



## MEMORANDUM

TO: Paul MacCready  
FROM: Lori Burke  
DATE: Jun 15, 2017  
SUBJECT: 11 101457 LU - Point Wells Development

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The Fire Marshal's Office has reviewed the above referenced development proposal for compliance with Snohomish County Code (SCC) Chapter 30.53A Fire Code and the International Fire Code (IFC).

Snohomish County has currently adopted the 2015 Edition of the International Fire Code (IFC) along with the Washington State Amendments. This edition has been used for the site conditions in regard to fire review of the Urban Center Development as well as information regarding specific fire code requirements for high-rise buildings and marinas. There has not been a lot of fire code details provided in regard to the buildings and buildings construction, but some specific fire code sections have been shared to provide advanced notice of some specific fire code requirements regarding high-rise buildings, piers and marinas.

### **SCC 30.53A.512 Fire Apparatus Access Roads**

1. Fire apparatus access shall be provided for every facility, building or portion of a building hereafter constructed within the county. The fire apparatus access road shall comply with the requirements of this section and shall extend to within 150 feet of all portions of the facility and all portions of the exterior walls of the first story of the building as measured by an approved route around the exterior of the building or facility.

Fire apparatus access has not been provided to all facilities, buildings or portion of buildings within 150 feet. It is unclear if the service roads are also intended to be fire apparatus access roads, yet it is assumed they are not. There are inconsistencies between some of the site plans in regard to the esplanade dimensions and if it is intended to be used for emergency vehicle access. In some locations it is still identified as a boardwalk, in other site plans it indicates it is for "pedestrians only", yet in other plans it is proposed to be used as a fire lane for fire apparatus. Provide clarification and consistency between all site plans in regard to fire lanes and fire apparatus access.

On page 24 of the project narrative the applicant has proposed to increase the access to 200 feet due to the installation of automatic fire sprinkler systems. Snohomish County Code 30.53A.512 indicates that the fire apparatus access roads requirements MAY be modified by the fire marshal when buildings are completely protected with approved automatic sprinkler systems. Due to all of the factors of this development, including density, topography, height

of the buildings, mixed uses, and circulations routes, our office will not approve an increase in access to all buildings or portions of buildings. Access along an approved route of travel shall be provided to all facilities, buildings, and portions of buildings to within 150 feet.

Piers and wharves shall be provided with fire apparatus access roads pursuant to IFC 3604.3. Currently the pier is provided with vehicle access, as proposed there is no fire apparatus access to the pier. Refer to Chapter 36 for more information regarding requirements for piers and marinas.

Exhibit B provided for the fire truck turning movements have been reviewed as the proposed fire apparatus access routes. As identified in this exhibit, if the identified turning movements are the only proposed fire lanes, there is significant access issues without provided access to within 150 feet of every portion of every building along an approved route of travel to all portions of the exterior walls of the first story of the buildings. This exhibit also verifies that the service roads have not been intended to be accessible by fire apparatus.

Provide a detailed fire apparatus access roads plan, hereafter referred to “fire lane”, which clearly identifies the proposed fire lane access to each proposed structure, facility, building, or portion of a building within 150 feet. The fire lane should not be located under any buildings or portions of buildings to which we may need to fight a fire.

Exhibit B has been prepared to show fire truck turning movements for a 43 feet aerial fire truck. The width of this apparatus, per your dimensions, has been identified as 8.50 feet. Mirror to mirror the accurate width is 10 ft. This information was obtained by our office contacting Snohomish County Fire Protection District 1 and obtaining information on their largest aerial apparatus.

Our office also contacted Shoreline Fire Department to obtain dimensions of their largest aerial apparatus. Below please find the Shoreline Fire Department Tiller Ladder Truck specifications. Please note the maximum approach/grade and specification of this apparatus listed below:

Shoreline Fire Department Tiller Ladder Truck

- Overall Length: 59 ft. 8 in.
- Front Overhang: 7 ft. 1 in.
- Rear Overhang: 8 ft. 8 in.
- Front Axle (tractor) to Last axle (trailer): 43 ft. 1 in.
- Maximum approach/grade: 8%
- Height: 11 ft. 2 in.

2. More than one fire apparatus road shall be provided when it is determined by the fire marshal that access by a single road might be impaired by vehicle congestion, conditions of terrain, climatic conditions or other factors that could limit access.

For commercial and industrial developments, buildings or facilities exceeding 30 feet or three stories in height shall have at least two means of fire apparatus access for each structure. Projects having a gross building area of up to 124,000 square feet may have a single approved fire apparatus access road when all buildings are equipped throughout with approved automatic sprinkler systems.

For multiple-family residential projects having more than 200 dwelling units shall be provide with two separate and approved fire apparatus access road regardless if they are equipped with an approved automatic sprinkler system.

Where two fire apparatus access roads are required, they shall be placed a distance apart equal to not less than one half of the length of the maximum overall diagonal dimension of the lot or area to be served, measured in a straight line between accesses.

The proposal significantly exceeds 250 ADTs (which is a Public Works requirement for a second access) as well as having a gross building area over 124,000 square feet, which this alone requires the second access. The project includes multiple buildings that exceed three stories in height, and multiple buildings that exceed 124,000 square feet, and includes multi-family buildings with more than 200 dwelling units, therefore the second access is required.

The proposed second access, and Exhibit A, which details the proposed second access has been identified with a maximum grade of 15%. Provide verification that this second access meets the remoteness requirements in that the second access is a minimum distance from the primary access. The grade has been identified as 15% in some portions of the second access, which is the maximum grade allowed for fire apparatus pursuant to SCC 30.53A.512. Provide details, including elevation views that verifies no portion of this second access road exceeds the 15%. The maximum approach grade shall not exceed 8%. No exception can be made for this in order for aerial apparatus to access the subject properties.

In addition to the second access to the "development" a second access shall be provided to each building as identified above. There is only one proposed access to the Central Village. There shall be two distinct accesses to all four phases; Urban Plaza, North Village, Central Village, and South Village.

3. Aerial fire apparatus access roads shall have a minimum unobstructed width of 26 feet, exclusive of shoulders, in the immediate vicinity of the building or portion thereof. At least one of the required access routes meeting this condition shall be located within a minimum of 15 feet and a maximum of 30 feet from each building, and shall be positioned parallel to one entire side of each building. The side of the building on which the aerial fire apparatus access road is positioned shall be approved by our office. Currently, there is only one fire apparatus access proposed on one side of the buildings. As noted above, this is not acceptable, and access on both sides of all buildings shall be provided or it shall be verified that all buildings can be accessed by an approved route of travel to within 150 feet of all portions of all buildings.

There is a note on plan sheet C-501 that states the following, "The pedestrian boardwalk and bicycle path shall be designed to withstand fire truck and fire truck outrigger loading and meet applicable fire code requirement." If the "pedestrian boardwalk" is intended to also be the fire lane for aerial apparatus, it shall be identified as such on all plans, and in order to support and accommodate aerial apparatus with outrigger, it shall be a minimum of 26 feet in width so that other emergency apparatus can pass when aerial apparatus is set up for emergency operations.

The International Fire Code, Section 503.2.2 indicates the fire marshal shall have the authority to require or permit modifications to the required access widths where they are inadequate for fire or rescue operations or where necessary to meet the public safety objectives of the jurisdiction. Therefore, our office requires that all fire apparatus access

meet the requirements for aerial apparatus and 26 feet fire lanes be provided throughout. (See comments below regarding the boulevard.)

The access areas identified as the “boulevard” has split access roads that are less than 20 feet in width. All split access roads shall be a minimum of 20 feet in width. If at any portion of the boulevard it is proposed to be the fire lane that provides access to within 150 feet of a building or portion of the building, it shall be a minimum of 26 feet in width so that if an aerial apparatus with outriggers is set up, other apparatus can still pass.

4. There shall be no overhead utility, power lines, or other obstructions over the aerial fire apparatus access roads or between the aerial fire apparatus roads and the building. There are overhead obstructions and vegetation proposed to be located over some of the identified fire lanes. There shall be no overhead obstructions located over, or near the fire lane in order for emergency services to set up aerial apparatus.
5. Due to the requirement of aerial apparatus access, increased turning radii shall be required on all fire apparatus access roads. The minimum turning radii shall be a 25 ft. inside turning radius and a 50 ft. outside turning radius. No deviation can be obtained for less than these minimum requirements for turning radii. All turns, bends or sweeps shall meet this minimum requirement. All fire lanes shall be provided with turns, bends or sweeps that fire apparatus can access from any direction. Exhibit B, turning movement exhibit, proposes fire access in only one direction and does not include access to all phases from all directions. Modifications shall be made to the fire lanes so that emergency apparatus, including aerial apparatus, can access each phase/village from any direction along the fire lane.
6. There shall be a minimum vertical clearance on all fire lanes of 13 ft. 6 inches. This is a minimum and future improvements and maintenance of driving surfaces shall be taken into consideration. The vertical clearance of the fire lane shall include overhead obstructions of awnings, utilities, other buildings, landscaping, etc. There are multiple locations where the proposed landscaping plan is proposing vegetation that appear it will encroach significantly in the vertical clearance of the fire lane. When planning what vegetation is to be planted in the planters and landscaped areas that are located within or adjacent to the fire lane, consideration shall be made for the required unobstructed fire lane widths, 20 – 26 feet and the vertical clearance of 13 feet 6 inches.

Provide detailed elevation views that verify all overhead obstructions along the required fire lane meet the minimum vertical clearance. This shall include landscaping vegetation, awnings, buildings, bridges, etc. that are proposed above or over a required fire lane.

7. Planters or openings may be installed in cul-de-sacs when the outside turning radius of the cul-de-sac is a minimum of 50 feet and the inside radius is a minimum of 25 feet. This sized cul-de-sac is required for all turnarounds due to the aerial apparatus access needs. Cul-de-sac grades shall not exceed six percent (6%).

There are two cul-de-sac turnarounds in the North Village that do not meet this minimum requirement. They shall be redesigned so that there is a minimum 100 feet cul-de-sac in these locations. All fire apparatus shall be able to use the cul-de-sac as a turnaround and not just a pass through as shown on Exhibit B.

8. Exhibit B has provided turning movement for a 43 ft. aerial ladder truck. This apparatus dimension does not accommodate all aerial apparatus. Again, refer to the Shoreline Fire Department Tiller Ladder Truck specifications provided above. The minimum turning radii on the submitted plans have indicated that the minimum 20 ft. inside turning radius and 40 ft. outside turning radius has been provided. However, as previously noted, due to aerial apparatus requirements, a minimum 25 ft. inside turning radius and 50 ft. outside turning radius shall be provided along all fire lanes.

As noted above, the turning movement exhibit does not show fire apparatus navigating the cul-de-sac turnarounds located in the North Village, but rather shows a drive through to the board walk. All fire lanes shall be accessible from any direction. All turns, bends, or sweeps, shall meet the minimum turning radii. This has not been demonstrated.

It is recommended that the developers also contact the responding agencies to obtain specifications on all of their apparatus within their fleet. The information on the Shoreline Fire Department Tiller Ladder Truck was obtained by our office, and at this time appears to be the largest apparatus within the Shoreline Fire Department fleet. However, it is the applicant's responsibility to make sure the fire apparatus access can be met for all apparatus and that unobstructed access can be provided in any direction along all fire lanes.

9. The grade of the fire apparatus access roads/fire lanes shall not exceed 15% in any location. The angles of approach and departure for fire apparatus access roads shall not exceed 8%.
10. Facilities, buildings or portions of buildings hereafter constructed shall be accessible to fire department apparatus by way of an approved fire apparatus access road with an asphalt, concrete or other approved driving surface capable of supporting the imposed load of fire apparatus weighing at least 75,000 pounds.
11. Fire lanes shall be unobstructed at all times, including the parking of vehicles. All fire lanes shall be clearly identified and include pavement striping stating, "No Parking Fire Lane" on both sides of each fire lane, at a minimum distance of 50 ft. The pavement striping shall be maintained in a clean and legible condition at all times and be replaced or repaired when necessary to provide adequate visibility.
12. Where bridges or an elevated surface is part of a fire apparatus access road, the bridge shall be constructed and maintained in accordance with AASHTO HB-17. Bridges and elevated surfaces shall be designed for a live load sufficient to carry the imposed loads of fire apparatus. Vehicle load limits shall be posted at both entrances to bridges. Where elevated surfaces designed for emergency vehicle use are adjacent to surfaces that are not designed for such use, approved barriers, approved signs or both shall be installed and maintained.
13. As part of the Phase 1 development, it is proposed to provide a police and fire station. As designed it is unclear how access to this fire station is to be obtained, with no access meeting the above requirements. Additionally, it is unclear the extent of the fire station. The building appears to only accommodate motor vehicles, with less than 20 feet parking stalls. There are no accommodations for fire apparatus. Provide details about the proposed police and fire station.

### **SCC 30.53A.513 Address Identification**

1. New and existing buildings shall have approved address numbers, building numbers or approved building identification placed in a position that is plainly legible and visible from the street or road fronting the property. Address numbers shall contrast with their background; be Arabic numerals or alphabetical letters; be a minimum of 6 inches; have a minimum stroke width of 0.5 inches.
2. Streets and roads shall be identified with approved signs. Temporary signs shall be installed at each street intersection when construction of new roadways allows passage by vehicles. Signs shall be of an approved size, weather resistant and be maintained until replaced by permanent signs. (IFC 505.2)

### **SCC 30.53A.514 Fire Protection Water Supply**

Water mains and fire hydrants shall meet the required minimum standards for water mains and fire hydrants. These requirements shall apply to land use and construction permit actions subject to this title, or to any other existing or future code provision in which compliance with the fire code is specifically required.

All land upon which buildings or portions of buildings are or may be constructed, erected, enlarged, altered, repaired, moved into the jurisdiction, or improved, shall be served by a water supply designed to meet the required fire flow for fire protection as set out in Appendix B of the International Fire Code (IFC).

### **SCC 30.53A.516 Fire Hydrant Spacing**

Fire hydrant locations shall be determined by the fire marshal, in coordination with the water purveyor, and pursuant to the requirements of Appendix C of the IFC subject to the following:

1. Fire hydrants service single family dwellings or duplexes shall have a maximum lateral spacing of 600 feet with no lot or parcel in excess of 300 feet from a fire hydrant.
2. Where the buildings are protected by an approved automatic sprinkler system, the spacing requirements may be modified, if in the opinion of the fire marshal, the level of fire protection is not reduced.
3. For dead-end streets or roads the fire marshal may make adjustments to the lateral spacing requirements to facilitate locating the hydrant at or near the street intersections.
4. All hydrants shall be accessible to the fire department by roadways or accesses meeting the requirements of SCC 30.53A.512.
5. When fire hydrants cannot be installed in conformance with the spacing requirements of this chapter, the fire marshal shall confer with the water purveyor and provide for alternate locations as allowed by the fire code.

### **SCC 30.53A.518 Hydrant systems**

Where a portion of the facility or building hereafter constructed or moved into the jurisdiction is more than 150 feet from a hydrant on a fire apparatus access road, as measured by an approved route around the exterior of the facility or building, on-site hydrants and mains shall be provided.

Exception:

1. For Group R-3 and Group U occupancies, the distance requirements shall be 300 feet.

2. For buildings equipped throughout with an approved automatic sprinkler system installed the distance requirement shall be 300 feet.

Fire hydrants shall be so located to be in compliance with Appendix C of the IFC. They shall not be placed greater than 300 feet apart.

### **SCC 30.53A.520 (Hydrant) Inspection, Testing and Maintenance Requirements**

The following requirements shall apply to the installation or replacement of any required hydrant:

1. The installation of all fire hydrants shall be in accordance with sound engineering practices and supplied by mains as prescribed by this chapter. Hydrants shall be installed, tested and charged prior to the start of construction, unless otherwise approved by the fire marshal.
2. Approval of fire hydrant types must be obtained prior to installation from the water purveyor.
3. All elements of fire hydrant installation including water mains, pipes, valves, and related components shall conform to the fire code, National Fire Protection Association (NFPA) Standard 24, and American Water Works Association (AWWAA) Standard C502.94.
4. Four (4) inch Storz type steamer port fittings shall be provided on new hydrants.
5. Hydrants shall stand plumb and be set to the finished grade. The bottom of the least outlet of the hydrant shall be no less than 18 inches above the grade. There shall be a 36 inch radius of clear area about the hydrant for the operation of a hydrant wrench on the outlets and the control valve. The pumper port shall face the street, or where the street cannot be clearly identified, the port shall face the most likely route of approach of the fire apparatus while pumping. The hydrant shall be installed within 15 feet of the street or access roadway.
6. Hydrants shall be a minimum of 50 feet from a commercial structure to be served and no further than 50 feet from a fire department connection (FDC) if present.
7. Hydrants shall not be obstructed by structures, fences, the parking of vehicles, or vegetation. Hydrant visibility shall not be impaired within a distance of 75 feet in any direction of vehicular approach to the hydrant.
8. The top(s) of the hydrant(s) shall be colored coded to designate the level of service being provided by that hydrant. The fire flow will be 1,500 gpm or greater therefore, the tops of the hydrants shall be painted light blue.
9. For all new hydrant installations, either public or private, the developer shall install blue street reflectors to indicate hydrant locations. Installation of blue street reflectors shall be completed prior to final approval of any development or new constructions.
10. Vehicles shall not be parked within 15 feet of a fire hydrant, or fire department connection, or a fire protection system control valve.

The above requirements shall be met in regard to the placement of the fire hydrants. It appears that it will be difficult to place the fire hydrants 50 feet from the buildings. To be placed less than 50 feet from a commercial structure, it will be necessary to make the request in writing, and obtain approval from the responding agencies. I have had a conversation with Fire District 1, and 40 feet from the commercial structure is acceptable to them without additional approval. Our office will accept a fire hydrant 40 feet from the structures but no closer without a formal request, justification, and approval from both Snohomish County Fire Protection District 1 and Shoreline Fire Department.

## **IFC Appendix B Fire-flow Requirements for Buildings**

The procedure for determining fire-flow requirements for buildings or portions of buildings shall be in accordance with this Appendix B of the IFC. The fire-flow calculation area shall be the total floor area of all floor levels within the exterior walls, and under the horizontal projection of the roof of a building, except as modified by Section B104.3.

**B104.3 Type IA and Type IB construction.** The fire-flow calculation area of buildings constructed of Type IA and Type IB construction shall be the area of the three largest successive floors. Exception: Fire-flow calculation area for open parking garages shall be determined by the area of the largest floor.

Table B105.1(2) shall be used to calculate the fire-flow requirements. The calculation is based upon the type of construction and the square footage of the buildings.

A reduction in required fire flow may be granted due to the required installation of automatic fire sprinkler systems. Our office will not consider a full 75% reduction of required fire flow due to proposed conditions that create susceptibility to group fires or conflagrations.

For buildings equipped with an approved automatic sprinkler system, the water supply shall be capable of providing the greater of:

1. The automatic sprinkler system demand, including hose stream allowance.
2. The required fire-flow.

## **IFC Appendix C Fire Hydrant Locations and Distribution**

In addition to the requirements of SCC 30.53A, fire hydrants shall be provided in accordance with Appendix C for the protection of buildings, or portions of buildings, hereafter constructed or moved into the jurisdiction.

The number of hydrants available to a building shall be not less than the minimum specified in Table C102.1.

Fire apparatus access roads and public streets providing required access to buildings in accordance with SCC 30.53A.512 shall be provided with fire hydrants. The distance between required fire hydrants shall be in accordance with Sections C103.2 and C103.3.

**C103.2 Average spacing.** The average spacing between fire hydrants shall be in accordance with Table C102.1.

**C103.3 Maximum spacing.** The maximum spacing between fire hydrants shall be in accordance with Table C102.1, or shall not be greater than 300 feet, whichever is less.

## **SCC 30.52G.430 NFPA 13 Sprinkler Systems (IFC and IBC 903.3.1.1)**

Where provisions of the construction codes require that a building or portion thereof be equipped throughout with an automatic sprinkler system, sprinklers shall be installed throughout in accordance with NFPA 13.



### **SCC 30.52G.440 NFPA 13R Sprinkler Systems (IFC and IBC 903.3.1.2 and 903.3.1.2.1)**

Automatic sprinkler systems in Group R occupancies, up to and including four stories in height shall be permitted to be installed throughout in accordance with NFPA 13R. Sprinkler protection shall be provided for exterior balconies, decks and ground floor patios of dwelling units where the building is of Type V construction, provided there is a roof or deck above. Sidewall sprinklers that are used to protect such areas shall be permitted to be located such that their deflectors are within 1 inch to 6 inches below the structural members and a maximum distance of 14 inches below the deck of the exterior balconies and decks that are constructed of open wood joist construction.

At this time it appears that NFPA 13 automatic sprinkler system would be required in all buildings. Further review will be conducted at the time of building permit application. The height of the multi-family buildings and the mix used would not allow NFPA 13-R systems.

### **IFC 509 Fire Protection and Utility Equipment Identification and access**

Fire protection equipment shall be identified in an approved manner. Rooms containing controls for air-conditioning systems, sprinkler risers and valves, or other fire detection, suppression or control elements shall be identified for the use of the fire department. Approved signs required to identify fire protection equipment and equipment location shall be constructed of durable materials, permanently installed and readily visible.

Fire protection equipment rooms shall have a direct access from the exterior of the building.

### **SCC 30.52G.510 Fire Department Connections (IFC 903.3.7 and 912)**

The location of the fire department connections (FDC) shall be approved by the fire marshal.

1. Fire department connections shall be installed in accordance with the NFPA standard applicable to the system design and shall comply with Sections 912.2 through 912.7.
2. With respect to hydrants, driveways, buildings and landscaping, fire department connections shall be so located that fire apparatus and hose connected to supply the system will not obstruct access to the buildings for other fire apparatus.
3. The location of the FDC shall be remote from the building and shall be a minimum of 50 ft. from the fire hydrant.
4. FDCs shall be located on the street side of buildings, fully visible and recognizable from the street or nearest point of fire department vehicle access or otherwise approved by the fire marshal.
5. Immediate access to FDCs shall be maintained at all times and without obstruction by fences, bushes, trees, walls or any other fixed or moveable object.
6. A metal sign with raised letters not less than 1 inch in size shall be mounted on all FDCs serving automatic sprinklers, standpipes or fire pump connections. Such signs shall read: AUTOMATIC SPRINKLERS or STANDPIPES or TEST CONNECTION or a combination thereof as applicable. Where the FDC does not serve the entire building, a sign shall be provided indicating the portions of the building served.

7. Each FDC shall be identified to what building it serves.
8. The FDC shall be equipped with a 4 inch Storz fitting with a 30° downward deflection.

### **SCC 30.52G.520 Sprinkler System Supervision and Alarms (IFC and IBC 903.4)**

All valves controlling the water supply for automatic sprinkler system, pumps, tanks, water levels and temperatures, critical air pressures and water-flow switches on all sprinkler systems shall be electrically supervised by a listed fire alarm control unit.

Exception:

1. Jockey pump control valves that are sealed or locked in the open position.
2. Control valves to commercial kitchen hoods, paint spray booths or dip tanks that are sealed or locked in the open position
3. Valves controlling the fuel supply to fire pump engines that are sealed or locked in the open position
4. Trim valves to pressure switches in dry, pre-action and deluge sprinkler systems that are sealed or locked in the open position.

### **SCC 30.52G.530 Monitoring (IFC and IBC 903.4.1)**

Alarm, supervisory and trouble signals shall be distinctly different and shall be automatically transmitted to an approved supervising station or, when approved by the fire marshal, shall sounds an audible signal at a constantly attended location.

### **SCC 30.52G.540 Alarms (IFC and IBC 903.4.2)**

An approved audible device, located on the exterior of the building in an approved location, shall be connected to each automatic sprinkler system. Such sprinkler water-flow alarm devices shall be activated by water flow equivalent to the flow of a single sprinkler of the smallest orifice size installed in the system. Actuation of the automatic sprinkler system shall actuate the building fire alarm system.

## **IFC 907 Fire Alarm and Detection Systems**

An approved fire alarm system installed in accordance with the provisions of the IFC and NFPA 72 shall be provided in new buildings and structures in accordance with Sections 907.2.1 through 907.2.23 and provide occupant notification in accordance with Section 907.5.

### **IFC 907.2.13 High-rise Buildings**

High-rise buildings shall be provided with an automatic smoke detection system in accordance with Section 907.2.13.1, a fire department communication system in accordance with Section 907.2.13.2 and an emergency voice/alarm communication system in accordance with Section 907.5.2.2.

### **IFC 907.2.13.1 Automatic Smoke Detection**

Automatic smoke detection in high-rise buildings shall be in accordance with Sections 907.2.13.1.1 and 907.2.13.1.2.

### **IFC 907.2.13.2 Fire Department Communication System**

Where a wired communication system is approved in lieu of an emergency responder radio coverage system in accordance with Section 510, the wired fire department communication system shall be designed and installed in accordance with NFPA 72 and shall operate between a fire command center complying with Section 508, elevators, elevator lobbies, emergency and standby power rooms, fire pump rooms, areas of refuge and inside interior exit stairways. The fire department communication device shall be provided at each floor level within the interior exit stairway.

### **IFC 907.5.2.2 Emergency voice/alarm communication systems**

Emergency voice/alarm communication systems required by this code shall be designed and installed in accordance with NFPA 72. The operation of any automatic fire detector, sprinkler water flow device or manual fire alarm box shall automatically sound an alert tone followed by voice instructions giving approved information and directions for a general or staged evacuation in accordance with the building's fire safety and evacuation plans required by Section 404. In high-rise buildings, the system shall operate on at least the alarming floor, the floor above and the floor below. Speakers shall be provided throughout the building by paging zones. At a minimum, paging zones shall be provided as follows:

1. Elevator groups.
2. Interior exit stairways.
3. Each floor.
4. Areas of refuge as defined in Chapter 2.

### **IFC 913 Fire Pumps**

Fire pumps shall be installed in accordance with this section and NFPA 20. Each building shall be provided with an independent fire pump or pumps. The fire pump, driver and controller shall be protected in accordance with NFPA 20 against possible interruption of service through damage caused by explosion, fire, flood, earthquake, rodents, insects, windstorm, freezing, vandalism and other adverse conditions.

### **IFC 914 Fire Protection Based on Special Detailed Requirements of Use and Occupancy – 914.3 High-rise Buildings**

High-rise buildings shall comply with Sections 914.3.1 through 914.3.7.

1. Buildings and structures shall be equipped throughout with an automatic sprinkler system and a secondary water supply.
2. Each sprinkler system zone in buildings that are more than 420 feet in height shall be supplied by no fewer than two risers. Each riser shall supply sprinklers on alternate floors. If more than two risers are provided for a zone, sprinklers on adjacent floors shall not be supplied from the same riser.

3. In buildings that are more than 420 feet in building height, required fire pumps shall be supplied by connections to no fewer than two water mains located in different streets. Separate supply piping shall be provided between each connection to the water main and the pumps. Each connection and the supply piping between the connection and the pumps shall be sized to supply the flow and pressure required for the pumps to operate.
4. An automatic secondary on-site water supply having a capacity not less than the hydraulically calculated sprinkler demand, including the hose stream requirement, shall be provided for high-rise buildings assigned to Seismic Design Category C, D, E or F as determined by the IBC. An additional fire pump shall not be required for the secondary water supply unless needed to provide the minimum design intake pressure at the suction side of the fire pump supplying the automatic sprinkler system. The secondary water supply shall have a duration of not less than 30 minutes as determined by the occupancy hazard classification in accordance with NFPA 13.
5. Fire alarm systems shall be provided in accordance with Section 907.2.13.
6. Smoke detection shall be provided in accordance with Section 907.2.13.1.
7. An emergency voice/alarm communication system shall be provided in accordance with Section 907.5.2.2.
8. Emergency responder radio coverage shall be provided in accordance with Section 510.
9. A fire command center complying with Section 508 shall be provided in a location approved by the fire department.

### **IFC Section 508 Fire Command Centers**

All buildings classified as high-rise buildings by the International Building Code (IBC), a fire command center for fire department operations shall be provided in each building and shall comply with Sections 508.1.1 through 508.1.6.

1. The location and accessibility of the fire command center shall be approved by the fire chief. It will be necessary to obtain approval from the fire chief of the responding agencies; Snohomish County Fire Protection District 1 and Shoreline Fire Department.
2. The fire command center shall be separated from the remainder of the building by not less than a 2-hour fire barrier constructed in accordance with Section 707 of the IBC or horizontal assembly constructed in accordance with Section 711 of the IBC or both. (This is a WA State Amendment to 508.1.2 of the IFC.)
3. The fire command center shall not be less than 200 square feet in area with a minimum dimension of 10 feet.
4. A layout of the fire command center and all features required by this section to be contained therein shall be submitted for approval prior to installation.

5. Storage unrelated to operation of the fire command center shall be prohibited.
6. The fire command center shall comply with NFPA 72 and shall contain the following features:
  - a. The emergency voice/alarm communication system control unit.
  - b. The fire department communication system.
  - c. Fire detection and alarm system annunciator.
  - d. Annunciator unit visually indicating the location of the elevators and whether they are operational.
  - e. Status indicators and controls for air distribution systems.
  - f. The fire fighters' control panel for smoke control systems installed in the building.
  - g. Controls for unlocking stairway doors simultaneously.
  - h. Sprinkler valve and water-flow detector display panels.
  - i. Emergency and standby power status indicators.
  - j. A telephone for fire department use with controlled access to the public telephone system.
  - k. Fire pump status indicators.
  - l. Schematic building plans indicating the typical floor plan and detailing the building core, means of egress, fire protection systems, fire-fighter air replenishment systems, fire-fighting equipment and fire department access, and the location of fire walls, fire barriers, fire partitions, smoke barriers and smoke partitions.
  - m. An approved Building Information Card that includes, but is not limited to, all of the following information:
    - i. General building information that include: property name, address, the number of floors in the building above and below grade, use and occupancy classification (for mixed uses, identify the different types of occupancies on each floor) and estimated building population during the day, night and weekend.
    - ii. Building emergency contact information that includes: a list of the building's emergency contacts including but not limited to building manager, building engineer and their respective work phone number, cell phone number and e-mail address.
    - iii. Building construction information that includes: the type of building construction including but not limited to floors, walls, columns and roof assembly.
    - iv. Exit access stairway and exit stairway information that includes: number of exit access stairways and exit stairways in building; each exit access stairway and exit stairway designation and floors serve; location where each exit access stairway and exit stairway discharges, interior exit stairways that are pressurized; exit stairways provided with emergency lighting; each exit stairway that allows reentry; exit stairways providing roof access; elevator information that includes: number of elevator banks, elevator bank designation, elevator car numbers and respective floors that they serve; location of elevator machine rooms, control rooms and control spaces; location of sky lobby; and location of freight elevator banks.
    - v. Building services and system information that includes: location of mechanical rooms, location of building management system, location and capacity of all fuel oil tanks, location of emergency generator and location of natural gas service.

- vi. Fire protection system information that includes: location of standpipes, location of fire pump room, location of fire department connect sink floors protected by automatic sprinklers and location of different types of automatic sprinkler systems installed including but not limited to dry, wet and pre-action.
- vii. Hazardous material information that includes: location and quantity of hazardous material.
- n. Work table.
- o. Generator supervision devices, manual start and transfer features.
- p. Public address system.
- q. Elevator fire recall switch in accordance with ASME A17.1.
- r. Elevator emergency or standby power selector switches, where emergency or standby power is provided.

### **IFC 607.4 Fire Service Access Elevator – IBC 403.6.1 Fire Service Access Elevator**

In buildings with an occupied floor more than 120 feet above the lowest level of fire department vehicle access, no fewer than two fire service access elevators, or all elevators, whichever is less, shall be provided in accordance with Section 3007 of the IBC. Each fire service access elevator shall have a capacity of not less than 3,500 pounds and shall comply with Section 3002.4 IBC.

### **IFC 607.5 Occupant Evacuation Elevator Lobbies**

Where occupant evacuation elevators are provided in accordance with Section 3008 of the IBC, occupant evacuation elevator lobbies shall be maintained free of storage and furniture.

Where elevators are to be used for occupant self-evacuation during fires, all passenger elevator for general public use shall comply with Section 3008.1 through 3008.10 of the IBC.

### **IFC Chapter 36 Marinas**

Piers, marinas and wharves with facilities for mooring or servicing five or more vessels, and marine motor fuel-dispensing facilities shall be equipped with fire protection equipment in accordance with Sections 3604.2 through 3604.7.

**3604.2 Standpipes.** Marinas shall be equipped throughout with Class I manual, dry standpipe systems in accordance with NFPA 303. Systems shall be provided with outlets located such that no point on the marina pier or float system exceeds 150 feet from a standpipe outlet.

**3604.3 Access and water supply.** Piers and wharves shall be provided with fire apparatus access roads and water supply systems with on-site fire hydrants. At least one fire hydrant capable of providing the required fire flow shall be provided within an approved distance of standpipe supply connections.

**3604.4 Portable fire extinguishers.** One 4A40BC fire extinguisher shall be provided at each standpipe outlet. Additional fire extinguishers, suitable for the hazards involved, shall be provided and maintained in accordance with Section 906.

**3604.5 Communications.** A telephone not requiring a coin to operate or other approved, clearly identified means to notify the fire department shall be provided on the site in a location approved by the fire marshal.

**3604.6 Emergency operations staging areas.** Space shall be provided on all float systems for the staging of emergency equipment. Emergency operation staging areas shall provide a minimum of 4 feet wide by 10 feet long clear area exclusive of walkways and shall be located at each standpipe hose connection. Emergency operation staging areas shall be provided with a curb or barrier having a minimum height of 4 inches and maximum space between the bottom edge and the surface of the staging area of 2 inches on the outboard sides of the staging areas.

An approved sign reading FIRE EQUIPMENT STAGING AREA – KEEP CLEAR shall be provided at each staging area.

**3604.7 Smoke and heat vents.** Approved automatic smoke and heat vents shall be provided in covered boat moorage areas exceeding 2,500 sq. ft. in area, excluding roof overhangs. Exception: Smoke and heat vents are not required in areas protected by automatic sprinklers.

Detailed information regarding the construction and use of the pier is lacking. It appears that there is a small marina proposed but it does appear that it will allow moorage of more than five vessels. Provide more detailed information regarding the marina and pier so that a complete fire review can be done. Will there be fuel-dispensing facilities? Will the marina be covered? It is understood by this office, that a restaurant is proposed on the pier. Provide clarification and more detail of the proposed uses on the pier and marina.