ROCKY VIEW COUNTY

BUILDING SERVICES

Fire Blocks in Walls and Roof Spaces

Guideline

Guideline ESP - 09

Purpose

This guideline has been developed to help improve consistency with the installation, education and enforcement of fire blocks installed in walls and unoccupied roof spaces in construction involving residential Part 9 buildings.

Code Reference

National Building Code – 2019 Alberta Edition Division B Section 9.10.16.
2015 IIlustrated Users Guide – NBC 2015 Part 9 of Division B Housing and Small Buildings Article 9.10.16.

Summary

The requirements within this Guideline are applicable to fire blocking within residential buildings under Part 9 of the National Building Code – 2019 Alberta Edition.

Interpretation

This Guideline provides clarity and direction from Rocky View County on their interpretation of the requirement for fire blocks in walls and attic spaces. Fire blocks must be provided at all interconnections between concealed vertical and horizontal spaces in interior coved ceilings, dropped ceilings and soffits where the exposed construction materials within the concealed spaces have a surface flame-spread rating greater than 25. Based on the information provided within this Guideline, fire blocks shall be installed in these locations, in the following methods.

1) **Definitions**

   a) Fire Block – A fire block means a material, component or system that restricts the spread of fire within a concealed space or from a concealed space to an adjacent space.
   b) Attics and Soffits – In unsprinklered buildings of combustible construction, concealed spaces containing exposed materials with a surface flame-spread rating greater than 25, shall be separated by fire blocks into compartments not more than 20 m (65’-7”) in dimension, and not more than 300 m² (3229 ft²) in area.
   c) Walls – Fire blocks are required at each floor level and other locations within a wall so that the distance between fire blocks does not exceed 3m (9’-10”) vertically.
   d) Coved Ceilings/Bulkheads – Where a bulkhead is framed against a concealed wall space, the bulkhead must be separated from the wall space and ceiling space by a fire block.

e) Exemptions – Unless a space is completely filled with insulation or are made from material that will limit flame travel, or the width of the concealed space is less than 25 mm (1") to limit air supply, fire blocking must be provided in strategic locations to restrict the spread of fire.

f) Material – Fire blocks can be constructed of materials such as:
   i) 12.7 mm (1/2") gypsum board,
   ii) 12.5 mm (1/2") plywood, OSB or waferboard,
   iii) 0.38 (28 gauge) sheet steel,
   iv) A double layer of 19 mm (3/4") lumber board if the joints are staggered between layers, or
   v) 38mm (1 ½") lumber, or
   vi) Any material that will remain in place and prevent the passage of flames for not less than 15 minutes when subjected to the standard fire exposure in CAN/ULC-S101, "Fire Endurance Testes of Building Construction and Materials".

g) Penetrations – Fire blocks can be pierced by piping, wiring or ducts, provided the openings around each penetration is limited so that the integrity of the remaining area of fire blocking is maintained.

h) Overhanging Eaves and Appendages – Fire can enter an attic through the overhanging soffit or from openings in the attic ceiling. To reduce the speed of fire travel through an attic or roof space, fire blocking is required in these locations as well.

i) Support of Edges – Where fire blocks are constructed of plywood, OSB, or waferboard, the joints in the material must have continuous support behind them.

j) Access Hatch – Where a fire block is installed within an attic space, the block is required to provide a fire barrier between the two areas. An access hatch/door to allow access from one compartment to the adjacent compartment is permitted if the access hatch/door provides a smoke-tight barrier between the compartments, has a latching or locking mechanism and a self-closing device in place to keep the hatch/door in the closed position.

2) **Fire Blocking Required** - Common areas overlooked during construction that require fire blocking to be provided are the following:

   a) Bulkheads - Bulkheads need to be isolated from both vertical and horizontal concealed spaces it abuts; this can be achieved by:

      i) Prior to framing of the bulkhead, drywall the wall and ceiling of the area where the bulkhead is going to be constructed (Option A below). Or,
      ii) Within the wall(s) and ceiling, provide fire blocks that separate the bulkhead from its adjoining vertical and horizontal concealed spaces (Option B below).

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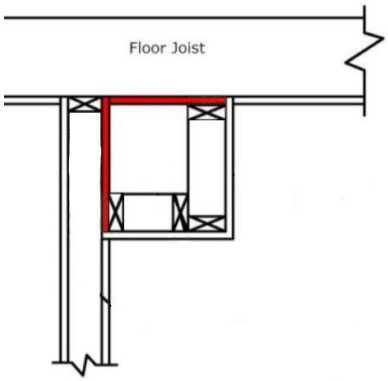
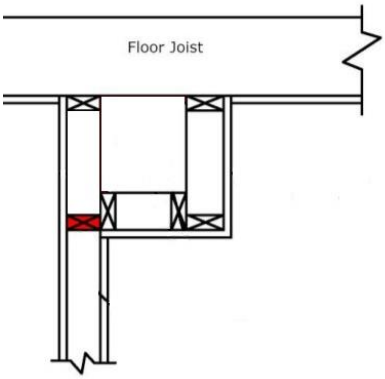


Option A



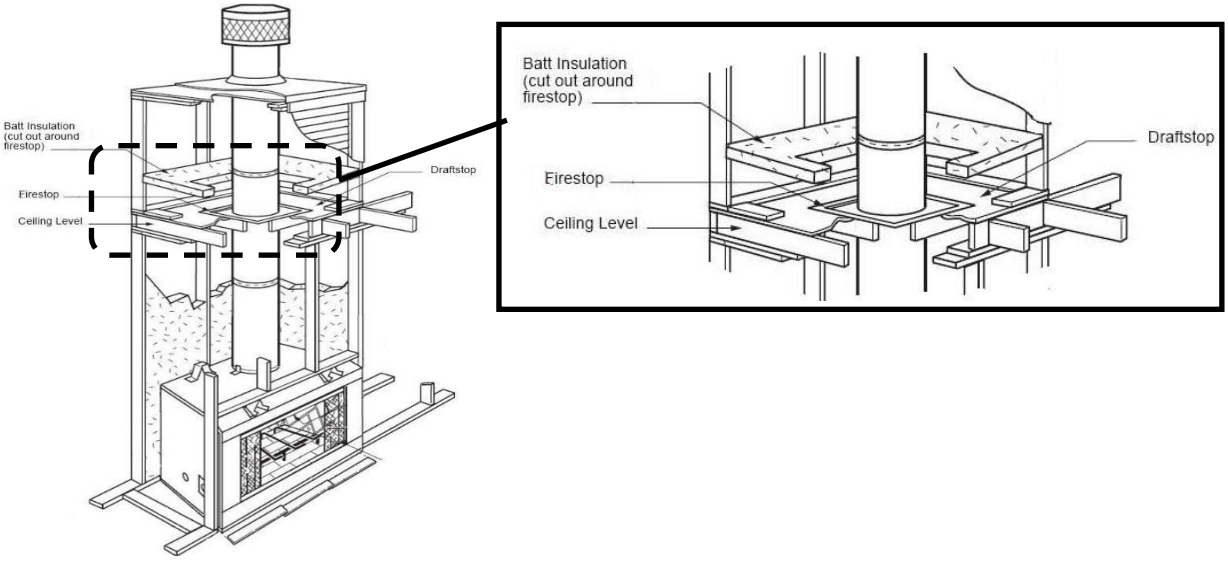
Option B

b) Fireplace Chimneys - Concealed spaces within a fireplace chimney are to have fire blocking provide every 3m (9'-10") vertically by:

i) Provide a shield (attic / ceiling firestop & sleeve assembly) around chimney venting. If the shield does not completely cover the entire cavity along a horizontal plane so that the entire cavity prevents passage of flame and smoke vertically; Then,

ii) Used a listed fire block material from Article 9.10.16.3. Fire Block Materials of the 2019 National Building Code – Alberta Edition. Fasten the material in place horizontally at the same level as the shield, extending it from the shield to the backside of any sheathing material. This will create a continuous horizontal fire block through the remaining cavity not already protected by the shield.

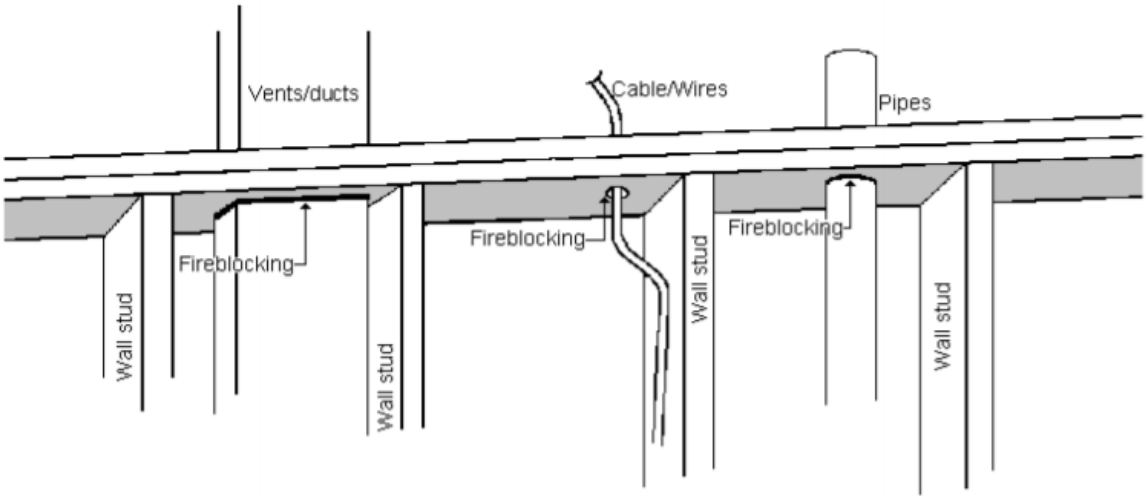
iii) Small gaps, holes or penetrations through the fire block may be sealed with an approved fire caulking material in place of one of the materials noted from Article 9.10.16.3. Fire Block Materials of the 2019 National Building Code – Alberta Edition



c) Concealed Spaces within Walls - Concealed spaces within interior walls can house mechanical, plumbing or electrical equipment, which can penetrate the top and bottom plates of these framing members for its installation. However, the top and bottom plates of the wall create the fire blocks required to separate vertical concealed spaces from horizontal concealed spaces.

Building Code permits fire blocks to be penetrated for services so long as the overall integrity of the fire block around the penetration is maintained. Maintaining the continuity of the fire block can be accomplished by;

i) Only removing what is required of the fire block material to install required equipment,
ii) Replace or fill any remaining voids caused by the installation, with a suitable fire block material to restore the integrity of the fire block.



Restoring integrity to fire blocking penetrated by mechanical, plumbing or electrical equipment will depend on the amount of fire blocking removed. Where only a small amount of fire blocking needs to be replaced, it can be accomplished:

i) Filling the remaining void with batt insulation (if it will stay in place),
ii) Semi rigid insulation,
iii) Fire block spray foam, or
iv) Fire caulking

Larger voids (openings / voids exceeding 1” as measured from the outside edge of penetrated equipment to intact fire block) are to restore the fire block integrity by:

i) Filling the remaining void with one of the listed and acceptable fire blocking material from section 9.10.16.3. (alternatively listed above), or
ii) Filling the cavity above the penetrated fire blocking which the equipment runs through with batt insulation.

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d) Undeveloped Basement - Locations where interior walls and ceiling have been fully drywalled, thus completely separating these areas from exposure to flame and smoke may not require attention. However, locations such as undeveloped basements or other undeveloped spaces where no drywall has been placed to protect the fire blocking and are exposed to allow for the flame and smoke to propagate from this area to others are to be addressed by one of the methods noted above.

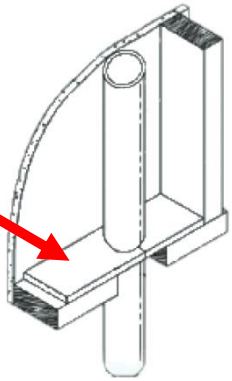

Photo 2 (Left)

One method of restoring the Integrity of fire blocking is to use one of the listed materials from Article 9.10.16.3. of the National Building Code – Alberta Edition and form it to fit around the penetrating item and over the compromised fire blocking.

Photo 1 (Above):

An Exposed location within undeveloped space in a dwelling where mechanical equipment has penetrated a required fire block.

Photo 3 (Right) Photo 4 (Below)

The use of Fire caulking or Fire Block spray foam (discuss with the safety codes officer before use) may be used to restore the integrity of fire blocking where the annular gap between the penetrating equipment and fire blocking is not more than 3/4 of an inch gap.

Reference

Approval Date	• June, 2021
Last Review Date	• June, 2021