ROCKY VIEW COUNTY

BUILDING SERVICES

Fire Department Access Routes

Guideline

Guideline ESP - 25

Purpose

This Guideline has been developed to help provide clarification and improve knowledge and understanding of the Code requirement for Fire Department access, and the maximum path of travel between hydrants, Fire Department vehicles and the building entrance(s).

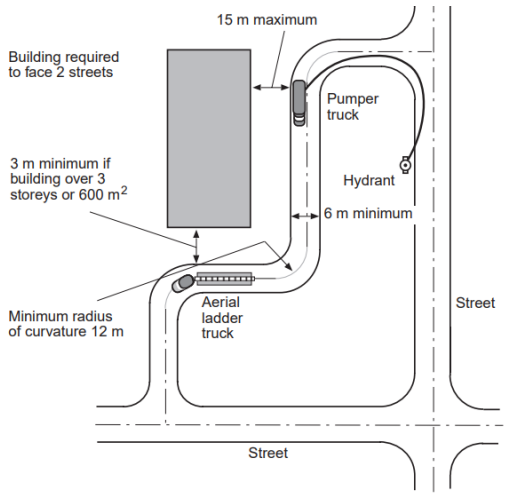
Code Reference

Current National Building Code – Alberta Edition, Sub-Section 3.2.5. Provisions for Firefighting
User's Guide – NBC 1995 Fire Protection, Occupant Safety and Accessibility (Part 3) –
Fire Department Access (NBC 3.2.5.1. to 3.2.5.6.).

Summary

This Guideline provides clarity and direction from Rocky View County on their interpretation surrounding the required location of access routes. Within the document, the location, and distances for the Fire Department vehicle to the building will be discussed. Based on the information provided within this Guideline, access routes should be installed in the ways listed below.

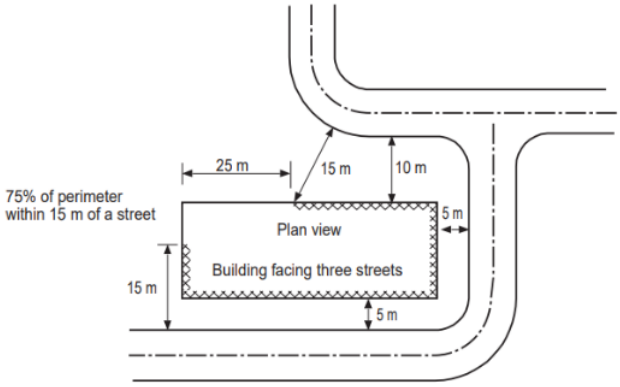
1. Street Access
   Every building is required to face a street which is within 15 m of the building. (Article 3.2.2.10). An access route can be considered a street if designed to meet the access route requirements noted within this Guideline.



Building size can be determined based on the number of streets the building faces. For example:

a) A building conforming to Article 3.2.2.51. or 3.2.2.60. faces 1 street where 25% of the building perimeter is within 15 m of the street, or where 10% of the building perimeter is within 15 m of the street provided the exterior cladding conforms to 3.1.4.8.(2)
b) A building faces 2 streets where 50% of the building perimeter is within 15 m of the street.
c) A building faces 3 streets where 75% of the building perimeter is within 15 m of the street.

Example of a building facing 3 streets



2. Access Route Location

Access routes are required for buildings which are more than 3 storey in building heights, or more than 600 m² in building area. Under Sentences 3.2.5.5.(1) & 3.2.5.5.(2), access routes shall be located to meet the following requirements.

a) Access route cannot be less than 3 m, and not more than 15 m from the face of the building with the principal entrance and required access openings.

3. Access Route Design Requirements

The access routes to the building(s) shall meet the following requirements.

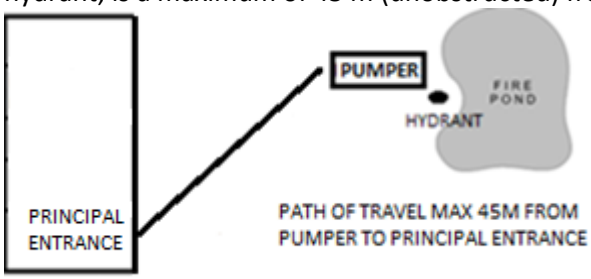
- Have a clear width not less than 6 m
- Have a center-line radius not less than 12 m
- Have an overhead clearance not less than 5 m
- Have a change of gradient not more than 1 in 12.5 over a minimum distance of 15 m
- Be designed to support the expected loads imposed by firefighting equipment of 39,000 kgs (85,000 lbs.), and be surfaced with concrete, asphalt or other material designed to permit accessibility under all climatic conditions.
- Have turn around facilities for any dead-end portion of the access route more than 90 m long.
- Be connected with a public thoroughfare.

4. Hydrant and Fire Department Vehicle Access Route to Building

Every building more than 3 storeys in building height, or more than 600 m² is required to provide access routes providing access to, and within specific distances from the hydrant and/or the fire department vehicle to the building, depending on the type of water supply and construction of the building. These access routes must be unobstructed.

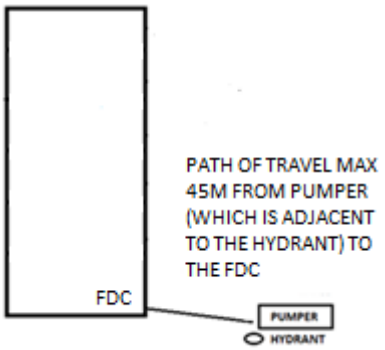
a) Non-Pressurized Hydrant

Where a non-pressurized hydrant is used for water supply, an access route shall be provided so that the fire department pumper vehicle, which is parked adjacent to the hydrant, is a maximum of 45 m (unobstructed) from the principal entrance.



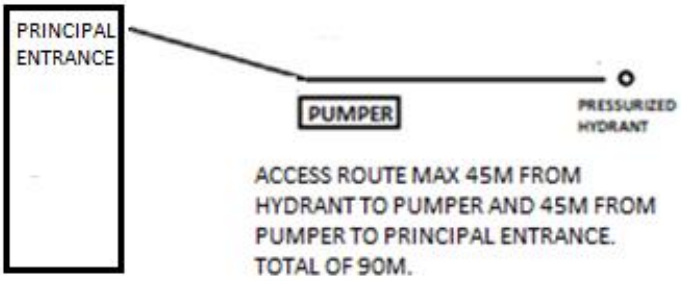
b) Pressurized Hydrant for a Building with a Fire Department Connection (Sprinklered Building)

Where a pressurized hydrant is used for water supply, an access route shall be provided so that the fire department pumper vehicle, which is parked adjacent to the hydrant, is a maximum of 45 m (unobstructed) from the Fire Department Connection.



c) Pressurized Hydrant for a Building without a Fire Department Connection

Where a pressurized hydrant is used for water supply, an access route shall be provided so that the fire department pumper vehicle is within 45 m (unobstructed) of the hydrant, with the path of travel (unobstructed) from the pumper truck to the principal entrance a maximum of 45 m, creating a maximum total distance from the hydrant to each entrance of 90 m.

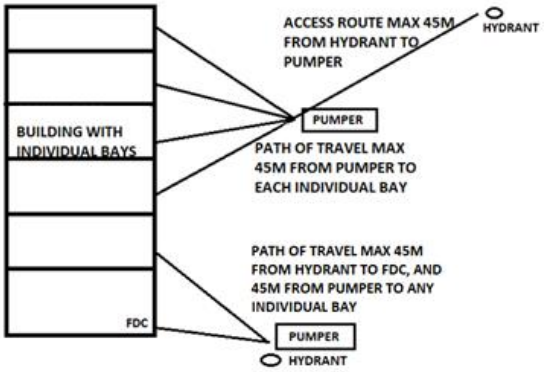


5. Access to Individual Bays within a Building

If a portion of a building is completely cut off from the remainder of the building, such as a building separated into individual bays, an access route from a fire department pumper vehicle to each entrance of each portion of the building must be provided.

Where the fire department connection hydrant and pumper cannot reach each individual bay within 45 m (Sentence 3.2.5.5.(4)), an additional hydrant within 45 m of the pumper, which is 45 m to each bay entrance (total of 90 m) should be added.

Example of a design where the pumper feeding the FDC is not within 45 m of each individual bay and requires an additional hydrant to provide water for these bays.



6. Access Openings for Firefighting

a) Access to Above-Grade Storeys – Direct access for firefighting shall be provided from the outdoors to every storey (except storeys below the first storey) that is not sprinklered throughout and whose floor level is less than 25 m above grade.

The opening shall be at least one unobstructed window or access panel for each 15 m of wall, in each wall required to face a street by Subsection 3.2.2.

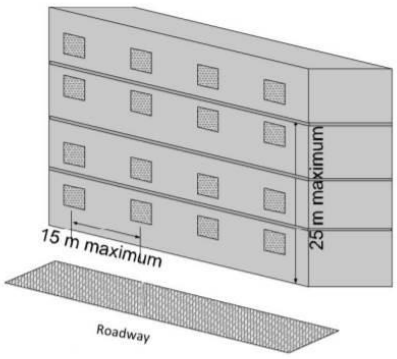


Figure B-2-1-1 Access for firefighting to above-grade storeys

The opening shall have a sill no higher than 900 mm above the inside floor and be not less than 1100 mm high by not less than 550 mm wide (building not designed for storage or use of dangerous good) or 750 mm wide (building designed for storage or use of dangerous goods).

Panels shall be readily openable from both the inside and outside, or the opening glazed with plain glass.

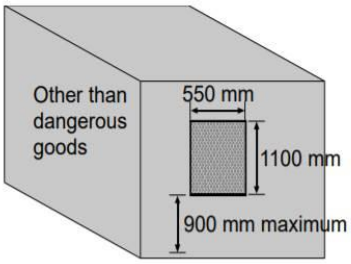


Figure B-2-1-2 Minimum access panel size—no dangerous goods

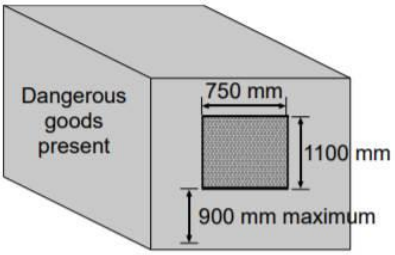


Figure B-2-1-3 Minimum access panel size—dangerous goods

b) Basement – In an unsprinklered building, direct access for firefighting shall be provided from the outdoors to every basement having a horizontal dimension more than 25 m. The access can be provided by either a door, window or other mans of opening not less than 1100 mm high and 550 mm wide, with a sill no higher than 900 mm above the inside floor, or by an interior stairway accessible from the outdoors.

c) Where an access opening(s) is required, the architectural plans must indicate on the plans, where the access opening(s) are located, and how they will be demarcated once constructed.

7. Private Water Supply – Hydrant Location Restrictions

Fire hydrants, depending on the type, also include some additional design and location restrictions under the design standards.

a) Non-pressurized (Dry Hydrant) – Dry hydrants which draft from a water supply, and which are not pressurized, must confirm to Chapter 8 of NFPA 1142 “Water Supplies for Suburban and Rural Fire Fighting”. Dry hydrants under NFPA 1142 cannot be located less than 30 m to any building.

b) Pressurized Hydrant – Pressurized hydrants must conform to NFPA 24, “Installation of Private Fire Services Mains and Their Appurtenances”. These hydrants cannot be less than 12 m to any building.

NOTE: Hydrants providing additional water supply for fire fighting should be located as noted above in Item #5 and in areas where they are accessible. These hydrants should not be located within a building collapse zone, or between buildings which are in close proximity to each other, where possible.

8. Fire Department Connection (FDC)

Fire Department connections should be designed and installed to meet the following requirements.

a) Location – In a sprinklered building or a building with a standpipe system, the fire department connection must be located not less than 3 m, and not more than 15 m from the principal entrance.

There are some situations, where the Fire Department Connection could be located on a different side of the building then the front face, or where the ‘principal entrance’ could be identified as a different entrance then a main front entrance. An example of

this type of situation could be a multi-bay tenant building. In these situations, Rocky View County – Building Services will require the proposal designs to include details addressing the addition of a strobe connected to the alarm, and location of the proposed alternate location. Where the FDC is relocated, access standards would apply to these locations.

b) Hydrant Connection – Fire hydrants shall be McAvity M67 and shall include 3 ports with the following specifications:
   i. One 152 mm (6") pumper connection. National Hydrant Thread (Type NA),
   ii. Two 57 mm (2-1/2") hose connections. Alberta Mutual Aid Thread (Type AMA), and
   iii. Operating nuts shall be 14" (32 mm) square opening in counter-clockwise direction.

   Additionally, drafting hydrants must be equipped with 6" National Hydrant Thread female swivel connection which would allow Fire Service trucks or pump to be hooked directly to it.

c) Protection – Protection from mechanical damage shall be provided in the form of bollards or equivalent around private or dry hydrants in accordance with NFPA 24 or NFPA 1142.

Conclusion

The current National Building Code – Alberta Edition, Article 3.2.5.5. provides direction on the location of access routes, design of access openings, and the maximum clearances to buildings from a hydrant. These requirements are in place to ensure adequate Fire Department access and firefighting capabilities are provided for all building where required.

Reference

Approval Date	• October 2024
Last Review Date	• October 2024