ATTACHMENT A

CITY OF BELLEVUE, WASHINGTON

ORDINANCE NO. ____

AN ORDINANCE amending Chapter 23.30 of the Bellevue City Code to adopt the 2017 Edition of the Washington Cities Electrical Code; amending Chapters 23.05, 23.12, 23.13 and 23.50 to correct typographic errors and ensure consistency with state law; amending Chapter 23.10 to add section 917 (Firefighter Air Systems) and ensure consistency with state law; and establishing an effective date.

WHEREAS, RCW 19.27.031 expressly requires the City of Bellevue to adopt the International Building Code, International Residential Code, International Mechanical Code, International Fire Code, Uniform Plumbing Code, and related codes; and

WHEREAS, RCW 19.27.060 provides the City with authority to amend the codes enumerated in RCW 19.27.031 as they apply within the City's jurisdiction, provided such modifications do not result in less than the minimum performance standards and objectives contained in the state building code; and

WHEREAS, current provisions of the Bellevue Electrical Code, chapter 23.30 BCC, adopt and rely upon the 2014 Edition of the Washington Cities Electrical Code, which has been superseded by the 2017 Edition of the Washington Cities Electrical Code; and

WHEREAS, current provisions of the Bellevue Construction Code, Title 23 BCC, adopt and rely upon various state and national codes, which became effective July 1, 2016; and

WHEREAS, adoption of this Ordinance will correct typographic errors and ensure consistency between the Bellevue Construction Code and the various state and national codes that the Construction Code relies upon; and

WHEREAS, adoption of this Ordinance will amend the Bellevue Building Code, Chapter 23.10 BCC, to add section 917 (Firefighter Air Systems) and ensure consistency between the Bellevue Building Code and the International Building Code; and

WHEREAS, the City of Bellevue has concluded that the recommended amendments to the Bellevue City Code are exempt from the requirements of the State Environmental Policy Act (SEPA), Chapter 43.21C RCW, under the terms of RCW 43.21C.450; now, therefore,

ATTACHMENT A

THE CITY COUNCIL OF THE CITY OF BELLEVUE, WASHINGTON, DOES ORDAIN AS FOLLOWS:

Section 1. Section 23.05.090 of the Bellevue City Code is hereby amended to read as follows:

23.05.090 Permits required.

A. Technical Codes Other Than the Electrical Code – Required. Any person who intends to construct, enlarge, alter, repair, move, demolish, or change the occupancy of a building or structure, or to erect, install, enlarge, alter, repair, remove, convert or replace any electrical, gas, mechanical or plumbing system, the installation of which is regulated by this chapter and the technical codes, or to cause any such work to be done, shall first make application to the building official and obtain the required permit.

B. Technical Codes Other than the Electrical Code – Work Exempt from Permit. Certain work is exempt from the permit requirements of this chapter and the technical codes. Exemptions from permit requirements of this chapter and the technical codes shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this chapter, the technical codes or any other laws or ordinances of the city. An exemption from the permit requirements of one technical code does not exempt work from the permit requirements of other technical codes or other laws or ordinances of the city. Permits shall not be required for the following:

1. Emergency Repairs. Where equipment replacements and equipment repairs must be performed in an emergency situation posing a significant and immediate risk to life and safety, or a significant and immediate risk of loss to property, the permit application shall be submitted within the next working business day to the building official.

2. Repairs. Application or notice to the building official is not required for ordinary repairs to structures. Such repairs shall not include the cutting away of any wall, partition or portion thereof, the removal or cutting of any structural beam or load-bearing support, or the removal or change of any required means of egress, or rearrangement of parts of a structure affecting the egress requirements; nor shall ordinary repairs include addition to, alteration of, replacement or relocation of any standpipe, water supply, sewer, drainage, drain leader, gas, soil, waste, vent or similar piping, electric wiring or mechanical or other work affecting public health or general safety.

3. The following work otherwise governed by Chapter 23.10 BCC:

a. One-story detached structures accessory to 1-family or 2-family residential (houses and duplexes), used as tool and storage sheds, tree-supported play structures, playhouses and similar uses, provided the floor area does not exceed 200 square feet (11.15 m^2).

b. Fences not over eight feet (2,438 mm) high.

c. Oil derricks.

d. Retaining walls which are not over four feet (1,219 mm) in height measured from the bottom of the footing to the top of the wall, unless supporting a surcharge or impounding Class I, II or III-A liquids.

e. Water tanks supported directly on grade if the capacity does not exceed 5,000 gallons (18,925 L) and the ratio of height to diameter or width does not exceed two to one.

f. Sidewalks, decks and driveways not more than 30 inches (762 mm) above grade (or grade plane, as applicable) and not over any basement or story below and which are not part of an accessible route or means of egress.

g. Painting, papering, tiling, carpeting, cabinets, counter tops and similar finish work.

h. Temporary motion picture, television and theater stage sets and scenery.

i. Prefabricated swimming pools accessory to structures regulated by the IRC or accessory to Group R-3 and Group U occupancies regulated by the IBC, which are less than 24 inches (610 mm) deep, do not exceed 5,000 gallons (18, 925 L) and are installed entirely above ground.

j. Shade cloth structures constructed for nursery or agricultural purposes and not including service systems.
k. Swings, slides and other similar playground equipment.

l. Window awnings supported by an exterior wall which do not project more than 54 inches (1,372 mm) from the exterior wall and do not require additional support of structures regulated by the IRC or of Group R-3 and Group U occupancies regulated by the IBC.

m. Movable cases, counters and partitions not over five feet, nine inches (1,753 mm) in height.

n. Work primarily within public right-of-way.

o. Towers and poles owned by public utilities, including associated public and private equipment attached to such towers and poles. Note: Communication towers owned by private companies, and any equipment associated with such towers, are not exempt.

p. Replacement of nonstructural siding on IRC structures except for stucco, and brick or stone veneer greater than four feet above grade plane.

q. In-kind (same size) window replacement for structures where no alteration of structural members is required.

r. Single-story construction job shacks that are placed on a permitted job site during construction. Job shacks shall be removed upon final approval of construction, or may be required to be removed if the permit expires or is suspended or cancelled. A construction job shack is a portable structure for which the primary purpose is to house equipment and supplies, and which may serve as a temporary office during construction for the purposes of the construction activity.

s. Replacement of residential and commercial roofing.

t. Photovoltaic (PV) panels meeting all of the following criteria:

1) PV system is designed and proposed for a detached single-family house.
2) PV system is designed for the rooftop of a house in compliance with applicable codes.
3) The mounting system is engineered and designed for PV.
4) The rooftop is made from lightweight material such as shingles.
5) PV system has an approved and issued electrical permit.
6) To address uplift, panels are mounted no higher than 18" above the surface of the roofing to which they are affixed, and except for flat roofs, no portion of the system may exceed the highest point of the roof.
7) Total dead load of panels, supports, mountings, raceways and all other appurtenances weigh no more than:
   - Three and one-half (3.5) pounds per square foot (PSF); or
   - Four and one-half (4.5) pounds per square foot for frameless panels on a roof with a slope of at least three (3) vertical in twelve (12) horizontal; or
   - Five (5.0) pounds per square foot for frameless panels on a roof with a slope of at least five (5~~3~~) vertical in twelve (12) horizontal.

8) Supports for solar panels are installed to spread the dead load across as many roof-framing members as needed to ensure that at no point are loads caused in excess of fifty (50) pounds.
9) Attachment to the roof is specified by the mounting system manufacturer.

Commented [SG1]: Correcting typo in prior ordinance document.

10) A method and type of weatherproofing roof penetrations is provided
11) The house is code compliant with setbacks and height, or the code allows expansion of nonconformity for solar panels.
12) The PV panels are mounted no higher than the roof ridge or apex of roof (applies only to sloped roofs).

u. Flag and light poles located on private property less than or equal to 20 feet in height, but not exempting permit requirement for any electrical work.

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Section 2. Section 23.05.090 of the Bellevue City Code is hereby amended to read as follows:

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F. Application for Permits Governed by Chapter 23.10 BCC – Other Filings Required.

1. At the time of filing a building permit application, the applicant shall submit all information required to be submitted, together with any application form and application fee therefor, for any of the following approvals which may be applicable to the proposed project:

a. Design review, Land Use Code, Part 20.30F;

b. Administrative conditional use permit, Land Use Code, Part 20.30E;

c. Conditional use permit, shorelines conditional use permit, planned unit development, Land Use Code, Parts 20.30B, 20.30C and 20.30D;

d. Variance or shorelines variance, Land Use Code, Parts 20.30G, 20.30H and shorelines substantial development permit, Land Use Code, Part 20.25E;

e. Clearing and grading permit, Chapter 23.76 BCC.

2. No building permit application will be accepted for filing by the building official for any proposed project for which any of the approvals referred to in subsection (A) of this section is required unless the building permit application is accompanied by all information required to be filed for such required approvals.

3. The filing of a complete building permit application for a proposed project, which is in compliance with applicable state law and the codes, ordinances and regulations of the city in effect at the time of such filing, shall establish a vested right, if a building permit is issued, to proceed with construction of the proposed

project in accordance with such then-existing codes, ordinances and regulations; provided, however, such proposed project may nonetheless be conditioned or denied by the city under the State Environmental Policy Act. For the purpose of this subsection, a "complete building permit application" means an application which contains all information required to be submitted by any applicable provisions of this chapter and the technical codes, including, but not limited to, all information required to be submitted by subsection (A) of this section. A shoring permit, to protect the public right-of-way or adjacent private property, shall not establish vesting of the proposed project.

a. When approved by the building official, a phasing plan may be submitted for review, and if approved, the phasing plan shall thereby establish a schedule for vesting of the proposed project subject to submittal of the first complete building permit application identified in the phasing plan, excluding a shoring permit. The phasing plan is subject to the following limitations. After the first building permit application, each subsequent permit identified in the phasing plan shall be submitted with a complete building permit application within 12 months of the submittal of the prior permit, and the last permit application for the proposed project shall be submitted with a complete building permit application within 36 months of the first permit application which established vesting for the proposed project. The first permit application must be issued and must not expire per BCC 23.05.090(H) to maintain project vesting, and the issued permit must not expire due to not starting work within 1 year or suspending work for more than 180 days per BCC 23.05.100(E). The vested status for the project is retained beyond the 3-year maximum life of the first permit if all inspections required for the work under that permit have been completed and approved. The vested status will not apply to any permit application submitted more than 36 months after the first permit application which established vesting.

Commented [SG2]: Clarifying intent of this sentence.

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Section 3. Section 23.05.105 of the Bellevue City Code is hereby amended to read as follows:

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D. Design Professional in Responsible Charge. When it is required that documents be prepared by a qualified registered design professional, the building official shall be authorized to require the owner to engage and designate on the building permit application a registered design professional who shall act as the registered design professional in responsible charge. If the circumstances require, the owner shall designate a substitute registered design professional in responsible charge who shall perform the duties required of the original registered design professional in responsible charge. The building official shall be notified in writing by the owner if the registered design professional in responsible charge is changed or is unable to continue to perform the duties. The registered design professional in responsible charge shall be responsible for reviewing and coordinating submittal documents

prepared by others, including phased and deferred submittal items, for compatibility with the design of the building. Where structural observation is required by IBC Section 17049, the inspection program shall name the individual or firms who are to perform structural observation and describe the stages of construction at which structural observation is to occur (see also duties specified in IBC Section 1704).

Commented [SG3]: Incorporating a section numbering change that was made in the IBC national code.

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Section 4. Section 23.05.130 of the Bellevue City Code is hereby amended to read as follows:

23.05.130 Inspections.

. . . .

C. Required Inspections. The building official, upon notification, is authorized to make the following inspections:

1. Footing and Foundation Inspection. Footing and foundation inspections shall be made after excavations for footings are complete and any required reinforcing steel is in place. For concrete foundations, any required forms shall be in place prior to inspection. Materials for the foundation shall be on the job, except where concrete is ready-mixed in accordance with ASTM C 94, the concrete need not be on the job.

2. Electrical Underground. Underground inspection shall be made after trenches or ditches are excavated and bedded, piping and conductors are installed, and before backfill is installed. Where excavated soil contains rocks, broken concrete, frozen chunks and other rubble that would damage or break the raceway, cable or conductors, or where corrosive action will occur, protection shall be provided in the form of granular or selected material, approved running boards, sleeves or other means.

3. Concrete Slab and Under-Floor Inspection. Concrete slab and under-floor inspections shall be made after in-slab or under-floor reinforcing steel and building service equipment, conduit, slab insulation, piping accessories and other ancillary equipment items are in place, but before any concrete is placed or floor sheathing installed, including the subfloor.

4. Lowest Floor Elevation. In flood hazard areas, upon placement of the lowest floor, including the basement, and prior to further vertical construction, the elevation certification required in IBC Section 1612.5 or IRC Section R3223 shall be submitted to the building official.

Commented [SG4]: Incorporating a section numbering change that was made in the IRC national code.

5. Exterior Wall Sheathing Inspection. Exterior wall sheathing shall be inspected after all wall framing is complete, strapping and nailing is properly installed but prior to being covered.

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Section 5. Section 23.05.170 of the Bellevue City Code is hereby amended to read as follows:

23.05.170 Violations.

A. Unlawful Acts. It shall be unlawful for any person to erect, construct, alter, extend, repair, move, remove, demolish or occupy any building, structure or equipment regulated by this chapter or the technical codes, or cause same to be done, in conflict with or in violation of any of the provisions of this chapter or the technical codes.

B. Civil Violation. Any violation of any of the provisions of this chapter or of the technical codes constitutes a civil violation as provided for in Chapter 1.18 BCC, for which a monetary penalty may be imposed as provided therein.

C. Criminal Penalty. In addition to or as an alternative to any other penalty provided in this chapter or by law, any person who violates any of the provisions of this chapter or the technical codes shall be guilty of a misdemeanor and upon conviction shall be punished as provided in the Criminal Code, Title 10 ~~Chapter 10.92~~ BCC.

Commented [SG5]: Correcting a reference to Bellevue City Code which has changed.

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Section 6. Chapter 23.10 of the Bellevue City Code is hereby amended to read as follows:

Chapter 23.10
BUILDING CODE

Sections:
23.10.403.5 International Building Code Section 403.5 amended – Means of egress and evacuation.
23.10.503.1 International Building Code Section 503.1 amended – General.
23.10.903.2 International Building Code Section 903.2 amended – All occupancies.
23.10.917 International Building Code Section 917 added – Firefighter Air Systems
23.10.1612.3 International Building Code Section 1612.3 amended – Establishment of flood hazard areas.
23.10.2702 International Building Code Section 2702 amended – Emergency and standby power systems.

23.10.403.5 International Building Code Section 403.5 amended – Means of egress and evacuation. International Building Code Section 403.5 is hereby amended to read as follows:

403.5 Means of egress and evacuation. The means of egress in high-rise buildings shall comply with Sections 403.5.1 through 403.5.6, and in addition to these requirements, shall comply with Bellevue City Code 23.11.907.5.2.2.6, which requires either Phased Evacuation, an additional stair, or occupant evacuation elevators, to facilitate simultaneous building evacuation and firefighter response into the building.

403.5.1 Remoteness of interior exit stairways. Required interior exit stairways shall be separated by a distance not less than 30 feet (9144 mm) or not less than one-fourth of the length of the maximum overall diagonal dimension of the building or area to be served, whichever is less. The distance shall be measured in a straight line between the nearest points of the enclosure surrounding the interior exit stairways. In buildings with three or more interior exit stairways, no fewer than two of the interior exit stairways shall comply with this section. Interlocking or scissor stairways shall be counted as one interior exit stairway.

Commented [SG6]: Correcting text to match the IBC national code.

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403.5.4 Smokeproof enclosures. Every required interior exit stairway serving floors more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access shall be a smokeproof enclosure in accordance with Sections 909.20 and 1023.11~~0~~.

Commented [SG7]: Incorporating a section numbering change that was made in the IBC national code.

. . . .

23.10.503.1.4 Bellevue City Code Section 23.10.503.1.4 amended – Occupied roofs. Bellevue City Code Section 503.1.4 is hereby amended to read as follows:

503.1.4 Occupied roofs. A roof level or portion thereof shall be permitted to be used as an occupied roof provided the occupancy of the roof is an occupancy that is permitted by Table 504.4 for the story immediately below the roof. The area of the occupied roofs shall not be included in the building area as regulated by Section 506.

Exceptions:

1. The occupancy located on an occupied roof shall not be limited to the occupancies allowed on the story immediately below the roof where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and occupant notification in accordance with Section 907.5 is provided in the area of the occupied roof.

Commented [SG8]: Correcting the text to match the future 2018 IBC national code which will allow an occupied roof.

2. Assembly occupancies shall be permitted on roofs of open parking garages of Type I or Type II construction, in accordance with the exception to Section 903.2.1.6.

Elements or structures enclosing the occupied roof areas shall not extend more than 48 inches above the surface of the occupied roof.

Exception: Penthouses constructed in accordance with Section 1510.2~~,~~ and towers, domes, spires, and cupolas constructed in accordance with Section 1510.5.

Commented [SG9]: Correcting the text to match the future 2018 IBC national code which will allow an occupied roof.

23.10.903.2.11 International Building Code Section 903.2.11 amended – All occupancies. International Building Code Section 903.2.11 is hereby amended to read as follows:

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[F] 903.2.11.1 Stories and basements without openings. An *automatic sprinkler system* shall be installed throughout all stories, including basements, of all buildings where the floor area exceeds 1,500 square feet (139.4 m2) and where there is not provided at least one of the following types of *exterior wall* openings:

1. Openings below grade that lead directly to ground level by an exterior *stairway* complying with Section 10111~~09~~ or an outside ramp complying with Section 10121~~10~~. Openings shall be located in each 50 linear feet (15,240 mm), or fraction thereof, of exterior wall in the story on at least one side. The required openings shall be distributed such that the lineal distance between adjacent openings does not exceed 50 feet (15 240 mm).

Commented [SG10]: Correcting cross-references errors in IBC national code

2. Openings entirely above the adjoining ground level totaling at least 20 square feet (1.86 m2) in each 50 linear feet (15,240 mm), or fraction thereof, of exterior wall in the story on at least one side. The required openings shall be distributed such that the lineal distance between adjacent openings does not exceed 50 feet (15 240 mm). The height of the bottom of the clear opening shall not exceed 44 inches (1118 mm) measured from the floor.

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23.10.917 International Building Code Section 917 added – Firefighter Air Systems. International Building Code Chapter 9 is hereby amended by the addition of a new section 917 to read as follows:

SECTION 917
FIREFIGHTER AIR SYSTEMS

Commented [SG11]: Adding a new section 917 as proposed for firefighting operations in high-rise buildings and transportation tunnels.

917.1 Scope. The design, installation, and maintenance of firefighter air systems shall be in accordance with this section.

917.2 Required installations. Firefighter air system shall be installed in the following buildings:

1. Buildings classified as a *High-rise building* in accordance with Chapter 2 and Section 403.

2. Transportation tunnels constructed in accordance with NFPA 130 or 502 that exceed 300' in length.

917.3 Plans and contractor qualifications.

917.3.1 Plans. Prior to the installation of a firefighter air system, a minimum of two sets of plans and specifications shall be submitted to the Bellevue Fire Department for review and approval. Plans shall demonstrate compliance with the requirements of this section and shall include calculations prepared by a registered professional engineer demonstrating that the design criteria for all pressure containing components is satisfied plus a minimum safety factor of 25 percent.

The plans submittal shall also include specifications for the tubing, fittings, and manufacturer data sheets for valves, pressure regulators, pressure relief devices, gauges, RIC universal air connections and cylinder filling hoses.

917.3.2 Contractor qualification. The firefighter air system shall be installed by Washington state licensed contractors. Proof of licensure shall be provided with the plan submittal.

917.4 Design criteria.

917.4.1 The system shall be designed to fill, at each interior cylinder filling panel, one 66 standard cubic foot compressed breathing air cylinder to a maximum pressure of 4,500 psig (31 028 kPa).

917.4.2 The filling operation shall be completed in not more than two minutes upon connection of the cylinder to the fill hose.

917.4.3 The minimum design flow of the breathing air piping system shall be calculated using two interior cylinder filling panels operating simultaneously and located at the highest level above the most remote location from the base station exterior fire department connection panel and enclosure base.

917.5 Operating pressure. All components used in the system shall be rated to operate at a minimum pressure of 5,000 psig (34 475 kPa) at 70°F (21□C).

917.6 Marking. System piping, gauges, valves and air outlets shall be clearly marked by means of steel or plastic labels or tags indicating their function. Markings used for piping systems shall consist of the content's name and include a direction of flow arrow. Markings shall be provided at each valve; at wall, floor or ceiling penetrations; at each change of direction; and at a minimum of every 20 feet (6096 mm) or fraction thereof throughout the piping system.

917.7 Base station exterior fire department connection panel and enclosure.

917.7.1 Location.
A fire department connection panel shall be attached to the building or on a remote monument at the exterior of the building. The panel shall be secured inside of a weather-resistant enclosure. The panel shall be within 50 feet (15 240 mm) of an approved roadway or driveway, or other location approved by the Bellevue Fire Department. The enclosure shall be visible and accessible on approach to the building.

917.7.2 Construction.
The fire department connection panel shall be installed in a cabinet constructed of minimum 18-gauge carbon steel. When constructed of steel, the cabinet shall be provided with coating to protect the cabinet from corrosion. When the enclosure is constructed of nonmetallic materials, the enclosure shall be resistant to ultraviolet and infrared solar radiation.

917.7.3 Vehicle protection.
When the panel is located in an area subject to vehicle traffic, impact protection shall be provided in accordance with this code.

917.7.4 Base station enclosure marking.
The front of the enclosure shall be marked "FIRE-FIGHTER AIR SYSTEM" on securely attached steel, plastic engraved or painted plate. The lettering shall be in a color that contrasts with the enclosure front and in letters that are a minimum of 2 inches (51 mm) high with 3/8-inch (9053 mm) brush stroke. The marking of the enclosure shall be visible.

917.7.5 Base station enclosure components.
The components in the base station panel shall consist of the necessary components to provide air to the air substations located on upper and/or lower building levels. The fire department air supply source shall be designed to connect to the base station panel. The following components shall be installed in the base station enclosure.

1. One Male Rapid Intervention Crew (RIC) Universal Air Connection (UAC) fitting. When connected to a female fitting, the assembled UAC shall meet the construction, performance and dimensional requirements of NFPA 1981,

Standard on Open-Circuit Self-Contained Breathing Apparatus for Fire and Emergency Services.

2. One downstream shutoff valve.

3. One pressure gauge to check pressure of the piping distribution to air substations located on upper and lower building levels.

4. One pressure relief valve designed for 1.25 times the design discharge of the fire department air supply or air supply trucks. All fittings, hoses and hard piping in the base station supply panel and distribution piping to air substations supply panels, shall be designed for an air pressure of 1.5 times the pressure of the fire department air delivery system.

5. Base station can be designed for an air pressure supply piping system for supply of air to air substations.

The air supply lines will require an intermediate regulator to provide air pressure for a 5,000 psi (34 473kPa), for a 4.5 air pack system. The air supply lines will be fitted with separate pressure relief valves set at 1.25 times the working pressure of the air supply line and the operating pressure of the pressurized lines.

6. The relief valve, piping, pressure regulator, pressure gauges, fittings and connection hoses shall meet the requirement of the ASME *Boiler and Pressure Code*, 7 Section VIII, *Unified Pressure Vessel Code*. The installation of the piping system, as a minimum, will be based on ASME B31.3-2012.

7. Mechanical supports for piping, hoses, gauges and pressure components, will be designed and built to provide a solid rigid structure.

917.7.5 Base station enclosure components. 1. One- Male Rapid Intervention Crew (RIC) universal air connection (UAC) fitting. When connected to a female fitting, the assembled UAC shall meet the construction, performance and dimensional requirements of NFPA 1981, *Standard on Open-Circuit Self-Contained Breathing Apparatus for Fire and Emergency Services*.

917.7.6 Security.
To prevent unauthorized access to or tampering with the system, the fire department connection panel enclosure shall remain locked by an *approved* means.

917.7.7 Fire department key box.
A fire department *key box* shall be provided adjacent to the fire department connection panel and enclosure. A key for the enclosure shall be provided in the *key box*.

917.8 Interior cylinder fill panels and enclosure—air substation.

917.8.1 Location. Cylinder fill panels shall be installed in the interior of buildings as follows:

1. **Aboveground structure.** An interior air substation cylinder fill panel and enclosure shall be installed on floor landings. In buildings classified as high-rise in all stairwells regardless of height of buildings commencing on the second floor landing above grade, below grade and every other floor thereafter.

2. **Underground structure.** An interior air substation cylinder fill panel and enclosure shall be installed in all stairwells on the floor landing on the third level below grade and every other below-grade level thereafter. The panel shall be located a minimum of 36 inches (914 mm) but not more than 60 inches (1524 mm) above the finished floor or a stairway landing.

917.8.2 Cabinet requirements.
Each air substation cylinder fill panel shall be installed in a cabinet constructed of minimum 18-gauge carbon steel. The depth of the cabinet shall not create an exit obstruction when installed in building stairways. All components, with the exception of the shutoff valve, pressure gauges, fill hoses and ancillary components, shall be contained behind a minimum 18-gauge interior panel.

917.8.3 Door.
Hinges for the cabinet door shall be located inside of the cabinet. The door shall be arranged such that when the door is open, it does not reduce the required exit width or create an obstruction in the path of egress. A minimum of 80 percent of the door surface area shall be constructed of tempered glass. The thickness of the glass shall not be greater than 1/8 inch (3.17 mm).

917.8.4 Cabinet marking.
The front of each cylinder fill panel shall be marked “FIREFIGHTER AIR SYSTEM.” The lettering shall be in a color that contrasts with the cabinet front and in letters that are a minimum of 2 inches (50mm) high with 3/8-inch (5 mm) brush stroke. The marking of the cabinet shall be visible to emergency response personnel.

917.8.5 Air substation cabinet components.
The cabinet shall be of sufficient size to allow for the installation of the following components:

1. One-isolation valve located between the air discharge line to the next air substation and the downstream line to the air base station supply or the air substation immediately below to the next substation above the air base station.

2. The fill hoses and isolation valves shall be installed between the air bottle connection line and the fresh air supply.

3. Excess bleed valves shall be located between the air bottle fill hose and the next air substation.

4. Four SCBA fill hoses are required at a single air substation, the air supply lines shall be identified as 4,500 psig (31 028 kPa) pressure and shall be controlled by a single valve between the air supply and air bottle. The SCBA fill hoses shall be designed with RIC UAC fittings. A protective cap shall be provided for each hose.

5. Mechanical supports for piping, hoses, gauges and pressure components shall be designed and built to provide a solid rigid structure.

917.8.6 Cylinder filling hose.
The design of the cabinet shall provide a means for storing the hose to prevent kinking. When the hose is coiled, the brackets shall be installed so that the hose bend radius is maintained at 4 inches (102 mm) or greater.

The discharge outlet of each cylinder filling hose shall have a female RIC UAC. The female fitting shall be designed to connect to a male RIC UAC. The assembled RIC UAC shall meet the construction, performance and dimensional requirements of NFPA 1981, *Standard on Open Breathing Circuit Self-Contained Breathing Apparatus for Fire and Emergency Services*.

917.8.7 Security.
To prevent unauthorized access to or tampering with the system, each panel cover shall remain locked by an *approved* means.

917.9 Installation of components.

917.9.1 Pressure monitoring switch.
An electric low-pressure monitoring switch shall be installed in the piping system to monitor the air pressure. The pressure switch shall be connected to the building's *fire alarm system*. The pressure switch shall transmit a supervisory signal when the pressure of the breathing air system is less than 3,000 psig (20 685 kPa) at 70° F (21□C), + 100 psig (690 kPa). If the building is not equipped with a *fire alarm system*, activation of the pressure switch shall activate an audible alarm located at the building's main entrance. A weather resistant sign shall be provided adjacent to the audible alarm stating “FIREFIGHTER AIR SYSTEM – LOW AIR PRESSURE ALARM.” The lettering shall be in a contrasting color and the letters shall be a minimum of 2 inches (51 mm) high with 3/8-inch (9.53 mm) brush stroke.

917.9.2 Tubing.
Piping shall be constructed of stainless steel or other *approved* materials that are compatible with breathing air. The use of nonmetallic materials shall be compatible with breathing air. When stainless steel tubing is used, it shall meet ASTM A-269, Grade 316 or an equal standard. Stainless steel fitting shall be Grade 316 and a minimum, 0.375 inch (9.5 mm) outside diameter by .065 inch (1.6 mm) wall Grade 316 fully annealed seamless. Stainless steel fittings shall be at least Grade 316 and meet the requirements of ASTMA 479 or equal. Routing of tubing and bends shall be such as to protect the tubing from mechanical damage.

917.9.3 Support.
Piping shall be supported at maximum intervals of 5 feet (1524 mm). Individual tubing clamps and mounting components shall be mechanically secured to the building support members in accordance with the manufacturer's specifications.

917.9.4 Fittings.
Fittings shall be constructed of stainless steel or other *approved* materials that are compatible with breathing air. The use of nonmetallic materials shall be compatible with breathing air. Stainless steel fittings shall be at least Grade 316 and meet the requirements of ASTMA 479 or an equal standard.

917.9.5 Prohibition.
The use of carbon steel, iron pipe, malleable iron, high-strength gray iron or alloy steel is prohibited.

917.10 System assembly requirements.
The system shall be welded except where the tubing joints are readily accessible and at the individual air fill panels. When mechanical high-pressure tube fittings are used, they shall be *approved* for the type of materials to be joined and rated for the maximum pressure of the system. Welding procedures shall meet ASME B31.1-2010, Part 4 and Chapter V (Exhibit VI). Prior to and during the welding of sections of tubing, a continuous, regulated dry nitrogen or argon purge at 3 psig (20.68 kPa) shall be maintained to eliminate contamination with products of the oxidation or welding flux. The purge shall commence a minimum of 2 minutes prior to welding operations and continue until the welded joint is at an ambient temperature between 60° F and 80°F (15.5°C and 26.6°C).

917.11 Prevention of contamination.
The installing contractor shall ensure that, at all times, the system components are not exposed to contaminants, including, but not limited to, oils, solvents, dirt and construction materials. When contamination of system components has occurred, the effected component shall not be installed in the system.

917.12 Testing and inspection.

917.12.1 Testing.

Following fabrication, assembly, and installation of the piping distribution system, exterior connection panel and interior cylinder fill panels, the Bellevue Fire Department shall witness the pneumatic testing of the complete system at a minimum test pressure of 5,500 psi (37 923 kPa) using oil-free dry air, nitrogen or argon. A minimum 24-hour pneumatic or hydrostatic test shall be performed. During this test all fittings, joints and system components shall be inspected for leaks. A solution compatible with the system component materials shall be used on each joint and fitting. Any defects in the system or leaks detected shall be documented on an inspection report, repaired or replaced. As an alternate, a pressure decay test in accordance with ASME B31.3 is allowed. A test of the low-pressure monitoring switch shall be performed. Each air fill panel shall be tested for compatibility with the fire department's SCBA RIC UAC. The pipe or tubing manufacturer mill report shall be provided to the Belleuve Fire Department.

917.12.2 Air samples.

A minimum of two samples shall be taken from separate air fill panels and submitted to an independent, certified gas analysis laboratory to verify the system's cleanliness and that the air is certified as breathing air. The laboratory shall submit a written report of the analysis to the Bellevue Fire Department documenting that the breathing air complies with this section.

917.12.3 Quality analysis.

During the period of air quality analysis, the air fill panel inlet shall be secured so that no air can be introduced into the system and each air fill panel shall be provided with a sign stating: "AIR QUALITY ANALYSIS IN PROGRESS, DO NOT FILL OR USE ANY AIR FROMTHIS SYSTEM." This sign shall be a minimum of 8 1/2 by □11 inches (215mm by 279 mm) with a minimum of 1-inch (25 mm) lettering.

917.12.4 Inspection.

Annually the breathing air within the system shall be inspected and one air sample shall be taken and certified as breathing air in accordance with the section. The laboratory test results shall be available for review by the Bellevue Fire Department.

917.13 System acceptance and certification.

Prior to the final acceptance of the air system, the building owner shall provide for the testing and certification of the system. As a minimum, this shall include verifying the system's compatibility with the fire department's SCBA apparatus; the system's ability to maintain 5,000 psi (34 475 kPa) working pressure; the operability of the low-pressure monitoring switch and that the system's air quality complies with the requirements of Section 915.12. Prior to final acceptance, the building owner shall provide the Bellevue Fire Department with written verification of a testing and

certification contract. Upon satisfactory completion of all tests and verification of air quality, the system shall be considered complete.

. . . .

23.10.1612.3 International Building Code Section 1612.3 amended – Establishment of flood hazard areas. International Building Code Section 1612.3 is hereby amended to read as follows:

. . . .

1612.3.1 Design flood elevations. Where design flood elevations are not included in the flood hazard areas established in Section 1612.3, or where floodways are not designated, the building official is authorized to require the applicant to:

1. Obtain and reasonably utilize any design flood elevation and floodway data available from a federal, state or other source; or

2. Determine the design flood elevation and/or floodway in accordance with the City of Bellevue LUC 20.25H.175.A and Surface Water Engineering Standards, Section D4-04.5, "Floodplain/Floodway Analysis" to define special flood hazard areas. Determinations shall be undertaken by a *registered design professional* who shall document that the technical methods used reflect currently accepted engineering practice.

1612.3.2 Determination of impacts. In riverine *flood hazard areas* where design flood elevations are specified but floodways have not been designated, the applicant shall provide a floodway analysis that demonstrates that the proposed work will meet the City of Bellevue Surface Water Engineering Standards, Section D4-04.5, "Floodplain/Floodway Analysis."

Commented [SG12]: Correcting reference to Engineering Standards.

Commented [SG13]: Correcting reference to Engineering Standards.

. . . .

23.10.2702 International Building Code Section 2702 amended – EMERGENCY AND STANDBY POWER SYSTEMS. International Building Code Section 2702 is hereby amended as follows.

SECTION 2702
EMERGENCY AND LEGALLY REQUIRED STANDBY POWER SYSTEMS

[F] 2702.1 Installation. Emergency power systems and legally required standby power systems shall comply with Sections 2702.1.1 through 2702.1.7 and Table 2702.

[F] 2702.1.1 Stationary generators. Stationary emergency and legally required standby power generators required by this code shall be listed in accordance with UL 2200.

[F] 2702.1.2 Electrical. Emergency power systems and legally required standby power systems required by this code or the International Fire Code shall be installed in accordance with the International Fire Code, the Washington Cities Electrical Code, NFPA 110 and NFPA 111.

Exception: When approved by the Building Official and the Fire Marshal, legally required standby power systems may be designed and constructed as emergency power systems.

. . . .

[F] 2702.1.8 Equipment room. If a legally required standby or emergency power system includes a generator set inside or serving a building, the generator set shall be located in a separate room enclosed with 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both, to separate it from the remainder of the building, the transfer switches, and from the normal power source including transformers and distribution equipment. The transfer switches shall also be located in a separate room enclosed with 2-hour fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 711, or both, to separate it from the remainder of the building. Power distribution from the emergency source to the emergency transfer switch shall be by an independent route from the normal power source. Independent routes shall mean either a physical separation distance of not less than 50 feet, or a minimum 1-hour fire-resistance rated separation. System supervision with manual start and transfer features shall be provided at the *fire command center* or an *approved* location when a fire command center is not required. Such equipment rooms shall be ventilated directly to the exterior for generator combustion air and radiator cooling air. Any ducts required for such ventilation shall not be dampered, and shall be *fire-resistance rated* to the same level of protection as that required for the equipment room. The requirements of this subsection 2702.1.8 do not apply to optional tenant-owned or landlord-owned generator sets.

Commented [SG14]: Defining the meaning of "independent routes."

Exceptions:

1. Legally required standby or emergency power system generator sets inside a building other than a high-rise building in accordance with Section 403 and other than an underground building space in

accordance with Section 405, may be located in equipment rooms with a 1-hour *fire-resistance rating*.

~~1.~~2. Transfer switches shall be permitted to be located in the same room as the legally required standby or emergency power system generator sets when inside or serving buildings that are neither ~~other than~~ a high-rise building in accordance with Section 403, ~~and~~ nor~~other than~~ an underground building in accordance with Section 405.

[F] 2702.1.9 ~~Routing of legally required standby and emergency power~~Smoke control power systems. Smoke control e~~E~~quipment and systems requiring legally required standby or emergency power shall be supplied with two sources of power. Primary power shall be from the normal building power system. Legally required standby power or emergency power shall be from an *approved* source complying with the Washington Cities Electrical Code. The legally required standby power or emergency power source and its transfer switches shall be in separate rooms from the normal power transformers and switch gears, and ventilated directly to and from the exterior. The room shall be completely enclosed in not less than 1-hour fire barriers constructed in accordance with Section 707, or 1-hour horizontal assemblies constructed in accordance with Section 711, or both, except 2-hour fire-resistance construction shall be required for high-rise and underground buildings per Sections 403 and 405 respectively. Power distribution from the two sources shall be by independent routes to the room containing the automatic transfer switch(s). Independent routes shall mean a physical distance of not less than 50 feet or~~either~~ a minimum 1-hour fire-resistance rated separation~~, or a physical distance of not less than 50 feet~~. Transfer to full emergency power shall be automatic and shall take place within the maximum time to energize loads. The systems shall comply with the *Washington Cities Electrical Code*.

. . . .

[F] 2702.2 Where required. Emergency and legally required standby power systems shall be provided where required by Sections 2702.2.1 through 2702.2.16 and other sections of this code.

[F] 2702.2.1 Emergency alarm systems. Emergency power shall be provided for emergency alarm systems as required by Section 415.5.

[F] 2702.2.2 Elevators and platform lifts. Legally required standby power shall be provided for elevators and platform lifts used as accessible means of egress as required in Sections 1009.4 and

Commented [SG15]: Adding an exception so the requirement stated above applies only to highrise and underground buildings.

Commented [SG16]: Correcting the title and first sentence of this section to clarify that it only applies to smoke control systems.

1009.5. Emergency power shall be provided for elevators in high-rise buildings as required in Section 403.4.8.4.

[F] 2702.2.3 Emergency responder radio coverage systems. Standby power shall be provided for emergency responder radio coverage systems required in Section 9165 and the *International Fire Code*. The standby power supply shall be capable of operating the emergency responder radio coverage system for a duration of not less than 24 hours.

Commented [SG17]: Correcting reference error in the IBC national code.

. . . .

Section 7. Chapter 23.12 of the Bellevue City Code is hereby amended to read as follows:

Chapter 23.12
RESIDENTIAL CODE

Sections:

23.12.301.2.1 International Residential Code Table R301.2(1) amended – Climatic and geographic design criteria. International Residential Code Table R301.2(1) is hereby amended to read as follows:

ATTACHMENT A

IRC TABLE R301.2(1)

CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA

Ground Snow Load	WIND DESIGN [l, m]		Seismic Design Category[f]	SUBJECT TO DAMAGE FROM			Winter Design Temp[e]	Ice Barrier Under-layment Required[h]	Flood Hazards[g]	Air Freezing Index[i]	Mean Annual Temp[j]
	Speed[d] (mph)	Topographic effects[k]		Weathering[a]	Frost line depth[b]	Termite[c]					
25 (roof snow load shall also be 25 psf unless proven otherwise by the licensed structural engineer-of-record.	110~~85~~	NO	D2	MODERATE	12"	Slight to Moderate	22	NO	March 12, 1974 entry into National Flood Insurance Program. Current maps dated May 16, 1995 entitled "The Flood Insurance Study for King County"	170	51

Commented [SG18]: Incorporating a change that was made in the IRC national code to use different methodology for determining wind speed.

. . . .

23.12.322.1.4 International Residential Code Section R322.1.4 amended – Establishing the design flood elevation. International Residential Code Section R322.1.4 is hereby amended to read as follows.

. . . .

R322.1.4.1 Determination of design flood elevations. If design flood elevations are not specified, the Building Official is authorized to require the applicant to:

1. Obtain and reasonably use data available from a federal, state or other source; or

2. Determine the design flood elevation and/or floodway in accordance with the City of Bellevue LUC 20.25H.175.A and Surface Water Engineering Standards, Section D4-04.5, "Floodplain/Floodway Analysis" to define special flood hazard areas. Determinations shall be undertaken by a registered *design professional* who shall document

Commented [SG19]: Correcting reference to Engineering Standards.

that the technical methods used reflect currently accepted engineering practice in accordance with accepted hydrologic and hydraulic engineering practices used to define special flood hazard areas. Studies, analyses and computations shall be submitted in sufficient detail to allow thorough review and approval.

R322.1.4.2 Determination of impacts. In riverine flood hazard areas where design flood elevations are specified but floodways have not been designated, the applicant shall provide a floodway analysis that demonstrates that the proposed work will meet the City of Bellevue Surface Water Engineering Standards, Section D4-04.5, "Floodplain/Floodway Analysis."

Commented [SG20]: Correcting reference to Engineering Standards.

. . . .

Section 8. Chapter 23.13 of the Bellevue City Code is hereby amended to read as follows:

Chapter 23.13
EXISTING BUILDING CODE

Sections:
23.13.020 International Existing Building Code Section 1401.2.

23.13.1401.2 International Existing Building Code Section 1401.2 amended – Applicability. International Existing Building Code Section 1401.2 is hereby amended to read as follows:

When approved by the building official, existing s~~S~~tructures ~~existing prior to _____~~ in which there is work involving *additions, alterations* or *changes of occupancy* shall be made to conform to the requirements of this chapter or the provisions of Chapters 5 through 13. The provisions of Sections 1401.2.1 through 1401.2.5 shall apply to existing occupancies that will continue to be, or are proposed to be, in Groups A, B, E, F, I-2, M, R, S and U~~S~~. These provisions shall not apply to buildings with occupancies in Group H or I-1, I-3, or I-4.

Commented [SG21]: Clarifying the applicability of IEBC Chapter 14.

Section 9. Chapter 23.30 of the Bellevue City Code is hereby amended to read as follows:

Chapter 23.30
ELECTRICAL CODE

Sections:
23.30.015 Washington Cities Electrical Code adopted.
23.30.450.14 Washington Cities Electrical Code Section 450.14 amended – Disconnecting Means.

23.30.010 Short title.
This chapter shall be known as the electrical code of the city of Bellevue, which is hereinafter referred to as the "city of Bellevue electrical code," "electrical code" or as "this chapter."

23.30.015 Washington Cities Electrical Code adopted.
The ~~January 22,~~ 201~~7~~4 Edition of the Washington Cities Electrical Code, Part 1 and Part 3, but excluding Part 2, Administration, as published by the Washington Association of Building Officials is adopted and shall be applicable within the city, as amended, added to, and excepted in this chapter.

Commented [SG22]: Updating the Electrical Code adoption by reference to the 2017 Washington Cities Electrical Code.

23.30.450.14 Washington Cities Electrical Code Section 450.14 amended – Disconnecting Means. Washington Cities Electrical Code Section 450.14 is hereby amended to read as follows:

> **450.14 Disconnecting Means.** Transformers, other than Class 2 or Class 3 transformers, shall have a disconnecting means located either in sight of the transformer or in a remote location. Where located in a remote location, the disconnecting means shall be lockable in accordance with 110.25 and its location shall be field marked on the transformer. Transformers shall not be located more than one story above *grade plane* (as defined in the *International Building Code*) unless protected by NEC compliant disconnect and overcurrent protection.
>
> Exception: Where approved by the building ~~code~~ official and the ~~f~~Fire ~~m~~Marshal~~code official~~.

Commented [SG23]: Correcting titles of referenced City officials.

Section 10. Chapter 23.50 of the Bellevue City Code is hereby amended to read as follows:

Chapter 23.50
MECHANICAL CODE

Sections:
23.50.506.5.6 International Mechanical Code Section 506.5 amended – Auxiliary Equipment.

23.50.506.5 International Mechanical Code Section 506.5 amended – Auxiliary Equipment. International Mechanical Code Section 506.5 is hereby amended to add a new Subsection 506.5.6 to read as follows:

. . . .

> **506.5.6 Auxiliary Equipment.** Equipment and devices allowed to be installed in the path of exhaust shall be approved for such application. Devices shall comply with Sections 506.3.2.3, 506.3.2.4, 506.3.6,

Commented [SG24]: Correcting a spelling error.

506.3.11.1, 506.5 and in accordance with the manufacturer's installation design.

1. Downgrading the exhaust duct system not allowed.
2. Access for service and replacement required per IMC 306.
3. An airflow differential pressure control shall be provided to monitor the pressure drop across the filter sections. When airflow is reduced below the designed velocity, the control shall activate a visual alarm located in cooking area.

. . . .

Section 11. This ordinance shall take effect and be in force on _____, 2018.

Passed by the City Council this _____ day of _____, 2018 and signed in authentication of its passage this _____ day of _____, 2018.

(SEAL)

_____
John Chelminiak, Mayor

Approved as to form:

Lori M. Riordan, City Attorney

_____
Matthew McFarland, Assistant City Attorney

Attest:

_____
Kyle Stannert, City Clerk

Published: _____