

CITY COUNCIL AGENDA ITEM
CITY OF SHORELINE, WASHINGTON

AGENDA TITLE:	Adopting Ordinance No. 914 - Amending Shoreline Municipal Code Chapter 15.05 Construction and Building Codes to Provide Amendments to the International Building Code, International Residential Code, and International Fire Code
DEPARTMENT:	Planning & Community Development
PRESENTED BY:	Ray Allshouse, Building Official
ACTION:	<input checked="" type="checkbox"/> Ordinance <input type="checkbox"/> Resolution <input type="checkbox"/> Motion <input type="checkbox"/> Discussion <input type="checkbox"/> Public Hearing

PROBLEM/ISSUE STATEMENT:

Under the current provisions of Shoreline Municipal Code (SMC) Chapter 15.05, the updated Washington State Building Code is effective in the City by reference upon approval by the Washington State Building Code Council (WASBCC) through their rulemaking authority. Therefore, no further action would be required by the City Council except to ensure that the City’s standing local amendments to the State Building Code do not conflict with the WASBCC current rulemaking results. However, the City has the option to further amend the State Building Code to accommodate select local preferences as allowed by applicable provisions of state law.

As Council is aware, the Shoreline Fire Department is seeking to expand fire sprinkler installation coverage to include all new single family and duplex projects constructed in the City as part of this update. This was discussed by the City Council on December 7, 2020. The remaining proposed local amendments are intended to maintain consistency of applicable Fire Code provisions among King County Zone One Fire Districts. Beyond this objective, staff is recommending a few other changes to the proposed Code. This was discussed by the City Council on January 4, 2021. Tonight, Council is scheduled to take action on proposed Ordinance No. 914, which would adopt the local amendments to the State Building Code as codified in SMC Chapter 15.05 - Construction and Building Code.

RESOURCE/FINANCIAL IMPACT:

The impact to City resources has already been accommodated in the previously approved budget.

RECOMMENDATION

Staff recommends that the City Council adopt proposed Ordinance No. 914.

Approved By: City Manager **DT** City Attorney **MK**

BACKGROUND

Since incorporation, with a couple of exceptions, the Washington State Building Code has been regularly updated every three years to accommodate revisions to the national model construction and building codes that are developed and published by the International Code Council and the International Association of Plumbing and Mechanical Officials. State law established and tasks the Washington State Building Code Council (WASBCC) to maintain the State Building Code through the rulemaking process. The most recent update to the Washington State Building Code is scheduled to take effect on February 1, 2021.

Under the current provisions of Shoreline Municipal Code (SMC) Chapter 15.05, the updated Washington State Building Code is effective in the City by reference upon approval by the WASBCC. Therefore, no further action would be required by the City Council if no local Building Code amendments are proposed, except to ensure that the City's standing local amendments do not conflict with the WASBCC current rulemaking results. However, as the City has the option to further amend the State Building Code to accommodate select local preferences as allowed by applicable provisions of state law, the City sometimes takes advantage of this option to tailor the City's Construction and Building Code to meet the needs of the community.

The City's regulatory objective regarding its Construction and Building Code has historically been to keep local amendments to a minimum for the purpose of ensuring a competitive environment for private sector development. However, in this most recent Building Code update cycle, staff have found compelling reason to propose local amendments supported by the Shoreline Fire Department. This was further supported by local fire jurisdictions organized as King County Zone One¹, as these Zone One Fire Departments collaborated to develop similar local amendments to the Fire Code to attain consistent and efficient service delivery. King County has also undertaken a major multi-year mobile radio program upgrade that has significant implications on Emergency Responder Radio Coverage provisions of the Fire Code.

As Council is aware, the Shoreline Fire Department is seeking to expand fire sprinkler installation coverage to include all new single family and duplex projects constructed in the City as part of this update. This was discussed by the City Council on December 7, 2020. Council directed staff to include these sprinkler regulations in the proposed local amendments to the Construction and Building Code. The staff report for this December 7th Council discussion can be found at the following link:

<http://cosweb.ci.shoreline.wa.us/uploads/attachments/cck/council/staffreports/2020/staffreport120720-9b.pdf>.

The remaining proposed amendments as well the fire sprinkler amendments, as presented in proposed Ordinance No. 914, were further discussed by the Council on January 4, 2021. The staff report for this discussion can be found at the following link: <http://cosweb.ci.shoreline.wa.us/uploads/attachments/cck/council/staffreports/2021/staffreport010421-8c.pdf>.

¹ Zone One Fire Departments include Shoreline, Northshore, Bothell, Woodinville, Redmond, Kirkland, Bellevue, Mercer Island and Eastside Fire and Rescue.

DISCUSSION

Proposed Ordinance No. 914 (Attachment A) includes local amendments for the Building (Exhibit A), Residential (Exhibit B) and Fire (Exhibit C) Codes as follows:

International Building Code (IBC) Amendments (SMC Section 15.05.030)

- **Work Exempt from Permit** - In practice, a permit has not been required for window replacement projects where structural modifications to accommodate changed openings are unnecessary and fire-escape window safety is not reduced, so a formal exemption has been added. Although a permit will not be required, compliance with minimum technical standards of the code remain applicable. Furthermore, all new windows sold in the State meet minimum technical standards.

International Residential Code Amendments (SMC Section 15.05.040)

- **Work Exempt from Permit** – Similar to the above exemption in the IBC. In practice, a permit has not been required for window replacement projects where structural modifications to accommodate changed openings are unnecessary and fire-escape window safety is not reduced, so a formal exemption is added.
- **Climatic and Geographical Design Criteria** - Snow Load provision is corrected to reflect proper design application at the “roof” versus the “ground”. This is the intended criteria of the State Structural Engineers Association.
- **Fire Sprinklers** - Adds requirement for automatic fire sprinklers in all new one- and two-family dwellings consistent with the mandate previously presented to Council.

International Fire Code Amendments (SMC Section 15.05.050)

- **Deleting Various Code Sections** - Various provisions are deleted where covered by the 2018 version model code update language. As part of the national code development process, it is not uncommon for local amended language to ultimately become part of subsequent model code updates. The old local amendments become redundant and can therefore be eliminated. The model code is also based on other national standards developed by organizations such as the National Fire Protection Association (NFPA) that are evolving as well.
- **Fire Sprinklers** - Expanded application of the Residential Code Fire Sprinkler requirement, as previously discussed with Council, is added and differentiated from commercial application requirements including additional discretionary language for residential additions and remodels. Previous residential exemptions are removed. This is necessary to implement the required sprinkler mandate since new construction also includes building additions which applied would otherwise result in partial sprinklered structures. Partial sprinklers are not completely effective and therefore neither recommended nor cost practical. The discretionary language establishes thresholds wherein the existing portions of the structure would also have to be retrofitted with sprinklers to resolve the discrepancy. Short of meeting these thresholds, the new construction will be exempted from the new requirement.

- **Fire Lane** - Fire Lane requirements are updated to current local standards and experience. Maintaining clear fire lanes is an ongoing challenge for the fire service and this implements more specific marking techniques that have evolved in practice.
- **Fire Flow** - Fire Flow requirements are updated to reflect a restructuring of these standards in the new IFC and the fact that previous residential exemptions no longer apply. All structures over 500 square feet must meet minimum fire flow availability requirements.
- **Private Fire Hydrants** - Private Fire Hydrant requirements are updated to help ensure that the many private hydrants in the City are properly maintained such that they can be counted upon when the need arises.
- **Emergency Radios** - Emergency Responder Radio Coverage provisions are rewritten to reflect new King County replacement mobile radio program requirements. These mobile radio standards are regulated at the County level for necessary consistency among multiple Fire Districts. Council asked about the specific reference and applicability to High Rise Buildings. To clarify, High Rise Buildings only include buildings where an occupied floor is more than 75 feet above the lowest level of fire department vehicle access. Although our Development Code does outright allow buildings of such height in MUR 70 Zones, and potentially in other commercial zones as a bonus, we have yet to see one actually proposed for construction to date.
- **Fire Sprinkler Water Requirements** - Fire sprinkler requirements are necessarily modified to accommodate water system fluctuations.

Following the January 4th Council discussion, Council directed that staff bring back proposed Ordinance No. 914 on tonight's consent agenda for potential adoption. Tonight, staff is recommending that Council adopt proposed Ordinance No. 914, which would adopt the local amendments to the State Building Code as codified in SMC Chapter 15.05 - Construction and Building Code.

RESOURCE/FINANCIAL IMPACT

The impact to City resources has already been accommodated in the previously approved budget.

RECOMMENDATION

Staff recommends that the City Council adopt proposed Ordinance No. 914.

ATTACHMENTS

- Attachment A - Proposed Ordinance No. 914
- Attachment A, Exhibit A - Amendments to the International Building Code Amendments (SMC 15.05.030)
- Attachment A, Exhibit B - Amendments to the International Residential Code Amendments (SMC 15.05.040)
- Attachment A, Exhibit C - Amendments to the International Fire Code Amendments (SMC 15.05.050)

ORDINANCE NO. 914

AN ORDINANCE OF THE CITY OF SHORELINE, WASHINGTON AMENDING SECTIONS 15.05.030, 15.05.040 AND 15.05.050 OF THE SHORELINE MUNICIPAL CODE CHAPTER 15.05, CONSTRUCTION AND BUILDING CODES, TO PROVIDE AMENDMENTS TO THE INTERNATIONAL BUILDING CODE, INTERNATIONAL RESIDENTIAL CODE, AND INTERNATIONAL FIRE CODE CONSISTENT WITH THE 2018 WASHINGTON STATE AMENDMENTS.

WHEREAS, the City of Shoreline is a non-charter optional municipal code city as provided in Title 35A RCW, incorporated under the laws of the state of Washington, and planning pursuant to the Growth Management Act, Chapter 36.70A RCW; and

WHEREAS, on November 8, 2019, the Washington State Building Code Council adopted the 2018 State Amendments to the International Building Code (“IBC”), International Residential Code (“IRC”), and the International Fire Code (“IFC”); these amendments are contained in Title 51 of the Washington Administrative Code (“WAC”); and

WHEREAS, these international codes provide model codes and standards used in the design, building, and compliance process for safe, sustainable, affordable, and resilient structures in order to ensure the public health, safety, and welfare; and

WHEREAS, the 2018 State Amendments were to become effective in July 2020, however, due to the COVID-19 pandemic, the Washington State Governor issued Proclamation 20-40, delaying the effective date until November 2020, and, on June 26, 2020, the Washington State Building Code Council voted in favor of an effective date of February 1, 2021; and

WHEREAS, Chapter 15.05 of the Shoreline Municipal Code (“SMC”) adopts all current building and construction codes for the City of Shoreline, including the IBC, SMC 15.05.030, the IRC, SMC 15.05.040, and the IFC, SMC 15.05.050, as amended by the State Building Code Council; and provides for local amendments adopted by the City Council, including those proposed by the Shoreline Fire Department and King County Zone One Fire Marshals; and

WHEREAS, the City has reviewed the 2018 State Amendments and determined that modifications to SMC 15.05.030, 15.05.040, and 15.05.050 are necessary to reflect these State Amendments and to provide for additional local amendments, including modifications agreed upon by the King County Zone One Fire Marshals, and done in consultation with the Shoreline Fire Department; and

WHEREAS, modifications to the SMC are needed to reflect the 2018 State Amendments and to ensure compliance with the technical standards for window replacements; ensure proper snow load design; to update fire lane, fire flow, and private fire hydrant standards; to ensure emergency radio coverage reflects King County program requirements; and to add a new requirement for automatic fire sprinklers in certain new residential dwelling units;

NOW THEREFORE, THE CITY COUNCIL OF THE CITY OF SHORELINE, WASHINGTON DO ORDAIN AS FOLLOWS:

Section 1. Amendment. Shoreline Municipal Code Section 15.05.030, International Building Code amendments, is hereby amended as set forth in Exhibit A, which is attached hereto and incorporated herein.

Section 2. Amendment. Shoreline Municipal Code Section 15.05.040, International Residential Code amendments, is hereby amended as set forth in Exhibit B, which is attached hereto and incorporated herein.

Section 3. Amendment. Shoreline Municipal Code Section 15.05.050, International Fire Code amendments, is hereby amended as set forth in Exhibit C, which is attached hereto and incorporated herein.

Section 4. Corrections by City Clerk or Code Reviser. Upon approval of the City Attorney, the City Clerk and the code reviser are authorized to make necessary corrections to this Ordinance, including the correction of clerical errors; references to other local, state or federal laws, codes, rules, or regulations; or ordinance numbering and section/subsection numbering.

Section 5. Severability. Should any section, subsection, paragraph, sentence, clause, or phrase of this Ordinance or its application to any person or situation be declared unconstitutional or invalid for any reason, such decision shall not affect the validity of the remaining portions of this Ordinance or its application to any person or situation.

Section 6. Publication and Effective Date. A summary of this Ordinance consisting of the title shall be published in the official newspaper. This Ordinance shall take effect at 12:01 am February 1, 2021. All permit applications received after the effective date are subject the 2018 State Amendments, as modified by local amendments.

PASSED BY THE CITY COUNCIL ON JANUARY 25, 2021.

Mayor Will Hall

ATTEST:

APPROVED AS TO FORM:

Jessica Simulcik Smith
City Clerk

Julie Ainsworth-Taylor
Assistant City Attorney on behalf of
Margaret King, City Attorney

Date of publication: , 2021
Effective date: , 2021

Ordinance No. 914
Exhibit A

NOTE: *Except as provided in this exhibit, no other provision of SMC 15.05.030, as it currently exists and last amended by Ordinance No. 641, is modified, amended, or otherwise changed.*

15.05.030 International Building Code amendments.

A. A NEW section is added to SMC 15.05.030(A), Section 105.2, Work exempt from permit, to read as follows:

4. Section 105.2(15) is added to read as follows:

15. Replacement of windows where there are no structural elements being revised and emergency escape and rescue openings are not reduced in size.

Ordinance No. 914
Exhibit B

NOTE: *Except as provided in this exhibit, no other provision of SMC 15.05.040, as it currently exists and was last amended by Ordinance No. 761, is modified, amended, or otherwise changed.*

15.05.040 International Residential Code amendments.

Amendment 1: A NEW section is added to SMC 15.05.040(A) Section R105.2, Work exempt from permit, to read as follows:

3. Section R105.2(12) is added to read as follows:

12. Replacement of windows where there are no structural elements being revised and emergency escape and rescue openings are not reduced in size.

Amendment 2: SMC 15.05.040(C) Table R301.2(1), Climatic and Geographical Design Criteria, is amended to read as follows:

Table R301.2(1)	
Climatic and Geographical Design Criteria	
Ground <u>Roof</u> Snow Load	25 lbs/sq ft
Wind Design	
Speed ^d	85 mph
Topographic effects ^k	No
Special Wind region ^l	No
Wind-borne debris zone ^m	No

Table R301.2(1)

Climatic and Geographical
Design Criteria

Seismic Design Category ^f	D2
Subject to damage from Weathering ^a	Moderate
Frost Line Depth ^b	12"
Termites ^c	Slight to Moderate
Decay	Slight to Moderate
Winter Design Temp ^e	27 degrees
Ice Shield Underlayment Required ^h	No
Flood Hazards ^g	o, n
Air Freeze Index ⁱ	113
Mean Annual Temp ^j	53 degrees

n. Date of ordinance adoption: March 4, 1997.

o. King County Flood Insurance Study date: November 6, 2010.

Amendment 3: A NEW section is added to SMC 15.05.040, Section 15.05.040(D) adopting Section R313.2 One – and two-family dwellings automatic fire sprinkler systems, and amending to read as follows:

D. Section R313.2 is adopted and amended as follows:

R313.2 One- and two-family dwellings automatic fire sprinkler systems. An automatic residential fire sprinkler system shall be installed in one- and two-family dwellings.

Exception: An automatic residential fire sprinkler system shall not be required for additions to existing buildings that are not already provided with an automatic residential sprinkler system unless otherwise required under IFC Section 102.5 as amended by SMC 15.05.050.

R313.2.1 Design and installation. *(no amendment to language)*

Amendment 4: A NEW section is added to SMC 15.05.040, Section 15.05.040(E) adopting Section P2904 Dwelling Unit Fire Sprinkler Systems, to read as follows:

E. Section P2904 Dwelling Unit Fire Sprinkler Systems is adopted.

**Ordinance No. 914
Exhibit C**

NOTE: Except as provided in this exhibit, no other provision of SMC 15.05.050, as it currently exists and was last modified by Ordinance No. 761, is modified, amended, or otherwise changed.

15.05.050 International Fire Code amendments.

Amendment 1: A NEW Section is added to SMC 15.05.050 adopting Section 102.5 Application of residential code, and amending to read as follows:

Section 102.5 is adopted and amended to read as follows:

102.5 Application of residential code. Where structures are designed and constructed in accordance with the International Residential Code, including, without exception, all new licensed adult family homes in existing structures, the provisions of this code shall apply.

102.5.1 Scope. Construction and design provisions of this code pertaining to the exterior of the structure shall apply including, but not limited to, premises identification, fire apparatus access and water supplies. Where interior or exterior systems or devices are installed, construction permits required by Section 105.7 of this code shall apply.

102.5.2 (no amendment to language)

Exceptions:

1. Additions to existing structures of up to 500 square feet with a resulting total building area that does not exceed 6,200 square feet are not required to comply with fire apparatus access or water supply requirements.
2. Additions to existing structures greater than 500 square feet are not required to comply with fire apparatus access or water supply requirements, provided the addition to a structure is less than 25 percent of the existing total habitable area square footage and the resulting total building area does not exceed 6,200 square feet.
3. Additions to existing structures greater than 500 square feet are not required to comply with fire apparatus access or water supply requirements, provided the addition to a structure is 25 percent or greater but less than 50 percent of the existing total habitable area square footage, the resulting total building area does not exceed 6,200

square feet and interconnected carbon monoxide and smoke alarm devices are monitored by a central station approved by the fire code official.

Amendment 2: SMC 15.05.050(E), Section 105.6, is amended to read as follows:

Section 105.6 is amended and new Sections 105.6.49, 105.6.51, and 105.6.52 ~~is~~ are added to read as follows:

1. 105.6. Required operational permits. The fire code official is authorized to issue operational permits for the operations set forth in Sections 105.6.1 through 105.6.49 ~~52~~.
2. 105.6.30 Mobile food preparation vehicles. A permit is required for food preparation vehicles equipped with appliances that produce smoke or grease laden vapors or utilize LP-gas or CNG systems. The fire code official may accept a permit from an approved agency in lieu of a Shoreline Fire Department operational permit.
- ~~23.~~ 105.6.49. Positive alarm sequence. An operational permit is required to operate a Positive Alarm Sequence (PAS) Account as prescribed in NFPA 72.
4. 105.6.51 Positive alarm sequence. An operational permit is required to operate a PAS (positive Alarm Sequence) Account as prescribed by NFPA 72.
5. 105.6.52 Interim Use Emergency Shelter. An operational permit is required to open an interim use emergency shelter and must comply with Department policy FMO 318.

Amendment 3: SMC 15.05.050(F), Section 105.7, is amended as to read as follows:

Section 105.7 is amended to read as follows and new Section ~~105.7.19~~ 105.7.27 is added to read as follows:

1. 105.7. Required construction permits. The fire code official is authorized to issue construction permits for work as set forth in Sections 105.7.1 through ~~105.7.19~~ 105.7.27.

2. ~~105.7.19~~ 105.7.27 Emergency Power Supply System. A construction permit is required for installation of Emergency Power Supply System required by Section 604.

Amendment 4. SMC 15.05.050(G), Section 107.6 is amended to read as follows:

Section 108.6 is amended to read as follows:

~~107.6~~ 108.6 Overcrowding. Overcrowding or admittance of any person beyond the approved capacity of a building or a portion thereof shall not be allowed. The fire code official, upon finding any overcrowding conditions or obstructions in aisles, passageways or other means of egress, or upon finding any condition which constitutes a life safety hazard, shall be authorized to direct actions be taken to reduce the overcrowding or to cause the event to be stopped until such condition or obstruction is corrected.

Amendment 5. SMC 15.05.050(H) is hereby repealed in its entirety and replaced with the following:

Sections 110.4 and 112.4 are hereby repealed.

Amendment 6. A NEW section is added to SMC 15.05.050, Section 503.3 Fire Lanes, to read as follows:

A new section 503.3 is added to read as follows:

503.3 Fire Lanes. Where required by the fire code official, fire apparatus access roads shall be marked as follows:

1. FIRE LANE –NO PARKING Signs shall be mounted a minimum of 7' from bottom of the sign to the street or sidewalk. Signs must be a type "R8-31" or equivalent reflective sign no less than 12" x 18" in size, with a white background and the wording "No Parking Fire Lane" in red letters. When in a straight line of sight, these signs shall be no further than one hundred fifty feet (50') apart. This distance may be reduced when curves, corners, or other adverse sighting conditions restrict the line of sight.

2. Curbs along designated Fire Department Access Roads (Fire Lanes) shall also be painted yellow. This shall include both the vertical and horizontal portions of the curb. Minimum three-inch (3") white lettering which shall read: NO PARKING –FIRE LANE, shall be placed every fifty feet (50') or portion thereof on the vertical portion of the curb. The entire curb length shall be painted. If there are rolled curbs or no curbs, stenciling shall be placed on pavement.
3. Where no curbs exists, stenciling shall be placed on the pavement with minimum 10" white block lettering on continuous 16" yellow background to read NO PARKING FIRE LANE at 50 foot intervals.

Exception: Variations to Fire Lanes markings may be approved when in the opinion of the Fire Code Official the proposed signage and markings achieve the same outcome. The Fire Chief retains the right to revoke the variations for cause.

Amendment 7: SMC 15.05.050(S)(3), Section 507.3.2 is amended to read as follows:

Section 507.3.2 is amended to read as follows:

3. 507.3.2 Required fire flow. The required quantity and demand duration of water shall be equal to the calculated fire flow for the greatest hazard or protected risk in the proposed development, and shall be determined by the fire code official using Table B105.1 Appendix B of the International Fire Code as the required baseline fire flow.

Exceptions Exception:

A. The fire code official may increase the fire-flow requirements where conditions indicate an unusual susceptibility to group fires, conflagrations, or other fire hazard to the community.

B. ~~The minimum fire flow requirements for one- and two-family dwellings having a fire-flow calculation area of 3,600 square feet or less, shall be 1,000 gallons per minute.~~

C. ~~Up to two (2) Group R, Division 3 occupancy buildings less than 2,500 gross square feet (including attached garages) shall be exempt from this section.~~

Amendment 8: SMC 15.05.050(T)(2), Section 507.5.1, is amended to read as follows:

2. 507.5.1 Where required. Where a portion of the facility or building hereafter constructed or moved into or within the jurisdiction is more than ~~400~~ 300 feet from any hydrant required to meet the building's fire flow, on a fire apparatus access road, as measured by an approved route around the exterior of the facility or building, onsite fire hydrants and mains shall be provided where required by the fire code official.

Exceptions:

1. For Group R-3 and Group U occupancies, the distance requirement shall be 500 feet. ~~One and two family dwellings located beyond the 500 feet are required to install a NFPA 13D sprinkler system.~~
2. For buildings equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.31.1, ~~or 903.3.1.2, or 903.3.1.3~~ the distance requirement shall be 600 feet (183 m).

Amendment 9: A NEW section is added to SMC 15.05.050(T), Section 507.5.1.1.6 Hydrant for Sprinkler and Standpipe Systems, to read as follows:

507.5.1.1.6 Hydrant for Sprinkler and Standpipe Systems. Buildings equipped with a sprinkler or standpipe system installed in accordance with section 903 or 905 shall have a fire hydrant within 75 feet of the fire department connections.

Exception: The distance shall be permitted to exceed 75 feet where approved by the fire code official.

Amendment 10: A NEW section is added to SMC 15.05.050, Section 507.5.3 Private fire service mains and water tanks, to read as follows:

507.5.3 Private fire service mains and water tanks. Private fire service mains and water tanks shall be periodically inspected, tested and maintained in accordance with NFPA 25 at the following intervals:

1. Private fire hydrants of all types: Inspection annually and after each operation; flow test and maintenance annually. Property owners with private hydrants are responsible to obtain annual, satisfactory inspection of their private hydrant(s) from a qualified inspector. Inspection procedures and forms for inspection by the City or others are set by the fire code official. The fire official may order additional inspections as he deems necessary.
2. Fire service main piping: Inspection of exposed, annually; flow test every 5 years.
3. Fire service main piping strainers: Inspection and maintenance after each use.

507.5.3.1 Private Hydrants –Use

1. Fire hydrant protection may be provided by private fire hydrants.
2. No person may open, damage, interfere with, or otherwise use a private hydrant, except in a manner and subject to such conditions as the fire official may require.

507.5.3.2 Private Hydrants –regulations. The fire code official is authorized to establish regulations and design standards for private hydrants. The fire code official has the authority to interpret and apply the regulations and standards and to make rulings and orders consistent with the purpose of this chapter.

507.5.3.3 Private Hydrants –Inspection reports. Inspection reports of private hydrants must be submitted to www.TheComplianceEngine.com within five working days of the date of inspection by the servicing inspector.

507.5.3.4 Private Hydrants –damage or malfunction. Property owners, their agents and tenants with private hydrants shall immediately contact the fire department in the event a private hydrant is damaged, malfunctions, or is otherwise out of order. “Immediately” means not more than forty-eight hours

after a problem is noticed or should have been noticed in the exercise of reasonable care.

507.5.3.5 Private Hydrants –maintenance and repair. All maintenance and repair of private hydrants shall be solely the responsibility of the property owner. Obligations imposed upon property owners apply also to their managers and other authorized agents.

507.5.3.6 Private hydrants –access. Roads and access to the fire hydrant must be provided in accordance with International Fire Code Sections 503 and 507.

Amendment 11: SMC 15.05.050(T)(3), Section 507.5.4, is amended to read as follows:

507.5.4 Obstructions. Posts, fences, vehicles, growth, trash, storage and other materials or objects shall not be placed or kept near fire hydrants, fire department inlet connections or fire protection system control valves in a manner that would prevent such equipment or fire hydrants from being immediately discernible. There shall be no parking of motor vehicles, refuse containers or other obstructions within ~~fifteen (15)~~ three (3) feet of a hydrant measured along the street or curb from a point perpendicular to the hydrant. The fire department shall not be deterred or hindered from gaining immediate access to fire protection equipment or fire hydrants. Paved access to fire hydrants shall be maintained to accommodate fire fighting apparatus, and to prevent damage to landscaping and pavement when the fire hydrant is being tested at its full flow.

4. 507.5.4.1 Marking. Fire hydrants located on private property shall be marked with an approved, reflective hydrant marker provided by the property owner placed in the street, alley, fire lane or access route in a location specified by the fire code official. Paved areas within the vicinity of a hydrant shall be permanently marked by painting the words “NO PARKING” and striping as approved by the fire code official.

Amendment 13: SMC 15.05.050(U), Section 507.5.7 is amended to read as follows:

New Section 507.5.7 is added to read as follows:

507.5.7 Number of fire hydrants required. The number of hydrants required for a building or complex of buildings shall be based on the formula:

Number of hydrants = required fire flow divided by ~~4500~~1000 gpm.

Fractions equal to or greater than one-half (1/2) shall be rounded up to the next higher whole number. Fractions less than one-half (1/2) shall be dropped.

Exception: Where actual fire flow tests performed in an approved manner when allowed by the water purveyor show higher flows exist.

Amendment 14: SMC 15.05.050(V), Section 510, is repealed in its entirety and replaced to read as follows:

Section 510 is amended to read as follows:

510.1 Emergency responder radio coverage in new buildings. Approved radio coverage for emergency responders shall be provided within buildings meeting any of the following conditions:

1. High rise buildings;
2. The total building area is 50,000 square feet or more;
3. The total basement area is 10,000 square feet or more; or
4. There are floors used for human occupancy more than 30 feet below the finished floor of the lowest level of exit discharge.
5. Buildings or structures where the Fire or Police Chief determines that in-building radio coverage is critical because of its unique design, location, use or occupancy.

The radio coverage system shall be installed in accordance with Sections 510.4 through 510.5.5 of this code and with the provisions of NFPA 1221 (2019). This section shall not require improvement of the existing public safety communication systems.

Exceptions:

1. Buildings and areas of buildings that have minimum radio coverage signal strength levels of the King County Regional 800 MHz Radio System within the building in accordance with Section 510.4.1 without the use of a radio coverage system.
2. In facilities where emergency responder radio coverage is required and such systems, components or equipment required could have a negative impact on the normal operations of that facility, the *fire code official* shall have the authority to accept an automatically activated emergency responder radio coverage system.
3. One- and two-family dwellings and townhouses.

510.2 Emergency responder radio coverage in existing buildings. Existing buildings shall be provided with approved radio coverage for emergency responders as required in Chapter 11.

510.3 Permit required. A construction permit for the installation of or modification to emergency responder radio coverage systems and related equipment is required as specified in Section 105.7.6. Maintenance performed in accordance with this code is not considered a modification and does not require a permit.

510.4 Technical requirements. Systems, components and equipment required to provide the emergency responder radio coverage system shall comply with Sections 510.4.1 through 510.4.2.8.

510.4.1 Emergency responder communication enhancement system signal strength. The building shall be considered to have acceptable emergency responder communications enhancement system coverage when signal strength

measurements in 95 percent of all areas on each floor of the building meet the signal strength requirements in Sections 510.4.1.1 through 510.4.1.3.

Exception: Critical areas, such as the fire command center(s), the fire pump room(s), interior exit stairways, exit passageways, elevator lobbies, standpipe cabinets, sprinkler sectional valve locations, and other areas required by the fire code official, shall be provided with 99 percent floor area radio coverage.

510.4.1.1 Minimum signal strength into the building. The minimum inbound signal strength shall be sufficient to provide usable voice communications throughout the coverage area as specified by the fire code official. The inbound signal level shall be a minimum of -95dBm in 95% of the coverage area and 99% in critical areas and sufficient to provide not less than a Delivered Audio Quality (DAQ) of 3.0 or an equivalent Signal-to-Interference-Plus-Noise Ratio (SINR) applicable to the technology for either analog or digital signals.

510.4.1.2 Minimum signal strength out of the building. The minimum outbound signal strength shall be sufficient to provide usable voice communications throughout the coverage area as specified by the fire code official. The outbound signal level shall be sufficient to provide not less than a DAQ of 3.0 or an equivalent SINR applicable to the technology for either analog or digital signals. A minimum signal strength of -95 dBm shall be received by the King County Regional 800 MHz Radio System when transmitted from within the building.

510.4.1.3 System performance. Signal strength shall be sufficient to meet the requirements of the applications being utilized by public safety for emergency operations through the coverage area as specified by the radio system manager in Section 510.4.2.2.

510.4.2 System design. The emergency responder radio coverage system shall be designed in accordance with Sections 510.4.2.1 through 510.4.2.8 and NFPA 1221 (2019).

510.4.2.1 Amplification systems and components. Buildings and structures that cannot support the required level of radio coverage shall be equipped with systems and components to enhance the public safety radio signals and achieve the required level of radio coverage specified in Sections 510.4.1 through 510.4.1.3. Public safety communications enhancement systems utilizing radio-frequency-emitting devices and cabling shall be allowed by the Public Safety Radio System Operator. Prior to installation, all RF-emitting devices shall have the certification of the radio licensing authority and be suitable for public safety use.

510.4.2.2 Technical criteria. The Public Safety Radio System Operator shall provide the various frequencies required, the location of radio sites, the effective radiated power of radio sites, the maximum propagation delay in microseconds, the applications being used and other supporting technical information necessary for system design upon request by the building owner or owner's representative.

510.4.2.3 Power supply sources. Emergency responder radio coverage systems shall be provided with dedicated standby batteries or provided with 2-hour standby batteries and connected to the facility generator power system in accordance with Section 1203. The standby power supply shall be capable of operating the emergency responder radio coverage system at 100-percent system capacity for a duration of not less than 12 hours.

510.4.2.4 Signal booster requirements. If used, signal boosters shall meet the following requirements:

1. All signal booster components shall be contained in a National Electrical Manufacturer's Association (NEMA) 4, IP66-type waterproof cabinet or equivalent.

Exception: Listed battery systems that are contained in integrated battery cabinets.

2. Battery systems used for the emergency power source shall be contained in a NEMA 3R or higher-rated cabinet, IP65-type waterproof cabinet or equivalent.
3. Equipment shall have FCC or other radio licensing authority certification and be suitable for public safety use prior to installation.
4. Where a donor antenna exists, isolation shall be maintained between the donor antenna and all inside antennas to not less than 20dB greater than the system gain under all operating conditions.
5. Bi-Directional Amplifiers (BDAs) used in emergency responder radio coverage systems shall have be fitted with anti-oscillation circuitry and per-channel AGC.
6. The installation of amplification systems or systems that operate on or provide the means to cause interference on any emergency responder radio coverage networks shall be coordinated and approved by the Public Safety Radio System Operator.
7. Unless otherwise approved by the Public Safety Radio System Operator, only channelized signal boosters shall be permitted.

Exception: Broadband BDA's may be utilized when specifically authorized in writing by the Public Safety Radio System Operator.

510.4.2.5 System monitoring. The emergency responder radio enhancement system shall include automatic supervisory and trouble signals that are monitored by a supervisory service and are annunciated by the fire alarm system in accordance with NFPA 72. The following conditions shall be separately annunciated by the fire alarm system, or, if the status of each of the following conditions is individually displayed on a dedicated panel on the radio enhancement system, a single automatic supervisory signal may be annunciated on the fire alarm system indicating deficiencies of the radio enhancement system:

1. Loss of normal AC power supply.
2. System battery charger(s) failure.
3. Malfuction of the donor antenna(s).
4. Failure of active RF-emitting device(s).
5. Low-battery capacity at 70-percent reduction of operating capacity.
6. Active system component malfunction.
7. Malfuction of the communications link between the fire alarm system and the emergency responder radio enhancement system.

510.4.2.6 Additional frequencies and change of frequencies. The emergency responder radio coverage system shall be capable of modification or expansion in the event frequency changes are required by the FCC or other radio licensing authority, or additional frequencies are made available by the FCC or other radio licensing authority.

510.4.2.7 Design documents. The fire code official shall have the authority to require "as-built" design documents and specifications for emergency responder communications coverage systems. The documents shall be in a format acceptable to the fire code official.

510.4.2.8 Radio communication antenna density. Systems shall be engineered to minimize the near-far effect. Radio enhancement system designs shall include sufficient antenna density to address reduced gain conditions.

Exceptions:

1. Class A narrow band signal booster devices with independent AGC/ALC circuits per channel.
2. Systems where all portable devices within the same band use active power control

510.5 Installation requirements. The installation of the public safety radio coverage system shall be in accordance with NFPA 1221 and Sections 510.5.1 through 510.5.7.

510.5.1 Approval prior to installation. Amplification systems capable of operating on frequencies licensed to any public safety agency by the FCC or other radio licensing authority shall not be installed without prior coordination and approval of the Public Safety Radio System Operator.

510.5.2 Minimum qualifications of personnel. The minimum qualifications of the system designer and lead installation personnel shall include both of the following:

1. A valid FCC-issued general radio telephone operators license.
2. Certification of in-building system training issued by an approved organization or approved school, or a certificate issued by the manufacturer of the equipment being installed.

510.5.3 Acceptance test procedure. Where an emergency responder radio coverage system is required, and upon completion of installation, the building owner shall have the radio system tested to verify that two-way coverage on each floor of the building is in accordance with Section 510.4.1. The test procedure shall be conducted as follows:

1. Each floor of the building shall be divided into a grid of 20 approximately equal test areas, with a maximum test area size of 6,400 square feet. Where the floor area exceeds 128,000 square feet, the floor shall be divided into as many approximately equal test areas as needed, such that no test area exceeds the maximum square footage allowed for a test area.
2. Coverage testing of signal strength shall be conducted using a calibrated spectrum analyzer for each of the test grids. A diagram of this testing shall be created for each floor where coverage is provided, indicating the

testing grid used for the test in Section 510.5.3(1), and including signal strengths and frequencies for each test area. Indicate all critical areas.

3. Functional talk-back testing shall be conducted using two calibrated portable radios of the latest brand and model used by the agency's radio communications system or other equipment approved by the fire code official. Testing shall use Digital Audible Quality (DAQ) metrics, where a passing result is a DAQ of 3 or higher. Communications between handsets shall be tested and recorded in the grid square diagram required by section 510.5.3(2): each grid square on each floor; between each critical area and a radio outside the building; between each critical area and the fire command center or fire alarm control panel; between each landing in each stairwell and the fire command center or fire alarm control panel.
4. Failure of more than 5% of the test areas on any floor shall result in failure of the test.

Exception: Critical areas shall be provided with 99 percent floor area coverage.

5. In the event that two of the test areas fail the test, in order to be more statistically accurate, the floor shall be permitted to be divided into 40 equal test areas. Failure of not more than two nonadjacent test areas shall not result in failure of the test. If the system fails the 40-area test, the system shall be altered to meet the 95-percent coverage requirement.
6. A test location approximately in the center of each test area shall be selected for the test, with the radio enabled to verify two-way communications to and from the outside of the building through the public agency's radio communications system. Once the test location has been selected, that location shall represent the entire test area.

Failure in the selected test location shall be considered to be a failure of that test area. Additional test locations shall not be permitted.

7. The gain values of all amplifiers shall be measured, and the test measurement results shall be kept on file with the building owner so that the measurements can be verified during annual tests. In the event that the measurement results become lost, the building owner shall be required to rerun the acceptance test to reestablish the gain values.

8. As part of the installation, a spectrum analyzer or other suitable test equipment shall be utilized to ensure spurious oscillations are not being generated by the subject signal booster. This test shall be conducted at the time of installation and at subsequent annual inspections.

9. Systems incorporating Class B signal booster devices or Class B broadband fiber remote devices shall be tested using two portable radios simultaneously conducting subjective voice quality checks. One portable radio shall be positioned not greater than 10 feet (3048 mm) from the indoor antenna. The second portable radio shall be positioned at a distance that represents the farthest distance from any indoor antenna. With both portable radios simultaneously keyed up on different frequencies within the same band, subjective audio testing shall be conducted and comply with DAQ levels as specified in Sections 510.4.1.1 and 510.4.1.2.

10. Documentation maintained on premises. At the conclusion of the testing, and prior to issuance of the building Certificate of Occupancy, the building owner or owner's representative shall place a copy of the following records in the DAS enclosure or the building engineer's office. The records shall be available to the fire code official and maintained by the building owner for the life of the system:

- a. A certification letter stating that the emergency responder radio coverage system has been installed and tested in accordance with this code, and that the system is complete and fully functional.
- b. The grid square diagram created as part of testing in Sections 510.5.3(2) and 510.5.3(3).
- c. Data sheets and/or manufacturer specifications for the emergency responder radio coverage system equipment; back up battery; and charging system (if utilized).
- d. A diagram showing device locations and wiring schematic.
- e. A copy of the electrical permit.

11. Acceptance test reporting to fire code official. At the conclusion of the testing, and prior to issuance of the building Certificate of Occupancy, the building owner or owner's representative shall submit to the fire code official a report of the acceptance test by way of the department's third-party vendor thecomplianceengine.com.

510.5.4 FCC compliance. The emergency responder radio coverage system installation and components shall comply with all applicable federal regulations including, but not limited to, FCC 47 CFR Part 90.219.

510.5.5 Mounting of the donor antenna (s). To maintain proper alignment with the system designed donor site, donor antennas shall be permanently affixed on the highest possible position on the building or where approved by the fire code official. A clearly visible sign shall be placed near the antenna stating, "movement or repositioning of this antenna is prohibited without approval from the fire code official." The antenna installation shall be in accordance with the applicable requirements in the International Building Code for weather protection of the building envelope.

510.5.6 Wiring. The backbone, antenna distribution, radiating, or any fiber-optic cables shall be rated as plenum cables. The backbone cables shall be connected to the antenna distribution, radiating, or copper cables using hybrid coupler devices of a value determined by the overall design. Backbone cables

shall be routed through an enclosure that matches the building's required fire-resistance rating for shafts or interior exit stairways. The connection between the backbone cable and the antenna cables shall be made within an enclosure that matches the building's fire-resistance rating for shafts or interior exit stairways, and passage of the antenna distribution cable in and out of the enclosure shall be protected as a penetration per the International Building Code.

510.5.7 Identification Signs. Emergency responder radio coverage systems shall be identified by an approved sign located on or near the Fire Alarm Control Panel or other approved location stating "This building is equipped with an Emergency Responder Radio Coverage System. Control Equipment located in room _____". A sign stating "Emergency Responder Radio Coverage System Equipment" shall be placed on or adjacent to the door of the room containing the main system components.

510.6 Maintenance. The emergency responder radio coverage system shall be maintained operational at all times in accordance with Sections 510.6.1 through 510.6.7.

510.6.1 Testing and proof of compliance. The owner of the building or owner's authorized agent shall have the emergency responder radio coverage system shall be inspected and tested annually or where structural changes occur including additions or remodels that could materially change the original field performance tests. Testing shall consist of the following items (1) through (7):

1. In-building coverage test as required by the *fire code official* as described in Section 510.5.3 "Acceptance test procedure" or 510.6.1.1 "Alternative in-building coverage test".

Exception: Group R Occupancy annual testing is not required within dwelling units.

2. Signal boosters shall be tested to verify that the gain/output level is the same as it was upon initial installation and acceptance or set to optimize the performance of the system.
3. Backup batteries and power supplies shall be tested under load of a period of 1 hours to verify that they will properly operate during an actual power outage. If within the 1-hour test period the battery exhibits symptoms of failure, the test shall be extended for additional 1-hour periods until the integrity of the battery can be determined.
4. If a fire alarm system is present in the building, a test shall be conducted to verify that the fire alarm system is properly supervising the emergency responder communication system as required in Section 510.4.2.5. The test is performed by simulating alarms to the fire alarm control panel. The certifications in Section 510.5.2 are sufficient for the personnel performing this testing.
5. Other active components shall be checked to verify operation within the manufacturer's specifications.
6. At the conclusion of the testing, a report, which shall verify compliance with Section 510.6.1, shall be submitted to the *fire code official* by way of the department's third-party vendor thecomplianceengine.com
7. At the conclusion of testing, a record of the inspection and maintenance along with an updated grid diagram of each floor showing tested strengths in each grid square and each critical area shall be added to the documentation maintained on the premises in accordance with Section 510.5.3.

510.6.1.1 Alternative In-building coverage test. When the comprehensive test documentation required by Section 510.5.3 is available, or the most recent full five-year test results are available if the system is older than six years, the in-building coverage test required by the fire code official in Section 510.6.1(1), may be conducted as follows:

1. Functional talk-back testing shall be conducted using two calibrated portable radios of the latest brand and model used by the agency's radio communications system or other equipment approved by the fire code official. Testing shall use Digital Audible Quality (DAQ) metrics, where a passing result is a DAQ of 3 or higher. Communications between handsets in the following locations shall be tested: between the fire command center or fire alarm control panel and a location outside the building; between the fire alarm control panel and each landing in each stairwell.

2. Coverage testing of signal strength shall be conducted using a calibrated spectrum analyzer for:
 - (a) Three grid areas per floor. The three grid areas to be tested on each floor are the three grid areas with poorest performance in the acceptance test or the most recent annual test, whichever is more recent; and

 - (b) Each of the critical areas identified in acceptance test documentation required by Section 510.5.3, or as modified by the fire code official, and

 - (c) One grid square per serving antenna.

3. The test area boundaries shall not deviate from the areas established at the time of the acceptance test, or as modified by the fire code official. The building shall be considered to have acceptable emergency responder radio coverage when the required signal strength requirements in 510.4.1.1 and 510.4.1.2 are located in 95 percent of all areas on each floor of the building and 99 percent in Critical Areas, and any non-functional serving antenna are repaired to function within normal ranges. If the documentation of the acceptance test or most recent previous annual test results are not available or acceptable to

the fire code official, the radio coverage verification testing described in 510.5.3 shall be conducted.

510.6.2 Additional frequencies. The building owner shall modify or expand the emergency responder radio coverage system at his or her expense in the event frequency changes are required by the FCC or other radio licensing authority, or additional frequencies are made available by the FCC public safety radio system operator or FCC license holder. Prior approval of a public safety radio coverage system on previous frequencies does not exempt this section.

510.6.3 Nonpublic safety system. Where other nonpublic safety amplification systems installed in buildings reduce the performance or cause interference with the emergency responder communications coverage system, the nonpublic safety amplification system shall be corrected or removed.

510.6.4 Field testing. Agency personnel shall have the right to enter onto the property at any reasonable time to conduct field testing to verify the required level of radio coverage or to disable a system that due to malfunction or poor maintenance has the potential to impact the emergency responder radio system in the region.

Amendment 15: SMC 15.05.050(X), Section 803.1, is amended to read as follows:

Section 803.1 is amended to read as follows:

803.1 General. The provisions of Section 803.1.1 through 803.1.34 shall be applicable to all occupancies.

Amendment 16: SMC 15.05.050(Y), Section 803.1.3, is amended to read as follows:

New Section ~~803.1.3~~ 803.1.4 is added to read as follows:

~~803.1.3~~ 803.1.4 Atrium furnishings. Atrium furnishings shall comply with Sections 803.1.3.1, ~~and 803.1.3.2,~~ 803.1.4.1, and 803.1.4.2.

~~803.1.3.1~~ 803.1.4.1 Potential heat. Potential heat of combustible furnishings and decorative materials within atria shall not exceed 9,000 Btu per pound (20,934 J/g) when located within an area that is more than 20 feet (6,096 mm) below ceiling-level sprinklers.

~~803.1.3.2~~ 801.1.4.2 Decorative materials. Decorative material in atria shall be noncombustible, flame resistant or treated with a flame retardant.

Amendment 17: SMC 15.05.050(Z), Section 901.4.7, is amended to read as follows:

Section 901.4.7.1 is amended to read as follows:

901.4.7.1 Additions or changes of use. Additions or changes of use to existing buildings which would result in a nonconforming building shall be brought up to current code requirements for fire protection systems.

Commercial tenant improvements that result in a change of use shall comply with sections 903.2.1 through 903.2.12 and section 907.

Commercial additions shall comply with sections 903.2.1 through 903.2.13 and section 907.

~~Exception: A one time exemption for additions to Group R, Division 3 occupancies of up to 500 square feet is permitted without compliance with this section. This exemption shall be recorded with King County Records and Elections.~~

Amendment 18: SMC 15.05.050(DD), Section 903.2.13, is amended to read as follows:

New Section 903.2.13 is added to read as follows:

903.2.13 All buildings. All newly constructed buildings shall comply with this section.

903.2.13.1 Gross square footage. All newly constructed commercial buildings with a gross square footage of 4,800 or greater square feet, regardless of type or use ~~as well as zero lot line townhouses with an aggregate area of all connected townhouses equaling 4,800 square feet or greater~~ shall be sprinklered. ~~All residential homes 10,000 square feet or greater shall require a NFPA 13R system.~~

903.2.13.2 Fire flow. All new commercial buildings requiring 2000 gallons per minute or more fire flow shall be sprinklered.

~~903.2.13.3 Group R Division 3. Group R, Division 3 occupancies shall be provided with an automatic sprinkler system if adequate fire flow, or hydrant spacing, or approved fire department access is not provided as defined in Sections 503 and 507.~~

Amendment 19: SMC 15.05.050(JJ), Section 907.2.24, is amended to read as follows:

New Section 907.2.24 is added to read as follows:

907.2.24 All buildings. All newly constructed buildings with a gross square footage of 3,000 or greater shall be provided with an approved automatic and manual fire alarm system. Commercial building change of use or additions that result in a fire area with a gross square footage of 3,000 or greater, shall be provided with an approved addressable automatic fire alarm system.

Exceptions:

A. Group R Division 3 and 4, and Group U Occupancies having adequate fire flow and approved access.

B. Group R Division 3 and 4 dwelling units shall have interconnected single station smoke detectors in accordance with RCW [48.48.140](#) and WAC [212-10](#).

Amendment 20: SMC 15.05.050(MM), Section 913.2.3, is amended to read as follows:

New Section 913.2.3 is added to read as follows:

Where fire pumps are installed, back-up power shall be installed for reliability. Generator shall meet NFPA 20 standards.

Amendment 21: SMC 15.05.050(QQ), Section 5307.5.2 is repealed in its entirety:

~~QQ. Section 5307.5.2 is amended to read as follows:~~

~~5307.5.2 Emergency alarm system. An emergency alarm system shall comply with all of the following:~~

- ~~1. Continuous gas detection shall be provided to monitor areas where carbon dioxide can accumulate.~~
- ~~2. The threshold for activation of an alarm shall not exceed 5,000 parts per million (9,000 mg/m³).~~
- ~~3. Activation of the emergency alarm system shall initiate a local alarm at the entrance to, and inside rooms or areas where a CO₂ system is installed.~~
- ~~4. A warning sign is required at the entrance to the room or area: 'Carbon Dioxide Alarm. Do Not Enter. Call 9-1-1.'~~

Amendment 22: The Code Reviser is directed to renumber all sections of SMC 15.05.050 to be consistent with these amendments and so as to list the sections in numerical order.