FIRST AMENDMENT

ORDINANCE NO. 1666

AN ORDINANCE TO AMEND TITLE VII OF THE MUNICIPAL CODE OF THE CITY OF LAS VEGAS, NEVADA, 1960 EDITION, by REPEALING CHAPTER 2 OF SAID TITLE; ADOPTING THE UNIFORM FIRE CODE, 1973 EDITION, PRESCRIBING REGULATIONS GOVERNING CONDITIONS HAZARDOUS TO LIFE AND PROPERTY FROM FIRE OR EXPLOSION; PROVIDING FOR THE ESTABLISHMENT OF A BUREAU OF FIRE PREVENTION; PROVIDING OFFICERS THEREFOR AND DEFINING THEIR POWERS AND DUTIES; PROVIDING OTHER MATTERS PROPERLY RELATING THERETO; PROVIDING PENALTIES FOR THE VIOLATION HEREOF; AND REPEALING ALL ORDINANCES AND PARTS OF ORDINANCES IN CONFLICT HEREWTIH.

THE BOARD OF COMMISSIONERS OF THE CITY OF LAS VEGAS DOES ORDAIN AS FOLLOWS:

TITLE VII, Chapter 2 of said Code is hereby amended to read as follows:

SECTION 1. That a certain document, three copies of which are on file in the office of the City Clerk of the City of Las Vegas, Nevada, being marked and designated as "UNIFORM FIRE CODE, 1973 EDITION" as printed by the International Conference of Building Officials, save and except such portions as are hereinafter deleted, modified or amended, be and the same is referred to and adopted as the "UNIFORM FIRE CODE OF THE CITY OF LAS VEGAS, NEVADA" and by said reference and adoption made a part of this ordinance, the same as if it were fully set forth herein.

SECTION 2. The Uniform Fire Code shall be enforced by the Fire Prevention Bureau in the Fire Department of the City of Las Vegas, which is hereby established and which shall be operated under the supervision of the Chief of the Fire Department.

SECTION 3. Certain sections of said Uniform Fire Code, as adopted by this ordinance, are hereby deleted, modified and amended as follows, to wit:

ARTICLE 1. GENERAL PROVISIONS, Division II, Administration, Section 1.213, Records and reports, is hereby amended by adding subsection (c) to read: The charge for the reproduction of reports will be three dollars ($3.00) minimum for the first three pages and twenty-five cents (25¢) for each additional page.

ARTICLE 1. GENERAL PROVISIONS, Division II, Administration, Section 1.215, Board of Appeals, deleted.

ARTICLE 1. GENERAL PROVISIONS, Division II, Administration, Section 1.216, Compliance with Recognized Standards shall be amended by adding the following standard:

GYPSUM ASSOCIATION
201 North Wells Street, Chicago, Ill. 60606
Fire Resistance Design Data, 1971-72 edition.

ARTICLE 1. GENERAL PROVISIONS, Division III, General Provisions Applicable to Permits and Certificates, is hereby amended by adding subsection 1.309, Fire Drills in Educational and Institutional Occupancies and Places of Assembly.

a. Fire drills shall be held at least once a month in educational occupancies where such occupancies constitute the major occupancy of a building and at least once each month on each shift in institutional and places of assembly occupancies where such occupancies constitute the major occupancy of a building, or where the occupancy load is such that the occupancy constitutes a place of assembly. During severe weather, fire drills may be postponed. A record of all fire drills shall be kept and persons in charge of such occupancies shall file written reports at least quarterly with the Bureau of Fire Prevention giving the time and date of each drill held. Such records shall be attested to by signature of the person or persons conducting said fire drills.

b. In educational occupancies fire drills shall include complete evacuation of all persons from the building. In institutional and places of assembly occupancies fire drills shall be conducted to familiarize operating personnel with their assigned positions of emergency duty; complete evacuation of occupants from the building, in institutional occupancies, at the time of the fire drill shall be required only where it is practicable and does not involve moving or disturbing persons under medical care. Complete evacuation of occupants from the building, in places of assembly occupancies, at the time of the fire drill shall not be required.

ARTICLE 10. MAINTENANCE OF EXIT WAYS, DOORS, Section

10.104, is hereby amended by adding subsection (f). All commercial buildings shall be equipped with a minimum of one exit door which when opened provides at least 6'8" of height and 28" of width of unobstructed opening. Such exit doors shall be of the swing type and shall swing in the direction of egress.

ARTICLE 13. DIVISION II, FIRE CONTROLS, add Section 13.209 to read as follows:

Section 13.209. FIRE LANES FOR PLANNED UNIT DEVELOPMENTS (ROW HOUSING).

Dead end fire lanes shall not exceed 150 feet.

Fire lanes in excess of 150 feet shall be designed in accordance with standard subdivision street designs, with an adequate turning radius, as required by the Las Vegas Fire Department.

EXCEPTION: Streets may be connected to hard surfaced 12 foot wide fire lanes designed to prevent fire equipment from being trapped during emergency conditions, allowing interconnected flow-through design.

All planned unit developments shall be approved by the Las Vegas Fire Department for fire equipment access prior to construction.

ARTICLE 13. DIVISION III, INSTALLATION AND MAINTENANCE OF FIRE PROTECTION SYSTEMS AND APPLIANCES, INSTALLATION, Section 13.301, is hereby amended by adding subsection (d).

(d) All fire hydrants shall be installed in accordance with uniform standard drawing, Public Works, construction Clark County Area. Drawing No. 56.09.

All fire mains shall conform to Las Vegas Valley Water District requirements in accordance with N.F.P.A. recommendations.

Fire hydrants in commercial areas shall be spaced not more than 300 feet apart.

Fire hydrants in residential planned unit developments (row housing), and planned unit condominium

apartment complexes shall be spaced not more than 300-500 feet, depending on the size, spacing and construction of the buildings.

Fire hydrants in residential areas shall be spaced not more than 500 feet apart.

NOTE: Because of large open spaces in planned unit developments, spacing may be erratic. Islands on major streets may require adjustments to spacing or additional fire hydrants.

All fire main and hydrant locations shall be approved by the Las Vegas Fire Department prior to installation.

NOTE: Two (2) copies of approved as-built plans shall be submitted to the Las Vegas Fire Department for I.S.O. insurance classification records.

Fire Department shall determine the required fire flow for fire protection based on I.S.O. grading recommendations.

ARTICLE 13. DIVISION III, INSTALLATION AND MAINTENANCE OF FIRE PROTECTION SYSTEMS AND APPLIANCES, add Section 13.315 to read as follows:

Section 13.315 (a) Exhaust ducts and hoods used for the purpose of exhausting vapors over ovens and ranges installed in Group A, B, C, D, E, F and H occupancies as defined in the Uniform Building Code, shall be equipped with an approved automatic fire extinguishing system. The requirements for Group H occupancies shall be excluded in apartment houses. Fire extinguishing equipment shall be installed and maintained in accordance with N.F.P.A. Pamphlet #96.

(b) Installations and alterations of systems required in Section 13.315(a) shall be installed only after a permit is obtained from the Fire Prevention Bureau and only by qualified personnel. Required permit shall not be issued until a detailed, cut away type, drawing of proposed installation or alteration is submitted for review and approved by the Fire Prevention Bureau.

(c) Notification, from an approved company or

from qualified personnel, in writing shall be forwarded to the Fire Prevention Bureau within ten (10) working days from date of inspection or servicing of systems required in Section 13.315(a) and shall indicate whether semi-annual or annual type inspection. Annual type inspection shall state type and temperature rating of fusible link(s) used for replacement.

(d) Manual pulls or manual actuation devices for systems required in Section 13.315(a) shall be located at a height of five (5) feet and shall be located away from the area being protected in a path of exit.

ARTICLE 13. DIVISION III, INSTALLATION AND MAINTENANCE OF FIRE PROTECTION SYSTEMS AND APPLIANCES, is hereby amended by adding Section 13.316. Any building, four or more stories in height [or] and where access for fire apparatus is unduly difficult, shall be equipped with an approved, fully automatic, sprinkler system throughout the building. Sprinkler systems shall be installed in accordance with N.F.P.A. Pamphlet #13.

ARTICLE 13. Add DIVISION IV, FIRE ALARM DEVICES, Section 13.401 to read as follows:

Section 13.401 (a) Any and all sprinkler systems or fire alarm systems installed within any buildings from the date of adoption of this ordinance, shall be connected to the fire alarm system of an approved Central Signal Office, or the fire alarm system of the City of Las Vegas.

(b) All sprinkler or fire alarm systems now in existence located on any property within two hundred (200) feet of the fire alarm system of the City of Las Vegas shall be connected within one (1) year of the adoption date of this ordinance.

ARTICLE 15. FLAMMABLE AND COMBUSTIBLE LIQUIDS, Division II, TANK STORAGE, BULK STORAGE, PART 2 (Underground: Outside of or Under Buildings), Section 15.210:

Underground Outside of or Under Buildings, Paragraph (c) Anchorage, shall be amended to read: All underground tanks for the storage of flammable liquids shall be anchored in place to prevent their floating or becoming dislodged, in the following manner:

(1) A concrete slab, reinforced with 6" x 6" #10 wire mesh or equal, shall be poured on the floor of the excavation of sufficient size and weight to equal or exceed the displacement of the tanks to be used. The size of the slab shall exceed in horizontal dimensions the size of the tank or tanks by one (1) foot in all directions.

(2) Straps of steel one-fourth inch by two inches (1/4" x 2") shall be used to anchor the tank or tanks to the concrete slab in the following manner:

(a) Straps may be continuous and placed under the reinforcement in the slab and be of sufficient length to completely encircle the tank with a minimum of one (1) foot overlap at the top of the tank.

(b) Straps can be provided with a one (1) foot "T" welded to one end, said "T" to be placed under the reinforcement in the concrete.

(c) A minimum of two (2) such straps to each tank shall be provided, and when in the opinion of the authority having jurisdiction that more straps are necessary due to the size of the tank, more shall be provided.

(d) The overlap of the straps shall be welded. Bolts or other means of fastening shall not be used.

(3) Tanks should be placed when the concrete is soft so that full bearing on the tank is obtained or a

cushion of blow sand shall be placed on the hardened concrete to accomplish the same. If a sand cushion is used it shall be as thin as possible to accomplish its purpose.

(4) Tanks shall be so placed that a minimum of one (1) foot of space is maintained between tanks.

(5) Back-filling of the excavation shall not proceed until approval has been given by the Fire Prevention Bureau. Back-fill shall be blow sand or other fine aggregate material.

ARTICLE 15. PART 4, Section 15.214, CORROSION PROTECTION, subsection 1, should be amended to delete the words "coating or" and made to read, use of protective wrappings.

ARTICLE 15. DIVISION III, PIPING, VALVES AND FITTINGS, Section 15.302, PROTECTION AGAINST CORROSION, shall be deleted and Appendix B of the 1973 U.F.C. shall apply.

ARTICLE 15. DIVISION VII, SERVICE STATIONS, Subtitle Storage and Handling, Section 15.703, paragraph (d) Dispensing, to be amended by adding: Those containers offered for sale within the City of Las Vegas which could be considered as a container for flammable liquids, but not approved under the above section, must be labeled by the owner or operator of the business as follows:

"WARNING - THIS CONTAINER IS NOT APPROVED FOR FLAMMABLE LIQUIDS WITHIN THE CITY OF LAS VEGAS"

ARTICLE 15. DIVISION VII, SERVICE STATIONS, Section 15.704(f) Special Type Dispensers, shall be amended by adding paragraphs 5 through 11 as follows:

5. All coin-operated and remote controlled preset type dispensing devices shall be equipped with an automatic reduction valve so that the rate of flow of Class 1 liquids will be reduced to not more than 1/4 of the normal flow during the last 1/4 gallon of the purchase.

6. Where a remote control preset type dispensing operation

is part of a business including other sales and service facilities, the attendant shall be required to remain in a position where he can supervise, control, and observe at all times while Class 1 liquids are being dispensed.

7. Voice Communication Control. A voice communication system such as but not limited to an intercom system, to allow direct voice communication at all times between the person dispensing gasoline and the attendant shall be required.

8. Electrical Interlock System. All dispensing devices shall be equipped with an electrical interlock system so designed that at the end of each purchase the electrical current supplying the dispensing device will automatically be shut off and will remain off until such times as the attendant, at his remote control location, reactivates the electrical current which powers the dispensing of the next purchase.

9. The dispensing area shall at all times be in clear view of the attendant and the placing or allowing of any obstacle to come between the dispensing area and the attendant control area shall be prohibited. Observation may be accomplished by use of strategically placed mirrors or closed circuit TV.

10. Hose nozzle valves used at self-service stations shall be of the approved automatic-closing type without a latch-open device. Existing latch-open devices shall be removed.

11. For purposes of this section, "attendant" shall mean a person who (a) has satisfactorily completed an approved course of instruction in the use of first-aid fire-fighting appliances; (b) has been instructed in emergency operating procedures such as the location of the emergency shut-off switch, gasoline wash down procedures, means of transmitting an alarm to the Fire Department; (c) is able-bodied and capable of

readily circulating about the premises without the use of wheeled appliances; (d) possesses a valid motor vehicle operator's license; and (e) is informed concerning ordinances, regulations or special requirements pertaining to fire safety in service stations. It shall be the duty of the owner or operator of the service station to see that all employees are trained and are familiar with the aforementioned regulations.

ARTICLE 15. DIVISION XI, TANK VEHICLES FOR FLAMMABLE AND COMBUSTIBLE LIQUIDS, is hereby amended by adding a new section to be entitled Section 15.1107, Service Vehicles, to read as follows:

(a) Permits. Service vehicles shall have a permit from the Fire Department. Permits shall be issued upon inspection of the service vehicle by the department. Permits will expire one year from date of issue and may be renewed upon a reinspection of the vehicle by the department. Proof of permit will be required on each service vehicle in the form of a non-ferrous metal tag. The proof of permit tag will be stamped with the initials L.V.F.D. and the assigned tag number on one side. The expiration date of the permit will be stamped on the reverse side. The proof of permit tag shall be attached to the service vehicle by means of a wire seal and shall be on the vehicle at all times. The proof of permit tag shall be affixed to the outside rear view mirror on the driver's side of the vehicle.

(b) Definition. Service vehicles shall mean a vehicle used for the purpose of carrying fuel, oil or grease to equipment used on construction, which ordinarily would not be serviced in service stations.

(c) Service vehicles shall be governed by the following:

1. An approved twenty-pound (20 lb.) dry

powder extinguisher shall be provided for each vehicle and shall be mounted on the vehicle in a readily accessible location.

2. Tanks on service vehicles used for transporting Class I, II or III flammable liquids shall be constructed of steel and shall not exceed one thousand two hundred fifty gallons (1,250 gals.). When such tanks exceed fifty gallons (50 gals.), they shall be equipped with baffles.

3. All flammable liquid tanks shall conform to Article 15 of this code.

4. When drums are used to house flammable liquids, they shall be anchored to the service vehicle with iron straps or chains of a suitable gauge. (Fiber rope shall not be used.)

5. All service vehicles transporting Class I, II or III flammable liquids shall carry markings to meet the requirements of Section 15.1102 of this code.

6. Oxygen tanks shall not be carried on the same service vehicle transporting petroleum products.

7. L.P.G. tanks carried on service vehicles shall meet the requirements of N.F.P.A. Pamphlet #58.

(d) Precautions against ignition shall meet the requirements of Sections 15.1104 and 15.1105 of this code.

ARTICLE 19, HAZARDOUS CHEMICALS, Section 19.103, General Requirements, subsection (f), add the following: Storage shall be maintained in such a manner that all stock is under control of a competent employee of the store at all times.

ARTICLE 20. LIQUEFIED PETROLEUM GASSES, is hereby repealed in its entirety and a pamphlet known as N.F.P.A. Pamphlet #58,

entitled "Storage and Handling of Liquid Petroleum Gasses" adopted under separate ordinance known as the Liquid Petroleum Gas Code.

ARTICLE 26. PLACES OF ASSEMBLY, Division I General, Section 26.102, Decorative Material. Subsection (a) is hereby amended by adding: decorative materials such as, but not limited to, floor coverings, wall coverings, drapes, curtains, and ordinary window shades.

Subsection (b) is hereby amended by adding: the Fire Department shall be provided with a separate certification of flame-proofing, with a fabric sample attached, for all decorative materials.

Section 26.117 is hereby added: Fire drills shall be conducted in accordance with Article I, Division III, Section 1.309, subsections (a) and (b) of this code.

ARTICLE 27. GENERAL PRECAUTIONS AGAINST FIRE, Division I, Incinerators and Open Burning, Section 27.101 shall be amended by adding paragraph (e) as follows: (e) Whenever a person receives a permit under this section, he must first have obtained a permit from the Air Pollution Control Board, with the exception of those exempt from air pollution control.

ARTICLE 27. Division II, COMBUSTIBLE AND FLAMMABLE MATERIALS, Section 27.202, Handling Readily Combustible Materials, is hereby amended by adding an additional paragraph to read as follows: All commercial businesses shall provide a trash enclosure for the purpose of housing trash cans. The trash enclosure shall be constructed of incombustible material and shall be of suitable size as to house the number of required trash cans.

Section 27.204, Flammable Decorative Materials is hereby amended by adding a paragraph to read as follows: Institutional occupancies shall be required to have floor covering of not less than Class A flame spread rating in any means of egress. Class B materials may be used in individual rooms of not more than four (4) persons capacity. (Schools shall be considered as public institutions.)

ARTICLE 27. Division IV, USE OF EQUIPMENT, APPLIANCES, DEVICES AND VACANT BUILDINGS, Section 27.403, Asphalt Kettles, shall be deleted and amended to read: The provisions of this Article shall apply to roofing kettles used for preheating tar, asphalt, pitch, or similar substances for roofs, streets, floors, pipes and similar objects.

A. Definitions. The following words, whenever used in this Article, shall be construed as defined in this Section.

Bottom-fired Kettle. Type of roofing kettle whereby the heat transfer is accomplished through the bottom of the kettle.

Burner Well. That portion of the submersible tube that contains the burner.

Burner Well Front Wall. That portion of the burner well through which the center tube is attached.

Burner Tube. That portion of submersible tube assembly housing the initial flame.

Door. That portion of the roofing kettle that provides for access to the kettle.

Fire Box. That portion of a bottom-fired roofing kettle that communicates with the flame cavity, except the kettle or the top.

Fire Box Door. The door of the fire box which protects the burner well from exposure.

Flue Sheet. That portion of the submersible tube assembly forming a portion of the top and and through which the burner well and riser flue extend.

Kettle. That portion of a roofing kettle which contains the asphalt, pitch or similar substance while the same is being heated.

Latch. The locking device for securing the door in the closed position.

Manifold Tube. That portion of the submersible

tube assembly connecting the return flues to the burner tube.

Return Tube. That portion of a submersible tube assembly other than the center flue or manifold roughly paralleling the center tube.

Roofing Tanker Vehicle. Any vehicle used to transport preheated tar, asphalt, pitch, or similar substances from a supply area to a delivery point that requires no manual loading of the material in solid form at any time.

All portions of Section 27.403 shall apply to Roofing Tanker Vehicles where applicable.

Slop Trough. That portion of the kettle when applied with the door shall make the kettle slop proof when the kettle is in transit.

Top. That portion of the roofing kettle that forms the top of the kettle, except the door.

Submersible Tube. The heat transfer unit whereby the flame is contained entirely within the unit.

Semi-Tube. Type of kettle whereby the heat transfer is accomplished by means of a tube entirely through the kettle.

B. General Provisions.

a. Roofing kettles shall not be placed within fifteen (15) feet of any openings in any occupied building except on a public street.

b. Roofing kettles shall not be placed in such a location as to block exits, means of egress, gates, roadways or entrances.

c. In institutions, schools and assembly occupancies, when buildings are occupied, the roofing kettles shall be enclosed by a substantial barrier. The barrier shall be at least twenty-five (25) feet away from the kettle. The barrier shall clearly indicate that the enclosed area is restricted to use by authorized persons only.

d. A responsible person shall be in the immediate vicinity of Roofing Tanker Vehicles while the burners are operating and at all times while roofing kettles are being operated.

e. Suitable supports shall be provided for all piping at not more than intervals of twelve (12) feet.

f. Roofing kettles and all integral working parts, valves, safety relief devices, burners, pressure tanks and slop troughs shall be in good working condition and shall be maintained free of excessive residue.

g. No person shall maintain an open flame in a roofing kettle during transportation thereof or while same is in any public garage or premises where flammable liquids are dispensed. The tar pitch shall not exceed 300° F. while the kettle is being transported.

h. The tar kettle will be equipped with a thermometer to register the temperature of the material within the kettle at all times. Tar and tar pitch asphalt shall not be heated to exceed its flash point.

i. Ground kettles shall not be fired or used while mounted on the bed of trucks, except if the truck body is all metal construction, and the kettle is securely attached to the bed by adequate bolts or by welding of the legs to the body of the truck. Pitch kettles shall not be permitted for use while mounted on the bed of the truck.

j. Before any roofing kettle is used on the roof of any building, the Fire Prevention Bureau must be notified and a special permit secured to do so. The following minimum equipment must be on hand before burners are ignited:

(1) At least one (1) fire extinguisher

having 16-B, C classification;

(2) At least two (2) sacks of dry sand.

k. There shall be at least one (1) approved fire extinguisher of a 16-B, C classification or larger, readily accessible and within thirty (30) feet horizontal travel of every roofing kettle during the period said roofing kettle is in use.

There shall also be at least one (1) approved fire extinguisher of a 16-B, C classification or larger on the roof or area where heated asphalt, tar or pitch is being applied.

l. All kettle doors and draw off cock handles must be closed, latched and secured adequately while kettle is in transit.

m. All trailers used for transporting kettles or trailer units must be equipped with an adequate safety chain and draw pin when in transit. Both must be attached firmly to the towing vehicle and safetied by a large diameter bolt, with double nuts counter-locked or by a heavy guage wire safety pin or device to prevent the kettle or trailer from becoming detached from the towing vehicle while in transit.

C. Permit Required.

A permit shall be required for each Roofing Tanker Vehicle or Roofing Kettle operated by any company, corporation, co-partner or owner/operator performing roofing operations within the Las Vegas City Limits.

a. Before such permit is issued, it is the responsibility of the owner to have the Roofing Tanker Vehicle or Roofing Kettle inspected by the Fire Prevention Bureau of the City of Las Vegas.

b. The Fire Prevention Bureau may affix a numbered, metallic tag or medallion to each unit

denoting a permit has been issued and is on file.

D. Materials.

All kettles shall be constructed of mild steel of at least SAE 10-10 quality.

E. Construction.

a. Bottom-fired roofing kettles shall be constructed of materials having a thickness of not less than those set forth in Table I.

b. Semi-tube type roofing kettles shall be constructed of materials having a thickness of not less than those set forth in Table I.

TABLE I

BOTTOM-FIRED AND SEMI-TUBE ROOFING KETTLES

	Capacity in Gallons	
	0 to 84	Over 84
Fire Box	12	10
Kettle	10	3/16 in
Top	14	14
Slop Trough	10	10

c. Submersible tube type roofing kettles shall be constructed of materials having a thickness of not less than those set forth in Table II.

TABLE II

SUBMERSIBLE TUBE ROOFING KETTLES

	CAPACITY IN GALLONS				
	0 to 80	80 to 180	180 to 250	250 to 350	350 to 500
Kettle	16	14	12	12	10
Flue Sheet	10	10	10	10	10
Burner Tube	10	10	10	10	10
Manifold Tube	10	10	10	10	10
Return Tube	12	12	12	12	10
Burner Well	12	12	12	12	12
Front Wall	10	10	10	10	10
Fire Box Door	16	16	16	16	16
Slop Trough	14	14	14	14	14
Insulation Thickness	2 in.	2 in.	2 in.	2 in.	2 in.

d. Tops for roofing kettles shall be constructed of not less than 14 guage steel, shall be

flanged on all sides, clamped on and returned to the main body of the kettle. Tops shall be mounted on the kettle in such a manner so that the kettle shall be leakproof while in transit.

e. Roofing kettles shall be of welded construction throughout.

(1) Anchor Bolts. There shall be at least four (4) bolts or other suitable anchor tie-down devices capable of securing the tube assembly to the kettle in a workmanlike manner.

(2) Gasket. There shall be a suitable gasket between the tube or kettle to prevent heated material from slopping out when the kettle is moved.

(3) Latch. All kettles shall be equipped with a suitable latch capable of effectively holding the door closed.

(4) Slop Tough. All portable kettles shall be equipped with a slop trough.

(5) Chassis. The chassis of all portable roofing kettles shall be substantially constructed and equipped with springs, and steel wheels and, in addition, shall conform to any applicable requirements of the Vehicle Code of the State of Nevada including but not limited to such things as lights, fenders and attachments for towing.

(6) Approval Plate. All roofing kettles must be equipped with non-ferrous plate bearing the manufacturer's name and the model number.

(7) Hose. The hose shall be suitable for use with the commodity with which it is used and shall have a burst pressure of at least one thousand two hundred fifty pounds

(1,250 lbs.) or at least five (5) times the working pressure of the vessel to which it is attached but in no case shall the bursting pressure be less than one thousand two hundred fifty pounds (1,250 lbs.).

(8) Draw-off Cock. Draw-off cock shall be either

(a) 150 lb. ASA rating plug-type valve with handle permanently attached, or

(b) Internal closing valve which, if sheared off, will fail safe.

(9) Fuel Containers.

(a) L.P.G. containers shall conform to the "Liquefied Petroleum Gas" Code of the City of Las Vegas and carry a D.O.T. stamp.

(b) If the container is a pressurized vessel using kerosene, it shall be the responsibility of the owner to supply test data on the pressurized tank showing that it has been manufactured to be safe or carry an I.C.C. stamp (D.O.T.).

(c) Type of fuel. L.P.G. fuel may be used provided all safety measures are used. Kerosene may be used, but flammable liquids carrying a flash point lower than kerosene shall not be used.

(10) Location of Fuel Containers. When attached to the kettle, fuel containers shall be protected from flame impingement. Baffles of steel or the burner well may be considered as meeting this requirement, provided an air space of at least two (2) inches is provided between the fuel tank and the baffle. The baffle must extend at least four (4) inches

beyond the shell of the tank.

(11) Support Leg. Support leg shall be constructed of at least one and one-fourth (1-1/4) inch standard steel pipe and shall have a steel foot or pad of at least four inches by four inches by one-fourth inch (4" x 4" x 1/4"). The pin or adjustment rod shall be at least one-fourth (1/4) inch steel. Support leg shall be constructed in a workmanlike manner and shall be adequate to support the kettle while standing.

(12) Hinge. All roofing kettles must have doors permanently attached. Doors shall be installed in a workmanlike manner and shall be provided with handles to provide opening without the operator having to stand in front of same.

(13) Door Construction. Flat doors - 10 gauge. Doors or lids rolled or arched at least an average of four (4) inches to the foot or otherwise reinforced as approved by the Chief of the Fire Department. Any dimension up to, but not more than:

2'0" to 4'0"	=	14 Gauge
4'0" to 5'0"	=	12 Gauge
5' and over	=	10 Gauge

(14) Piping. All piping installed for pumping heated material to the roof shall be installed in a workmanlike manner.

(a) Piping used to transfer heated material shall be at least Schedule No. 40 or equal in strength to that afforded in 1-3/4 inch O.D., .065 inch wall thickness, mechanical weld steel tubing.

(b) Flexible steel piping shall be limited to those connections which are immediately adjacent to the pump or

kettle. No single length of flexible piping shall exceed six (6) feet in length.

(c) Flexible steel piping shall not be used on the vertical extension of piping systems.

ARTICLE 31. WELDING AND CUTTING, CALCIUM CARBIDE AND ACETYLENE, Section 31.107, General Safety Rules for Welding and Cutting, shall be amended by adding subsection (p) reading as follows: Welding shall include the process of joining two (2) pieces of metal together, whether by air, acetylene or soldering.

ARTICLE 33. Division III, HELISTOPS, shall be amended by adding Section 33.306 entitled Fire Alarms, as follows: Communication Facilities shall be provided from the roof area to allow notification of the Fire Department. A pull station shall be installed and connected to an approved central signal office or the fire alarm system of the City of Las Vegas.

SECTION 4. Any person, firm, or corporation violating any of the provisions of this ordinance shall, upon conviction thereof, be punished by a fine of not more than $500.00 and/or imprisonment in the city jail for not more than six (6) months, or any combination of such fine and imprisonment. Every day of such violation shall constitute a separate offense.

SECTION 5. All ordinances or parts of ordinances, sections, subsections, phrases, sentences, clauses or paragraphs contained in the Municipal Code of the City of Las Vegas, Nevada, 1960 Edition, in conflict herewith, are hereby repealed.

SECTION 6. If any section, paragraph, sentence, phrase, term, word or connotation of this ordinance, or portion thereof, is for any reason held invalid, inapplicable, or unconstitutional by any Court of competent jurisdiction, such holding shall not invalidate the remaining

portions of this ordinance.

PASSED, ADOPTED AND APPROVED this 12th day of December, 1973.

APPROVED:

Oran K. Gragson
ORAN K. GRAGSON, MAYOR

ATTEST:

Edwina M. Cole
Edwina M. Cole, City Clerk

The above and foregoing ordinance was first proposed and read by title to the Board of Commissioners on the 21st day of November, 1973, and referred to the following committee composed of Commissioners Morelli and Franklin for recommendation; thereafter the said committee reported favorably on said ordinance on the 12th day of December, 1973, which was a regular meeting of said Board; that at said regular meeting the proposed ordinance was read by title to the Board of Commissioners as ~~first introduced~~ amended and adopted by the following vote:

VOTING "AYE": Commissioners Christensen, Lurie, Franklin, Morelli and Mayor Gragson

VOTING "NAY": None ABSENT: None

APPROVED:

Oran K. Gragson
ORAN K. GRAGSON, MAYOR

ATTEST:

Edwina M. Cole
Edwina M. Cole, City Clerk

REGULATION NO. 1

LAS VEGAS FIRE DEPARTMENT

PERSUANT TO SECTION 1.202 OF THE 1973 UNIFORM FIRE CODE TITLED "RULES AND REGULATIONS", REGULATION NUMBER 1, "FIRE SAFETY PRECAUTIONS FOR HIGH RISE BUILDINGS, ELEVATORS AND STAIRSHAFTS" - GOVERNING LOCK BOX AND KEYS FOR FIRE DEPARTMENT USE IN - LOCKING OUT ELEVATORS DURING EMERGENCY CONDITIONS AND STAIRSHAFT KEYS - THREE (3) CERTIFIED COPIES OF THIS REGULATION SIGNED BY THE CHIEF AND THE ADMINISTRATOR SHALL BE ON FILE IN THE LAS VEGAS CITY CLERK'S OFFICE. THE REGULATION SHALL READ AS FOLLOWS: AND ALL BUILDINGS FALLING UNDER THE SCOPE OF THIS REGULATION SHALL HAVE THREE MONTHS TO COMPLY WITH THE REQUIREMENTS OF THE REGULATION FROM DATE OF PASSAGE.

SCOPE - THIS REGULATION SHALL APPLY TO ALL BUILDINGS, WITH ELEVATORS, FOUR (4) OR MORE STORIES IN HEIGHT.

ALL ELEVATORS SHALL BE CAPABLE OF MANUAL CONTROL BY THE FIRE DEPARTMENT, BY USE OF A LOCK OUT DEVICE. ALL ELEVATORS SHALL HAVE PROVIDED ADJACENT TO THE ELEVATOR IN THE LOBBY OR GROUND FLOOR, AN APPROVED LOCK BOX WITH A STANDARD KEY FOR FIRE DEPARTMENT USE, LOCK BOXES SHALL CONTAIN THE KEY TO THE ELEVATOR CONTROL PANELS AND THE KEY TO THE STAIRSHAFT DOORS. EACH KEY OR KEYS SHALL BE CLEARLY MARKED WITH A METALIC TAG.

REGULATION NUMBER 1 SHALL BECOME EFFECTIVE WHEN THREE (3) CERTIFIED COPIES OF THIS REGULATION, SIGNED BY THE FIRE CHIEF AND THE CITY MANAGER (ADMINISTRATOR) OF THE CITY OF LAS VEGAS, ARE ON FILE IN THE LAS VEGAS CITY CLERK'S OFFICE.

ANY PERSON, FIRM, OR CORPORATION VIOLATING OR FAILING TO COMPLY WITH THIS REGULATION SHALL, UPON CONVICTION THEREOF, BE PUNISHED BY A FINE OF NOT MORE THAN $500.00 AND/OR IMPRISONMENT IN THE CITY JAIL FOR NOT MORE THAN SIX (6) MONTHS, OR ANY COMBINATION OF SUCH FINE AND IMPRISONMENT. EVERY DAY OF SUCH VIOLATION SHALL CONSTITUTE A SEPARATE OFFENSE.

January 22, 1975
DATE

A. R. TRELEASE, CITY MANAGER (ADMINISTRATOR)

J. D. MILLER, FIRE CHIEF

WITNESS:

EDWINA M. COLE, CITY CLERK

FIRE DEPARTMENT REGULATION NUMBER 2
LAS VEGAS FIRE DEPARTMENT

This regulation, entitled "Installation of Fire Sprinkler Systems in Dwellings and Mobile Homes", is written persuant to section 1.202 of the 1973 Uniform Fire Code. Three (3) certified copies of this regulation, signed by the Chief of the Fire Department and the City Administrator, shall be on file in the City of Las Vegas City Clerk's Office. This regulation shall be effective on the date of signature.

CHAPTER 1 - GENERAL INFORMATION

1-1 : Scope:

1-1.1 : This regulation applies specifically to the design and installation of automatic fire sprinkler systems in one and two family dwellings and mobile homes.

1-2 : Definitions:

1-2.1 : Dwelling - Means any building which contains one or two "Dwelling Units" intended to be used for human occupancy and living purposes.

1-2.2 : Dwelling Unit - Means a single unit which has provisions for living, sleeping, eating, cooking and sanitation.

1-2.3 : Fire Marshal - Means the Fire Marshal of the City of Las Vegas or his duly authorized representative.

1-2.4 : Sprinkler System - Means an integrated system of piping connected to a water supply, including a controlling valve and a device for actuating an alarm when the system operates, with listed sprinklers which will automatically initiate water discharge over a fire area and which has been approved prior to installation by the Fire Marshal of the City of Las Vegas.

1-2.5 : Pre-engineered Systems - Means packaged systems of components designed to be installed according to pre-tested limitations as listed by a nationally recognized testing laboratory or as determined by the Fire Marshal.

1-2.6 : Wet System - Means a system employing automatic sprinklers attached to a piping system containing water and connected to a water supply so that water discharges immediately from sprinklers opened by a fire.

1-2.7 : Dry System - Means a system employing automatic sprinklers attached to a piping system containing air or inert gas under atmospheric or higher pressures. Loss of pressure from the opening of a sprinkler or detection of a fire condition causes the release of water into the piping system and out the opened sprinkler.

1-2.8 : Antifreeze System - Means a system employing automatic sprinklers attached to a piping system containing an antifreeze solution and connected to a water supply. The antifreeze solution, followed by water discharges immediately from sprinklers opened by a fire.

1-3 : Maintenance:

1-3.1 : Any sprinkler system installed under this regulation shall be maintained and checked yearly to insure proper working order.

1-4 : Design and Installation:

1-4.1 : Devices and Materials.

1-4.1.1 : Only new, listed sprinklers shall be employed in the installation of sprinkler systems.

1-4.1.2 : Only materials and devices approved by the Fire Marshal or a testing laboratory recognized by the Fire Marshal shall be used in sprinkler systems.

1-4.1.3 : Pre-engineered sprinkler systems shall be installed in accordance with the listing assigned to the system by a testing laboratory recognized by the Fire Marshal.

1-4.1.4 : Pre-engineered systems, with approval from the Fire Marshal, may incorporate special materials, devices, method of installation or design.

1-4.1.5 : All systems shall be tested for leakage for a minimum of one hour at a pressure not less than twenty percent (20%) above normal system operating water pressure.

1-5 : Working Plans:

1-5.1 : Working plans shall be submitted to the Fire Marshal for approval before any equipment is installed or remodeled.

1-5.2 : Working plans shall contain the following:

a. Name of company installing the system.

b. General location and exact address of job location.

c. Rough plot plan showing water supply and property lines in relation to the installation site.

d. Water pressure at the installation site.

e. Rough floor plan with system coverage indication.

f. Any additional information required by the Fire Marshal.

CHAPTER 2
WATER SUPPLY, VALVES AND PRESSURE GAGES

2-1 : Water Supply:

2-1.1 : Water supply connections direct from city water mains or combination domestic - automatic sprinkler connections shall be an acceptable water supply source.

2-1.2 : When sprinkler systems are directly connected to a potable water supply, a check valve approved by the Fire Marshal and the Las Vegas Valley Water District shall be installed on the discharge side of the control valve.

2-1.3 : Meters are not recommended for use in sprinkler systems.

2-1.4 : An elevated tank of at least two hundred and fifty (250) gallons capacity shall be an acceptable water supply source.

2-1.5 : A water source and automatically operated pump that will supply a minimum of twenty-five (25) G.P.M. flowing shall be an acceptable water supply source.

2-2 : Valve and Drains:

2-2.1 : Each sprinkler system shall have a water control valve located immediately on the discharge side of its water supply.

2-2.2 : Each sprinkler system shall have a one-half inch or larger drain connection with valve on the system side of the control valve.

2-2.3 : Additional drains shall be installed for each trapped portion of a dry system which is subject to freezing temperature.

2-3 : Pressure Gages:

2-3.1 : A pressure gage shall be installed on the system side of the control valve on wet and antifreeze systems.

2-3.2 : A pressure gage shall be installed to indicate water supply pressure and a second gage shall be installed to indicate air or inert gas pressure on dry systems.

CHAPTER 3 - SYSTEM DESIGN

3-1 : Design Criteria:

3-1.1 : Application Rate:

3-1.1.1 : The minimum design density shall be 0.10 gallons per minute per square foot.

3-1.2 : Water Demand:

3-1.2.1 : The water demand for the system shall be twenty-five (25) G.P.M. or the area of the largest room in square feet multiplied by 0.10, whichever is less.

3-1.3 : Sprinkler Coverage:

3-1.3.1 : Standard sprinklers mounted at the ceiling shall be spaced so that the maximum area protected by a single sprinkler does not exceed 256 square feet in conventionally constructed dwelling units and 100 square feet in mobile homes.

3-1.3.2 : The maximum distance between ceiling mounted sprinklers shall not exceed sixteen (16) feet on or between pipe lines and the maximum distance to a wall or partition shall not exceed eight (8) feet.

3-1.3.3 : Sidewall sprinklers shall be spaced so that the maximum area protected does not exceed 256 square feet in conventionally constructed dwelling units and 100 square feet in mobile homes.

3-1.3.4 : For sidewall sprinklers, the maximum distance between sprinklers mounted along the same wall shall not exceed sixteen (16) feet. The maximum distance to an adjacent corner shall not exceed eight (8) feet. The maximum projected throw shall not exceed sixteen (16) feet in any case.

3-1.3.5 : Special sprinklers may be installed with larger protection areas or distances between sprinklers than those specified in 3-1.3.1 through 3-1.3.4 of this regulation when such installations are made in accordance with the listings of a testing laboratory recognized by the Fire Marshal or with approval of the Fire Marshal.

3-1.4 : System Types:

3-1.4.1 : A wet pipe system shall be used when all piping is installed in areas not subject to freezing.

3-1.4.2 : Where system piping is located in unheated areas subject to freezing, dry or antifreeze system types shall be used.

3-1.4.2.1: When used, antifreeze systems shall be in conformity with State of Nevada or Clark County District Health Department Regulations. Glycerine, diethylene glycol, ethylene glycol, propylene glycol and similar materials shall not be used in antifreeze solutions in water supply tanks.

3-1.5 : Piping:

3-1.5.1 : Pipe or tube used in sprinkler systems shall be of the materials in Table 3-1.5.1 or in accordance with 3-1.5.2. through 3-1.5.7.

The chemical properties, physical properties and dimensions of the materials listed in Table 3-1.5.1 shall be at least equivalent to the standards cited in the Table and designed to withstand a working pressure of not less than 175 P.S.I.

Table 3-1.5.1

Materials and Dimensions	Standard
Ferrous Piping (Welded and Seamless)	
Welded and Seamless Steel Pipe for Ordinary Uses, Specification for Black and Hot-Dipped Zinc Coated (Galvanized)	ASTM A120-72a
Specification for Welded and Seamless Steel Pipe	ASTM A53-72a
Wrought-Steel Pipe	ASTM B3610-70a
Copper Tube (Drawn, Seamless)	
Specification for Seamless Copper Tube	ASTM B75-72 or
Specification for Seamless Copper Water Tube	ASTM B88-72
Specification for General Requirements for Wrought Seamless Copper and Copper-Alloy Tube	ASTM B251-72
Brazing Filler Metal (Classification BCuP-3 or BCuP-4)	AWS A5.8-69
Solder Metal, 95-5 (Tin-Antimony-Grade 95TA)	ASTM B32-70

3-1.5.2 : Standard wall schedule 40 pipe is permitted.

3-1.5.3 : Copper tube shall have a wall thickness of Type K, L or M.

3-1.5.4 : Other types of pipe or tube may be used, but only those listed for this purpose by a testing laboratory recognized by the Fire Marshal or those approved for this use by the Fire Marshal.

3-1.5.5 : Whenever the word pipe is used in this regulation, it shall also mean tube.

3-1.5.6 : Thin-wall steel pipe with a wall thickness of 0.120 inches may be joined with mechanical groove couplings approved for service with grooves rolled on the pipe by an approved groove rolling machine.

3-1.5.7 : Fittings used in sprinkler systems shall be of the materials listed in Table 3-1.5.7 or in accordance with 3-1.5.10. The chemical properties, physical properties and dimensions of the materials listed in Table 3-1.5.7 shall be at least equivalent to the standards cited in the Table. Fittings used in sprinkler systems shall be designed to withstand the working pressures involved, but not less than 175 P.S.I. cold water pressure.

Table 3-1.5.7

Material and Dimensions	Standard
Cast Iron	
Cast Iron Screwed Fittings 125 and 250 lb.	ANSI B16.4-1971
Cast Iron Pipe Flanges and Flanged Fittings	ANSI B16.1-1967
Malleable Iron	
Malleable Iron Screwed Fittings, 150 and 300 lb.	ANSI B16.3-1971
Steel	
Factory-Made Wrought Steel Buttweld Fittings	ANSI B16.9-1961
Buttwelding Ends for Pipe, Valves, Flanges and Fittings	ANSI B16.25-1972
Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and Elevated Temperatures	ASTM A234-73
Steel Pipe Flanges and Flanged Fittings	ANSI B16.5-1973
Forged Steel Fittings, Socket Welded and Threaded	ANSI B16.11-1973
Copper	
Wrought Copper and Bronze Solder-Joint Pressure Fittings	ANSI B16.22-1973
Cast Brass Solder Joint Fittings	ANSI B16.18-1972

3-1.5.8 : Joints for the connection of copper tube shall be brazed except as provided for in 3-1.5.9.

3-1.5.9 : Soldered joints may be used for wet-pipe copper tube systems.

3-1.5.10: Other types of fittings may be used, but only those listed for this purpose by a testing laboratory recognized by the Fire Marshal or those approved for this use by the Fire Marshal.

3-1.5.11: Piping shall be sized in accordance with 3-1.5.11.1 through 3-1.5.11.2 unless piping has been hydraulically calculated to achieve the design density specified in 3-1.1.1. When piping is sized hydraulically, calculations shall be made in accordance with the methods described in N.F.P.A. Standard number 13. Minimum pipe size shall be 3/4 inch.

3-1.5.11.1:To size piping for systems connected to a city water supply and fitted with one-half (1/2) inch orifice sprinklers, the following approximate method is acceptable.

(a) Determine water pressure in the street.

(b) Arbitrarily select pipe sizes.

(c) Deduct meter losses if any.

(d) Deduct loss for elevation (building height in feet X 0.434= P.S.I.).

(e) Deduct losses from street to control valve by multiplying the factor from Table 3-1.5.11.1(a) by the total length of pipe in feet.

Table 3-1.5.11.1(a)

Design Factors (Psi/Ft) with 25 Gpm Flow		
Pipe Size, Inches	Steel (C = 120)	Copper (C = 140)
¾	0.64	0.52
1	0.20	0.14
1¼	0.05	0.05
1½	0.02	0.02
2	0.008	0.004

(f) Deduct losses for piping within the building by multiplying the factor from Table 3-1.5.11.1 (a) by the total length in feet of each size of pipe between the control valve and the farthest sprinkler.

(g) Deduct valve and fitting losses. Count the valves and fittings from the control valve to the farthest sprinkler. Determine the equivalent length for each valve and fitting as shown in Table 3-1.5.11.1(b) and add these values to obtain the total equivalent length for each pipe size. Multiply the equivalent length for each size by the factor from Table 3-1.5.11.1(a) and total these values.

(h) In multistory or multilevel buildings, steps (a) through (f) must be repeated to size piping for each floor.

(i) If the remaining pressure is less than 20 P.S.I., pipe or meter size must be increased. If this pressure is substantially greater, it may be possible to decrease piping or meter size.

(j) The remaining piping shall be sized the same as the piping to the farthest sprinkler unless smaller sizes are justified by calculations and approved by the Fire Marshal.

3-1.5.11.2: To size piping for systems with an elevated tank, pump or pump-tank combination, determine the pressure at the water supply outlet and proceed through steps (b), (d), (f), (g), (h), (i) and (j) of 3-1.5.11.1.

Table 3-1.5.11.1(b)
Equivalent Length of Pipe in Feet
For Fittings and Valves

Fitting / Valve Diameter Inches	Elbows			Tees		Valves					
	45 Degrees	90 Degrees	Long Radius	Flow Thru Branch	Flow Thru Run	Gate	Angle	Globe	Globe "Y" Pattern	Cocks	Check
¾	1	2	1	4	1	1	10	21	11	3	3
1	1	3	2	5	2	1	12	28	15	4	4
1¼	2	3	2	6	2	2	15	35	18	5	5
1½	2	4	3	8	3	2	18	43	22	6	6
2	3	5	3	10	3	2	24	57	28	7	8

Based on Crane Technical Paper No. 410.

Table 3-1.5.11.1(c)
Pressure Drop in Meters

Meter Size, (Inches)	Pressure Loss* at 25 gpm (psi)
⅝	28.0
¾	10.0
1	3.6
1½	1.2
2	Less than 1.0
3	Negligible

*From Appendix B — Chart 1, National Standard Plumbing Code, National Association of Plumbing-Heating-Cooling Contractors, 1973 Edition, Page B-19.

3-1.5.12: Piping configurations may be looped, gridded, straight run, or combinations thereof.

3-2 : Piping Support:

3-2.1 : Piping shall be supported from structural members of adequate size to support said piping. Hanging methods shall be comparable to those used in the most recently adopted Uniform Plumbing Code in the City of Las Vegas.

3-2.2 : Piping laid on open joists or rafters shall be strapped or secured in a manner to preclude lateral movement.

3-3 : Sprinklers:

3-3.1 : This regulation permits the use of ordinary (135° - 170°F) and intermediate (175° - 225°F) temperature rated sprinklers.

3-3.2 : Intermediate heads shall be used in attics, furnace rooms and elsewhere where normal ambient air temperatures exceed 100°F. Ordinary temperature heads shall be used in all other areas.

3-3.3 : Sprinkler heads shall have the same orifice size in any single building unless the system is hydraulically calculated and approved by the Fire Marshal.

3-3.4 : Location of Sprinklers:

3-3.4.1 : Sprinklers shall be installed in all areas.

Exception: Sprinklers may be omitted from some areas upon written approval of the Fire Marshal.

3-4 : Alarms:

3-4.1 : Waterflow Alarms:

3-4.1.1 : Sprinkler systems shall be provided with a waterflow detecting device approved by the Fire Marshal and arranged to sound an alarm which will be audible in all living areas over background noise levels with all intervening doors closed. The alarm shall be designed to function even if there is an interruption of normal electrical service to the dwelling unit.

CHAPTER 4
ADDITIONAL REQUIREMENTS AND EXCEPTIONS

4-1 : When Required:

4-1.1 : The Fire Marshal shall have the power to require additional plans, documentation of testing data, engineering specifications and/or equipment when in his judgement it is necessary to provide a system to meet the provisions of this regulation.

4-2 : Exception:

4-2.1 : Sprinkler systems installed in dwellings and mobile homes shall not be required to be connected to a central signal office or the City of Las Vegas fire alarm system.

Aug. 19, 1975
DATE

CITY MANAGER

FIRE CHIEF

12292

RECEIVED
AUG 19 9 09 AM '75
CITY CLERK

REGULATION NO. 1

LAS VEGAS FIRE DEPARTMENT

PERSUANT TO SECTION 1.202 OF THE 1973 UNIFORM FIRE CODE TITLED "RULES AND REGULATIONS", REGULATION NUMBER 1, "FIRE SAFETY PRECAUTIONS FOR HIGH RISE BUILDINGS, ELEVATORS AND STAIRSHAFTS" - GOVERNING LOCK BOX AND KEYS FOR FIRE DEPARTMENT USE IN - LOCKING OUT ELEVATORS DURING EMERGENCY CONDITIONS AND STAIRSHAFT KEYS - THREE (3) CERTIFIED COPIES OF THIS REGULATION SIGNED BY THE CHIEF AND THE ADMINISTRATOR SHALL BE ON FILE IN THE LAS VEGAS CITY CLERK'S OFFICE. THE REGULATION SHALL READ AS FOLLOWS: AND ALL BUILDINGS FALLING UNDER THE SCOPE OF THIS REGULATION SHALL HAVE THREE MONTHS TO COMPLY WITH THE REQUIREMENTS OF THE REGULATION FROM DATE OF PASSAGE.

SCOPE - THIS REGULATION SHALL APPLY TO ALL BUILDINGS, WITH ELEVATORS, FOUR (4) OR MORE STORIES IN HEIGHT.

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REGULATION NUMBER 1 SHALL BECOME EFFECTIVE WHEN THREE (3) CERTIFIED COPIES OF THIS REGULATION, SIGNED BY THE FIRE CHIEF AND THE CITY MANAGER (ADMINISTRATOR) OF THE CITY OF LAS VEGAS, ARE ON FILE IN THE LAS VEGAS CITY CLERK'S OFFICE.

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January 22, 1975
DATE

A. R. TRELEASE, CITY MANAGER (ADMINISTRATOR)

J. D. MILLER, FIRE CHIEF

WITNESS:

EDWINA M. COLE, CITY CLERK

FIRE DEPARTMENT REGULATION NUMBER 2
LAS VEGAS FIRE DEPARTMENT

This regulation, entitled "Installation of Fire Sprinkler Systems in Dwellings and Mobile Homes", is written persuant to section 1.202 of the 1973 Uniform Fire Code. Three (3) certified copies of this regulation, signed by the Chief of the Fire Department and the City Administrator, shall be on file in the City of Las Vegas City Clerk's Office. This regulation shall be effective on the date of signature.

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1-1.1 : This regulation applies specifically to the design and installation of automatic fire sprinkler systems in one and two family dwellings and mobile homes.

1-2 : Definitions:

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1-4.1 : Devices and Materials.

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a. Name of company installing the system.

b. General location and exact address of job location.

c. Rough plot plan showing water supply and property lines in relation to the installation site.

d. Water pressure at the installation site.

e. Rough floor plan with system coverage indication.

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3-1.5 : Piping:

3-1.5.1 : Pipe or tube used in sprinkler systems shall be of the materials in Table 3-1.5.1 or in accordance with 3-1.5.2. through 3-1.5.7.

The chemical properties, physical properties and dimensions of the materials listed in Table 3-1.5.1 shall be at least equivalent to the standards cited in the Table and designed to withstand a working pressure of not less than 175 P.S.I.

Table 3-1.5.1

Materials and Dimensions	Standard
Ferrous Piping (Welded and Seamless)	
Welded and Seamless Steel Pipe for Ordinary Uses, Specification for Black and Hot-Dipped Zinc Coated (Galvanized)	ASTM A120-72a
Specification for Welded and Seamless Steel Pipe	ASTM A53-72a
Wrought-Steel Pipe	ASTM B3610-70a
Copper Tube (Drawn, Seamless)	
Specification for Seamless Copper Tube	ASTM B75-72 or
Specification for Seamless Copper Water Tube	ASTM B88-72
Specification for General Requirements for Wrought Seamless Copper and Copper-Alloy Tube	ASTM B251-72
Brazing Filler Metal (Classification BCuP-3 or BCuP-4)	AWS A5.8-69
Solder Metal, 95-5 (Tin-Antimony-Grade 95TA)	ASTM B32-70

3-1.5.2 : Standard wall schedule 40 pipe is permitted.

3-1.5.3 : Copper tube shall have a wall thickness of Type K, L or M.

3-1.5.4 : Other types of pipe or tube may be used, but only those listed for this purpose by a testing laboratory recognized by the Fire Marshal or those approved for this use by the Fire Marshal.

3-1.5.5 : Whenever the word pipe is used in this regulation, it shall also mean tube.

3-1.5.6 : Thin-wall steel pipe with a wall thickness of 0.120 inches may be joined with mechanical groove couplings approved for service with grooves rolled on the pipe by an approved groove rolling machine.

3-1.5.7 : Fittings used in sprinkler systems shall be of the materials listed in Table 3-1.5.7 or in accordance with 3-1.5.10. The chemical properties, physical properties and dimensions of the materials listed in Table 3-1.5.7 shall be at least equivalent to the standards cited in the Table. Fittings used in sprinkler systems shall be designed to withstand the working pressures involved, but not less than 175 P.S.I. cold water pressure.

Table 3-1.5.7

Material and Dimensions	Standard
Cast Iron	
Cast Iron Screwed Fittings 125 and 250 lb.	ANSI B16.4-1971
Cast Iron Pipe Flanges and Flanged Fittings	ANSI B16.1-1967
Malleable Iron	
Malleable Iron Screwed Fittings, 150 and 300 lb.	ANSI B16.3-1971
Steel	
Factory-Made Wrought Steel Buttweld Fittings	ANSI B16.9-1961
Buttwelding Ends for Pipe, Valves, Flanges and Fittings	ANSI B16.25-1972
Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and Elevated Temperatures	ASTM A234-73
Steel Pipe Flanges and Flanged Fittings	ANSI B16.5-1973
Forged Steel Fittings, Socket Welded and Threaded	ANSI B16.11-1973
Copper	
Wrought Copper and Bronze Solder-Joint Pressure Fittings	ANSI B16.22-1973
Cast Brass Solder Joint Fittings	ANSI B16.18-1972

3-1.5.8 : Joints for the connection of copper tube shall be brazed except as provided for in 3-1.5.9.

3-1.5.9 : Soldered joints may be used for wet-pipe copper tube systems.

3-1.5.10: Other types of fittings may be used, but only those listed for this purpose by a testing laboratory recognized by the Fire Marshal or those approved for this use by the Fire Marshal.

3-1.5.11: Piping shall be sized in accordance with 3-1.5.11.1 through 3-1.5.11.2 unless piping has been hydraulically calculated to achieve the design density specified in 3-1.1.1. When piping is sized hydraulically, calculations shall be made in accordance with the methods described in N.F.P.A. Standard number 13. Minimum pipe size shall be 3/4 inch.

3-1.5.11.1:To size piping for systems connected to a city water supply and fitted with one-half (1/2) inch orifice sprinklers, the following approximate method is acceptable.

(a) Determine water pressure in the street.

(b) Arbitrarily select pipe sizes.

(c) Deduct meter losses if any.

(d) Deduct loss for elevation (building height in feet X 0.434= P.S.I.).

(e) Deduct losses from street to control valve by multiplying the factor from Table 3-1.5.11.1(a) by the total length of pipe in feet.

Table 3-1.5.11.1(a)

Pipe Size, Inches	Design Factors (Psi/Ft) with 25 Gpm Flow Steel (C = 120)	Copper (C = 140)
¾	0.64	0.52
1	0.20	0.14
1¼	0.08	0.05
1½	0.02	0.02
2	0.008	0.004

(f) Deduct losses for piping within the building by multiplying the factor from Table 3-1.5.11.1 (a) by the total length in feet of each size of pipe between the control valve and the farthest sprinkler.

(g) Deduct valve and fitting losses. Count the valves and fittings from the control valve to the farthest sprinkler. Determine the equivalent length for each valve and fitting as shown in Table 3-1.5.11.1(b) and add these values to obtain the total equivalent length for each pipe size. Multiply the equivalent length for each size by the factor from Table 3-1.5.11.1(a) and total these values.

(h) In multistory or multilevel buildings, steps (a) through (f) must be repeated to size piping for each floor.

(i) If the remaining pressure is less than 20 P.S.I., pipe or meter size must be increased. If this pressure is substantially greater, it may be possible to decrease piping or meter size.

(j) The remaining piping shall be sized the same as the piping to the farthest sprinkler unless smaller sizes are justified by calculations and approved by the Fire Marshal.

3-1.5.11.2: To size piping for systems with an elevated tank, pump or pump-tank combination, determine the pressure at the water supply outlet and proceed through steps (b), (d), (f), (g), (h), (i) and (j) of 3-1.5.11.1.

Table 3-1.5.11.1(b)

Equivalent Length of Pipe in Feet

For Fittings and Valves

Fitting/Valve Diameter Inches	*Elbows*			*Tees*		*Valves*					
	45 Degrees	*90 Degrees*	*Long Radius*	*Flow Thru Branch*	*Flow Thru Run*	*Gate*	*Angle*	*Globe*	*Globe "Y" Pattern*	*Cocks*	*Check*
¾	1	2	1	4	1	1	10	21	11	3	3
1	1	3	2	5	2	1	12	28	15	4	4
1¼	2	3	2	6	2	2	15	35	18	5	5
1½	2	4	3	8	3	2	18	43	22	6	6
2	3	5	3	10	3	2	24	57	28	7	8

Based on Crane Technical Paper No. 410.

Table 3-1.5.11.1(c)

Pressure Drop in Meters

Meter Size, (Inches)	*Pressure Loss* at 25 gpm (psi)*
⅝	28.0
¾	10.0
1	3.6
1½	1.2
2	Less than 1.0
3	Negligible

*From Appendix B — Chart 1, National Standard Plumbing Code, National Association of Plumbing-Heating-Cooling Contractors, 1973 Edition, Page B-19.

3-1.5.12: Piping configurations may be looped, gridded, straight run, or combinations thereof.

3-2 : Piping Support:

3-2.1 : Piping shall be supported from structural members of adequate size to support said piping. Hanging methods shall be comparable to those used in the most recently adopted Uniform Plumbing Code in the City of Las Vegas.

3-2.2 : Piping laid on open joists or rafters shall be strapped or secured in a manner to preclude lateral movement.

3-3 : Sprinklers:

3-3.1 : This regulation permits the use of ordinary (135° - 170°F) and intermediate (175° - 225°F) temperature rated sprinklers.

3-3.2 : Intermediate heads shall be used in attics, furnace rooms and elsewhere where normal ambient air temperatures exceed 100°F. Ordinary temperature heads shall be used in all other areas.

3-3.3 : Sprinkler heads shall have the same orifice size in any single building unless the system is hydraulically calculated and approved by the Fire Marshal.

3-3.4 : Location of Sprinklers:

3-3.4.1 : Sprinklers shall be installed in all areas.

Exception: Sprinklers may be omitted from some areas upon written approval of the Fire Marshal.

3-4 : Alarms:

3-4.1 : Waterflow Alarms:

3-4.1.1 : Sprinkler systems shall be provided with a waterflow detecting device approved by the Fire Marshal and arranged to sound an alarm which will be audible in all living areas over background noise levels with all intervening doors closed. The alarm shall be designed to function even if there is an interruption of normal electrical service to the dwelling unit.

CHAPTER 4
ADDITIONAL REQUIREMENTS AND EXCEPTIONS

4-1 : When Required:

4-1.1 : The Fire Marshal shall have the power to require additional plans, documentation of testing data, engineering specifications and/or equipment when in his judgement it is necessary to provide a system to meet the provisions of this regulation.

4-2 : Exception:

4-2.1 : Sprinkler systems installed in dwellings and mobile homes shall not be required to be connected to a central signal office or the City of Las Vegas fire alarm system.

Aug. 19, 1975
DATE

CITY MANAGER

FIRE CHIEF

RECEIVED
Aug 19 9 09 AM '75
CITY CLERK

REGULATION NO. 1

LAS VEGAS FIRE DEPARTMENT

PERSUANT TO SECTION 1.202 OF THE 1973 UNIFORM FIRE CODE TITLED "RULES AND REGULATIONS", REGULATION NUMBER 1, "FIRE SAFETY PRECAUTIONS FOR HIGH RISE BUILDINGS, ELEVATORS AND STAIRSHAFTS" - GOVERNING LOCK BOX AND KEYS FOR FIRE DEPARTMENT USE IN - LOCKING OUT ELEVATORS DURING EMERGENCY CONDITIONS AND STAIRSHAFT KEYS - THREE (3) CERTIFIED COPIES OF THIS REGULATION SIGNED BY THE CHIEF AND THE ADMINISTRATOR SHALL BE ON FILE IN THE LAS VEGAS CITY CLERK'S OFFICE. THE REGULATION SHALL READ AS FOLLOWS: AND ALL BUILDINGS FALLING UNDER THE SCOPE OF THIS REGULATION SHALL HAVE THREE MONTHS TO COMPLY WITH THE REQUIREMENTS OF THE REGULATION FROM DATE OF PASSAGE.

SCOPE - THIS REGULATION SHALL APPLY TO ALL BUILDINGS, WITH ELEVATORS, FOUR (4) OR MORE STORIES IN HEIGHT.

ALL ELEVATORS SHALL BE CAPABLE OF MANUAL CONTROL BY THE FIRE DEPARTMENT, BY USE OF A LOCK OUT DEVICE. ALL ELEVATORS SHALL HAVE PROVIDED ADJACENT TO THE ELEVATOR IN THE LOBBY OR GROUND FLOOR, AN APPROVED LOCK BOX WITH A STANDARD KEY FOR FIRE DEPARTMENT USE, LOCK BOXES SHALL CONTAIN THE KEY TO THE ELEVATOR CONTROL PANELS AND THE KEY TO THE STAIRSHAFT DOORS. EACH KEY OR KEYS SHALL BE CLEARLY MARKED WITH A METALIC TAG.

REGULATION NUMBER 1 SHALL BECOME EFFECTIVE WHEN THREE (3) CERTIFIED COPIES OF THIS REGULATION, SIGNED BY THE FIRE CHIEF AND THE CITY MANAGER (ADMINISTRATOR) OF THE CITY OF LAS VEGAS, ARE ON FILE IN THE LAS VEGAS CITY CLERK'S OFFICE.

ANY PERSON, FIRM, OR CORPORATION VIOLATING OR FAILING TO COMPLY WITH THIS REGULATION SHALL, UPON CONVICTION THEREOF, BE PUNISHED BY A FINE OF NOT MORE THAN $500.00 AND/OR IMPRISONMENT IN THE CITY JAIL FOR NOT MORE THAN SIX (6) MONTHS, OR ANY COMBINATION OF SUCH FINE AND IMPRISONMENT. EVERY DAY OF SUCH VIOLATION SHALL CONSTITUTE A SEPARATE OFFENSE.

January 22, 1975
DATE

A. R. TRELEASE, CITY MANAGER (ADMINISTRATOR)

J. D. MILLER, FIRE CHIEF

WITNESS

EDWINA M. COLE, CITY CLERK

FIRE DEPARTMENT REGULATION NUMBER 2
LAS VEGAS FIRE DEPARTMENT

This regulation, entitled "Installation of Fire Sprinkler Systems in Dwellings and Mobile Homes", is written persuant to section 1.202 of the 1973 Uniform Fire Code. Three (3) certified copies of this regulation, signed by the Chief of the Fire Department and the City Administrator, shall be on file in the City of Las Vegas City Clerk's Office. This regulation shall be effective on the date of signature.

CHAPTER 1 - GENERAL INFORMATION

1-1 : Scope:

1-1.1 : This regulation applies specifically to the design and installation of automatic fire sprinkler systems in one and two family dwellings and mobile homes.

1-2 : Definitions:

1-2.1 : Dwelling - Means any building which contains one or two "Dwelling Units" intended to be used for human occupancy and living purposes.

1-2.2 : Dwelling Unit - Means a single unit which has provisions for living, sleeping, eating, cooking and sanitation.

1-2.3 : Fire Marshal - Means the Fire Marshal of the City of Las Vegas or his duly authorized representative.

1-2.4 : Sprinkler System - Means an integrated system of piping connected to a water supply, including a controlling valve and a device for actuating an alarm when the system operates, with listed sprinklers which will automatically initiate water discharge over a fire area and which has been approved prior to installation by the Fire Marshal of the City of Las Vegas.

1-2.5 : Pre-engineered Systems - Means packaged systems of components designed to be installed according to pre-tested limitations as listed by a nationally recognized testing laboratory or as determined by the Fire Marshal.

1-2.6 : Wet System - Means a system employing automatic sprinklers attached to a piping system containing water and connected to a water supply so that water discharges immediately from sprinklers opened by a fire.

1-2.7 : Dry System - Means a system employing automatic sprinklers attached to a piping system containing air or inert gas under atmospheric or higher pressures. Loss of pressure from the opening of a sprinkler or detection of a fire condition causes the release of water into the piping system and out the opened sprinkler.

1-2.8 : Antifreeze System - Means a system employing automatic sprinklers attached to a piping system containing an antifreeze solution and connected to a water supply. The antifreeze solution, followed by water discharges immediately from sprinklers opened by a fire.

1-3 : Maintenance:

1-3.1 : Any sprinkler system installed under this regulation shall be maintained and checked yearly to insure proper working order.

1-4 : Design and Installation:

1-4.1 : Devices and Materials.

1-4.1.1 : Only new, listed sprinklers shall be employed in the installation of sprinkler systems.

1-4.1.2 : Only materials and devices approved by the Fire Marshal or a testing laboratory recognized by the Fire Marshal shall be used in sprinkler systems.

1-4.1.3 : Pre-engineered sprinkler systems shall be installed in accordance with the listing assigned to the system by a testing laboratory recognized by the Fire Marshal.

1-4.1.4 : Pre-engineered systems, with approval from the Fire Marshal, may incorporate special materials, devices, method of installation or design.

1-4.1.5 : All systems shall be tested for leakage for a minimum of one hour at a pressure not less than twenty percent (20%) above normal system operating water pressure.

1-5 : Working Plans:

1-5.1 : Working plans shall be submitted to the Fire Marshal for approval before any equipment is installed or remodeled.

1-5.2 : Working plans shall contain the following:

a. Name of company installing the system.

b. General location and exact address of job location.

c. Rough plot plan showing water supply and property lines in relation to the installation site.

d. Water pressure at the installation site.

e. Rough floor plan with system coverage indication.

f. Any additional information required by the Fire Marshal.

CHAPTER 2
WATER SUPPLY, VALVES AND PRESSURE GAGES

2-1 : Water Supply:

2-1.1 : Water supply connections direct from city water mains or combination domestic -- automatic sprinkler connections shall be an acceptable water supply source.

2-1.2 : When sprinkler systems are directly connected to a potable water supply, a check valve approved by the Fire Marshal and the Las Vegas Valley Water District shall be installed on the discharge side of the control valve.

2-1.3 : Meters are not recommended for use in sprinkler systems.

2-1.4 : An elevated tank of at least two hundred and fifty (250) gallons capacity shall be an acceptable water supply source.

2-1.5 : A water source and automatically operated pump that will supply a minimum of twenty-five (25) G.P.M. flowing shall be an acceptable water supply source.

2-2 : Valve and Drains:

2-2.1 : Each sprinkler system shall have a water control valve located immediately on the discharge side of its water supply.

2-2.2 : Each sprinkler system shall have a one-half inch or larger drain connection with valve on the system side of the control valve.

2-2.3 : Additional drains shall be installed for each trapped portion of a dry system which is subject to freezing temperature.

2-3 : Pressure Gages:

2-3.1 : A pressure gage shall be installed on the system side of the control valve on wet and antifreeze systems.

2-3.2 : A pressure gage shall be installed to indicate water supply pressure and a second gage shall be installed to indicate air or inert gas pressure on dry systems.

CHAPTER 3 - SYSTEM DESIGN

3-1 : Design Criteria:

3-1.1 : Application Rate:

3-1.1.1 : The minimum design density shall be 0.10 gallons per minute per square foot.

3-1.2 : Water Demand:

3-1.2.1 : The water demand for the system shall be twenty-five (25) G.P.M. or the area of the largest room in square feet multiplied by 0.10, whichever is less.

3-1.3 : Sprinkler Coverage:

3-1.3.1 : Standard sprinklers mounted at the ceiling shall be spaced so that the maximum area protected by a single sprinkler does not exceed 256 square feet in conventionally constructed dwelling units and 100 square feet in mobile homes.

3-1.3.2 : The maximum distance between ceiling mounted sprinklers shall not exceed sixteen (16) feet on or between pipe lines and the maximum distance to a wall or partition shall not exceed eight (8) feet.

3-1.3.3 : Sidewall sprinklers shall be spaced so that the maximum area protected does not exceed 256 square feet in conventionally constructed dwelling units and 100 square feet in mobile homes.

3-1.3.4 : For sidewall sprinklers, the maximum distance between sprinklers mounted along the same wall shall not exceed sixteen (16) feet. The maximum distance to an adjacent corner shall not exceed eight (8) feet. The maximum projected throw shall not exceed sixteen (16) feet in any case.

3-1.3.5 : Special sprinklers may be installed with larger protection areas or distances between sprinklers than those specified in 3-1.3.1 through 3-1.3.4 of this regulation when such installations are made in accordance with the listings of a testing laboratory recognized by the Fire Marshal or with approval of the Fire Marshal.

3-1.4 : System Types:

3-1.4.1 : A wet pipe system shall be used when all piping is installed in areas not subject to freezing.

3-1.4.2 : Where system piping is located in unheated areas subject to freezing, dry or antifreeze system types shall be used.

3-1.4.2.1: When used, antifreeze systems shall be in conformity with State of Nevada or Clark County District Health Department Regulations. Glycerine, diethylene glycol, ethylene glycol, propylene glycol and similar materials shall not be used in antifreeze solutions in water supply tanks.

3-1.5 : Piping:

3-1.5.1 : Pipe or tube used in sprinkler systems shall be of the materials in Table 3-1.5.1 or in accordance with 3-1.5.2. through 3-1.5.7.

The chemical properties, physical properties and dimensions of the materials listed in Table 3-1.5.1 shall be at least equivalent to the standards cited in the Table and designed to withstand a working pressure of not less than 175 P.S.I.

Table 3-1.5.1

Materials and Dimensions	Standard
Ferrous Piping (Welded and Seamless)	
Welded and Seamless Steel Pipe for Ordinary Uses; Specification for Black and Hot-Dipped Zinc Coated (Galvanized)	ASTM A120-72a
Specification for Welded and Seamless Steel Pipe	ASTM A53-72a
Wrought-Steel Pipe	ASTM B3610-70a
Copper Tube (Drawn, Seamless)	
Specification for Seamless Copper Tube	ASTM B75-72 or
Specification for Seamless Copper Water Tube	ASTM B88-72
Specification for General Requirements for Wrought Seamless Copper and Copper-Alloy Tube	ASTM B251-72
Brazing Filler Metal (Classification BCuP-3 or BCuP-4)	AWS A5.8-69
Solder Metal, 95-5 (Tin-Antimony-Grade 95TA)	ASTM B32-70

3-1.5.2 : Standard wall schedule 40 pipe is permitted.

3-1.5.3 : Copper tube shall have a wall thickness of Type K, L or M.

3-1.5.4 : Other types of pipe or tube may be used, but only those listed for this purpose by a testing laboratory recognized by the Fire Marshal or those approved for this use by the Fire Marshal.

3-1.5.5 : Whenever the word pipe is used in this regulation, it shall also mean tube.

3-1.5.6 : Thin-wall steel pipe with a wall thickness of 0.120 inches may be joined with mechanical groove couplings approved for service with grooves rolled on the pipe by an approved groove rolling machine.

3-1.5.7 : Fittings used in sprinkler systems shall be of the materials listed in Table 3-1.5.7 or in accordance with 3-1.5.10. The chemical properties, physical properties and dimensions of the materials listed in Table 3-1.5.7 shall be at least equivalent to the standards cited in the Table. Fittings used in sprinkler systems shall be designed to withstand the working pressures involved, but not less than 175 P.S.I. cold water pressure.

Table 3-1.5.7

Material and Dimensions	Standard
Cast Iron	
Cast Iron Screwed Fittings 125 and 250 lb.	ANSI B16.4-1971
Cast Iron Pipe Flanges and Flanged Fittings	ANSI B16.1-1967
Malleable Iron	
Malleable Iron Screwed Fittings, 150 and 300 lb.	ANSI B16.3-1971
Steel	
Factory-Made Wrought Steel Buttweld Fittings	ANSI B16.9-1961
Buttwelding Ends for Pipe, Valves, Flanges and Fittings	ANSI B16.25-1972
Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and Elevated Temperatures	ASTM A234-73
Steel Pipe Flanges and Flanged Fittings	ANSI B16.5-1973
Forged Steel Fittings, Socket Welded and Threaded	ANSI B16.11-1973
Copper	
Wrought Copper and Bronze Solder-Joint Pressure Fittings	ANSI B16.22-1973
Cast Brass Solder Joint Fittings	ANSI B16.18-1972

3-1.5.8 : Joints for the connection of copper tube shall be brazed except as provided for in 3-1.5.9.

3-1.5.9 : Soldered joints may be used for wet-pipe copper tube systems.

3-1.5.10: Other types of fittings may be used, but only those listed for this purpose by a testing laboratory recognized by the Fire Marshal or those approved for this use by the Fire Marshal.

3-1.5.11: Piping shall be sized in accordance with 3-1.5.11.1 through 3-1.5.11.2 unless piping has been hydraulically calculated to achieve the design density specified in 3-1.1.1. When piping is sized hydraulically, calculations shall be made in accordance with the methods described in N.F.P.A. Standard number 13. Minimum pipe size shall be 3/4 inch.

3-1.5.11.1:To size piping for systems connected to a city water supply and fitted with one-half (1/2) inch orifice sprinklers, the following approximate method is acceptable.

(a) Determine water pressure in the street.

(b) Arbitrarily select pipe sizes.

(c) Deduct meter losses if any.

(d) Deduct loss for elevation (building height in feet X 0.434= P.S.I.).

(e) Deduct losses from street to control valve by multiplying the factor from Table 3-1.5.11.1(a) by the total length of pipe in feet.

Table 3-1.5.11.1(a)

Design Factors (Psi/Ft) with 25 Gpm Flow		
Pipe Size, Inches	Steel (C = 120)	Copper (C = 140)
¾	0.64	0.52
1	0.20	0.14
1¼	0.05	0.05
1½	0.02	0.02
2	0.008	0.004

(f) Deduct losses for piping within the building by multiplying the factor from Table 3-1.5.11.1 (a) by the total length in feet of each size of pipe between the control valve and the farthest sprinkler.

(g) Deduct valve and fitting losses. Count the valves and fittings from the control valve to the farthest sprinkler. Determine the equivalent length for each valve and fitting as shown in Table 3-1.5.11.1(b) and add these values to obtain the total equivalent length for each pipe size. Multiply the equivalent length for each size by the factor from Table 3-1.5.11.1(a) and total these values.

(h) In multistory or multilevel buildings, steps (a) through (f) must be repeated to size piping for each floor.

(i) If the remaining pressure is less than 20 P.S.I., pipe or meter size must be increased. If this pressure is substantially greater, it may be possible to decrease piping or meter size.

(j) The remaining piping shall be sized the same as the piping to the farthest sprinkler unless smaller sizes are justified by calculations and approved by the Fire Marshal.

3-1.5.11.2: To size piping for systems with an elevated tank, pump or pump-tank combination, determine the pressure at the water supply outlet and proceed through steps (b), (d), (f), (g), (h), (i) and (j) of 3-1.5.11.1.

Table 3-1.5.11.1(b)
Equivalent Length of Pipe in Feet
For Fittings and Valves

Fitting / Valve Diameter Inches	*Elbows*			*Tees*		*Valves*					
	45 Degrees	*90 Degrees*	*Long Radius*	*Flow Thru Branch*	*Flow Thru Run*	*Gate*	*Angle*	*Globe*	*Globe "Y" Pattern*	*Cocks*	*Check*
¼	1	2	1	4	1	1	10	21	11	3	3
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1¼	2	3	2	6	2	2	15	35	18	5	5
1½	2	4	3	8	3	2	18	43	22	6	6
2	3	5	3	10	3	2	24	57	28	7	8

Based on Crane Technical Paper No. 410.

Table 3-1.5.11.1(c)
Pressure Drop in Meters

Meter Size, (Inches)	*Pressure Loss* at 25 g.p.m. (psi)*
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*From Appendix B — Chart 1, National Standard Plumbing Code, National Association of Plumbing-Heating-Cooling Contractors, 1973 Edition, Page B-19.

3-1.5.12: Piping configurations may be looped, gridded, straight run, or combinations thereof.

3-2 : Piping Support:

3-2.1 : Piping shall be supported from structural members of adequate size to support said piping. Hanging methods shall be comparable to those used in the most recently adopted Uniform Plumbing Code in the City of Las Vegas.

3-2.2 : Piping laid on open joists or rafters shall be strapped or secured in a manner to preclude lateral movement.

3-3 : Sprinklers:

3-3.1 : This regulation permits the use of ordinary (135° - 170°F) and intermediate (175° - 225°F) temperature rated sprinklers.

3-3.2 : Intermediate heads shall be used in attics, furnace rooms and elsewhere where normal ambient air temperatures exceed 100°F. Ordinary temperature heads shall be used in all other areas.

3-3.3 : Sprinkler heads shall have the same orifice size in any single building unless the system is hydraulically calculated and approved by the Fire Marshal.

3-3.4 : Location of Sprinklers:

3-3.4.1 : Sprinklers shall be installed in all areas.

Exception: Sprinklers may be omitted from some areas upon written approval of the Fire Marshal.

3-4 : Alarms:

3-4.1 : Waterflow Alarms:

3-4.1.1 : Sprinkler systems shall be provided with a waterflow detecting device approved by the Fire Marshal and arranged to sound an alarm which will be audible in all living areas over background noise levels with all intervening doors closed. The alarm shall be designed to function even if there is an interruption of normal electrical service to the dwelling unit.

CHAPTER 4
ADDITIONAL REQUIREMENTS AND EXCEPTIONS

4-1 : When Required:

4-1.1 : The Fire Marshal shall have the power to require additional plans, documentation of testing data, engineering specifications and/or equipment when in his judgement it is necessary to provide a system to meet the provisions of this regulation.

4-2 : Exception:

4-2.1 : Sprinkler systems installed in dwellings and mobile homes shall not be required to be connected to a central signal office or the City of Las Vegas fire alarm system.

Aug 19, 1975
DATE

CITY MANAGER

FIRE CHIEF

RECEIVED
Aug 19 9 09 AM '75
CITY CLERK

15308

ORDINANCE NO. 1666

AN ORDINANCE TO AMEND TITLE VII OF THE MUNICIPAL CODE OF THE CITY OF LAS VEGAS, NEVADA, BY REPEALING CHAPTER 2 OF SAID TITLE, ADOPTING THE UNIFORM FIRE CODE, 1973 EDITION, PRESCRIBING REGULATIONS GOVERNING CONDITIONS HAZARDOUS TO LIFE AND PROPERTY FROM FIRE OR EXPLOSION; PROVIDING FOR THE ESTABLISHMENT OF A BUREAU OF FIRE PREVENTION; PROVIDING OFFICERS THEREFOR AND DEFINING THEIR POWERS AND DUTIES; PROVIDING OTHER MATTERS PROPERLY RELATING THERETO; PROVIDING PENALTIES FOR THE VIOLATION HEREOF; AND REPEALING ALL ORDINANCES AND PARTS OF ORDINANCES IN CONFLICT HEREWITH.

The above and foregoing ordinance was first proposed and read by title to the Board of Commissioners on the 21st day of November, 1973, and referred to the following committee composed of Commissioners Morelli and Franklin for recommendation.

COPIES OF THE COMPLETE ORDINANCE No. 1666 ARE AVAILABLE FOR PUBLIC INFORMATION IN THE OFFICE OF THE CITY CLERK, 10THFLOOR, 400 E. STEWART AVENUE, LAS VEGAS, NEVADA.

Publ Nov. 23, 1973

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AFFIDAVIT OF PUBLICATION

STATE OF NEVADA, COUNTY OF CLARK } ss.

ROBERT E. HUNTER, being first duly sworn,

deposes and says: That he is COMPOSING ROOM FOREMAN of the LAS VEGAS SUN, a daily newspaper of general circulation, printed and published at Las Vegas, in the County of Clark, State of Nevada, and that the attached was continuously published in said newspaper for a period of 1 DAY

from NOVEMBER 23, 1973 to

inclusive, being the issues of said newspaper for the following dates, to-wit:

NOVEMBER 23, 1973

That said newspaper was regularly issued and circulated on each of the dates above named.

Signed R E Hunter

Subscribed and sworn to before me this 26th day of NOVEMBER 1973

RUTH V. DISKIN Notary Public in and for Clark County, Nevada

My Commission Expires

Notary Public—State of Nevada
COUNTY OF CLARK
My Commission Expires April 14, 1977

FIRST AMENDMENT
ORDINANCE NO. 1666
AN ORDINANCE TO AMEND TITLE VII OF THE MUNICIPAL CODE OF THE CITY OF LAS VEGAS, NEVADA, 1960 EDITION, BY REPEALING CHAPTER 2 OF SAID TITLE; ADOPTING THE UNIFORM FIRE CODE, 1973 EDITION, PRESCRIBING REGULATIONS GOVERNING CONDITIONS HAZARDOUS TO LIFE AND PROPERTY FROM FIRE OR EXPLOSION; PROVIDING FOR THE ESTABLISHMENT OF A BUREAU OF FIRE PREVENTION; PROVIDING OFFICERS THEREFOR, AND DEFINING THEIR POWERS AND DUTIES; PROVIDING OTHER MATTERS PROPERLY RELATING THERETO; PROVIDING PENALTIES FOR THE VIOLATION HEREOF; AND REPEALING ALL ORDINANCES AND PARTS OF ORDINANCES IN CONFLICT HEREWITH.

The above and foregoing ordinance was first proposed and read by title to the Board of Commissioners on the 21st day of November, 1973, and referred to the following committee composed of Commissioners Morelli and Franklin for recommendation; thereafter the said committee reported favorably on said ordinance on the 12th day of December, 1973, which was a regular meeting of said Board; that at said regular meeting the proposed ordinance was read by title to the Board of Commissioners as amended and adopted by the following vote:

Voting "Aye": Commissioners Christensen, Lurie, Franklin, Morelli and Mayor Gragson.

Voting "Nay": None. Absent: None.

Copies of the complete Ordinance No. 1666 are available for public information in the Office of the City Clerk, 10th Floor, 400 E. Stewart Avenue, Las Vegas, Nevada.

PUB.: Dec. 15, 1973

AFFIDAVIT OF PUBLICATION

STATE OF NEVADA,
COUNTY OF CLARK } ss.

ROBERT E. HUNTER, being first duly sworn,

deposes and says: That he is COMPOSING ROOM FOERMAN of the LAS VEGAS SUN, a daily newspaper of general circulation, printed and published at Las Vegas, in the County of Clark, State of Nevada, and that the attached was continuously published in said newspaper for a period of 1 TIME

from DECEMBER 15, 1973 to

inclusive, being the issues of said newspaper for the following dates, to-wit:

DECEMBER 15, 1973

That said newspaper was regularly issued and circulated on each of the dates above named.

Signed R. E. Hunter

Subscribed and sworn to before me this 15th day of DECEMBER 1973

Notary Public in and for Clark County, Nevada

My Commission Expires

Notary Public—State of Nevada
COUNTY OF CLARK
My Commission Expires April 14, 1977

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