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FIRE DEPARTMENT ACCESS TO BUILDINGS

3.01 *General Requirements*

Ref.: IFC 503.1.1

3.01-1 Every building hereafter constructed shall be accessible to fire department apparatus by way of an approved access roadway with an asphalt or concrete driving surface capable of supporting the imposed load of fire apparatus weighing at least 64,000 pounds.

EXCEPTION: Where there are not more than two (2) Group R, Division 3 or Group U Occupancies, the requirements of this chapter may be modified, provided, in the opinion of the Fire Chief or his/her designate, fire fighting or rescue operations would not be impaired.

3.01-2. Required fire apparatus access roads shall be provided such that all portions of the exterior walls of the structure (at grade) are within 150 feet (as a person would walk via an approved route around the building) from an approved fire apparatus road/fire lane. A fire apparatus road/fire lane can be a driveway, easement, public or private road.

3.01-3. Private fire apparatus access roads are permissible provided they are on the same property as the project or, if on adjacent property, permanent access easements are recorded on each site plan.

3.01-4. Access roadway standards may be reduced if the building is protected by a complete automatic sprinkler system designed and installed in compliance with NFPA Standard No. 13. Single family dwellings less than 3,600 sq. ft. in total area, designed in accordance with NFPA-13D, are considered to satisfy the intent of this mitigation. Sprinkler design requirements shall be based upon the occupancy type and IFC regulations.

3.02 *Multiple Fire Apparatus Access Roads*

Ref.: IFC 503.1.2

3.02-1. Commercial and industrial projects having a gross building or structural area of more than 60,000 square feet shall be provided with two (2) separate and approved fire apparatus access routes or connections from adjacent public streets or private ways, with permanent access easements recorded on each site plan.

EXCEPTION: Projects having a gross building area of up to 120,000 square feet may have a single approved fire apparatus access route when

all buildings are provided with approved automatic sprinkler systems designed and installed in compliance with NFPA Standard No. 13.

- 3.02-2. Multi-family residential projects having more than 100 dwelling units shall be provided with two (2) separate and approved fire apparatus access routes or connections from adjacent public streets or private ways, with permanent access easements recorded on each site plan.

EXCEPTION: Projects having up to 200 dwelling units may have a single approved fire apparatus access route when all buildings, including non-residential occupancies, are provided with approved automatic sprinkler systems designed and installed in compliance with NFPA Standard No. 13.

Multi-family residential projects having more than 200 dwelling units shall be provided with two (2) separate and approved fire apparatus access routes or connections regardless of built-in fire protection features.

- 3.02-3. More than one fire apparatus access road may be required when it is determined by the Fire Chief or his/her designate that access by a single road may be impaired by vehicle congestion, condition or terrain, climatic conditions, topography, grade or other factors that could limit access.

3.03 *Minimum Specifications*

Ref.: IFC 503.1

- 3.03-1. Permanent fire apparatus access routes shall be paved to meet the standards of the City of Bellevue, and shall be paved to their full width. Temporary roads installed during building construction shall comply with the requirements of Section 2.03 of these Standards.
- 3.03-2. The measurement of fire apparatus access roads shall be evaluated along the centerline of the access road from the point of intersection with the centerline of the cross street to the centerline of the next intersecting street that serves as a fire apparatus access road and is not a dead-end.
- 3.03-3. Fire apparatus access roads shall be a minimum of twenty (20) feet in width, except as modified in Chapters 3.04, 3.05 and 3.06 and shall have a minimum vertical clearance of thirteen feet, six inches (13', 6").
- 3.03-4. Where the length of a fire apparatus access road or portion thereof exceeds 300 feet, turn-outs shall be provided on either side of access road, separated by no more than 150'. Turn-outs shall be a minimum of eight (8) feet wide and 50 feet in length. The ends may taper to a minimum length of 30 feet, measured eight (8) feet from the edge of the access road

EXCEPTIONS:

1. Approved fire apparatus access roads at least twenty (20) feet in width.

2. Fire apparatus access roads with turnarounds separated by no more than 150 feet.
 3. Where a fire apparatus road is divided into two (2) separate lanes by a physical barrier, required turn-outs shall be provided on each side of access road.
- 3.03-5. Dead-end fire apparatus access roads shall be provided with increased width and approved turnaround provisions as described in Section 3.05. Where multiple access routes are required and the separate routes are provided via opposing directions of travel on a common access road, each direction of travel shall be considered a dead-end fire apparatus access road.
- 3.03-6. Fire apparatus access roads shall be maintained permanently in an unobstructed manner for the required width, and shall be subject to inspection by the Fire Department. Any removal of obstructing material shall be at the property owner's expense.
- 3.03-7. No dip, bump or other surface irregularities shall impede the movement of fire apparatus having a wheel-base of 264 inches with a minimum ground clearance of 12 inches. The angle of departure (break over angle) shall not exceed 12 degrees.
- 3.03-8. Fire apparatus access roads shall not exceed 15 percent in grade for any 150 foot segment, except as modified in Chapter 3.06.
- 3.03-9. The minimum turning radii for all turns shall be 28 feet inside turning radius and 48 feet outside turning radius.

3.04 Building Access for Ladder Operations

Ref.: IFC 104.1, 503.1.2 and 504.1

- 3.04-1. Buildings more than one (1) story in height shall be designed in such a manner that ground ladder operations with access to the interior can occur on the same side of the building as the fire apparatus access route.
- 3.04-2. Buildings or portions of buildings exceeding 30 feet in height from the lowest point of fire department access shall be provided with a fire access route capable of accommodating Fire Department aerial apparatus.
- 3.04-3. Required aerial access roadways shall be a minimum 26 feet in width along the length of any building or portion of building being served.

At least one (1) required aerial apparatus access roadway satisfying Section 3.04-3 shall be located within a minimum of 15 feet and a maximum of 25 feet from the building, accessing 25% of the side of the building.

NOTE: The measurement for this requirement shall be taken from the exterior wall of the building to the nearest edge of the fire apparatus access road.

Aerial apparatus roadways shall be positioned parallel to one (1) entire side of the building or parallel to multiple sides for a total distance not less than the longest side of the building.

3.05 Dead-end Fire Apparatus Access Routes

Ref.: IFC 503.2.5

3.05-1. If fire apparatus access roads are not looped in such a way as to allow driving completely around the building or complex of buildings, the dead-end fire apparatus access roads shall meet the requirements of Table 3.05. Except for the access route length, dimensions provided in Table 3.05 are minimum values.

3.05-2 The measurement of dead-end fire apparatus access roads shall be evaluated along the centerline of the access road from the point of intersection with the centerline of the cross street to the edge of pavement at the terminus of a dead-end access road or point of intersection with the centerline of a turnaround facility located at the terminus of the access road, whichever is shorter.

3.05-3 Dead-end fire apparatus access roads shall not exceed 750 feet in length when measured in accordance with Section 3.05-2.

**Table 3.05
Requirements for Dead-End Access Routes**

Length of Access Route	Width of Access Route	Turnaround Required	Aerial Apparatus Access Required
0-150'	20'	None Required	None Required
151' – 500'	20'	96' diameter cul-de-sac, 90' hammerhead, or 60' "Y"	96' diameter cul-de-sac, 120' hammerhead, or 70' "Y"
501' – 750'	26'	96' diameter cul-de-sac, 120' Tee. 96' 90' hammerhead, or 70' 60' "Y"	96' diameter cul-de-sac, 120' hammerhead, or 70' "Y"
Over 750'	Special Approval Required	Special Approval Required	Special Approval Required

NOTE: Curves and topographical conditions could alter the requirements for turnarounds and the width of access roads.

- 3.05-4 Where length of access route exceeds 300 feet, a turnaround shall be provided within 150' of any structure served by the access road. Turnaround shall be provided within 150 feet of access road terminus.
- 3.05-5 Illustrations of hammerhead and "Y" turnarounds identified in Table 3.05 are provided in IFC Table D103.1. The Alternative to a Hammerhead in IFC Table D103.1 is not adopted. Dimensions of the legs of "Y" turnarounds are measured along the centerline of the leg from the intersection of the access road centerline to the end of the paved leg.
- 3.05-6 Dead-end access roads ultimately serving not more than two (2) Group R Division 3 or Group U occupancies, the required width per Table 3.05 may be reduced to 16 feet, except within 70 feet of the point of curvature at the entrance to the turnaround.

3.06 Permissible Modifications

Ref.: IFC 104.8 and 104.9

- 3.06-1. When the building or buildings are provided with additional fire protection or life safety features, such as automatic sprinkler system designed and installed in accordance with NFPA Standards , the Fire Chief or his/her designate may authorize modification of the full standard fire apparatus access road and turnarounds.
- 3.06-2. NFPA 13-D systems designed and installed in accordance with BFDDS Chapter 7 are permissible alternatives in one and two-family dwellings less than 3,600 sq. ft. in total area.

3.07 Fire Hydrants Along Fire Apparatus Access Roads

Ref.: IFC 508.5.1

- 3.07-1. Paved access to fire hydrants shall be maintained to accommodate the fire fighting apparatus as illustrated in the International Fire Code figure D103.1.

3.08 Access to Individual Structures or Tenant Spaces-Rapid Entry Boxes

Ref.: IFC 506

- 3.08-1. When required by the Fire Chief or his/her designate, buildings shall be outfitted with an approved key box for Fire Department use only. Key boxes shall be installed in the following occupancies:
- a. Buildings outfitted with fire protection systems.
 - b. Buildings with security entrances.
 - c. Buildings with gated access/entrances.

The Fire Chief or his/her designate shall specify the key box location. It shall be mounted within five (5) feet of the ground.

Where factors suggest multiple key boxes are required or alternate locations are appropriate, the Fire Chief or his/her designate shall specify those locations.

3.08-2. The key box shall contain keys to open doors or other access means at the following locations:

1. The main entrance
2. Individual tenant spaces, except for self-service storage areas;
3. Rooms containing control valves for automatic sprinkler systems;
4. Rooms containing fire alarm system control panels;
5. Rooms containing elevator operating equipment;
6. Rooms or areas containing hazardous storage, including hazardous materials information vaults;
7. Rooms containing main electrical service panels; or,
8. Rooms or other areas where the Fire Chief or his/her designate determines immediate access is necessary.

The key box shall contain a key that operates the elevator recall and emergency override systems if not in Elevator Key box at lobby or machine room.

When electronic locks are employed, the key box shall contain a copy of the appropriate code that provides access.

All keys shall be clearly marked as to what door, room, area or lock they serve.

3.08-3. APPROVED KEY BOXES AND INSTALLERS

Approved key box: KNOX manufactured by THE KNOX COMPANY, and outfitted with a Medeco cylinder and key. Bellevue's standard key box approved is a model #3261 series hinged door style which can be surface or flush mounted on the building.

The distributors carry an Indemnification Agreement, which is signed at the time of purchase and forwarded to the Fire Department to be reviewed.

3.08-4 APPROVED HAZARDOUS MATERIALS INFORMATION VAULTS

An approved vault will be manufactured by The Knox Company and equipped with a Medeco cylinder and key. Contact the Fire Prevention Division for specific model and ordering information prior to ordering. (425) 452-6872.

3.09 Gates Across Fire Department Access Roads

Ref: IFC 503.6 & BCC 5520 section 503.4

Gates shall not be installed across fire department access roads unless the following conditions can be met:

Exception: Access roads less than 150' in length serving one single family residence.

1. A permit is required to install gated access to property or an electronically controlled access gate(s) which obstructs a fire department access road.
2. Plans and specification for access gates shall be submitted to the Bellevue Fire Department for review and approval prior to construction.
3. The electronically controlled gate shall have a minimum clear width of 20 feet when fully open and a minimum vertical clearance of 13 feet 6 inches.
4. The gate shall be set back a minimum of 30 feet from the access roadway edge of pavement, or from the back of sidewalk where a sidewalk exists.
5. Manually locked gates shall use chains or locks that can be cut with normal bolt cutters or have a Knox Box at an approved location near the gate with the key.
6. Electronically controlled gates shall be provided with an approved Knox Key switch or an approved vehicle detector-receiver system. When operated by the Fire Department the gate shall remain in the full open position until the Fire Department has left the property.

Exception: A Knox switch and/or an approved vehicle detector-receiver system is not required for gates that are staffed 24 hours a day, 7 days a week.

7. Provide a backup power supply to operate the electronically operated gate in the event of a power outage. Provide information on the number of times the gate can be operated with the back up power supply.
8. On electronic gates an alternative to the back up power supply is to have the gate fail in the full open position when the normal power is off. The gate shall remain in the full open position until the normal power is restored.
9. On electronic gates a means shall be provide to remove the controlling arm/mechanism for the gate without the use of any tools, in the event the backup up power supply is not operating.
10. If a fence is located on each side of the gate a man door shall be provide at an approved location with a Knox Key for access to the man door.
11. Electronically controlled gates shall be maintained operational at all times. When the gate, locks or other parts are out of service it shall be secured in the full open position until repaired. Repairs shall be in accordance with original specifications.
12. A contact person shall be listed on each gate and shall include the person, company and phone number.
13. The use of directional-limiting devices (tire spikes) shall be prohibited.
14. An operational test shall be requested by the installer and witnessed by the fire department prior to placing the system in service.