



DISTRICT OF
UCLUELET



Fire Services Development Design Guidelines

Register of Amendments

#	Date	Description	Initials
1	2024-06-25	Initial roll-out	RG
2	2024-08-08	Addition of information on dwelling units	RG
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Preamble:

The first line of defense in community safety is proper design. The information in this document represents the minimum development standards that support this concept.

The information in this document has been extracted from several sources including the BC Building Code, BC Fire Code, BC Master Municipal Construction Document, National Fire Protection Association, National Research Council of Canada, District of Ucluelet Bylaws, BC Bridge Standards and Procedures Manual, The BC Manual of Standard Traffic Signs and Pavement Markings, The British Columbia Motor Vehicle Act, best practice examples from other communities, and Fire Underwriters Survey. Apparatus tolerances are based on these codes and standards as well as the limitations of District of Ucluelet fire apparatus.

The BC Fire Code, Division C, Section 2.2.1.1 (1) states: "...the owner or the owner's authorized agent shall be responsible for carrying out the provisions of this Code." This means that it is ultimately the owner's responsibility to ensure that minimum code requirements have been satisfied.

Purpose:

The purpose of this document is to clearly communicate the minimum safety provisions for development within the District of Ucluelet Fire Rescue's service area. This standard will aid in ensuring that emergency response can be conducted in a safe, efficient, and timely manner while maintaining the highest level of public safety and consistency amongst new developments.

These standards apply to all developments (both public and private) within the jurisdictional boundaries of the District of Ucluelet.

Construction & Demolition Sites**Fire Safety Planning**

The BC Fire Code, Division B, Section 5.6.1.3 (1) states: "...prior to the commencement of construction, alteration or demolition operations, a fire safety plan shall be prepared for the site and shall include

- The designation and organization of site personnel to carry out fire safety duties, including a fire watch service if applicable,
- The emergency procedures to be followed in the event of a fire, including
 - i) initiating a fire warning,
 - ii) notifying the fire department,
 - iii) instructing site personnel on the procedures to be followed once the warning has been initiated, and
 - iv) confining, controlling and extinguishing the fire,
- Measures for controlling fire hazards in and around the building, and
- A maintenance procedure for firefighting measures required in Section 5.6...."

Prior to commencement of construction or demolition, the fire department must be consulted to determine the need for a fire safety plan.

To create a fire safety plan, developers / contractors must obtain a copy of the District of Ucluelet Construction and Demolition Site Fire Safety Plan template by emailing the fire department at fireprevention@ucluelet.ca.

The completed fire safety plan must be forwarded to the fire department at fireprevention@ucluelet.ca for review and approval prior to the commencement of demolition or construction operations.

The fire safety plan must be reviewed and updated as construction / demolition progresses and periodically afterwards.

All site supervisory staff must remain familiar with the plan throughout the project. It may be beneficial to owners to retain the services of a consultant who specializes in fire safety planning.

This consultant would oversee the fire safety plan's development and implementation. This is especially useful to owners who have neither the time nor the expertise to develop their own plan.

Access for Firefighting During Construction & Demolition

Unobstructed access to fire hydrants, portable extinguishers and to fire department connections for standpipe and sprinkler systems must be maintained.

A means to allow firefighters to perform their duties on all levels of a building must be provided .

Provision shall be made for the use of existing elevators, hoists or lifts to assist firefighting personnel in reaching all levels of a building.

Access routes for fire department vehicles shall be provided and maintained to construction and demolition sites.

Where a construction or demolition site is fenced to prevent general entry, provisions for fire department equipment and personnel access must be made.

Portable Extinguishers

Portable extinguishers shall be provided in unobstructed and easily accessible locations in any areas:

- Where hot work operations is carried out,
- Where combustibles are stored,
- Near or on any internal combustion engines,
- Where flammable liquids and combustible liquids or gases are stored or handled,
- Where temporary fuel-fired equipment is used, or
- That are designated for smoking.

Fire extinguishers must have a minimum rating of 3-A:20-B:C on moveable equipment, and 4-A:40-B:C in all other locations.

Water Supply

Buildings are at their highest risk of fire during construction. Because of this, building permits will not be issued and combustible construction must not commence prior to the establishment of a water source (hydrant) capable of supplying the required fire flow.

Existing fire hydrants capable of delivering the minimum required fire flow and within the minimum required distances shall be considered adequate for new projects

Fire hydrants must be kept clear and accessible and have an unobstructed clearance of not less than 2 m at all times.

Fire hydrants should be located at intersections and mid-block where required.

Parking is prohibited within 5 m of fire hydrants.

Fire hydrants on the opposite side of the street from a proposed development may not be considered adequate. The developer will be required to install hydrant(s) on the same side of the street as the development in most instances.

Hydrants will be Terminal City Ironworks Model #C71P (dry barrel) or a similar model as approved by the fire chief.

Hydrants will have 3 outlets of the following configuration: 1– 4” Storz Pumper Outlet and 2 – 2 ½” British Columbia and Alberta Thread (BAT) outlets.

Upon installation of a hydrant, a final report shall be prepared by a registered engineer that certifies compliance with NFPA 24, “*Standard for the Installation of Private Fire Service Mains and Their Appurtenances*” and shall include flow test data confirming the required fire flow is available. The report shall be submitted to the fire chief.

The maximum spacing of hydrants in commercial, industrial, institutional, and multi-family residential areas shall be 90 m.

The maximum spacing of hydrants in single-family residential areas shall be 180 m.

Access Routes

Access routes are defined as, “*a portion of a street, yard, roadway, or parking lot lane, which is always available for fire department emergency access to buildings and hydrants.*”

Access routes must be designed to allow unhindered emergency access and evacuation.

Plans shall be submitted to the fire chief for review and approval prior to the start of any projects, including:

- Rezoning applications
- Land use applications
- Subdivision applications
- Development permit applications
- Development variance permit applications
- Proposed modifications to existing emergency access routes, secondary public access routes, or fire lanes, and
- in some instances, building permit and / or temporary use permit applications.

Fire apparatus access routes shall be provided prior to construction and maintained throughout the life of the development.

Fire department vehicles shall have direct access to at least one face of every building by means of a street, yard, or roadway in conformance with the BC Building Code.

Each application will be assessed individually and is not to be viewed as precedent setting or as an industry standard.

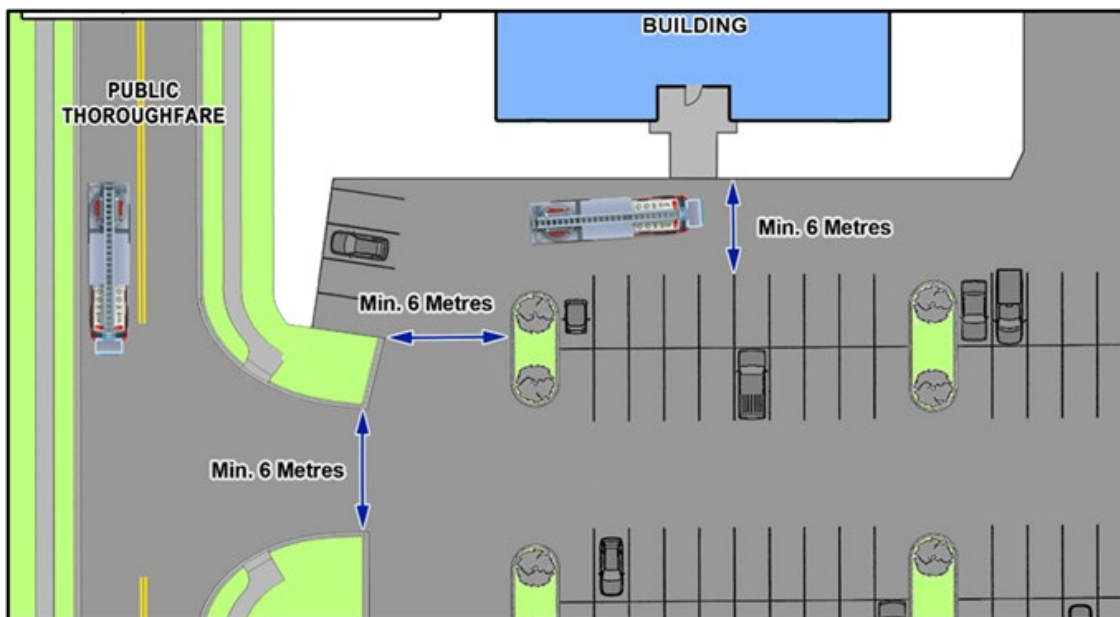
A secondary fire department access route is required when it is determined by the fire chief that access by a single road could be impaired by travel distance, vehicle congestion, condition of terrain, climatic conditions, or other factors that could limit access. Developers are strongly encouraged to consider drive-through access routes.

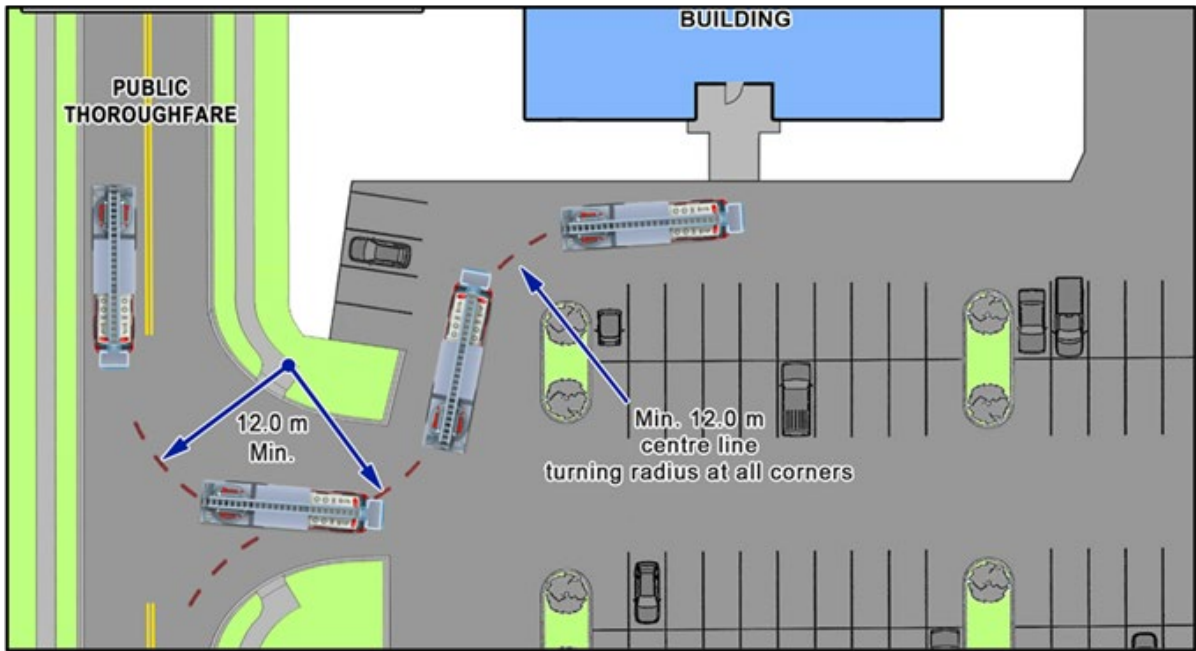
Upon approval by the fire chief, a secondary access route may be designed and constructed as an “emergency access only” lane, provided that it is compliant with minimum fire department access requirements and equipped with approved fire lane signage and locking hardware.

Access routes shall not be altered, modified, removed, or placed out of service without a written request to, and written approval by the fire chief.

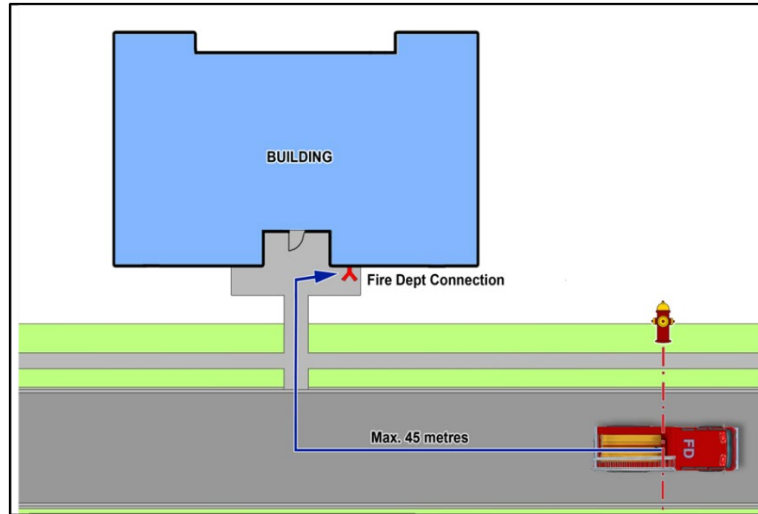
Access routes to buildings shall comply with the following minimum BC Building Code requirements:

- Width of 6 m
- Centre-line radius not less than 12 m
- Overhead clearance not less than 5 m
- Change of gradient not more than 1 in 12.5 over a minimum distance of 15 m
- Designed to support the expected loads imposed by firefighting equipment and be surfaced with concrete, asphalt or other material designed to permit accessibility under all climatic conditions
- Be connected with a public thoroughfare.

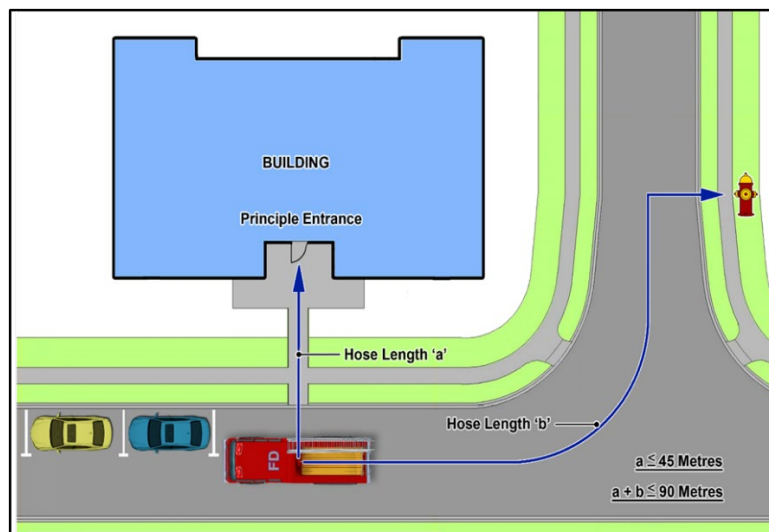




For buildings with a fire department connection, access routes shall be designed so that fire department apparatus can be located adjacent to the fire hydrant and the unobstructed path of travel from the fire apparatus to the fire department connection is not more than 45 m.



For buildings without a fire department connection, access routes shall be designed so that the length of the access route from the hydrant to the apparatus plus the unobstructed path of travel from the apparatus to the building is not more than 90 m.

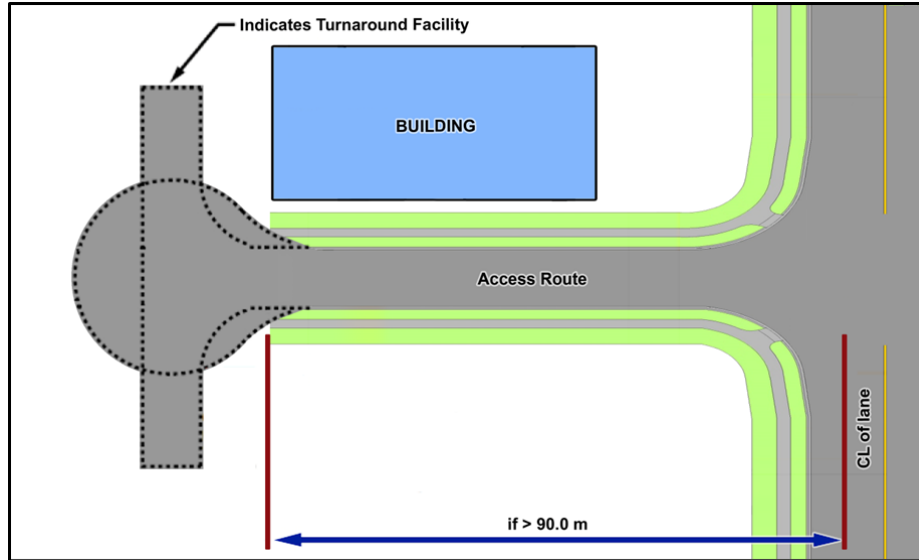


The above required distances are measured along the centre line of the fire department vehicle access route and the path of travel of the firefighter.

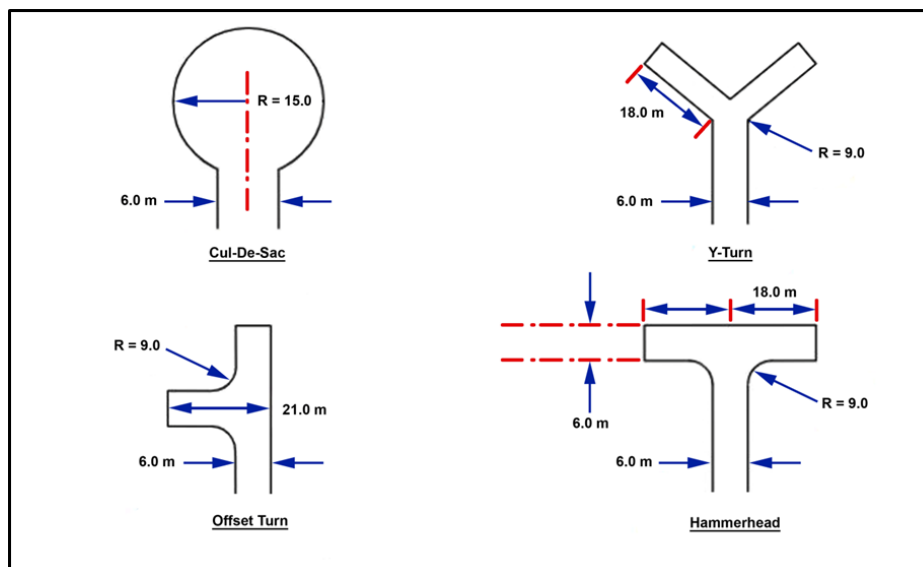
When adequate fire department access routes cannot be provided due to location on property, topography, waterways, non-negotiable grades, or other similar conditions, additional fire protection features (ie: sprinklers) will be required as approved by the fire chief.

Dead-end access routes in excess of 90 metres long require an approved turn-around area.

Dead-end access routes less than 90 metres long may require a fire apparatus turn-around area when the access route is connected to a major thoroughfare (ie, Peninsula Rd., Marine Drive).



Turnaround areas shall be constructed using the following minimum measurements:



- Curbs in turnaround areas shall be painted yellow to indicate no parking.
- Turn-around areas shall be maintained clear at all times, with approved “No Parking” signage posted as detailed below.

Gradients

The maximum allowable grades for fire department access shall be:

- | | |
|---|-----|
| • Local service streets (direct access to residential lots) | 15% |
| • Neighbourhood collector streets (for through traffic) | 12% |
| • Paved access routes | 12% |
| • Unpaved access routes | 8%. |

Where the property is higher than the access route, the driveway grade must not exceed 2% (0.02 m) for the first 10 m.

The use of a continuous maximum grade must not exceed 100 m in length.

Access routes adjacent to, and within 15 m of, a structure must not exceed 6%.

The maximum allowable cross slope within 15 m of a structure must not exceed 6%.

The maximum allowable overall slope of cul-de-sacs and other turn-around provisions required by the fire department must not exceed 6%.

Access routes must have a maximum change of gradient of 8% (1 in 12.5) over a minimum distance of 15 m.

Fire Lane Markings

Permanent fire lane signage and / or yellow curb paint with yellow stenciled lettering stating “NO PARKING - FIRE LANE” may be required prior to issuance of certificates of occupancy.

Fire lane marking locations and details shall be clearly identified within the civil plans and site plans.

Maintenance / replacement of fire lane signage and / or curb painting is the responsibility of the property owner.

“NO PARKING - FIRE LANE” signs will follow the British Columbia Manual of Standard Traffic Signs and be designed as follows:

- Signs will be constructed of non-corrosive material using 3M brand or similar quality reflective material.
- Signs will be 300 mm wide by 450 mm tall (12” by 18”)
- The circle and slash will be red.
- The background will be white / silver reflective.
- The lettering, arrows, and border will be black.
- The arrow(s) on the bottom of the sign will be as follows:
 - applicable single arrow (pointing right or the left) will indicate the limits of the zone.
 - double arrows will be used on mid-zone signs.



Construction of structures shall not commence prior to the installation of approved fire lane signage (where required) and posting of the civic address as detailed below.

Dwelling Units

The distance from the lot line adjacent to the primary entrance of the dwelling unit (required access) shall not exceed 45 metres.

Dwelling units must have and maintain an unobstructed, hard-packed pathway from the street or lane to the entrance of the unit that:

- Is constructed of a consistent hard-packed surface and has no sudden drop-offs.
- Has a minimum width of 1 m.
- Has a minimum overhead clearance of 3 m.

Stairs and ramps along the required access must be built to the BC Building Code under a building permit.

If a fence impedes an access, there shall be a gate that can be unlatched from the direction of travel from the street and not have any locks or require special knowledge to operate.

Where site circumstances such as distance, steepness or width of proposed primary access route results in restricted access, Automatic fire sprinkler systems are required.

Automatic sprinkler systems in ADUs will be designed and installed in conformance with NFPA 13D *“Standard for the Installation of Sprinkler Systems in One-and Two-Family Dwellings and Manufactured Homes”*.

Accessory Detached Dwelling Units

In addition to the requirements for dwelling units, where the distance from the nearest municipal fire hydrant to the accessory detached dwelling unit exceeds 180 m, Automatic fire sprinkler systems are required.

FireSmart

FireSmart principles help prevent fires from spreading to the surrounding wildland areas and vice versa.

Similar to designing for snow load, wind load, or seismic conditions, developers must consider design requirements for properties in high-risk wildland urban interface (WUI) areas.

Consideration of wildfire at the development planning stage is a key step in protecting neighbourhoods from wildfire.

Developers are strongly encouraged to incorporate FireSmart principles in their design.

Developers should consider the following strategies to reduce the chances of structural loss from wildfire:

- Use of fire-resistant exterior construction materials following FireSmart recommendations and standards.
- Inclusion of minimum setbacks from forested edge and top of slope based on FireSmart principles.
- Use of FireSmart landscaping (low flammability plants, appropriate spacing and low flammability aggregates/ ground cover based on FireSmart principles).

- Prompt removal of combustible construction materials, thinning/ fuel management debris, or clearing debris during the fire season.

Bridges

Bridges must be constructed according to the Province of British Columbia's Bridge Standards & Procedures Manual and must be engineered to support the District of Ucluelet's heaviest fire apparatus.

Bridges that are not required for fire department access and are not capable of supporting the fire department's heaviest apparatus shall bear a reflective sign stating the weight limit of the bridge.

Fire apparatus will not drive over private bridges and / or culverts that do not meet this standard.

Gates

The Ucluelet Fire Department shall be provided 24/7/365 access through any unattended gate on a fire lane access route.

Plans and specifications of gate assembly and location shall be submitted to the fire chief for review, approval, and inspection prior to construction.

Final approval of a gate is contingent on fire department testing and acceptance. The fire chief will arrange for emergency apparatus testing prior to approval.

Approved "NO PARKING - FIRE LANE" signage shall be installed to prevent the obstruction of the fire lane gate by the parking of vehicles.

Addresses

Prior to constructing a building within the District, the property owner must request a civic address number if one does not already exist, through the District of Ucluelet Planning Department.

All buildings within the District must have their civic address number displayed. Civic address numbers must be a minimum of (4) four inches in height and mounted on a surface of a contrasting color in order to be easily identifiable from the street.

Civic address numbers must be visible from the street which corresponds with the street cited in the civic address allocated to that building by the District.

All buildings which contain units must, in addition to having a civic address allocated by the District, designate and post numbers for each individual unit that falls under the parent civic address.

For multi-level buildings, the units on the lower most level shall be numbered so that all the unit numbers on that level begin with the number "1" and end in a logical consecutive fashion. For example, the units on the lower floor of a residential complex will be numbered 101, 102, 103, 104 etc. Unit numbers on the second lowest level of the building shall begin with the number "2" and end in a logical consecutive fashion.

Unit numbers shall adhere to this pattern through all levels of the building.

In the case of a single-story building containing multiple units the units shall be numbered in a numerical fashion beginning with the number “1” and shall be arranged in a manner so that someone unfamiliar with the building could logically anticipate the location of the next consecutive unit in the numerical progression. Example: *Unit 101-165 Elm Street*

Cabins

Properties with multiple cabins:

(1) Each cabin on the property shall be assigned an additional number under the principal dwelling unit’s civic address in a manner so that someone unfamiliar with the building could logically anticipate the location of the next consecutive cabin in the numerical progression; and

(2) Where some or all of the individual cabins contain multiple units at varying levels shall designate a number to the cabin and a letter to the individual units within each cabin. The letters allocated to these units shall begin with “A” on the bottom floor and progress logically through the lower units on to the upper units. Example: *165 Elm Street, Cabin 1- Unit A*

Secondary Suites

Single family dwelling units which contain a secondary suite must clearly display the suite letter “A” near the suite entrance so that it is easily visible from the street. If the suite entrance is not visible from the street, a directional sign indicating the suite’s entrance location at that house must be displayed within clear view of the street.” Example: Address of principal dwelling: *165 Elm Street* / Address of secondary suite: *165 A Elm Street*.

Residential Sprinklers

Residential fire sprinklers are required when any of the following conditions exist:

- There is inadequate water supply for traditional firefighting, or
- There is inadequate fire department access according to this document.

Residential sprinkler systems will be designed and installed in conformance with NFPA 13, NFPA 13D, or 13R, whichever is most appropriate. The developer / builder must consult with the fire chief prior to construction to confirm which NFPA standard the sprinkler system will be designed to.

The Fire Services Development Design Guidelines will be reviewed and updated as relevant codes, standards, fire department capabilities, and best practices evolve.