

EXHIBIT A

Chapter 15.10

FIRE CODE

Sections:

- 15.10.005 International Fire Code adopted.**
- 15.10.010 Title.**
- 15.10.015 IFC Section 102.7, Referenced codes and standards, amended.**
- 15.10.020 IFC Section 105.6, Operational permits, amended.**
- 15.10.025 IFC Section 105.7, Construction permits, amended.**
- 15.10.030 IFC Section 108, Board of appeals.**
- 15.10.035 IFC Section 108.6, Overcrowding, amended.**
- 15.10.040 IFC Section 109.4, Violation penalties, amended.**
- 15.10.045 IFC Section 202, Definition of fire code official.**
- 15.10.050 IFC Section 308.3, Open flame in Group A occupancies, amended.**
- 15.10.055 IFC Section 319, Mobile food preparation vehicles, amended.**
- 15.10.060 IFC Section 503, Fire apparatus access roads.**
- 15.10.065 IFC Section 506.1, Key boxes, amended.**
- 15.10.070 IFC Section 507, Fire protection water supplies, amended.**
- 15.10.075 IFC Section 510, Emergency responder radio coverage, amended.**
- 15.10.080 IFC Section 901.7, Systems out of service, amended.**
- 15.10.085 IFC Section 903, Automatic sprinkler systems, amended.**
- 15.10.090 IFC Section 903, Automatic sprinkler systems, amended.**
- 15.10.095 IFC Section 903.3.1.1, Exempt locations.**
- 15.10.100 IFC Section 903.3.1.2, NFPA 13R sprinkler systems.**
- 15.10.105 IFC Section 903.4.3, Floor control valves, amended.**
- 15.10.110 IFC Section 903.5, Testing and maintenance.**
- 15.10.115 IFC Section 907.2, Fire alarm and detection systems, amended.**
- 15.10.120 IFC Section 5003.9, General safety precautions, amended.**
- 15.10.125 IFC 5604, Explosives storage.**
- 15.10.130 IFC 5704 and 5706, Aboveground storage tanks.**
- 15.10.135 ICF 5707, On-demand fueling operations.**
- 15.10.140 IFC 5806, Flammable cryogenic fluids.**
- 15.10.145 IFC 6104, Liquefied petroleum gas.**
- 15.10.150 IFC Appendix B, Fire Flow Requirements for Buildings, amended.**

15.10.005 International Fire Code adopted.

The International Fire Code, 2018 Edition, adopted in LFPMC 15.04.015, is hereby amended pursuant to RCW 19.27.040 by the adoption of the local amendments set forth in LFPMC 15.10.015 through 15.10.150. (Ord. 1163 § 3, 2018; Ord. 1064 § 9, 2013)

15.10.010 Title.

Section 101.1 is amended to read as follows:

101.1 Title. These regulations shall be known as the Fire Code of the City of Lake Forest Park, hereinafter referred to as “this code.”

15.10.015 IFC Section 102.7, Referenced codes and standards, amended.

Section 102.7 is amended to read as follows:

102.7 Referenced codes and standards. The codes and standards referenced in this code shall be those that are listed in Chapter 80, and such codes and standards shall be considered part of the requirements of this code to the prescribed extent of each such reference and as further regulated in Sections 102.7.1 and 102.7.2. When allowed by the fire code official, editions of standards not herein referenced may also be utilized provided the entire standard is utilized.

102.7.1 Conflict. Where conflicts occur between provisions of this code and referenced codes and standards, the provisions of this code shall apply.

102.7.2 Provisions in referenced codes and standards. Where the extent of the reference to a referenced code or standard includes subject matter that is within the scope of this code, the provisions of this code, as applicable, shall take precedence over the provisions in the referenced code or standard.

15.10.020 IFC Section 105.6 Required operational permits, amended.

Section 105.6.30 is revised to read as follows:

105.6.30 Mobile food preparation vehicles. A permit is required for mobile food preparation vehicles equipped with appliances that produce smoke or grease-laden vapors or that utilize flammable gases such as LP-gas or natural gas. The fire code official is authorized to develop policies that clarify the permit requirements and participate in a regional permitting program.

15.10.025 IFC Section 105.7, Required construction permits, amended.

Section 105.7 is amended by adding the following sections:

105.7.21 Mechanical refrigeration. A construction permit is required to install, modify or expand any mechanical refrigeration system containing more than 220 pounds of a Group A1 refrigerant or more than 30 pounds of any other group refrigerant.

15.10.030 IFC Section 108.6 Overcrowding, amended.

Section 108.6 Overcrowding is amended to read as follows:

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 to be taken to reduce the overcrowding or to cause the event to be stopped until such condition or obstruction is corrected.

15.10.035 IFC Section 109, Board of appeals.

IFC Section 109, Board of appeals, is deleted and replaced with the following:

Appeals of orders, decisions or determinations made by the fire code official shall be made to the hearing examiner pursuant to section 16.26.035, ministerial administrative decisions. An application for appeal shall be based on a claim that the true intent of this code or the rules legally adopted thereunder has been incorrectly interpreted, the provisions of this code do not fully apply or an equally good or better solution is proposed. The hearing examiner shall have not authority relative to interpretation of the administrative provisions of this code nor shall the hearing examiner be empowered to waive requirements of either this code or the technical codes which are the codes, appendices and referenced code standards adopted by the city.

15.10.040 IFC Section 110.4, Violation penalties, amended.

Section 110.4 is deleted and replaced with the following:

110.4. Violation penalties. Any person who violates the provisions of this code or fails to comply with any of the requirements thereof or lawful directive of the fire code official, shall

be subject to code enforcement actions and penalties as prescribed by LFPMC 1.25 Code Enforcement.

15.10.045 IFC Section 202, definition of fire code official.

The definition of “fire code official” set forth in Section 202 is hereby amended to read as follows:

FIRE CODE OFFICIAL. The Building Official, or his or her duly authorized representative. The Building Official may delegate specified duties of the Fire Code Official to a duly authorized representative of the Northshore Fire District pursuant to that certain Inter-local Agreement Between the Northshore Fire District and the City of Lake Forest Park Relating to Administration and Enforcement of the Uniform Fire Code that is Attachment A to City of Lake Forest Park Resolution No. 790.

15.10.050 IFC Section 308.3, Open flame in Group A occupancies, amended.

Section 308.3 of the IFC is amended by adding the following exception:

4. Where approved by the fire code official.

15.10.055 IFC Section 319 Mobile Food Preparation Vehicles, amended.

Section 319.11 Location, is hereby added to read as follows:

319.11 Location. Mobile food facilities shall not be located within ten feet (10') of buildings, tents, canopies or membrane structures or within ten feet (10') of any other mobile food facility.

Exceptions:

1. When mobile food facilities are positioned on public streets, the distance from buildings may be reduced to five feet (5'). This exception is designated for events lasting a maximum of no more than three (3) consecutive calendar days in a row.
2. When located on private property, the distance from buildings may be reduced to five feet (5') from a fire wall constructed of non-combustible materials and having no openings such as windows or doors within 10 feet of the vehicle.

15.10.060 IFC Section 503, Fire apparatus access roads.

Fire apparatus access roads shall be provided and maintained in accordance with the latest version of the King County Road Standards except as modified below:

503.1.2 Additional access. The fire code official is further authorized to require more than one fire apparatus access road based on the potential for impairment of a single road by vehicle congestion, condition of terrain, climatic conditions or other factors that could limit access.

503.2 Specifications. Fire apparatus access roads shall be installed and arranged in accordance with sections 503.2.1 through 503.2.7.

503.2.1 Dimensions. Fire apparatus access roads shall have an unobstructed access width of not less than 20 feet, except for approved security gates in accordance with Section 503.6, and an unobstructed vertical clearance of not less than 13 feet 6 inches.

Exceptions:

1. Driveways serving one single-family dwelling that are longer than 50 feet, as measured from the road to the house, must have a width of not less than 12 feet.
2. A joint use driveway serving only 2 single family homes must have a width of not less than 18 feet and may be located in an easement or tract of the same width.

503.2.2 Authority. The fire code official shall have the authority to require an increase in the minimum access widths where they are inadequate for fire or rescue operations.

503.2.3 Surface. Fire apparatus access roads shall be designed and maintained to support the imposed loads of fire apparatus (minimum 75,000 pounds with a 75-psi point load) and shall be surfaced so as to provide all-weather driving capabilities. Concrete or asphalt shall be used unless specifically approved by the fire code official.

503.2.4 Turning radius. The required turning radius of a fire apparatus access road shall be 20 feet inside and 40 feet outside.

503.2.5 Dead ends. Dead-end fire apparatus access roads serving seven or more lots or in excess of 150 feet in length, as measured from the centerline of the connecting roadway, shall provide a cul-de-sac bulb with a minimum paved diameter of 80 feet.

503.2.6 Bridges and elevated surfaces. Where a bridge 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 live loads of fire apparatus. Vehicle load limits shall be posted at both entrances to bridges where required by the fire code official. Where elevated surfaces are designed for emergency vehicle use are adjacent to surfaces which are not designed for such use, approved barriers, approved signs or both shall be installed and maintained where required by the fire code official.

503.2.7 Grade. The grade of the fire apparatus access road shall be no more than 15 percent. If onsite grades exceed 15 percent, for roads serving detached Group R-3 occupancies, a design of the proposed road must be submitted during project review showing the extent and degree of overage. Onsite access roads may be permitted to exceed 15 percent if all of the dwellings accessed by the road are equipped with approved fire sprinkler systems.

503.3 Marking. Where required by the fire code official, approved signs or other approved notices shall be provided for fire apparatus access roads to identify such roads or prohibit the obstruction thereof. Signs or notices shall be consistent with criteria described in the Northshore Fire Department Access Standard and maintained a clean and legible condition at all times and be replaced or repaired when necessary to provide adequate visibility.

503.4 Obstruction of fire apparatus access roads. Fire apparatus access roads shall not be obstructed in any manner, including parking of vehicles. The minimum widths and clearances shall be maintained at all times.

503.6 Security gates. The installation of security gates across a fire apparatus access road shall be approved by the fire code official. Where security gates are installed, they shall have an approved means of emergency operation. The security gates and the emergency operation shall be maintained operational at all times. Electric gate operators, where provided, shall be listed in accordance with UL 325. Gates intended for automatic operation shall be designed, constructed and installed to comply with the requirements of ASTM F2200 and must be equipped with Click2Enter or other authorized equipment that allows for operation of the gate by Fire and Police personnel from their vehicle.

15.10.065 IFC Section 506.1, Key boxes, amended.

Section 506.1 is amended by adding the following:

All occupancies equipped with an automatic sprinkler system, fire alarm system, or hazardous occupancies, or when required by the fire code official, shall have an emergency access key box mounted in an approved location.

Exception: One- and two-family dwellings.

15.10.070 IFC Section 507, Fire protection water supplies, amended.

Section 507.5.1 is amended to read as follows:

507.5.1 Where required. Where a facility or building hereafter constructed or moved into or within the jurisdiction is more than 150 feet from a hydrant on a fire apparatus access road, onsite fire hydrants and mains shall be provided where required by the fire code official. At least one hydrant shall be located within 400 feet of all portions of the exterior wall of the first story of the facility or building as measured by an approved route around the exterior of the building. All fire hydrants required by this section, whether existing or new shall be equipped with a 4-inch Storz fitting on the steamer port. A 4-inch Storz fitting shall also be installed on any hydrant required for protection of existing structures where the valuation of the improvement or alteration exceeds 50% of the assessed valuation or where the square footage is increased by 25% or 1,000 square feet, whichever is less.

Exceptions:

1. For one- and two-family dwellings and Group U occupancies, the maximum distance to the structure shall be 300 feet.
2. Distances may be modified by the fire code official for facilities or buildings equipped with approved automatic sprinkler systems.

15.10.075 IFC Section 510 Emergency responder radio coverage, amended.

Section 510 of the International Fire Code is hereby 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.

Point of Information

When determining if the minimum signal strength referenced 510.4.1.1 exists at a subject building, the signal strength shall be measured at any point on the exterior of the building up to the highest point on the roof.

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.

4. Subject to the approval of the fire code official, buildings other than high-rise buildings, colleges, universities and buildings primarily occupied by Group E or I occupancies that have completed a Mobile Emergency Responder Radio Coverage application and submitted payment as outlined in the application.

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.

Point of Information

Prior coordination and approval from the Public Safety Radio System Operator is required before installation of an Emergency Responder Radio System. Until 2022, such approval is required from EPSCA, King County, Seattle or ValleyCom depending on the location of the installation. In 2022 PSERN will be the single operator of a county wide system. In order to be forward compatible, designers and contractors should be aware of PSERN's requirements for Distributed Antenna Systems which can be found via <https://psern.org/requirements/>

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 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.

Point of Information

BDA's must also comply with PSERN's (www.psern.org/requirements) detailed requirements, which include channelized, minimum of 28 channels, supporting analog, P25 Phase I (FDMA), and P25 Phase II (TDMA).

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. Malfunction 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. Malfunction 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 510.6.47.

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 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.

Point of Information

The alternative in-building coverage test provides an alternative testing protocol for the in-building coverage test in subsection (1) of section 510.6.1. There is no change or alternative to annual testing requirements enumerated in subsections (2) – (7) of Section 510.6.1, which must be performed at the time of each annual test.

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.

15.10.080 IFC Section 901.7, Systems out of service, amended.

Section 901.7 shall be amended to read as follows:

Where a fire protection system is out of service, the fire department and the fire code official shall be notified immediately and, where required by the fire code official, the building shall either be evacuated or an approved fire watch shall be provided for all occupants left unprotected by the shutdown until the fire protection system has been returned to service.

Where utilized, fire watches shall be provided with at least one means for notification of the fire department and their only duty shall be to perform constant patrols of the protected premises and keep watch for fires.

15.10.085 IFC Section 903, Automatic sprinkler systems, amended.

Section 903.2, Where required, is amended as follows:

The exception has been deleted

15.10.090 IFC Section 903, Automatic sprinkler systems, amended.

Section 903.2 is amended and supplemented with the addition of a new section 903.2.13 to read:

903.2.13 Additional fire sprinkler requirements.

NEW BUILDINGS

1. An automatic sprinkler system shall be installed in all occupancies requiring 2,000 gallons per minute or more fire flow, or where the gross square footage exceeds 5,000 square feet. This applies to all buildings regardless of type or use as well as townhouses with an aggregate area 5,000 square feet or greater. Fire walls, as noted in Section 705 of the International Building Code, shall not be considered to separate a building to enable deletion of the required sprinkler system.

Exception: Single-family Detached Houses.

2. All newly constructed buildings regardless of gross square footage shall be provided with an automatic sprinkler system if adequate fire flow, hydrant spacing, or approved fire department access is not provided as required in IFC Section 503, Appendix B, and/or Title 15 of the Lake Forest Park Municipal Code.
3. An automatic sprinkler system shall be installed in newly constructed one- and two-family structures if there is not a hydrant capable of providing at least 1,500 gallons per minute of water with 20 psi residual pressure located within 300 feet of the structure, or without approved emergency vehicle access.

EXISTING BUILDINGS

1. The provisions of this section shall apply to existing buildings that are subject to alterations, repairs, modifications or similar improvements where the total cost of the work performed exceeds 50% of the King County Assessor's Office valuation of the structure. Where subsequent alterations, repairs, modifications or similar improvements occur within five years of the first permitted work, the original building valuation shall be used, and the total costs of improvements shall be accumulative.
2. The provisions of this section shall apply to existing buildings where the gross floor area of the building is increased. Additions to buildings that would result in a gross floor area greater than 5,000 square feet shall be retrofitted throughout the addition with an approved automatic sprinkler system.

Exception:

1. The floor area of an existing building may be increased by up to 25%, not to exceed 5,000 square foot floor area increase. This exception shall be allowed one time only and acknowledgement of its use shall be recorded to run with the property title prior to permit issuance.

15.10.095 IFC Section 903.3.1.1, Exempt locations.

Item 6 from Section 903.3.1.1.1 is amended to read:

6. Machine rooms, machinery spaces, control rooms and control spaces associated with traction elevators that comply with Section 8.15.5.3 of NFPA 13 (2016 edition).

15.10.100 IFC Section 903.3.1.2, NFPA 13R sprinkler systems.

Section 903.3.1.2 is amended to read:

Automatic sprinkler systems in Group R occupancies up to and including four stories in height in buildings not exceeding 60 feet in height, as measured from the lowest point of fire department access, shall be permitted to be installed throughout in accordance with NFPA 13R.

The number of stories of Group R constructed in accordance with Sections 510.2 and 510.4 of the International Building Code shall be measured from the horizontal assembly creating separate buildings.

15.10.105 IFC Section 903.4.3, Floor control valves, amended.

Section 903.4.3 is amended to read:

Section 903.4.3 Floor control valves. In multi-level buildings approved, supervised indicating control valves shall be provided at the point of connection to the riser on each floor.

Exception: When approved by the fire code official.

15.10.110 IFC Section 903.5, Testing and maintenance.

Section 903.5 is amended to read:

903.5 Testing and maintenance. Sprinkler systems shall be tested and maintained in accordance with Section 901.

903.5.1 Fire sprinkler and standpipe main/express drains shall be positioned to drain to the sanitary sewer. Additionally, maintenance or testing discharges from fire pumps shall be treated in order to comply with the National Pollution Discharge Elimination System (NPDES) requirements.

15.10.115 IFC Section 907.2, Fire alarm and detection systems, amended.

Section 907.2 is amended to read:

907.2 Where required – new buildings and structures. All occupancies exceeding 3,000 square feet gross floor area shall be required to provide an approved, monitored automatic fire detection system.

Exception: Group U or R-3 occupancies.

An approved fire alarm system installed in accordance with this code 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 907.6, unless other requirements are provided by another section of this code. Where automatic sprinkler protection installed in accordance with Section 903.3.1.1 or 903.3.1.2 is provided and connected to the building fire alarm system, automatic heat detection required by this section shall not be required.

A minimum of one fire alarm box shall be provided in an approved location to initiate a fire alarm signal for fire alarm systems employing automatic fire detectors or water-flow devices. Where other sections of this code allow elimination of fire alarm boxes due to sprinklers, a single fire alarm box shall be installed.

EXISTING BUILDINGS

The provisions of this section shall apply to existing buildings that are subject to alterations, repairs, modifications or similar improvements where the total cost of the work performed exceeds 50% of the King County Assessor's Office valuation of the structure. Where subsequent alterations, repairs, modifications or similar improvements occur within five years of the first permitted work, the original building valuation shall be used and the total costs of improvements shall be accumulative.

15.10.120 IFC Section 5003.9, General safety precautions, amended.

Section 5003.9 is amended to read:

5003.9 General safety precautions. General precautions for the safe storage, handling or care of hazardous materials shall be in accordance with Sections 5003.9.1 through 5003.9.11.

...

5003.9.11 Manufacturer's limitations. The storage and use of hazardous materials shall not exceed the manufacturer's limitations on shelf life and any other restrictions on use.

15.10.125 IFC 5604, explosives storage.

Section 5604.1 is amended by adding the following:

The storage of blasting agents, detonators, explosives, explosive materials and special industrial explosive devices is prohibited within the city limits.

Exception:

1. Approved storage areas in law enforcement facilities and as otherwise provided in the Municipal Code.
2. When approved by the fire code official.

15.10.130 IFC 5704 and 5706, aboveground storage tanks.

Section 5704.2.9.6.1 is amended to read as follows:

Throughout the City, the use of above ground storage tanks outside of buildings shall be limited to flammable or combustible liquids in outside above ground tanks of 2,000 gallons per tank with an aggregate capacity of 4,000 gallons per site, unless otherwise specifically approved by the fire code official. All above ground storage tanks containing flammable or combustible liquids with a capacity of 500 gallons or more shall be protected tanks designed in accordance with Section 5704.2.9.7 and UL2085, or other systems with prior approval of the fire code official. Above ground combustible liquid tanks, used for the storage of heating oil, for a single-family residence shall not exceed 300 gallons. Above ground flammable liquid tanks shall not be permitted in a residential zone or within 100 feet of a residential zone within the City, except that such tanks may be located at fire stations or municipal facilities. Temporary uses may be permitted during periods of construction with the approval of the fire code official. Permits for above ground tanks shall be approved by the fire code official prior to installation or placement.

Exception: Existing installations exceeding 2,000 gallon tank or aggregate capacity or 4,000 gallons per site shall be allowed to continue until tank replacement is necessary or tank decommissioning.

15.10.135 IFC 5707 On-Demand Mobile Fueling Operations

Section 5707 is amended to read as follows:

5701.1 General. On-demand mobile fueling operations that dispense Class I, II and III liquids into the fuel tanks of motor vehicles shall comply with Sections 5707.1 through 5707.6. 6.

Exception: Fueling from an *approved* portable container in cases of an emergency or for personal use.

5707.1.1 Approval required. Mobile fueling operations shall not be conducted without first obtaining a *permit* and approval from the *fire code official*. Mobile fueling operations shall occur only at *approved* locations. The *fire code official* is authorized to approve individual locations or geographic areas where mobile fueling is allowed.

5707.2 Mobile fueling vehicle. An on-demand mobile fueling vehicle shall be that which is utilized in on-demand fueling operations for the dispensing of Class I, II or III liquids into the fuel tanks of motor vehicles.

5707.2.1 Mobile fueling vehicle classifications. An on-demand mobile fueling vehicle shall be characterized as one of the following:

1. Tier 1 Mobile Fueling Vehicle-A tank_vehicle that complies with NFPA 385 and_that has chassis-mounted tanks where the aggregate capacity does not exceed 1600_gallons (6057 L).
2. Tier 2 Mobile Fueling Vehicle-A vehicle with one or more chassis-mounted tanks or chassis-mounted containers, not to exceed 110 gallons (415 L) capacity and having an aggregate capacity that does not exceed 800 gallons (3028 L) or the weight capacity of the vehicle in accordance with DOTn.
3. Tier 3 Mobile Fueling Vehicle-A vehicle that carries a maximum aggregate capacity_of 60 gallons (227 L) of motor fuel in metal safety cans *listed* in accordance with UL 30 or other *approved* metal containers, each not to exceed 5 gallons (19 L) in capacity.

5707.2.2 Mobile fueling vehicle requirements. Each mobile fueling vehicle shall comply with all local, state and federal requirements, as well as the following:

1. Mobile fueling vehicles with a chassis-mounted tank in excess of 110 gallons (415 L) shall also comply with the requirements of Section 5706.6 and NFPA 385.
2. The mobile fueling vehicle and its equipment shall be maintained in good repair.
3. Safety cans and approved metal containers shall be secured to the mobile fueling vehicle except when in use.
4. Fueling a motor vehicle from tanks or containers mounted in a trailer connected to a mobile fueling vehicle shall be prohibited.

5707.3 Required documents. Documents developed to comply with Sections 5707.3.1 through 5707.3.3 shall be updated as necessary by the *owner* of the mobile fueling operation and shall be maintained in compliance with Section 108.3.

5707.3.1 Safety and emergency response plan. Mobile fueling operators shall have an *approved* written safety and emergency response plan that establishes policies and procedures for fire safety, spill prevention and control, personnel training and compliance with other applicable requirements of this code.

5707.3.2 Training records. Mobile fueling vehicles shall be operated only by designated personnel who are trained on proper fueling procedures and the safety and emergency response plan. Training records of operators shall be maintained.

5707.3.3 Site plan. Where required by the *fire code official*, a site plan shall be developed for each location or area at which mobile fueling occurs. The site plan shall be in sufficient detail to indicate the following:

1. All buildings, structures;
2. *Lot lines* or, property lines;
3. Electric car chargers;
4. Solar photovoltaic parking lot canopies;
5. Appurtenances on site and their use or function;
6. All uses adjacent to the *lot lines* of the site;
7. Fueling locations;
8. Locations of all storm drain openings and adjacent waterways or wetlands;
9. Information regarding slope, natural drainage, curbing, impounding;
10. How a spill will be kept on the site property;
11. Scale of the site plan.

5707.4 Mobile fueling areas. The mobile fueling vehicle and point of connection of the vehicle being fueled shall not occur on public streets, *public ways* or inside *buildings*. Fueling on the roof level of parking structures or other *buildings* is prohibited.

5707.4.1 Separation. The point of connection of the vehicle being fueled shall not take place within 25 feet (7620 mm) of buildings, lot lines, property lines or combustible storage. Mobile fueling vehicles shall not park within 10 feet (3048 mm) of buildings, lot lines, property lines, or combustible storage.

Exceptions:

1. The *fire code official* shall be authorized to decrease the separation distance for dispensing from metal safety cans or other *approved* metal containers in accordance with Section 5707.2.
2. The point of fueling shall not take place within 10 feet (3048 mm) of buildings, lot lines, property lines, or combustible storage when the mobile fueling vehicle has an approved vapor recovery system or is servicing vehicles with on board refueling vapor recovery.

Where dispensing operations occur within 15 feet (4572 mm) of a storm drain, an *approved* storm drain cover or an *approved* equivalent method that will prevent any fuel from reaching the drain shall be used.

5707.4.2 Sources of ignition. Smoking, open flames and other sources of ignition shall be prohibited within

25 feet (7620 mm) of fuel dispensing activities. Signs prohibiting smoking or open flames within 25 feet (7620 mm) of the vehicle or the point of fueling shall be prominently posted on the mobile fueling vehicle. The engines of vehicles being fueled shall be shut off during fueling.

5707.4.3 Electrical equipment. Mobile fueling shall not occur within 20 feet of electrical equipment located within 18 inches of the ground unless such electrical equipment is rated for Class 1, Division 2 hazardous locations in accordance with the National Electrical Code.

5707.5 Equipment. Mobile fueling equipment shall comply with Sections 5707.5.1 through 5707.5.5.

5707.5.1 Dispensing hoses and nozzles. Where equipped, the dispensing hose shall not exceed 50 feet (15 240 mm) in length. The dispensing nozzles and hoses shall be of an *approved* and *listed* type. Where metal-to-metal contact cannot be made between the nozzle and the fuel fill opening, then a means for bonding the mobile fueling vehicle to the motor vehicle shall be provided and employed during fueling operations.

5707.5.2 Break-away device. A listed break-away device shall be provided at the nozzle.

Exception: Mobile fueling vehicles equipped with an approved brake interlock tied to the nozzle holder that prohibits movement of the mobile fueling vehicle when the nozzle is removed from its holder or tied to the delivery of fuel that prevents activation of the pumping system.

5707.5.3 Shut off valve and fuel limit. Mobile fueling vehicles shall be equipped with a listed shutoff valve assembly and a fuel limit switch set to a maximum of 30 gallons (116 L)

5707.5.4 Fire extinguisher. An *approved* portable fire extinguisher complying with Section 906 with a minimum rating of 4A:80-B:C shall be provided on the mobile fueling vehicle with signage clearly indicating its location.

5707.5.5 Spill kit. Mobile fueling vehicles shall contain a minimum 5-gallon (19 L) spill kit of an *approved* type.

5707.6 Operations. Mobile fueling vehicles shall be constantly attended during fueling operations with brakes set and warning lights in operation. Mobile fueling vehicles shall not obstruct emergency vehicle access roads.

5707.6.1 Dispensing hose. Where equipped, mobile fueling vehicles shall be positioned in a manner to preclude traffic from driving over the dispensing hose. The dispensing hose shall be properly placed on an *approved* reel or in an *approved* compartment prior to moving the mobile fueling vehicle.

5707.6.2 Drip control. Operators shall place a drip pan or an absorbent pillow under the nozzle and each fuel fill opening prior to and during dispensing operations to catch drips.

5707.6.3 Safety cones. Safety cones or other visual barriers shall be employed as warning devices to highlight the vehicle fueling area.

5707.6.4 Vehicle lights. The mobile fueling vehicle flasher lights shall be in operation while dispensing operations are in progress.

5707.6.5 Nighttime deliveries. Nighttime deliveries shall only be made in areas deemed adequately lighted by the *fire code official*.

5707.6.6. Spill reporting. Spills shall be reported in accordance with Section 5003.3.1

15.10.140 IFC 5806, flammable cryogenic fluids.

Section 5806.2 is amended to read as follows:

The storage of flammable cryogenic fluids in stationary containers is prohibited within the city limits.

15.10.145 IFC 6104, liquefied petroleum gas.

Section 6104.2 is amended to read as follows:

Throughout the City, the aggregate capacity of any one installation of liquefied petroleum gas shall not exceed five hundred (500) gallons water capacity. This capacity limit may be increased up to, but not to exceed, two thousand (2,000) gallons water capacity if the installation is not within, or closer than 100 feet of a residential zone and must be approved by the fire code official. A permit is required to install a liquefied petroleum gas tank.

Exception: Existing installations exceeding five hundred (500) gallons water capacity, but not exceeding two thousand (2,000) gallons water capacity, shall be allowed to continue.

15.10.150 IFC Appendix B, Fire Flow Requirements for Buildings, amended.

Appendix B, Sections B104.1, B104.2, B105.1, and B105.2, and the footnotes of Table B105.1, are amended to read as follows:

B104.1 General. The fire flow calculation area shall be the total floor area of all floor levels within the exterior walls, and under the horizontal projections of the roof of a building, including basements and attached garages, except as modified in Section B104.3.

B104.2 Area separation. Portions of buildings which are separated by four-hour fire walls without openings, constructed in accordance with the International Building Code, are allowed to be considered as separate fire-flow calculation areas.

B105.1 One- and two-family dwellings. The minimum fire flow requirements for one- and two- family dwellings having a fire-flow calculation area where the gross floor area, including attached garages, does not exceed 3,600 square feet (344.5 m²) shall be 1,500 gallons per minute (3785.4 L/min). Fire flow and flow duration for dwellings having a gross square footage in excess of 3,600 square feet (344.5 m²) shall be not less than that specified in Table B105.1 and the ISO Guide for the Determination of Needed Fire Flow.

B105.2 Buildings other than one- and two-family dwellings. The minimum fire flow and flow duration for buildings other than one- and two-family dwellings shall be as determined by utilizing Table B105.1 and the ISO Guide for the Determination of Needed Fire Flow.

Exception: A reduction in required fire flow of up to 50 percent, as approved, is allowed when the building is provided with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 of the International Building Code. Where buildings are of Type I or II construction and are a light-hazard occupancy as defined by NFPA 13, the reduction may be up to 75 percent. The resulting fire flow shall not be less than 1,500 gallons per minute (5,678 l/min) for the prescribed duration as specified in Table B105.1.