Title 8

FIRE CODE

Chapters:

Chapter 8.01
GENERAL PROVISIONS

Sections:

8.01.010 Intent. This title, referred to as the Fire Code, prescribes minimum standards for the safeguarding of life and property from the hazards of fire and explosion arising from the storage, handling and use of hazardous substances, materials and devices, and from conditions hazardous to life or property in the use or occupancy of buildings or premises. Hazards which are governed by specific reference shall also be subject to all other applicable provisions of this title. (Ord. 87870 § 8.01.010; January 19, 1959).

8.01.020 Powers and duties of the fire chief. The fire chief is hereby authorized and directed to enforce this title unless otherwise expressly provided herein or by City Charter. (Ord. 87870 § 8.01.020; January 19, 1959).

8.01.030 Application to new and existing conditions. The provisions of this title shall apply equally to new and existing conditions; provided, that those existing conditions which the fire chief has determined by rule or in writing do not constitute an immediate hazard to life or property may be continued. (Ord. 87870 § 8.010.030; January 19, 1959).

8.01.040 Authority to enter premises. The fire chief shall investigate the cause of every explosion or fire, and may enter any premises, including dwellings, for such purpose, and may enter, investigate and inspect any dwelling when he has reasonable cause to believe a violation of the provisions of this title exists therein. (Ord. 87870 § 8.01.040 as amended by Ord. 88339; June 29, 1959).

8.01.050 Inspection of building and premises. It shall be the duty of the fire chief to inspect and he may, with consent of the occupant, or the owner of vacant buildings and premises, or pursuant to lawfully issued warrant, enter all buildings and premises, except the interiors of dwellings, as often as may be necessary for the purpose of ascertaining and causing to be corrected any conditions liable to cause fire, or any violations of the provisions of this title, and of any other ordinance concerning fire hazards.

It shall further be the duty of the fire chief to promulgate and modify from time to time and file with the city comptroller administrative standards for the frequency and conduct of fire inspections which shall be based on such factors as the nature of the use, the condition of the area, information indicating existence of a fire hazard, the storage of flammable or explosive substances, and other similar considerations relevant to fire inspections and fire and explosion hazards. (Ord. 87870 § 8.01.050, as amended by Ord. 96018; August 9, 1967).

8.01.060 Orders to eliminate dangerous or hazardous conditions. Whenever the fire chief finds in any building or upon any premises dangerous or hazardous conditions or materials, he shall order such dangerous conditions or materials to be removed or remedied in such manner as may be specified herein, particularly:

1. Dangerous or unlawful amounts of combustible or explosive or otherwise hazardous materials;

2. Hazardous conditions arising from defective or improperly installed equipment for handling or using combustible or explosive or otherwise hazardous materials;

3. Dangerous accumulations of rubbish, waste paper, boxes, shavings or other highly flammable materials;

4. Accumulations of dust or waste material in air conditioning or ventilating systems or of grease in kitchen or other exhaust ducts;

5. Obstructions to or on fire escapes, stairs, passageways, doors or windows, liable to interfere with the operations of the fire department or egress of occupants in case of fire;

6. Any building or other structure which, for want of repairs, lack of sufficient fire escapes or other exit facilities, automatic or other fire alarm apparatus or fire extinguishing equipment, or by reason of age or dilapidated condition, or from any other cause, creates a hazardous condition. (Ord. 87870 § 8.01.060; January 19, 1959).

8.01.070 Service of orders. (a) The service of orders for the correction of violations of this title shall be made upon the owner, occupant or other person responsible for such conditions, either by delivering a copy thereof to such person or by delivering the same to and leaving it with any person in charge of the premises, or in case no such pesson is found

upon the premises, by affixing a copy thereof in a conspicuous place on the door to the entrance of the said premises. Whenever it may be necessary to serve such an order upon the owner of premises such order may be served either by delivering to and leaving with the said person a copy of the said order, or, if such owner is absent from the jurisdiction of the officer making the order, by sending such copy by registered mail to the owner's last known post office address.

(b) If buildings or other premises are owned by one person and occupied by another, under lease or otherwise, the orders issued in connection with the enforcing of this title shall apply to the occupant thereof, except where the rules or orders require the making of additions to or changes in the premises themselves, such as would immediately become real estate and be the property of the owner of the premises; in such cases the rules or orders shall affect the owner and not the occupant unless it is otherwise agreed between the owner and the occupant. (Ord. 87870 § 8.01.070; Jan. 19, 1959).

8.01.080 Permits. (a) A permit shall constitute permission to maintain, store or handle materials, or to conduct processes, which produce conditions hazardous to life or property, or to install equipment used in connection with such activities. Such permit does not take the place of any license required by law. It shall not be transferable, and any change in use or occupancy of premises shall require a new permit. A charge shall not be made for a such permit or renewal unless expressly stated by ordinance.

(b) Before a permit may be issued, the fire chief shall inspect and approve the receptacles, vehicles, buildings, or storage places to be used. In cases where laws or regulations enforceable by departments other than the fire department are applicable, joint approval shall be obtained from all departments concerned.

(c) All applications for permit required by this title shall be made to the fire chief in such form and detail as he shall prescribe. Applications for permit shall be accompanied by plans as required by the fire chief.

(d) Permits shall at all times be kept on the premises designated therein, and shall at all times be subject to inspection by an officer of the fire or police departments. Permits shall be renewed annually upon notice from the fire department. (Ord. 87870 § 8.01.080; January 19, 1959).

8.01.085 Permit fees. Fees for permits required by this title and renewals thereof are imposed in acordance with the following schedule to cover the cost of granting the permit and of investigating, inspecting and exercising police power regulations, and such fees shall accompany the permit applications:

Dry cleaning plant permits required by Section 8.08.020:

Plants classifed as class "A"	
Original permit	$75.00
Annual renewal	40.00
Plants classified as class "B"	
Original permit	40.00
Annual renewal	25.00
Plants classified as class "C"	
Original permit	10.00
Annual renewal	5.00
Permit to use or discharge explosives required by Section 8.11.030	25.00
Fireworks permits required by Section 8.12.020	10.00
Flammable and combustible liquids permits required by Section 8.15.030(c), (d), (f), (g) and (k)	
Original permit	25.00
Annual renewal	10.00
Flammable and combustible liquids permits required by Section 8.15.030(a)	

Original permit	5.00
Annual renewal	3.00
Operation of an automotive self-service station as required by Section 8.15.030(m)	
Original permit	50.00
Annual renewal	10.00
Certificate of fitness of attendant at automotive self-service station required by Section 8.15.370(f)-4	5.00

Tank vehicle permits required by Section 8.16.030

	(For other than fuel oil trucks)	(For fuel oil trucks)
Original permit	$50.00	$25.00
5-year renewal (including new tank vehicle plate)	25.00	10.00
Replacement of tank vehicle plate	5.00	5.00

Liquefied petroleum gas permit required by Section 8.19.030(b)-2	
Original permit	25.00
Annual renewal	10.00
Welding and cutting permit required by Section 8.23.020 where the number of operating units does not exceed 3	
Original permit	5.00
Annual renewal	3.00
Oven permits required by Section 8.24.020	
Original permit	25.00
Annual renewal	10.00
Bulk oxygen system permits required by Section 8.27.030	
Original permit	25.00
Annual renewal	10.00
All other permits required by the Fire Code	
Original permit	10.00
Annual renewal	5.00

Provided, no fee shall be charged for any of the following permits:

Explosives transport permit required by Section 8.11.030

Transfer of flammable liquids permits required by Section 8.15.550

Hazardous chemical permits required by Section 8.18.030 when such handling is done in the process of transport over commercial piers and wharves.

Permit to transport liquefied petroleum over piers and wharves as required by Section 8.19.030.

Outdoor fire permits required by Section 8.26.010. (Ord. 87870 § 8.28.010 added by Ord. 93733 and amended by Ord. 98572 and Ord. 101645 § 4; December 7, 1973).

8.01.086 Refund of permit fees. Whenever a fee has been paid to obtain a fire permit pursuant to Section 8.01.085 and said permit is not

issued upon application for refund of said fee, the chief of the fire department shall certify the facts justifying such refund, the amount thereof and his approval of such refund, and upon presentation of such certificate to the city comptroller such officer is authorized to draw and the city treasurer to pay a warrant on the general fund in the

amount of such refund, and the necessary appropriations are hereby made from any surplus in said Fund. (Ord. 93826 § 1; April 28, 1965).

8.07.090 Revocation of permit. The Fire Chief may revoke a permit or approval issued where a violation of this title is found upon inspection or there has been any false statement or misrepresentation as to a material fact in the application or plans on which the permit or approval was based. (Ord. 87870 § 8.01.090; January 19, 1959).

8.01.100 Fire drills in schools and institutional occupancies. (a) Fire drills shall be held at least once a month in schools where such occupancies constitute the major occupancy of a building, and at least once every two months in institutional occupancies where such occupancies constitute the major occupancy of a building. During severe weather, fire drills may be postponed. A record of all fire drills shall be kept on the premises subject to inspection of the Fire Chief.

(b) In schools, fire drills include complete evacuation of all persons from the building. In institutional occupancies, fire drills shall be conducted to familiarize operating personnel with their assigned positions of emergency duty; complete evacuation of occupants from the building 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. (Ord. 87870 § 8.01.100 as amended by Ord. 88339; June 29, 1959).

8.01.110 Fire prevention code advisory board. The Fire Prevention Code Advisory Board, as created by Resolution No. 17432, shall examine administrative rulings of the Fire Chief relating to this title and make recommendations, but it shall act in an advisory capacity only. (Ord. 87870 § 8.01.110; January 19, 1959).

8.01.120 Definitions. Unless otherwise expressly stated, the following terms shall, for the purpose of this Title, have the meanings indicated in this section. See the Building Code for additional definitions.

"APPROVED" means accepted by the Fire Chief as a result of investigation and experience or by reason of test, listing or approval by Underwriters' Laboratories, Inc., the National Bureau of Standards, the American Gas Association Laboratories or other nationally recognezed testing agencies and the standards provided herein.

"AUTOMATIC FIRE ALARM SYSTEM" means a system which automatically detects a fire condition and actuates a fire alarm signal device.

"DWELLING" means a building occupied exclusively for residence purposes and having not more than two dwelling units or as a boarding or rooming house serving not more than fifteen persons with meals or sleeping accommodations or both.

"DWELLING UNIT" means one or more rooms arranged for the use of one or more individuals living together as a single housekeeping unit, with cooking, living, sanitary and sleeping facilities.

"FIRE CHIEF" means the head of the Fire Department and his authorized representatives.

"FIRE RESISTANCE RATING" means the time in hours that the material or construction will withstand the standard fire exposure as determined by a fire test made in conformity with the "Standard Methods of Fire Tests of Building Construction and Materials" of the American Society for Testing Materials ASTM E119 (C.F. 236287).

"HIGH HAZARD OCCUPANCY" means the occupancy or use of a building or structure or any portion thereof that involves highly combustible, highly flammable, or explosive material, or which has inherent characteristics that constitute a special fire hazard.

"I. C. C. CONTAINER" means any container approved by the Interstate Commerce Commission for shipping any liquid, gaseous or solid material of a flammable, toxic or other hazardous nature.

"INDUSTRIAL OCCUPANCY" means the occupancy or use of a building or structure or any portion thereof for assembling, fabricating, finishing, manufacturing, packaging or processing operations, except when classed as a high hazard occupancy.

"INSTITUTIONAL OCCUPANCY" means the occupancy or use of a building or structure or any portion thereof by persons harbored or detained to receive medical, charitable or other care or treatment, or by persons involuntarily detained.

"MERCANTILE OCCUPANCY" means the occupancy or use of a building or structure or any portion thereof for the displaying, selling or buying of goods, wares or merchandise, except when classed as a high hazard occupancy.

"MULTIFAMILY HOUSE" means a building or portion thereof containing three (3) or more dwelling units, including tenement house, apartment house, flat.

"OWNER" means any person having title to, or control as guardian or trustee, of a building or property.

"PERSON" means one (1) or more natural persons of either sex, association, co-partnership or corporation, whether acting by themselves or by a servant, agent or employee; the singular number includes the plural, and the masculine pronoun includes the feminine.

"RESIDENTIAL OCCUPANCY" means the occupancy or use of a building or structure or any portion thereof by persons for whom sleeping accommodations are provided but who are not harbored or detained to receive medical, charitable or other care or treatment, or are not involuntarily detained.

"STORAGE OCCUPANCY" means the occupancy or use of a building or structure or any portion thereof, for the storage of goods, wares, merchandise, raw materials, agricultural or manufactured products, including parking garages, or the sheltering of livestock and other animals, except when classed as a high hazard occupancy. (Ord. 87870 § 8.01.120; January 19, 1959).

8.01.130 Repealer—Saving. Ordinance 59867 designated "The Fire and Explosion Hazard Ordinance" of the City of Seattle and all amendments thereto and all other ordinances or parts thereof in conflict herewith are hereby repealed; provided, that such repeal shall not be construed as affecting the application of such ordinances to violations thereof prior to the effective date of this ordinance, and such violations shall be punishable according to the provisions of the ordinance in effect on the date such violations existed or were commenced, as if this ordinance had not been enacted. (Ord. 87870 § 8.28.010; January 19, 1959).

8.01.135 Severability. Should any section, subsection, paragraph, sentence, clause or phrase of this title be declared unconstitutional for any reason, such decision shall not affect the validity of the remaining portions of this title. (Ord. 87870 § 8.01.135 added by Ord. 93220; September 15, 1964).

8.01.140 Penalty. Anyone violating or failing to comply with any provision of this title or lawful order of the Fire Chief pursuant hereto shall upon conviction thereof be punishable by a fine not to exceed three hundred dollars, or by imprisonment in the City Jail for a period not to exceed ninety days, or by both such fine and imprisonment, and each day of violation shall constitute a separate offense. (Ord. 87870 § 8.28.020; Janaury 19, 1959).

Chapter 8.02

TIRE REBUILDING PLANTS

Sections:

8.02.010 Permit required. A permit shall be required to conduct or maintain any tire recapping or rebuilding plant. (Ord. 87870 § 8.02.010; January 19, 1959).

8.02.020 Construction and protection requirements. Tire rebuilding plants shall conform to all the requirements in the Building Code for

Group E, Division 3 occupancies, except that an approved automatic sprinkler system with water flow alarm equipment shall be installed where the area exceeds fifteen hundred square feet (1,500 sq. ft.). (Ord. 87870 § 8.02.020; January 19, 1959).

8.02.030 Dust collecting system. Buffing machines shall be located in a room separated from the remainder of the plant by construction having a fire resistance rating of not less than one-hour, with each door opening protected by an approved self-closing fire door. Each machine shall be connected to an approved dust collecting system discharging to an approved container which shall be cleaned at frequent intervals. (Ord. 87870 § 8.02.030; January 19, 1959).

8.02.040 Flammable liquid application. The process of treating buffed tire carcasses with a sprayed mixture of rubber cement and thinner shall be conducted in a room or booth as required in Chapter 8.14 of this Code for the application of flammable finishes. (Ord. 87870 § 8.02.040; January 19, 1959).

Chapter 8.03

WRECKING YARDS, JUNK YARDS AND WASTE MATERIAL HANDLING PLANTS

Sections:

8.03.010 Permit required. A permit shall be required to conduct or maintain any wrecking yard, junk yard or waste material handling plant. (Ord. 87870 § 8.03.010 as amended by Ord. 88339; June 29, 1959).

8.03.020 Location. Wrecking yards, junk yards and waste material handling plants shall not be located so as to seriously expose adjoining or adjacent properties. (Ord. 87870 § 8.03.030 as amended by Ord. 88339; June 29, 1959).

8.03.040 Construction and protection requirements for picking rooms. Picking rooms shall be separated from storage rooms by construction having a fire-resistance rating of not less than one hour, with each door opening provided with an approved fire door. Picking rooms shall be provided with approved exhaust systems. (Ord. 87870 § 8.03.040; January 19, 1959).

Chapter 8.04

HARDENING AND TEMPERING TANKS

Sections:

8.04.010 Permits required. A permit shall be required for the following:

1. Molten salt baths for treatment of metals.

2. Oil quench tanks. (Ord. 87870 § 8.04.010; January 19, 1959).

8.04.020 Molten salt baths. Molten salt baths shall observe the following precautions.

1. The salt baths shall be located in a noncombustible room with no occupancy above, and with no other combustible materials in close proximity. Hoods or other suitable safeguards shall be provided to prevent water from entering the salt baths.

2. The tank construction shall be of chrome-nickel-steel or similar approved materials.

3. Stock shall not be allowed to rest on the tank bottom or the heating tubes, and shall be free of dust, chips or other materials.

4. Salt baths and equipment shall be cleaned and inspected at least once every six months (6 mos.) to prevent accumulation of sediment.

5. When salt baths are to be taken out of service, the salt shall be removed before it solidifies or steel rods shall be immersed in the solution to provide vent holes for escape of gases when reheating is started. When remelting a cold or solidified salt bath, the temperature of the entire bath shall be raised slowly to melting point to prevent excess localized heating.

6. Accurate temperature measuring devices for close control of bath temperature shall be provided. An automatic fuel shut-off device shall be provided, and shall be set at safe range below critical temperatures. Emergency manual fuel shut-off controls shall be provided remote from the salt bath.

7. Where cyanide heat treating is followed by nitrate heat treating or vice versa, the stock shall be thoroughly washed between operations. Suitable means shall be provided to prevent sprinkler water or other water from entering the cyanide baths.

8. Stock to be immersed in cyanide baths shall be dry and free of foreign material. (Ord. 87870 § 8.04.020; January 19, 1959).

8.04.030 Oil quench tanks. (a) Tanks shall be located on concrete or earth floors and shall be located as far as practicable from the furnace.

(b) The room in which the quench tank is located shall be equipped with vents or mechanical ventilation adequate to vent smoke and heat in the event of fire.

(c) Hoist and crane controls shall be so located that the operator will be able to complete the immersion of the work should the oil flash while the work is being lowered.

(d) Single tanks with surface area exceeding twenty-five square feet (25 sq. ft.) shall be equipped with a trapped overflow drain. Size of overflow drain shall be as follows:

Surface Area of Tank	Size of Overflow Drain
0 to 75 sq. ft.	3 inches
76 to 150 sq. ft.	4 inches
151 to 225 sq. ft.	5 inches
226 to 325 sq. ft.	6 inches

Overflow drains shall be piped to a safe location. If piped to an enclosed tank, the drain tank shall have a capacity at least twenty-five per cent (25%) greater than the capacity of the quench tanks draining into it. When the quench tank is located below or partly below floor level, the overflow pipe may be run to the tank pit, subject to the approval of the Fire Chief.

(e) Single tanks exceeding ten square feet (10 sq. ft.) of surface area, and smaller tanks which in the judgment of the Fire Chief present an undue hazard to life or property, shall be equipped with a high temperature

limit switch arranged to sound an alarm when the temperature of the quenching medium reaches fifty degrees Fahrenheit (50° F.) below the flash point of the liquid.

(f) At tanks quenching materials of such size that the heat liberated by the materials may raise the oil temperature within fifty degrees Fahrenheit (50° F.) of the flash point, a suitable sign shall be posted at the tank listing the maximum weight of material which may be quenched from a given temperature.

(g) Single tanks with surface area exceeding twenty-five square feet (25 sq. ft.) shall be equipped with an oil circulating system. Air shall not be used to agitate oil in the tanks.

(h) Single tanks with surface area exceeding twenty-five square feet (25 sq. ft.) shall be equipped with an approved automatic extinguishing system, automatic closing cover, or automatic dump tank valves draining to underground storage tank.

Exception. Tanks having surface area not exceeding seventy-five square feet (75 sq. ft.) in aggregate when located in a room protected by an approved automatic sprinkler system need not be individually equipped with automatic extinguishing systems. (Ord. 87870 § 8.04.030; January 19, 1959).

Chapter 8.05

MEDICAL GASES

Sections:

8.05.010 Scope. This chapter shall apply to medical gases for therapeutic purposes, and to the piping of oxygen or nitrous oxide and other nonflammable gases for medical purposes. Piping systems shall not be used for the distribution of combustible anesthetic gases.

Note: Whenever the term "oxygen" occurs in this chapter, the requirements shall be interpreted to include systems for nitrous oxide except as specifically provided. (Ord. 87870 § 8.05.010; January 19, 1959).

DIVISION I

GENERAL

8.05.020 Regulations and specifications. The medical gases, carbon dioxide, cyclopropane, ethylene, helium, nitrous oxide, oxygen, oxygen-helium mixtures, and oxygen-carbon dioxide mixtures are classified by the Interstate Commerce Commission as compressed gases, and as such their transportation is regulated by the United States Government under the provisions of an Act of the Congress, dated March 4, 1921. Under this Act cylinders, in which medical gases are shipped in commerce that is subject to the jurisdiction of the Commission, must comply with ICC specifications.

By the provisions of the Federal Food, Drug and Cosmetic Act, June, 1958, (C. F. 236287), and General Regulations For The Enforcement of the Federal Food, Drug and Cosmetics Act, Title 21, Part 1, June 1958 (C. F. 236287) medical gases shall conform to the standards of the Pharmacopoeia of the United States and shall be appropriately labeled.

Color coding as set forth in Table No. 8.05.020 shall be used on medical gas cylinders.

TABLE NO. 8.05.020

COLOR CODE FOR MEDICAL GAS CYLINDERS

APPROXIMATELY 26" LONG AND 4½" IN DIAMETER, AND SMALLER

Kind of Gas	Color
Oxygen	Green
Carbon Dioxide	Gray
Nitrous Oxide	Light Blue
Cyclopropane	Orange
Helium	Brown
Ethylene	Red
Carbon dioxide and oxygen	Gray and Green
Helium and oxygen	Brown and Green

(Ord. 87870 § 8.05.020; January 19, 1959).

8.05.030 Permit required. A permit shall be required for the installa-

tion and use of medical gas systems; application for such permit shall include plans in duplicate with sufficient detail to show location, equipment and general layout. (Ord. 87870 § 8.05.030; January 19, 1959).

8.05.040 Handling of cylinders. (a) Cylinders shall be stored in a definitely assigned location which offers protection against being knocked over. They shall not be placed along an aisle used for trucking traffic.

(b) Storage rooms shall be dry, cool and well ventilated. Storing in sub-surface locations shall be unlawful.

(c) Cylinders shall be stored away from radiators and other sources of heat. Cylinders containing compressed gas shall not be subjected to temperatures above one hundred twenty-five degrees Fahrenheit (125° F.). Cylinders shall not be stored near highly flammable substances such as oil, gasoline, waste, etc.

(d) Cylinders containing flammable gases shall not be stored in the same room with those containing oxygen or nitrous oxide.

(e) Cylinders shall not be stored in individual operating rooms.

(f) Cylinders shall be protected against tampering by unauthorized individuals.

(g) Transfilling shall be restricted to producers, manufacturers, distributors and companies usually engaged in handling of compressed gases and to such others as have established acceptable standards and precautions as prescribed by ICC Regulations.

(h) Manufacturers' and suppliers' filling apparatus shall be designed and equipped with pin indexing or other noninterchangeable device. (Ord. 87870 § 8.05.040; January 19, 1959).

DIVISION II

SYSTEMS FOR NONFLAMMABLE MEDICAL GASES

8.05.050 Definition. "PIPED DISTRIBUTION SYSTEM" consists of a central supply system with control equipment, and a system of piping extending to the points of use where nonflammable medical gases may be required and with suitable station outlet valves at each use point. (Ord. 87870 § 8.05.050; January 19, 1959).

8.05.060 Cylinder manifold systems and bulk supply systems. (a) Manifolds shall be of substantial construction and of a design and material suitable for high pressure service capable of withstanding three thousand pounds per square inch (3,000 p.s.i.). Mechanical means shall be provided to assure the connection of cylinders containing the proper gas to the manifold. Where helium or carbon dioxide is to be piped, care shall be taken to assure noninterchangeability with other medical gases. Cylinder connections shall be in accordance with Compressed Gas Associa-

tion standard, Pamphlet V-I "American Standard - Canadian Standard Compressed Gas Cylinder Valve Outlet & Inlet Connections," 1957, (C.F. 236287).

NOTE: Manifolds shall be obtained from and installed under the supervision of a manufacturer familiar with proper practices for the construction and use.

(b) A check valve shall be installed between each cylinder lead and the manifold header.

(c) A manually operated shut-off valve shall be installed on each side of each pressure regulating valve.

(d) A pressure regulating valve capable of maintaining a pressure of fifty to one hundred pounds per square inch (50 to 100 p.s.i.) at the station outlet shall be installed in each manifold line.

(e) A pressure relief valve shall be installed on the low pressure side of the pressure regulating valve, between each pressure regulating valve and any shut-off valve. It shall be set to relieve at a pressure not greater than fifty per cent (50%) more than the maximum line working pressure. This pressure relief valve shall close automatically when excess pressure has been released. The pressure relief valve shall be vented to the outside of the building if the total capacity of the manifold cylinders is in excess of one thousand five hundred cubic feet (1,500 cu. ft.) of gas. Pressure relief valves shall be of brass or bronze and designed for oxygen service.

(f) Manifold Enclosures: 1. Manifolds of a total capacity in excess of fifteen hundred cubic feet (1,500 cu. ft.), when located within a hospital or similar occupancy, shall be enclosed in a separate room or enclosure within a room with a fire resistance rating of at least one-hour. Enclosures shall not communicate directly with anesthetizing locations or storage locations for combustible anesthetic agents. The manifold enclosure shall be vented to the outside.

2. Manifolds of a total capacity of less than fifteen hundred cubic feet (1,500 cu. ft.) may be enclosed in rooms not vented to the outside. Doors to such rooms shall be provided with louvres at top and bottom. Such room shall not communicate directly with anesthetizing locations or storage locations for combustible agents.

3. Enclosures for manifolds shall be provided with doors or gates which may be locked. Manifold rooms shall not be used for storage purposes other than for cylinders containing the nonflammable gases which are to be distributed through the installed manifold. Storage of empty cylinders disconnected from the manifold pending their removal is permissable.

4. Electrical wiring and equipment shall conform to the provisions of the Electrical Code for hazardous locations.

5. Smoking shall be prohibited in manifold enclosures. (Ord. 87870 § 8.05.060 as amended by Ord. 88339; June 29, 1959).

DIVISION III

PIPE LINE SYSTEMS

8.05.070 Pipe lines. All pipe lines shall be seamless Type K copper tubing or standard weight (Schedule 40) brass pipe. Pipe sizes shall be in conformity with good engineering practice for proper delivery or maximum volumes specified. Gas piping shall not be supported by other piping, and shall be protected from mechanical injury.

Piping, valves and fittings, except those supplied especially prepared for oxygen service by the manufacturer and received sealed at the final use point, shall be thoroughly cleaned of oil, grease and other readily oxidizable materials. The use of organic solvent, for example carbon tetrachloride, is prohibited. Pipe and fittings shall be temporarily capped or plugged to prevent recontamination before final assembly.

(b) Fittings used for connecting copper tubing shall be wrought copper, brass or bronze fittings made for silver or copper alloy brazed connection.

(c) Brass pipe shall be assembled with screw type brass fittings, with bronze or copper brazing type fittings, or with silver solder or similar high melting point (1000°F. Min.) brazing material.

(d) Flared type compression fittings may be used on gas distribution lines when pipe sizes are one-half inch (½″) or less and when the piping is so installed as to be visible in rooms at point of use or adjoining corridors.

(e) Screw joints used in shut-off valves, including station outlet valves, shall be installed by tinning the male thread with soft solder.

(f) Buried piping shall be adequately protected against frost, corrosion and physical damage. Oxygen piping may be placed in the same tunnel, trench or duct with fuel gas pipe lines, if separated, provided, there is good natural or forced ventilation. Oxygen pipe lines shall not be placed in a tunnel, trench or duct where exposed to contact with oil.

(g) Oxygen pipe lines installed in combustible partitions shall be protected against physical damage by installation within vented pipe or conduit. Openings for pipe lines installed in concealed spaces shall be firestopped. Oxygen pipe lines may be installed in pipe shafts and tunnels if suitable protection against physical damage, effect of excessive heat, corrosion or contact with oil is provided.

(h) When necessary to install oxygen piping in storage rooms for combustible materials, kitchens, laundries or other areas of special haz-

ard, the piping shall be protected by an enclosure which shall prevent the liberation of oxygen within the room.

(i) The gas content of pipe lines shall be readily identifiable by appropriate labeling with the name of the gas contained. Such labeling shall be by means of metal tags, stenciling, stamping or with adhesive markers in a manner that is not readily removable. Labeling shall appear on the pipe at intervals of not more than twenty feet (20′) and at least once in each room and in each story traversed by the pipe line.

(j) Piping systems for gases shall not be used as a grounding electrode.

(k) Oxygen pipe lines shall not be placed in any elevator shaft or stairwell. (Ord. 87870 § 8.05.070 as amended by Ord. 88339; June 29, 1959).

8.05.080 Low pressure alarm. An alarm system shall be installed in the main supply line to actuate an audible and visual signal when the line pressure drops twenty per cent (20%) below normal operating pressure. The warning signals shall be located to assure continuous observation. If the signal is electrically operated, it shall also be energized by the emergency electrical power system. In order to provide warning of an interruption to the oxygen supply, a visual and audible low pressure warning signal shall be provided with the connection downstream from the floor shut-off valve. (Ord. 87870 § 8.05.080; January 19, 1959).

8.05.090 Shut-off valves. (a) All shut-off valves shall be installed in valve boxes with frangible windows large enough to permit manual operation of the valves in substance as follows:

CAUTION—
OXYGEN VALVES.
DO NOT CLOSE EXCEPT IN EMERGENCY.
THIS VALVE CONTROLS OXYGEN SUPPLY TO.....

(b) The main oxygen supply line shall be provided with a shut-off valve so located as to be accessible in an emergency but not accessible to unauthorized persons.

(c) A shut-off valve shall be located outside each anesthetizing location in each oxygen or nitrous oxide line, so located as to be readily accessible at all times for use in an emergency. These valves shall be so arranged that shutting off the supply of gas to any one operating room or anesthetizing locations will not affect the others. (Ord. 87870 § 8.05.090; January 19, 1959).

8.05.100 Station outlets. (a) Outlets for all medical gases shall have connections of a noninterchangeable type.

(b) Each service outlet for oxygen or nitrous oxide shall be equipped with a shut-off valve.

1. Manually operated oxygen valves shall be provided with a male 9/16-inch-18-thread. Manually operated nitrous oxide valves shall be provided with a male ⅜-inch National Pipe Thread. Threaded outlets shall be provided with a cap and chain to protect the outlet when not in use, or shall be installed in a recessed valve box equipped with a door.

2. Each station outlet equipped with a female member of a quick-coupler of the non-interchangeable type for oxygen or nitrous oxide service, and so identified, shall be provided with an automatic shut-off valve incorporated in such a manner that when the quick-coupler is removed from the pipe line for repair, the flow of oxygen or nitrous oxide shall be shut off until the female member of the quick-coupler is reattached; or female members of quick-couplers of the non-interchangeable types for oxygen or nitrous oxide may be attached to manually operated non-interchangeable shut-off valves for oxygen or nitrous oxide service.

(c) Each oxygen delivery line servicing anesthetic apparatus through a yoke insert shall have a back-check valve designed to hold a minimum pressure of twenty-four hundred pounds per square inch (2400 p.s.i.) installed in the line immediately adjacent to the yoke insert.

(d) Station outlets in patients' rooms shall be located a minimum of five feet (5′) above the floor or suitably recessed to avoid physical damage to the valve or control equipment.

(e) All pressure regulators, gauges and manometers for oxygen, including those applied temporarily for testing purposes, shall be those manufactured for that gas and labeled: OXYGEN—USE NO OIL. (Ord. 87870 § 8.05.100 as amended by Ord. 88339; June 29, 1959).

8.05.110 Testing. (a) After installation of the piping, but before installation of the station outlet valves, the line shall be blown clear by means of water-pumped (oil-free) nitrogen.

(b) After installation of station outlet valves, each section of the piping system shall be subjected to a test pressure of one and one-half (1½) times maximum working pressure, but in no case less than one hundred fifty pounds per square inch (150 p.s.i.), by means of oil-free (water-pumped) inert gas. This test pressure shall be maintained until each joint has been examined for leakage by means of soapy water. All leaks shall be repaired and the section retested.

(c) A twenty-four hour (24 hr.) standing pressure test with oil-free (water-pumped) nitrogen at one and one-half (1½) times maximum working pressure, but in no case less than one hundred fifty pounds per square inch (150 p.s.i.), shall be made to check the completeness of previous joint tests. After completion of the final standing pressure test, the system shall be thoroughly flushed with gas to be used in the system to assure the removal of all inert gas. Each branch and station outlet shall

be opened during the period of flushing. (Ord. 87870 § 8.05.110; January 19, 1959).

DIVISION IV

DISPENSING EQUIPMENT

8.05.120 Oxygen tents. (a) Oxygen tent canopies shall be fabricated of noncombustible or slow-burning material. Closures and supporting devices shall be of noncombustible material.

(b) Oxygen control or metering devices shall be conspicuously labelled: OXYGEN—USE NO OIL.

(c) Open flame or other source of ignition shall not be permitted within the tent. "NO SMOKING" signs shall be posted in the room, and "NO SMOKING" signs shall be stenciled in red letters on three sides of tent canopies. When the tent is in position over the bed, the use of alcohol as a rubbing medium, or other combustible substances, within the tent canopy shall be prohibited.

(d) The electrical equipment in connection with oxygen tents shall be of approved type. Arcing or sparking electrical equipment, devices or apparatus of any kind shall not be permitted within the tent canopy. The use of electric heating pads, electrical call buttons, electric razors, flashlights, or similar equipment within the tent shall be prohibited. (Ord. 87870 § 8.05.120; January 19, 1959).

8.05.130 Pin indexing of cylinders. Hospitals shall pin index anesthesia apparatus, and all other apparatus for patient use which utilizes small cylinders as a source of supply. (Ord. 87870 § 8.05.130; January 19, 1959).

Chapter 8.06

CELLULOSE NITRATE PLASTICS (PYROXYLIN)

Sections:

8.06.010 General. Every factory or establishment used for the storage, sale or fabrication of articles from cellulose nitrate plastic must be in charge of a responsible person, who is familiar with this chapter and with the importance of fire prevention and any local laws or ordinances. Such person shall see that these standards are observed, and that all em-

ployees are instructed as to fire hazards and the proper handling of cellulose nitrate plastics. (Ord. 87870 § 8.06.010; January 19, 1959).

8.06.020 Definition. "CELLULOSE NITRATE PLASTICS (PYROXYLIN)" shall mean any plastic substance, material or compound, other than guncotton or other explosive covered by Chapter 8.11, having cellulose nitrate as a base, by whatever name known, when in the form of blocks, slabs, sheets, tubes or fabricated shapes, either in whole or in part. (Ord. 87870 § 8.06.020; January 19, 1959).

8.06.030 Uses prohibited. (a) Cellulose nitrate motion picture film shall not be permitted in storage or use.

(b) Manufacture, sale or use of clothing made in whole or in part of cellulose nitrate shall be prohibited. (Ord. 87870 § 8.06.030; January 19, 1959).

8.06.040 Permit required. (a) A permit shall be required of retailers, jobbers and wholesalers storing or handling more than twenty-five pounds (25 lbs.) of cellulose nitrate plastics.

(b) A permit shall be required for the manufacture of articles of cellulose nitrate plastic, which shall include the use of cellulose nitrate plastics in the manufacture or assembling of other articles. (Ord. 87870 § 8.06.040; January 19, 1959).

8.06.050 Display. (a) Display of cellulose nitrate plastic articles in stores shall be in show cases or show windows except as permitted below:

1. Articles may be placed on tables or counters which shall not be over three feet (3′) wide and ten feet (10′) long, and shall be spaced at least three feet (3′) apart.

2. Spaces underneath displays shall be kept free of storage of any kind and of accumulations of paper, refuse and other combustible material.

3. Displays shall be so located that in the event of fire, the display will not interfere with free exit from the room.

4. Electric or gas lights shall not be located directly above any cellulose nitrate plastic material, unless provided with a suitable guard to prevent heated particles from falling.

5. Labeling. Cellulose nitrate plastics and containers for same shall be plainly marked: HIGHLY COMBUSTIBLE—KEEP AWAY FROM FLAME. (Ord. 87870 § 8.06.050; January 19, 1959).

8.06.060 Storage and handling. Cellulose nitrate plastic material in buildings shall be kept and handled as follows:

1. Material in excess of twenty-five pounds (25 lbs.) shall be stored in an approved vented cabinet or vented and sprinklered vault, constructed in accordance with Group E, Division 1 occupancy requirements in the Building Code.

2. Material in excess of one thousand pounds (1,000 lbs.) shall not be stored in cabinets in any one workroom, and not more than five hundred pounds (500 lbs.) in any one cabinet, nor more than two hundred and fifty pounds (250 lbs.) in one compartment.

3. Material in excess of that permitted above shall be kept in approved vented vaults not exceeding one thousand five hundred cubic feet (1,500 cu. ft.) capacity, and with one (1) automatic sprinkler head to each one hundred twenty-five cubic feet (125 cu. ft.) of total vault space.

4. Cellulose nitrate plastics shall not be stored within two feet (2') of any heat producing appliances, steam pipes, radiators or chimneys.

5. In factories manufacturing articles of cellulose nitrate plastics, quantities of plastics allowed in work rooms shall be as approved by the Fire Chief.

6. Waste cellulose nitrate plastic (pyroxylin) materials such as shavings, chips, turnings, sawdust, edgings and trimmings shall be kept under water in metal receptacles until removed from the premises, and shall be disposed of in an approved manner. (Ord. 87870 § 8.06.060; January 19, 1959).

8.06.070 Fire protection equipment. Buildings used for the manufacture or storage of articles of cellulose nitrate plastic in quantities exceeding one hundred pounds (100 lbs.) shall be equipped with an approved system of automatic sprinklers. (Ord. 87870 § 8.06.070; January 19, 1959).

Chapter 8.07

COMBUSTIBLE FIBRES, STORAGE AND HANDLING

Sections:

8.07.010 Scope. This Chapter shall apply to storage and handling of combustible fibres, excluding agricultural products on a farm. (Ord. 87870 § 8.07.010; January 19, 1959).

8.07.020 Definition. COMBUSTIBLE FIBRES shall mean and include readily ignitible and free burning fibres, such as cotton, sisal, henequen, ixtle, jute, hemp, tow, cocoa fibre, oakum, baled waste, baled waste paper, kapok, hay, straw, Spanish moss, excelsior and other like materials. (Ord. 87870 § 8.07.020; January 19, 1959).

8.07.030 Permit required. A permit shall be required for the storage

and handling of combustible fibres in quantities in excess of five hundred cubic feet. (Ord. 87870 § 8.07.030; January 19, 1959).

8.07.040 Loose storage. (a) Loose combustible fibres (not in suitable bales or packages), whether housed or in the open, shall not be stored within one hundred feet of any building except as hereinafter specified.

(b) Loose combustible fibres not to exceed one hundred cubic feet may be kept in any building, provided storage is in a metal or metal-lined bin equipped with a self-closing cover.

(c) Loose combustible fibres exceeding one hundred cubic feet but not exceeding five hundred cubic feet may be stored in rooms or compartments separated by one-hour fire-resistive separation as required by the Building Code.

(d) When quantities of combustible fibres exceed five hundred cubic feet, the storage area shall be constructed as a Group E, Division 3 occupancy as defined by the Building Code. (Ord. 87870 § 8.07.040; January 19, 1959).

8.07.050 Baled storage. (a) Single blocks or piles shall contain no more than twenty-five thousand cubic feet of fibre exclusive of aisles or clearances. Blocks or piles of baled fibre shall be separated from adjacent storage by aisles not less than four feet wide.

(b) Sisal and other fibres in bales bound with combustible tie ropes, also jute and other fibres liable to swell when wet, shall be stored to allow for expansion in any direction without endangering building walls, ceilings or columns. Clearance of not less than three feet shall be left between walls and sides of piles, except that if storage compartment is not more than thirty feet in width, one foot clearance at side walls will be sufficient, provided a center aisle not less than four feet wide is maintained.

(c) The storage area shall be constructed as a Group E, Division 4 occupancy as defined by the Building Code. (Ord. 87870 § 8.07.050; January 19, 1959).

Chapter 8.08

DRY CLEANING

Sections:

8.08.010 Dry cleaning defined. DRY CLEANING shall mean the process of removing dirt, grease, paints and other stains from wearing apparel, textiles, fabrics, rugs, etc., by the use of nonaqeous liquid solvents, and it shall include the process of dyeing or waterproofing clothes and other fabrics or textiles. (Ord. 87870 § 8.08.010, as amended by Ord. 90405; July 25, 1961).

8.08.020 Permit required. A permit shall be required to establish or maintain any dry cleaning or dry dyeing establishment.

Changes shall not be made in the solvent used in the equipment to a solvent with a lower flash point unless permission for such change shall first have been obtained from the Fire Chief. (Ord. 87870 § 8.08.020; January 19, 1959).

8.08.030 Classification of systems. Systems utilizing solvents having a flash point below one hundred degrees Fahrenheit shall be prohibited.

CLASS A: Systems employing flammable liquids having a flash point of one hundred thirty-eight and one-half degrees Fahrenheit or lower, and systems employing flammable liquids exceeding sixty gallons aggregate capacity and having a flash point exceeding one hundred thirty-eight and one-half degrees Fahrenheit.

CLASS B: Systems employing flammable liquids in quantities less than sixty gallons aggregate capacity and having a flash point exceeding one hundred thirty-eight and one-half degrees Fahrenheit.

CLASS C: Synthetic systems not employing flammable liquids. (Ord. 87870 § 8.08.030, as amended by Ord. 90405; July 25, 1961).

8.08.040 General. Design and construction shall be as required by the Building Code for Group E, Division 2 occupancy dry cleaning plants.

Exception: Class B plants shall conform to the requirements for Group E, Division 1 occupancy groups.

Electrical service and equipment shall be as required by the Electrical Code for hazardous locations.

Equipment used in dry cleaning systems shall be of approved design and construction. (Ord. 87870 § 8.08.040; January 19, 1959).

8.08.050 Storage and handling of cleaning solvents. (a) Individual above-ground treatment tanks and other containers comprising purifiers, clarifiers and filters shall not exceed three hundred fifty gallons capacity.

(b) Individual aboveground solvent storage tanks inside of a building shall not exceed two hundred seventy-five gallons. The aggregate capacity of aboveground storage tanks inside of a building shall not exceed five hundred fifty gallons.

(c) Pressure type filters shall not be operated at pressure exceeding those for which they are designed and shall be equipped with a reliable pressure gauge. Each filter shall be provided with an air bleeding valve and line, which shall discharge directly to the outside of the building.

(d) The transfer of solvents from storage tanks between various parts of the system shall be through closed circuits of rigid piping. Pumps of the positive displacement type shall have a by-pass and relief valve.

(e) Sign glasses and liquid level glasses shall be of a type not readily damaged by heat and shall be protected against physical damage.

(f) Liquid level glasses shall be equipped with an automatic device which will immediately shut off the flow of solvent if the glass is broken.

(g) Piping, valves and dry cleaning equipment shall be maintained free of leaks and shall be adequately protected against physical damage.

(h) Piping, valves, fittings and ground joint unions shall be of steel or other material suitable for use with solvents. Cast-iron fittings for pressure piping shall be prohibited.

(i) Systems shall be provided with emergency drain connections and valves arranged to operate manually and by an automatic heat-actuated device and of ample size to discharge the entire contents of the system to underground storage tanks within a period of five minutes, and suitably equipped to prevent fire reaching the storage tank.

(j) Containers shall be provided with vent pipes not less than one and one-half inches in diameter, extending to the outside of the building and terminating not less than eight feet above grade.

Exception: Class B systems are exempt from the requirements of subsections (i) and (j).

(k) Not more than five gallons of Class I, and not more than five gallons of Class II, flammable liquid may be stored in five-gallon safety cans, and not more than ten gallons of Class III flammable liquid may be stored in steel drums, in a Class C plant. (Ord. 87870 § 8.08.050, as amended by Ord. 90405; July 25, 1961).

8.08.060 Washing machines. Loading doors shall be designed to prevent solvent leaks. Machines shall be provided with interlocks to prevent cylinder rotation when the door is open.

Machines shall be grounded in an approved manner to dissipate static electricity.

Each machine shall be provided with an overflow pipe one size larger than the size of the solvent supply line. (Ord. 87870 § 8.08.060 as amended by Ord. 88339; June 29, 1959).

8.08.070 Stills and condensers. Stills, condensers and treating tanks shall be mounted on substantial fire-resistive foundations.

Steam or hot water only shall be used to secure the necessary temperature.

Stills and condensers shall be liquid and gastight.

Stills shall be designed for operation on the vacuum principle.

Each still shall be equipped with a vacuum and pressure relief valve arranged to discharge outside of the building. Relief valves shall be not less than one and one-half inches in diameter and set to operate at a pressure of not over five pounds per square inch.

A check valve shall be installed in the steam line between the boiler and still.

Each still shall be equipped with a constant level valve to automatically maintain the proper solvent level. (Ord. 87870 § 8.08.070; January 19, 1959).

8.08.080 Drying tumblers and cabinets. Drying tumblers shall be secured to substantial foundations, shall be vaportight, and shall be provided with approved self-closing explosion hatches, arranged to open away from the operator.

Drying tumblers shall be permanently and effectually grounded to dissipate static electricity. Where belts are used, they shall be of the static-free type.

Drying tumblers shall be provided with a steam jet, of not less than three-eighths inches size for humidifying during the drying process.

Drying tumblers and drying cabinets shall be ventilated to the outside air by means of properly constructed pipes or ducts connected to an exhaust fan of sufficient capacity to remove all dust, vapors, or lint generated by the process. Such discharge pipes or ducts shall be carried to a height of not less than six feet above the roof, and shall be provided with cleanout facilities.

Discharge pipes shall not terminate within ten feet measured horizontally from any door, window or frame walls of any adjoining or adjacent building.

The fan shall be properly housed and so interlocked as to insure operation while the drying tumbler is in use. The fan spiders, blades or running rings shall be constructed of nonsparking materials. In no case shall the fan motor be mounted within the ventilating duct. (Ord. 87870 § 8.08.080; January 19, 1959).

8.08.090 Extractors. Extractors shall be provided with liquid-tight covers, or they shall be designed so that none of the liquid solvent is thrown out of the extractor while it is in operation. Cover shall be

equipped with automatic mechanical or electrical interlocks which will prohibit operating the extractors while the cover is open and which will prohibit opening the cover until the basket comes to rest.

Extractors shall be provided with a drain pipe not less than one and one-half inches in diameter connected direct to underground storage tanks or to a suitable aboveground container, or to the washer through an approved extractor pump with connections fitted with proper valves.

Extractors shall be permanently and effectively grounded to dissipate static electricity.

Brakes, if used, shall be so designed as to prevent the creation of sparks or excessive heat. (Ord. 87870 § 8.08.090; January 19, 1959).

8.08.100 Scouring, brushing and spotting. Flammable liquids used in spotting operations shall be dispensed only from approved containers, the capacity of which shall not exceed one pint.

Exception: Articles, the character of which prevents their washing in the usual washing machines, may be cleaned on scouring or brushing tables, or in approved scrubbing tubs provided the total amount of flammable liquid used in such open containers shall not exceed three gallons. Flammable liquid for this purpose shall be stored in appproved safety cans or storage tanks, and shall not have a flash point below one hundred degrees Fahrenheit.

Scouring or brushing operations using flammable liquids shall be carried on in the dry cleaning room or in a separate fire-resistive compartment.

The scouring or brushing table or scrubbing tub shall be so located as to insure thorough and effective disposal of vapors through the ventilating system.

Metal tops, where used, shall be liquid-tight and permanently and effectively grounded.

Scrubbing tubs shall be secured to the floor and shall be provided with permanent one and one-half inch trapped drains to underground tanks. (Ord. 87870 § 8.08.100, as amended by Ord. 90405; July 25, 1961).

8.08.110 Operating requirements. (a) Clothing and other articles, when received at the plant, shall be thoroughly searched in the receiving room and all foreign materials removed.

(b) Drip aprons or other suitable safeguards shall be provided to prevent solvent spills when transferring materials from the washers.

(c) "No Smoking" signs shall be installed in accordance with Chapter 8.17.

(d) The lint and refuse shall be removed from all traps after the close of the day's work, and disposed of in a safe manner. Trap covers shall normally be kept securely in place.

(e) Aboveground containers such as washing machines, tanks, purifiers, clarifiers, stills and condensers shall be drained of all flammable liquids immediately after the close of each day. Class B systems are exempt from this requirement.

(f) Ventilating systems and dry tumbler fans shall be arranged to automatically shut down in the event of fire.

(g) Fire extinguishing equipment and systems shall be subject to test by the Fire Chief prior to issuance of permit.

(h) Drying operations before washing shall not be permitted unless articles so dried are properly humidified before removal to washing machines.

(i) Portable conveyances used to convey materials from washers to extractors or drying rooms shall be equipped with nonsparking rollers.

(j) Flame, fire or other source of ignition of any kind shall not be permitted in any dry cleaning or dry dyeing establishment, unless in a room constructed and equipped as required by the Building Code for boiler rooms.

(k) All apparatus, equipment, construction and devices required in this code for the prevention of fire or explosion, or to prevent the spread of fire or to extinguish fire in dry cleaning and dry dyeing establishments shall be at all times efficiently maintained in good working condition. (Ord. 87870 § 8.08.110; January 19, 1959).

8.08.120 Fire extinguishing equipment. Each washing machine and dryer shall be provided with approved automatic and manual fire extinguishing system.

Approved first aid fire extinguishing appliances shall be provided in all dry cleaning plants; at least one extinguisher shall be provided at each entrance to every room or area where flammable liquids are stored or used. (Ord. 87870 § 8.08.120; January 19, 1950).

Chapter 8.09

DUST EXPLOSIONS, PREVENTION

Sections:

8.09.010 Definition. DUST shall mean dust which, if mixed with air in the proper proportions, becomes explosive and may be ignited by a flame or spark. (Ord. 87870 § 8.09.010; January 19, 1959).

8.09.020 Permit required. A permit shall be required for the operation of any grain elevator, flour, starch, or feed mill or operation processing aluminum, coal, cocoa, magnesium, spices, sugar or other material producing dust as defined in Section 8.09.010. (Ord. 87870 § 8.09.020; January 19, 1959).

8.09.030 General requirements. (a) Dust-producing or dust-agitating machinery such as grinding mills and separators, and elevators, elevator legs, spouts, hoppers and other conveyors shall be provided with casings or enclosures maintained as nearly dust-tight as possible.

(b) Buildings shall be kept free of dust by the installation of dust collecting equipment.

(c) Dust collecting equipment shall conform to all other applicable requirements of this code, and to the requirements of the Building Code.

(d) Shafts rotating machinery operating in the presence of flammable or explosive gases or dust shall be grounded by wiper contacts.

To prevent explosion due to accumulation of static electricity, belts used in the presence of flammable dust or gases for driving rotating machinery shall:

1. Be manufactured as "static free" especially for this purpose, or
2. Be periodically painted with nonstatic belt dressing.

Belts used for conveying flammable material shall be arranged with contacting combs to carry off accumulated static charges.

(e) Smoking and the carrying of matches, the use of heating or other devices employing an open flame, or use of any spark-producing equipment is prohibited in areas containing dust-producing or dust-agitating operations. Artificial lighting in such areas shall be by electricity with wiring and electrical equipment installed in accordance with the Electrical Code for hazardous locations. (Ord. 87870 § 8.09.030; January 19, 1959).

Chapter 8.10

EXIT WAYS, MAINTENANCE

Sections:

8.10.010 Obstruction to means of egress. Encumbrances of any kind shall not be placed at any time before or upon any fire escape, balcony or ladder intended as a means of escape from fire.

Materials, the presence or the burning of which would obstruct or render hazardous egress of persons from a building, shall not be placed, stored or kept, or permitted to be placed, stored or kept on or under or at the bottom of any exit stairway, inside or outside, exit hallway, elevator or other means of egress in other than dwellings.

Aisles and passageways to all required exits, in display and sales areas of store buildings, shall be not less than three feet, eight inches wide. All stairways, aisles and passageways shall be maintained unobstructed during the hours such buildings are open to the public.

Storage in buildings shall be orderly, shall not be within two feet of the ceiling, and not so located as to endanger exit from the building. At

least one main aisle or passageway not less than three feet, eight inches wide, extending as directly as practicable from one wall to the opposite wall, or to shelving on such walls, open from the floor to the ceiling, and with stub or cross aisles at least three feet, eight inches wide at approximately every twenty feet, shall be maintained.

Patrons shall not be alowed to occupy aisles, passageways, or discharge areas of places of public assembly in such manner as to obstruct exit ways. (Ord. 87870 § 8.10.010, as amended by Ord. 90405; July 25, 1961).

8.10.020 Stairway doors to be kept closed. Stairway enclosure doors which lead to or from a floor of a building, and which by law are required to be self-closing, shall not be blocked open. (Ord. 87870 § 8.10.020; January 19, 1959).

Chapter 8.11
EXPLOSIVES AND AMMUNITION

Sections:

8.11.010 Definitions. EXPLOSIVE shall mean any chemical compound, mixture or device, the primary or common purpose of which is to function by explosion. Small arms ammunition shall be excluded from this coverage.

SMALL ARMS AMMUNITION shall mean any shotgun, rifle, pistol or revolver cartridges, small arms primers, construction devices such as explosive rivets and explosive driven pins or studs, or ammunition containing no bursting charge in the projectile. (Ord. 87870 § 8.11.010; January 19, 1959).

8.11.020 Explosives not permitted. (a) The following shall not be allowed within the city:

1. The storing or keeping of explosives for a period of time greater than twenty-four hours, or exceeding one day's working supply.
2. Liquid nitroglycerine.
3. Dynamite (except gelatin dynamite) containing over sixty per cent of liquid explosive ingredient.
4. Dynamite which permits leakage of liquid explosive ingredient.
5. Guncotton in a dry and uncompressed condition in quantity greater than ten pounds net weight.

6. Fulminate of mercury in bulk in a dry condition and fulminate of all other metals in any condition except as a component of manufactured articles not hereinafter forbidden.
7. Explosive compositions that ignite spontaneously or undergo marked decomposition rendering the products or their use more hazardous, when subjected for forty eight (48) consecutive hours or less to a temperature of one hundred sixty-seven degrees Fahrenheit (167° F.).
8. Explosives containing an ammonium salt and chlorate.

(b) Explosives as defined in this Chapter shall not be allowed in any building.

Exception: Smokeless powder in quantities not to exceed fifty pounds (50 lbs.) in I. C. C. containers not to exceed four pounds (4 lbs.) may be kept on hand for resale in original containers.

(c) Explosives shall not be manufactured. (Ord. 87870 § 8.11.020; January 19, 1959).

8.11.030 Permit required. A permit shall be required to possess, keep, store, buy, sell, offer for sale, give away, use, discharge, transport, or otherwise dispose of explosives in any manner. (Ord. 87870 § 8.11.030; January 19, 1959).

8.11.040 Liability insurance required. A permit shall not be issued for the use, handling or transportation of explosives until the applicant has furnished public liability and property damage insurance in an insurance company licensed to do business in the State of Washington, in an amount and for a term to be fixed by the Fire Chief, and file with the Fire Chief a certificate issued by such insurance company that said insurance policy protects and indemnifies the City of Seattle as an additional insured. (Ord. 87870 § 8.11.040; January 19, 1959).

8.11.050 Transportation of explosives. (a) Exploders shall not be carried in the bed or body of a vehicle carrying other explosives; provided, however, not to exceed five hundred (500) exploders may be carried in a covered, cushioned box outside the bed of the vehicle and in close proximity to the driver's seat.

An exploder or other explosive shall not be carried on any public conveyance carrying passengers, nor shall anyone while being transported on any public conveyance carrying passengers carry or have in his possession any exploder or other explosive.

(b) Vehicles used for transporting explosives shall be not less than four-wheel, and shall be in good mechanical condition. If vehicles do not have a closed body, the body shall be covered with a tarpaulin or other effective protection against moisture and sparks. Such vehicles shall have tight floors and shall have a lining of wood or other non-sparking material

which shall cover any projections or metal which might come into contact with packages of explosives.

(c) Every vehicle used for the transportation of explosives shall, while containing explosives, have painted or placarded on all sides thereof the word "EXPLOSIVES" in legible red letters at least six inches (6″) high on a white background. If explosives are transported at night, signs shall be illuminated.

(d) Every vehicle used for transporting explosives shall be equipped with not less than two (2) approved type fire extinguishers located near the driver's seat.

(e) It shall be the duty of the person to whom an explosives transportation permit has been issued to inspect daily those vehicles employed by him to determine that the vehicles are in proper condition for handling explosives.

(f) Vehicles transporting explosives shall only be driven by and be in charge of a person insured in accordance with Section 8.11.040, who is competent, has a valid driver's license, is careful, capable, reliable, able to read and write the English language, and not addicted to the use, or under the influence of intoxicants or narcotics. He shall be familiar with the traffic regulations, State Laws and the provisions of this Code governing explosives.

(g) Explosives shall not be transported on any trailer, nor shall any trailer be attached to a vehicle hauling explosives.

(h) Sparking metal, sparking metal tools, oils, matches, firearms, electric storage batteries, flammable substances, acids, oxidizing or corrosive compounds shall not be carried in the bed of any vehicle transporting explosives.

(i) Vehicles containing explosives shall not be taken into a garage, or other repair shop, for repairs or storage.

(j) Unauthorized persons shall not ride on a vehicle transporting explosives.

(k) Vehicles transporting explosives shall not be left unattended at any time while explosives are in the vehicles. In making deliveries, explosives shall not be left unless they are placed in charge of a person possessing a valid explosives permit.

(l) Vehicles transporting explosives shall not be driven nearer than three hundred feet (300′) of each other.

(m) Explosives shall not be transported through any vehicular tunnel, subway or on an elevated roadway.

(n) When explosives are loaded or unloaded, the packages containing the explosives shall not be thrown or dropped, but shall be carefully deposited.

(o) Smoking shall be prohibited in a vehicle carrying explosives, or in the immediate vicinity thereof. (Ord. 87870 § 8.11.050; January 19, 1959).

8.11.060 Use of explosives. (a) Blasting operations shall be permitted during daylight hours only, except by special permission by the fire chief.

(b) Whenever blasting is being conducted in the vicinity of utilities, the blaster shall notify a responsible representative of the utilities affected at least twenty-four hours in advance of blasting, specifying the location and intended time of such blasting. In an emergency, this time limit may be waived by the fire chief.

(c) Whenever blasting is being conducted, a covering shall be required to prevent fragmentation. The blasting shall be done in such a manner as to protect from damage and injury any person or property.

(d) In opening containers, wooden wedges and either wood, fibre or rubber mallets shall be used. Metal tools shall not be used for opening any container of explosives, except that non-sparking metallic slitters may be used for opening fiberboard cases, provided the slitter does not come in contact with the metallic fasteners of the case.

Explosives shall not be handled by any person while under the influence of intoxicating liquors or narcotics.

(e) Smoking shall be prohibited while handling explosives, or in the vicinity thereof.

(f) Boxes or cases, or wood, paper or fibre materials employed in packing explosives shall not be burned in a stove, fireplace, or other confined space, or be used again for any purpose. Such materials shall be destroyed by burning at an approved isolated location out of doors, and no person shall be nearer than one hundred feet after the burning has started.

(g) Open flame or non-approved light shall not be used in the vicinity of explosives. (Ord. 87870 § 8.11.060; January 19, 1959).

8.11.070 Exceptions. This chapter shall not be construed as applying to the following:

1. Signal rockets or devices or compositions used to obtain visible or audible pyrotechnic effects, which are covered in Chapter 8.12 of this code.
2. Laboratories of schools, colleges and similar institutions when confined to the purpose of instruction or research, or explosives in the official United States Pharmacopeia.
3. Hand loading of small arms ammunition for private personal use and not for resale. For this purpose, not more than ten pounds of smokeless powder and one thousand small arms primers packed

in approved I. C. C. containers shall be permitted to be kept on hand.

(Ord. 87870 § 8.11.070; January 19, 1959).

Chapter 8.12
FIREWORKS

Sections:

8.12.010 Definitions. The following terms when used herein shall have the following meanings:

FIREWORKS includes any of the following: blank cartridges, toy pistols, toy cannons, toy canes or toy guns in which explosives are used, fire balloons (balloons of a type which have burning material of any kind attached thereto or which require fire underneath to propel them), firecrackers, torpedoes, skyrockets, rockets, Roman candles, daygo bombs, or other fireworks of like construction and any fireworks containing any combustible or explosive substance for the purpose of producing a visible or audible effect by combustion, explosion, deflagration, or detonation, but does not include toy pistols, toy canes, toy guns, or other similar devices in which paper caps containing not more than twenty-five hundredths grain of explosive compound per cap are used. Nothing herein shall be deemed to prohibit the use of any explosive or flammable compound, blasting caps and similar items used for industrial purposes.

DANGEROUS FIREWORKS includes any of the following:

(1) Pyrotechnics or fireworks containing phosphorous, sulphocyanide, mercury, magnesium, potassium picrate, gallic acid, chlorate of potash and sulfur or chlorate of potash and sugar;

(2) Firecrackers, salutes, and other explosive articles of similar nature;

(3) Blank cartridges;

(4) Skyrockets, rockets, including all similar devices employing any combustible or explosive material and which rise in the air during discharge;

(5) Roman candles, including all devices which discharge balls of fire into the air;

(6) Chasers, including all devices which dart or travel about the surface the ground during discharge;

(7) Snakes, boa constrictors and snake nests, containing bichloride of mercury;

(8) All articles for pyrotechnic display, which contain gun powder;

(9) Articles commonly known as son-of-a-gun, devil-on-the-rock, crackit sticks and automatic torpedoes which contain arsenic;

(10) Explosives known as devil-on-the-walk, or any other article of similar character which explodes through means of friction, and all other similar fireworks, unless otherwise designated;

(11) Toy torpedoes of all kinds;

(12) All pyrotechnic devices having a side fuse;

(13) Fire balloons or balloons of any type which have burning material of any kind attached thereto; and

(14) Such other fireworks as may be designated as dangerous by the State Fire Marshal.

SAFE AND SANE FIREWORKS includes any fireworks not designated as "dangerous fireworks" except that in all cases only end fuses may be used and the total pyrotechnic content of any one piece shall not exceed one hundred grams. (Ord. 87870 § 8.12.010, as amended by Ord. 92898; May 11, 1964).

8.12.020 Permit required. It shall be unlawful to use, discharge or make any public display of any dangerous fireworks or to store, offer for sale, expose for sale or sell at retail or wholesale either dangerous fireworks or safe and sane fireworks without having first secured a permit so to do which is hereby designated a "fireworks permit." (Ord. 87870 § 8.12.020, as amended by Ord. 92898; May 11, 1964).

8.12.021 Application for permit—Liability insurance. Application for a permit to engage in any of the activities mentioned in Section 8.12.020 shall be made to the fire chief on a form prepared by him and at least thirty days prior to the requested effective date of the permit. The application must be accompanied by a valid license issued by the state fire marshal pursuant to RCW Chapter 70.77 to engage in the particular activity for which the permit is sought, and by a fee of ten dollars hereby established as the fireworks permit fee. A separate application must be made, and the ten dollar fee paid for each location at which the applicant proposes to store, sell or use fireworks. The application must also be accompanied by a public liability and property damage insurance policy from an insurance company licensed to do business in the state of Washington in the sum of at least three hundred thousand dollars for bodily injury or

death suffered by one or more persons in any one accident or occurrence and at least one hundred thousand dollars for property damage for each permit location and by a products liability insurance policy in the amount of three hundred thousand dollars; provided that as to an application for a permit for a public display of dangerous fireworks, the fire chief, in the exercise of reasonable discretion, may accept in lieu of such products liability insurance policy, a good and sufficient bond in the amount of three hundred thousand dollars executed by the applicant for such permit as principal, and by a surety company authorized to do business in the state of Washington as surety, approved as to form by the corporation counsel and as to sufficiency of surety by the fire chief, and conditioned upon the applicant's payment of all damages to persons or property which result from any defect in any fireworks or pyrotechnic article or device used in connection with such display, and further conditioned upon indemnification of the city from any and all loss, damages, actions and claims of any kind or character resulting from any such defect. The applicant must also file with the fire chief a certificate issued by such insurance company that said insurance policy or policies protect and indemnify the city of Seattle as an additional insured against public liability and property damages. (Ord. 87870 § 8.21.021 added by Ord. 92898 and amended by Ord. 96677; May 9, 1968).

8.12.022 Investigation of stand—Conditions for issuance of permit—Scope of permit. An application for a permit to store or sell safe and sane fireworks shall state the location of the stand or building in which the permittee proposes to store and/or sell such safe and sane fireworks.

Upon receipt of such application to store or sell safe and sane fireworks the fire chief shall make an investigation to ascertain whether the following conditions have been complied with:

1. The stand or building in which the fireworks will be stored or sold shall be located no less than three hundred feet from any other fireworks stand, or alternatively, be separated from any other such stand by a major arterial thoroughfare no less than one hundred feet in width, and be located no less than fifty feet from any other building and no less than one hundred feet from any gasoline or flammable liquid dispensing device or installation.

2. The area around the proposed fireworks stand shall be completely free of any accumulations of dry grass, brush, debris or other hazardous accumulations of any nature for a distance of not less than twenty-five feet on all sides.

3. Such fireworks stand shall be accessible to an improved public street or thoroughfare and have an adequate source of water available to

the fire department within a distance of not to exceed five hundred feet from such stand.

4. The proposed stand must be of sound construction, not over one story in height nor more than five hundred square feet in area, used for no other purpose and have at least two exits located remotely from each other.

5. If temporary in nature the stand must have been constructed under permit from the board of public works.

6. Such stand must have been constructed so that it can be thoroughly locked when not in use for the purpose intended and contain a suitable storage magazine for storage of fireworks during hours when the stand will be unattended which magazine must be solidly constructed of two-inch thick wood material throughout, including sides, bottom and lid, and must be of a size adequate to hold the merchandise to be stored when the stand is not in use.

7. Electrical wiring shall be limited to that necessary to provide adequate lighting when such stand is used for its intended purpose which wiring must have been installed in an approved manner with substantial material and fittings as necessary for heavy duty temporary service.

The fire chief shall make such other investigation as he deems necessary in connection with the safety of the proposed operation. After completing his investigation the fire chief shall forward the application and the results of his investigation to the city council along with his recommendation as to whether the permit applied for should be granted or denied. The city council shall consider such application and recommendations and in its discretion shall either grant or deny the permit applied for. Such permit, if issued, shall authorize only the storage and selling of safe and sane fireworks, for the period stated on its face not exceeding ten days within the following inclusive dates: twelve noon on the twenty-eighth of June and twelve noon on the sixth of July of any year.

No fireworks shall be stored, sold or offered for sale at retail outlet stores unless such fireworks have been classified and are labeled as "safe and sane fireworks" in accordance with the provisions of the state fireworks law and the state fire marshal's rules and regulations promulgated thereunder. Such permit shall not authorize the permittee to store and/or sell fireworks anywhere except at the location for which issued, and said permit shall not be transferrable. (Ord. 87870 § 8.12.022 added by Ord. 92898; May 11, 1964).

8.12.023 Safety rules. All permittees selling or storing safe and sane fireworks shall apply with the following rules and with such other rules consistent with this chapter as are promulgated by the fire chief for safety purposes:

1. No building or structure in which fireworks shall be stored or from which they shall be sold shall contain any heating device.

2. Such structure must be equipped at all times with at least two fire extinguishers of two and a half gallon water type or equivalent.

3. Whenever the fireworks stand is unattended all fireworks must be placed in the required magazine and the same securely locked.

4. "No smoking" signs must be posted prominently on each fireworks stand.

5. Automobiles shall not be permitted to park, nor shall any fireworks be used, within twenty-five feet of any fireworks stand.

6. At least one adult must be in attendance at all times when the stand is used for the purpose intended.

The fire chief may revoke any fireworks permit for any violation or failure to comply with any provisions of this chapter or other applicable ordinance or with any provision of the state fireworks law. (Ord. 87870 § 8.12.023, added by Ord. 92898; May 11, 1964).

8.12.024 Public display permit. An application for a permit to sell, use, discharge or make a public display of dangerous fireworks shall be made to the fire chief on a form prepared by him, giving all the information he may require concerning the safety of the proposed sale, use, discharge, or public display and it must appear therefrom that the requested sale, use, discharge, or public display of dangerous fireworks will be in compliance with Chapter 228, Laws of Washington 1961, known as the "state fireworks law," and with the State Fire Marshal's rules and regulations promulgated thereunder. The fire chief shall make an investigation as to whether the proposed sale, use, discharge, or public display will be of such character and will be so located that it may be hazardous to property or dangerous to any person, and shall make such other investigation as he deems necessary in connection with the safety of the proposed operation. After making such investigation the fire chief, as to an application for a permit for a public display of dangerous fireworks, shall in the exercise of reasonable discretion grant or deny such application, and as to an application for a permit other than a permit to make a public display of dangerous fireworks, shall forward such application to the city council along with his recommendation as to whether the permit applied for should be granted or denied. The city council shall consider such application and recommendation and in its discretion shall either grant or deny the permit applied for. Such permit may be revoked by the fire chief for any violation of or failure to comply with the provisions of this ordinance or the provisions of the state fireworks law. (Ord. 87870 § 12.024 added by Ord. 92898 and amended by Ord. 96169; October 11, 1967).

8.12.030 Disposal of unfired fireworks. Any fireworks that remain unfired when any fireworks permit expires shall, within twenty-four hours thereof, be disposed of in a way safe for the particular type of fireworks. (Ord. 87870 § 8.12.030, as amended by Ord. 92898; May 11, 1964).

8.12.040 Exceptions. This chapter shall not be construed to prohibit any resident wholesaler, dealer, or jobber to sell at wholesale such fireworks as are not herein prohibited; or the sale of any kind of fireworks provided the same are to be shipped directly out of state; or the use of fireworks by railroads or other transportation agencies for signal purposes or illumination, or the sale or use of blank cartridges for a show or theater, or for signal or ceremonial purposes in athletics or sports, or for use by military organizations. (Ord. 87870 § 8.12.040; January 19, 1959).

8.12.050 Seizure of fireworks. The fire chief shall seize, take, remove, or cause to be removed at the expense of the owner all stocks of fireworks offered for sale or exposed for sale, stored or held in violation of this chapter or the state fireworks law or beyond the time established by the permit which may have been issued therefor. (Ord. 87870 § 8.12.050, as amended by Ord. 92898; May 11, 1964).

Chapter 8.13

FIRE PROTECTION EQUIPMENT

Sections:

8.13.010 Scope. This charter shall apply to the use, placement and maintenance of fire extinguishing equipment, alarm and fire detection equipment within buildings. (Ord. 87870 § 8.13.010; January 19, 1959).

8.13.020 Fire department to survey premises and specify fire protective equipment. The fire chief shall survey all occupancies, except Group I occupancy and shall specify suitable fire detective devices or fire extinguishing appliances and equipment to cope with the fire hazard therein; such fire detecting and extinguishing devices may consist of automatic fire alarm systems, fixed, or portable fire extinguishers of suitable type, or manual and automatic covers. In special hazardous processes or storage, special systems may be required other than automatic sprinklers or standpipes. (Ord. 87870 § 8.13.020; January 19, 1959).

8.13.030 Alarm systems required. (a) All nursing homes, rest homes,

fraternity and sorority houses, boarding houses, clubs, etc., having up to fifty residents, shall be equipped with an adequate fire alarm system for the evacuation of the premises in event of fire. All equipment shall be of approved type, and may be nonsupervised, open-circuit, noncoded, whereby the operation of any station or detector shall cause all alarm signals to sound continuously until the station is reset or detector replaced. Sufficient signals shall be provided so that an alarm can be heard in all sectors.

(b) Small hotels, motels of more than one story, dormitories, clubs, homes for the aged, institutions, schools, etc., having from fifty to two hundred residents shall be equipped with an adequate fire alarm system for the evacuation of the premises in event of fire. The system shall consist of an approved noncoded, closed-circuit, fully supervised, continuous ringing type, whereby the operation of any manual or automatic station will cause all alarm signals to operate continuously until the stations have been restored. Facilities shall be provided for testing and fire drills, to be conducted without breaking the glass on the manual station. Signals shall be adequate to be heard in all sectors.

(c) Hotels, motels of more than one story, dormitories, clubs, institutions, etc., having more than two hundred residents, and hospitals having less than fifty beds, shall be equipped with an adequate fire alarm system for the evacuation of the premises in event of fire. The system shall consist of an approved coded, closed-circuit, fully supervised system, whereby the operation of any manual or automatic coded station will sound the code of the operated station on all signalling devices at one time. Basically, four complete rounds of the code shall be transmitted. Supervision will provide protection against open circuits or grounds. Test facilities shall be provided for complete testing at all times, with no false alarms. The source of the alarm is to be immediately investigated by authorized personnel. System referred to in Section 8.13.030(d) may be used in hotels or motels if desired.

(d) All hospitals, fifty beds and larger, shall be equipped with approved coded, closed-circuit, supervised, pre-signal system whereby the operation of any manual or automatic coded station will sound a pre-signal circuit only in certain specific locations previously determined. The source of the alarm is to be immediately investigated by authorized personnel.

If a general alarm, requiring evacuation of the hospital or certain sections thereof, appears essential, the authorized person, by means of a special key, operates the same station a second time, thereby transmitting a general coded alarm on all signalling devices.

Four (4) rounds of the code are to be transmitted. Any open circuits or grounds will cause special signal at panel for immediate investigation, etc. (Ord. 87870 § 8.13.030; January 19, 1959).

8.13.040 Portable extinguishers required. (a) In each story of every building or part thereof used as a factory, mill, pier, store, warehouse, workshop or similar Group E or F occupancy wherein highly combustible materials are used or stored, there shall be installed and maintained not less than one (1) unit Class A fire extinguisher for each twelve hundred square feet (1200 sq. ft.) of floor space.

(b) In every story of every building or part thereof used as an apartment house, club house, store, hotel, place of public assembly, office building, hospital, school building or similar Group A, B, C, D, F, G, or H occupancy building, there shall be installed and maintained in the hallways thereof not less than one (1) unit Class A extinguisher for every twenty-five hundred square feet (2500 sq. ft.) of floor space.

(c) In each story of every building or part thereof used as a factory, warehouse, workshop or similar Group E or F occupancy wherein flammable or combustible liquids are used or stored, there shall be installed and maintained not less than one (1) unit Class B extinguisher for every six hundred twenty-five square feet (625 sq. ft.) of floor space.

(d) In every building, other than Group I and J occupancies, there shall be installed and maintained within five feet (5′) of the doorway to every boiler and furnace room using liquid fuel one (1) unit Class B-C extinguisher for every six hundred twenty-five square feet (625 sq. ft.) of floor space of the boiler room. (Ord. 87870 § 8.13.040; January 19, 1959).

8.13.050 Approval. (a) Any required extinguisher shall be of a type approved for such location.

(b) Portable fire extinguishers or fire protection equipment other than those mentioned herein which have been found by the Fire Chief to be equivalent to the extinguishers required by this Chapter may be used in lieu of the fire extinguishers herein required. (Ord. 87870 § 8.13.050; January 19, 1959).

8.13.060 Certificates of fitness. It shall be unlawful for any person to repair or fill any required portable fire extinguisher unless said person has obtained from the Fire Chief a Certificate of Fitness to do so.

Each applicant for a Certificate of Fitness to repair or fill fire extinguishers shall be at least twenty-one (21) years of age, able to speak, read and write the English language understandingly, possessed of reliability and good judgment, shall be familiar with the necessary work and materials to be used in repairing and filling fire extinguishers, and all requirements of this Code relating to portable fire extinguishers.

Whenever the Fire Chief shall find that a person holding a Certificate

of Fitness as above provided for is careless, negligent or unfitted for the work for which he has been issued such Certificate, he is hereby authorized and empowered to revoke or suspend said Certificate. (Ord. 87870 § 8.13.060; January 19, 1959).

8.13.070 Maintenance of equipment. (a) Sprinkler systems, standpipe systems, fire alarm systems, and other fire protective or extinguishing systems or applicances which have been installed in compliance with any permit or order, or because of any law or ordinance, shall be maintained in operative condition at all times, and it shall be unlawful for any owner or occupant to reduce the effectiveness of the protection so required; except this shall not prohibit the owner or occupant from temporarily reducing or discontinuing the protection where necessary to make tests, repairs, alterations or additions. The Fire Chief shall be notified before such tests, repairs, alterations or additions are started and upon completion.

(b) Extinguishers shall be inspected, dated and recharged where necessary and not less than once every twelve (12) months by a qualified person.

(c) Extinguishers shall be filled only with the extinguishing agent recommended by the manufacturer of the extinguisher. (Ord. 87870 § 8.13.070; January 19, 1959).

8.13.080 Classification of extinguishers. (a) Class A extinguishers shall be those devices used on ordinary combustible materials, such as wood, cloth and paper where the quenching and cooling effect is most effective to extinguish fire.

(b) Class B extinguishers shall be those devices used on flammable liquids and greases where the blanketing and smothering effect is used to extinguish fire.

(c) Class C extinguishers shall be those devices where the extinguishing medium is nonconductive and acceptable for use on electrical fires.

(d) Unit of extinguishment shall be the relative fire extinguishing potential of various class extinguishers and will be designated on the manufacturer's label by the Arabic number preceding class of extinguisher (i.e. 2-A indicates two units of Class A extinguishment, 4-B indicates four units of Class B extinguishment).

The following table indicates the class and approximate number of units for certain extinguishers. Extinguishers which have been found by the Fire Chief to be the equivalent as to capacity and efficiency of the extinguishers listed may be used in lieu of such listed extinguishers.

CLASSIFICATION OF FIRE EXTINGUISHERS

Extinguisher Type and Size		Units (Approximate) and Class
Chemical Solution (Soda-acid)	1¼ and 1½ gal.	1-A
	2½ gal.	2-A
Water	1½ and 1¾ gal. (pump or pressure)	1-A
	4 gal. (pump or pressure)	3-A
	5 gal. (pump or pressure)	4-A
Loaded Stream	1 gal.	1-A
	1¾ gal.	2-A, ½-B
	2½ gal.	2-A, ½-B
Foam	1¼ gal.	1-A, 2-B
	1½ gal.	1-A, 2-B
	2½ gal.	2-A, 4-B
	5 gal.	4-A, 6-B
Vaporizing Liquid (Carbon tetrachloride base)	1, 1¼, 1½ quart (Pump)	½-B, C
	1, 1½, 2, 2½ quart (pressure)	1-B, C
	1 gal. (pressure)	1-B, C
Vaporizing Liquid (chlorobromomethane)	1, 1½ quart (pressure)	1-B, C
	1 gal. (pressure)	2-B, C
Carbon Dioxide	6 or less pounds	1-B, C
	7½ pounds	2-B, C
	10 pounds	4-B, C
	12 pounds	4-B, C
	15, 18 pounds	4-B, C
	20 pounds	4-B, C
	25, 26 pounds	6-B, C
Dry Chemical	6¼ or less pounds	4-B, C
	7½ pounds	6-B, C
	10 pounds	8-B, C
	12 pounds	8-B, C
	15 pounds	8-B, C
	20 pounds	16-B, C

(Ord. 87870 § 8.13.080, as amended by Ord. 89864; December 12, 1960).

Chapter 8.14
FLAMMABLE FINISHES, APPLICATION

Sections:

DIVISION I GENERAL PROVISIONS

DIVISION I

8.14.010 Scope. (a) This Chapter shall apply to locations or areas where the following activities are regularly done.

1. The application of flammable or combustible paint, varnish, lacquer, stain or other flammable or combustible liquid applied as a spray in continuous or intermittent processes; and
2. Dip tank operations in which articles or materials are passed through the contents of tanks, vats or containers of flammable or combustible liquids, including coating, finishing, treating and similar processes.

(b) The provisions of this Chapter shall not apply to the following:

1. Spraying or dipping operations utilizing one-half gallon (½ gal.) or less of flammable or combustible liquids in any twenty-four hour (24 hr.) period.
2. Spray painting of a building, or portions thereof, either initially or in renovating operations.

(Ord. 87870 § 8.14.010 as amended by Ord. 88339; June 29, 1959).

8.14.020 Flow coat operations. (a) Flow coat operations shall con-

form to the requirements for dip tanks, considering the area of the sump and any areas on which paint flows as the area of a dip tank.

(b) Paint shall be supplied by direct low pressure pumping arranged to automatically shut down by means of approved heat actuated devices, in case of fire, or by gravity tank not exceeding ten gallons (10 gal.) in capacity. (Ord. 87870 § 8.14.020; January 19, 1959).

8.14.030 Definitions. "DANGEROUS ACCUMULATIONS OF VAPOR" shall mean the maximum concentration of twenty-five per cent (25%) of the lower explosive limit.

"DIP TANK" shall mean a tank, vat or container of flammable or combustible liquid in which articles or materials are immersed for the purpose of coating, finishing, treating or similar processes.

"FLOW COATING" as referred to herein applies to integral units which apply finishes in liquid streams to the article being finished in a system of conveyors, tunnels, washers, drip tunnels, dry-off ovens and related appurtenances.

"SPRAYING AREA" shall mean any area in which dangerous quantities of flammable vapors or combustible residues, dusts or deposits are present due to the operation of spraying processes.

A spraying area shall include any area in the direct path of spray or any area containing dangerous quantities of air-suspended combustible residue, dust, deposits, spray or vapor as a result of spraying operations.

"SPRAY BOOTH" shall mean an enclosure or compartment within a spraying area or room for the purpose of enclosing articles while being sprayed.

"SPRAYING OR DIPPING ROOM" shall mean a room limited to three hundred square feet (300 sq. ft.) in area, constructed of a minimum of one-hour fire-resistive or approved steel construction, equipped with a one hundred thirty-five degree (135°) automatic sprinkler system; and shall comply with Section 8.15.170 in all other respects.

"VAPOR AREA" shall mean any area which may contain dangerous quantities of flammable vapors in the vicinity of dip tanks, their drain boards or associated drying, conveying or other equipment during operation or shutdown periods. (Ord. 87870 § 8.14.030; January 19, 1959).

8.14.040 Permits required. A permit shall be obtained for the following:

1. Spray finishing operations utilizing flammable or combustible liquids.
2. Dipping operations (Dip Tanks) utilizing flammable or combustible liquids.
3. Flow coat operations.

With the original application for such permit for spraying or dipping operations, reproductions in triplicate shall be submitted to the Building Department of drawings in sufficient detail to show clearly the location, general layout, construction, automatic fire extinguishing equipment and storage facilities. (Ord. 87870 § 8.14.040 as amended by Ord. 88339; June 29, 1959).

8.14.050 Occupancy restrictions. (a) Spraying or dipping operations utilizing flammable or combustible liquids are prohibited in Groups A, B and D occupancies.

(b) Spraying or dipping operations utilizing flammable or combustible liquids are limited to a "spraying or dipping room" in Groups C, F, G, H and I occupancies.

Exception: Group F Division 2 and Group G, factories and workshops.

(c) In Groups E and F-2 occupancies where paint spraying or dipping operations occur and where close interrelation is customary, an occupancy separation may not be required, providing the entire building is sprinklered, unless the elimination of such separation creates a demonstrable hazard based on life and fire risk as determined by the Fire Chief. The major use shall determine the occupancy of the building.

(d) In Group G (factories and workshops) occupancies where paint spraying or dipping operations occur and where close interrelation is customary, an occupancy separation or automatic sprinkler system may not be required, unless the elimination of such separation or sprinkler system creates a demonstrable hazard based on life and fire risk as determined by the Fire Chief. The major use shall determine the occupancy of the building. (Ord. 87870 § 8.14.050; January 19, 1959).

8.14.060 Smoking and welding. Smoking, welding and all other similar flame and ignition sources are prohibited from flammable finishing areas. All such areas shall be posted with signs reading "NO SMOKING OR WELDING." (Ord. 87870 § 8.14.060; January 19, 1959).

8.14.070 Electrical wiring and equipment. Electrical wiring and equipment shall conform to the provisions of the Electrical Code for hazardous locations unless otherwise directed in this Code. (Ord. 87870 § 8.14.070; January 19, 1959).

DIVISION II SPRAY FINISHING

8.14.080 Spray booths. (a) Spray booths shall be substantially constructed of noncombustible material.

(b) The interior surfaces of spray booths shall be smooth and con-

tinuous without edges and otherwise designed to prevent pocketing of residues and facilitate cleaning and washing without injury.

(c) The floor of the spray booth and operators' working area, if combustible, shall be covered with noncombustible, non-sparking material of such character as to facilitate the safe cleaning and removal of residues.

(d) Distribution of baffle plates, if installed to promote an even flow of air through booth or cause the deposit of overspray before it enters exhaust duct, shall be of noncombustible material and readily removable or accessible on both sides for cleaning. Such plates shall not be located in exhaust ducts.

(e) Each spray booth having a frontal area larger than nine square feet (9 sq. ft.) shall have a metal deflector or curtain not less than two and one-half inches (2½″) deep installed at the upper outer edge of the booth, over the opening.

(f) Each spray booth shall be separated from other operations by not less than three feet (3′), or by a greater distance, or by such partition or wall as the Fire Chief may require to reduce the danger from juxtaposition of hazardous operations.

(g) Spray booths shall be so installed that all portions are readily accessible for cleaning. A clear space of not less than three feet (3′) on all sides shall be kept free from storage or combustible construction.

(h) When spraying areas are illuminated through panels, only fixed lighting units shall be used as a source of illumination. Panels shall effectively isolate the spraying area from the area in which the lighting unit is located, and shall be of noncombustible material of such a nature or so protected that breakage will be unlikely. Panels shall be so arranged that normal accumulations of residue on the exposed surface of the panel will not be raised to a dangerous temperature by radiation or conduction from the source of illumination.

(i) When applying a spray material known to be highly susceptible to spontaneous heating and ignition, the water wash type booth shall be provided. (Ord. 87870 § 8.14.080; January 19, 1959).

8.14.090 Dry type overspray collectors—(Exhaust air filters). In conventional dry type spray booths, overspray dry filters, if installed, shall conform to the following:

1. The spraying operation shall be so designed, installed and maintained that the average air velocity over the open face of the booth (or booth cross-section during spraying operations) shall be not less than one hundred linear feet (100′) per minute.
2. Discarded filter pads shall be immediately removed to a safe, well detached location or placed in a water-filled metal container and disposed of at the close of the day's operation.

3. The location of filters in a spray booth shall be so as to not reduce the effective booth enclosure of the articles being sprayed.
4. Space within spray booth on the downstream and upstream sides of filters shall be protected with approved automatic sprinklers.
5. Filters shall be of noncombustible or of approved type.
6. Filters shall not alternately be used for the application of lacquer and other materials such as varnishes, stains and ground coats.

(Ord. 87870 § 8.14.090; January 19, 1959).

8.14.100 Electrical and other sources of ignition. (a) There shall be no open flame or spark producing equipment in any spraying area as defined in Section 8.14.030, nor within twenty feet (20′) thereof, unless separated by a partition, except as specifically provided for in this Code.

(b) Space heating appliances, steam pipes or hot surfaces shall not be located in a spraying area where deposits of combustible residues may readily accumulate.

(c) Unless specifically approved for locations containing both deposits of readily ignitable residue and explosive vapors, there shall be no electrical equipment in any spraying area, whereon deposits of combustible residues may readily accumulate, except wiring in rigid conduit or in boxes or fittings containing no taps, splices or terminal connections, and except as specifically provided for elsewhere in this Code.

(d) Electrical wiring and equipment not subject to deposits of combustible residues but located in a spraying area shall be as provided in the Electrical Code for hazardous locations.

(e) Electrical wiring, motors and other equipment outside of but within twenty feet (20′) of any spraying area, and not separated therefrom by partitions, shall not produce sparks under normal operating conditions, and shall be as provided in the Electrical Code for hazardous locations.

(f) Electrical lamps outside of but within twenty feet (20′) of any spraying area and not separated therefrom by a partition shall be totally enclosed to prevent the falling of hot particles, and shall be protected from physical damage by suitable guards or by location.

(g) Portable electric lamps shall not be used in any spraying area during spraying operations. Portable electric lamps, if used during cleaning or repairing operations, shall be of the type approved for hazardous locations.

(h) All metal parts of spray booths, exhaust ducts and piping systems conveying flammable liquids shall be properly electrically grounded in an effective and permanent manner. (Ord. 87870 § 8.14.100; January 19, 1959).

8.14.110 Ventilation of spray booths and spray finishing areas. (a)

Spraying areas shall be provided with mechanical ventilation to prevent the dangerous accumulation of vapors.

(b) Spraying operations shall not be conducted unless mechanical ventilation is in operation.

(c) Each spray booth shall have an independent exhaust duct system discharging to building exterior, except multiple cabinet spray booths in which identical spray finishing material is used with a combined frontal area of not more than eighteen square feet (18 sq. ft.) may have a common exhaust. If more than one (1) fan serves one (1) booth, all fans shall be so interconnected that one (1) fan cannot operate without operating all.

(d) Electric motors driving exhaust fans shall not be placed inside booths or ducts. Fan rotating element shall be non-ferrous or non-sparking or the casing shall consist of or be lined with such material.

(e) Belts shall not enter duct or booth unless belt and pulley within the duct or booth are tightly enclosed.

(f) Exhaust ducts shall be constructed of steel and shall be substantially supported.

(g) Exhaust ducts shall have a clearance from unprotected combustible construction or material of not less than eighteen inches (18″). If combustible construction is provided with the following protection applied to all surfaces within eighteen inches (18″), the clearance from combustible construction may be reduced to the distances indicated:

1. 28 gauge sheet metal on ¼-inch asbestos mill board.....12 inches
2. 28 gauge sheet metal on ⅛-inch asbestos mill board spaced out one inch (1″) on noncombustible spacers.....12 inches
3. 22 gauge sheet metal on 1-inch rockwool bats reinforced with wire mesh or the equivalent.....12 inches

(Ord. 87870 § 8.14.110; January 19, 1959).

8.14.120 Storage and handling of flammable finishes. (a) The storage and handling of flammable liquids shall be in accordance with Chapter 8.15 of this Code and shall conform to the provisions of this section.

(b) Original closed containers, approved portable tanks, approved safety cans or a properly arranged system of piping shall be used for bringing flammable liquids into spray finishing areas. Open or glass containers shall not be used.

(c) Containers supplying spray nozzles shall be of closed type or provided with metal covers kept closed. Containers not resting on floors shall be on noncombustible supports or suspended by wire cables. Containers supplying spray nozzles by gravity flow shall not exceed ten gallons (10 gals.) capacity.

(d) All containers or piping to which is attached a hose or flexible connection shall be provided with a shut-off valve at the connection. Such valves shall be kept shut when not in use.

(e) Heaters constituting a source of ignition shall not be located in spray rooms or booths nor other locations subject to the accumulation of deposits or combustible residue.

(f) If flammable liquids are supplied to spray nozzles by positive displacement pumps, pump discharge line shall be provided with an approved relief valve discharging to pump suction or a safe detached location.

(g) Whenever flammable liquids are transferred from one container to another, both containers shall be effectively grounded. Piping systems for flammable liquids shall be permanently grounded. (Ord. 87870 § 8.14.120; January 19, 1959).

8.14.130 Fire protection equipment. Approved portable fire extinguishing units shall be installed, one (1) such unit to each spray nozzle. (Ord. 87870 § 8.14.130; January 19, 1959).

8.14.140 Operations and maintenance. (a) Spraying areas shall be kept free from the accumulation of deposits of combustible residues.

(b) Scrapers, spuds or other such tools used for cleaning purposes shall be of non-spraking material.

(c) Residue scrapings and debris contaminated with residue shall be immediately removed from premises and disposed of properly.

(d) Approved metal waste cans having six-inch (6″) legs and a self-closing cover shall be provided wherever rags or waste are impregnated with finishing material and all such rags or waste deposited therein immediately after use. The contents of waste cans shall be properly disposed of at least once daily and at the end of each shift. (Ord. 8.7870 § 8.14.140; January 19, 1959).

8.14.150 Drying apparatus. Drying apparatus shall, in addition to conforming with the requirements of this chapter, comply with the applicable provisions of Chapter 8.24. (Ord. 87870 § 8.14.150; January 19, 1959).

DIVISION III

DIP TANKS

8.14.160 Ventilation of vapor areas. (a) Vapor areas shall be provided with mechanical ventilation adequate to prevent the dangerous accumulation of vapors.

(b) Required ventilating systems shall be so arranged that the failure of any ventilating fan shall automatically stop any dipping conveyor system. (Ord. 87870 § 8.14.160; January 19, 1959).

8.14.170 Construction of dip tanks. (a) Dip tanks, including drain boards if provided, shall be constructed of substantial noncombustible

material, and their supports shall be of heavy metal, reinforced concrete or masonry.

(b) Dip tanks of over sixty gallons (60 gal.) capacity shall be equipped with a properly trapped overflow pipe leading to a safe location outside buildings.

(c) The bottom of the overflow connection shall be not less than six inches (6″) below the top of the tank.

(d) Dip tanks over sixty gallons (60 gal.) liquid capacity shall be equipped with bottom drains automatically and manually arranged to quickly drain tank in event of fire, unless the viscosity of the liquid at normal atmospheric temperature makes this impractical. Manual operation shall be from a safely accessible location. Where gravity flow is not practicable, automatic pumps shall be provided.

(e) Such drains shall be trapped and discharged to a closed properly vented salvage tank or to a safe outside location.

(f) Dip tanks utilizing a conveyor system shall be so arranged that in the event of fire the conveyor system shall automatically cease motion and required bottom drains shall open. (Ord. 87870 § 8.14.170; January 19, 1959).

8.14.180 Electrical and other sources of ignition. (a) There shall be no open flames, spark producing devices or heated surfaces having a temperature sufficient to ignite vapors in any vapor area.

(b) Electrical wiring and equipment in any vapor area shall be as provided in the Electrical Code for hazardous locations.

(c) Unless specifically approved for locations containing both deposits of readily ignitable residues and explosive vapors, there shall be no electrical equipment in the vicinity of dip tanks or associated drain boards or drying operations which are subject to splashing or dripping of dip tank liquids, except wiring in rigid conduit or in threaded boxes or fittings containing no taps, splices or terminal connections, and except as hereinafter specifically permitted in Sections 8.14.210 to 8.14.240, relating to electrostatic apparatus.

(d) In any floor space outside a vapor area but within twenty feet (20′) therefrom and not separated by tight partitions, there shall be no open flames or spark producing devices, except drying and baking apparatus may be installed adjacent to vapor areas when conforming to Section 8.14.150. In such area, electrical wiring and equipment shall be as provided in the Electrical Code for hazardous locations. (Ord. 87870 § 8.14.180; January 19, 1959).

8.14.190 Operations and maintenance. (a) Areas in vicinity of dip tanks shall be kept as clear of combustible stock as practical and shall be kept entirely free of combustible debris.

(b) When waste or rags are used in connection with dipping operations, approved metal waste cans having six-inch (6″) legs and a self-closing cover shall be provided and all impregnated rags or waste deposited therein immediately after use. The contents of waste cans shall be disposed of at the end of each shift by methods approved of by the Fire Chief. (Ord. 87870 § 8.14.190; January 19, 1959).

8.14.200 Fire extinguishing equipment. (a) Areas in the vicinity of dip tanks shall be provided with manual fire extinguishers suitable for flammable liquid fires as specified by the Fire Chief.

(b) Dip tanks shall be protected with at least one of the following automatic extinguishing facilities:

1. Approved automatic water spray extinguishing system;
2. Aproved automatic foam extinguishing system;
3. Approved automatic carbon dioxide system;
4. Dip tank covers conforming to Section 8.14.210. (Ord. 87870 § 8.14.200; January 19, 1959).

8.14.210 Dip tank covers. (a) Covers arranged to close automatically in the event of fire shall be actuated by approved automatic devices and shall also be arranged for manual operation.

(b) Covers shall be of substantial noncombustible material or of tin-clad type with enclosing metal applied with locked joints.

(c) Chains or wire rope shall be used for cover support or operating mechanism where the burning of a cord would interfere with the action of a device.

(d) Covers shall be kept closed when tanks are not in use. (Ord. 87870 § 8.14.210; January 19, 1959).

DIVISION IV

ELECTROSTATIC APPARATUS

8.14.220 Equipment type and location. (a) Electristatic apparatus and devices used in connection with paint spraying and paint detearing operations shall be of approved types.

(b) Transformers, power packs, control apparatus, and all other electrical portions of the equipment, with the exception of high voltage grids and electrostatic atomizing heads and their connections, shall be located outside of the spraying or vapor areas as defined in Section 8.14.030, or shall conform to the requirements of Sections 8.14.100 and 8.14.180.

(c) Electrodes and electrostatic atomizing heads shall be of substantial construction, shall be rigidly supported in permanent locations and shall be effectively insulated from ground. Insulators shall be nonporous and noncombustible. (Ord. 87870 § 8.14.220; January 19, 1959).

8.14.230 Controls. (a) A space shall be maintained between goods being painted or deteared and electrodes, electrostatic atomizing heads or conductors of at least twice the sparking distance. A suitable sign stating the sparking distance shall be conspicuously posted near the assembly.

(b) Electrostatic apparatus shall be equipped with automatic controls which will operate without delay to disconnect the power supply to high voltage transformer and to signal the operator under any of the following conditions:

1. Stoppage of ventilating fans or failure of ventilating equipment from any cause.

2. Stoppage of the conveyor carrying goods past the high voltage grid.

3. Occurrence of a ground or of an imminent ground at any point on the high voltage system.

4. Reduction of clearance below that specified in Section 8.14.230 (a). (Ord. 87870 § 8.14.230; January 19, 1959).

8.14.240 Guards and signs. (a) Adequate booths, fencing, railings or guards shall be so placed about the equipment that they, either by their location or character or both, assure that a safe isolation of the process is maintained from plant storage or personnel. Such railings, fencing and guards shall be of conducting material, adequately grounded, and shall be at least five feet (5′) from processing equipment.

(b) Signs designating the process zone as dangerous as regards fire and accident shall be posted. (Ord. 87870 § 8.14.240; January 19, 1959).

8.14.250 Maintenance. (a) Insulators shall be kept clean and dry.

(b) Drip plates and screens subject to paint deposits shall be removable and shall be taken to a safe place for cleaning. (Ord. 87870 § 8.14.250; January 19, 1959).

Chapter 8.15

FLAMMABLES AND COMBUSTIBLE LIQUIDS

Sections:

DIVISION I
GENERAL PROVISIONS

8.15.010 Scope. This chapter applies to the storage, handling and use of flammable liquids and to the storage, handling and use of combustible liquids in containers, the individual capacity of which is more than sixty gallons. (Ord. 87870 § 8.15.010, as amended by Ord. 89864; December 12, 1960).

8.15.020 Definitions. AIRCRAFT SERVICE STATION means that portion of an airport where flammable liquids used as aircraft fuel are stored or dispensed from fixed equipment and shall include all facilities essential thereto.

AUTOMOTIVE SELF-SERVICE STATION means that portion of a property where flammable liquids used as motor fuels are stored and subsequently dispensed from approved fixed dispensing equipment directly into motor vehicle fuel tanks by persons other than an automotive service station attendant as part of a retail sale.

AUTOMOTIVE SERVICE STATION means that portion of a property where flammable liquids used as motor fuels are stored and dispensed from fixed equipment into the fuel tanks of motor vehicles.

BULK PLANT means that portion of a property where liquids are received by tank vessel, pipe line, tank car or tank vehicle, and are stored or blended in bulk for the purpose of distributing such liquids by tank vessel, pipe line, tank car, tank vehicle or container.

CLOSED CONTAINER means a container so sealed by means of a lid or other device that neither liquid nor vapor will escape from it at ordinary temperatures.

COMBUSTIBLE LIQUID means any liquid having a flash point above two hundred degree Fahrenheit and below six hundred degrees Fahrenheit.

COMMERCIAL or INDUSTRIAL ESTABLISHMENT means a place where in the storage, handling or use of liquids is incidental to but not the principal business or process.

COMMERCIAL PIER or WHARF means a waterfront facility, pier, wharf or quay used for varied operations and not designated as a flammable liquid marine terminal or marine service station.

CONTAINER means any can, bucket, barrel, drum or portable tank, except stationary tanks, tank vehicles and tank cars.

CRUDE PETROLEUM means hydrocarbon mixtures that have a flash point below one hundred fifty degrees Fahrenheit and which have not been processed in a refinery.

FLAMMABLE LIQUID means any liquid having a flash point below two hundred degrees Fahrenheit and having a vapor pressure not exceeding forty pounds per square inch (absolute) at one hundred degrees Fahrenheit.

Flammable liquids shall be divided into three classes as follows:

Class I includes those having flash points at or below twenty degrees Fahrenheit.

Class II includes those having flash points above twenty degrees Fahrenheit but at or below seventy degrees Fahrenheit.

Class III includes those having flash points above seventy degrees Fahrenheit but at or below two hundred degrees Fahrenheit.

When artificially heated to temperatures equal to or higher than their flash point, Class II and III liquids shall be subject to the applicable requirements for Class I or II liquids. This Code may also be applied to high flash point liquids when so heated even though these same liquids when not heated are outside of its scope.

FLAMMABLE LIQUID MARINE TERMINAL means a waterfront facility, pier, wharf or quay designed for the bulk transference of liquids.

FLAMMABLE LIQUID TRANSIT YARD means a specific area for the storage of liquids in closed containers only.

FLASH POINT means the minimum temperature in degrees Fahrenheit at which a flammable liquid will give off flammable vapor as determined by appropriate test procedure and apparatus as follows:

The flash point of flammable liquids having a flash point below one hundred seventy-five degrees Fahrenheit shall be determined in accordance

with the Standard Method of Test for Flash Point by Means of the Tag Closed Tester as set forth in Standard D 56, edition of 1956, published by the American Society for Testing Materials, a copy of which is filed with the city comptroller (C.F. 236287).

The flash point of flammable liquids having a flash point of one hundred seventy-five degrees Fahrenheit or higher shall be determined in accordance with the Standard Method of Test for Flash Point by means of the Pensky-Martens Closed Tester as set forth in Tentative Standard D 93, edition of 1958, published by the American Society for Testing Materials, a copy of which is filed with the city comptroller (C.F. 236287).

MARINE SERVICE STATION means a waterfront facility for the servicing of marine craft.

PROCESSING PLANT means that portion of a property in which liquids are mixed, heated, separated or otherwise processed as principal business, but shall not include plants defined herein as bulk plants or refineries.

REFINERY means a plant in which liquids are produced on a commercial scale from hydrocarbon sources.

SAFETY CAN means an approved container, of not more than five gallons capacity, having a spring-closing lid and spout cover.

VAPOR PRESSURE means the pressure, measured in pounds per square inch (absolute) exerted by a volatile liquid as determined by the Reid Method. (Ord. 87870 § 8.15.020 as amended by Ord. 89864 and Ord. 101645 § 1; December 7, 1972).

8.15.030 Permits required. Permits shall be issued by the fire chief upon application and upon compliance with all requirements of this Code. In the event of subsequent noncompliance, a permit may be revoked by the fire chief. If a permit has been revoked, application for a new permit shall be required.

A new permit shall be required prior to the making of structural alterations affecting storage or use.

As a portion of the application for a permit for a flammable liquid marine terminal or marine service station, reproductions in triplicate shall be submitted of drawings in sufficient detail to show clearly location, general layout, access, storage facilities, contruction, fire control system, and utilities. An approved copy of such reproduction shall form a part of the permit.

A permit shall be obtained for any of the following:

(a) Storage, handling or use of Class I in excess of one gallon or Class II in excess of six gallons, in any building, except that a permit shall not be required for the following:

(1) For the storage or use in the fuel tank of a motor vehicle, aircraft, motor boat, mobile power plant, or mobile heating plant,

(2) For the storage or use of paints, oils, varnishes, or similar flammable mixtures when such liquids are stored for maintenance, painting, or similar purposes for a period of not more than thirty days,

(3) For in transit storage in closed containers in warehouses or in freight terminals for a period of forty-eight hours or less;

(b) Storage, handling or use of Class III flammable liquids in excess of sixty gallons when not regulated by the Building Code;

(c) For the manufacture, processing, blending or refining;

(d) For aboveground stationary tanks not regulated by the Building Code;

(e) For the movement of flammable liquids over commercial piers, wharves or quays and waterfront structures, except for subsections (f) and (g) of this section;

(f) For the operation of a flammable liquid marine terminal;

(g) For a marine service station;

(h) For bulk deliveries from a tank vehicle into portable containers or powered equipment;

(i) for storage in flammable liquid transit yards;

(j) For marine vessels loaded with, or having on board, any cargo of flammable liquids having a flash point below one hundred ten degrees Fahrenheit;

(k) For marine vessels used as containers for transferring liquids to other vessels;

(l) For vehicles transporting flammable liquids. Vehicles containing flammable or combustible liquids, excepting as may be in the vehicle fuel tank, which enter upon any commercial pier or wharf;

(m) For operation of an automotive self-service station. (Ord. 87870 § 8.15.030 as amended by Ord. 101645 § 2; December 7, 1972).

8.15.040 Warning labels for containers of flammable liquids with flash points not in excess of 150° F. Flammable liquids, flammable liquid compounds or flammable liquid mixtures with flash point not in excess of one hundred fifty degrees Fahrenheit, offered for sale at retail in containers except beverages, articles of food or drugs, shall be conspicuously marked or labeled in easily legible type, which is in contrast by typography, layout or color with any other printed matter on the label, substantially as follows: FLAMMABLE, KEEP AWAY FROM HEAT, SPARKS AND OPEN FLAME, KEEP CLOSED WHEN NOT IN USE, or other similar approved markings. (Ord. 87870 § 8.15.040; January 19, 1959).

DIVISION II
STORAGE AND HANDLING
BULK STORAGE ABOVEGROUND (OUTSIDE OF BUILDINGS)

8.15.050 Restricted locations. Storage in aboveground tanks outside

of buildings is prohibited within the limits of Fire Zones One and Two as defined in the Building Code.

Exceptions: 1. Individual tanks having a capacity of not more than sixty gallons (60 gals.).

2. Individual tanks having a capacity of not more than two hundred seventy-five gallons (275 gals.) for use in conjunction with a heating plant.

3. In aboveground tanks legally installed and in use prior to date of adoption of this Title. (Ord. 87870 § 8.15.050; January 19, 1959).

8.15.060 Location with respect to property lines. (a) Location of an aboveground tank with respect to distance from the nearest line of adjoining property which may be built upon, and from the high water mark of tide water and the shore line of fresh water bodies shall be such that the distance between the tank and the property line, or salt or fresh water line, shall be not less than that set forth in Table No. 8.15.060.

(b) An individual aboveground tank for storage shall not have a capacity in excess of 11,300,000 gallons and no such tank shall, exclusive of appurtenances designed and used for no other purpose than vapor conservation, exceed sixty (60) feet in height nor two hundred (200) feet in diameter, or horizontal dimension if the tank is not cylindrical.

(c) Where two (2) tank locations of diverse ownership have a common boundary, the Fire Chief may, with the written consent of the owners of the two properties, substitute the distances provided in Section 8.15.070 of this chapter, Spacing Between Tanks, for the minimum distances set forth in this section.

TABLE NO. 8.15.060

Capacity of Tank	Liquid	Minimum Distance
0 to 275 gals.	Class III Flammable & Combustible	0 feet
276 to 750 gals.	Class III Flammable & Combustible	5 feet
0 to 750 gals.	Class I and II Flammable	10 feet
751 to 12,000 gals.	Class III Flammable & Combustible	10 feet
751 to 12,000 gals.	Class I and II Flammable	15 feet
12,001 to 24,000 gals.	All Classes Flammable & Combustible	15 feet
24,001 to 30,000 gals.	All Classes Flammable & Combustible	20 feet
30,001 to 50,000 gals.	All Classes Flammable & Combustible	25 feet

TANKS WITH CAPACITIES IN EXCESS OF 50,000 GALLONS

Product Stored	Tank Protection	Minimum Distance
Refined Petroleum Products or Other Liquids Not Subject to Boil-over	Equipped with an approved attached extinguishing system or an approved floating roof	Greatest dimension of diameter or height of tank except that such distance need not exceed 120 feet
	Not equipped with either of the above	1½ times the greatest dimension of diameter or height of tank, except that such distance need not exceed 175 feet
Crude Petroleum or Other Liquids with Boil-over Characteristics	Equipped with an approved attached extinguishing system or an approved floating roof	2 times the greatest dimension of diameter or height of tank except that such distance shall not be less than 20 feet and need not exceed 175 feet
	Not equipped with either of the above	3 times the greatest dimension of diameter or height of tank except that such distance shall not be less than 20 feet and need not exceed 350 feet

(Ord. 87870 § 8.15.060, as amended by Ord. 89864; December 12, 1960).

8.15.070 Spacing between tanks. (a) The location of a tank for the storage of flammable liquids with respect to any such other tank shall be not less than that set forth in Table No. 8.15.070.

TABLE NO. 8.15.070

Capacity of Tank		Minimum Distance to Any Other Tank
61 to	1,000 gals.	3 feet
1,001 to	12,000 gals.	5 feet
12,001 to	24,000 gals.	6 feet
24,001 to	50,000 gals.	7 feet
50,001 to	100,000 gals.	10 feet
More than	100,000 gals.	15 feet

(b) The minimum separation between a liquefied petroleum gas container and tanks for the storage of flammable or combustible liquids shall be twenty (20) feet. Suitable means shall be taken to prevent the accumulation of liquids under adjacent liquefied petroleum gas containers such as by diking, diversion curbs or grading. When tanks are diked, the liquefied petroleum gas containers shall be outside the diked area, at least ten (10) feet away from the center line of the dike. The foregoing provisions shall not apply when liquefied petroleum gas containers of one hundred twenty-five (125) gallons or less capacity are installed adjacent to tanks for the storage of Class III flammable liquids or combustible liquids of two hundred seventy-five (275) gallons or less capacity.

(c) Every aboveground tank for the storage of flammable liquids shall be thoroughly grounded electrically in an approved manner.

(d) Heating of flammable or combustible liquids in aboveground tanks shall be done by steam, hot water or approved electrical equipment only. (Ord. 87870 & 8.15.070, as amended by Ord. 89864; December 12, 1960).

8.15.080 Foundations and supports. (a) Tanks shall rest directly on the ground or on foundations or supports of concrete, masonry, piling or steel. Exposed piling or steel supports shall be protected by fire-resistive materials to provide a fire-resistive rating, as defined in the Building Code, of not less than two hours.

(b) Anchorage. Where a tank is located in an area that may be subjected to flooding, it shall be protected as follows:

1. Pipe connections below allowable liquid level in tanks shall be provided with valves or cocks located as closely as practicable to tank shell. Such valves and their connections to tanks shall be of steel or other material suitable for use with the liquid being stored. Cast iron shall not be used.

2. Aboveground vertical storage tanks shall not be so located that the maximum allowable liquid level within the tank is below the established maximum flood stage.

3. Except at locations where there is an ample and dependable public water supply available at and below the established maximum flood stage, facilities independent of public water supply shall be provided for loading partially empty tanks with water.

4. Each tank so located that more than seventy per cent (70%), but less than one hundred per cent (100%), of its allowable liquid storage capacity will be submerged at the established maximum flood stage shall be protected by one of the following means:

a. The tank shall be raised, or its height shall be increased, until its top extends above the maximum flood stage a distance equivalent to thirty per cent (30%) or more of its allowable liquid storage capacity, provided,

however, that the submerged part of the tank shall not exceed two and one-half (2½) times the diameter; or

b. Adequate noncombustible structural guides, designed to permit the tank to float vertically without loss of product, shall be provided, or

c. The tank shall be secured to a concrete or steel and concrete foundation of sufficient weight to provide adequate loading of tank when filled, or

d. Provisions shall be made to equalize the internal and external pressures on the tank. (Ord. 87870 § 8.15.080; January 19, 1959).

8.15.090 Stairs, platforms and walkways. Stairs, platforms and walkways shall be of noncombustible construction, as defined in the Building Code. (Ord. 87870 § 8.15.090; January 19, 1959).

8.15.100 Dikes and walls. (a) CRUDE PETROLEUM. Tanks or groups of tanks containing crude petroleum or other liquid having similar boil-over characteristics, shall be diked or other suitable means taken to prevent discharge of liquid from endangering adjoining property or reaching waterways. Where a diked enclosure is required under this section, it shall have a capacity of not less than one hundred per cent (100%) of that of the tank or tanks served by the enclosure.

(b) OTHER LIQUIDS. Individual tanks or groups of tanks shall be diked or the yard shall be provided with a curb or other suitable means taken to prevent the spread of liquid onto other property or waterways. Where a diked enclosure is required under this section, the volumetric capacity of the diked area shall be not less than the capacity of the largest tank within the diked area.

(c) DIKE CONSTRUCTION AND MAINTENANCE. Dikes or retaining walls shall be of earth or concrete and shall be designed to be liquid-tight and to withstand a full hydraulic head. Concrete walls shall be constructed as provided in the Building Code for reinforced concrete structures. Earthen dikes three (3) feet or more in height shall have a flat section at the top not less than two (2) feet wide. The slope shall be consistent with the angle of repose of the material of which the dikes are constructed. Dikes shall be constructed and maintained without openings other than for pipes, which openings shall be closed tight around the pipes before oil is placed in the enclosed tank or tanks. Structures other than a storage tank shall not be placed in the enclosure, and it shall be kept free of combustible rubbish or other combustible material, except the liquid stored in the tanks. A boiler, furnace or stove shall not be placed or maintained within a diked enclosure, and fires shall not be lighted therein for any purpose.

Exception: Open flame, electric arc or spark producing tools may be used on or within any tank or pipe within an enclosure, provided such tools are used in an approved manner.

(Ord. 87870 § 8.15.100, as amended by Ord. 89864; December 12, 1960).

8.15.110 Design and construction of tanks operating at substantially atmospheric pressure. (a) Tanks shall be designed to specifications embodying safety factors equivalent to those herein specified for steel tanks. Shop built tanks shall be tested at a pressure of not less than five pounds per square inch (5 p.s.i.) and not more than ten pounds per square inch (10 p.s.i.) (measured at the top of the tank) for a period of at least ten minutes (10 min.) without leakage or permanent deformation.

(b) FIELD ERECTED VERTICAL TANKS. Vertical tanks erected in the field shall be constructed and installed as provided in the Building Code.

(c) SMALL, SHOP BUILT TANKS. Tanks not over one thousand one hundred gallons (1,100 gals.) capacity shall meet the following requirements:

Capacity	Minimum Thickness of Steel U. S. Standard
1 to 60 gals.	18 gauge
61 to 275 gals.	14 gauge
276 to 560 gals.	12 gauge
561 to 1,100 gals.	10 gauge

(d) LARGE, SHOP BUILT VERTICAL TANKS. Vertical tanks over one thousand one hundred gallons (1,100 gals.) capacity shall meet the following requirements:

1. For tanks up to twenty-five feet (25′) in height the shell shall be not less than three-sixteenths inches (.1875″) thick. For tanks from twenty-five feet (25′) to thirty feet (30′) high the bottom ring shall be not less than one-fourth inch (¼″) thick and the remainder of the shell not less than three-sixteenths inches (.1875″) thick. For tanks between thirty feet (30′) and thirty-five feet (35′) high, the first two (2) rings shall be not less than one-fourth inch (¼″) thick and the remainder of the shell not less than three-sixteenths inches (.1875″) thick. All one-fourth inch (¼″) thick rings shall be not less than five feet (5′) wide.

2. Tops of tanks shall be either dished or cone-shaped and of not less than No. 10 U. S. Standard gauge steel.

3. Tanks shall be welded, or riveted and caulked, or otherwise made tight. The roof of the tank shall be securely fastened to the top ring of the shell with a joint having the same tightness as the joints between rings. The joint between roof and shell shall be weaker than any other joints in the shell of the tank. Joints in the roof shall be welded or riveted, or made tight by other approved process. Roofs of tanks shall have no unprotected openings.

(e) SHOP BUILT HORIZONTAL TANKS. Horizontal tanks shall be riveted and caulked, riveted and welded, or welded. Tank heads over six feet (6′) in diameter shall be dished, stayed, braced, or reinforced. Shell and heads of horizontal tanks over one thousand one hundred gallons (1,100 gals.) capacity having a diameter of not over six feet (6′), made of steel, shall be not less than three-sixteenths inches (.1875″) nominal thickness. Shell and heads of tanks having a diameter of over six feet (6′) and not more than twelve feet (12′), made of steel, shall be not less

than one-fourth inch (¼") nominal thickness. (Ord. 87870 § 8.15.110; January 19, 1959).

8.15.120. Vents. (a) VENTS FOR NORMAL BREATHING. Tanks shall have normal venting capacity sufficient to permit the filling and emptying of such tanks, plus their breathing due to temperature changes, without distortion of tank shell or roof. Tanks storing Class I and II flammable liquids shall be equipped where practical with either venting devices which shall be normally closed when not under pressure or vacuum, or with approved flame arresters.

(b) VENTS FOR EMERGENCY RELIEF. In addition to the provisions for normal venting herein required, every aboveground storage tank shall have some form of construction or device that will relieve excessive internal pressure, caused by exposure fires, that might cause the rupture of the tank shell or bottom. In a vertical tank, this construction may take the form of a weakened seam in the roof. The joint between the roof and the shell of a tank thirty-six feet (36') or more in diameter, if built in accordance with Section 8.15.110(b) of this chapter, shall be deemed to be a weakened seam for this purpose. Where entire dependence for such additional relief is placed upon some dvice other than a weak roof seam or joint, the total venting capacity of both normal and emergency vents shall be enough to prevent rupture of the shell or bottom of the tank if vertical, or of the shell or heads if horizontal. Such device may be a self-closing manhole cover, or one using long bolts that permits the cover to lift under internal pressure, or an additional or larger relief valve or valves. Venting equipment installed for normal operation may serve as emergency relief, provided that it has the requisite capacity. When emergency relief is provided by other than a weak roof seam or joint, the total capacity of the normal breather and emergency relief shall be sized according to Table No. 8.15.120, Required Total Pressure Relief Capacity of Vents.

TABLE NO. 8.15.120

REQUIRED TOTAL PRESSURE RELIEF CAPACITY OF VENTS

Gallons	Total Pressure Relief Capacity (Cu. Ft. of Free Air Per Hour)	Approximate Diameter in Inches of Free Circular Opening for Various Pressures			
		3 In. of Water	1 PSI	2½ PSI	5 PSI
1,000	25,300	4	2½	2	1½
4,000	69,500	6¾	3¾	3	2½
18,000	139,000	9½	5½	4¼	3¾
25,000	166,000	10¼	6	4¾	4
56,000	253,000	12¾	7¼	5¾	5
100,000	363,000	15¼	8¾	7	6
155,000	458,000	17¼	9¾	7¾	6½
222,000	522,000	18¼	10½	8¼	7
475,000	624,000	20	11¼	9	7¾
735,000	648,000	20	11½	9¼	7¾
Unlimited	648,000	20	11½	9¼	7¾

(Ord. 87870 § 8.15.120; January 19, 1959).

8.15.130 Tank valves. Each connection to an aboveground tank located below normal liquid level shall be provided with an internal or external control valve located as close as practicable to the shell of the tank. Except for flammable and/or combustible liquids whose chemical characteristics are incompatible with steel, such valves, when external, and their connections to the tank shall be of steel. (Ord. 87870 § 8.15.130; January 19, 1959).

8.15.140 Fire control. Each aboveground tank or group of tanks for storage shall be protected with approved fire extinguishing equipment. (Ord. 87870 § 8.15.140; January 19, 1959).

8.15.150 Bulk storage underground or in buildings. Tanks underground or in buildings shall be constructed and installed as provided in the Building Code. (Ord. 87870 § 8.15.150; January 19, 1959).

STORAGE AND HANDLING OF CONTAINERS INSIDE BUILDINGS

8.15.160 Scope. Sections 8.15.160 to 8.15.200 inclusive apply to the storage of flammable liquids in drums or other portable containers not exceeding sixty gallons (60 gals.) individual capacity inside buildings. These requirements do not apply to bulk plants, service stations, refineries and other plants storing and handling crude petroleum, nor do they

apply to fuel oil storage for use with oilfired heating and cooking appliances. (Ord. 87870 § 8.15.160; January 19, 1959).

8.15.170 Design and construction of flammable liquid storage rooms. (a) Flammable liquid storage rooms shall be restricted to three hundred square feet (300 sq. ft.) in floor area and shall comply with the following general construction requirements: Walls, floors and ceilings shall be of construction having a fire resistance rating, as defined in the Building Code, of not less than one hour. Openings to other rooms or buildings shall be provided with noncombustible liquid-tight raised sills or ramps at least six inches (6″) in height and with approved fire doors with heat-actuated releasing devices arranged to close doors automatically in case of fire. Where other portions of the building or other properties are exposed, windows shall be protected in an approved manner. Combustible materials shall not be used for interior room surfaces or shelving. Proper ventilation shall be provided. Heating shall be restricted to low pressure steam or hot water or to approved electrical units.

(b) Electrical devices located in flammable liquid storage rooms shall be as provided in the Electrical Code for hazardous locations.

(c) Storage rooms shall be located to minimize damage in the event of an explosion and shall be contiguous to an exterior wall. Only one (1) room shall be allowed for each occupancy.

(d) The quantities of flammable liquids permitted in flammable liquid storage rooms shall be as set forth in Table No. 8.15.190. (Ord. 87870 § 8.15.170; January 19, 1959).

8.15.180 Storage cabinets. Storage cabinets shall be constructed as follows or built to equivalent requirements: The bottom, top, door and sides of cabinet shall be at least No. 18 gauge sheet iron and double walled with one and one-half inch (1½″) air space. Joints shall be riveted, welded or made tight by some equally effective means. The door shall be provided with a three-point lock, kept closed when not in use, and the door sill shall be raised at least two inches (2″) above the bottom of the cabinet. When deemed necessary by the Fire Chief, cabinets shall be vented. The cabinet shall be conspicuously labeled in red letters "FLAMMABLE —KEEP FIRE AWAY." (Ord. 87870 § 8.15.180; January 19, 1959).

8.15.190 Manner of storage and limitations. (a) Flammable and/or combustible liquids shall not be stored (including stock for sale) within fifteen feet (15′) of exits, stairways, or areas normally used for egress.

(b) The storage of liquids in closed containers shall comply with the following occupancy schedule. (See Building Code for occupancy classifications):

1. GROUP 1 OCCUPANCY. Storage, other than heating oil, prohibited, except that which is required for maintenance or equipment opera-

tion which shall not exceed ten gallons (10 gals.). Such flammable liquids shall be stored in metal closed containers or safety cans.

2. GROUP G AND H OCCUPANCIES. Storage prohibited, except that which is required for maintenance and operation of building and operation of equipment. Such storage shall be kept in metal closed containers stored in a storage cabinet or in safety cans or in a flammable liquid storage room, any door of which shall not open into that portion of the building used by the public.

3. GROUP C OCCUPANCY. Storage shall be limited to that required for maintenance, demonstration, treatment and laboratory work and shall be in a flammable liquid storage room or storage cabinet. Flammable liquids stored for such purposes shall be in closed containers not larger than one quart (1 qt.) or in safety cans not exceeding five gallons (5 gals.) capacity.

4. GROUPS F, E-3 and E-4 OCCUPANCIES. In rooms or areas accessible to the public, storage shall be in closed containers and limited to quantities needed for display and normal merchandising purposes, not to exceed the quantities outlined in Table No. 8.15.190.

5. GROUP E-2 OCCUPANCY. Unlimited quantities may be allowed.

6. GROUPS E, F AND G OCCUPANCIES. Approved portable buggies with a maximum capacity of sixty gallons (60 gals.) may be used for the storage of Class I or II flammable liquids in addition to the amount provided in Table No. 8.15.190.

7. GENERAL PURPOSE, PUBLIC, AND FLAMMABLE LIQUID WAREHOUSES. Flammable liquid containers shall be stored in tiers or piles, separated by main aisle widths of eight feet (8′) and side or stub aisle widths of four feet (4′). Paint in original sealed containers, the vehicle of which is Class III flammable liquid, may be stored in the following occupancies defined in the Building Code: One thousand gallons (1,000 gals.) or less in a Group F, Division 2 occupancy; one thousand one to four thousand gallons (1,001 to 4,000 gals.) in a Group E, Division 4 occupancy; over four thousand gallons (4,000 gals.) in a Group E, Division 2 occupancy; or if in transit in sealed containers of sixty gallons (60 gals.) or less capacity for not to exceed forty-eight hours (48 hrs.) in any quantity in a Group F, Division 2 occupancy.

TABLE No. 8.15.190
QUANTITIES OF FLAMMABLE LIQUIDS PERMITTED

QUANTITIES NOT REQUIRING FLAMMABLE LIQUID STORAGE ROOMS OR PERMIT		QUANTITIES REQUIRING FLAMMABLE LIQUID STORAGE ROOMS	
	Approved Storage Cabinets or Approved Safety Containers	Not Sprinklered Other Than E-1 or E-2 Occupancies	Sprinklered Other Than E-1 or E-2 Occupancies
1 gal. of Class I 6 gals. of Class II 60 gals. of Class III flammable liquids may be kept outside of a flammable liquid storage room. Containers for Class I and II flammable liquids in excess of one quart capacity, and Class III liquids in excess of one gal. capacity shall be metallic.	Maximum storage 55 gals. with no one approved safety container to exceed 5 gals. capacity. Limited to 10 gals. Class I Limited to 25 gals. Class II Limited to 55 gals. Class III	400 gallons total of Class I, II and III flammable liquids, of which not more than 30 gals. may be of Class I and II flammable liquids, of which not more than 10 gals. may be of Class I flammable liquids.	1100 gals. total of Class I, II and III flammable liquids, of which not more than 240 gals. may be of Class I and II flammable liquids, of which not more than 60 gals. may be of Class I flammable liquids.

(Ord. 87870 § 8.15.190; January 19, 1959).

8.15.200 Fire control. (a) Open flames, smoking and other sources of ignition shall not be permitted in flammable liquid storage rooms.

(b) Materials which will react with water to produce flammable vapors shall not be stored in the same room with liquids. (Ord. 87870 § 8.15.200; January 19, 1959).

STORAGE IN CLOSED CONTAINERS OUTSIDE BUILDINGS

8.15.210 Scope. (a) Sections 8.15.210 and 8.15.220 apply to the storage of flammable liquids in drums or other portable closed containers not exceeding sixty gallons (60 gals.) individual capacity outside buildings. These requirements shall not apply to bulk plants, service stations, refineries and other plants storing and handling crude petroleum, nor do they apply to fuel oil storage for use with oil-fired heating and cooking appliances.

(b) RESTRICTED LOCATIONS. The storage of flammable liquids in excess of one gallon (1 gal.) of Class I; six gallons (6 gals.) of Class II; sixty gallons (60 gals.) of Class III; and one hundred twenty gallons (120 gals.) of combustible liquids is prohibited within the limits of Fire Zones One and Two as defined in the Building Code.

Exception: Storage at locations legally so used prior to the effective date of this ordinance.

(Ord. 87870 § 8.15.210; January 19, 1959).

8.15.220 Basic safeguards. (a) Storage of one (1) to five (5) drums of Class I and II flammable liquids shall be located at least thirty feet (30′) from the nearest important building not used in conjunction with the operation, or line of adjacent property that may be built upon. Storage of less than three hundred (300) drums of Class III flammable liquids and combustible liquids shall be located at least fifteen feet (15′) from the nearest important building or line of adjoining property that may be built upon.

(b) Storage of six (6) to one hundred (100) drums or more of Class I and II flammable liquids shall be limited to groups of one hundred (100) drums, located at least sixty feet (60′) from the nearest important building not used in conjunction with the operation or line of adjacent property that may be built upon, and each group shall be separated by at least forty feet (40′). Storage of three hundred (300) drums or more of Class III flammable and combustible liquids shall be limited to groups of three hundred (300) drums located at least fifty feet (50′) from the nearest important building or line of adjacent property that may be built upon, and each group shall be separated by at least thirty feet (30′).

(c) Drum storage shall be located to prevent run-off or drainage toward other storage or buildings. The area shall be kept clear of grass, weeds and other foreign combustibles. Signs shall be posted prohibiting open flames and smoking. The entire storage area shall be enclosed with a six feet (6′) high wire or chain link fence, except where the entire property is adequately enclosed.

(d) Buildings used in conjunction with outside storage yards shall be of noncombustible construction as defined in the Building Code. (Ord. 87870 § 8.15.220; January 19, 1959).

DIVISION III

PIPING, VALVES AND FITTINGS

8.15.230 Materials and design. Piping, valves and fittings shall be designed for the working pressures and structural stresses to which they may be subjected. They shall be of steel or other material suitable for use with the liquid being handled. Pipe walls shall be of approved thicknesses. Carbon steel pipe shall not be thinner than standard wall thickness pipe. All threaded joints and connections shall be made up tight with suitable lubricant or piping compound. (Ord. 87870 § 8.15.230; January 19, 1959).

8.15.240 Protection against corrosion. Piping, where subject to external corrosion, shall be painted or otherwise protected. (Ord. 87870 § 8.15.240; January 19, 1959).

8.15.250 Supports. Pipe systems shall be substantially supported and protected against physical damage and excessive stresses arising from

settlement, vibration, earthquakes, expansion or contraction. (Ord. 87870 § 8.15.250; January 19, 1959).

8.15.260 Valves. Pipe systems shall contain a sufficient number of valves to operate the system properly and to protect the plant. Pipe systems in connection with pumps shall contain a sufficient number of valves to control properly the flow of liquid in normal operation and in the event of physical damage. Connections to pipe lines, by which equipment such as tank cars or tank vehicles discharge flammable liquids by means of centrifugal pumps into aboveground storage tanks, shall be provided with check valves or suitable protection against back-flow. (Ord. 87870 § 8.15.260; January 19, 1959).

DIVISION IV
BULK PLANTS

8.15.270 Location of plants. New bulk plants shall not be constructed within Fire Zones One and Two as defined in the Building Code. (Ord. 87870 § 8.15.270; January 19, 1959).

8.15.280 Storage. (a) STORAGE—CLASS I AND II. Class I and II flammable liquids shall be stored in closed containers, or in storage tanks aboveground outside of buildings, or underground.

(b) STORAGE—CLASS III FLAMMABLE LIQUIDS AND COMBUSTIBLE LIQUIDS. Class III flammable liquids and/or combustible liquids shall be stored in containers, or in tanks within buildings or aboveground outside of buildings, or underground. (Ord. 87870 § 8.15.280; January 19, 1959).

8.15.290 Ventilation. Ventilation shall be provided for all rooms, buildings or enclosures in which Class I and II flammable liquids are pumped or dispensed. Design of ventilation systems shall take into account the relatively high specific gravity of the vapors. Ventilation may be provided by adequate openings in outside walls at floor level unobstructed except by louvers or coarse screens. Where natural ventilation is impracticable, mechanical ventilation shall be provided. Mechanical systems for removing flammable vapors shall be designed, installed and operated as set forth in National Fire Protection Association Standard 91, "Blower and Exhaust Systems," Edition of 1949 (C. F. 236287). (Ord. 87870 § 8.15.290; January 19, 1959).

8.15.300 Buildings. (a) GENERAL CONSTRUCTION. Class I and II flammable liquids shall not be stored or handled within a building having a basement or pit into which flammable vapors may travel, unless such area is provided with ventilation designed to prevent the accumulation of flammable vapors therein.

(b) HEATING. Rooms in which Class I or II flammable liquids are

stored or handled shall be heated only by means not constituting a source of ignition. Rooms containing heating appliances involving sources of ignition shall be located and arranged to prevent entry of flammable vapors. (Ord. 87870 § 8.15.300; January 19, 1959).

8.15.310 Loading and unloading facilities. (a) Tank Vehicle Loading Racks.

1. LOCATION. Tank vehicle loading racks dispensing Class I or II flammable liquids shall be separated from other structures and nearest line of property that may be built upon by a clear distance of not less than twenty-five feet (25′), measured from the nearest position of any fill stem. Loading racks shall be of noncombustible construction and shall be protected with an approved water spray extinguishing system when used for dispensing Class I or II flammable liquids. Buildings for pumps or for shelter of loading personnel may be part of the loading rack.

2. STATIC PROTECTION. Loading racks shall be equipped with protection against static sparks during truck filling where vapors of Class I and II flammable liquids may be present. Protection shall consist of a metallic bond-wire permanently electrically connected to the fill-stem or some part of the fill-stem piping. The free end of such wire shall be provided with a clamp or similar device for convenient attachment to some metallic part of the cargo tank of the tank vehicle. The bond-wire connection shall be made prior to opening the dome covers. It shall be maintained in place during the entire filling operation and the dome covers shall be securely closed before the bond-wire is disconnected from the cargo tank.

(b) TANK CAR RACKS. Class I and II flammable liquids shall not be discharged from or loaded into tank cars unless protection against stray currents has been provided and is used. Protection shall be designed and installed in an approved manner.

(c) CONTAINER FILLING FACILITIES. Class I and II flammable liquids shall not be run into containers unless the nozzle and container are electrically interconnected. Where the metallic floorplate on which the container stands while filling is electrically connected to the fill stem or where the fill stem is bonded to the container during filling operations by means of a bond-wire, the provisions of this section shall be deemed to have been complied with.

(d) DRAINAGE AND WASTE DISPOSAL. Provision shall be made to prevent liquids which may be spilled at loading or unloading points from entering public sewers and drainage systems, or natural waterways. Connections to such sewers, drains, or waterways by which liquids might enter shall be provided with separator boxes or other approved means whereby such entry is precluded. Liquids shall not be dumped into sewers, but shall be stored in underground tanks or tight drums outside of any

building until removed from the premises. (Ord. 87870 § 8.15.310; January 19, 1959).

8.15.320 Electrical equipment. All wiring and electrical equipment, including motors and electrical switch gear for pumps handling Class I and II flammable liquids and located within the possible path of vapor travel, shall be as provided in the Electrical Code for hazardous locations. (Ord. 87870 § 8.15.320; January 19, 1959).

8.15.330 Sources of ignition. Class I or II flammable liquids shall not be handled, drawn or dispensed where flammable vapors may reach a source of ignition. Smoking shall be prohibited except in designated localities. "NO SMOKING" signs as required by Chapter 8.17 shall be conspicuously posted where hazard from flammable liquid vapors is normally present. (Ord. 87870 § 8.15.330; January 19, 1959).

DIVISION V

SERVICE STATIONS

8.15.340 Location. Apparatus dispensing Class I flammable liquids into the fuel tank of motor vehicles of the public shall not be located at a bulk plant unless separated by a fence or similar barrier from the area in which bulk operations are conducted. (Ord. 87870 § 8.15.340; January 19, 1959).

8.15.350 General construction. Class I and II flammable liquids shall not be stored or handled within a building having a basement or pit into which flammable vapors may travel, unless such area is provided with ventilation designed to prevent the accumulation of flammable vapors therein. (Ord. 87870 § 8.15.350; January 19, 1959).

8.15.360 Storage and handling. (a) GENERAL PROVISIONS. Class I and II flammable liquids shall be stored in closed containers, or in tanks located underground. Class III flammable liquids shall be stored in containers or in tanks located underground or in special enclosures as provided in the Building Code. Aboveground tanks, located in an adjoining bulk plant, may be connected by piping to service station underground tanks if, in addition to valves at aboveground tanks, a valve is also installed within control of service station personnel.

(b) STORAGE INSIDE BUILDINGS. Class I flammable liquids shall not be stored or handled within any service station building except packaged items, for example: cleaning fluid received and resold in unbroken metallic containers of not over one gallon (1 gal.) capacity each, or in approved nonmetallic containers of not more than one quart (1 qt.) capacity each. Class I or II flammable liquids shall not be dispensed or transferred from one container to another inside of a service station building, provided, however, that flammable anti-freeze liquids may be

dispensed in rooms of a service station building provided such rooms have approved heating devices and provided also that there is no open flame in such room lower than eight feet above floor level. Class III flammable liquids may be stored and dispensed inside service station buildings from approved containers of not more than sixty gallons capacity each.

(c) LABELING. Sale or purchase of any flammable liquids shall not be made in containers unless such containers are clearly marked with the name of the flammable liquid contained therein.

(d) DISPENSING CONTAINERS. Delivery of Class I and II flammable liquids shall be made into portable containers of six gallons or less capacity. Such container shall be of sound metal construction, and have a tight closure with screwed or spring cover and so designed that the liquid may be dispensed without spilling. (Ord. 87870 § 8.15.360; January 19, 1959).

8.15.370 Dispensing systems. (a) LOCATION. Dispensing devices at automotive service stations or automotive self-service station shall be so located that all parts of the vehicle being served will be on the premises of the service station.

(1) Inside Location. Approved dispensing units may be located inside garages upon specific approval of the fire chief. The dispensing area shall be separated from motor vehicle repair areas in a manner approved by the fire chief. The dispensing unit and its piping shall be protected against physical damage by vehicles either by mounting on a concrete island or by equivalent means and shall be located in a position where it cannot be struck by a vehicle descending a ramp or other slope out of control. The dispensing area shall be provided with an approved mechanical or gravity ventilation system. A clearly identified switch, readily accessible in case of fire or physical damage to any dispensing unit, shall be provided to shut off the power to dispensing units. When dispensing units are located below grade, only approved mechanical ventilation shall be used and the entire dispensing area shall be protected by an approved automatic sprinkler system.

(b) DISPENSING UNITS.

(1) Class I and Class II flammable liquids shall be transferred from underground tanks by means of fixed pumps so designed and equipped as to allow control of the flow and to prevent leakage or accidental discharge. Class I or Class II flammable liquids shall not be transferred from any storage tank by any equipment or procedure which subjects the shell of the storage tank to pressures above its allowable working pressure. Air or gas pressure shall not be used for this purpose.

(2) Supplemental means shall be provided outside of the dispensing device whereby the source of power may be readily disconnected in the event of fire or other accident.

(3) Dispensing devices for Class I and Class II flammable liquids shall be of approved type.

(4) Class I or Class II flammable liquids shall not be dispensed by pressure from drums, barrels, and similar containers. Approved pumps taking suction through the top of the container or approved self-closing faucets shall be used.

(c) REMOTE PUMPING SYSTEMS.

(1) Scope. Section 8.15.370(c) shall apply to systems for dispensing Class I flammable liquid where such liquid is tranferred from underground to individual or multiple dispensing units by pumps located elsewhere than at the dispensing units.

(2) Pumps. Pumps shall be designed or equipped so that no part of the system will be subjected to pressures above its allowable working pressure. Pumps installed above grade, outside of buildings, shall be located not less than ten feet from lines of adjoining property which may be built upon, and not less than five feet from any building opening. When an outside pump location is impractical, pumps may be installed inside of buildings as provided for dispensers in Section 8.15.370(a)-1, or in pits as provided in Section 8.15.370(c)-3. Pumps shall be substantially anchored and protected against physical damage by vehicles.

(3) Pits. Pits for subsurface pumps or piping manifolds of submersible pumps shall withstand the external forces to which they may be subjected without damage to the pump, tank, or piping. The pit shall be no larger than necessary for inspection and maintenance and shall be provided with a tight fitting cover.

(4) Controls. a. A control shall be provided that will permit the pump to operate only when a dispensing nozzle is removed from its bracket on the dispensing unit and the remote-controlled attendant-operated switch for this dispensing unit is manually actuated. This control shall also stop the pump when all nozzles have been returned to their brackets.

b. There shall be a means, visible from the operating area, to indicate when the pump motor is running.

c. A clearly identified emergency switch, readily accessible in case of fire or physical damage at any dispensing unit, shall be provided to shut off the power to the pump motors.

(5) Testing. After the completion of the installation including any paving, that section of the pressure piping system between the pump discharge and the connection for the dispensing facility, shall be tested for at least thirty minutes at a pressure fifty percent above the maximum operating pressure. Such tests shall be repeated at five year intervals thereafter.

(d) AUTOMATIC DISPENSING UNITS.

(1) Devices. All dispensing units shall be approved by a nationally recognized testing agency. Where dispensing units are part of a system, such as remote-controlled units, the unit and all compenents shall be approved for operation within such system. The installation and use of prepayment systems, coin, cards, or token-operated devices and similar equipment is prohibited.

(e) DELIVERY NOZZLES.

(1) Manual Nozzle. The dispensing of Class I flammable liquid into a fuel tank or into a container shall be under the control of a competent person at all times. The use of any device which permits the dispensing of Class I flammable liquid when the hand of the operator of the discharge nozzle is removed from the nozzle control lever is hereby forbidden except when using an automatic nozzle at any automotive service station as provided in Section 8.15.370(e)-2.

(2) Automatic Nozzles with Latch-Open Devices. In lieu of being held open by hand, an approved automatic nozzle may be used at automotive service stations for dispensing Class I flammable liquid into the fuel tank of a vehicle. Such a nozzle shall have the latch-open device as an intergral part of the assembly and shall shut off the liquid reliably and positively when the gasoline tank is filled, when it falls from the filling neck of an automobile tank, when it is subject to rough usage such as dropping or lack of proper lubrication, or when an automobile is driven away while the nozzle is still in the tank. A competent attendant shall be in the immediate vicinity of the vehicle being filled by such an approved nozzle.

(f) AUTOMOTIVE SELF-SERVICE STATIONS.

(1) Permit Required. It is unlawful to operate an automotive self-service station without possession of a valid permit. The holder of a permit shall be responsible for the maintenance in compliance with all the provisions of this chapter of the equipment, facilities, and operations conducted at such station. The holder of a permit shall arrange that every person performing the duties of attendant has the qualifications, training and certificate of fitness required herein. The installation or use of unapproved equipment, or the alteration of the facility, or conduct of any operation not in compliance with the provisions of this chapter shall be cause for revocation of the permit.

(2) Attendant Required. An automotive self-service station shall have at least one attendant on duty while the station is open to the public. Such attendant shall supervise, observe and control all dispensing of Class I flammable liquids.

(3) Attendant Responsibility. It shall be the responsibility of the attendant to: 1. Deactivate or turn off all Class I dispensing devices from the remote control position except when such devices are actually dispensing said liquids; 2. Control and supervise all self-service dispensing from the remote control console; 3. Prevent the dispensing of Class I flammable liquids into portable containers not in compliance with Section 8.15.360(C) and (D); 4. Control sources of ignition; 5. Immediately cease self-service operation when properly notified of a civil disturbance; 6. Immediately cease or refuse to dispense gasoline if in his opinion there exists a potentially dangerous situation; 7. Immediately handle accidental spills and fire extinguishers if needed.

(4) Certificate of Fitness. The attendant at an automotive self-service

station shall be mentally and physically capable of performing the duties and assuming the responsiblities prescribed above. It is unlawful for any person to perform the duties of attendant at an automotive self-service station unless such person has in his or her possession a certificate of fitness obtained from the fire chief. Each applicant for a certificate of fitness shall demonstrate by oral, written, or performance examination, a thorough understanding of the provisions of this chapter and shall supply verification of training in the hazards of Class I flammable liquids and actual operation of the type of fire extinguishing equipment required at the station where the applicant will be employed. A fee shall be charged for the issuance of a certificate of fitness as set forth in Section 8.28.010.

(5) Manual Nozzles. Only approved automatic-closing type nozzles, without latch-open device, shall be used at self-service dispensing units.

(6) Clear View. The dispensing area shall, at all times, be in clear view of the attendant. Closed-circuit television, mirrors, and other such devices may be used as auxiliary means to maintain surveillance.

(7) Clear Path. The attendant's surveillance station(s) shall be so located, the facility and traffic pattern shall be so deisigned, and all operations shall be so conducted that the attendant has a clear travel path to the dispensing area.

(8) Signs. In addition to the smoking control signs and signs required by Section 8.15.390, warning signs shall be posted giving notice that it is unlawful and dangerous to fill unapproved portable containers and that all dispensing into portable containers must be done by the attendant. Such signs shall be conspicuously posted immediately above pump operating instructions.

(9) Combined Activities. An automotive self-service station may be operated in conjunction with other activities such as retail operations in a Group F. Division 2 Occupancy, provided the dispensing devices are controlled in such a manner as to require the attendant's full-time surveillance during the actual dispensing operation.

(10) Physical Requirements. Before issuing a permit to operate an automotive self-service station, the fire chief shall inspect the premises to verify that physical installation conforms with the requirements of this Code. The fire chief shall specify any changes or additions necessary, including, but not limited to: erection of traffic and parking controls; location of signs, control switches, and extinguishers; maintenance of visual and physical access routes; and the maximum number of pumps, islands, and dispensing units that may be supervised from a particular control station. The person applying for an operating permit shall cause all changes and corrections to be completed before commencing operations. (Ord. 87870 § 8.15.370 as amended by Ord. 101645 § 3; December 7, 1972).

8.15.380 Drainage and waste disposal. Provisions shall be made in the area where Class I flammable liquids may be spilled to prevent liquids

from flowing into interior of service station buildings. Such provisions may be by grading driveway, raising door sills, or other equally effective means. Crankcase drainings and flammable liquids shall not be dumped into sewers, but shall be stored in underground tanks or tight drums limited to one hundred twenty gallons aboveground outside of any building. (Ord. 87870 § 8.15.380; January 19, 1959).

8.15.390 Safety rules. There shall be no smoking on the driveway of service stations in the areas used for fueling motor vehicles, dispensing flammable anti-freeze or the receipt of products by tank vehicles, or in those portions of the building used for servicing automobiles, tractors or internal combustion engines. The motors of all vehicles being fueled shall be shut off during the fueling operation. Conspicuous signs stating "NO SMOKING—STOP YOUR MOTOR" shall be posted within sight of the customer. (Ord. 87870 § 8.15.390; January 19, 1959).

DIVISION VI
COMMERCIAL AND INDUSTRIAL ESTABLISHMENTS

8.15.400 Dispensing. (a) Class I or II flammable liquids shall be dispensed only in flammable liquid storage rooms and Group F-2 and E occupancies as provided in the Seattle Building Code.

(b) Class I and II flammable liquids shall not be drawn from or dispensed into vessels or cointainers within a building except by means of a device drawing from top of the tank or the container. Gravity discharge within a building of Class I or II flammable liquids from tanks, drums or containers other than safety cans is forbidden, except where the nature of the manufacturing process requires gravity flow. Upon approval of the fire chief such gravity flow may be permitted only from vessels storing flammable liquids sufficient for not more than one day's operation.

(c) Dispensing devices shall be provided with iron and steel valves where compatible with the flammable liquid handled. Where practicable, there shall be, in addition to the outlet valve, a secondary control device or valve outside of the immediate area, by which the flow may be stopped in the event of fire or other accident at the outlet. Outlet valves, where practicable, shall be of the self-closing type.

(d) CONTAINER FILLING FACILITIES. Class I and II flammable liquids shall not be run into containers unless the nozzle and container are electrically interconnected. (Ord. 87870 § 8.15.400; January 19, 1959).

8.15.410 Ventilation. (a) Buildings or rooms or other enclosures in which Class I or II flammable liquids are used or stored in open vats or dip tanks shall be provided with ventilation sufficient at all times to prevent accumulation of flammable vapors. Where natural ventilation is insufficient under all conditions to prevent the accumulation of flammable

vapors, mechanical ventilation shall be provided and used.

(b) Design of ventilating systems shall take into account the relatively high specific gravity of the vapors. Openings to the outside for natural ventilation shall be at floor level and shall be unobstructed except by louvers or coarse screens. Mechanical systems for removing flammable vapors shall be designed, installed and operated as set forth in National Fire Protection Association Standard 91, "Blower and Exhaust Systems," Edition of 1949 (C.F. 236287). (Ord. 87870 § 8.15.410; January 19, 1959).

8.15.420 Sources of ignition. Open flames, heating devices and processes employing temperatures capable of igniting the vapors of the flammable liquids used shall be prohibited in rooms and other confined spaces in which flammable liquids are used in the open, or are used for the purpose of saturating, coating or otherwise treating goods or materials. Smoking shall be prohibited and suitable signs shall be posted in accordance with Chapter 8.17. (Ord. 87870 § 8.15.420; January 19, 1959).

8.15.430 Fire control. (a) Where flammable liquids are used or dispensed, first aid fire appliances of approved number and type shall be provided.

(b) Where flammable liquids are stored in containers, leaking containers shall be immediately removed or made tight.

(c) Access shall be provided by unobstructed four foot (4′) aisles.

(d) In buildings, rooms, or other confined spaces in which flammable liquids are stored, combustible waste materials shall not be allowed to accumulate, except in closed metal containers.

(e) Waste flammable liquids shall not be dumped into sewers, but shall be stored in underground tanks or tight drums limited to one hundred twenty gallons (120 gals.) aboveground outside of any building. (Ord. 87870 § 8.15.430; January 19, 1959).

DIVISION VII

PROCESSING PLANTS

8.15.440 Manner of storage. Quantities of flammable liquids in excess of the amounts set forth herein following shall be stored in a Group E, Division 1 or Group E, Division 2 occupancy as defined in the Building Code. Class I flammable liquids may be stored in closed containers or safety cans of not more than five gallons (5 gals.) individual capacity and not exceeding a total of ten gallons (10 gals.). Class II flammable liquids may be stored in closed containers or safety cans of not more than five gallons (5 gals.) individual capacity, and in drums or tanks of not more than twenty gallons (20 gals.) individual capacity. The total quantity that may be stored in this manner shall be limited to twenty gallons (20 gals.). Class III flammable liquids may be stored in closed containers of not more than five gallons (5 gals.) individual capacity, or in barrels, drums or tanks not exceeding one hundred twenty gallons (120 gals.) individual capacity. The total quantity stored in this manner shall be limited to one hundred twenty gallons (120 gals.) of Class III. (Ord. 87870 § 8.15.440; January 19, 1959).

8.15.450 Blending and mixing. (a) VENTILATION. Mixing or blending rooms or buildings shall be provided with natural or mechanical ventilation that will prevent the accumulation of flammable vapors in hazardous concentrations. Design of ventilating systems shall take into account the relatively high specific gravity of the vapors. Openings in outside walls for natural ventilation shall be at floor level and shall be unobstructed except by louvers or coarse screens. Mechanical systems for removing flammable vapors shall be designed, installed and operated as set forth in National Fire Protection Association Standard 91, "Blower and Exhaust Systems," Edition of 1949 (C. F. 236287).

(b) Vessels used for mixing or blending of Class I flammable liquids shall be provided with automatic self-closing tight-fitting noncombustible lids that will control a fire within such vessel when applied thereto. Where such devices are impracticable, approved automatic or manually controlled chemical or other fire extinguishing devices shall be provided.

(c) Open flames and other sources of ignition shall not be used

within the possible path of vapor travel where flammable liquids are mixed or blended in open containers.

Exception: Where open flame is required in the processing of flammable liquids, the operation shall be conducted in a building of Group E, Division 2 construction, as defined in the Building Code, which shall be fifty feet (50′) removed from any other building. The building shall be open on one side or one end and less than two hundred square feet (200 sq. ft.) in floor area. Electrical wiring shall be as provided in the Electrical Code for hazardous locations with secondary control to equipment. The building shall also be equipped with automatic extinguishing equipment and atmospheric vent, flue or chimney.

(d) Vessels shall be electrically connected with bond-wires, piping or similar means where differences of potential could otherwise be created by accumulation of static-electrical charges. (Ord. 87870 § 8.15.450; January 19, 1959).

8.15.460 Dispensing from containers within buildings. Class I or II flammable liquids may be dispensed from approved safety cans, provided that there are no open flames or other sources of ignition within the possible path of vapor travel. (Ord. 87870 § 8.15.460; January 19, 1959).

8.15.470 Sources of ignition. Open flames, heating devices, excessive pumping velocities, and processes employing temperatures capable of igniting the vapors of the flammable liquid used shall be prohibited in buildings, rooms and other confined spaces in which Class I or II flammable liquids are used in the open, or in which Class III flammable liquids are heated above their flash point in open containers. Artificial lighting shall be by electricity only. Electrical devices located within the possible path of vapor travel shall be as provided in the Electrical Cole for hazardous locations. (Ord. 87870 § 8.15.470; January 19, 1959).

8.15.480 Housekeeping. (a) Wherever flammable liquids are stored in containers, provisions shall be made and maintained for the detection of leakage. Leaking containers shall be immediately removed and the contents transferred to a tight container.

(b) Access shall be provided by unobstructed four foot (4′) aisles.

(c) In buildings, rooms or other confined spaces in which flammable liquids are stored, combustible waste materials shall not be allowed to accumulate, except in closed metal containers.

(d) Waste flammable liquids shall not be dumped into sewers, but shall be stored in underground tanks or tight drums, limited to one hundred twenty gallons (120 gals.) aboveground outside of any building. (Ord. 87870 § 8.15.480; January 19, 1959).

8.15.490 First aid fire control. Where flammable liquids are stored, or are used in open vessels, or are dispensed within buildings or other en-

closures, first aid fire control equipment shall be provided. (Ord. 87870 § 8.15.490; January 19, 1959).

DIVISION VIII

REFINERIES AND OTHER PLANTS STORING AND HANDLING CRUDE PETROLEUM

8.15.500 Location. A permit shall not be issued for the construction of a refinery or plant storing or handling crude petroleum until approval has been given for the proposed location with respect to topography, nearness to places of assembly, residential or mercantile occupancies, and adequacy of water supply for fire control. (Ord. 87870 § 8.15.500; January 19, 1959).

8.15.510 Location of process units. Process units shall be located so that they are accessible from at least one side for the purpose of fire control. Where topographical conditions are such that flammable liquids may flow from a processing area so as to constitute a fire hazard to property of others, provisions shall be made to divert or impound the flow by curbs, drains, or other suitable means. (Ord. 87870 § 8.15.510; January 19, 1959).

8.15.520 Fire control. Water shall be available in pressure and quantity sufficient to provide cooling streams for any unit or any tank in the processing area. Hose and hydrants shall be available in sufficient number to provide application of cooling streams as required in this section. Fire control chemicals and suitable application devices shall be available sufficient to extinguish a fire in any tank in the processing area, other than approved floating roof tanks. (Ord. 87870 §8.15.520; January 19, 1959).

DIVISION IX

MARINE FACILITIES

8.15.530 Scope. This Division provides limits of locations for establishments of Flammable Liquids Marine Terminals, Marine Service Stations, and Flammable Liquids Transit Yards, and regulates the transfer of flammable and combustible liquids across or through all waterfront facilities. (Ord. 87870 § 8.15.530; January 19, 1959).

8.15.540 Location and construction. (a) Flammable Liquids Marine Terminals shall be located outside Fire Zones One and Two, as defined in the Building Code, and shall be constructed in accordance with requirements of that Code. Marine Service Stations shall be located outside the limits of Fire Zone One.

Exception: Flammable Liquids Marine Terminals or Marine Service Stations legally installed and in use prior to the effective date of this Title.

(b) Flammable Liquids Transit Yards shall be constructed at Commercial Piers and Wharves prior to issuance of a permit for storage of flammable liquids at such facilities. Such Transit Yards shall be located on land, not less than twenty feet (20′) from any pier or wharf structure, and not less than twenty feet (20′) from any building unless separated therefrom by a four-hour area separation, as defined in the Building Code, which separation shall be extended or returned as required by the Fire Chief. Transit Yards shall be enclosed on all otherwise open sides by a chain-link type fence extending six feet (6′) above adjacent surfaces. (Ord. 87870 § 8.15.540; January 19, 1959).

8.15.550 Operations. (a) COMMERCIAL PIERS AND WHARVES. A permit shall be required for the transfer of liquids over Commercial Piers and Wharves.

Exception: Class III flammable liquids and combustible liquids in closed containers in quantities not to exceed ten thousand gallons (10,000 gals.) in transit across piers or wharves for a period of forty-eight hours (48 hrs.) or less shall not require a flammable liquids transfer permit.

(b) FLAMMABLE LIQUIDS TRANSIT YARDS. Storage in Flammable Liquids Transit Yards shall be limited to five (5) days.

(c) FLAMMABLE LIQUIDS MARINE TERMINALS. Pipe lines shall be protected against physical damage.

Each pipe line shall be equipped with a shoreside valve near the joining of the land area with the structure over water whereby the supply from the shore area can be shut off.

(d) MARINE SERVICE STATIONS. Pumps supplying flammable liquids to marine craft shall be located on shore. Storage shall be underground as required by the Building Code.

Pipe lines to dispensing devices and said dispensing devices shall be located upon substantial supports.

Storage, moorage, and structures not used in conjunction with the dispensing devices are prohibited within twenty-five feet (25′) of the dispensing device.

Lubricating oil necessary for the operation of Marine Service Stations shall be limited to six hundred gallons (600 gals.) on pier of the Station at any one time.

All wiring and electrical equipment, including motors and electrical switch gear for pumps handling Class I or II flammable liquids and located within the possible path of vapor travel, shall be as provided in the Electrical Code for hazardous locations. The dispensing device control switch shall be no more than twenty-five feet (25′) away from the dispensing device.

(e) TRANSFER OF CLASSS III FLAMMABLE LIQUID GALLEY

FUEL AND LUBRICATING OIL ACROSS COMMERCIAL PIERS AND WHARVES. Class I and II flammable liquids shall not be transferred between a tank vehicle and a waterborne vessel.

At Commercial Piers and Wharves, Class III flammable liquid galley fuel and lubricating oil may be transferred through hose connections between a tank vehicle and waterborne vessel when complying with the following requirements:

1. Permit shall be obtained prior to transfer and shall be in the possession of the vehicle operator during transfer.

2. Only one (1) tank vehicle shall be permitted on any pier or wharf structure at any one time.

3. Only tank vehicles divided into compartments shall be permitted on any commercial pier or wharf.

4. The transferring vehicle shall be headed in the direction of an exit.

5. Transfer between vehicle and vessel shall be performed by a positive displacement type pump, a check valve, or an equivalent device that prevents reverse flow in the transfer hose.

6. While transferring, adequate tie lines and appropriate chaffing pads shall be provided to secure and protect the transfer hose.

7. The vehicle operator shall remain at the vehicle during transfer, be responsible for the carrying out of safety regulations, and be responsible for removal of the vehicle in event of emergency.

8. During the transfer, a shipboard watch shall be maintained at the location of transfer with adequate authority and responsibility to carry out safety regulations.

(f) SAFETY PROVISIONS. Smoking or having a lighted cigar, cigarette or pipe shall be prohibited at any Flammable Liquids Marine Terminal and aboard any vessel berthed thereat, or at the shoreside of any vessel berthed at a Commercial Pier or Wharf.

Open flames, welding, or flame or arc metal cutting shall not be permitted in any area at a Flammable Liquids Marine Terminal where ignitable vapors are present, or in the vicinity of the transfer at the Terminal or between waterborne vessels and shore facilities.

Ends of all pipes, hose or other media used for the transfer at Flammable Liquids Marine Terminals shall be securely capped when not in use.

(g) REGULATION OF VESSELS. A vessel of any description loaded with, or having on board, any cargo of flammable liquid, flammable vapors, or any other substance with a flash point below one hundred ten degrees Fahrenheit (110° F.), shall not be permitted to lie alongside of, or make fast to, any vessel or pier in Seattle Harbor, except by special written permission of the Fire Chief, under conditions providing for constant watch

day and night, and such further safeguards against fire as the Fire Chief may deem necessary.

Any properly vented steel or iron vessel, with a capacity of not exceeding four hundred twenty thousand gallons (420,000 gals.), may lie at any authorized Flammable Liquids Marine Terminal location for the storage of fuel oil, which vessel shall not be made fast to the shore or to any pier or other structure or dolphin by any means other than Manila rope, which shall be so arranged as to be easily cast off, or cut, and there shall at all times be sufficient water under such vessel to float the same. A competent watchman shall be at all times aboard such vessel, who shall have authority to move the vessel when emergency requires, and if, in the judgment of the Fire Chief, such vessel shall at any time become a menace, a nuisance, or an obstruction, he shall order the same moved to such location as he shall designate. Any failure, neglect or refusal by the owner, master or other person in charge of such vessel to immediately comply with the order of the Fire Chief to move the same, shall authorize the Fire Chief to cause the same to be moved, and the expense thereof shall be paid to the City and shall be recoverable from said vessel or the owner, master or person in charge thereof.

Any vessel used as a container for delivery to any other vessel alongside any pier or wharf shall be licensed by the United States Coast Guard, and no such vessel shall deliver to any other vessel until a permit therefor has been issued by the Fire Chief. (Ord. 87870 § 8.15.550; January 19, 1959).

Chapter 8.16

TANK VEHICLES FOR FLAMMABLE LIQUIDS, COMBUSTIBLE LIQUIDS AND LIQUEFIED PETROLEUM GAS

Sections:

8.16.010 Scope. This chapter applies to the construction, maintenance and operation of tank vehicles for the transportation of flammable liquids, combustible liquids and liquefied petroleum gas. (Ord. 87870 § 8.16.010; January 19, 1959).

8.16.020 Definitions. CARGO TANK shall mean any container having a liquid capacity in excess of one hundred gallons, used for the carrying of liquids, and mounted permanently or otherwise upon a tank vehicle. The term "cargo tank" shall not apply to any container used solely for the purpose of supplying fuel for the propulsion of the tank vehicle upon which it is mounted.

COMPARTMENT shall mean a liquid-tight division in a cargo tank.

TANK TRUCK shall mean any single self-propelled motor vehicle equipped with a cargo tank mounted thereon, and used for the transportation of liquids.

TANK FULL TRAILER shall mean any vehicle with or without auxiliary motive power, equipped with a cargo tank mounted thereon or built as an integral part thereof and used for the transportation of liquids, and so constructed that practically all of its weight and load rests on its own wheels.

TANK SEMI-TRAILER shall mean any vehicle with or without auxiliary motive power, equipped with a cargo tank mounted thereon or built as an integral part thereof, and used for the transportation of liquids, and so constructed that, when drawn by a tractor by means of a fifth wheel connection, a part of its load and weight rests upon the towing vehicle.

TANK TRACTOR shall mean any single self-propelled motor vehicle equipped with a fifth wheel, and used to provide motive power for a tank semi-trailer.

TANK VEHICLE shall mean any tank truck, tank full trailer, tank semi-trailer, tank tractor, or combination thereof.

TANK VEHICLE ROUTES shall mean those routes prescribed by the Seattle Traffic Code for intercity hauling by truck and trailer and tractor semi-trailer combinations. (Ord. 87870 § 8.16.020; January 19, 1959).

8.16.030 Permit required. (a) Tank vehicles shall not be used unless the owner has obtained a permit.

(b) Applications for permits shall be made in writing and shall be accompanied by complete legible plans and specifications.

(c) Permits required by this section shall not be granted unless the applicant therefor has paid the required examination fee.

(d) Each tank vehicle for which a permit is issued shall be given a serial number, which number shall be registered at the office of the Fire

Chief together with a description of the unit and the name and address of the owner. (Ord. 87870 § 8.16.030; January 19, 1959).

8.16.040 Inspection of tank vehicles. Tank vehicles shall be inspected once every five years.

Inspection shall be limited to condition and maintenance of vehicle, cargo tanks and appurtenant equipment as required by ordinance at the time of issue of original permit. (Ord. 87870 § 8.16.040; January 19, 1959).

8.16.050 Construction of tank vehicles. Tank vehicles shall be constructed of approved material, and in an approved manner. (Ord. 87870 § 8.16.050; January 19, 1959).

8.16.060 Fire extinguishers. Each tank vehicle shall be provided with one portable fire extinguisher having at least a 12-B, C rating, or with more than one extinguisher, each having at least a 6-B rating. Tank vehicle combinations may be provided with a single extinguisher with a capacity equal to the total capacity of all the extinguishers otherwise required by this section.

Fire extinguishers shall be kept in good operating condition at all times and shall be located in an accessible place on the vehicle. (Ord. 87870 § 8.16.060, as amended by Ord. 89864; December 12, 1960).

8.16.070 Proper repair. Tank vehicles shall not be operated unless they are in proper repair, devoid of accumulation of grease, oil or other flammables, and free of leaks. (Ord. 87870 § 8.16.070; January 19, 1959).

8.16.080 Filling and discharging tank vehicles.

(a) The driver, operator or attendant of any tank vehicle shall not leave the vicinity of the vehicle while it is being filled or discharged. Delivery hose, when attached to a tank vehicle, shall be considered to be a part of the tank vehicle.

(b) Motors of tank trucks or tractors shall be shut down during making and breaking hose connections. If loading or unloading is done without the use of a power pump, the tank truck or tractor motor shall be shut down throughout such operations.

(c) The cargo tank shall be bonded to the fill-stem or some part of fill-stem piping when loading Class I or II flammable liquids through open domes into a cargo tank, or when loading Class III flammable liquids or combustible liquids through open domes into a cargo tank which contains flammable vapors from previous cargoes of Class I or II flammable liquids.

(d) A cargo tank or compartment thereof used for the transportation of any flammable liquid shall not be loaded liquid full. The vacant space in a cargo tank or compartment thereof used in the trans-

portation of flammable liquids shall be not less than one per cent; sufficient space shall be left vacant in every case to prevent leakage from or distortion of such tank or compartment by expansion of the contents due to rise in temperature in transit.

(e) Tank vehicles, with compartmented cargo tanks, may be used to deliver fuel directly into the fuel tanks of construction equipment under such conditions as may be specified by the Fire Chief.

(f) Tank vehicles may be used to deliver fuel directly into the supply tanks of service and maintenance equipment, provided that such deliveries shall take place at an approved and marked service area, and shall be made through a hose and nozzle designed and approved for use in making such deliveries, and provided that a permit therefor has been obtained. (Ord. 87870 § 8.16.080, as amended by Ord. 90005; February 9, 1961).

8.16.090 No smoking. Smoking by tank vehicle drivers, helpers, repairmen, or other personnel is prohibited while they are making deliveries, filling, or making any repairs to tank vehicles. (Ord. 87870 § 8.16.090; January 19, 1959).

8.16.100 Protection against intermixing. A cargo tank, or any compartment thereof, which has been utilized for Class I or II flammable liquids, shall not be loaded with Class III flammable liquids or combustible liquids until each tank or compartment and all piping, pumps, meters and hose connected thereto has been completely drained.

A tank compartment, piping, pump, meter or hose which does not drain completely shall be flushed at the loading point with a quantity of Class III flammable liquid equal to twice the capacity of piping, pump, meter and hose to clear any residue of Class I or II flammable liquid from the system. (Ord. 87870 § 8.16.100; January 19, 1959).

8.16.110 Parking. A tank vehicle shall not be left unattended on any street, highway, avenue or alley, provided that this shall not prevent a driver from the necessary absence from the vehicle in connection with the delivery of his load, nor shall it prevent stops for meals during the day or night if the street is well lighted at point of parking. (Ord. 87870 § 8.16.110; January 19, 1959).

8.16.120 Storage. (a) Tank vehicles shall not be parked at any one point for longer than one hour, except off the street in an approved tank vehicle garage or tank vehicle storage yard located outside the limits of Fire Zone One and Two.

Exception: Tank vehicle garages or storage yards installed and in use prior to the effective date of this title.

(b) Tank vehicle storage yards shall contain no combustible storage or debris. Tank vehicles stored therein shall be kept at least twenty-five feet from any building used for assembly, institutional or residential occupancy.

(c) Tank vehicle garages shall be constructed as Group E, Division 2 occupancies as provided in the Building Code, and used for no purpose other than storage of tank vehicles.

(d) A tank vehicle garage shall not contain a basement, nor any pit or space below the floor level, nor any openings communicating with another building or different class of occupancy.

(e) Tank vehicle garages shall have natural ventilation to the outside atmosphere, provided by means of openings through exterior walls, sufficient in size and number to keep the building free from flammable or explosive vapors.

(f) Tank vehicle garages for the storage of vehicles transporting Class I or II flammable liquids shall be equipped throughout with automatic sprinklers. (Ord. 87870 § 8.16.120; January 19, 1959).

8.16.130 Fire zone and delivery restrictions. (a) Delivery of flammable liquids from a tank full trailer within Fire Zones One and Two is prohibited, except as provided in paragraph (c) of this section.

(b) Tank vehicles with cargo tanks not divided by bulkheads transporting Class I or II flammable liquids are prohibited, except on tank vehicle routes, and except as provided in paragraph (c) of this section within Fire Zones One and Two.

(c) Tank vehicles with cargo tanks not divided by bulkheads may be used to deliver Class I and II flammable liquids to a commercial or industrial establishment or consumer, provided a permit shall have been granted such user by the Engineering Department.

(d) Tank vehicles with cargo tanks not divided by bulkheads, when loaded and transporting cargo over streets and highways, shall contain not less than eighty per cent of the total tank capacity, and shall discharge their entire contents at one loading point. (Ord. 87870 § 8.16.130; January 19, 1959).

8.16.140 Tank vehicles for transportation of liquefied petroleum gases. Tank vehicles for the transportation of liquefied petroleum gas shall be constructed, maintained and operated in accordance with standards set forth in National Board of Fire Underwriters' Pamphlet No. 58, "Standards for the Storage and Handling of Liquefied Petroleum Gas." Edition of June, 1958 (C.F. 236287), and in accordance with all of the provisions of this chapter; and provided further that they shall not enter any building, and shall be stored only in a tank vehicle storage yard. (Ord. 87870 § 8.16.140; January 19, 1959).

Chapter 8.17

SMOKING PROHIBITED UNDER CERTAIN CONDITIONS

Sections:

8.17.010 Definition. SMOKING shall mean and include the carrying of lighted pipe, cigar, cigarette or tobacco in any form. (Ord. 87870 § 8.17.010; January 19, 1959).

8.17.020 Chief to designate areas where smoking shall be prohibited. Where conditions are such as to make smoking a hazard in any areas of

piers, wharves, warehouses, stores, industrial plants, institutions, places of assembly, and in open spaces where combustible materials are stored or handled, the Fire Chief is empowered and authorized to order the owner or occupant in writing to post "No Smoking" signs in each building, structure, room or place in which smoking shall be prohibited. The Fire Chief shall designate specific safe locations, if necessary, in any building, structure or place in which smoking may be permitted. (Ord. 87870 § 8.17.020; January 19, 1959).

8.17.030 No smoking signs. Where signs prohibiting smoking are required, Section 8.17.020, the same shall bear the words "NO SMOKING—CITY ORDINANCE," in red letters on a white background. The first two words of such signs shall be formed by letters not less than four inches (4") in height and of proportionate width. (Ord. 87870 § 8.17.030; January 19, 1959).

8.17.040 Smoking and removal of no smoking signs prohibited. It shall be unlawful for any person to remove any legally required "No Smoking" sign or to smoke in any place where such signs are posted. (Ord. 87870 § 8.17.040; January 19, 1959).

Chapter 8.18

HAZARDOUS CHEMICALS

Sections:

8.18.010 Scope. This chapter shall apply to materials not otherwise covered in this Code which are highly flammable, or which may react to cause fires or explosions, or which by their presence create or augment a fire or explosion hazard, or which because of their toxicity, flammability, or liability to explosion render fire fighting abnormally dangerous or difficult; also to flammable liquids which are chemically unstable and which may spontaneously form explosive compounds, or undergo spontaneous reactions of explosive violence or with sufficient evolution of heat to be a fire hazard. Hazardous chemicals shall include such materials as compressed gases, flammable solids, corrosive liquids, radioactive ma-

terials, oxidizing materials, potentially explosive chemicals, highly toxic materials, and poisonous gases as defined in Section 8.18.020. (Ord. 87870 § 8.18.010; January 19, 1959).

8.18.020 Definitions. COMPRESSED GAS shall mean and include any mixture or material having in the container either an absolute pressure exceeding forty pounds per square inch (40 p.s.i.) at seventy degrees Fahrenheit (70° F.), or an absolute pressure exceeding one hundred four pounds per square inch (104 p.s.i.) at one hundred thirty degrees Fahrenheit (130° F.), or both; or any liquid flammable material having a Reid vapor pressure, as defined in Section 8.15.102, exceeding forty pounds per square inch (40 p.s.i.) at one hundred degrees Fahrenheit (100° F.).

CORROSIVE LIQUIDS shall mean and include those acids, alkaline caustic liquids, and other corrosive liquids which, when in contact with living tissue, will cause severe damage of such tissue by chemical action; or are liable to cause fire when in contact with organic matter or with certain chemicals.

FLAMMABLE SOLID shall mean and include a solid substance, other than one classified as an explosive, which is liable to cause fires through friction, through absorption of moisture, through spontaneous chemical changes or as a result of retained heat from manufacturing or processing.

HIGHLY TOXIC MATERIALS are materials so toxic to man as to afford an unusual hazard to life and health during fire fighting operations. Examples: parathion, malathion, TEPP (tetraethyl phosphate), HETP (hexaethyl tetraphosphate), and similar insecticides and pesticides.

OXIDIZING MATERIALS shall mean and include substances such as chlorates, permanganates, peroxides, or nitrates that yield oxygen readily to stimulate combustion.

POISONOUS GAS shall mean and include any noxious gas of such nature that a small amount of the gas when mixed with air is dangerous to life. Examples are: chlorpicrin, cyanogen, hydrogen cyanide, nitrogen peroxide and phosgene.

POTENTIALLY EXPLOSIVE CHEMICAL shall mean and include any chemical substance, other than one classified as an explosive, which can be exploded by heat, or shock when unmixed with air.

RADIOACTIVE MATERIAL shall mean and include any material that spontaneously emits ionizing radiation. (Ord. 87870 § 8.18.020; January 19, 1959).

8.18.030 Permit required. A permit shall be required for the storage or handling of materials in excess of any one of the following: Fifty-five gallons (55 gals.) of corrosive liquid; five hundred pounds (500 lbs.) of oxidizing materials; five hundred (500) millicuries of radioactive material;

two thousand cubic feet (2,000 cu. ft.) of flammable compressed gas; ten pounds (10 lbs.) of organic peroxides; five hundred pounds (500 lbs.) of ammonium nitrate; or any amount of highly toxic material or poisonous gas. (Ord. 87870 § 8.18.030; January 19, 1959).

8.18.040 General requirements. (a) Schematic plans for systems for manufacture or use of hazardous chemicals shall be prepared by or under the direct supervision of a licensed chemical engineer, licensed to practice chemical engineering under the laws of the State of Washington, when required by the Fire Chief. Each sheet of drawings shall bear the seal, the signature of the licensee, and the date of expiration of the license.

Exception: The Fire Chief may accept drawings equivalent to conventional drawings required of the chemical engineer, when prepared by the owner, or other persons whose qualifications are acceptable to him. The person preparing such drawings shall place a signed statement on each such drawing that it was drawn by him.

(b) The Fire Chief may require the separation or isolation of any chemical or combination with other substances which may bring about a fire or explosion or may liberate a flammable or poisonous gas. The Fire Chief may require separation from other storage, occupancies or buildings when the quantity stored constitutes a hazard to public safety.

(c) Defective containers which permit leakage or spillage shall be disposed of or repaired in accordance with recognized safe practices.

(d) Where specific requirements are not otherwise established, storage handling and use of hazardous chemicals shall be in accordance with nationally recognized good practice. (Ord. 87870 § 8.18.040; January 19, 1959).

8.18.050 Compressed gases. (a) Storage rooms for compressed gases shall be cools, dry and well-ventilated.

(b) Cylinders shall be stored away from radiators and other sources of heat. No part of any cylinder containing compressed gas shall be subjected to temperatures above one hundred twenty-five degrees Fahrenheit (125° F.).

(c) Where caps are provided for valve protection, they shall be kept on all cylinders not connected to gas utilization equipment.

(d) Cylinders shall not be used as rollers, supports, or for any purpose other than to store the gas for which they are designed. Cylinders shall not be handled with lifting magnets, rope slings or chain slings; a crane may be used when a safe cradle or platform is provided to hold the cylinders.

(e) Each cylinder shall carry a legible label or stencil identifying its contents. (Ord. 87870 § 8.18.050; January 19, 1959).

8.18.060 Oxidizing materials. Oxidizing materials shall be stored in

dry locations and separated from other materials in such a way as not to cause fire or explosion. (Ord. 87870 § 8.18.060; January 19, 1959).

8.18.070 Radioactive materials. Radioactive material shall be subject to Federal Register, Title 10, Part 20 (Standards for Protection Against Radiation), January 29, 1957. (Ord. 87870 § 8.18.070; January 19, 1959).

8.18.080 Potentially explosive chemicals. (a) Potentially explosive chemicals shall be protected from external heat, fire and explosion. Good housekeeping shall be maintained. Spill materials shall be promptly gathered and destroyed in an approved manner. Smoking shall be prohibited in the storage area.

Storage and use of potentially explosive chemicals shall be prohibited in Fire Zone One.

This chapter shall not apply to the laboratories of schools, colleges and similar institutions when confined to the purpose of instruction or research, or explosive chemicals in the forms prescribed by the official United States Pharmacopeia.

(b) Organic Peroxides. A suitably isolated, well-ventilated and unheated storage building constructed of inorganic walls and floors having a fire-resistance rating of not less than two-hours, and a ligheweight insulated roof shall be provided for the storage of fifty pounds (50 lbs.) or more of organic peroxides. If not adequately protected by a fast-acting deluge type automatic sprinkler system, the storage building shall be located the following distances from flammable liquid storage, combustible materials in the open, and from any other building or highway:

Weight of Organic Peroxide (Pounds)	Distance (Feet)
50 to 100	75
101 to 500	100
501 to 1000	125
1001 to 3000	200
3001 to 5000	300

Organic peroxides shall be stored in the original shipping containers. Care shall be taken to avoid rough handling or contamination. Readily legible warning signs and placards shall be prominently placed in the storage and processing areas.

(c) Where the storage exceeds one hundred pounds (100 lbs.) of organic peroxides, the weighing, receiving and shipping, in connection with such storage, shall be outside the building or in a separate room of the storage building. This room shall be cut off from the main storage area by a parapeted wall equivalent to a two-hour noncombustible inorganic wall with double standard fire doors opening to the storage area. In order to eliminate weighing and to reduce exposure of personnel, the batch sizes

shall be selected to utilize the full quantity packaged in standard size containers.

(d) AMMONIUM NITRATE. Storage of ammonium nitrate in quantities of five hundred pounds (500 lbs.) or more shall be in well-ventilated buildings with a floor surfacing of noncombustible material in storage and handling areas. Stored materials shall not be in contact with walls, partitions or ceilings of combustible materials. Buildings of other than fire-resistive or noncombustible construction in which ammonium nitrate is stored shall be provided with an automatic sprinkler system. Explosives shall not be stored in the same building with ammonium nitrate. The ammonium nitrate storage area shall be separated by a thirty-foot (30') space or by a noncombustible partition from the storage of all combustible materials or other contaminating substances, such as sulfur, coal, flour, and metallic powders such as zinc, copper and magnesium. Method of storage, pile height and width of aisles shall be in accordance with nationally recognized good practice. Ammonium nitrate shall be stored away from all heat producing appliances and electrical devices. (Ord. 87870 § 8.18.080; January 19, 1959).

8.18.090 Poisonous gases. (a) Storage of poisonous gases shall be in rooms of at least one-hour fire-resistant construction and having natural or mechanical ventilation adequate to remove leaking gas. Such ventilation shall not discharge to a point where the gases may endanger any person.

(b) Legible warning signs stating the nature of hazard shall be placed at all entrances to locations where poisonous gases are stored or used. (Ord. 87870 § 8.18.090; January 19, 1959).

8.18.100 Corrosive liquids. Satisfactory provisions shall be made for containing and neutralizing or safely flushing away leakage of corrosive liquids which hay occur during storage or handling. (Ord. 87870 § 8.18.100; January 19, 1959).

Chapter 8.19

LIQUEFIED PETROLEUM GASES

Sections:

8.19.010 Scope. This chapter shall apply to all storage and handling of liquefied petroleum gas and installation of all equipment pertinent to

systems for such uses not covered by Chapter 3.54 of the Building Code for Gas Piping and Appliances. (Ord. 87870 § 8.19.010; January 19, 1959).

8.19.020 Definitions. LIQUEFIED PETROLEUM GAS shall mean any material which is composed predominantly of any of the following hydrocarbons or mixtures thereof: Propane, Propylene, Butanes (Normal and Iso-Butane) and Butylenes.

LIQUEFIED PETROLEUM GAS CYLINDER shall mean any container up to seven and seventy-five hundredths cubic foot (7.75 cu. ft.) capacity which qualifies under Interstate Commerce Commission regulations for the transportation of liquefied petroleum gases.

LIQUEFIED PETROLEUM GAS EQUIPMENT shall mean all containers, apparatus, piping, or burning equipment pertinent to the storage, handling and use of liquefied petroleum gas.

LIQUEFIED PETROLEUM GAS TANKS shall mean any container qualified under ASME or ICC rules for transportation or storage of liquefied petroleum gases except liquefied petroleum gas cylinders as defined above. (Ord. 87870 § 8.19.020; January 19, 1959).

8.19.030 Permit required. (a) A permit shall be required to store, use or transport any liquefied petroleum gas under any category listed in Sections 8.19.030(b) and 8.19.030(c). Tank truck permits are also required under Chapter 8.16.

(b) ANNUAL PERMITS. Annual permits renewable June 1 of each calendar year shall be obtained for the following categories:

1. CYLINDER STORAGE. Storage of cylinders for resale and/or storage of unconnected cylinders for use on the premises when such cylinders exceed one cubic foot (1 cu. ft.) capacity per cylinder, or when the aggregate quantity of gas stored exceeds sixteen cubic feet (16 cu. ft.); provided, however, that containers stored or in the process of filling or handling at container filling plants are covered under sub-section 8.19.030(b)-2.

2. CONTAINER FILLING PLANTS. The storage and handling of liquefied petroleum gas where ICC cylinders, or containers other than ICC cylinders, are filled.

(c) INDIVIDUAL PERMITS. Permits shall be obtained for any work under the following categories:

1. VAPORIZATION EQUIPMENT INSTALLATION. Installation of any equipment utilizing heat other than atmospheric heat for the vaporization of liquefied petroleum gas.

2. PORTABLE BURNING EQUIPMENT WITH A SELF-CONTAINED FUEL SUPPLY. Use of any portable liquefied petroleum gas burning equipment with a self-contained supply of fuel which storage capacity is in excess of one cubic foot (1 cu. ft.).

3. PIER CROSSING PERMITS. Transportation or storage of ICC tanks or cylinders on or across piers.

4. TEMPORARY INSTALLATIONS. Use of ICC cylinders in unoccupied buildings for spot heat, bench furnaces or other construction work. (Ord. 87870 § 8.19.030; January 19, 1959).

8.19.040 Inspection of installations. It shall be the duty of the Fire Chief to inspect all liquefied petroleum gas equipment and installations in accordance with the scope of permits issued under Section 8.19.030. (Ord. 87870 § 8.19.040; January 19, 1959).

8.19.050 Use, storage and transportation of liquefied petroleum gas. (a) It shall be unlawful to keep, store, transport, or use any liquefied petroleum gas, except in accordance with the provisions of National Board of Fire Underwriters' Standard No. 58 "Storage and Handling of Liquefied Petroleum Gases," June 1958 (C. F. 236287), Standard No. 59 "Storage and Handling of Liquefied Petroleum Gases at Utility Gas Plants," June 1958 (C. F. 236287) subject to the following exceptions, additions to, and deviations from the provisions of said standards:

1. TANK SPACING. All containers, except ICC cylinders, for the storage or keeping of liquefied petroleum gas shall be located with respect to the nearest building or group of buildings, structures, or tanks containing flammable liquid and line of adjoining property which may be built upon, in accordance with the following table:

AGGREGATE WATER CAPACITY OF CONTAINERS	MINIMUM DISTANCES		
	Containers		Between Containers
	Underground	Aboveground	
Less than 125 gallons	10 feet	None	None
125 - 500 gallons	10 feet	10 feet	3 feet
501 - 2,000 gallons	25 feet	25 feet	3 feet
2,001 - 8,000 gallons	50 feet	50 feet	5 feet
8,001 - 18,000 gallons	50 feet	75 feet	5 feet
Over 18,000 gallons	75 feet	150 feet	5 feet

2. TANK SIZE. Individual tanks shall not exceed thirty thousand standard U. S. gallons water capacity. Individual groups of aboveground tanks shall not have an aggregate water capacity in excess of thirty-six thousand gallons.

3. TANK GROUNDING. Aboveground liquefied petroleum gas storage tanks connected to a piping system, the piping leading to the tanks, and tanks used for dispensing liquefied petroleum gas shall be electrically

grounded in an effective manner. (Ord. 87870 § 8.19.050; January 19, 1959).

8.19.060 Transportation of liquefied petroleum gas. Liquefied petroleum gas shall not be transported in or through Fire Zone One, except in ICC cylinders of less than four and one-half cubic feet capacity per cylinder. (Ord. 87870 § 8.19.060; January 19, 1959).

8.19.070 Prohibited areas and occupancies. (a) Liquefied petroleum gas shall not be kept, stored or used in Group A, B, C or D occupancies, or buildings in Fire Zones One or Two with Group E, F, G or H occupancies.

EXCEPTIONS: 1. Buildings with Group E, F, G or H occupancies, as provided in the Seattle Building Code, having no areas below the first floor in which liquefied petroleum gas vapors might collect, and where the aggregate storage capacity does not exceed five hundred gallons.

2. Equipment temporarily used for demonstration purposes and having a fuel container with a maximum water capacity of twelve pounds, as approved by the Fire Chief and subject to such regulations as he may deem necessary.

(b) Liquefied petroleum gas shall not be kept, stored or used in Fire Zone One, except:

1. As provided in Section 8.19.070(a).

2. Small ICC specification containers such as those used with completely self-contained hand torches and similar applications may be stored or displayed in such buildings. This storage shall be limited to a total of twenty-four such units.

3. A maximum of three four and one-half cubic foot ICC cylinders may be used in unoccupied buildings for spot heat, bench furnaces, or other construction work.

4. Plumbers' pots or bench furnaces used for repair work. Storage tanks shall be limited to twenty pounds.

(c) Liquefied petroleum gas shall not be kept, stored, or used in Fire Zone Two except:

1. ICC cylinders of less than four and one-half cubic feet capacity per cylinder with an aggregate capacity of nine cubic feet.

2. ICC cylinders of less than four and one-half cubic feet capacity per cylinder stored for resale, or unconnected cylinders stored for use of the premises up to an aggregate capacity of fifty cubic feet.

3. ICC tanks and cylinders moving across piers in accordance with Section 8.19.070(d). Said tanks or cylinders shall not remain on the pier more than forty-eight hours.

4. As provided in Section 8.19.050(a).

(d) Liquefied petroleum gas shall not be shipped across or stored on

piers, except in ICC cylinders or tanks of less than one thousand two hundred gallons water capacity. Said tanks shall conform to ICC specifications 7851 or ICC cylinder specifications.

(e) Liquefied petroleum gas shall not be transferred from a cargo tank to a portable or stationery tank on or across a pier. (Ord. 87870 § 8.19.070 as amended by Ord. 93220; September 15, 1964).

Chapter 8.20
LUMBER YARDS

Sections:

8.20.010 Permit required. A permit shall be required for lumber storage in excess of one hundred thousand board feet. (Ord. 87870 § 8.20.010; January 19, 1959).

8.20.020 Open yard storage. (a) Lumber shall be piled in a neat, orderly manner with due regard to stability of piles and in no case higher than twenty feet.

(b) Driveways between and around lumber piles shall be at least fifteen feet wide and maintained free from accumulation of rubbish, equipment or other articles or materials. Driveways shall be so spaced that the maximum unbroken area piled upon shall not exceed ten thousand square feet.

(c) Permanent lumber storage in excess of one hundred thousand board feet shall be surrounded with a suitable fence at least six feet high, unless storage is within a building. (Ord. 87870 § 8.20.020; January 19, 1959).

8.20.030 Operational fire hazards in lumber yards. (a) Smoking shall be prohibited except in specified safe locations in buildings. "NO SMOKING" signs shall be posted in accordance with Section 8.17.030.

(b) Weeds shall be kept down throughout entire yard and shall be sprayed as often as needed with a satisfactory weed killer or cut or grubbed out. Dead weeds shall be removed.

(c) Debris such as sawdust, chips and shorts shall be removed regularly from piling areas and not less frequently than once a year. Proper housekeeping shall be maintained at all times. (Ord. 87870 § 8.20.030; January 19, 1959).

8.20.040 First aid fire extinguishing equipment in open yards and buildings. An approved fire extinguisher shall be provided on the basis

that one extinguisher shall be provided for each five thousand square feet of yard area, and so located that a travel distance of no more than seventy-five feet along driveways is needed for any part of open yard to reach an extinguisher. In buildings, fire extinguishing equipment shall be provided as required in Chapter 8.13. (Ord. 87870 § 8.20.040; January 19, 1959).

Chapter 8.21
MAGNESIUM

Sections:

8.21.010 Scope. This chapter applies to the storage, handling and processing of magnesium. (Ord. 87870 § 8.21.010; January 19, 1959).

8.21.020 Definition. MAGNESIUM shall mean the pure metal and alloys of which the major part is magnesium. (Ord. 87870 § 8.21.020; January 19, 1959).

8.21.030 Permit required. A permit shall be required for the melting, casting, heat treating, machining, or grinding, of more than ten pounds of magnesium per working day. (Ord. 87870 § 8.21.030; January 19, 1959).

8.21.040 Storage of pigs, ingots and billets. (a) Storage of magnesium pigs, ingots and billets out of doors shall be in piles not exceeding one million pounds each, separated by aisles not less in width than one-half the height of the pile, and seperated from combustible material or buildings on the same or adjoining property by a distance of not less than the height of the nearest pile.

(b) Storage of pigs, ingots and billets in buildings shall be on floors of noncombustible construction, in piles not larger than five hundred thousand pounds each, separated by aisles not less in width than one-half the height of the pile.

(c) Buildings in which magnesium is stored shall conform to requirements of a Group E, Division 4 occupancy as defined in the Building Code. (Ord. 87870 § 8.21.040; January 19, 1959).

8.21.050 Melting pots. Floors under and around melting pots shall be of noncombustible construction. (Ord. 87870 § 8.21.050; January 19, 1959).

8.21.060 Storage of magnesium articles in foundries and processing plants. The size of storage piles of magnesium articles in foundries and processing plants shall not exceed ten thousand pounds (10,000 lbs.) or one thousand two hundred fifty cubic feet (1,250 cu. ft.) and shall be separated by aisles not less in width than one-half (½) the height of pile. (Ord. 87870 § 8.21.060; January 19, 1959).

8.21.070 Heat treatment ovens. Approved boron trifluoride (BF_3) or other approved means shall be provided for control of magnesium fires in heat treatment ovens. (Ord. 87870 § 8.21.070; January 19, 1959).

8.21.080 Magnesium processing operations. (a) At each grinding, buffing or wirebrushing operation on magnesium, dust shall be collected by means of suitable hoods or enclosures connected to a liquid precipitation type of separator and the suction unit in such a way that the dust will be converted to sludge without contact in a dry state with any high speed moving parts. Water in large volume may be used as the precipitating liquid.

(b) Connecting ducts or suction tubes shall be completely grounded and as short as possible, with no unnecessary bends. Ducts shall be carefully fabricated and assembled, with a smooth interior and with internal lap joints pointing in the direction of air flow, and without unused capped side outlets, pockets or other dead-end spaces which might allow an accumulation of dust.

(c) Each machine shall be equipped with its individual dust separating unit, except that with multi-unit machines not more than two (2) dust-producing units may be served by one (1) separator. Not more than four (4) portable dust-producing units in a single enclosure or stand may be served by one (1) separator unit.

(d) Power supply to machines shall be interlocked with (1) exhaust air flow and (2) liquid pressure level or flow in such a way that improper functioning of the dust removal and separator system will shut down the machine it serves.

(e) A coolant containing water shall not be used in magnesium machining operations.

(f) Buildings in which magnesium is processed shall conform to the requirements for a Group E, Division 1 occupancy as defined in the Building Code. (Ord. 87870 § 8.21.080; January 19, 1959).

8.21.090 Fire extinguishing powder. Approved extinguishing powder for magnesium fires shall be kept within easy reach of every operator performing a machining, grinding or other operation producing magnesium dust, chips, or turnings. (Ord. 87870 § 8.21.090; January 19, 1959).

8.21.100 Storage of magnesium articles in warehouses and stores. (a) Magnesium storage in quantity greater than fifty cubic feet (50 cu. ft.) shall be separated from storage of other materials that are either combustible or in combustible containers by aisles equal in width to not less than the height of the piles of magnesium.

(b) Magnesium storage in quantity greater than one thousand cubic feet (1,000 cu. ft.) shall be separated into piles each not larger than one thousand cubic feet (1,000 cu. ft.) with aisles between equal in width to not less than the height of the piles.

(c) Where storage in quantity greater than one thousand cubic feet (1,000 cu. ft.) is in a building of combustible construction, or the magnesium is packed in combustible crates or cartons, or there is other combustible storage within thirty feet (30′) of the magnesium, the storage area shall be protected by automatic sprinklers. (Ord. 87870 § 8.21.100; January 19, 1959).

8.21.110. Handling of magnesium fines (fine magnesium scrap) and dust. (a) Chips, turnings and other fine magnesium scrap, excluding material recovered from grinding operation, shall be collected from the pans or spaces under machines and from other places where they collect at least once each working day, and placed in a dry covered steel container and removed to a safe location.

(b) Magnesium fines shall be kept separate from other combustible materials.

(c) Storage in quantity greater than fifty cubic feet (50 cu. ft.) of fine magnesium scrap (six 55-gallon steel drums) shall be separated from other occupancies as required for a Group E, Division 1 occupancy by the Building Code without window openings or by an open space of at least fifty feet (50′).

(d) Storage in quantity greater than one thousand cubic feet (1,000 cu. ft.) shall be separated from all buildings other than those used for magnesium scrap recovery operations by a distance of not less than one hundred feet (100′).

(e) Grinding sludge shall be disposed of as soon as taken from the sludge pit of the collector. It shall not be stored or allowed to become partially dry. (Ord. 87870 § 8.21.110; January 19, 1959).

8.21.120 Disposal. Waste magnesium shall be disposed of in an approved manner. (Ord. 87870 § 8.21.120; January 19, 1959).

Chapter 8.22
MATCHES

Sections:

8.22.010 Permit required. (a) A permit shall be required for the manufacture of matches.

(b) A permit shall be required for storage of matches in excess of sixty (60) matchman's gross (14,400 matches each gross). (Ord. 87870 § 8.22.010; January 19, 1959).

8.22.020 Wholesale storage. (a) At wholesale establishments and wherever matches exceeding sixty (60) matchman's gross are stored shipping containers containing matches shall be arranged in piles not exceeding ten feet (10′) in height nor one thousand five hundred cubic feet (1,500 cu. ft.) in volume with aisles at least four feet (4′) wide.

(b) Where other materials or commodities are stored on the same floor with matches, a portion of the room shall be devoted to match storage exclusively, and a clear space of not less than four (4′) maintained between match storage and such other materials or commodities. (Ord. 87870 § 8.22.020; January 19, 1959).

8.22.030 Storage not to be near vertical openings. Matches shall not be stored within ten feet (10′) of any open elevator shaft, elevator shaft opening, open stairway or other vertical opening. (Ord. 87870 § 8.22.030; January 19, 1959).

Chapter 8.23
WELDING AND CUTTING, CALCIUM CARBIDE AND ACETYLENE

Sections:

8.23.010 Scope. This chapter shall apply to all welding or cutting operations employing gas or electric arc or any combination thereof. (Ord. 87870 § 8.23.010; January 19, 1959).

8.23.020 Permits required. (a) A permit shall be required of each firm, corporation, company, co-partnership, or owner-operator performing welding or cutting operations. This permit shall not be required for each welding or cutting job location. The firm, corporation, company, co-partnership, or owner-operator shall notify the Fire Chief in advance where such work is taking place on or within a building, except where such work is done in response to an emergency call that does not allow time for the Fire Department to be notified in advance of the work.

Exception: Group I and J occupancies shall be exempt from the provisions of this section.

(b) Acetylene generators, including storage of calcium carbide for use therewith.

Note: Welding or cutting on waterfront facilities is also regulated by the United States Coast Guard. (Ord. 87870 § 8.23.020; January 19, 1959).

8.23.030 Compliance with nationally recognized good practice. Welding and cutting shall be done with approved equipment, installed and operated in accordance with the applicable requirements of Pamphlet 51, Gas Systems for Welding and Cutting, edition of June 1958, published by the National Board of Fire Underwriters and Standard Z 49.1, Safety in Welding and Cutting, edition of 1958, published by the American Standards Association, copies of each of which are filed with the City Comptroller (C. F. 236287). (Ord. 87870 § 8.23.030, as amended by Ord. 89864; December 12, 1960).

8.23.040 Safety precautions. (a) Before welding or cutting operations are begun in areas not designed or approved for the purpose, the owner of the premises or his duly authorized agent shall be notified.

(b) When welding or cutting operations are performed above or within ten feet (10′) of openings, combustible construction or material exposed to the operation,

1. Such openings, combustible construction or material shall be protected by noncombustible shields or covers from possible sparks, hot metal or oxide;

2. A fire watcher shall be provided to watch for fires, make use of portable fire extinguishers or fire hose, and perform similar fire prevention and protection duties. The fire watcher shall remain on the job at least thirty minutes (30 min.) after the welding or cutting operations have been completed to insure that no fire exists.

(c) One or more portable fire extinguishers of approved type and size shall be kept at the location where welding or cutting is to be done.

(d) Welding or cutting shall not be done in or near rooms or locations where flammable gases, liquids or vapors, lint, dust, or loose combustible stocks are present when sparks or hot metal from the welding or cutting operations may cause ignition or explosion of such materials.

(e) Welding or cutting shall not be performed on containers and equipment which contain or have contained flammable liquids, gases or solids until those containers and equipment have been thoroughly cleaned or inerted or purged, or made safe in accordance with generally accepted practice as approved by the Fire Chief.

(f) Sprinkler protection shall not be shut off while welding or cutting work is being performed. When welding or cutting is done close to automatic sprinkler heads, sheet asbestos or damp cloth guards may be used to shield the individual heads but shall be removed when the work is completed. (Ord. 87870 § 8.23.040 as amended by Ord. 88339; June 29, 1959).

8.23.050 Gas welding and cutting. (a) Devices or attachments facilitating or permitting mixture of air or oxygen with combustible gases prior to consumption, except at the burner or in a standard torch or blowpipe, shall not be allowed unless approved for the purpose.

(b) The user shall not transfer gases from one cylinder to another or mix gases in a cylinder.

(c) Acetylene gas shall not be generated, piped (except in approved cylinder manifolds and cylinder manifold connections), or utilized at a pressure in excess of fifteen pounds per square inch gauge (p.s.i.g.) unless dissolved in a suitable solvent in cylinders manufactured according to Interstate Commerce Commission requirements.

(d) Acetylene gas shall not be brought in contact with unalloyed copper, except in a blowpipe or torch.

(e) A cylinder or cylinder manifold for oxygen shall be provided with a pressure regulating device intended for use with oxygen, and so marked.

(f) Cylinders permitted inside of buildings shall be stored away from highly combustible materials and in locations where they are not subject to excessive rise in temperature, physical damage, or tampering by

unauthorized persons. The valves of empty cylinders shall be closed when in storage or in transit.

(g) When a cylinder is not in use, the valve shall be closed and the valve protection caps shall be in place, hand tight.

(h) Tests for leaks in piping systems or equipment shall be made with soapy water. Flames shall not be used.

(i) Welding or cutting work shall not be supported on compressed gas cylinders or other containers.

(j) Fuel gas cylinders shall be placed with valve end up whenever they are in use.

(k) Fuel gas shall not be used from cylinders through torches or other devices equipped with shut-off valves without reducing the pressure through a suitable regulator attached to the cylinder valve or manifold.

(l) Cylinders, valves, regulators, hose and other apparatus and fittings containing or using oxygen shall be kept free from oil or grease. Oxygen cylinders, apparatus and fittings shall not be handled with oily hands or gloves or greasy tools or equipment.

(m) When moving compressed gas cylinders by crane, suitable cradles shall be used for prevention of the possibility of dropping them. Ordinary rope slings or electromagnets shall not be used.

(n) Oxygen and fuel gas cylinders and acetylene generators shall be placed far enough away from the welding area to prevent them from being heated by radiation from heated materials, by sparks or slag, or by misdirection of torch flame.

(o) When gas welding or cutting operations are discontinued for a substantial period of time, such as during lunch hour or overnight, the torch valve shall be closed and the gas supply to the torch completely shut off. (Ord. 87870 § 8.23.050; January 19, 1959).

8.23.060 Electric arc-welding and cutting. (a) The frames or case of the welding machine, except internal combustion engine driven machines, shall be grounded. Ground connections shall be mechanically strong and electrically adequate for the required current.

(b) Welding current return circuits from the work to the machine shall have proper electrical contact at all joints and periodic inspection shall be made to ascertain that proper electrical contact is maintained.

(c) When electric arc-welding or cutting is to be discontinued for any substantial period of time, such as during lunch hour or overnight, all electrodes shall be removed from the holders, and the holders shall be carefully located so that accidental contact cannot occur. (Ord. 87870 § 8.23.060; January 19, 1959).

8.23.070 Piping of oxygen and fuel gases. (a) Except as provided in Section 8.23.080 (b) and (c), piping shall be wrought iron, steel,

brass or copper or stainless steel. For pressures of one hundred fifty pounds per square inch (150 p.s.i.) or less, standard weight pipe and fittings or approved seamless non-ferrous tubing, stainless steel tubing and approved fittings may be used and shall be suitable for a safe working pressure of one hundred fifty pounds per square inch (150 p.s.i.). For pressures in excess of one hundred fifty pounds per square inch (150 p.s.i.), extra heavy pipe and fittings shall be used as a minimum. Joints in steel or wrought iron pipe shall be welded or made up with threaded or flanged fittings; or rolled, forged or cast steel, or malleable iron fittings may be used. Joints in brass or copper pipe may be welded, threaded or flanged. Joints in approved seamless copper, brass or other approved non-ferrous gas tubing and stainless steel tubing shall be by approved gas tubing fittings. Socket type joints in brass or copper pipe or in approved seamless copper, brass or other approved non-ferrous gas tubing shall be made with silver solder or other high melting point material. Cast iron fittings shall be prohibited. Threaded connections in oxygen piping shall be tinned, or made up with litharge and glycerine, or other joint compound approved for oxygen service and applied to male threads only.

(b) Acetylene piping shall be steel or wrought iron pipe only.

(c) Oxygen piping shall be steel, wrought iron, brass or copper pipe or approved seamless non-ferrous gas tubing or stainless steel tubing. For oxygen at pressures in excess of seven hundred pounds per square inch (700 p.s.i.) approved stainless steel or non-ferrous tubing, pipe and fittings shall be used.

(d) Piping shall be protected against physical damage, and allowance made for contraction, expansion, jarring and vibration. If laid underground it shall be below the frost line and protected against corrosion. Low points in piping shall be provided with drip pots and drain valves, the latter to be normally closed with screw caps or plugs. Oxygen piping shall not be placed in any location where it may be exposed to contact with oil.

(e) All piping shall be tested and proved tight at one and one-half times its maximum working pressure. Any medium used for testing oxygen lines shall be oil-free.

(f) All buried pipe and tubing and outdoor ferrous pipe and tubing shall be covered or painted with a suitable corrosion resisting material.

(g) Piping systems shall conform to requirements of Chapter 3.54 of the Building Code. (Ord. 87870 § 8.23.070 as amended by Ord. 88339; June 29, 1959).

8.23.080 Manifolding of cylinders. (a) Oxygen manifolds shall not be located in an acetylene generator room or in close proximimty to cylinders of combustible gases. Oxygen mainfolds shall be located away from highly flammable material, especially oil, grease or any substance likely to cause or accelerate fire.

(b) The aggregate capacity of fuel gas cylinders connected to one (1) manifold inside a building shall not exceed three thousand cubic feet (3,000 cu. ft.) of gas or three hundred pounds (300 lbs.) in the case of liquefied petroleum gas. More than one (1) such manifold may be located in the same room if separated at least fifty feet (50').

(c) Where it is necessary to manifold fuel gas cylinders having an aggregate gas capacity in excess of three thousand cubic feet (3,000 cu. ft.), they shall be located outside, or in a special building, or in a separate room constructed in accordance with Section 8.23.130 (c). (Ord. 87870 § 8.23.080 as amended by Ord. 88339; June 29, 1959).

8.23.090 Storage of Cylinders. (a) The total capacity of cylinders of fuel gases stored inside a building, except those attached ready for use, shall be not more than two thousand (2,000) cubic feet of gas or two hundred fifty (250) pounds of liquefied petroluem gas. Storage in excess of such amount shall be in a separate room or compartment as provided in Section 5.23.130 (c) or in a special building or outside any building.

(b) Cylinders stored inside of buildings shall be away from highly combustible materials and in locations where they are not subject to excessive rise in temperature, physical damage or tampering. Caps shall be in place and valves tightly closed on all cylinders, including empty ones. (Ord. 87870 § 8.23.090, as amended by Ord. 89864; December 12, 1960).

8.23.100 Liquid oxygen. Where liquid oxygen in a quantity exceeding one hundred gallons (100 gals.) is to be used for welding and cutting, the container or containers shall be located outside or in a special building having no other occupancy except that related to the handling and gasification of the oxygen. Cylinders and containers shall be of an approved type. (Ord. 87870 § 8.23.100; January 19, 1959).

8.23.110 Hose and hose connections. (a) Hose shall be capable of withstanding a hydrostatic pressure of at least eight hundred pounds per square inch (800 p.s.i.).

(b) A single hose having more than one (1) gas passage, a wall failure of which would permit the flow of one gas into the other gas passage, shall not be used.

(c) Single and double hose, except as provided in (d) below, shall be identified by exterior colors using green for oxygen hose; red for acetylene, liquefied petroleum gas and other fuel gases; and black for inert gases and air hose.

(d) When two hoses are joined by a web to form integral lengths of double hose, the color of both hoses shall be red, and the exterior surface of oxygen hose shall be smooth to the touch, while fuel gas hose shall be corrugated or ribbed.

(e) When parallel lengths of oxygen and acetylene hose are taped together for convenience and to prevent tangling, not more than four inches (4″) out of each eight inches (8″) shall be covered by tape.

(f) Hose connections shall be clamped or otherwise securely fastened in a manner that will withstand, without leakage, twice the pressure to which they are normally subjected in service, and in no case less than a pressure of three hundred pounds per square inch (300 p.s.i.).

(g) Hose shall be inspected frequently for leaks, burns, worn places, loose connections or other defects which may render the hose unfit for service. Where hose shows excessive wear or has been subjected to flashback, it shall be inspected and tested at twice the normal pressure to which it is subjected in service, but in no case less than two hundred pounds per square inch (200 p.s.i.) before being returned to service. Defective lengths of hose shall be discarded. (Ord. 87870 § 8.23.110; January 19, 1959).

8.23.120 Containers for calcium carbide. Containers used for the storage of calcium carbide shall be of metal sufficient to insure handling without rupture, and shall be provided with a screw top or its equivalent. They shall be of water-tight and air-tight construction. Solder shall not be used on joints in such manner that fire would disrupt the package. Packages shall be marked "Calcium Carbide—Dangerous If Not Kept Dry." Ord. 87870 § 8.23.120; January 19, 1959).

8.23.130 Storage of calcium carbide in buildings. (a) The storage of calcium carbide exceeding fifty pounds (50 lbs.) shall be prohibited in Fire Zones One and Two.

(b) Storage of calcium carbide inside buildings shall be in a dry, waterproof and well-ventilated location.

(c) Calcium carbide in excess of six hundred pounds (600 lbs.) shall not be stored in a building containing other occupancy unless in an acetylene generator room or separate room or compartment in a one-story building without cellar or basement underneath the carbide storage section. Such rooms shall be of construction having a fire-resistance rating of not less than one-hour, with openings to other parts of the buliding protected by approved self-closing fire doors or stationary wire glass windows in approved metal frames. The room or compartment may also be used for storage of fuel gas cylinders, but not oxygen. Adequate ventilation shall be provided.

(d) Calcium carbide in excess of five thousand pounds (5,000 lbs.) shall be stored in one-story buildings without cellar or basement and used for no other purpose or in outside acetylene generator houses. Location of such storage buildings shall be outside congested mercantile and manufacturing districts. If storage building is of noncombustible construction, it may adjoin other one-story buildings if separated therefrom by unpierced fire walls; if detached less than ten feet (10′) from such building

or buildings, there shall be no opening in any of the mutually exposing sides of such buildings within said distance. If the storage building is of combustible construction, it shall not be within twenty feet (20′) of any other one- or two-story building, nor within thirty feet (30′) of any other building exceeding two stories. (Ord. 87870 § 8.23.130 as amended by Ord. 88339; June 29, 1959).

8.23.140 Generators to be approved. Acetylene generators shall be of approved type, and shall be plainly marked with the rate in cubic feet of acetylene per hour for which they are designed, the amount or weight of carbide necessary for a single charge, the manufacturer's name and address, and the name or number of the type of generator. (Ord. 87870 § 8.23.140; January 19, 1959).

8.23.150 Stationary generators. Stationary generators shall be installed either in a well-ventilated one-story noncombustible outside generator house, or in a well-ventilated room or compartment of ample size and construction either in a one-story building or on the top floor or roof of a multi-storied building. The storage of fuel gas cylinders in such rooms or compartments shall not exceed a total capacity of two thousand cubic feet (2,000 cu. ft.) of gas (250 pounds in case of liquefied petroleum gas.) (Ord. 87870 § 8.23.150; January 19, 1959).

8.23.160 Inside generator rooms or compartments. (a) The walls or partitions, floor and ceiling of such room or compartment shall be of construction having a fire-resistance rating of not less than one-hour. Walls or partitions shall be continuous from floor to ceiling, and shall be securely anchored. At least one (1) wall of an inside generator room shall be an exterior wall.

(b) Openings from generator room or compartment to other parts of the building shall be protected by an approved self-closing fire door of the swinging type and close into arabbet, or otherwise be made tight to prevent passage of flame around edges. Exit doors shall be located so as to be readily accessible in case of emergency. Windows, if provided in partitions, shall be wired glass in approved metal frames with fixed sash.

(c) A portion of the exterior walls equal to not less than ten per cent (10%) of the combined areas of the enclosing walls shall be of light noncombustible material such as single thickness, single strength glass. Single thickness, single strength window glass skylights, or lightly fastened roof hatch covers, swinging doors in exterior walls opening outward, sheet metal siding or lightly fastened roofs may be accepted in part or entirely in lieu of the glass area or its equivalent, provided the required percentage of explosion venting area is thus obtained.

(d) Every building containing an acetylene generator shall have posted outside in a conspicuous place near the entrance a sign bearing the words in red letters six inches (6″) in height "Acetylene Generator—Keep Lights and Fire Away." (Ord. 87870 § 8.23.160; January 19, 1959).

8.23.170 Portable generators. (a) Portable generators shall not be used in rooms of total volume less than thirty-five (35) times the total gas generating capacity per charge of all generators in the room. The gas generating capacity in cubic feet per charge shall be assumed as four and one-half (4.5) times the weight of carbide per charge in pounds. Generators shall not be used in rooms having a ceiling height less than ten feet (10′).

(b) Acetylene generators shall not be moved by derrick, crane or hoist while charged. (Ord. 87870 § 8.23.170; January 19, 1959).

8.23.180 Protection against freezing. Generators shall be placed where water will not freeze. Common salt (sodium chloride) or other corrosive chemical shall not be used as a protection against freezing. (Ord. 87870 § 8.23.180; January 19, 1959).

8.23.190 Electrical equipment. In calcium carbide storage and generator rooms, all electrical service and equipment shall be as required by the Electrical Code for hazardous locations. (Ord. 87870 § 8.23.190; January 19, 1959).

Chapter 8.24

OVENS, INDUSTRIAL BAKING AND DRYING

Sections:

8.24.010 Scope. This chapter shall apply to the location, design, construction and operation of industrial baking and drying ovens which are heated and which contain combustible contents or which during operation contain flammable vapors from the products being baked or dried. It is the intent of this chapter to provide requirements for the operation of these ovens within certain limitations of control depending on oven design, oven contents, and ventilation requirements, the disregard of which may cause them to function in an unsafe manner, thereby becoming liable to destruction by fire or explosion.

Wherever the word "oven" is used in this chapter, it shall mean "ovens" and "dryers."

This chapter does not include standards for metal heat treating furnaces, or ceramic kilns. (Ord. 87870 § 8.24.010; January 19, 1959).

8.24.020 Permits and plans. (a) A permit shall be required for the operation of an oven.

(b) Application for a permit shall be accompanied by plans showing all essential details for safe operation. Plans shall be prepared by or under the direct supervision of a licensed professional engineer, licensed to practice engineering under the laws of the State of Washington.

Exception: The Fire Chief may accept drawing equivalent to conventional drawings required of the professional engineer when prepared by the owner or other person whose qualifications are acceptable to the Fire Chief. The person preparing such drawings shall place a signed statement on each such drawing that it was drawn by him.

(c) Before final approval, the oven shall have attached a permanent name plate showing essential operating data as required by the Fire Chief. (Ord. 87870 § 8.24.020; January 19, 1959).

8.24.030 Location. (a) Ovens, oven heaters and related equipment shall be located with due regard to the possibility of fire resulting from over-heating or from the escape of fuel gas or fuel oil and the possibility of damage to the building and injury to persons resulting from explosion.

(b) Ovens shall be readily accessible for fire fighting purposes, and located at or above grade.

(c) Ovens shall be so located as to be readily accessible for inspection and maintenance and with adequate clearances to permit the proper functioning of explosion vents.

(d) Industrial ovens and heaters shall be safely located and protected from exposure to dip tanks, spray booths, storage and mixing rooms for flammable liquids, or storage areas used for readily flammable materials, or exposure to the diffusion of flammable vapor air mixtures.

(e) The use of combined dipping and baking, and spraying and baking units is permissible when adequately ventilated.

(f) The room in which flammable vapors are produced shall be ventilated in such a manner that the atmosphere in the vicinity of painting operations will not contain vapor concentration exceeding one-fourth (¼) of that required to produce a lower explosive limit mixture. Flow of ventilating air from paint room or area shall be away from the ovens or heaters. (Ord. 87870 § 8.24.030; January 19, 1959).

8.24.040 Construction. Ovens and related equipment shall be built in a substantial manner with due regard to the fire hazard inherent in equipment operating at elevated temperatures, the hazard to operators from high temperatures, open flames and mechanical equipment and the need of insuring reliable, safe operation over the expected maximum life of the equipment. (Ord. 87870 § 8.24.040; January 19, 1959).

8.24.050 Materials. (a) Ovens shall be constructed of noncombustible materials throughout. If operating temperatures are one hundred sixty degrees Fahrenheit (160° F.) or lower, approved combustible materials may be used. If combustible materials are used, they shall be faced on both sides with noncombustible materials, such as sheet metal or asbestos board.

(b) Oven interiors shall have smooth surfaces arranged to permit easy cleaning. Where oven walls are formed of insulating material covered with sheet metal, care shall be used in construction to prevent absorption of solvent vapors. Expansion joints shall be provided at suitable intervals in oven framing and paneling to prevent damage from expansion and contraction.

(c) The amount of insulation used in oven panel construction shall be enough to prevent the outside surface temperature exceeding one hundred sixty degrees Fahrenheit (160° F.), or adequate guards shall be provided to protect personnel.

(d) Oven structural supports and conveyors shall be designed with adequate factors of safety at the maximum operating temperatures, consideration being given to the strains imposed by expansion.

(e) Access doors or openings in adequate number and size shall be provided to facilitate inspection and maintenance, also the effective use of extinguishers or hose streams in all parts of the oven. All access doors shall be provided with hardware which will permit manual opening from either side.

(f) The metal frames of ovens shall in all cases be electrically grounded throughout for the safe removal of static electric charges. (Ord. 87870 § 8.24.050; January 19, 1959).

8.24.060 Floors. (a) Roofs, floors and side walls of ovens shall be sufficiently insulated and the space surrounding the ovens sufficiently insulated or ventilated so temperatures shall not exceed one hundred sixty

degrees Fahrenheit (160° F.) to protect the combustible materials from damage by fire, and deterioration due to long time heat exposure. (Ord. 87870 § 8.24.060; January 19, 1959).

8.24.070 Explosion vents. (a) Ovens shall be equipped with unobstructed relief vents for freely relieving internal explosion pressures. These vents shall be provided in the form of gravity retained panels designed to afford adequate insulation and possess the necessary structural strength. These explosion relief panels shall be proportioned in the ratio of their area in square feet to the explosion containing volume of the oven, due allowance being made for openings or access doors equipped with approved explosion relieving hardware. The preferred ratio is 1:15; i. e., one square foot (1 sq. ft.) of relief panel to every fifteen cubic feet (15 cu. ft.) of oven volume. A lower ratio, i. e., 1:20, may be used subject to approval of the Fire Chief.

(b) Explosion relief vents for long ovens shall be reasonably distributed throughout the entire oven length. (Ord. 87870 § 8.24.070; January 19, 1959).

8.24.080 Ventilation—General. (a) Proper ventilation within the scope of this chapter means a sufficient supply of fresh air and proper exhaust to outdoors with a sufficiently vigorous and properly distributed air circulation to insure that the flammable vapor concentration in all parts of the oven enclosure shall be safely below the lower explosive limit at all times.

(b) Ovens shall be equipped with mechanical ventilation.

Exception: Ovens with volume of sixty four cubic feet (64 cu. ft.) or less which do not contain flammable vapors or toxic fumes need not be equipped with mechanical ventilation.

(Ord. 87870 § 8.24.080; January 19, 1959).

8.24.090 Duct work. (a) Duct work shall be constructed of noncombustible materials and shall be independent structures and not built into the building structure. Ducts shall be constructed of material of adequate strength and rigidity to meet the conditions of service. Ducts subject to accumulation of combustible deposits shall be constructed of not less than sixteen (16) gauge steel or equivalent and shall be equipped with handholes or cleanout doors.

(b) Whenever oven ducts or stacks pass through combustible walls, floors or roofs, adequate insulation and clearance shall be provided to prevent surface temperatures exceeding one hundred sixty degrees Fahrenheit (160° F.).

(c) Dampers in the ducts which affect the volume of fresh air admitted to and vapors or gases exhausted from the oven shall be so de-

signed that when in closed position they will pass the required volume for safe ventilation.

(d) Exposed hot fan casings and hot ducts with temperatures exceeding one hundred forty degrees Fahrenheit (140° F.) within seven feet (7') of the building floor shall be protected to prevent injury to personnel.

(e) Exhaust ducts shall not discharge near doors, windows or other air intakes in a manner that will permit re-entry of vapors into the building.

(f) Air inlets outside the oven shall be protected by coarse screens and so guarded that they cannot be obstructed. (Ord. 87870 § 8.24.090; January 19, 1959).

8.24.100 Fans. (a) Each oven shall be equipped with individual exhaust systems not connected to exhausts serving other equipments. Ovens which are divided into several small compartments, or groups of small individual ovens, may be exhausted by a common exhaust fan provided the fumes exhausted from the several compartments do not, when mixed, cause a more hazardous condition than if exhausted individually, and subject to the approval of the Fire Chief.

(b) Ovens in which the temperature is controlled by dampers (manual or automatic) which affect the volume of hot air admitted to the oven, must be so designed that a reduction in the volume of hot air supplied does not result in a reduction of the volume of fresh air supplied to meet the requirements for safe ventilation.

(c) A separate draft fan, not connected with the oven ventilation, shall be used for exhausting the products of combustion from indirect gas or oil fired air heaters when necessary.

(d) To assure uninterrupted dependable ventilation, all fans in an oven ventilating system shall be directly connected to the motor. Any fan not directly connected to the motor shall be multiple V-belt driven. Motors shall not be located inside ovens or exhaust ducts. (Ord. 87870 § 8.24.100; January 19, 1959).

8.24.110 Air supply. (a) Ventilation shall be arranged in an oven enclosure in such a way that there are no zones in which circulation does not take place. In compliance with this rule, due consideration shall be given to the proportioning of fresh air and recirculated air inlets and exhaust outlets in such a way that maximum dilution is obtained at points of maximum flammable vapor concentration.

(b) In areas where volatiles are given off by material prior to entering oven, adequate provisions shall be made to exhaust vapors to the outside of the building.

(c) In continuous process ovens, the rate of safety ventilation shall

not be less than ten thousand cubic feet (10,000 cu. ft.) of fresh air referred to seventy degrees Fahrenheit (70° F.) per gallon of solvent evaporated in the oven.

(d) In batch process ovens, the rate of safety ventilation shall not be less than three hundred eighty cubic feet (380 cu. ft.) per minute referred to seventy degrees Fahrenheit (70° F.) of fresh air per gallon of volatiles in the batch.

(e) Other rates of ventilation may be used when there is reliable previous experience or the maximum evaporation rate has been determined in test runs under actual operating conditions. Sufficient ventilation shall then be furnished to prevent the vapor concentration in the oven exceeding one-fourth (¼) of that required to produce a lower explosive limit mixture. (Ord. 87870 § 8.24.110; January 19, 1959).

8.24.120 Safety control equipment—General. In the selection of safety control equipment, careful consideration shall be given to the hazards peculiar to each installation. The type of apparatus selected to attain the degree of safety required shall be subject to the approval of the Fire Chief. Apparatus that will fail safe in the event of the interruption of the safety sequence or the development of the unsafe condition of operation shall be required. (Ord. 87870 § 8.24.120; January 19, 1959).

8.24.130 Ventilation controls. (a) Direct electrical interlocks and/or air flow switches shall be arranged in the safety control circuit so that loss of ventilation or air flow will immediately shut down the heating system of the particular oven affected. When considered necessary, loss of ventilation shall shut down the entire oven heating system and conveyor system.

(b) Timed preventilation is required for all ovens in which flammable vapors or fuel can accumulate during a shut-down period. The safety control circuit shall be arranged and adjusted so as to require operation of fans for sufficient time to provide a minimum of four complete oven volume air changes with fresh air before the burner ignition system may be operated, fuel turned on, or the conveyor operated.

(c) Timed preventilation safety controls shall be so arranged that in event of failure of ventilating fans a re-cycling of the preventilation control shall occur.

(d) Timed preventilation may be omitted in ovens of less than three hundred fifty cubic feet (350 cu. ft.) volume, if doors must be opened to light burners or turn on heat; provided that the area of doors gives an explosion venting area of one square foot (1 sq. ft.) to fifteen cubic feet (15 cu. ft.) of oven volume and all fans are operating. (Ord. 87870 § 8.24.130; January 19, 1959).

8.24.140 Combustion controls. (a) Excess temperature limit switches

shall be provided and suitably interlocked with the safety control circuit so that all main burners controlled by the circuit will be shut off in event of excessive temperatures in the oven or heating system. They shall not automatically reopen the fuel valve. These controls shall be in addition to any normal temperature control devices used.

For ovens heated by steam, the excess temperature limit switch shall control a self-closing valve in the steam supply line.

For ovens heated by electricity, the excess temperature limit switch shall control a contactor or switch which will interrupt the main power supply.

(b) COMBUSTION SAFEGUARD. One of the following combustion safeguards, subject to approval of the Fire Chief, shall be provided at the heating system of each oven:

1. Gas Fired Heating Systems.

a. An approved, practically instantaneous, combustion safeguard arranged through suitable approved safety shut-off valves to shut off fuel to the burner and its pilot in the event of flame failure. The control point of the combustion safeguard shall be located at the junction of the main and pilot burner flame paths, except in cases of multiple burners where one (1) or more control points shall be located in the proper position(s) for maximum safety.

b. Burners for gas heating systems which supply an oven at a fuel rate per burner not exceeding one hundred fifty thousand (150,000) BTU/hr. may be equipped with heat actuated combustion safeguards or pilot lights provided the total fuel supplied the oven by all burners does not exceed five hundred thousand (500,000) BTU/hr.

2. Oil Fired Heating System.

a. An approved, practically instantaneous safeguard actuated by the main burner flame and arranged through a suitable approved safety shut-off valve to shut off the fuel to the burner in event of flame failure. The control point of the combustion safeguard shall be so located that it covers the flame under all normal firing conditions.

b. Subject to approval of the Fire Chief, direct supervision of the oil flame by a combustion safeguard is not required when a continuous burning reliable gas pilot flame ignition source is provided for an oil burner; providing that the pilot flame is supervised by an approved practically instantaneous combustion safeguard.

c. Oil burners which supply an oven at a fuel rate per burner not exceeding three hundred thousand (300,000) BTU/hr. may be equipped with an approved type combustion safeguard suitable for oil, provided the total fuel supplied the oven by all burners does not exceed five hundred thousand (500,000) BTU/hr.

(c) SAFETY SHUT-OFF VALVES.

1. Each gas-fired heating system shall be provided with an approved safety shut-off valve arranged for manual reset and a similar valve with or without manual reset shall be installed in the gas pilot line. These valves shall be arranged to close in event of failure of ventilation air flow, flame failure, failure of gas pressure, failure of air pressure if necessary for proper operation of burners, and failure of electric current.

2. Each oil-fired heating system shall be provided with an approved safety shut-off valve for shutting off fuel to the burner(s). An approved safety shut-off valve shall also be provided on gas pilot lines to burners, if any. These valves shall be arranged to close in event of failure of ventilation, air flow, flame failure, failure of fuel pressure, failure of atomizing air or steam, if used, and failure of electric current.

Exception: Where a burner which burns light oil (No. 3 or lighter) is provided with an approved individual oil burner control unit consisting of pump, pressure regulating and pressure cut-off valve and the oil burner control unit is included in the safety control circuit for the oven, a safety shut-off valve external to the oil burner control unit is not required. (Ord. 87870 § 8.24.140; January 19, 1959).

8.24.150 Conveyor interlock. (a) Conveyor motor controls shall be included in the safety control circuit to prevent conveyor moving, or to stop material supply system in event of operation of any safety control equipment.

(b) Subject to the approval of the Fire Chief, interlocking controls may be omitted on one line conveyors supplying several processes, or where interruptions of conveyors will create a hazardous condition. (Ord. 87870 § 8.24.150; January 19, 1959).

8.24.160 Fire protection equipment—General. Ovens of combustible construction or those containing or processing combustible materials or those subject to deposits or drippings of combustible materials sufficient to sustain a fire shall be equipped with an approved automatic fire extinguishing system. Bakery ovens of noncombustible construction do not require automatic fire extinguishing systems. (Ord. 87870 § 8.24.160; January 19, 1959).

8.24.170 Automatic sprinkler systems. Where oven temperatures exceed four hundred degrees Fahrenheit (400° F.) or flash fire conditions may exist, an automatic deluge (open head) sprinkler system shall be installed. Operation of automatic deluge systems shall be by fixed temperature or rate-of-rise actuated release equipment and each deluge valve shall in addition be equipped with a hand pull for manual operation. (Ord. 87870 § 8.24.170; January 19, 1959).

8.24.180 Special extinguishing systems. Automatic water spray systems, automatic carbon dioxide extinguishing systems, or automatic foam

extinguishing systems may be installed in lieu of automatic sprinkler systems subject to approval of the Fire Chief. Installation of these specialized systems shall be in accordance with nationally recognized standards such as the National Board of Fire Underwriters. (Ord. 87870 § 8.24.180; January 19, 1959).

8.24.190 Control equipment. Operation of the automatic fire extinguishing system shall automatically shut down conveyors, fuel or heat supply, ventilation, and when practicable close oven outlets. An audible alarm shall also be actuated. (Ord. 87870 § 8.24.190; January 19, 1959).

8.24.200 Operation and maintenance. Ovens shall be operated by well trained personnel only. Monthly tests shall be conducted of the following items, and a record of such tests shall be maintained for review by the Fire Chief.

1. All specified lighting-up and shutting down procedures.
2. Test of all safety control devices including instruments.
3. Test of automatic fire protection equipment. "Dry-run" operation of the deluge control valve by the heat actuating devices shall be sufficient. However, where water only is used as the extinguishing agent, a complete operational test shall be required at least once each year. (Ord. 87870 § 8.24.200; January 19, 1959).

8.24.210 Lumber dry kilns. Lumber dry kilns whose floor area exceeds five hundred square feet (500 sq. ft.) shall be equipped with an approved automatic sprinkler system. However, lumber dry kilns utilizing a moist air process or where maximum temperature does not exceed two hundred fifty degrees Fahrenheit (250° F.) shall not be required to comply with Sections 8.24.070 through 8.24.150 of this chapter. (Ord. 87870 § 8.24.210; January 19, 1959).

Chapter 8.25

PLACES OF ASSEMBLY

Sections:

8.25.010 Permit required. A permit shall be required for installation or maintenance of flammable materials in a place of assembly. (Ord. 87870 § 8.25.010; January 19, 1959).

8.25.020 Definition. "PLACE OF ASSEMBLY" shall mean a building or part thereof use for: Cabaret, dance hall, place of entertainment using live entertainers, place of worship, skating rink, sports arena, theater; for the following, when occupant load is 100 or more: Club rooms, exhibition halls, lodge halls, specialty school, social hall, waiting room for passengers awaiting transportation; and for restaurants or dining rooms with capacity of 300 or more. (Ord. 87870 § 8.25.020; January 91, 1959).

8.25.030 Decorative material. (a) Decorative material shall include all such combustible materials as curtains, draperies, streamers, surface coverings applied over the building interior finish for decorative, acoustical or other effect, and also cloth, cotton batting, straw, vines, leaves, trees and moss used for decorative effect, but it shall not include floor coverings, ordinary window shades, nor materials one-twenty-eighth of an inch (.036") or less in thickness applied directly to and adhering tightly to a noncombustible base.

(b) Decorative material shall not be used which as applied will ignite and allow flame to spread over the surface when exposed to a match flame test applied to a piece removed from the material. The piece shall be held in a vertical position and the bottom edge exposed to a flame from a common match held in a horizontal position, one-half inch (½") underneath the piece, and at a constant location for a minimum of fifteen seconds (15 sec.).

(c) Treatments used to accomplish this flameproofing shall be renewed as often as may be necessary to maintain the flame-proof effect. (Ord. 87870 § 8.25.030; January 19, 1959).

8.25.040 Pyroxylin coated fabric. Pyroxylin coated fabric used as a decorative material in accordance with Section 8.25.030, or as a surface covering on fixed furnishings, shall be limited in amount to the following:

Fabrics containing one and four-tenths ounces (1.4 oz.) or more of cellulose nitrate per square yard shall not be used in excess of a total amount equivalent to one square foot (1 sq. ft.) of fabric surface to fifteen cubic feet (15 cu. ft.) of room volume. Each square foot of such fabric which contains one and seven-tenths ounces (1.7 oz.) or more of cellulose nitrate per square yard shall be counted as two square feet (2 sq. ft.) in making this computation. (Ord. 87870 § 8.25.040; January 19, 1959).

8.25.050 Motion picture screens. Motion picture screens or screen masking shall not be used which will ignite and allow flame to spread

over the surface when exposed to the match flame test described in Section 8.25.030 (b). (Ord. 87870 § 8.25.050; January 19, 1959).

8.25.060 Exit doors. During the period of occupancy, exit lights shall be illuminated at all times, exit doors shall not be locked, bolted or otherwise fastened or obstructed by any means, so that the door cannot be opened from the inside by the use of the ordinary door latch or knob or by pressure on the door or on a panic release device. (Ord. 87870 § 8.25.060; January 19, 1959).

8.25.070 Aisles. In each room where chairs, or tables and chairs, are used, the arrangement shall be such as will provide for ready access by aisles to each exit doorway. Aisles leading directly to exit doorways shall have not less than thirty-six inches clear width which shall not be obstructed by chairs, tables or other objects. (Ord. 87870 § 8.25.070; January 19, 1959).

8.25.080 Use of exit ways. A stairway, or any portion thereof, whether interior or exterior, or hallway, corridor, vestibule, balcony or bridge leading to a stairway or exit of any kind, shall not be used in any way that will obstruct its use as an exit or that will present a hazardous condition. (Ord. 87870 § 8.25.080; January 19, 1959).

8.25.090 Ash trays. Where smoking is permitted, there shall be provided on each table and at other convenient places suitable noncombustible ash trays or match receivers. (Ord. 87870 § 8.25.090; January 19, 1959).

8.25.100 Fire appliances. Fire protection equipment required in Chapter 8.13 shall be kept in working condition. Extinguishers and hose and similar appliances shall be visible and convenient at all times. It shall be the duty of the owner and the tenant of each building, or part of a building, occupied as a place of assembly to properly train sufficient regular employees in the use of fire appliances so that such appliances can be quickly put in operation. (Ord. 87870 § 8.25.100; January 19, 1959).

8.25.110 Tents. Every tent erected as a temporary building as provided by the Building Code shall be flameproofed. The methods of flameproofing shall be approved by the Fire Chief. (Ord. 87870 § 8.25.110, as amended by Ord. 88339; June 29, 1959).

Chapter 8.26

PRECAUTIONS AGAINST FIRE—GENERAL

Sections:

8.26.010 Outdoor fires. A. SCOPE. This section through 8.26.014 shall apply to residential, commercial and recreational outdoor fires except outdoor fires in portable or built-in barbecue, fireplace, rotisserie or similar devices not intended for the burning of refuse or debris, flares, torches, waste gas burners, incense burners and insect pots.

B. GENERAL. The Fire Chief may grant a permit for such outdoor fires as are not prohibited by this title, the Air Pollution Control Ordinance (Chapter 3.82), or otherwise.

1. A permit shall be required of any person to maintain an outdoor fire at a specific location, recreational fires on Park Department property excepted. Such permit shall be obtained at the fire station nearest the location of the fire.

2. There shall be no outdoor fires in the First Fire Zone.

3. There shall be no outdoor fire built or maintained on public property or the property of another without authorization by the person or agency in charge.

4. Burning shall be conducted in such a manner as to not be manifestly dangerous to persons, property or so as to hazard public safety in the opinion of the Fire Chief.

5. All open outdoor fires shall be completely extinguished at sunset and there shall be no burning between sunset and sunrise, except recreational fires as approved by the Fire Chief.

6. The Fire Chief may prohibit any or all bonfires and outdoor fires when atmospheric conditions or local circumstances make such fires hazardous, upon notice posted at all fire stations. (Ord. 87870 § 8.26.010, as amended by Ord. 91984; April 9, 1963).

8.26.011 Residential outdoor fires. When permitted pursuant to Section 8.26.010, residential outdoor fires shall be subject to the following requirements:

(a) All rubbish and waste if burned shall be burned in an approved device which may be a portable outdoor incinerator, oil drum not to exceed fifty-five gallons in size, garbage can or other metal or masonry device. All such devices shall be equipped with a one-quarter inch mesh screen securely attached to and entirely covering the top while a fire burns therein and shall be maintained in good condition at all times.

(b) Such approved device when in operation shall be at least fifteen feet from any combustible structure or material or any property line.

(c) An adult person shall supervise the fire at all times and have a water hose with nozzle attached, under water pressure, readily available for use. (Ord. 87870 § 8.26.011, as amended by Ord. 91984; April 9, 1963).

8.26.013 Commercial outdoor fires. Commercial outdoor fires shall include outdoor burning of commercial rubbish or industrial waste such as wrecking of buildings, burning in conjunction with building construction or clearing of land, junk yard burning, railroad ties, or similar trade waste. When permitted pursuant to Section 8.26.010 commercial outdoor fires shall be subject to the following requirements:

(a) There shall be a person in charge to supervise all such burning who shall be known as a Supervisor of Burning. Such Supervisor of Burning shall be subject to examination by the Fire Chief, and upon passing such examination shall be issued a Certificate of Qualification. This Certificate may be revoked by the Fire Chief for violation of any of the provisions of this ordinance.

(b) Before any such burning shall commence, a public liability and property damage insurance policy from an insurance company licensed to do business in the State of Washington shall be furnished in an amount and for a term to be fixed by the Fire Chief, and a certificate issued by such insurance company that said insurance policy protects and indemnifies the City of Seattle as an additional insured shall be filed with the Fire Chief.

(c) Piles of burning combustible material shall not exceed twenty-four cubic feet of which no one dimension shall exceed four feet and shall not be closer than twenty-five feet from other combustible material, building or any property line. Brush, trees and shrubs may be burned in piles not to exceed two hundred sixteen cubic feet with no one dimension to exceed eight feet and shall not be closer than fifty feet from other combustible materials, buildings or property lines.

(d) The fire shall be maintained within two hundred feet of an adequate source of water, connected to a hoze with nozzle under pressure sufficient to project a steam of water that will reach every area within ten feet of such fire. (Ord. 87870 § 8.26.013, as amended by Ord. 91984; April 19, 1963).

8.26.014 Recreational outdoor fires. A recreational fire is a fire kindled and maintained on the ground for social, pleasure, religious, ceremonial, cooking or like purposes, and shall be subject to the following requirements:

(a) Recreational fires shall be in piles not exceeding twelve cubic feet (12 cu. ft.); shall be located at least twenty-five feet (25′) from other combustible material, building or property line; and an adult person shall be present during the burning and when finished the fire shall be completely extinguished with water.

(b) Recreational fires may be specifically permitted to burn after sunset when authorized by the Fire Chief.

(c) Recreational fires on Park Department property shall be allowed only in those areas designated by the Park Department and under such regulations as may be set forth by the Park Department. (Ord. 87870 § 8.26.014, added by Ord. 88210; May 18, 1959).

8.26.020 Use of torches. (a) A permit shall be required for the use of any torch or other flame producing device for removing paint from any building or structure.

(b) Torches or other flame producing devices shall not be used for thawing frozen pipes in or under a building. (Ord. 87870 § 8.26.020; January 19, 1959).

8.26.030 Hot ashes and other dangerous materials. Hot ashes, cinders, smouldering coals, or greasy or oily substances liable to spontaneous ignitions shall not be deposited into any wood receptacle, or placed within ten feet (10′) of any combustible materials, except in metal or other noncombustible receptacles. Such receptacles, unless resting on a noncombustible floor or on the ground outside the building, shall be placed on noncombustible stands, and in every case shall be kept at least two feet (2′) away from any combustible wall or partition or exterior window opening. (Ord. 87870 § 8.26.030; January 19, 1959).

8.26.040 Accumulation of waste materials. Accumulations of waste paper, hay, grass, straw, weeds, litter or combustible or flammable waste or rubbish of any kind shall not be permitted to remain upon any roof or in any court, yard, building, vacant lot or open space. All weeds, grass, vines or other growth, when same endangers property, or is liable to be fired, shall be cut down and removed by the owner or occupant of the property. (Ord. 87870 § 8.26.040, as amended by Ord. 90405; July 25, 1961).

8.26.050 Handling readily combustible waste materials. (a) Anyone making, using, storing or having in charge or under his control any shavings, excelsior, rubbish, sacks, bags, litter, hay, straw or combustible waste materials shall at the close of each day cause all material which is not completely packaged and stacked in an orderly manner to be removed from the building or stored in approved vaults, metal or metal-lined, covered receptacles or bins.

(b) Furniture, baggage, rubbish or other combustible or flammable materials shall not be placed, stored or kept in any unfinished attic or other space directly under a roof, or any unfinished basement or unfinished area under a building. (Ord. 87870 § 8.26.050; January 19, 1959).

8.26.060 Storage of readily combustible material. (a) A permit shall be required to store in any building or upon any premises in excess of two thousand five hundred cubic feet gross volume of combustible empty packing cases, boxes, barrels or similar containers, rubber tires, baled cotton, rubber, cork or other similarly combustible material.

(b) Storage in the open shall not be more than twenty feet in height, shall be so located, with respect to adjacent buildings, as not to constitute a hazard, and shall be compact and orderly. (Ord. 87870 § 2.26.060, as amended by Ord. 90405; July 25, 1961).

8.26.070 Flammable decorative materials in buildings. Highly flammable materials such as cotton batting, straw, dry vines, leaves, trees, artificial flowers or shrubbery, foam plastic materials and other similar materials shall not be used for decorative purposes unless flameproofed. Electric light bulbs shall not be decorated with paper or other combustible materials. (Ord. 87870 § 8.26.070; January 19, 1959).

8.26.080 Use of open flame or light restricted. (a) Open flame or unapproved light shall not be allowed in any building, vessel, boat or any other place where highly flammable, combustible or explosive material is kept or stored.

(b) Open flame heating apparatus or equipment capable of igniting flammable materials of the types stored or handled shall not be used in the storage or work areas of any building where highly flammable or combustible materials are stored or processed; nor in the work area of any shop or factory used for the manufacture, repair or renovating of mattresses or bedding; nor in the work areas of any establishment used

for the upholstering of furniture. (Ord. 87870 § 8.26.080; January 19, 1959).

8.26.090 Chimneys and heating appliances to be maintained in safe condition. (a) Chimneys, smokestacks or similar devices for conveying smoke or hot gases to the outer air and the stoves, furnaces, incinerators, fire boxes or boilers to which they are connected shall be maintained in an approved manner so as not to create a hazardous condition.

(b) Commercial and industrial type incinerators used for burning of rubbish or other readily combustible solid waste material and flue-fed incinerators shall be maintained with approved spark arrestors or other effective means for arresting sparks and fly particles. (Ord. 87870 § 8.26.090 as amended by Ord. 88339; June 29, 1959).

8.26.100 Trapdoors to be closed. Trapdoors, except those which are automatic in their operation, in any factory building or building used for storage shall be closed at the completion of the business of each day. (Ord. 87870 § 8.26.100; January 19, 1959).

8.26.110 Vacant buildings. Anyone owning or controlling any vacant building shall remove therefrom all accumulations of flammable or combustible rubbish or debris, and shall lock, barricade, or otherwise secure all windows, doors or other openings in such vacant building. (Ord. 87870 § 8.26.110, added by Ord. 90405; July 25, 1961).

Chapter 8.27
INSTALLATION OF BULK OXYGEN SYSTEMS AT CONSUMER SITES

Sections:

8.27.010 Scope. This chapter shall apply to the installation of bulk oxygen systems on consumer sites.

Oxygen manufacturing plants or other establishments operated by the oxygen supplier or his agent for the purpose of storing oxygen and refilling portable containers, trailers, mobile supply trucks or tank cars shall comply with ICC regulations. (Ord. 87870 § 8.27.010; January 19, 1959).

8.27.020 Definitions. For the purposes of this Code, the following terms are defined:

"BULK OXYGEN SYSTEM" is an assembly of equipment, such as oxygen storage containers, pressure regulators, safety devices, vaporizers, manifolds, and interconnecting piping which has storage capacity of: (1) more than twelve thousand cubic feet (12,000 cu. ft.) of oxygen (NTP) connected in service or ready for service, or (2) twenty-five thousand cubic feet (25,000 cu. ft.) of oxygen (NTP) including unconnected reserve on hand at the site. The bulk oxygen system terminates at the point where oxygen at service pressure first enters the supply line. The oxygen containers may be stationary or movable, and the oxygen stored may be stored as gas or liquid.

"CUBIC FEET NTP" shall mean cubic feet measured at normal atmospheric temperatures and pressure. (Ord. 87870 § 8.27.020; January 19, 1959).

8.27.030 Permit required. A permit shall be required for bulk oxygen systems at consumer sites. (Ord. 87870 § 8.27.030; January 19, 1959).

8.27.040 Location of bulk oxygen systems. (a) Bulk oxygen systems shall be located above ground out of doors, or shall be installed in a building of noncombustible construction, adequately vented, and used for that purpose exclusively. The location selected shall be such that containers and associated equipment shall not be exposed to electric lines, flammable or combustible liquids, flammable gas, or combustible materials.

(b) Where it is necessary to locate a bulk oxygen system on ground lower than adjacent flammable or combustible liquid storage, suitable means shall be taken (such as by diking, diversion curbs, or grading) with respect to the adjacent flammable or combustible liquid storage to prevent accumulation of liquids under the bulk oxygen system.

(c) Bulk oxygen systems located within confining walls shall be adequately ventilated as approved by the Fire Chief. (Ord. 87870 § 8.27.040; January 19, 1959).

8.27.050 Distances between bulk oxygen systems and exposures. The minimum distance from any bulk oxygen system to exposure shall be as follows:

1. Fifty feet (50′) from any adjoining property line, except where approved fire walls or other protective structures are provided, bulk oxygen systems may be located within five feet (5′) of the property line.

2. Five feet (5′) from structures with three-hour noncombustible exterior walls, and ten feet (10′) from openings in such walls.

3. Twenty-five feet (25′) from structures with noncombustible exterior walls.

4. Fifty feet (50′) from combustible structures.

TABLE No. 8.27.050-B

MINIMUM DISTANCE FROM BULK OXYGEN SYSTEMS TO EXPOSURE

EXPOSURE								
Quantity of Bulk Oxygen in Gals.	Flammable Liquid Storage Aboveground	Horizontal Distance to Flammable Liquid Container Underground	Filling and Vent Connections or Openings to Underground Flammable Liquid Storage Tank	Liquid with Flash Point Between 200° F. and 600° F.			Quantity Cu. Ft. NTP	Flammable Gas Storage (such as Flammable Gases, Liquefied Flammable Gases and Flammable Gases in Low Pressure Gas Holders)
				Above ground	Underground			
					Horizontal Distance from Container	Filling and Vent Connections or openings		
0-1000	50 Ft.	15 Ft.	50 Ft.	25 Ft.	15 Ft.	40 Ft.	0-5000	50 Ft.
More than 1000	90 Ft.	30 Ft.	50 Ft.	50 Ft.	15 Ft.	40 Ft.	More than 5000	90 Ft.

(Ord. 87870 § 8.28.050; January 19, 1959).

8.27.060 Bulk oxygen storage containers. (a) Permanently installed containers shall be provided with substantial noncombustible supports on firm foundations.

(b) All liquid oxygen storage containers shall be fabricated from materials meeting the impact test requirements of Paragraph UG-84 of Section VIII, Unfired Pressure Vessels of the Boiler and Pressure Vessel Code, edition of 1959, and September 3, 1959, addenda thereto, published by the American Society of Mechanical Engineers, copies of which are filed with the City Comptroller (C. F. 236287).

(c) Containers operating at pressure above fifteen (15) pounds per square inch gauge shall be designed, constructed and tested in accordance with applicable requirements of Section VIII, Unfired Pressure Vessels, of the Boiler and Pressure Vessel Code, edition of 1959, and September 3, 1959, addenda thereto, published by the American Society of Mechanical Engineers, copies of which are filed with the City Comptroller (C. F. 236287). Insulation surrounding liquid oxygen containers shall be noncombustible.

(d) High pressure gaseous oxygen containers shall be designed, constructed, tested and maintained in accordance with Interstate Commerce Commission Specifications and Regulations, or in accordance with applicable requirements of Section VIII, Unfired Pressure Vessels, of the Boiler and Pressure Vessel Code, edition of 1959, and September 3, 1959, addenda thereto, published by the American Society of Mechanical Engineers, copies

of which are filed with the City Comptroller (C. F. 236287). (Ord. 87870 § 8.27.060, as amended by Ord. 89864; December 12, 1960).

8.27.070 Piping, tubing and fittings. (a) Piping, tubing and fittings shall be suitable for oxygen service and for the pressure and temperatures involved, and shall be subject to the requirements of Section 8.05.070 of this title.

(b) All piping and tubing shall be in accordance with the applicable requirements of Section 2, Gas and Air Piping Systems of Standard B31.1, Standard Code for Pressure Piping, edition of 1955, published by the American Standards Association, a copy of which is filed with the City Comptroller (C. F. 236287).

(c) Piping and tubing for operating temperatures below minus twenty degrees Fahrenheit shall be fabricated from materials which, when tested at the minimum operating temperature to which the piping may be subjected in service, will meet the impact test requirements of Paragraph UG-84 of Section VIII, Unfired Pressure Vessels, of the Boiler and Pressure Vessel Code, edition of 1959, and September 3, 1959, addenda thereto, published by the American Society of Mechanical Engineers, copies of which are filed with the City Comptroller (C. F. 236287). (Ord. 87870 § 8.27.070, as amended by Ord. 89864; December 12, 1960).

8.27.080 Safety relief devices. (a) Bulk oxygen storage containers, regardless of design pressure, shall be equipped with safety relief devices as required by ASME Code or ICC Regulations.

(b) Insulation casings on liquid oxygen containers shall be equipped with approved safety relief devices.

(c) All safety relief devices shall be so designed or located that moisture cannot collect and freeze in a manner which would interfere with proper operation. (Ord. 87870 § 8.27.080; January 19, 1959).

8.27.090 Liquid oxygen vaporizers. (a) The vaporizer shall be anchored and its connecting piping sufficiently flexible to provide for the effect of expansion and contraction due to temperature changes.

(b) The vaporizer and its piping shall be adequately protected on the oxygen and heating medium sections with safety relief devices.

(c) Heat used in an oxygen vaporizer shall be indirectly supplied only through mediums such as steam, air, water or other water solutions which do not react with oxygen.

(d) If electric heaters are used to provide the primary source of heat, the vaporizing system shall be electrically grounded. (Ord. 87870 § 8.27.090; January 19, 1959).

8.27.100 Equipment assembly and installation. (a) Equipment making up a bulk oxygen system shall be cleaned in order to remove oil, grease

or other readily oxidizable materials before placing the system in service. Refer to Chapter 8.05, Division III for additional regulations.

(b) Any enclosure containing oxygen control or operating equipment shall be adequately vented.

(c) The bulk oxygen storage location shall be permanently placarded to indicate: "OXYGEN—NO SMOKING—NO OPEN FLAMES," or an equivalent warning. (Ord. 87870 § 8.27.100; January 19, 1959).

8.27.110 Operating instructions. For installations which require any operation of equipment by the user, legible instructions shall be maintained at operating locations. (Ord. 87870 § 8.27.110; January 19, 1959).

8.27.120 Maintenance. (a) Each bulk oxygen system installed on consumer premises shall be periodically inspected.

(b) Weeds and long, dry grass shall be cut back within twenty feet of any bulk oxygen storage container. (Ord. 87870 § 8.27.120; January 19, 1959).

Chapter 8.29

AUTOMATIC FIRE SPRINKLER SYSTEMS IN NURSING HOMES

Sections:

8.29.010 Nursing home defined. The term "nursing home" when used in this chapter means any home, place or institution which operates or maintains facilities providing convalescent or chronic care, or both, for a period in excess of twenty-four consecutive hours for three or more patients not related by blood or marriage to the operator, who by reason of illness or infirmity, are unable properly to care for themselves. Convalescent and chronic care may include but not be limited to any or all procedures commonly employed in waiting on the sick, such as administration of medicines, preparation of special diets, giving of bedside nursing care, application of dressings and bandages, and carrying out of treatment prescribed by a duly licensed practitioner of the healing arts. It may also include care of mentally incompetent persons if they do not require psychiatric treatment by or under the supervision of a physician who devotes all or a major portion of his time to this specialized field of medicine. Nothing in this definition shall be construed to include general hospitals or other places which provide care and treatment for the acutely ill and maintain and operate facilities for major surgery or obstetrics, or both. Nothing in this definition shall be construed to include any board-

ing home, guest home, hotel or related institution which is held forth to the public as providing, and which is operated to give only board, room and laundry to persons not in need of medical or nursing treatment or supervision except in the case of temporary acute illness. The mere designation by the operator of any place or institution as a hospital, sanitarium, or any similar name, which does not provide care for the acutely ill and maintain and operate facilities for major surgery or obstetrics, or both, shall not exclude such place or institution from the provisions of Sections 8.29.020 and 8.29.030. (Ord. 94931 § 1; July 7, 1966).

8.29.020 Installation exceptions. Approved automatic fire sprinkler systems shall be installed in all usable rooms, corridors, and stairways of existing nursing homes with the following exceptions:

(a) Nursing homes which are of Type I or II construction throughout, as defined in the Building Code, Title 3.

(b) Nursing homes not more than one story in height which have interiors with a one-hour fire resistance rating throughout. (Ord. 94931 § 2; July 7, 1966).

8.29.030—Installation time limit. Installation of all automatic fire sprinkler systems in existing nursing homes as required by Sections 8.29.010 and 8.29.020 shall be started not later than January 1, 1969, and completed not later than January 1, 1970. (Ord. 94931; July 7, 1966).

Chapter 8.30

AUTOMATIC FIRE SPRINKLER SYSTEMS IN SCHOOLS

Sections:

8.30.010 School building defined. The term "school building" when used herein means:

(a) A public place of instruction operated by public authorities, including elementary and secondary schools;

(b) A place of instruction operated by private persons or private or religious organizations in which the course of study is similar to that in a public school, and which has been authorized by the state as an educational institution. (Ord. 94931 § 4; July 7, 1966).

8.30.020 Installation exceptions. Approved automatic fire sprinkler systems shall be installed in all usable rooms, corridors and stairways of existing school buildings, two stories or more in height, with the following exceptions:

(a) School buildings which are of Type I or II construction, as defined in the Building Code, Title 3.

(b) School buildings not over three stories in height which have interiors with a one-hour fire resistance rating throughout, and which have egress enclosures with a one-hour fire resistance rating.

(c) School buildings, not over three stories in height, with interiors which substantially have a one-hour fire resistance rating, but with egress enclosures which do not have a one-hour fire resistance rating, need have only egress corridors, stairways, janitor rooms, storage rooms, and similar spaces equipped with approved automatic sprinkler systems. Classrooms and assembly rooms in such school buildings need not be so equipped. (Ord. 94931 § 5; July 7, 1966).

8.30.030 Installation time limit. Installation of all automatic fire sprinkler systems in existing school buildings as required by Sections 8.30.010 and 8.30.020 shall be started not later than January 1, 1970, and completed not later than January 1, 1971. (Ord. 94931 § 6; July 7, 1966).

Chapter 8.31

FIRE RESISTANCE IN HOTELS AND APARTMENT BUILDINGS

Sections:

8.31.010 Definitions. As used in Sections 8.31.020, 8.31.030, and 8.31.040 hereof, the following words and terms shall have the meanings specified in this section:

"Apartment house" means any building or portion thereof, containing three or more dwelling units.

"Apartment hotel" means a building containing both dwelling units and guest rooms.

"Guest room" means any room or rooms used or intended to be used for sleeping purposes by a person hiring such room or rooms.

"Hotel" means a building in which is conducted the business of lodging the public and which contains six or more guest rooms. (Ord. 87870 § 8.31.010, as added by Ord. 98868 § 1; May 6, 1970).

8.31.020 Fire-resistive construction. All existing apartment houses, apartment hotels, and hotels, four stories or more in height, shall have at least two fully enclosed stairways which have a one-hour fire resistance

rating throughout, and the interior corridors and egress ways thereof, including all doors and transoms and other openings into corridors, shall be so constructed or improved as to substantially have a one-hour fire resistance rating throughout; provided, that in buildings constructed as apartment houses in accordance with the Building Code and being operated as apartment houses, walls and ceilings of plaster on wood lath or one-half inch plasterboard construction, and one and three-eighths inch solid core doors or equivalent shall be sufficient to meet the requirements of this section. (Ord. 87870 § 8.31.020 as added by Ord. 98868 § 2; May 6, 1970).

8.31.030 Automatic fire sprinkler systems. In lieu of compliance with the requirements of Section 8.31.020 hereof, approved automatic fire sprinkler systems may be installed in all stairways, interior corridors and egress ways of existing apartment houses, apartment hotels, and hotels, four stories or more in height; provided that such automatic sprinkler systems if so installed shall also be installed in all janitor rooms, storage closets, utility rooms and other usable spaces in which combustible materials are or may be stored or kept, unless such rooms or spaces are equipped with self-closing fire doors having a one-hour fire resistance rating. (Ord. 87870 § 8.31.030 as added by Ord. 98868 § 3; May 6, 1970).

8.31.040 Improvements to existing buildings. Necessary improvements to existing apartment houses, apartment hotels, and hotels to meet the requirements of Section 8.31.020 hereof, or in lieu thereof, installation therein of automatic fire sprinkler systems as required by Section 8.31.030 hereof, shall be started not later than January 1, 1973 and completed by not later than January 1, 1974; provided that in buildings where the hazards are such as to imminently endanger the lives of the occupants thereof, the chief of the fire department shall by written order direct the immediate commencement of such improvements or in lieu thereof, installation of automatic fire sprinkler systems, and upon receipt of such written order, such improvements or installations of automatic fire sprinkler systems shall be started immediately and completed by not later than twelve months from the date of such written order. (Ord. 87870 § 8.31.040 as added by Ord. 98868 § 4; May 6, 1970).