

1<sup>st</sup> Reading 8/8/2017  
2<sup>nd</sup> Reading 11/14/2017

BILL NO. 17-34

ORDINANCE NO. 4806

INTRODUCED BY ALDERMAN Stadter

AN ORDINANCE AMENDING ARTICLE III OF CHAPTER 9 OF THE MUNICIPAL CODE OF THE CITY OF CRESTWOOD, MISSOURI, TO REVISE SECTIONS RELATING TO FIRE PREVENTION AND ADOPTING THE 2015 ICC INTERNATIONAL FIRE CODE

---

WHEREAS, the City of Crestwood (the “City”) has previously adopted the International Code Council, Inc. (“ICC”) Fire Code, 2003 edition, subject to certain amendments, as the City’s Fire Prevention Code, codified as Article III of Chapter 9 of the Municipal Code of the City of Crestwood (the “Code”); and

WHEREAS, the ICC has since approved and published the 2015 edition, incorporating various updates; and

WHEREAS, the City’s Fire Department has reviewed the 2015 edition and wishes to adopt same as the City’s Fire Prevention Code, subject to certain amendments; and

WHEREAS, pursuant to Section 67.280, RSMo., the City has maintained at least one copy of the ICC International Fire Code, 2015 Edition, on file in the office of the City Clerk for at least 90 days prior to the adoption of this ordinance, and same shall remain available for public use, inspection and examination; and

WHEREAS, the Board of Aldermen finds that the proposed revision to Article III of Chapter 9 of the Code would be in the best interest of the City.

BE IT ORDAINED BY THE BOARD OF ALDERMEN OF THE CITY OF CRESTWOOD, MISSOURI, AS FOLLOWS:

SECTION 1: Article III of Chapter 9 of the Municipal Code of the City of Crestwood is hereby amended to read as follows:

**Sec. 9-36. – Code Adopted.**

That a certain document, three (3) copies of which are on file in the office of the Fire Code Official of the City of Crestwood Fire Department of St. Louis County, Missouri, being marked and designated as “ICC<sup>®</sup> International Fire Code”, 2015 Edition, as published by the International Code Council, Inc., together with the standards which are referenced in Chapter 80, Appendix B – “Fire Flow Requirements for Buildings”, Appendix D – “Fire Apparatus Access Roads”, and Appendix I – “Fire Protection Systems-Noncompliant Conditions”, is hereby adopted as the Fire Prevention Code of the City of Crestwood, for the control of buildings and structures as herein provided; and each and all of the regulations, provisions, penalties, conditions, and terms of the “ICC<sup>®</sup> International Fire Code”, 2015 Edition, are hereby referred to, adopted and made a part hereof, as if more fully set out in this Ordinance together with the additions, insertions, deletions and changes prescribed in Section 9-37 of this Code, all of which shall be referred to as the “Fire Prevention Code” or the “Fire Code.” The ICC<sup>®</sup> International Fire Code, 2015 Edition, may be viewed at <https://codes.iccsafe.org/public/document/toc/546> or purchased from the International Code Council, 500 New Jersey Avenue, NW, 6th Floor, Washington, DC 20001, or by calling (800) 786-4452.

**Sec. 9-37. – Amendments and Additions to Fire Prevention Code.**

The fire prevention code is hereby amended with the following additions, substitutions, deletions and insertions:

**CHAPTER 1 – SCOPE AND ADMINISTRATION**

- (1) *101.1 Title:* These regulations shall be known as the Fire Prevention Code of the City of Crestwood, Missouri (“Code”).
- (2) *101.1.2* Wherever “jurisdiction” or “District” appears in the Code it is defined as the “Authority Having Jurisdiction” which for this ordinance is City of Crestwood Fire Department of St. Louis County, Missouri.
- (3) *101.1.3* Wherever “Code Official”, “Building Official” or “Fire Code Official” may appear it is defined as the Fire Marshal, Fire Inspector or his duly authorized representative of the City of Crestwood Fire Department of St. Louis County, Missouri.
- (4) *104.1 General:* The Fire Marshal of the City of Crestwood, or his authorized representative, under the direction of the Fire Chief of the City, is designated as the Fire Code Official and shall enforce provisions of this Code.
- (5) *104.12 Rule-making authority:* The Fire Code Official shall have authority as necessary in the interest of public health, safety and general welfare, to adopt and promulgate rules and regulations to interpret and implement the provisions of this Code to secure the intent thereof and to designate requirements applicable because of local climatic or other conditions. Such rules shall not have the effect of waiving structural or fire performance requirements specifically provided for in this Code or of violating accepted engineering practice involving public safety.
- (6) *105.1 General:* Unless otherwise provided by City Ordinance, regulation, or this Code, permits required by the City at the direction of the Fire Marshal will be obtained through the City of Crestwood Public Services Department with the approval of the Fire Code Official or Fire Chief.

(7) *105.3.3 Occupancy prohibited before approval:* Except as specifically provided for temporary occupancy in the building, a building, structure or portion thereof, shall not be used or occupied in whole or in part until all fire protection devices, life safety and equipment protecting the building, structure or portion to be occupied, have been tested and approved by the Fire Code Official charged with enforcing this fire code. All portions of the means of egress for the building, structure or portion to be occupied shall be unobstructed and available for immediate use.

(8) *105.6.49 Helicopter hoisting and lowering operations:* Approval is required for helicopter hoisting and lowering operations in accordance with the following: The helicopter service or the contractor in charge of a helicopter hoisting or lowering operations shall demonstrate financial responsibility of liability for damages arising from the hoisting or lowering operation by providing the Fire Code Official with proof of insurance or other appropriate financial responsibility. Forty-eight (48) hours' notice shall be provided before the hoisting or lowering operation is to begin. Notification shall be made to other jurisdictional agencies as may be required.

(9) *105.6.49.1 Safety precautions:* During all helicopter lifting or lowering operations, the following safety precautions shall be followed:

1. The fire and police departments shall approve landing sites, if landings are necessary.
2. All materials or equipment to be lifted shall be brought as close as possible to the building or structure site by road vehicles.
3. The helicopter shall not carry equipment or materials lifted to or lowered from a building or structure over pedestrians, spectators, other buildings or vehicles.
4. When the operation involves setting or removing equipment or materials from or on an occupied building, the top 2 floors of the building shall not be occupied by anyone, other than individuals directly involved with the operation while the hoisting or lifting operation is in progress.
5. All flammable or combustible liquids brought to the site for refueling helicopters shall be stored, used and dispensed in accordance with Chapters 11 and 34 of this fire code.
6. A fire department safety officer, or fire department safety team, must be present on the site during all helicopter lifting or lowering operations. The safety officer, or safety team, shall terminate the lift if weather conditions or other variables make the operation unsafe. The safety officer, or safety team, shall be provided radio communications with the helicopter pilot in the event safety conditions mandate evasive action.

(10) *108.1 Board of Appeals:* In order to hear and decide appeals from any order, decision, or determination made by the Fire Code Official relative to the application and interpretation of the Code, the matter shall be directed to the City of Crestwood Board of Zoning Adjustment.

(11) *109.4 Violation, penalties:* Any person, firm or corporation who shall violate any provision of this Article, or who shall fail to comply with any of the requirements thereof, or who shall erect, construct, alter or repair a structure in violation of an approved plan or directive of the Fire Code Official, or of a permit or certificate

issued under the provisions of this Article, or shall start any work requiring a permit without first obtaining a permit therefore, or any other person who commits, takes part, or assists in any violation of this Fire Code or who maintains any building or premises in which a violation exists may, upon conviction, be punished in accordance with Sec. 1-6 of this Code by a fine of not more than one thousand dollars (\$1,000.00) or imprisonment not to exceed ninety (90) days, or both such fine and imprisonment. Each day that a violation continues shall be deemed a separate offense.

(12) *109.5 Unlawful continuance:* Any person who shall continue any work in or about the structure after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe conditions, may, upon conviction, be punished in accordance with Sec. 1-6 of this Code by a fine of not more than one thousand dollars (\$1,000.00) or imprisonment not to exceed ninety (90) days, or both such fine and imprisonment. Each day that a violation continues shall be deemed a separate offense.

(13) *109.6 Civil action:* Notwithstanding the provisions hereof, the Fire Code Official, with the approval of the Board of Aldermen, may cause to be instituted in the name of the City of Crestwood, a civil action for injunction or other appropriate relief to secure a compliance with the provisions of this Fire Code as adopted by this Article. Injunctive or other appropriate relief shall not be denied on the grounds that an adequate remedy at law exists through the imposition of criminal sanctions.

(14) *111.4 Failure to comply:* Any person who shall continue any work after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be in violation of Sections 109.4 and 109.5 of this Article and may, upon conviction, be punished in accordance with Sec. 1-6 of this Code by a fine of not more than one thousand dollars (\$1,000.00) or imprisonment not to exceed ninety (90) days, or both such fine and imprisonment. Each day that a violation continues shall be deemed a separate offense.

## CHAPTER 2 – DEFINITIONS

### SECTION 202 – GENERAL DEFINITIONS

(15) *BEDROOM – SLEEPING ROOM.* Any space in the conditioned area of a dwelling unit or accessory structure which is 70 square feet and greater in size and which is located along an exterior wall, but not including the following: hall; bathroom; kitchen; living room (maximum of one per dwelling unit); dining room (in proximity to kitchen, maximum of one per dwelling unit); family room (maximum of one per dwelling unit), laundry room, closet/dressing room opening off of a bedroom.

The Fire Code Official may grant exceptions if a room, by its design, cannot function as a bedroom. Sewing rooms, dens, studios, lofts, game rooms, and any other conditioned room along an exterior wall which is 70 square feet or greater in size will be considered to be bedrooms unless the room is specifically exempted. If a home office, library or similar room is proposed, it may be exempted from being considered a bedroom if there is no closet and at least one of the following is present:

1. Permanently built-in bookcases, desks and other features that encumber the room in such a way that it cannot be used as a bedroom;
2. A minimum 4 foot opening, without doors, into another room; or
3. A half wall (4 foot maximum height) between the room and another room. A detached building which contains only a half bath will not routinely be considered as having a bedroom unless it is specifically identified and permitted as a guest house.

When an exception is made per the above, it shall be documented in Permits Application Documents and Submitted Plans in the comments section so that all staff are aware of the determination.

A conditional statement may be required to be signed by the property owner if the permit is for an outbuilding which has been determined to be a use other than a bedroom or other living space. This statement may be recorded as necessary to inform future property owners of restrictions on use of the building.

- (16) *CHILD CARE FACILITY*. A child care facility which accommodates more than ten children 2½ years of age or less for any length of time.
- (17) *FAMILY CARE HOME*. A family home occupied as a permanent residence by the daycare provider, in which family-like care is given for more than four (4) children, but not more than ten (10) children, not related to the daycare provider, for any part of the twenty-four (24) hour day.
- (18) *MOBILE FOOD UNIT*. An enclosed vehicle-mounted food service establishment designated to be readily movable from which food is composed, compounded, processed or prepared and from which food is vended, sold or given away.

### CHAPTER 3 – GENERAL REQUIREMENTS

- (19) *307.1.1 Prohibited open burning*: Open burning that will be offensive or objectionable because of smoke or odor emissions when atmospheric conditions or local circumstances make such fires hazardous shall be prohibited. The Fire Code Official or fire department is authorized to order the extinguishment by the permit holder of open burning which creates or adds to a hazardous or objectionable situation.
- (20) *307.2 Permit required*: A permit shall be obtained from the Fire Code Official in accordance with Section 105.6 prior to kindling a fire for recognized silvicultural or range or wildlife management practices, prevention or control of disease or pests, or a bonfire. Application for such approval shall only be presented by and permits issued to the owner of the land upon which the fire is to be kindled.  
Exception: Permanently installed fire pits, no larger than three (3) feet by three (3) feet and portable outdoor fireplaces used at one- and two-family dwellings.
- (21) *307.4.1 Bonfires and Recreational fires*: *Bonfires and recreational fires* shall not be conducted within 25 feet (7620 mm) of a structure or combustible material. Conditions which could cause a fire to spread within 25 feet (7620 mm) of a structure shall be eliminated prior to ignition. The maximum pile size is 3 feet (914mm) or less in length or width and 3 feet (914mm) or less in height.
- (22) *307.4.3 Portable outdoor fireplaces*: Portable outdoor fireplaces shall be used in accordance with the manufacturer's instructions and shall not be operated within

15 feet (3048 mm) of a structure or combustible material. Portable outdoor fireplaces shall not be used for burning trash, rubbish or food waste.

(23) *308.1.6.3 Sky lanterns:* No person shall release or cause to be released a sky lantern or other type of unmanned device that relies on an open flame to heat the air inside the device in order to make the device airborne.

## CHAPTER 5 – FIRE SERVICE FEATURES

(24) *505.1 Buildings with single address identification:* New and existing buildings that have only one address with no suites or sub-address identification shall have address identification on all four sides of the building.

(25) *505.1.1 Buildings with multiple address identification.* New and existing buildings that have multiple addresses, suites, apartments or sub-address identification shall have main building address identification on all four sides of the building. All exterior doors, man doors and overhead doors, shall have address identification on the exterior side or each door which accesses that suite, tenant space or sub-address. Address identification shall include building address identification and suite or sub-address identification. Each character shall be not less than 4 inches (102 mm) high with a minimum stroke width of 1/2 inch (12.7 mm). Building address numbers shall be Arabic numbers format. Suite or sub-address identification shall be Arabic number or alphabetical letters. All numbers shall not be spelled out. Address identification characters shall contrast with their background. Address identification on glass shall be white in color. All interior doors with access from a main corridor or hallway shall have suite, apartment or sub-address identification on all doors which access that space. The interior door access identification shall meet a building standard either on the actual door or next to the door.

(26) *507.5.1.1 Hydrant for fire department connections:* Buildings equipped with sprinkler systems installed in accordance with Section 903 and standpipe systems installed in accordance with Section 905 shall have a fire hydrant within 100 feet of the fire department connections.  
Exception: The distance shall be permitted to exceed 100 feet where approved by the Fire Code Official.

(27) *507.5.5.1 No parking area:* When fire department connections are located in an area where vehicles may be parked or standing, said parking or standing shall be restricted for ten (10) feet in each direction from the fire department connection. No parking identification area shall be approved by the Fire Code Official.

(28) *507.5.7 Color coding of public fire hydrants:* All public fire hydrant barrels are to be painted yellow. All fire hydrant bonnets shall be painted as follows:

<b><u>COLOR</u></b>	<b><u>WATER MAIN SIZE</u></b>
Green	Twelve (12) inch and larger
Orange	Eight (8) and ten (10) inch
Red	Six (6) inch and smaller

(29) *507.5.8 Color coding of private fire hydrants:* All private fire hydrants shall be painted yellow, including the bonnet.

(30) *511.1 High-rise buildings:* In addition to other requirements in this code, new and existing high-rise buildings shall conform to Sections 511.1.1 through 511.1.2.

- (31) *511.1.1 Firefighter assist plans:* An approved pictographic display (sign, drawing or wall marking) shall be posted within all enclosed stairways at each floor landing in all new and existing high-rise buildings. Individual displays, or signs, shall show the floor level number where the graphic is displayed, the configuration of exit corridors, including all door openings, exit stairways, elevators, exterior building walls, fire alarm pull stations, fire hoses and sprinkler valves. The display shall be located approximately 5 feet above the floor landing in a position that is readily visible when the door is in the open or closed position.
- (32) *511.1.2 Exterior floor identification:* All new and existing high-rise buildings shall be marked on the exterior with floor level identification dots. Said dots shall not be less than 8 inches in diameter and be of illumination reflective material. Dots shall identify every 5th floor level of the building, in relationship to floor level indicators inside elevator cars. Dots must be visible on all faces or sides of the building. Specific dot locations shall be approved by the Fire Code Official.

## CHAPTER 6 – BUILDING SERVICES AND SYSTEMS

- (33) *607.1.1 Elevator emergency operations testing:* All elevators that are equipped with emergency elevator operations in accordance with ASME A17.1 listed in Chapter 80, shall be tested at least once each year in all phases of emergency functions. An *approved* elevator service company shall conduct tests.

## CHAPTER 9 – FIRE PROTECTION SYSTEMS

- (34) *901.6.2 Records:* Records of all system inspections, tests and maintenance required by the referenced standards shall be maintained on the premises for a minimum of 3 years or for the required testing frequency if greater than 3 years and shall be made available to the Fire Code Official, not less than quarterly. Accurate logs shall be maintained indicating the number, location and type of device tested. Any defect, modification or repair shall be logged. Additional tag or system inspection record, identifying date, inspector, system pressures and company who inspector is employed shall be attached to each system riser or posted in the immediate area of each system riser. The company conducting the inspection shall have an address and telephone number identified on the tag or system inspection record.
- (35) *901.6.3 Annual inspection reporting:* All fire protection systems, which require an annual or semi-annual inspection under the respective NFPA Code shall submit such reports within thirty (30) days of the inspection in an Adobe PDF electronic format to the District. This electronic document shall be sent to the fire department via e-mail to [fm@cityofcrestwood.org](mailto:fm@cityofcrestwood.org). The type of fire protection system inspection and address of inspection shall be included in the “Subject” of the e-mail.
- (36) *903.3.5.3 Water flow tests:* Water flow tests for automatic sprinkler systems shall be conducted between the hours of 8:00 a.m. and 4:30 p.m., Monday through Friday. Tests shall be conducted within the last twelve (12) months of submitted construction design documents.
- (37) *903.5.3.1 Water flow safety factor:* A safety factor shall be applied to all flow tests for automatic sprinkler systems. A parallel curve shall be drawn to the actual flow

test curve that has been reduced by 20% of the static pressure. An automatic sprinkler system design shall not exceed the 20% curve.

(38) *903.4.1 Monitoring:* Alarm, supervisory and trouble signals shall be distinctly different and shall be monitored in accordance with Section 907.6.6 and shall sound an audible signal at a constantly attended location.

Exceptions:

1. Underground key or hub valves in roadway boxes provided by the municipality or public utility are not required to be monitored.
2. Backflow prevention device test valves located in limited area sprinkler system supply piping shall be locked in the open position. In occupancies required to be equipped with a fire alarm system, the backflow preventer valves shall be electrically supervised by a tamper switch installed in accordance with NFPA 72 and separately annunciated.

(39) *903.7 Post indicator valves:* All *automatic sprinkler systems*, except limited area sprinkler systems, shall be provided with a post indicator valve that shall control the water supply to all automatic sprinkler systems in that building.

(40) *904.4.1 Acceptance inspection tests:* All alternative automatic fire-extinguishing systems shall be tested in accordance with this section. A completed system shall be tested by a discharge of expellant gas through the piping and nozzles. Observations for gas leakage and for continuity of piping with free unobstructed flow shall be made. Observations shall be made of the flow of expellant gas through all nozzles. The identification of devices with proper designations and instructions shall be checked. All dry-chemical and wet-chemical extinguishing systems shall also be tested by a discharge of the extinguishing agent. Discharge quantities shall be in accordance with the manufacturer's installation information and provide on *construction documentation*. After testing, all piping and nozzles shall be blown clean using compressed air or nitrogen, and the system shall be properly charged and placed in the normal "set" condition.

(41) *907.1.4 Device labeling:* All fire alarm and detection devices shall be labeled with a device identification number in an *approved* manner. Upon an activation signal of a device, the location and the device identification number shall be displayed and correspond with the information on the fire alarm control panel.

(42) *907.1.5 Multiple Fire Alarm Systems:* Multiple fire alarm systems within a single protected premise, building or complex are not permitted, unless specifically authorized by the Fire Code Official.

(43) *907.5.3 Fire Sprinkler System Fire Department Connection:* An approved exterior audio/visual fire alarm notification device shall be installed above all fire department connections. This device shall activate upon a water flow fire alarm signal only. This device shall be visible from the closest fire apparatus access road and installed at twelve feet above ground level or other *approved* location.

(44) *907.5.3.1 Water Flow Alarm Signage:* A permanent sign shall also be installed under the audio/visual fire alarm notification device which states "Water Flow Alarm". This sign shall have red letters on a white reflective background. The letters shall be red in color and be Arabic alphabetical letters. Each character shall be not less than 3 inches (76 mm) high.

(45) *907.6.3 Initiating Device Identification:*

Exception #1 – Delete in its entirety.

Exception #2 – Fire alarm systems that only include manual fire alarm boxes, water-flow initiating devices and not more than 6 additional alarm-initiating devices.

Exception #3 – Special initiating devices that do not support individual device identification. Such initiating devices shall be approved by Fire code Official.

(46) *907.6.6 Monitoring:* All fire alarm systems shall be monitored by an *approved* central station as defined in NFPA 72. A UL Certificate (UUFX) or FM Placard, in accordance with the most current edition of NFPA 72 Chapter 26, shall be issued by the UL Listed or FM approved prime contractor for all newly installed fire alarm systems. This regulation shall apply to all new fire alarm systems. An existing fire alarm system wherein the fire alarm control unit or any alarm components are to be replaced shall be considered “new” for the purposes of this section. Central station service in full compliance with NFPA 72 Chapter 26 shall be maintained at the protected property, so long as the fire alarm system. This section shall apply to all required and non-required fire alarm systems that are installed within a building.

Exception: Monitoring by an approved central station is not required for:

1. Single and multiple-station smoke alarms required by *Section 907.2.11*.
2. Smoke detectors in Group I-3 occupancies.
3. *Automatic sprinkler systems* in one- and two-family dwellings.
4. Fire alarm systems monitored by a proprietary monitoring system in accordance with NFPA 72 Chapter 26 for which a UL Certificate (UUKA) or FM or other approved documentation has been issued, as approved by the Fire Code Official.

(47) *912.2.2 Fire Department Connection Location Signage:* On buildings, the fire department connection shall be indicated by an approved sign mounted on the street front or on the side of the building. Such sign shall have red letters “FDC” not less than 6 inches (152 mm) high and words in red letters not less than 2 inches (51 mm) high or an arrow to indicate the location on a white reflective background. Such signs shall be subject to the approval of the Fire Code Official.

(48) *912.2.3 Fire Department Connection Signage:* The fire department connection shall be indicated by an approved sign mounted above its location. Such sign shall have red letters “FDC” not less than 6 inches (152 mm) high and the addresses which the fire department connection serves in red letters not less than 2 inches (51 mm) high on a white reflective background. Such signs shall be subject to the approval of the Fire Code Official.

(49) *912.2.4 Fire Alarm Audio/Visual Device:* Please see Section 907.5.4 of this ordinance in regard to water flow alarm notification device above the fire department connection.

(50) *912.4.4 No parking areas at fire department connections:* When fire department connections are located in an area where vehicles may be parked or standing, said parking or standing shall be restricted for ten (10) feet in each direction from the fire department connection.

## SECTION 916 – Fire Hydrants

(51) *916.1 New Subdivisions:* No person shall commence construction of any new building or structure of any kind in any subdivision within the City, unless such person shall have first submitted to the Fire Code Official a plat of the aforesaid subdivision, indicating the proposed installation of the fire hydrants within such subdivision and receives approval by the Fire Code Official.

(52) *916.2 New Structures:* No person shall commence construction of any new structure, or building, or addition to any structure or building, within or upon any real property within the City, unless such person shall first have submitted to the Fire Code Official a plat or drawing of the property whereon is located such building, structure or addition, which plat or drawing has indicated thereon the nearest existing fire hydrant. If there is not an existing fire hydrant within such distance as is approved by the Fire Code Official, then also the proposed installation of a new fire hydrant or hydrants, and unless, also, the particular locations proposed for such fire hydrants and the number of fire hydrants to be installed if any, shall be approved by the Fire Code Official.

(53) *916.3 Installation of other new fire hydrants:* No person shall install or cause to be installed any fire hydrant within the City, unless the location thereof and the design and type of the hydrant, including the threads and outlets thereof, shall first have been approved by the Fire Code Official.

(54) *916.4 Use Groups R-3 and R-4:* There shall be no more than six (6) dwelling units constructed prior to the installation of a public water system with fire hydrants as set forth herein so as to be accessible for Fire District use in the event of a fire emergency.

(55) *916.5 Other Use Groups:* In all other Use Groups, public water systems with fire hydrants shall be installed with the commencement of construction.

(56) *916.6 Fire hydrant placement:* Fire hydrants shall be placed within the guidelines of Sections 916.6.1 through 916.6.8.

(57) *916.6.1 One- and two-family dwellings developments:* In Groups R-3 and R-4 occupancies, single family residential developments, fire hydrant spacing shall not exceed five hundred (500) feet from hydrant to hydrant, or as special site conditions may dictate. The maximum distance from the dead end or any point on street or road frontage to a hydrant is one-hundred-fifty (150) feet. Local conditions may be such that this distance may vary as much as one-hundred (100) feet in either direction.

(58) *916.6.1.1 Water supply required:* In Use Groups R-3 and R-4 single family developments, when the density is one (1) dwelling unit per ten-thousand (10,000) square feet of developed property or less, and there are five (5) or more dwelling units in a single development.

(59) *916.6.2 Other occupancy group developments:* In all other Use Groups, fire hydrant spacing shall not exceed three hundred (300) feet from hydrant to hydrant, or as special site conditions may dictate. No part of a building shall be more than three hundred (300) feet from a fire hydrant. Local conditions may be such that the distance between fire hydrants or from a building to a fire hydrant may vary as much as seventy-five (75) to one-hundred (100) feet in either direction, if otherwise approved by the Fire Code Official.

- (60) *916.6.3 Area to be provided with fire hydrants:* Fire hydrants and water mains shall be placed along the full length of the property to be developed that abuts an existing and/or proposed improved public way. Variances may be required by the water agency because of water quality considerations.
- (61) *916.6.4 Fire hydrant spacing:* Spacing of fire hydrants along a public way shall be regulated by the occupancy classification of the development that abuts the existing and/or proposed public way.
- (62) *916.6.5 Private hydrants:* Where a development, other than occupancy group R-3 or R-4, is greater than one-hundred-fifty (150) feet from an existing and/or proposed improved public way, measured along the drivable access, additional private fire hydrants shall be required on said developed property, private streets and/or parking lots, at a spacing between fire hydrants as required by the Use Group as set forth in Section 916.6.1 through and including Section 916.6.4.
- (63) *916.6.6 No parking area at fire hydrants:* Where fire hydrants are required to be installed in areas where vehicles would be parked or standing, said vehicle parking or standing shall be restricted for ten (10) feet in each direction from the fire hydrant.
- (64) *916.6.7 Unacceptable locations for fire hydrants:* Fire hydrants shall not be permitted in the locations indicated in Section 916.6.7.1.
- (65) *916.6.7.1 Prohibited locations:* A fire hydrant shall not be placed at any location where the fire hydrant could be damaged by vehicular traffic.
- (66) *916.6.8 Relocation of fire hydrants:* Relocation of fire hydrants requested or required by a property owner and/or developer shall be relocated as specified by the water agency's policies and procedures and relocation has been approved by the Fire Code Official.
- (67) *916.7 Fire hydrant installation:* All fire hydrants shall be installed in accordance with Sections 916.7.1 through 916.7.3.
- (68) *916.7.1 Fire hydrant setback distance:* All fire hydrants shall be set back from the curb or edge of pavement. The setback shall not exceed twelve (12) feet.
- (69) *916.7.2 Fire hydrant connection height:* Fire hydrants shall be installed no less than twenty-four (24) inches and no more than thirty-six (36) inches above finished grade, measured from the center of the steamer connection.
- (70) *916.7.3 Fire hydrant type:* All fire hydrants shall be approved by the American Water Works Association (AWWA) and/or Missouri American Water Company.
- (71) *916.8 Obstructions:* There shall be no obstructions, plantings, bushes, trees, signs, light standards, etc., within three (3) feet of any fire hydrant in all directions.
- (72) *916.9 Color coding of public fire hydrants:* All public fire hydrant barrels are to be painted yellow. All public fire hydrant bonnets are to be painted as follows:

<u>COLOR</u>	<u>WATER MAIN SIZE</u>
Green	Twelve (12) inch and larger
Orange	Eight (8) and ten (10) inch
Red	Six (6) inch and smaller

- (73) *916.10 Color coding of private fire hydrants:* All private fire hydrants shall be painted yellow, including the bonnet.
- (74) *916.11 Minimum fire flow – single fire hydrant:* The minimum fire flow from a single fire hydrant in any occupancy group shall be fifteen-hundred (1500) gallons

per minute at twenty (20) psi residual pressure unless the new hydrant is ordered on a pre-existing main.

(75) *916.12 Minimum fire flow – next two fire hydrants:* The minimum fire flow from the next two fire hydrants in any occupancy group shall be a cumulative fifteen-hundred (1500) gallons per minute at twenty (20) psi residual pressure.

(76) *916.13 Access:* The commencement of construction of any such new subdivision, or new building, or structure or addition by any person, within the City, shall be deemed to be the granting of permission by such person for entry upon such property by the Missouri American Water Company, or other water supplier, for the installation of any such aforesaid fire hydrants and the water main leading thereto, and also to the City and to the members or staff and its equipment, for access to such fire hydrant, or hydrants, which may be located upon any such property, for any purpose whatever within the functions of the City, in considerations of issue of building permit.

(77) *916.14 Building permits:* The Fire Code Official shall not approve, nor issue building permits for, nor permit the construction of any such new subdivision, or new building or structure or addition, so long as the owner thereof fails to provide for fire hydrants, or to perform any guarantees, or to permit access, according to this section.

Exception: On the application of any person, the Board of Aldermen of the City may grant exception to the requirements of this Section for fire hydrant installations, where such person shall prove to the satisfaction of the Board of Aldermen that there is no water supply reasonably available for the installation of hydrants.

#### SECTION 917 – Fire Service Mains and Appurtenances

(78) *917.1 General:* This section covers the application, installation, inspection, and testing for fire service mains and appurtenances and their components for new and existing buildings and structures.

(79) *917.2 Where required:* Approved Fire Service Mains and Appurtenances shall be installed in accordance with the provisions of this Code and the most current edition of NFPA 24. The Fire Service Mains and Appurtenances shall be designed and installed to support the fire flow requirements of the Standpipe System and Automatic Sprinkler Systems of the building or structure being protected.

(80) *917.3 Construction documents:* Construction documents for Fire Service Mains and Appurtenances shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provisions of this Code, the International Building Code, most current edition of NFPA 24 and relevant laws, ordinances, rules and regulations, as determined by the Fire Code Official. All construction documents shall meet the requirements of Section 107 of the Building Code.

(81) *917.3.1 Required:* Construction documents shall be drawn to an indicated scale on sheets of uniform size, with a plan of each floor as applicable, and shall include the following items that pertain to the design of the system:

1. Name of owner.
2. Location, including street address.

3. Point of compass.
4. A graphic representation of the scale used on all plans.
5. Name and address of contractor.
6. Size and location of all water supplies.
7. Size and location of standpipe risers, hose outlets, hand hose, monitor nozzles, and related equipment.
8. The following items that pertain to private fire service mains:
  - a) Type of pipe being installed. (Shall meet requirements of NFPA 24)
  - b) Size.
  - c) Length.
  - d) Location.
  - e) Weight.
  - f) Material.
  - g) Point of connection to city main.
  - h) Sizes, types, and locations of valves, valve indicators, regulators, meters, and valve pits.
  - i) Depth at which the top of the pipe is laid below grade.
  - j) Method of restraint. (Shall meet requirements of NFPA 24)
9. The following items that pertain to hydrants:
  - a) Size and location, including size and number of outlets and whether outlets are to be equipped with independent gate valves.
  - b) Thread size and coupling adapter specifications if different from NFPA 1963.
  - c) Whether hose houses and equipment are to be provided, and by whom.
  - d) Static and residual hydrants used in flow.
  - e) Method of restraint (Shall meet requirements of NFPA 24).
  - f) Meet requirements of Section 916 of this Code.
10. Size, location, and piping arrangement of Fire Department Connections.
11. Location and piping arrangement for Post Indicator Valve. All Post Indicator Valves shall be OSHA safety red in color. Post Indicator Valves shall have address identification signs permanently affixed to body of post to identify the address in which the valve serves.

(82) *917.3.2 Manufacturer's Installation Instructions:* The Construction Documentation submittals shall include the manufacturer's installation instructions for all pipe used or American Water Works Association (AWWA) installation documentation and any specially listed equipment, including descriptions, applications, and limitations for any devices, piping, or fittings.

(83) *917.4 Qualified Installer:* Installation work shall be performed by fully experienced and responsible persons. The construction application and installation shall be by a Licensed Master Pipe Fitter, Master Plumber or Master Sprinkler Fitter with St. Louis County, Missouri.

(84) *917.5 Inspections:* The following inspection shall be conducted during the installation of Fire Main Services and Appurtenances:

1. Pipe / trench inspection. This inspection can be conducted while pipe is being installed into trench. No back fill shall be introduced into trench until inspection unless previous approval from Fire Code Official.
2. Proper fill and tamping of fill around pipe. (Per manufacturer's installation instructions or AWWA installation documents. No rocks per NFPA 24.)
3. Thrust block pre-pour inspection. Framed or non-framed.
4. Thrust block pour inspection.
5. Hydrostatic testing. (Per NFPA 24).
6. Flush Inspection. Flush flow shall be through a minimum four-inch opening with proper hose or pipe attached. Hose or pipe shall be retrained to prevent injury and or damage. A catch or filter system shall be attached to the end of the hose to prevent debris from causing injury or damage.
7. Additional inspections may be required by Fire Code Official due to project conditions or project requirements.

(85) *917.6 Final authority:* The authority having jurisdiction shall always be consulted before the installation, upgrading or remodeling of private fire service mains.

## CHAPTER 10 – Means of Egress

(86) *1008.3 Emergency power for illumination:* The power supply for means of egress illumination shall normally be provided by the premises' electrical supply. All circuits which provide power for emergency means of egress shall be identified in each electrical panel.

6. Mechanical rooms, penthouse areas, rooms containing roof access ladders, commercial kitchens, any room or areas of Occupancy Group H, in any room or area that utilizes hazardous materials or hazardous processes.

(87) *1010.1.4.2.1 Power-operated sliding door lock:* Sliding doors which use a manual lock to prevent the door from opening manually shall have the following:

1. The locking device is readily distinguishable as locked. The locking device shall be able to be unlocked by a quarter turn bold operation without a key or special knowledge.
2. A readily visible durable sign is posted on the egress side on or adjacent to the door stating: THIS DOOR TO REMAIN UNLOCKED WHEN THIS SPACE IS OCCUPIED. The sign shall be in letters 1 inch (25 mm) high on a contrasting background.

(88) *1010.1.9.3. Modify as follows:* Item #2 – Delete in its entirety.

(89) *1010.1.9.9 Electromagnetically locked egress doors:* Doors in the means of egress that are not otherwise required to have panic hardware in buildings with an occupancy in Group A, B, E, I-1, I-2, M, R-1 or R-2 and doors to tenant spaces in Group A, B, E, M, I-1, I-2, R-1 or R-2 shall be permitted to be electromagnetically locked if equipped with *listed and labeled* hardware that incorporates a built-in switch and meet the requirements below:

1. The *listed and labeled* hardware that is affixed to the door leaf has an obvious method of operation that is readily operated under all lighting conditions.

- 2. The *listed and labeled* hardware is capable of being operated with one hand.
- 3. Operation of the *listed and labeled* hardware releases to the electromagnetic lock and unlocks the door immediately.
- 4. Loss of power to the *listed and labeled* hardware automatically unlocks the door.
- 5. Where *listed and labeled* panic or fire exit hardware is required by Section 1010.1.10, operation of the panic or fire exit hardware also releases the electromagnetic lock.
- 6. The locking system units shall be listed in accordance with UL 294.
- 7. Activation of the building *fire alarm system* or building *automatic sprinkler system* shall release the electromagnetic lock and unlocks the door immediately.

(90) *1013.1. Modify as follows:* Exception #2 – Delete in its entirety.

(91) *1013.3 Illumination:* Exit signs shall be electrically powered internally illuminated. All replacement and new exit signs shall be illuminated with Light Emitting Diode (LED) technology. Exit signs that are externally illuminated shall only be installed upon approval of the Fire Code Official. All circuits which provide power for exit signs shall be identified in each electrical panel.

(92) *1013.5 Exit signs:* Exit signs shall be listed and labeled in accordance with UL 924 and shall be installed in accordance with the manufacturer's instructions and Section 604. The letters of the exit sign shall be red in color. Exit signs shall be illuminated at all times. The installation of self-luminous and photo luminescent exit signs shall be by the approval of the Fire Code Official.

(93) *1013.6 Externally illuminated exit signs:* When approved by the Fire Code Official; externally illuminated exit signs shall comply with Sections 1013.6.1 through 1013.6.3.

#### Chapter 11 – Construction Requirements for Existing Buildings

(94) *1101.5 Tenant Separation Walls:* Nothing in Chapter 11 nor any other part of the International Fire Code shall prevent the Fire Code Official from requiring the installation, maintenance and/or use of tenant separation walls, as defined under 708.1.1 of the International Building Code, 2015 Edition as amended by the City of Crestwood Fire Department of St. Louis County, during the remodeling, renovation or re-occupancy of an existing building.

#### CHAPTER 23 – Motor Fuel-Dispensing Facilities and Repair Garages

(95) *2304.3.8 Fire suppression system:* The dispensing area (pump islands, canopy and adjacent ground area) shall be provided with an approved automatic fire-extinguishing system.

#### CHAPTER 32 – High-Piled Combustible Storage

(96) *3201.3 Construction documents:* At the time of building permit application for new structures designed to accommodate high-piled storage or for requesting a change of occupancy/use, and at the time of application for a storage permit, plans and specifications shall be submitted for review and approval. In addition to the information required by the International Building Code, the storage permit

submittal shall include the information specified in this section. Following approval of the plans, a copy of the approved plans shall be maintained on the premises in an approved location. The plans shall include all of the following:

1. Floor plan of the building showing locations and dimensions of high-piled storage areas.
2. Usable storage height for each storage area.
3. Number of tiers within each rack, if applicable.
4. Commodity clearance between top of storage and the sprinkler deflector for each storage arrangement.
5. Aisle dimensions between each storage array.
6. Maximum pile volume for each storage array.
7. Location and classification of commodities in accordance with Section 3203.
8. Location of commodities that are banded or encapsulated.
9. Location of required fire department access doors.
10. Type of fire suppression and fire detection systems.
11. Location of valves controlling the water supply of ceiling and in-rack sprinklers.
12. Type, location and specifications of smoke removal and curtain board systems.
13. Dimension and location of transverse and longitudinal flue spaces.
14. Documentation from table 3206.2 as per the "Commodity Class" versus the "Size of High-Piled Storage Area," in details in reference to all columns in table.
15. Signed and sealed construction document from a Missouri Licensed Professional Engineer specializing in Fire Protection, confirming automatic sprinkler system coverage and protection to the stored commodity classifications and allowable storage heights with the installed automatic sprinkler system and protection provided.
16. Additional information regarding required design features, commodities, storage arrangement and fire protection features within the high-piled storage area shall be provided at the time of permit, when required by the Fire Code Official.

#### CHAPTER 50 – Hazardous Materials-General Provisions

(97) *5003.5.2 Hazard signals required:* Any occupancy required by this fire code and/or state law to provide material safety data sheets, shall provide visible markings on the outside of buildings, rooms and containers where hazardous substances are present. These markings shall be in a location approved by the Fire Code Official. These markings shall conform to the NFPA 704 marking system or with other federal laws or regulations, or in the case of containers, may as an option comply with Safety and Health Administration Hazard Communication Rule, 29 CFR 1910.1200(f). To avoid duplication of markings, marking requirements of the United States Department of Transportation shall satisfy the requirements in regard to motor vehicles, rolling stock and aircraft.

(98) *5003.5.3 Main entrance:* Where required by Section 5003.5, all buildings shall have a placard located on the main entry door a minimum of eighteen (18) inches from the bottom edge of the door. This placard shall have a minimum dimension of five (5) inches. This placard is not required to be lettered or numbered.

(99) *5003.5.4 Other doors:* All other doors shall have a placard with a minimum dimension of ten (10) inches located in an approved location that identifies the worst hazard category of the product(s) in that area. This placard shall be provided with numerals in accordance with Section 5003.5.2.

(100) *5003.5.5 Signal size:* The exterior markings of buildings or site entrances where materials are stored shall have a minimum signal size of 4 inches. All numbers/letters shall be reflective.

#### CHAPTER 61 – Liquefied Petroleum Gases

(101) *6109.4 Separation from means of egress:* LP-gas containers stored in buildings in accordance with Sections 6109.9 and 6109.11 shall not be located within 20 feet of any *exit access doors, exits, stairways* or in areas normally used, or intended to be used, as a *means of egress*.

TABLE 6109.12 SEPARATION FROM EXPOSURES OF LP – GAS CONTAINERS AWAITING USE, RESALE OR EXCHANGE STORED OUTSIDE OF BUILDINGS

QUANTITY OF LP-GAS STORED (pounds)	MINIMUM SEPARATION DISTANCE FROM STORED LP-GAS CYLINDERS TO (feet):						
	Nearest important building or group of buildings or line of adjoining property that may be built upon	Line of adjoining property occupied by schools, places of religious worship, hospitals, athletic fields or other points of public gathering, busy thoroughfares, or sidewalks	LP-gas dispensing station	Doorway or opening to a building with two or more means of egress	Doorway or opening to a building with one means of egress	Combustible materials	Motor vehicle fuel dispenser
720 or less	0	0	5	20	20	10	20
721 – 2,500	10	10	10	20	20	10	20
2,501 – 6,000	10	10	10	20	20	10	20
6,001 – 10,000	20	20	20	20	20	10	20
Over 10,000	25	25	25	25	25	10	20

For SI: 1 foot = 304.8 mm, 1 pound = 0.454 kg.

#### APPENDIX B – Fire-Flow Requirements for Buildings

(102) *B105.2.:*

AUTOMATIC SPRINKLER SYSTEM (Design Standard)	MINIMUM FIRE-FLOW (Gallons Per Minute)	FLOW DURATION (Hours)

No automatic sprinkler system	Value in Table B105.1(2)	Duration in Table B105.1(2)
Section 903.3.1.1 of the International Fire Code	50% of the value in Table B105.1(2) <sup>a</sup>	Duration in Table B105.1(2) at the reduced flow rate
Section 903.3.1.2 of the International Fire Code	50% of the value in Table B105.1(2) <sup>a</sup>	Duration in Table B105.1(2) at the reduced flow rate

For SI: 1 gallon per minute = 3.785 Lim.

a. The reduced fire-flow shall be not less than 1,500 gallons per minute.

#### APPENDIX D – Fire Apparatus Access Roads

(103) *D103.5 Fire apparatus access road gates:* Security gates installed or constructed on a fire apparatus access road shall comply with Sections D103.5.1 through D103.5.3. A permit shall be required before the construction or installation of a security gate across a fire apparatus access road.

1. Where a single gate is provided, the gate width shall be not less than 20 feet (6096 mm). Where a fire apparatus road consists of a divided roadway, the gate width shall be not less than 12 feet (3658 mm).
2. Gates shall be of the swinging or sliding type.
3. Construction of gates shall be of materials that allow manual operation by one person.
4. Gate components shall be maintained in an operative condition at all times and replaced or repaired when defective.
5. Electric gates shall be equipped with a means of opening the gate by fire department personnel for emergency access. Emergency opening devices shall be approved by the Fire Code Official.
6. Methods of locking shall be submitted for approval by the Fire Code Official.
7. Electric gate operators, where provided, shall be listed in accordance with UL 325.
8. Gates intended for automatic operation shall be designed, constructed and installed to comply with the requirements of ASTM F 2200.

(104) *D103.5.1 Number of gates:* Fire apparatus shall not be required to pass through more than one gate to access, or pass through, any part of a subdivision, development, facility or building.

(105) *D103.5.2 Electrically operated gates:* All electrically operated gates shall be installed in accordance with the following requirements:

1. Setback: The gate shall be at least 50 feet back from the edge of the cross street from which the “gated” street is accessed, and shall open the full width of the required pavement, roadway or driveway.
2. Operation: The gate shall be equipped with a “Siren Activated” system, that will automatically open the gate upon approach of emergency vehicles, which have their sirens sounding in the “yelp” mode and equipped with an optical preemption system compatible with the Department Opticom™ system that will automatically open the gate upon the approach of an emergency vehicle with the Opticom™ activated. It shall also be equipped

with a ‘Rapid Entry’ key operated switch to open the gate, in addition to the normal ‘resident operated mechanism.’ The key switch, when activated, shall keep the gate open until fire district personnel reset it after the emergency. The ‘Rapid Entry’ key operated switch shall be purchased through the Knox Company.

3. Power failure: The gate shall release in the event of a power failure, allowing it to be opened manually.
4. Manual release: Provide a means to manually release the gate, in addition to item 3 above to allow the gate to be opened in the event the switch, motor, or some other component fails.
5. Approval prior to use: The gate installation shall be inspected, tested and approved by the Fire Code Official prior to the use of the gate.
6. Gates added to existing subdivisions. Prior to approval a signed petition stating: “I agree with a gate being installed at the entrance to all the streets to the subdivision, I understand that when this gate is installed the fire department response can be lengthened by as much as two additional minutes. I further will not hold the fire department responsible for loss of life or property due to the additional response time.” Must be signed by 100% of all residents within the subdivision.

(106) *D103.5.3 Manually operated gates:* All manually operated gates shall be installed in accordance with the following requirements:

1. Setback: The gate shall be at least 50 feet back from the edge of the cross street from which the “gated” street is accessed, and shall open the full width of the required pavement, roadway or driveway.
2. Lock: If the gate is to be locked, it shall be equipped with a ‘Rapid Entry’ padlock, The ‘Rapid Entry’ padlock shall be purchased through the City of Crestwood Fire Department. The gate locking mechanism shall be constructed in such a manner as to always allow the gate to open with the activation/removal of the ‘Rapid Entry’ padlock.
3. Approval Prior to Use: The gate installation shall be inspected, tested and approved by the Fire Code Official prior to the use of the gate.
4. Gates added to existing subdivisions: Prior to approval a signed petition stating: “I agree with a gate being installed at the entrance to all the streets to the subdivision, I understand that when this gate is installed the fire department response can be lengthened by as much as two additional minutes. I further will not hold the fire department responsible for loss of life or property due to the additional response time.” Must be signed by 100% of all residents within the subdivision.

(107) *D107.1 One- and two-family dwelling residential developments:* Developments of one- or two-family dwellings where the number of dwelling units exceeds 100 shall be provided with separate and approved fire apparatus access roads.

Exceptions:

1. Where there are more than 100, but less than 200, dwelling units on a single public or private fire apparatus access road and all dwelling units are equipped throughout with approved automatic residential sprinkler systems

in accordance with Section 903.3.1.1 or 903.3.1.3 of the International Fire Code, access from two directions shall not be required.

2. The number of dwelling units on a single fire apparatus access road shall not be increased unless fire apparatus access roads will connect with future development, as determined by the Fire Code Official.
3. The Fire Code Official shall be permitted to increase the number of dwelling units allowed with a single fire apparatus access road when topography or other approved reasons do not permit an additional access road to be provided.

SECTION 2: This Ordinance shall be in full force and effect from and after its passage by the Board of Aldermen and its approval by the Mayor.

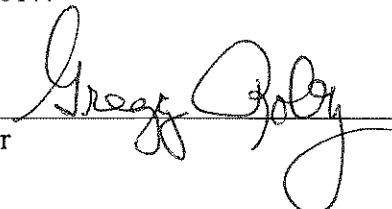
PASSED AND SIGNED this 14th day of November, 2017.

  
\_\_\_\_\_  
Mayor

ATTEST:

  
\_\_\_\_\_  
City Clerk

APPROVED this 14th day of November, 2017.

  
\_\_\_\_\_  
Mayor