to Article 9.10.16.3. (see Note A-9.10.9.8.(3)(a)(i)), or
 - ii) located in a space within the assembly that is filled with *preformed fibre insulation* processed from rock or slag conforming to **CAN/ULC-S702.1**, "Standard for Mineral Fibre Thermal Insulation for Buildings, Part 1: Material Specification," and having a mass per unit area of not less than 1.22 kg/m^2 of wall surface such that the exposed sides and back of the outlet box are encapsulated by the *noncombustible insulation*, and
- b) the **outlet boxes** do not exceed an aggregate area of 0.016 m^2 in any individual enclosure as described in Subclause (a)(i) or any individual insulated space as described in Subclause (a)(ii).

A-3.1.11.7.(7) Integrity of Fire Blocks. Sentence 3.1.11.7.(7), together with Article 3.1.9.1., is intended to ensure that the integrity of fire blocks is maintained at areas where they are penetrated. This requirement is satisfied by the use of generic firestops such as mineral wool, gypsum plaster or Portland cement mortar, or by the use of sealants that form part of a firestop tested in accordance with CAN/ULC-S115, "Standard Method of Fire Tests of Firestop Systems."

9.10.16.3 Fire Block Materials

A-9.10.9.8.(3)(a)(i) Separating Enclosures. The fire block material separating the outlet box from the adjacent space within the assembly should span the framing members such that all four sides and the back of the outlet box are enclosed by a membrane or framing member conforming to Article 9.10.16.3. Any penetrations of the enclosure by wiring or cables must comply with all applicable requirements. (See also Note A-3.1.11.7.(7).)

$0.3 \text{ sqm} = 3.22 \text{ sqft}$

The Standard is for form of faced and unfaced batts, rolls and boards.
Preformed = batt insulation



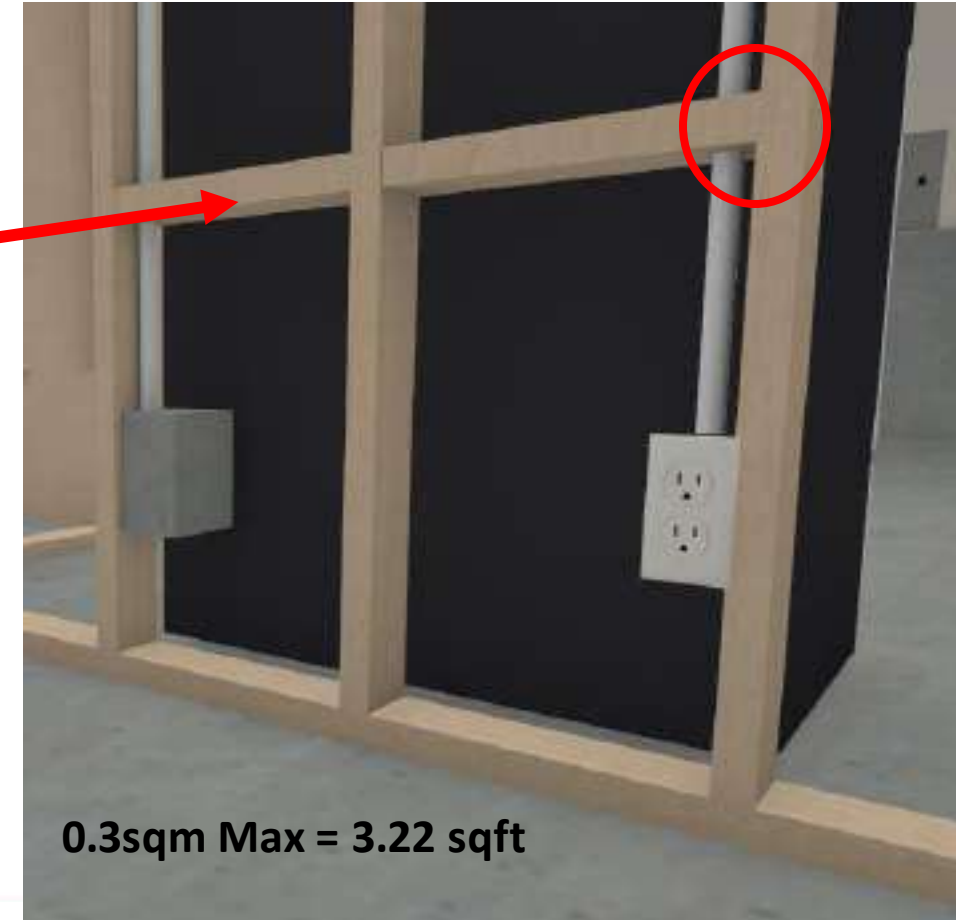
Penetrations by Outlet Boxes or Service Equipment in Concealed Spaces

3) Except as provided in Sentence 9.10.9.6.(2), **combustible outlet boxes** that penetrate a *fire separation* or a membrane forming part of an assembly required to have a *fire-resistance rating* need not conform to Sentence (1), provided

- a) the **outlet boxes** are
 - i) separated from the remainder of the space within the assembly by an enclosure of not more than 0.3 m^2 in area made of *fire block material* conforming to Article 9.10.16.3. (see Note A-9.10.9.8.(3)(a)(i)), or

A-9.10.9.8.(3)(a)(i) Separating Enclosures. The fire block material separating the outlet box from the adjacent space within the assembly should span the framing members such that all four sides and the back of the outlet box are enclosed by a membrane or framing member conforming to Article 9.10.16.3. Any penetrations of the enclosure by wiring or cables must comply with all applicable requirements. (See also Note A-3.1.11.7.(7).)

A-3.1.11.7.(7) Integrity of Fire Blocks. Sentence 3.1.11.7.(7), together with Article 3.1.9.1., is intended to ensure that the integrity of fire blocks is maintained at areas where they are penetrated. This requirement is satisfied by the use of generic firestops such as mineral wool, gypsum plaster or Portland cement mortar, or by the use of sealants that form part of a firestop tested in accordance with CAN/ULC-S115, "Standard Method of Fire Tests of Firestop Systems."



0.3sqm Max = 3.22 sqft

What about when there are resilient channels?



Penetrations by Outlet Boxes or Service Equipment in Concealed Spaces

- 4) **Noncombustible outlet boxes** conforming to Sentence (2) are permitted to be located on opposite sides of a vertical *fire separation* having a *fire-resistance rating* and need not conform to Sentence (1), provided they are
- a) separated from each other by a horizontal distance of not less than 600 mm,
 - b) separated from each other and the remainder of the wall space by an enclosure conforming to Subclause (3)(a)(i), or
 - c) located in an insulated wall space in accordance with Subclause (3)(a)(ii).
- 5) **Combustible outlet boxes** conforming to Sentence (3) are permitted to be located on opposite sides of a vertical *fire separation* having a *fire-resistance rating* and need not conform to Sentence (1).

“back to back” clarification

Sentence 2 – no firestopping required because of area limits

Sentence 3 – fire blocked or assembly filled with preformed by fiber batt insulation



Penetrations by Outlet Boxes or Service Equipment in Concealed Spaces

- 6)** Service equipment is permitted to penetrate a horizontal *fire separation* conforming to Sentence 9.10.9.12.(2), provided the penetration is sealed by
- a) a *firestop* that, when subjected to the fire test method in CAN/ULC-S115, "Standard Method of Fire Tests of Firestop Systems," has an FT rating not less than the required *fire-resistance rating* for the *fire separation*,
 - b) a *firestop* conforming to Clause 9.10.9.6.(1)(a), where the service equipment is located entirely within the cavity of a wall assembly above and below the horizontal *fire separation* having a required *fire-resistance rating*, or
 - c) a *firestop* conforming to Clause 9.10.9.6.(1)(a), where the penetration is
 - i) contained within the concealed space of a floor or ceiling assembly having a *fire-resistance rating*,
 - ii) located above a ceiling membrane providing a horizontal *fire separation*, or
 - iii) contained within a *horizontal service space* conforming to Sentence 9.10.9.12.(2) that is directly above or below a floor or ceiling.

9.10.19.12.2) Where a horizontal service space or other concealed space is located above a required vertical fire separation other than a vertical shaft, such space need not be divided as required in Sentence (1) provided the construction between such space and the space below is constructed as a fire separation having a fire-resistance rating not less than that required for the vertical fire separation, except that where the vertical fire separation is not required to have a fire-resistance rating greater than 45 min, the fire resistance rating of the ceiling may be reduced to 30 min.



Flash Back – Part 3

It has come to our attention from an electrical engineering consultant that plastic electrical boxes are being commonly installed in 2hr fire separations (particularly in wood framed construction).

In applications where the electrical boxes should be rated as per 3.1.9.4(1) at fire separations, they are stamped by a “2 hr” fire rating but the electrical engineer has indicated there are 2 problems with this electrical box.

1. The 2 hr rating is not by itself a 2 hr rating but is also required to also have a Hilti fire pack on the backside
2. The box does not satisfy the T rating

As this will be a significant change to the electrical contractors (& project costs) we want to hear from you on this matter.

NuTek Nonmetallic boxes
Fire resistance rating: 2 hours



As per 3.1.9.2(1) below → electrical boxes should be metal

Combustibility of Service Penetrations

1) Except as permitted by Articles 3.1.9.3. and 3.1.9.5., pipes, ducts, electrical outlet boxes, totally enclosed raceways or other similar service equipment that penetrate an assembly required to have a fire-resistance rating shall not be combustible, unless the assembly was tested incorporating that service equipment. (See Note A-3.1.9.2.(1).)

As per 3.1.9.3(5) below → but electrical boxes up to 5"x5" can be plastic (i.e. double triple gang boxes must be metal)

Previous discussion from 22-12-08 Lunch & Learn - has anything changed with 2024 BCBC?



Flashback

We are scheduled to present to local electrical contractor's association in January on requirements of either using firestopping putty packs or metal boxes (for double gang boxes or smaller).

As the plastic boxes with the firestopping putty packs is quite a bit more expensive in labour costs we expect to see electrical contractors to use metal electrical boxes as per 3.1.9.4(2)(3)

Combustibility of Service Penetrations

1) Except as permitted by Articles 3.1.9.3. and 3.1.9.5., pipes, ducts, electrical outlet boxes, totally enclosed raceways or other similar service equipment that penetrate an assembly required to have a *fire-resistance rating* shall be *noncombustible*, unless the assembly was tested incorporating that service equipment. (See Note A-3.1.9.2.(1).)

As per 3.1.9.3(5) below → but electrical boxes up to 5"x5" can be plastic (i.e. double gang boxes must be metal)

5) *Combustible* outlet boxes are permitted in an assembly required to have a *fire-resistance rating* without being incorporated in the assembly at the time of testing as required by Article 3.1.9.2., provided the opening through the membrane into the box is not more than 0.016 m².

As per 3.1.9.4(1) below → 5"x5" plastic electrical boxes have to a FT rating same as the wall rating (as well as metal electrical boxes larger than 5"x5")

Penetration by Outlet Boxes

(See Note A-3.1.9.4.)

1) Except as provided in Sentence (2), outlet boxes are permitted to penetrate the membrane of an assembly required to have a *fire-resistance rating*, provided they are sealed at the penetration by a *fire stop* that has an FT rating not less than the *fire-resistance rating* of the *fire separation* when subjected to the fire test method in CAN/ULC-S115, "Fire Tests of Firestop Systems."

This FT rating would normally be provided with a Hilti firestop putty pad
CP 617 Firestop Putty Pad - Firestop Putties - Hilti Canada



[Note previous interpretation - https://boabc.org/wp-content/uploads/2021/03/18-0093.pdf](https://boabc.org/wp-content/uploads/2021/03/18-0093.pdf)

Previous discussion from 22-12-08 Lunch & Learn - has anything changed with 2024 BCBC?



Next Lunch and Learn – June

Survey to be forwarded to members for improvement and discussion topics.

Please forward questions, updated policies or education bulletins to Ken Kunka at kkunka@boabc.org.



Questions - Contact Us



Session feedback &
future topics
kkunka@boabc.org



Engagement &
Communication
Reminder

BOABC
contacts
Zone
Meetings
Zone
Directors -
Mentors
Member
Forum
Discussions

Contact Us

[Home](#) / [Contact Us](#)

Your Name (required)

Your Email (required)

Department

Please Choose

Subject

Your Message

Get in Touch

Please complete the form. We'll do everything we can to respond to you as quickly as possible. Our goal is to reply to every email within two business days.

Mailing Address

☎ Suite 224
186 - 8120 No. 2 Road
Richmond, BC
V7C 5J8

☎ 604-270-9516

✉ info@boabc.org

Departments

Membership Services (Qualification, Certification, Exams etc.)
604-270-9516 - Jennifer Schwaertzel