

# FIRE CODE

BILL 10138

## ORDINANCE 10005

AN ORDINANCE AMENDING THE KIRKWOOD CODE OF ORDINANCES, CHAPTER 8, SECTION 8-1 AND ADOPTING THE 2009 INTERNATIONAL FIRE CODE WITH MODIFICATIONS AS THE FIRE PREVENTION CODE OF THE CITY OF KIRKWOOD ESTABLISHING MINIMUM STANDARDS GOVERNING THE SAFEGUARDING OF LIFE AND PROPERTY FROM THE HAZARDS OF FIRE AND EXPLOSIVE HAZARDS ARISING FROM THE STORAGE, HANDLING, AND USE OF HAZARDOUS SUBSTANCES, MATERIALS, AND DEVICES AND FROM CONDITIONS HAZARDOUS TO LIFE OR PROPERTY IN THE OCCUPANCY OF BUILDINGS AND PREMISES, AND PROVIDING FOR THE ISSUANCE OF PERMITS; AND REPEALING OF THE EXISTING FIRE PREVENTION CODE.

WHEREAS, the Chief Administrative Officer has approved the recommendation of the Fire Department to update the Fire Prevention Code.

NOW, THEREFORE BE IT ORDAINED BY THE COUNCIL OF THE CITY OF KIRKWOOD, MISSOURI, as follows:

SECTION 1. The Kirkwood Code of Ordinances Chapter 8, Section 8-1 is hereby deleted in its entirety and the following inserted in lieu thereof:

Section 8-1 Fire Prevention Code: The provisions of the "2009 International Fire Code" as modified, is hereby adopted as the City's Fire Prevention Code. See separate publication and adopting modification ordinance on file in the office of the city clerk.

SECTION 2. That a certain document, which is on file in the office of the city clerk, being marked and designated as the "2009 International Fire Code", as published by the International Code Council, is hereby adopted as the Fire Prevention Code of the City of Kirkwood, Missouri for the control of buildings and structures as herein provided; and each and all the regulations of the 2009 International Fire Code, are hereby referred to, adopted, and made a part hereof, as if fully set out in this ordinance.

SECTION 3. That the 2009 International Fire Code, is amended by additions, deletions and changes including the changing of articles, sections, subsections, subsection, titles and the addition of new sections and subsections so the such amended and added articles, sections, and subsections read as follows:

Each section, subsection, or clause of the Code that numerically corresponds to one of the following numbered provisions is hereby deleted, or amended as set forth below. Each provision set out below without a corresponding section, subsection or clause number in the Code is hereby enacted and added thereto.

That the geographic limits referred to in certain sections of the 2009 International Fire Code are hereby established as follows:

Section 3204.3.1.1 – Add to last sentence: Storage of cryogenic fluids in stationary containers is prohibited in all residential zoned districts but may be allowed under the

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Special Use Exception provisions of the Zoning Code in Business and Industrial Zoned Districts.

Section 3404.2.9.5.1 – Add: Storage of Class I and II liquids in above ground tanks outside of buildings is prohibited in all residential zoned districts but may be allowed under the Special Use Exception provisions of the Zoning Code in Business and Industrial Zoned Districts.

Section 3406.2.4.4 – Add to last sentence: Storage of Class I and II liquids in above ground tanks is prohibited in all residential zoned districts but may be allowed under the Special Use Exception provisions of the Zoning Code in Business and Industrial Zoned Districts.

Section 3804.2 – Add to last sentence: Storage of liquefied petroleum gas shall not exceed a water capacity of 2,000 gallons in residential zoned districts but may be allowed under the Special Use Exception provisions of the Zoning Code in Business and Industrial Zoned Districts.

**101.1** - Title: These regulations shall be known as the Fire Prevention Code of the City of Kirkwood. hereinafter referred to as "this Code".

**102.6** – Delete in its entirety and add: Historic Buildings. The construction, alteration, repair, enlargement, restoration, relocation or movement of existing buildings or structures that are designated as historic buildings when such building or structures do not constitute a distinct hazard to life or property, shall be in accordance with the Kirkwood Building Code.

**102.6.1** - Electric Code Reference: Any reference within this code to the ICC Electrical Code shall mean the Kirkwood Electric Code.

**103.1.1** - Code Official: The Fire Marshal of the City of Kirkwood shall be known as the Fire Code official for the purposes of this code.

**104.12** - Rule-making authority: The 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.

**105.6.4** - Delete in its entirety

**105.6.30** - (delete exception and insert the following :) Exception: recreational cooking fires.

**106.2.3** - Disasters: In the event of a disaster such as windstorm, tornado, flood, fire, earthquake, bomb blast, or explosion, the fire code official is hereby authorized to enter and inspect structures within the affected areas, subject to constitutional restrictions on unreasonable searches and seizure. When in the sole opinion of the fire code official, there is imminent danger due to an unsafe condition, the fire code official shall take emergency measures in accordance with this code. If the fire code official determines, after inspection, that a structure is unfit, he shall declare it a public nuisance, cause a report to be prepared and filed with the Building Code

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Official, and notify the affected parties in accordance with this code.

**108.1** – Delete in its entirety and add: Appeals. The Board of Appeals appointed under the provisions of the building code shall have jurisdiction to hear all appeals under this code.

**108.2** – Delete in its entirety.

**109.3** – Delete in its entirety and add: Penalty for Violations. Any *person* who shall violate any of the provisions of this code or fail to comply with any order issued pursuant to any section thereof, shall be guilty of a misdemeanor, and upon conviction thereof, shall be punished by a fine or by imprisonment as prescribed in Section 1-8 of the Code of Ordinances of the City of Kirkwood. Each day that a violation continues shall be deemed a separate offense.

**111.4** – Delete in its entirety and add: Unlawful Continuance. Any person who shall continue any work in or about the structure after having been served a stop work order, except such work as that person is directed to perform to remove a violation or unsafe conditions, shall be liable to penalties as specified in section 109.3 of this code.

**307.2** – Delete in its entirety and add: 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 wildland management practices, prevention or control of disease or pests, recreational fires other than those for cooking food for human consumption, providing heat for out workers 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.

**307.2.2** - Application: Applications for open burning shall be submitted in writing at least ten days before the fire is set and shall be in such form and contain such information as required by the Fire Code Official. Such applications shall contain, as a minimum, information regarding the purpose of the proposed burning, the nature and quantities of the material to be burned, the date when such burning will take place, the location of the burning site and the on-site fire-extinguishing equipment to be provided.

**307.4** - Location: Delete exception #2

**307.4.4** – Add: Additional requirements. The Fire Code Official has the authority to require additional fire safety measures as deemed necessary for issuance of a permit under this section and has the right to reject any application that may endanger the property of others.

**503.1.4** – Add: Designated fire lanes as required by the Fire Code Official shall be on file in the City Clerk’s Office.

**503.3.1** – Add: Marking Requirements. Fire Lane’s shall be marked in accordance with the Kirkwood Fire Lane Marking Policy.

**503.4.1** – Add: Obstructions. A person or persons shall not erect, construct, place, or maintain any bumps, fences, gates, chains, bars, pipes, wood or metal horses or any type of obstruction in or on any street, within the boundaries of the municipality. Nothing herein shall prevent the temporary placing of such items with permission of the Fire Code Official and Chief of Police. The word “street” as used in this article shall mean private and public streets and highways within the boundaries of the municipality.

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**508.2** – Add: Fire flow. Fire flow requirements for buildings or portions of buildings and facilities shall be determined by the fire department hydrant policy.

**508.3** – Add: Water supply test. Water flow tests for automatic sprinkler systems shall be conducted between the hours of 8:00 a.m. and 3:00 p.m., Monday through Friday. Tests shall be within the previous twelve (12) months. Water supply tests shall be in accordance with the water purveyor requirements and documentation of the test shall be provided to the Fire Code Official prior to final approval of the water supply system.

**508.4** – Add: Fire hydrant systems. Fire hydrant systems shall comply with sections 508.4.1 through 508.4.14.

**508.4.1** – Add: Where required. Fire hydrants shall be provided in accordance with the fire department hydrant policy.

**508.4.2** – Add: Private fire hydrant flow test. A business owner may elect for the fire department to perform annual inspection and flow tests on private hydrants within their property, after completion of the established authorization form and submitting the appropriate fee as established by the Fire Code Official.

**508.4.3** – Add: Clear space around hydrants. There shall be no obstructions, plantings, bushes, trees, signs, light standards, etc. within six (3) feet of any fire hydrant in all directions.

**508.4.4** – Add: Color coding of public fire hydrants. All public fire hydrants barrels shall be painted safety yellow. All new fire hydrants shall be painted by the builder and with paint approved by the water purveyor. Paint colors shall be as follows:

<b>Color</b>	<b>Water Main Size</b>
Safety Green	Twelve (12) inch and larger
Safety Orange	Eight (8) and ten (10) inch
Safety Red	Six (6) inch and smaller

**508.4.5** – Add: Color coding of private fire hydrants. All private fire hydrants shall be painted by the builder/developer in accordance with section 508.4.7.

**508.4.6** – Add: Unacceptable locations for fire hydrants. Fire hydrants shall not be permitted in the locations indicated in Section 508.4.10.

**508.4.7** – Add: Prohibited locations. A fire hydrant shall not be placed at any location where the fire hydrant could be damaged by vehicular traffic.

**508.4.8** – Add: 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 purveyor's policies and procedures.

**508.4.9** – Add: Fire hydrant installation. All fire hydrants shall be installed in accordance with Kirkwood Water Department regulations.

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**508.4.10** – Add: Fire hydrant set back distance. All fire hydrants shall be set back from the curb or edge of pavement. The set back shall not exceed twelve (12) feet.

**508.4.11** – Add: Fire hydrant connection height. Fire hydrants shall be installed a minimum of fourteen (14) inches and a maximum of thirty six (36) inches above finished grade, measured from the center of the steamer connections.

**609.3.3.1** – Delete last sentence and add: Inspections shall be completed by the Kirkwood Fire Marshal or his approved representative.

**609.3.5** – Add: Existing. Existing commercial cooking appliances and domestic cooking appliances utilized for commercial purposes, including the hood, duct work, exhaust fan and make up air not in conformance with the Kirkwood mechanical code shall be brought into compliance upon re-occupancy, replacement of the hood suppression system or issuance of a building permit for kitchen renovations.

**903.2.11.1** - Delete “Where the floor area exceeds 1,500 square feet (139.4 m<sup>2</sup>) and”

**903.3.1.2.2** – Add: Combustible concealed spaces. All concealed spaces enclosed wholly or partly by exposed combustible construction, including but not limited to attics, shall be protected by sprinklers, in accordance with NFPA 13-1999 5-13.1.

**903.3.5.1.3** – Add: Approval. The water purveyor shall approve the domestic water system connection.

**903.3.7** – Delete in its entirety and add: Fire Department Connections. The location of fire department connections shall be approved by the Fire Code Official and shall be located at least 40 feet from the building, as practically possible, for buildings over 5,000 square feet in area, or over two-stories in height.

**903.3.8** – Add: Location. Fire department connections shall be located no further than 150 feet, accessible to fire department apparatus, from a fire hydrant.

**903.4.1** – Delete in its entirety and add: Signals. Alarm, supervisory and trouble signals shall be distinctly different and shall be automatically transmitted to a listed central station as defined in NFPA 72.

### 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, the backflow preventer valves shall be electrically supervised by a tamper switch installed in accordance with the NFPA 72 and separately annunciated.

**903.4.1.1** – Add: Cancellation of Service. In the event the central station monitoring is cancelled, written

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notification shall be submitted to the Fire Code Official by the Central Station and the building owner.

**907.1.2.1** - Add: Fire alarm panel location. The location of the FACP shall be located in a location approved by the Fire Code Official near the main entry.

Exception: A remote annunciator installed in an approved location by the Fire Code Official.

**912.2.1.1** – Add: Location. Fire department connections shall be located no further than 150 feet, accessible to fire department apparatus, from a fire hydrant.

**912.5** – Delete in its entirety and add: Backflow protection. The potable water supply to automatic sprinkler and standpipe systems shall be protected against backflow as required by the Kirkwood Plumbing Code and the water purveyor.

**913.4** – Delete in its entirety and add: Valve Supervision. Where provided, the fire pump suction, discharge and bypass valves and the isolation valves on the backflow prevention device or assembly shall be supervised open by listed central station.

**1011.1.1** – Add: Multi-tenant buildings. The requirements of Section 1011 shall apply to multi-tenant buildings where the occupied spaces or rooms are only required to have one exit from that tenant space.

**1011.1.2** - Add: Floor-level exit signs. Where exit signs are required in Use Groups A-1, A-2 Banquet halls and Night clubs, I-2, and R-1, additional approved low-level exit signs are required. Signs shall be provided in all corridors, exit access, and exits. The bottom of the sign shall not be less than 6 inches (152mm) nor more than 8 inches (203 mm) above the floor level and shall indicate the path of exit travel. For exit and exit access doors, the signs shall be on the door or adjacent to the door with the closest edge of the sign within 4 inches (102 mm) of the door frame. Signs may be internally or externally illuminated, photo-luminescent, or self-luminous.

**1011.1.3** – Add: R-2 and R-3 Occupancies. The requirements of 1011 shall apply to R-2 and R-3 occupancies utilized for a residential care facility.

**1011.1.4** – Add: R-2 and R-3 Occupancies used for a residential care facility. The requirements of 1006 shall apply to R-2 and R-3 occupancies utilized for a residential care facility.

**1011.5.1.1** – Add: Color. The color of the letters shall be red.

**2204.3.8** – Add: Fire Suppression System. The dispensing area (pump island and adjacent ground area) shall be provided with an approved automatic fire suppression system.

**3301.2.4.1** - Add: Fireworks Prohibited: The sale and use of certain fireworks is prohibited as directed by the City of Kirkwood Code of Ordinances.

**3307.1** – Delete in its entirety and add: General. Blasting operations shall be conducted only by approved, competent operators familiar with the required safety precautions and the hazards involved and in accordance with the provisions of NFPA 495 and all sections herein. When a

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conflict arises, the more restrictive section shall apply.

**3307.16** – Add: Bond required for blasting: Before approval to do blasting is issued, the applicant for the approval shall verify that a bond in adequate form, amount and coverage has been obtained to protect against damages arising from the permitted blasting.

**3307.17** – Add: Storage. The storage of explosive materials overnight is prohibited within the City limits.

**3307.18** – Add: Permit to explode or blast required, Blasters License:

It shall be unlawful, without first having received a permit from the Code Official, to explode or cause to be exploded, any gunpowder, dynamite, giant powder, gun powder, gun cotton or other explosive or the purpose of blasting rock, gravel, earth or other like substance within the City.

No person shall use or detonate explosives unless he is in possession of a valid St. Louis County blasters license and a Missouri Blasters Certificate. A copy of both shall be provided with each permit application.

The handling of explosives may be performed by other employees provided the work is done under the direct supervision of the Licensed Blaster. The person possessing a valid blasters license shall be in charge of all blasting operations. If there is more than one blaster, one will be designated as being blaster in charge and shall be responsible for the entire operation.

**3307.19** – Add: Application for permit to Blast-Requirements. Application for a permit to use explosives shall be made to the Code Official on forms provided and shall contain the following information:

Name of Applicant.  
Address of residence.  
Place of business.  
Occupation

The location where the blasting is to be done, the type of blasting material to be used in each charge, the number and location of charges and the manner in which the material is to be detonated.

The time and date of blasting when requested by the Code Official.

The name and address of the blaster or blasters who shall be the person or persons who shall actually detonate or have actual charge of the detonation of any explosive or blasting agent.

City of Kirkwood Blasters license number.

When blasting operations are conducted on a continuous basis, such as quarry blasting and construction work, the Code Official may, direct that the applicant furnish the location where blasting is to be done, the type of blasting material generally used, the approximate frequency of detonations based on past performance and the manner in

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which the explosives are to be detonated.

In addition to the above information, there shall be attached to the application for a permit to blast, the following: A certificate of liability insurance in the minimum amount of One Million dollars (\$1,000,000) for injury to persons and property resulting from the blasting operations. Such insurance shall be carried in a firm or corporation that has been duly licensed or permitted to carry on such business in the State of Missouri and shall be kept and maintained continuously in force and effect for the duration of the blasting permit.

**3307.20** – Add: Blasting Operations. All blasting operations within the City shall be conducted in strict accordance with the following rules and regulations and it shall be unlawful for any persons to fail to observe and follow said rules and regulations when blasting. In the event there is a violation of said rules and regulations, the Code Official shall have the power and it shall be his duty to revoke the blasting permit issued in connection with the operation, revoke the license of the blaster in charge, all in accordance with the terms of this chapter, and in addition, the violator or violators may be punished as otherwise provided by this chapter for violations thereof.

**3307.20.1** – Add: Blasting operations shall be carried on with the smallest possible number of persons present.

**3307.20.2** – Add: All drill holes shall be of sufficient size so that the cartridges of explosives can be easily inserted to the bottom of the hole without forcing or ramming.

**3307.20.3** – Add: Explosives should not be removed from the original wrapper before being loaded into bore holes except when irregularities of the hole make it impossible to load whole cartridges with safety or in block-holing where small charges are desirable. This rule shall not apply to free running explosives.

**3307.20.4** – Add: Excessive ramming should be avoided in loading or tamping explosives in a bore hole and wooden tools only, with no exposed metal parts, shall be used for this purpose. In tamping, only hardwood rods without metal parts, other than non-ferrous metal ferrules for extending the length thereof, shall be used.

**3307.20.5** – Add: When loading free running or bulk explosives, a bronze, wooden or heavy paper funnel should be used unless the explosives can be poured directly from a container into the hole in such a manner as to prevent scattering of loose explosives around the collar of the hole.

**3307.20.6** – Add: When priming with electric caps, said caps shall be tested with a blasting galvanometer after being loaded but before the hole is stemmed. Primers shall be made up just prior to loading. The cap must be properly embedded in the cartridge and the primer seated in the charge without rough handling.

**3307.20.7** – Add: When firing with a blasting machine, the blasting machine shall be located at a safe distance to be determined by the blaster.

**3307.20.8** – Add: When firing by means of a blasting machine, the leading wires shall be kept short-circuited until the shot is ready for firing and shall not be connected to the blasting machine until immediately before the time of firing and shall be disconnected from the blasting machine



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and short-circuited immediately after firing.

**3307.20.9** – Add: Electric detonators and blasting circuits shall be tested only by means of a blasting galvanometer designed for this purpose.

**3307.20.10** – Add: Before firing any blast, all means of access to the Blast area (the extent of which shall be determined by the blaster, but in no case to be closer to the explosion than the blaster himself), shall be effectively guarded to exclude all unauthorized personnel. The blaster shall then sound a warning of sufficient intensity and duration to be distinctly audible to all persons within the blast area at five minutes prior to the blast and one minute prior to the blast and all such persons shall retire beyond the blast area. The blast area shall then be examined by the blaster to make certain that all persons have retired there from to a place of safety. No blast shall be fired while any person is in the blast area.

**3307.20.11** – Add: When the point of explosion is within three hundred (300) feet of a roadway, the blaster shall, just prior to the blast, designate a sufficient number of employees of the operator. Each carrying a red warning flag, to stop all vehicular and pedestrian traffic on each possible route of travel within three hundred and fifty (350) feet of the point of explosion until the blast has been fired. The Kirkwood Police Department shall be notified at least thirty (30) minutes prior to the time of detonation.

**3307.20.12** – Add: No person shall return to the blast area until permitted to do so by the blaster as announced by audible and visual *signal(s)*.

**3307.20.13** – Add: Immediately following the blast the area shall be examined by the blaster for evidence of misfired charges.

**3307.20.14** – Add: All misfires shall be reported at once to the superintendent or manager who shall then determine the safe and proper method of disposal. The unexploded charge shall be detonated if such can be accomplished without risk of injury to personnel or damage to property. If priming is necessary, any stemming present in the hole may be removed by a jet of water. The jetting tool should be of non-sparking metal, rubber or plastic. If electric blasting caps are used for in-the-hole initiation, an air jet should not be used.

**3307.20.15** – Add: Drilling in any hole that is known to contain or have contained explosives is prohibited until complete neutralization is effected.

**3307.20.16** – Add: A complete record shall be kept by the blaster showing all misfires and method of disposal.

**3307.20.17** – Add: In case a charge fires but does not bring down the burden, it is permissible to reload the bore hole, if in suitable condition, but only after the temperature of the hole has been reduced by water or otherwise to not more than one hundred fifty (159) degrees Fahrenheit.

**3307.20.18** – Add: Each blast hole shall be stemmed to the collar or to a point high enough to provide efficient confinement of the charge and to minimize the chance of injury to personnel from flying material. Block holes shall contain at least eighty-five (85) percent of stemming material. For toe holes, the collar stemming shall in no case be less than one-third the depth of the hole.

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**3307.20.19** – Add: When electric blasting caps are transported in a motor vehicle, equipped with a radio transmitter, they shall either be in their original package or stored in a closed metal box that is lined with a cushioning material such as wood or sponge rubber. When the electric caps are being placed into or removed from the box, the transmitter shall not be used.

**3307.20.20** – Add: When blasting with electric detonators near radio transmitters, unless otherwise expressly authorized in writing by the Code Official, all blasting operations shall be conducted at no less distance than that indicated in the following table:

<i>Transmitter Power Output in Watts</i>	<i>Minimum Distance From Blasting Operations Using Electric Blasting Caps, in feet.</i>
5-25.....	100
25-50.....	150
50-100.....	220
100-250.....	350
250-500.....	450
500-1,000.....	650
1,000-2,500.....	1000
2,500-5,000.....	1500
5,000-10,000.....	2200
10,000-25,000.....	3500
25,000-50,000.....	5000
50,000-100,000.....	7000

When it can be demonstrated by means of approved tests that electric blasting may be carried out at lesser distances from the transmitter than required by the table shown, the Code Official may allow a variation from the requirements of said table.

When blasting operations are located near highways or other public ways, signs shall be erected at least five hundred (500) feet from the blast areas reading: “BLAST AREA - SHUT OFF ALL TWO WAY RADIOS”. The letters of these signs shall be not less than four (4) inches in height on a contrasting background.

**3307.20.21** – Add: In no case shall drilling be conducted closer than twenty-five (25) feet to a loaded hole or a hole that is being loaded.

**3307.20.22** – Add: Holes shall be checked prior to loading to determine depth and condition. Holes may be checked with a dolly or tamping block or by visual inspection with the aid of a mirror. After any explosives have been loaded, all measuring shall be done with a cloth tape or non-ferrous measuring device and lead plumb bob, or a wooden tamping pole or wooden dolly free of exposed metal parts.

**3307.20.23** – Add: Under no circumstances shall the amount of explosives taken within three hundred (300) feet of a potential point of explosion exceed the amount estimated by the blaster as necessary for the blast.

Such explosives shall be stacked in piles at least twenty-five (25) feet from the nearest holes

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being loaded and at such distances apart, as provided in Section F-3010.3.25, that any premature explosions will not be likely to propagate from one (1) pile to another.

**3307.20.24** – Add: The explosives containers, if any, shall be opened at the pile and carried up to the hole, one (1) case or unit at a time for immediate loading or placed at a loading station not less than six (6) feet from the hole except that not more than one hundred (100) pound of explosives shall be allowed at the loading station at any one time. All empty explosives containers (boxes, bags, crates etc.) shall be properly disposed of, daily, in a safe manner.

**3307.20.25** – Add: Explosives shall be distributed in such a manner that the distances from storage piles to the allowable maximum quantity of one hundred (100) pounds of explosives at the loading station or between such one hundred (100) pound loading station piles shall not be less than the quantities shown in the following quantity table:

<i>Pounds of Explosives</i>	<i>Distance Between Piles of Explosives in feet.</i>
up to 50.....	21
100.....	25
200.....	32
300.....	37
400.....	41
500.....	44
750.....	50
1,000.....	55
1,500.....	64
2,000.....	70
2,500.....	75
5,000.....	96
10,000.....	123

**3307.20.26** – Add: Drill holes shall not be sprung when they are less than one hundred (100) feet from the nearest hole containing explosives. Holes that have been sprung shall not be charged with explosives until the maximum temperatures in any portion of such holes have been reduced to one hundred fifty (150) degrees Fahrenheit. Where possible, water is to be used for cooling purposes.

**3307.20.27** – Add: Blasts primed with detonating fuse shall not be permitted.

**3307.20.28** – Add: In all blasting where the firing of any one (1) hole is likely to break into or damage another hole in the vicinity or where the firing of any hole may propagate the charge in a loaded hole in the vicinity, all holes which have been loaded shall be included and fired in the blast.

**3307.20.29** – Add: Water standing in blast holes should be bailed out, if possible, or the holes shall be loaded with an explosive of adequate water resistance.

**3307.20.30** – Add: Blasting crews shall consist of the minimum number of experienced persons to do the work in an efficient manner and should be organized carefully and each man assigned to definite tasks to avoid confusion.

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**3307.20.31** – Add: A blast shall be planned before the loading is started. The planned charge for each hole shall be recorded prior to the blast.

**3307.20.32** – Add: The condition of each hole to be loaded and the amount, height, and position of the explosives charge or charges placed in the hole shall be recorded on a loading chart prior to the blast.

**3307.20.33** – Add: Members of loading crews engaged in loading blast holes should be prohibited from wearing hobnail or steel-plated shoes to avoid striking sparks on rocks.

**3307.20.34** – Add: Large dynamite cartridges may be dropped in blast holes only when the hole is free from obstructions to the depth at which the cartridge is to rest.

**3307.20.35** – Add: Large dynamite cartridges shall not be dropped in blast holes containing excessive water until the charge is above the water level.

**3307.20.36** – Add: Large dynamite cartridges that have been wedged in a blast hole shall not be tamped with a dolly. After pouring water into the hole, attempts to dislodge or pierce them shall be made with a spear-shaped wooden tamping block or a small-diameter wooded pole.

**3307.20.37** – Add: Rough or ragged holes and holes partly closed by an obstruction that cannot be readily removed shall be loaded with cartridge dynamite lowered with a rope, with free running powder or dynamite cut in small pieces.

**3307.20.38** – Add: When loading a long line of holes with more than one (1) loading crew, the crews shall be separated by the greatest practical distance which can be maintained as the loading operations and supervision of the crews. Every effort shall be made to keep the loading crews a minimum of twenty-five (25) feet apart and to prevent the simultaneous loading of adjacent holes.

**3307.20.39** – Add: Excessively large amounts of explosives shall not be delivered to the loading area at one (1) time. If deliveries of explosives are made by truck, the quantity permitted at or near the loading operations shall be limited to one (1) truck load. Other trucks loaded with explosives shall wait or be unloaded in separate safe places away from the loading operations.

**3307.20.40** – Add: Explosives should be delivered first to the holes farthest from the truck to avoid driving or walking among piles of explosives.

**3307.20.41** – Add: Explosives in excess of immediate requirements when removed from the main storage magazine and delivered in the vicinity of a blasting operation, shall be stored in a Type II magazine.

**3307.20.42** – Add: The required stemming or tamping material shall be placed by each hole before the delivery of explosives to the holes is started. Stemming material shall be screened or free from excessively coarse pieces.

**3307.20.43** – Add: Stemming shall be placed in each hole to avoid damage to the shock tube or leg wires of electric detonators.

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**3307.20.44** – Add: All surface detonators shall be covered with adequate stemming where physically possible to reduce noise.

**3307.20.45** – Add: The use of detonating code shall be prohibited.

**3307.20.46** – Add: Toe hole blasting is defined as the re-moving of ledges or high bottoms that remain after a main or primary shot or blast using moderate quantities of explosives loaded in small diameter holes. In toe hole blasting, the charge of explosives shall be pushed to the end of the hole with a wooden pole using care not to block the hole or suitable free-running blasting agents may be blown into the hole with an approved pneumatic loader.

**3307.20.47** – Add: Secondary blasting is defined as the reduction of oversized material by the explosives to facilitate shovel operations or to be accompanied by the crusher. It shall include mud-capping and block holing. In secondary blasting, wherever practicable, oversize fragments shall be reduced to shovel or crusher size by use of the drop-ball method, except as otherwise directed by the Code Official.

**3307.20.48** – Add: Charges of explosives shall be confined in all cases (drill holes) by suitable, inert stemming material.

**3307.20.49** – Add: No person, except the blaster and any other directly engaged in loading block holes, shall be permitted within the immediate area while loading is being performed. Loading of any block hole shall be completed in one continuous operation including insertion of the primer and the stemming.

**3307.20.50** – Add: Blast matting (which may include earth) shall be required when blasting operations and/or geological conditions create fly rock that could damage or injure persons or property, or at the decision of the Code Official.

**3307.20.51** – Add: In all blasting operations, except as hereinafter otherwise provided, the maximum peak particle velocity of any one (1) of the three (3) mutually perpendicular components of the ground motion in the vertical and horizontal directions shall not exceed one (1) inch per second.

**3307.20.52** – Add: Instrumentation shall be in good operating condition and be properly calibrated with a current (within one (1) year of date of use) calibration sticker affixed to each instrument. If an instrument(s) is found to be not operating properly or out of calibration, blasting operations shall be halted until the appropriate repairs or re-calibration are performed or a proper instrument(s) is provided. Seismograph operator shall be trained in the use of that instrument(s).

**3307.20.53** – Add: At least one Seismographic instrumentation shall be required on all blast sites. Additional seismographic instrumentation(s) shall be required on any blast site, where the nearest uncontrolled structure or public utility is located within a scaled distance of fifty (50) (as defined by section F-3010.3.62) or at the request of the Code Official. Under this provision, seismographic instrumentation shall be provided and operated by an independent, third-party.

An uncontrolled structure is defined as any occupied building not owned or controlled by the explosives user. The seismograph shall be placed at or near the closest uncontrolled structure(s).

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**3307.20.54** – Add: Blasting operations without instrumentation will be considered as being within the limits set forth in this subsection if at a specified location on at least five (5) blasts instrumentation shows that the maximum peak particle velocity at the specified location is fifty (50) percent or less of the limit set forth in this subsection, and with written permission from the Code Official, provided, that for all future blasts the scaled distance is equal to or greater than the scaled distance for the instrumented blast (*s*). However, if a scaled distance less than fifty (50) is employed, a seismograph is required regardless of the seismic readings of previous blasts. A scaled distance means the actual distance in feet divided by the square root of the maximum explosive weight in pounds that is detonated per delay period for delay intervals of eight (8) milliseconds or greater. Delayed intervals less than eight (8) milliseconds are not permitted.

**3307.20.55** – Add: (A) Airblast shall be controlled so that it does not exceed the maximum limits specified below at any uncontrolled structure (as defined in section F-3010.3.61).

<i>Lower frequency limits of Measuring systems, Hz (+3dB)</i>	<i>Maximum level in dB</i>
0.1 Hz or lower-flat response .....	134 peak
2 Hz or lower-flat response .....	133 peak
6 Hz or lower-flat response .....	129 peak
C-weighted, slow response .....	105 peak dBc

All measuring systems used shall have a flat frequency response of at least 200 Hz at the upper end.

**3307.20.56** – Add: When blasting in the vicinity of uncontrolled structures (as defined in section F-3010.3.61) the explosives user will determine the structures lying within a scaled distance of thirty-five (35). The distance

will be determined by the following:

$$SD = 35 (W)^{1/2}$$

Where D is the distance limit and W is the maximum charge weight per 8 ms delay interval.

The explosives user will make a good faith effort to contact the owners of structures within the distance limit by certified mail and offer to have an independent, third-party pre-blast inspection performed on their structure at no charge to the owner.

**3307.21** – Add: Blasting agents-Transportation, Storage and Use. Unless otherwise set forth in this chapter, blasting agents shall be transported, stored and used in the same manner as explosives.

**3307.22** – Add: Buildings Used for Mixing of Blasting Agents-Location. *Buildings used for mixing blasting agents in the City of Kirkwood shall be prohibited. This should not be construed to include truck mounted bulk loaders.*

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**3307.23** - Add: Records:

1. A record known as a log shall be kept for every primary blast in an approved manner and for such other blasting as the Code Official may require.

2. A blasting record, known as a log, shall be kept on the site of any blasting operations. This log shall be made available to the Code Official or his authorized agents upon demand. This record shall be maintained available for inspection for a period of six (6) months after such blasting operations are completed. Minimum recorded data shall be as follows:

1. Plan of the involved portion of the blasting site showing location of holes and spacing of holes.
2. A cross-section of a sample hole showing over-burden; burden at top of face and toe; height of face; depth of hole; kind and quantity of explosives including distribution of explosives load as deck charges, or otherwise as appropriate; length and kind of stemming material.
3. Drilling record showing unusual joint or seam conditions in the rock.
4. Amount of explosives used (weight).
5. Kind of blasting caps, distribution of instantaneous or short-period delay blasting caps, or both, delay interval used; order of firing by switch.
6. Comments by blaster in charge regarding character of breakage; height of breakage; length of throw; effectiveness of shot; unusual results of effect.
7. Weather conditions including direction and approximate velocity of wind; atmospheric temperature; relative humidity; cloud conditions.
8. Date and time of firing of blast.
9. Name of person in responsible charge of loading and firing; blaster's permit number, Name and location of blasting site, Signature and title of person making report.

Any falsification, alterations or misrepresentation of any records of blasting operations will be cause for suspension or revocation of blasting permits and blaster's license.

**3307.24** – Add: Fees. The following fees are hereby established for the licenses and permits required by this chapter:

Annual blaster's license .....	\$ 50.00
Base permit fee.....	\$ 240.00
Each blast over (5) five.....	\$ 48.00

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**3307.25** – Add: Hours During which Blasting Prohibited. It shall be unlawful for any person to explode, or cause to be exploded, any gunpowder, dynamite, giant powder, gun cotton or other explosives as herein defined for any purpose during the hours of 6:00 p.m. to 8:00 a.m. Monday through Friday, or any time on Saturday and Sunday unless a special permit to use explosives during the off hours has been issued by the Code Official when the Code Official has determined that conditions beyond the control of the person seeking a special permit prevents such person from using explosives during the regular hours permitted.

**3307.26** – Add: Permit-Licenses-Duration. Blaster's licenses shall expire at the expiration of twelve (12) months from date of issuance, but may be renewed at the discretion of the Code Official without written examination.

Permit to blast shall expire on the date specified on the permit issued by the Code Official, but may be extended by the Code Official.

All permits and licenses issued pursuant to this chapter may be suspended by the Code Official for good cause shown as hereinafter provided.

**3307.27** – Add: Right of Inspection. The Code Official or any authorized police officer, may, at any reasonable time, inspect any premises on which blasting operations are being conducted for the purpose of determining whether the provisions of this chapter are being complied with.

The Code Official or any authorized police officer may, during normal business hours, enter and inspect the premises, including places of storage, of any licensed importer, licensed manufacturer, licensed manufacturer-limited, licensed dealer, or permitted for the purpose of inspecting or examining any documents and records required to be kept by such person by law and any explosive materials kept or stored by such person.

The Code Official, in his sole discretion, may require the holder of the blasting permit, based upon the size of the area affected by the blasting, at their expense, to engage a independent special, third-party inspector, who is certified to inspect explosive operations, to perform inspections on each blast, and at least once a day of the entire site. Such inspector's reports shall be forwarded to the Code Official daily. The Code Official or his designee shall be notified every morning that blasting will occur with the blasting schedule for the day. No blast will be allowed take place unless the Code Official or his designee is present.

Any person who shall hinder or obstruct the Code Official, Special inspector, or any police officer in the performance of his official duties, shall be guilty of a violation of the provisions of this chapter and upon conviction thereof, shall be subject to the penalties prescribed in section 1-8 of the Code of Ordinances.

**3307.28** – Add: Inspections of Fire or Accident Scene. The Code Official or any authorized police officer may inspect the site of any accident or fire in which there is reason to believe any explosive materials were involved. The Code Official or any authorized police officer may, at any reasonable time, enter into or upon any property where explosive materials have been used or are suspected of having been used, or have been found in an otherwise unauthorized location.

**3307.29** – Add: Violation of Inspection-Notice to Violator. If upon inspection by the Code Official or his agents, a violation of this chapter is found to exist, the Code Official shall file with



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the person holding the permit a notice citing the violation and ordering its correction. If such order is not complied within the time

period specified in the notice, which may require immediate compliance, the Code Official may suspend any permit or license issued to the person involved. Nothing herein relating to revocation of permits shall be construed to abrogate or suspend any proceedings against or prosecution of the violator, which may be instituted against the violator under the provisions of this chapter.

Immediately after the suspension of the permit to store or to blast, the Code Official shall give the permittee written notice of the complaint or charge and shall fix the date for a hearing to be held within five (5) days of said notice, at which hearing the permittee shall have the right to counsel and to produce witnesses and other evidence in his behalf. For the purpose of said hearing, the Code Official is empowered to issue subpoenas and all necessary processes, administer oaths and take testimony at said hearing. All evidence offered at the hearing shall be preserved by the Code Official.

If the Code Official shall, after such hearing, decide that the operation for which the permit was issued was in violation of any provision of this chapter, he may revoke any permit or license of the person involved permanently or for such lesser period of time as he shall determine.

**3307.30** – Add: Conflict With State or Federal Regulations of Explosives –Suspension. During such time as any provision herein shall conflict with any State or Federal statute or regulation, such provision herein conflicting shall be suspended.

**3307.31** – Add: Reckless and Wanton Handling of Explosives-Prohibited. No person shall load, unload or otherwise handle explosives in a reckless and wanton manner, thereby endangering the life, limb or property of any person.

**3307.32** – Add: Theft of Loss of Explosives. Any person who has knowledge of the theft or loss of any explosive materials shall immediately report such theft or loss to the Code Official and the Kirkwood Police.

**3308.5.6** – Add: Overnight Storage: Overnight storage is prohibited, unless authorized by Kirkwood Fire Marshal.

**3404.2.9.6.1** – Delete last sentence and add: (geographic limits in which the storage of Class I and Class II liquids in above-ground tanks outside of buildings is prohibited) as directed by the City of Kirkwood Zoning Code.

**3404.2.13.1.4** - Delete in its entirety and add: Out of service for 1 year. Underground tanks have been out of service for a period of 1 year shall be removed from the ground in accordance with Sections 3404.2.14 or abandoned in place in accordance with Section 3404.2.13.1.4.

**3404.2.13.1.4.1** – Add: Tanks abandoned in place. Tanks abandoned in place shall be abandoned as follows:

1. Flammable and combustible liquids shall be removed from the tank and connected piping.

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2. The suction, inlet, gauge, vapor return and vapor lines shall be disconnected.
3. The tank shall be filled completely with an approved, inert solid material.

**3404.2.13.1.6** – Add: Testing of existing storage tank systems. An existing flammable or combustible liquid storage tank and piping system that has been altered or repaired, or which displays evidence of leakage, shall be tested for tightness. The test shall be performed utilizing a testing device capable of detecting a leak rate of 0.1 gallons (0.41) per hour while accounting for the effects of thermal expansion or contraction of the product, vapor pockets, tank deformation, evaporation or condensation and the location of the water table. A leak exists if the net change exceeds the 0.1 gallon (0.41) per hour leak rate. Any storage system indicating a leak by testing shall either be repaired or removed.

**3406.2.4.4** – Delete last sentence and add: (geographic limits in which the storage of Class I and Class II liquids in above-ground tanks is prohibited) as directed by the City of Kirkwood Zoning Code.

**3804.2** - Delete last sentence and add: (geographic limits in which the storage of liquefied petroleum gas is restricted for the protection of heavily populated or congested areas) as directed by the City of Kirkwood Zoning Code.

SECTION 5. Nothing in this ordinance or in the code hereby adopted shall be construed to affect any suit or proceeding pending in any court, or any rights acquired, or liability incurred, or any cause or causes of action acquired or existing under any act or ordinance hereby repealed, as cited herein.

SECTION 6. If any section, subsection, provision, sentence, clause or phrase of this ordinance or of the 2009 International Fire Code is for any reason held to be unconstitutional or invalid, such decision shall not affect the validity of the remaining portions of this ordinance or of said code, and the City of Kirkwood hereby declares that it would have passed the same, even though such portion so held to be unconstitutional had not been included therein, and to this end the provisions of this ordinance declared to be severable.

SECTION 7. This ordinance shall be in full force and effect after its passage and approval, as provided by law.

PASSED AND APPROVED THIS 21<sup>ST</sup> DAY OF APRIL 2011.

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Mayor, City of Kirkwood

ATTEST:

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City Clerk

1<sup>st</sup> Reading: April 7, 2011

2<sup>nd</sup> Reading: April 21, 2011