

NEW YORK CITY FIRE DEPARTMENT

Notice of Repeal of

Existing Fire Department Rules and

Promulgation of New Fire Department Rules
(Chapters 1, 3, 4, 6, 7, 9, 12, 13, 15, 16, 18 through 25,
28 through 32, 35, 36, 37, and 39 through 49 of
Title 3 of the Rules of the City of New York),

and Amendments to
Fire Department Rule 3 RCNY 202-01,
entitled "Definitions," and 3 RCNY 3809-01,
entitled "Liquefied Petroleum Gases"

NOTICE IS HEREBY GIVEN PURSUANT TO THE AUTHORITY VESTED IN THE Fire Commissioner of the City of New York by Section 489 of the New York City Charter and Chapter 1 of the New York City Fire Code, codified in Title 29 of the Administrative Code of the City of New York, and in accordance with the requirements of Section 1043 of the New York City Charter, that the New York City Fire Department hereby repeals the rules listed below.

NOTICE IS FURTHER GIVEN PURSUANT TO THE AUTHORITY VESTED IN THE Fire Commissioner of the City of New York by Section 489 of the New York City Charter and Chapter 1 of the New York City Fire Code, codified in Title 29 of the Administrative Code of the City of New York, and in accordance with the requirements of Section 1043 of the New York City Charter, that the New York City Fire Department hereby promulgates the rules listed below. New material is underlined.

The public hearing was held on January 20, 2009. The repeal of existing Fire Department rules and the promulgation of Fire Department rules shall take effect on April 5, 2009.

The Notice of Repeal of Existing Fire Department Rules and Promulgation of Fire Department Rules will be available for at least 90 days on the Fire Department Internet Home Page at:

www.nyc.gov/fdny

INTRODUCTION

This is the second installment of a series of rulemaking proceedings to repeal and repromulgate all Fire Department rules in effect on June 30, 2008 (“existing rules”). The first installment of rules was promulgated on November 17, 2008. The Fire Department is undertaking to repeal and repromulgate all of its existing rules in connection with the enactment of the new New York City Fire Code, which took effect on July 1, 2008.

These rules have been numbered to parallel the new Fire Code sections. For example, §308-01, relating to open flames in Group A occupancies, corresponds to Fire Code §308 (FC308), which governs open flames. The rules have revised existing rules to conform to the terminology of the new Fire Code, and, as necessary, to amend or clarify various requirements. Except as otherwise indicated in the statement of basis and purpose for each chapter of the rules, the provisions of these rules are substantially equivalent to the existing rules.

In addition, certain rules are substantively new. Such new rules are addressed in the statement of basis and purpose for each chapter.

This installment of the rules includes Chapter 48, entitled “Pre-Existing Facilities.” This chapter does not correspond to any Fire Code chapter, but, as explained in R102-01, consolidates requirements for facilities and conditions that were lawfully existing on July 1, 2008, the effective date of the Fire Code, and that, pursuant to FC102.3, may be continued in compliance with laws, rules, regulations and permit conditions pre-dating the Fire Code. The last two digits of a Chapter 48 rule section number indicate the Fire Code chapter to which the rule corresponds. For example, R4809-01 relates to the design and installation of pre-existing facilities with fire protection systems that do not comply with the requirements of Fire Code Chapter 9.

As set forth in 3 RCNY §202-01, “FC” refers to the Fire Code and “R” to the rules. *Italicized* words refer to terms defined in the Fire Code or the rules.

Chapter 1 of Title 3 of the Rules of the City of New York

ADMINISTRATION

§113-08	Commercial Cooking Exhaust Systems Certificates of Fitness
§117	Reserved

Chapter 3 of Title 3 of the Rules of the City of New York

GENERAL PRECAUTIONS AGAINST FIRE

§301-01	Boatyards, Marinas and Similar Facilities
§302	Reserved
§303-01	Liquid-Fueled Tar Kettles and Asphalt Melters
§304-307	Reserved
§308-01	Use of Open Flames in Group A Occupancies and Similar Public Gathering Places
§309	Reserved
§310-01	Designated Smoking Rooms in Hospitals, Nursing Homes, Rehabilitation Facilities and Similar Medical Facilities Housing the Ill, Aged and Infirm

§310-02	Design of “No Smoking” Signs
§311-312	Reserved
§313-01	Sale of Kerosene Space Heaters
§314-01	Indoor Display of Motor Vehicles and Watercraft
§315-01	Storage of Flammable Plastic Foam Products
§316	Reserved

Chapter 4 of Title 3 of the Rules of the City of New York

EMERGENCY PLANNING AND PREPAREDNESS

§401-407	Reserved
§408-01	Residential Buildings With Non-Sequential or Non-Standard Floor Numbering

Chapter 6 of Title 3 of the Rules of the City of New York

BUILDING SERVICES AND SYSTEMS

§601-602	Reserved
§603-01	Fuel Oil Transfer Supervision and Maintenance
§604-610	Reserved

Chapter 7 of Title 3 of the Rules of the City of New York

FIRE-RESISTANCE RATED CONSTRUCTION

§701-704	Reserved
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Chapter 9 of Title 3 of the Rules of the City of New York

FIRE PROTECTION SYSTEMS

§901-01	Central Station Monitoring of Fire Alarm Systems
§901-02	Maintenance of Sprinkler System Pressure Tanks
§902	Reserved
§903-01	Flow Testing of Residential Sprinkler Systems
§904-01	Clean Agent Fire Extinguishing Systems Acceptance Testing
§905-01	Standpipe System Pressure Reducing Devices
§906-01	Portable Fire Extinguishers for Power Operated Cranes
§906-02	Portable Fire Extinguishers for Fuel Oil-Burning Equipment
§907-01	Fire Alarm Recordkeeping, Smoke Detector Maintenance, Testing and Recordkeeping, and the Prevention of Unnecessary and Unwarranted Fire Alarms
§908-911	Reserved
§912-01	Periodic Testing of Standpipe and Sprinkler Systems With Fire Department Connections
§913-914	Reserved

Chapter 12 of Title 3 of the Rules of the City of New York

DRY CLEANING

§1201-1208	Reserved
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Chapter 13 of Title 3 of the Rules of the City of New York

COMBUSTIBLE DUST-PRODUCING OPERATIONS

§1301-1304	Reserved
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Chapter 15 of Title 3 of the Rules of the City of New York

FLAMMABLE FINISHES
§1501-1511 Reserved

Chapter 16 of Title 3 of the Rules of the City of New York

FRUIT AND CROP RIPENING
§1601-1607 Reserved

Chapter 18 of Title 3 of the Rules of the City of New York

SEMICONDUCTOR FABRICATION FACILITIES
§1801-1805 Reserved

Chapter 19 of Title 3 of the Rules of the City of New York

LUMBER YARDS AND WOOD WASTE MATERIALS
§1901-1909 Reserved

Chapter 20 of Title 3 of the Rules of the City of New York

MANUFACTURE OF ORGANIC COATINGS
§2001-2009 Reserved

Chapter 21 of Title 3 of the Rules of the City of New York

INDUSTRIAL FURNACES
§2101-2107 Reserved

Chapter 22 of Title 3 of the Rules of the City of New York

MOTOR FUEL-DISPENSING FACILITIES AND REPAIR GARAGES
§2201-2203 Reserved
§2204-01 Self-Service Automotive Liquid Motor Fuel Dispensing Facilities
§2205-01 Underground Liquid Motor Fuel Storage Tanks at Motor Fuel-Dispensing
Facilities
§2206-01 Design and Installation of Liquid Motor Fuel-Dispensing Systems at Motor
Fuel-Dispensing Facilities
§2206-02 Leak Detection System Functionality Testing
§2207 Reserved
§2208-01 Mobile Compressed Natural Gas Motor Fuel Systems
§2208-02 Self-Service Compressed Natural Gas Motor Fuel-Dispensing Facilities
§2209-2210 Reserved
§2211-01 Repair Garages For Vehicles Fueled by Lighter-Than-Air Fuels

Chapter 23 of Title 3 of the Rules of the City of New York

HIGH-PILED COMBUSTIBLE STORAGE
§2301-2310 Reserved

Chapter 24 of Title 3 of the Rules of the City of New York

TENTS AND OTHER MEMBRANE STRUCTURES
§2401-2404 Reserved

Chapter 25 of Title 3 of the Rules of the City of New York

TIRE REBUILDING AND TIRE STORAGE
§2501-2509 Reserved

Chapter 28 of Title 3 of the Rules of the City of New York

AEROSOLS
§2801-2806 Reserved

Chapter 29 of Title 3 of the Rules of the City of New York

COMBUSTIBLE FIBERS
§2901-2906 Reserved

Chapter 30 of Title 3 of the Rules of the City of New York

COMPRESSED GASES
§3001-3003 Reserved
§3004-01 Carbon Dioxide
§3004-02 Anhydrous Ammonia
§3005-3008 Reserved

Chapter 31 of Title 3 of the Rules of the City of New York

CORROSIVE MATERIALS
§3101-3105 Reserved

Chapter 32 of Title 3 of the Rules of the City of New York

CRYOGENIC FLUIDS
§3201-3206 Reserved

Chapter 35 of Title 3 of the Rules of the City of New York

FLAMMABLE GASES
§3501-01 Acetylene
§3502-3506 Reserved
§3507-01 Compressed Natural Gas
§3508-01 Sanitary Landfill Methane Gas Recovery Facilities

Chapters 36 of the Rules of the City of New York

FLAMMABLE SOLIDS
§3601-3605 Reserved

Chapters 37 of the Rules of the City of New York

HIGHLY TOXIC AND TOXIC MATERIALS
§3701-3705 Reserved

Chapters 39 of the Rules of the City of New York

ORGANIC PEROXIDES
§3901-3906 Reserved

Chapters 40 of the Rules of the City of New York

OXIDIZERS
§4001-4006 Reserved

Chapters 41 of the Rules of the City of New York

PYROPHORIC MATERIALS
§4101-4107 Reserved

Chapters 42 of the Rules of the City of New York

PYROXYLIN PLASTICS
§4201-4205 Reserved

Chapters 43 of the Rules of the City of New York

UNSTABLE (REACTIVE) MATERIALS
§4301-4306 Reserved

Chapters 44 of the Rules of the City of New York

WATER-REACTIVE SOLIDS AND LIQUIDS
§4401-4406 Reserved

Chapters 45 of the Rules of the City of New York

REFERENCED STANDARDS
§4501-4502 Reserved

Chapter 46 of Title 3 of the Rules of the City of New York

FEES
§4601-4603 Reserved
§4604-01 Compensation To Be Paid By Entities Engaged in the Operation of Auxiliary Fire Alarm Systems (effective until July 1, 2009)
§4604-01 Compensation for Operation of Auxiliary Fire Alarm Systems (effective July 1, 2009)

Chapter 47 of Title 3 of the Rules of the City of New York

REFERENCED STANDARD MODIFICATIONS
§4701-01 Referenced Standard Modifications and Amendments Thereto
§4702-01 National Fire Protection Association Referenced Standards

Chapter 48 of Title 3 of the Rules of the City of New York

PRE-EXISTING FACILITIES
§4801-4802 Reserved
§4803-01 Pre-Existing General Precautions Against Fire
§4804-4808 Reserved
§4809-01 Pre-Existing Fire Protection Systems
§4810-01 Pre-Existing Means of Egress
§4811-4821 Reserved
§4822-01 Pre-Existing Motor Fuel Dispensing Facilities and Repair Garages
§4823-4829 Reserved
§4830-01 Pre-Existing Compressed Gases
§4831 Reserved

§4832-01	Pre-Existing Cryogenic Fluids
§4833-4834	Reserved
§4835-01	Pre-Existing Flammable Gases
§4836-4837	Reserved
§4838-01	Pre-Existing Liquefied Petroleum Gases
§4839-4844	Reserved

Chapter 49 of Title 3 of the Rules of the City of New York

MISCELLANEOUS

§4900-01	Adjudications
§4900-02	Schedule of Charges for Fire Department Ambulance Service

Section 1. The following provisions of Title 3 of the Rules of the City of New York are hereby REPEALED:

- 3 RCNY §2-01, entitled “Conduct of Adjudications”
- 3 RCNY §3-01, entitled “Permits for Portable Air Compressors”
- 3 RCNY §3-02, entitled “Definition of a Unit”
- 3 RCNY §3-03, entitled “Test of Consolidated Con Edison Company Air Compressors and Air Compressor Systems”
- 3 RCNY §4-01, entitled “Fire Protection of Automotive Salvage and Wrecking Establishments”
- 3 RCNY §5-01, entitled “Fire Protection of Boatyards, Marinas and Similar Occupancies”
- 3 RCNY §9-02, entitled “Supervision of More than One Interior Fire Alarm System”
- 3 RCNY §12-02, entitled “Signs on Doors of and Within Hospital Rooms, Wherein Oxygen is Being Administered to Patients”
- 3 RCNY §12-03, entitled “Storage of Oxygen Cylinders for Use in Institutional Occupancies”
- 3 RCNY §15-01, entitled “Use of Halon 1301 as an Extinguishing Agent”
- 3 RCNY §15-02, entitled “Portable Fire Extinguishers”
- 3 RCNY §15-04, entitled “Extinguishing Systems for Hoods, Vent Pipes, Flues or Ducts”
- 3 RCNY §15-07, entitled “Power Operated Cranes and Derricks”
- 3 RCNY §15-08, entitled “Clean Agent Fire Extinguishing Systems”
- 3 RCNY §17-01, entitled “Central Station Monitoring of Fire Alarm Systems”
- 3 RCNY §17-02, entitled “Compensation for Operation of Auxiliary Fire Alarm Systems”
- 3 RCNY §17-04, entitled “Compensation Schedule Fixing the Fees to be Paid by Entities Engaged in the Operation of Auxiliary Fire Alarm Systems”
- 3 RCNY §17-05, entitled “Voluntary Installation of Electro-magnetic Door Holders”
- 3 RCNY §17-06, entitled “Unnecessary and Unwarranted Alarm Prevention, Required Fire Alarm Recordkeeping, and Required Smoke Detector Maintenance, Testing and Recordkeeping”
- 3 RCNY §17-07, entitled “Installation of Interior Fire Alarm Signal Systems in Multiple Dwellings having Single Room Occupancies”
- 3 RCNY §17-08, entitled “Telegraphic Alarm Communications in Theaters, Opera Houses and Concert Halls”
- 3 RCNY §19-02, entitled “Decorations and Decorative Greens”
- 3 RCNY §21-08, entitled “Smoking at Oil Selling Stations and Running Motors While Filling Fuel Tanks of Vehicles”
- 3 RCNY §21-09, entitled “Posting of Signs on Premises Where Gasoline, Flammable Liquids and/or Diesel Oil for Motor Fuel are Stored in Underground Storage Systems”
- 3 RCNY §21-10, entitled “Gasoline Storage Systems for Firehouses in the Course of Erection and to be Erected”
- 3 RCNY §21-14, entitled “Installation of Diesel Fuel Storage Systems in Existing Firehouses”

- 3 RCNY §21-16, entitled “Transportation, Storage and/or Dispensing of Gasahol at Garages, Automotive Service Stations, Private Filling Stations or Marinas”
- 3 RCNY §21-19, entitled “Automotive Self-Service Stations”
- 3 RCNY §21-20, entitled “Underground Motor Fuel Storage and Dispensing Facilities”
- 3 RCNY §21-21, entitled “Aboveground Motor Fuel Storage and Dispensing Systems”
- 3 RCNY §22-01, entitled “Flammable Plastic Foam Products”
- 3 RCNY §23-01, entitled “Filling of Cylinders or Containers with Compressed Natural Gas for use as a Fuel in Motor Vehicles and Other Approved Purposes”
- 3 RCNY §23-02, entitled “Recovery of Methane Gas from Landfill”
- 3 RCNY §23-03, entitled “Manufacture, Storage, Transportation, Delivery and Processing of Liquefied Natural Gas”
- 3 RCNY §23-04, entitled “Testing of Pressure Vessel Reactors, Operating at Fifteen Pounds Per Square Inch Gauge (p.s.i.g.) or Over, Used for Polymerization of Vinyl Chloride and Other Monomers”
- 3 RCNY §23-05, entitled “Testing of Fixed Low Pressure Vessels”
- 3 RCNY §23-06, entitled “Storage and Use of Ammonia with Dissociating Equipment”
- 3 RCNY §23-07, entitled “Storage and Use of Anhydrous Ammonia for Duplicating Machines”
- 3 RCNY §23-08, entitled “Storage and Use of Ethylene Oxide for Sterilization Purposes”
- 3 RCNY §23-09, entitled “Permit and Fee Requirements for the Storage of 120,000 Cubic Feet (1300 Gallons) of Liquid Nitrogen, Used for Refrigeration Purposes in Trucks”
- 3 RCNY §23-10, entitled “Design, Construction and Erection of Central Oxygen and Nitrous Oxide Piping Systems in Hospitals”
- 3 RCNY §23-11, entitled “Carbon Dioxide”
- 3 RCNY §23-12, entitled “Storage and Use of Compressed Natural Gas”
- 3 RCNY §24-01, entitled “Use of Kerosene Fuel Oil in One-Family Dwellings”
- 3 RCNY §24-02, entitled “Sale, Storage, Use and Confiscation of Kerosene Space Heaters”
- 3 RCNY §24-03, entitled “Use of Kerosene Fired Heating Salamanders on Construction Jobs”
- 3 RCNY §24-04, entitled “Barbecues on Residential Property”
- 3 RCNY §31-03, entitled “Use of Open Flames in Public Portions of Places of Assembly and Licensed Places of Public Assembly”
- 3 RCNY §31-05, entitled “Motor Vehicles Displayed in Places of Public Assembly and Other Buildings of a Public Character”
- 3 RCNY §36-01, entitled “Designated Smoking Locations in Hospitals, Nursing Homes, Convalescent Homes, Homes for the Aged, or for Chronic Patients, or Portions of Buildings Being Used for Such Purposes”
- 3 RCNY §36-02, entitled “Criteria for Official Type "NO SMOKING" Signs”
- 3 RCNY §37-02, entitled “Standpipe Flow and Pressure Test”
- 3 RCNY §37-03, entitled “Test of Sprinkler Siamese Connections”
- 3 RCNY §37-04, entitled “Tests of the Water and Air in a Sprinkler Pressure Tank”
- 3 RCNY §37-05, entitled “Standpipe System Pressure Reducing Devices”
- 3 RCNY §37-06, entitled “Flow Testing of Residential Sprinkler Systems”
- 3 RCNY Appendix A, entitled “Schedule of Charges for Fire Department Ambulance Service”

Section 2. Chapter 1 of Title 3 of the Rules of the City of New York is hereby amended by amending the table of contents thereof to reflect that §117 is reserved, and adding a new section §113-08, to read as follows:

§ 113-08 Commercial Cooking Exhaust Systems Certificates of Fitness

- (a) Scope. This section sets forth standards, requirements and procedures for issuance of certificates of fitness to inspect and clean commercial cooking exhaust systems.
- (b) General Provisions. Applicants for certificates of fitness for inspection and cleaning of commercial cooking exhaust systems shall meet the minimum qualifications and comply with the general requirements for a certificate of fitness as set forth in FC113 and R113-01.
- (c) Special Qualifications for Precipitator Inspection and Cleaning. Applicants who intend to inspect and clean the precipitator component of commercial cooking exhaust systems shall obtain an endorsement on their certificate of fitness for each type of precipitator to be serviced.
- (d) Special Application Requirements. In addition to the qualifications set forth in FC113, applicants shall possess and demonstrate to the satisfaction of the Department that they possess the training and knowledge necessary to properly inspect and clean the particular precipitators that they intend to service, and possess the manufacturer's specifications and servicing manuals for such precipitators.

STATEMENT OF BASIS AND PURPOSE OF FINAL RULE:

This chapter is amended to add a new section (R113-08) that, pursuant to FC901.6.3.3, sets forth requirements for the certificate of fitness for inspection and cleaning of commercial exhaust systems, a certificate requirement that is new to the Fire Code.

Section 3. Subdivision (c) of §202-01 of Title 3 of the Rules of the City of New York is hereby amended to read as follows:

202-01 Definitions

* * *

- (c) Definitions

Administrative Code. New York City Administrative Code.

Alarm service. See R901-01(b).

Approved central station company. See R901-01(b).

Asphalt melter. *An approved device designed to heat asphalt, typically for waterproofing operations, that, utilizing a flammable gas or a combustible liquid, generates an enclosed flame that indirectly heats a vessel containing the asphalt.*

Bureau of Fire Prevention. Bureau of Fire Prevention of the New York City Fire Department.

Central station company. See R901-01(b).

Central station signaling system. See R901-01(b).

Department of Buildings. New York City Department of Buildings.

Department of Consumer Affairs. New York City Department of Consumer Affairs.

Designated representative. See R901-01(b).

Designated smoking room. See R310-01(b).

ECB. See R109-01(b).

Electrical Code. The New York City Electrical Code.

Department of Environmental Protection. New York City Department of Environmental Protection.

Fire Prevention Code. The New York City Fire Prevention Code, repealed effective July 1, 2008 by New York City Local Law No. 26 of 2008.

Flammable plastic foam product. See R315-01(b).

gpm. Gallons per minute.

Inspector's test connection. See R903-01(b).

Mandatory system. See R901-01(b).

Mobile CNG motor fuel system. See R2208-01(b).

Mobile CNG cascade. See R2208-01(b).

Natural gas. A mixture of hydrocarbon gases and vapors, consisting principally of methane in gaseous form.

Notice of disposal. See R104-03(b).

Notice of seizure. See R104-03(b).

Notice of violation. See R109-01(b).

OATH. See R4900-01(b).

Piped natural gas. *Natural gas* supplied by means of piping connected to a public utility distribution system.

Plumber. A licensed master plumber, as that term is defined by the *Building Code*, or a person working under the direct and continuing supervision of a licensed master plumber, as authorized by said code.

Pre-existing (facility or condition). See R102-01(b).

Pressure reducing devices. See R905-01(b).

Pressure restrictors. See R905-01(b).

Proprietary central station. See R901-01(b).

Proprietary signaling system. See R901-01(b).

psi. Pounds per square inch.

psig. Pounds per square inch gauge.

Runner service. See R901-01(b).

Subscriber. See R901-01(b).

Tar kettle. A device designed to heat tar, asphalt, pitch or similar materials, typically for waterproofing operations, that, utilizing a *flammable gas* or a *combustible liquid*, generates a flame to heat a vessel containing such a material. *Tar kettle does not include asphalt melters.*

Terminal. See R901-01(b).

Transmitter. See R901-01(b).

Voluntary system. See R901-01(b).

Window/egress gate. See R1025-01(b).

STATEMENT OF BASIS AND PURPOSE OF FINAL RULE:

The list of defined terms in Section 202-01(c) has been amended to include terms defined in this rule promulgation.

Section 4. Title 3 of the Rules of the City of New York is hereby amended by adding a new Chapter 3, to read as follows:

CHAPTER 3
GENERAL PRECAUTIONS AGAINST FIRE

<u>§301-01</u>	<u>Boatyards, Marinas and Similar Facilities</u>
<u>§302</u>	<u>Reserved</u>
<u>§303-01</u>	<u>Liquid-Fueled Tar Kettles and Asphalt Melters</u>
<u>§304-307</u>	<u>Reserved</u>
<u>§308-01</u>	<u>Use of Open Flames in Group A Occupancies and Similar Public Gathering Places</u>
<u>§309</u>	<u>Reserved</u>
<u>§310-01</u>	<u>Designated Smoking Rooms in Hospitals, Nursing Homes, Rehabilitation Facilities and Similar Medical Facilities Housing the Ill, Aged and Infirm</u>
<u>§310-02</u>	<u>Design of “No Smoking” Signs</u>
<u>§311-312</u>	<u>Reserved</u>
<u>§313-01</u>	<u>Sale of Kerosene Space Heaters</u>
<u>§314-01</u>	<u>Indoor Display of Motor Vehicles and Watercraft</u>
<u>§315-01</u>	<u>Storage of Flammable Plastic Foam Products</u>
<u>§316</u>	<u>Reserved</u>

§ 301-01 Boatyards, Marinas and Similar Facilities

(a) Scope. This section sets forth requirements for the design, installation, operation and maintenance of *facilities* used for the construction, repair, storage, launching, berthing and/or fueling of watercraft that are 65 feet or less in length.

(b) General Provisions

(1) Supervision

(A) Every *facility* regulated by this section shall at all times during *regular business hours* be under the *personal supervision* of a person holding a *certificate of fitness*. Such individual shall be responsible for ensuring compliance with the requirements of this section.

(B) Where watercraft berthed in a facility regulated by this section are occupied overnight, a fire watch shall be maintained at all times other than regular business hours. A watchman time detector and watchman service shall be provided on a 24 hour basis. Such watchman shall hold a certificate of fitness as a fire guard and shall make hourly rounds to each of the stations. Records of these rounds shall be maintained.

(c) Design and Installation Requirements

(1) Fire alarm reporting and announcements

(A) When the distance to a Department fire alarm box from the entrance to a facility regulated by this section exceeds 250 feet, a means for transmitting a fire alarm to the Department shall be provided that is readily accessible to the public at all times. Such means shall either be a telephone that does not require a coin to operate, or a manual fire alarm box that transmits an alarm to a central station.

(B) The facility shall have a public address system or other approved means of notifying facility occupants of a fire on the premises.

(2) Fire apparatus access. Unless compliance with FC503 is required, in which case the boatyard, marina or similar facility shall comply with the requirements of that section:

(A) Fire apparatus access shall be provided to a boatyard, marina or similar facility. A road capable of supporting a Department firefighting apparatus, with a width of not less than twenty (20) feet, shall be provided from a public street to one or more fire apparatus-accessible locations on the premises. Except as otherwise provided in R301-01(c)(2)(B), such locations shall be within 250 feet of a fire hydrant or other approved water supply, and shall be situated such that a hose stream from 250 feet of hose line stretched from such a location will reach all parts of the premises, including piers and floats.

(B) If the furthest point of any pier, float or other location on the premises exceeds 250 feet from a fire apparatus-accessible location, water piping with hose outlets, protected from freezing, shall be installed in an approved manner. Such water piping shall have a design capacity of 250 gpm and shall be connected to an approved water supply or to a Fire Department connection at an approved location.

(C) Any outdoor area of the boatyard, marina or similar facility shall be accessible by fire apparatus on all four (4) sides, with a distance between

the fire apparatus-accessible aisles of not more than 75 feet. Such access aisles shall be kept unobstructed.

(3) Motor fuel-dispensing systems. Watercraft shall be fueled using approved motor fuel-dispensing systems complying with requirements of FC Chapter 22.

(4) Spraying and dipping operations. The design and installation of spraying or dipping operations shall comply with the requirements of FC Chapter 15.

(5) Engine test stands

(A) Engine test stands shall be supplied by a fuel storage system complying with the requirements of FC Chapter 34.

(B) The fuel supplies for engine test stands shall be located outdoors, a safe distance from engine exhaust piping. The fuel supply line shall be of steel construction and be equipped with an automatic shut-off valve that will close in the event of *fire*. The fuel shall be pumped, not gravity fed, to the test stand.

(6) Battery storage and charging

(A) Batteries on watercraft in dry dock storage shall be removed from the watercraft before charging. When, by reason of size, weight or other valid reason, it is impracticable to remove such batteries from the watercraft before charging, adequate ventilation shall be provided during on-board charging to allow the dispersal of flammable vapors, and battery chargers shall be electrically grounded.

(B) When conducted indoors, battery charging and storage shall be in a separate room used for no other purpose. Such room shall be well-ventilated at the ceiling level, or through the roof, to allow the dispersal of flammable vapor generated during charging.

(C) Racks for battery storage shall be constructed to bear the weight of the batteries, grounded and corrosion-resistant, and perforated to allow the dispersal of flammable vapors.

(D) Smoking, *open flames*, *open-flame devices* and spark-producing devices are prohibited in the battery storage and battery charging rooms.

(E) A certificate of electrical inspection for electrical equipment installed in the room shall be obtained from the *Department of Buildings* and a copy filed with the *Department*.

(7) Electrical Installations

- (A) All electrical wiring and equipment at the facility shall be installed in accordance with the *Electrical Code*, and shall be suitable for use in hazardous locations where *flammable liquids* or *flammable gases* are stored, *handled* or used. A copy of the certificate of inspection issued by the *Department of Buildings* shall be submitted to the *Department*.
- (B) Portable electric lamps *approved* for use in hazardous locations shall be used where flammable vapors may be present, with safety devices designed to prevent physical damage to the bulbs.
- (C) Approved electrical receptacles shall be provided throughout the *facility*, to minimize the use of extension cords.
- (D) Wiring shall be installed underground to minimize overhead obstructions. When required to be placed exterior overhead, wiring shall have a minimum clearance of 18 feet above grade, and in no case less than eight (8) feet clearance above any roof or less than three (3) feet six (6) inches above the maximum heights of any boat or other *powered industrial trucks* used in the yard.

(d) Operational Requirements

- (1) Fire alarm reporting. When the distance to a *Department* fire alarm box from the entrance to the marina, boatyard or similar facility is 250 feet or less, an *approved* sign shall be posted at such entrance and at the office indicating the location of the fire alarm box.
- (2) Storage of watercraft
 - (A) Storage of boats. No boat shall be stored closer than three (3) feet to any lot line, or closer than three (3) feet horizontally from another boat, unless access for firefighting operations is provided in another *approved* manner.
 - (B) Watercraft in dry dock storage shall have all loose combustible material and combustible waste removed. Where practicable, batteries and all fuel shall be removed from the watercraft. Where removal of batteries is impracticable, precautions during charging of batteries shall be taken in accordance with R301-01(c)(6). Where removal of fuel is impracticable, all tank stop valves shall be closed and the tank inspected to insure that there are no leaks; adequate ventilation shall be provided for hull and bilge areas.
 - (C) All covers used for watercraft in storage shall be flame-resistant in accordance with FC Chapter 8 and the *rules*.

- (3) Parking. *Motor vehicles* shall not be parked in the *fire apparatus access roads*, required aisles or in any location where they would impede firefighting operations.
- (4) Emergency Preparedness. *Owners of facilities* shall establish and train a fire brigade in fire emergency procedures, including the sounding of an alarm, notification to the *Department*, and operation of *fire protection systems* and portable fire extinguishers. A chart designating the members of the fire brigade and indicating each person's responsibilities shall be posted in a conspicuous location in the office or other central location.
- (5) Storage, handling and use of flammable and combustible liquids
- (A) Except when displayed for sale in sealed containers, *flammable and combustible liquids* shall be stored in liquid storage cabinets, *liquid storage rooms* venting outdoors, or approved underground storage systems. Such installations shall be made in accordance with FC Chapters 22 and 34.
- (B) *Flammable and combustible liquids* displayed for sale in sealed containers shall be in accordance with FC Chapters 22 and 34, as applicable, except in no case shall the quantities displayed exceed 200 gallons.
- (C) All *flammable or combustible liquids*, except the fuel in stationary storage tanks of watercraft, shall be removed from the watercraft before any *hot work* is performed on the watercraft, and batteries and battery terminals shall be protected against accidental shorting or sparking, or the batteries shall be removed. If *hot work* is to be conducted on a watercraft's stationary fuel tank or fuel piping, both the tank and the piping shall first be emptied and purged. All areas of the watercraft, including the bilge, shall be purged of flammable and combustible vapors before any *hot work* is commenced.
- (D) Gasoline or *flammable liquids* shall not be used for cleaning purposes; only soap, detergents, solvents and other cleaning fluids having a *flash point* not less than 138°F may be used.
- (6) Flammable gases. *LPG* on vessels used for residential purposes shall be stored, *handled* and used in compliance with the requirements of FC Chapter 38 and R3809-01. *CNG* on vessels used for residential purposes shall be stored, *handled* and used in compliance with the requirements of FC Chapter 35 and R3507-01.
- (7) Combustible material storage
- (A) Lumber and other combustible materials shall be stored at a location separate from the area in which construction, repair or fueling is

conducted or other work involving the *handling* or use of *flammable* or *combustible liquids* or open flames is performed.

(B) Lumber shall be stored in compliance with the requirements of FC Chapter 19. *Flammable* and *combustible liquids* and combustible materials shall be stored in compliance with the applicable requirements of the Fire Code.

(8) Hot work operations and other use of open flames.

(A) *Hot work* operations shall be conducted in compliance with the requirements of FC Chapter 26.

(B) It shall be unlawful to conduct *hot work* operations or use an *open flame* at *facilities* regulated by this section:

(1) within 35 feet of any wood building, pier, dock, wharf or other wood structure at the *facility*;

(2) on any fuel *tank* or *container*, unless such *tank* or *container* and any adjacent fuel compartments of such *tank* or *container* have been emptied and purged of flammable and combustible vapors; and

(3) for paint or varnish removal.

(9) Combustible waste. *Combustible waste* shall not be allowed to accumulate in *facilities* regulated by this section. *Containers* of adequate size and applicable construction for *rubbish*, oily rags and other materials contaminated with *flammable* or *combustible liquid* residue shall be provided throughout the *facility*, and shall be emptied on a regular basis, but not less than three (3) times per week.

(10) Smoking. It shall be unlawful to smoke in boatyards, marinas and similar *facilities*.

(11) Posting of fire safety requirements. A copy of this section shall be posted on the *premises*, in the marina or boatyard office or other central, readily accessible location. If posted outdoors, the section shall be protected from the elements in an enclosed display case or similar manner.

(e) Portable Fire Extinguisher Requirements. Where no yard hydrant system has been installed, portable fire extinguishers shall be provided as follows:

(1) One (1) wheeled portable fire extinguisher with at least a 110-B:C rating and 150 pounds of agent for every 5,000 square feet of such facility; and

- (2) A non-freezing type portable fire extinguisher with at least a 2-A rating for every 2,500 square feet of such facility.

Example: A 5,500-square-foot boatyard without a hydrant system must be provided with two (2) portable fire extinguishers of the type specified in R301-01(e)(1)(A) and three (3) portable fire extinguishers of the type specified in R301-01(e)(1)(B).

§ 303-01 Liquid-Fueled Tar Kettles and Asphalt Melters

- (a) Scope. This section sets forth requirements for the storage, *handling* and use of *liquid-fueled tar kettles* and *asphalt melters*.
- (b) General Provisions
- (1) Prohibition. It shall be unlawful to use *tar kettles* and *asphalt melters* that utilize a *flammable liquid* as a fuel.
- (2) Storage, handling and use. *Liquid fueled tar kettles* and *asphalt melters* that utilize a *combustible liquid* as a fuel shall be stored, *handled* and used in the same manner as *LPG-fueled tar kettles*, in compliance with FC303 and R3507-01(j)(2)(F).

§ 308-01 Use of Open Flames in Group A Occupancies and Similar Public Gathering Places

- (a) Scope. This section sets forth standards, requirements and procedures for the use in *Group A occupancies* and similar public gathering places of *open flames* and *open-flame devices*.
- (b) Definitions. The following term shall, for purposes of this section and as used elsewhere in the *rules*, have the meaning shown herein:
- Open-flame decorative device.** An *open-flame device* used for decorative or lighting purposes, including wall-mounted candles, torch sconces, insect-repellent candles, tabletop candles and lamps, free-standing torch holders and candelabras, and similar devices.
- (c) General Provisions
- (1) Use of open flames and open-flame devices. *Open flames* and *open-flame devices* shall be *handled* and used in compliance with the requirements of FC308 and this section.

(2) Open flame permits

(A) Pursuant to FC105.6, a permit shall be obtained for the use of open flames in any Group A occupancy, in any covered mall and in any other indoor public gathering place (including any outdoor area ancillary to such occupancy or gathering place, such as a courtyard, rear yard, rooftop or sidewalk).

(B) Applications for open flame permits shall identify the types of open flames and open-flame devices proposed to be used on the premises, and the locations at which they are to be used.

(C) Applications for open flame permits will be denied if violations are outstanding for the sprinkler system, standpipe system or fire alarm system or there is any other indication that such systems may not be in good working order.

(3) Clearance from combustible materials. Pursuant to FC308.3.3, open flames and open-flame devices shall be kept a safe distance from combustible materials, and shall be placed at locations that minimize the risk of accidental ignition thereof.

(4) Special effects. It shall be unlawful to store, handle or use any fireworks or pyrotechnic material, article or device without a special effects permit issued pursuant to FC Chapter 33 and the rules.

(d) Use of Candles For Decorative Lighting Purposes

(1) Types of candles

(A) It shall be unlawful to use candles containing magnesium or other oxidizing agents or other accelerators, including candles that re-ignite themselves.

(B) Nothing contained herein shall be construed to prohibit use of Number 0 birthday candles (which are 1/16" in diameter and 2½" in length) and Number 00 birthday candles (which are 1/8" in diameter and 3" in length) when used on a cake or other food item for a festive occasion. Use of such candles for such purpose shall not be subject to the requirements of R308-01(d)(2).

(2) Candleholders

(A) It shall be unlawful to use cardboard, paper or flammable plastic candleholders.

(B) Candleholders shall be weighty, have a low center of gravity or be otherwise designed and constructed to resist accidental tipping in accordance with FC308.3.2(4).

(3) Placement

(A) The flames of candles placed on tables shall be protected in accordance with FC308.3.2(5).

(B) No candle shall be placed more than 24 inches above the dining table, except as approved by the Department.

(e) Use of Combustible Liquids in Lamps and Similar Open-Flame Decorative Devices

(1) Type of fuel. Combustible liquids used as fuel in lamps and similar open flame decorative devices shall be odorless and smokeless and shall have a flash point of not less than 140°F.

(2) Storage of fuel. No more than ten (10) gallons of combustible liquids may be stored on the premises as a reserve fuel supply for lamps and similar open flame decorative devices. Such reserve fuel supply shall be stored in compliance with Fire Code requirements, including FC Chapter 34.

(3) Types and filling of devices

(A) Combustible liquids shall be used only in open-flame decorative devices properly protected by noncombustible enclosures complying with the requirements of FC308.3.2 Fuel reservoirs for such lamps shall be constructed of metal unless the open-flame decorative device is designed to store no more than four (4) fluid ounces of fuel.

(B) The wick for the lamp shall completely fill the wick tube to prevent vapors from rising around the wick.

(C) Lamps and similar open-flame decorative devices shall be filled in well-lit areas, at a safe distance from any open flame. Lamps and similar open-flame decorative devices shall not be filled in the dining room.

(4) Placement of devices

(A) When used on dining tables that are combustible, lamps and similar open-flame decorative devices shall be placed on a noncombustible tray or mat.

(B) It shall be unlawful to use combustible liquids in hanging lamps and similar open-flame decorative devices.

(f) Use of Candles and Solid Alcohol For Food Warming

- (1) Construction of serving tables. Serving tables used to hold food warmers shall have noncombustible tops, or shall be protected by a noncombustible mat that covers the entire table top. Such mat shall be placed on top of the tablecloth.
- (2) Use of noncombustible mats. When food warmers are used on dining tables, noncombustible mats extending eight (8) inches from each side of the food warmer, or a metal tray designed to contain the candle or hold the contents of a full container of heating fuel, shall be placed under the food warmer.
- (3) Handling of food warmers. Food warmers shall not be removed from a dining or serving table while the candle or heating fuel is lit.
- (4) Wheeled or other portable serving tables
 - (A) Wheeled or other portable serving tables shall be designed to prevent the heating fuel from being dislodged while the server is in motion.
 - (B) No more than two (2) levels of food warmers may be used on a wheeled or other portable serving table.
 - (C) Wheeled or other portable serving tables shall not be allowed to obstruct aisles or other *means of egress*.

(g) Use of Charcoal Briquettes and Other Solid Fuels (Except Solid Alcohol) For Cooking and Food Warming

- (1) Handling
 - (A) The charcoal briquettes or other solid fuel used for cooking or food warming purposes shall be stored in a metal cabinet. Such cabinet shall be situated in a cool, dry location.
 - (B) *Flammable* and *combustible liquids* shall not be used to ignite, or accelerate ignition of, the charcoal briquettes or other solid fuel. Such fuels shall be ignited in an oven in the kitchen.
 - (C) The charcoal briquettes or other solid fuel shall be placed in a hibachi, or other *approved* cooking or food warming device, in the kitchen, and moved directly to the dining table.
 - (D) The hibachi or other *approved* cooking or food warming device shall be removed directly to the kitchen immediately after use, and the briquettes or other solid fuel, and the ashes, shall be immersed in water. Provisions shall be made for removal of the briquettes and ashes from the hibachi or

other approved cooking or food warming device to a pail or other container of water.

(E) When not in use, hibachis shall be stored on noncombustible shelves or in metal cabinets.

(2) Construction of hibachis

(A) Hibachis shall be constructed of metal of sufficient thickness and strength as to safely contain the heat of the open flame, and shall have a low center of gravity or otherwise be designed and constructed to resist accidental tipping in accordance with FC308.3.2(4).

(B) Hibachis shall be fully enclosed to contain embers and hot ashes. Ashpit doors must be securely closed during use.

(C) Hibachis shall not use forced air to intensify heat.

(3) Construction of dining tables. Dining tables used to hold hibachis or other approved cooking or food warming devices shall have noncombustible tops or shall be protected by a noncombustible mat extending eight (8) inches from each side of the cooking or food warming device.

(h) Pits and Open Grills. Pits and open grills at dining tables or food serving areas shall be designed, installed, operated and maintained in accordance with FC 904.11.

(i) Flaming Food and Beverages. Flaming food and beverages shall be prepared and served in accordance with FC308.6.

(j) Use of LPG for Food Warming and Browning

(1) Use. Portable LPG containers may be used for food warming and browning only as authorized by this section. Portable LPG containers shall be used by food preparation staff trained and knowledgeable in the safe storage, handling and use of portable LPG containers and the LPG device used.

(2) Devices. All devices fueled by portable LPG containers that are used for food warming and browning purposes, including culinary torches, shall be in accordance with FC3801.4 and R3809-01. Not more than one (1) portable LPG container may be connected to each LPG device.

(3) Container size. Portable LPG containers for food warming and browning purposes shall be limited to those with a capacity not exceeding 16.4 ounces.

(4) Storage

- (A) No more than twelve (12) portable *LPG containers* shall be stored in the *Group A occupancy* or public gathering place.
 - (B) When not in use, portable *LPG containers* shall be stored above grade in a metal cabinet, in an area protected by a *sprinkler system*. Such cabinet shall be installed away from sources of heat.
- (k) Use of LPG for Demonstrations and Temporary Exhibitions. Portable *LPG containers* may be used for demonstrations and temporary exhibitions in accordance with FC3803.2.1.5.
- (1) Demonstrations. Except as otherwise provided in R308-01(j)(2):
 - (A) Use. Portable *LPG containers* may be used for demonstration purposes when electricity, *piped natural gas* or other power source cannot be used to supply power for a device or operation being demonstrated or required for the demonstration. Portable *LPG containers* shall be *handled* and used for demonstration purposes only by persons trained and knowledgeable in the safe storage, *handling* and use of portable *LPG containers* and the *LPG* device used for the demonstration.
 - (B) Devices. All devices fueled by portable *LPG containers* that are used for demonstration purposes shall be in accordance with FC3801.4 and R3809-01. Not more than one (1) portable *LPG container* may be connected to each *LPG* device.
 - (C) Container size. *LPG* used for demonstration purposes shall be limited to portable *LPG containers* with a capacity not exceeding 16.4 ounces.
 - (D) Removal from premises. All portable *LPG containers* and *LPG* devices used for demonstration purposes shall be delivered to the *premises* on the day of the demonstration, and removed from the *premises* no later than the end of the day. Overnight storage is prohibited.
 - (2) Trade shows and other temporary exhibitions
 - (A) Use. Portable *LPG containers* may be used for demonstration purposes, equipment operation or other purpose, where a device cannot be operated or operation cannot be conducted with the use of electricity, *piped natural gas* or other power source. Portable *LPG containers* shall be *handled* and used for demonstration purposes only by persons trained and knowledgeable in the safe storage, *handling* and use of portable *LPG containers* and the *LPG* device used for the demonstration.
 - (B) Devices. All devices fueled by portable *LPG containers* that are used for demonstration purposes shall be in accordance with FC3801.4 and

R3809-01. Not more than one (1) portable *LPG container* may be connected to each *LPG* device.

(C) Container size. Except as may be authorized by the *Department*, portable *LPG containers* with a capacity not exceeding 16.4 ounces may be used at trade shows and other exhibitions for demonstration, equipment operation and other necessary purposes.

(D) Storage and removal from premises

(1) No more than 24 portable *LPG containers* shall be stored in connection with a trade show or other temporary exhibition.

(2) When not in use, portable *LPG containers* shall be stored above grade, in a fire-rated storage room protected by a *sprinkler system*, or in a metal cabinet located in an area protected by a *sprinkler system*.

(3) All portable *LPG containers* and devices shall be removed from the exhibition *premises* promptly once there is no further need for their use, but in any event no later than the last day of the trade show or other temporary exhibition.

(1) Portable Fire Extinguisher Requirements

(1) In addition to complying with the requirements of FC906, Group A occupancies and other public gathering places in which *open flames* and *open-flame devices* are used shall comply with the following portable fire extinguisher requirements:

(A) A portable fire extinguisher with at least a 5-B rating, readily accessible for use, shall be provided at each captain's station and in the dining room at the entrance to the kitchen.

§310-01 Designated Smoking Rooms in Hospitals, Nursing Homes, Rehabilitation Facilities and Similar Medical Facilities Housing the Ill, Aged and Infirm

(a) Scope. This section sets forth standards, requirements and procedures for designation of smoking rooms in hospitals, nursing homes, rehabilitation facilities and similar medical facilities housing the ill, aged and infirm.

(b) Definitions. The following terms shall, for purposes of this section and used elsewhere in the rules, have the meaning shown herein:

Designated smoking room. A room designated for smoking meeting the requirements for a “separate smoking room,” as that term is defined in *Administrative Code* §17-502(w).

(c) General Provisions

(1) Designation of smoking rooms. Pursuant to FC310.2.4.4, smoking is prohibited in hospitals, nursing homes, rehabilitation facilities and similar medical facilities housing the ill, aged and infirm, except as authorized by the *Department*. Smoking rooms in such facilities shall be designated in accordance with the provisions of this section.

(2) It shall be unlawful for any patient to smoke in hospitals, nursing homes, rehabilitation facilities and similar medical facilities housing the ill, aged and infirm, except in a *designated smoking room* which has been approved by the *Department*.

(d) Application Requirements

(1) Applications shall be made to the *Department* for each room to be designated as a smoking room.

(2) Applications shall be submitted to the *Bureau of Fire Prevention* at Fire Department Headquarters, and shall include the following information and documentation and such other information and documentation as the *Department* may prescribe:

(A) a floor plan indicating the location(s) of rooms to be designated as smoking rooms; and

(B) an affidavit from a *registered design professional* professing that the construction and ventilation of *designated smoking rooms* comply with the requirements of the *Building Code* and New York City Smoke Free Air Act (*Administrative Code* Title 17, Chapter 5) and rules promulgated thereunder (Chapter 10 of Title 24 of the Rules of the City of New York).

(3) Application fees shall be as set forth in FC A03(51).

(e) Operational Requirements

(1) *Designated smoking rooms* shall be provided with an adequate number of noncombustible ashtrays. An ashtray or other noncombustible receptacle shall be provided at each exit from the *designated smoking room*.

(2) Doors in *designated smoking rooms* shall remain closed while people are smoking except to the extent necessary to permit access or egress to and from such rooms.

- (3) Windows in a *designated smoking room* shall remain closed if smoking is occurring or has recently occurred in the room if the smoke would migrate to an occupied area whether indoors or outdoors.
- (4) No oxygen or other *oxidizing gas* shall be stored or administered in *designated smoking rooms*.
- (f) Portable Fire Extinguisher Requirements. *Designated smoking rooms* shall be provided with a portable fire extinguisher with at least a 2-A rating for every 2,500 square feet of floor area or fraction thereof. The travel distance to such portable fire extinguisher shall not exceed 75 feet.
- (g) Sign Requirements
 - (1) “NO SMOKING” signs complying with the requirements of R310-02 shall be posted at entrances, in lobbies and corridors, and other conspicuous locations throughout the *premises* where they may be observed by patients, employees and visitors.
 - (2) “SMOKING PERMITTED. IN ACCORDANCE WITH THE NEW YORK CITY SMOKE-FREE ACT, ONLY PATIENTS OF THIS FACILITY MAY SMOKE IN THIS ROOM” signs shall be posted conspicuously at the entrance to and in each *designated smoking room*.
 - (3) In buildings where oxygen or other *oxidizing gas* is stored or administered in portable containers, "OXYGEN OR OTHER OXIDIZING GAS IS PROHIBITED FROM BEING STORED OR ADMINISTERED IN THIS ROOM" signs shall be posted conspicuously at the entrance to and in each *designated smoking room*.

§ 310-02 Design of “No Smoking” Signs

- (a) Scope. This section sets forth the approved design for required “No Smoking” signs.
- (b) General Provisions
 - (1) Approved design. Where “No Smoking” signs are required by the Fire Code or *rules*, the content, lettering, size and color of such signs shall comply with the requirements of this section, unless otherwise approved by the *Department*.
 - (2) Reproduction. Permission is granted to the public to reproduce, for use or sale, the design of the “No Smoking” sign set forth in this section, provided that any such reproduction strictly complies with the design requirements set forth in this section.

(c) Design Requirements

(1) Pictorial description and layout:



NO SMOKING
IN THESE PREMISES
UNDER PENALTY OF FINE OR IMPRISONMENT, OR
BOTH, BY ORDER OF THE FIRE COMMISSIONER

(2) Overall sign size: 10" x 14" (or 11" x 15")

(3) Symbol: International "No Smoking" symbol (3³/₄" x 1¹/₄" cigarette and smoke in black; 5/16" x 5/16" ash in red; 6¹/₂" diameter x 3/4" circle with 3/4" cross bar in red).

(4) Legend:

<u>Legend</u>	<u>Letter Size - Capital</u>	<u>Color</u>
<u>NO SMOKING</u>	<u>2" Min.</u>	<u>Red</u>
<u>IN THESE PREMISES</u>	<u>1" or 3/4" Min.</u>	<u>Black</u>
<u>UNDER PENALTY OF FINE</u>	<u>1/4"</u>	<u>Black</u>
<u>OR IMPRISONMENT, OR</u>		
<u>BOTH, BY ORDER OF THE</u>		
<u>COMMISSIONER</u>		

- (5) Material: For indoor locations, heavy cardboard stock or other *approved* durable material. For outdoor locations, or indoor locations where the signs may be exposed to conditions that will accelerate deterioration, metal or other *approved* durable material that is water-resistant.
- (d) Authorized Smoking Areas in Hospitals, Nursing Homes and Similar Facilities. Where smoking is authorized in hospitals, nursing homes, rehabilitation facilities and similar medical facilities housing the ill, aged and infirm pursuant to FC310 and R310-01, “No Smoking” signs conforming to the requirements of this section shall be posted throughout the building, except that the additional legend “EXCEPT IN DESIGNATED LOCATIONS” shall be added immediately following the legend “NO SMOKING IN THESE PREMISES.” Such additional legend shall be in black capital letters with lettering at least ½" high.

§ 313-01 Sale of Kerosene Space Heaters

- (a) Scope. This section sets forth requirements for the sale of kerosene space heaters.
- (b) General Provisions. Kerosene heaters shall be sold in compliance with the requirements of this section.
- (c) Sign and Labeling Requirements. A sign shall be conspicuously posted at any location at which kerosene space heaters are offered for retail sale, and a tag or label shall be affixed to the heater or its packaging in a manner that makes it clearly visible prior to sale. Such sign and such tag or label shall bear the following statement:

“The New York City Fire Code prohibits the storage, handling and use of kerosene fueled heaters for space heating. Any person violating that provision may be punished by a fine of up to \$10,000 and a term of imprisonment up to 6 months.”

§ 314-01 Indoor Display of Motor Vehicles and Watercraft

- (a) Scope. This section sets forth requirements for the indoor display of *motor vehicles* and watercraft.
- (b) General Provisions
- (1) Display requirements. Indoor displays of *motor vehicles* and watercraft shall be designed, installed, operated and maintained in compliance with the requirements of FC314 and this section.

(2) Department authorization. *Motor vehicles* and *watercraft* shall not be displayed indoors until *Department* approval has first been obtained.

(c) Application Requirements

(1) Submission. *Applications* for *Department* authorization shall be submitted to the *Bureau of Fire Prevention*.

(2) Content. *Applications* for *Department* authorization shall include the following information, and such other information and documentation as the *Department* may require:

(A) The name and address of the *owner* of the building or structure, including any *tent* or other *membrane structure*, or part thereof, in which the display is to be conducted;

(B) The name and address of the sponsor of the display, if different from the *owner* of the *premises*;

(C) The scheduled duration of the display;

(D) A plan of the building or structure, or part thereof, in which the *motor vehicles* or *watercraft* will be displayed, indicating the number, type and location of the *motor vehicles* or *watercraft* to be displayed, and the *means of egress* from the display area;

(E) A description of the building's *fire protection systems* and the areas of the building or structure protected thereby; and

(F) An affidavit executed by a principal or officer of the *owner* or sponsor attesting that the requirements of FC314 and this section will be complied with.

(d) General Display Requirements. In addition to the display requirements set forth in FC314, indoor display of *motor vehicles* and *watercraft* shall be subject to the following requirements:

(1) Egress. Aisles a minimum of three (3) feet shall be provided and, together with other *means of egress*, maintained free of obstructions.

(2) Engine operation. *Motor vehicles* and *watercraft* engines shall not be operated at any time when the display is open to the public. The keys to the *motor vehicle* or *watercraft* shall not be left in the *motor vehicle* or *watercraft*, but shall be secured in a readily accessible location on the *premises* and made available to any *Department* representative.

- (3) Open flames. No *open flames* shall be allowed in the display area during the display.
- (4) Repairs or other work. No repairs or other work shall be conducted on a *motor vehicle* or watercraft in the display area.
- (e) Special Display Requirements in Group A Occupancies and Other Public Gathering Places. In addition to the general display requirements set forth in FC314 and R314-01(c), indoor display of *motor vehicles* and watercraft in Group A occupancies in other public gathering places shall be subject to the following requirements:
 - (1) Storage of fuel in fuel tanks. Not more than one (1) gallon of gasoline, diesel fuel or other *liquid motor fuel* shall be allowed in the fuel tank of each *motor vehicle* or watercraft. Alternative fuel *motor vehicles* or watercraft shall contain no more fuel than the energy equivalent of one (1) gallon of gasoline.
 - (2) Fuel tanks shall be provided with a locking cap and shall be kept locked throughout the display.
 - (3) *Motor vehicle* and watercraft engines shall be disabled from starting throughout the display by installing an ignition lock, disconnecting the battery or other approved means. Battery or other electrical connections that are disconnected shall be adequately taped to prevent arcing.
 - (4) *Fire guards* shall be present throughout the display.
- (f) Portable Fire Extinguisher Requirements. Portable fire extinguishers shall be provided and kept readily accessible as set forth in FC906.

§ 315-01 Storage of Flammable Plastic Foam Products

- (a) Scope. This section sets forth requirements for the storage of *flammable plastic foam products*.
- (b) Definition. The following term shall, for purposes of this section and as used elsewhere in the *rules*, shall have the meaning shown herein:

Flammable plastic foam products. Foam material that will ignite and continue to burn after contact for five (5) seconds with an open flame or glowing material.

- (c) General Provisions

(1) Prohibited storage. It shall be unlawful to store in any building or structure flammable plastic foam products in a quantity requiring a permit where such building or structure is:

(A) of combustible construction.

(B) occupied as an *Occupancy Group R-2* or *R-3*.

(C) situated within 50 feet of the nearest wall of any building occupied as a school, hospital, or place of public assembly or public gathering.

(2) Permits. A permit shall be obtained for the storage of flammable plastic foam products as required by FC105.6.

(d) Design and Installation Requirements

(1) Sprinkler protection

(A) In any building in which more than 1,000 pounds, but not more than 6,000 pounds, of flammable plastic foam products are stored, every room or other area in which such products are stored shall be protected by a sprinkler system.

(B) In any building in which more than 6,000 pounds of flammable plastic foam products is stored, the entire building shall be protected throughout by a sprinkler system.

(e) Operational Requirements. Shredded flammable plastic foam products used in any manufacturing process or operation shall be stored in metal-lined containers having self-closing covers.

STATEMENT OF BASIS AND PURPOSE FOR CHAPTER 3 (GENERAL PRECAUTIONS AGAINST FIRE):

The chapter consists of eight sections, seven of which are based on existing rules.

Section 301-01 sets forth requirements for the design, installation, operation and maintenance of boatyards, marinas and similar facilities. These requirements are found in existing rule 3 RCNY §5-01.

Section 303-01, a new section, sets forth requirements for the storage, handling and use of tar kettles and asphalt melters fueled by a combustible liquid. This rule largely extends existing requirements for LPG-fueled tar kettles and asphalt melters to such devices.

Section 308-01 sets forth requirements for the use of open flames and open-flame devices in Group A occupancies and similar public gathering places. These requirements are substantively equivalent to those found in existing rule 3 RCNY §31-03, except that the rule allows the storage, handling and use of liquefied petroleum gas (LPG) in such occupancies for food warming and browning and for demonstration purposes.

Section 310-01 sets forth standards, requirements and procedures for designation of smoking rooms in hospitals, nursing homes, rehabilitation facilities and similar medical facilities housing the ill, aged and infirm. These requirements are found in existing rule 3 RCNY §36-01, except that the rule has been amended to conform to the requirements of Local Law 47 of 2002, and references the applicable New York City Smoke-Free Air Act provisions from Chapter 5 of Title 17 of the Administrative Code.

Section 310-02 sets forth the approved design for required “No Smoking” signs. These requirements are substantively identical to those found in existing rule 3 RCNY §36-02, except that the provision specifying the type of material has been revised to address signs to be posted in outdoor locations, and indoor locations where conditions will accelerate deterioration of the signs.

Section 313-01 sets forth requirements for the sale of kerosene space heaters. These requirements are substantively equivalent to those found in existing rule 3 RCNY §24-02.

Section 314-01 sets forth requirements for the indoor display of motor vehicles and watercraft in buildings and structures, including tents and other membrane structures. These requirements are substantively equivalent to those found in existing rule 3 RCNY §31-05.

Section 315-01 sets forth sets forth requirements for the storage of flammable plastic foam products. These requirements are substantively equivalent to those found in existing rule 3 RCNY §22-01.

Section 5. Title 3 of the Rules of the City of New York is hereby amended by adding a new Chapter 4, to read as follows:

CHAPTER 4
EMERGENCY PLANNING AND PREPAREDNESS

<u>§401-407</u>	<u>Reserved</u>
<u>§408-01</u>	<u>Residential Buildings With Non-Sequential or Non-Standard Floor Numbering</u>

§ 408-01 Residential Buildings With Non-Sequential or Non-Standard Floor Numbering

- (a) Scope. This section sets forth standards, requirements and procedures for the identification and documentation of buildings classified in *Occupancy Group R-2* that are 150 feet or more in height and have non-sequential or non-standard floor numbering.
- (b) General Provisions. *Owners* of buildings or parts thereof classified in *Occupancy Group R-2* that are 150 feet or more in height and have non-sequential or non-standard floor numbering shall prepare and electronically submit to the *Department* a building information card complying with the requirements of this section.
- (c) Floor Numbering Building Information Card Requirements
- (1) Form and content. The building information card shall be 11" x 17" in size, and shall contain a color-coded plot plan and elevation of the building detailing bordering streets, entrances, floor numbers, stairs, elevators, shafts, standpipes, and mechanical equipment room locations, in substantially the form set forth in Appendix B of Fire Department *rule 3 RCNY §6-02*. The elevation diagram depicting the building shall be clearly marked with the designated floor number or letter for each floor above and below grade level. The building information card shall include in the bottom right hand portion of the card a statement indicating the non-sequential or non-standard nature of the floor numbering.
- (2) Filing. The building information card shall be filed electronically with the *Department* in the following manner, or such other manner as may be prescribed by the *Department*:
- (A) The building information card shall be in JPEG or other *approved* format.
- (B) The building information card shall be [uploaded to the *Department's* website \(www.nyc.gov/fdny\)](http://www.nyc.gov/fdny) or other website designated by the *Department*.
- (3) Time for submission
- (A) The *owner* of a building for which a certificate of occupancy or temporary certificate of occupancy has been issued by the *Department of Buildings* prior to July 1, 2009, or which was otherwise occupied before such date, shall file a building information card with the *Department* by July 1, 2009.
- (B) The *owner* of a building for which a certificate of occupancy or temporary certificate of occupancy has been issued by the *Department of Buildings* on or after July 1, 2009, or which is otherwise occupied after such date, shall file a building information card with the *Department* prior to occupancy of the building.

STATEMENT OF BASIS AND PURPOSE FOR CHAPTER 4 (EMERGENCY PLANNING AND PREPAREDNESS):

Section 408-01, a new section, sets forth requirements for the electronic filing of floor numbering lists for high-rise apartment buildings that have non-sequential and non-standard floor numbering. The rule implements the provisions of FC408.9.4.

Section 6. Title 3 of the Rules of the City of New York is hereby amended by adding a new Chapter 6, to read as follows:

CHAPTER 6
BUILDING SERVICES AND SYSTEMS

<u>§601-602</u>	<u>Reserved</u>
<u>§603-01</u>	<u>Fuel-Oil Transfer Supervision and Maintenance</u>
<u>§604-610</u>	<u>Reserved</u>

§ 603-01 Fuel-Oil Transfer Supervision and Maintenance

- (a) Scope. This section sets forth requirements and procedures for the supervision of the transfer of fuel oil from a stationary fuel oil storage tank to fuel-oil burning equipment or another stationary fuel oil storage tank, installed in a building above the lowest floor, and the maintenance of the tanks and piping systems used for such fuel oil transfer.
- (b) General Provisions. Fuel oil transfers from any stationary fuel oil storage tank to fuel-oil burning equipment or another stationary fuel oil storage tank installed in a building above the lowest floor shall be supervised, and the tanks and piping system used for such fuel oil transfer shall be maintained, in compliance with the requirements of this section.
- (c) Supervision. Fuel oil transfers subject to this section shall be conducted and the tanks and piping used for such transfers shall be maintained under the *general supervision* of a *certificate of fitness* holder. Periodic inspection and testing required pursuant to R603-01(d)(1) shall be conducted under the *personal supervision* of such *certificate of fitness* holder.
- (d) Maintenance Requirements
 - (1) Periodic inspection and testing

- (A) Weekly inspection. Fuel oil storage tanks and piping systems subject to this section shall be inspected at least once weekly for any evidence of leaks.
- (B) Weekly test. Fuel oil storage tanks subject to this section shall have their float switches tested at least once weekly to ensure that they are in good working order.
- (2) Recordkeeping. A record of the periodic inspection and testing required by R603-01(d)(1) shall be maintained in accordance with FC107.7.

STATEMENT OF BASIS AND PURPOSE FOR CHAPTER 4 (BUILDING SERVICES AND SYSTEMS):

Section 603-01, a new section, sets forth requirements for the supervision and maintenance of fuel-oil transfer operations. This rule is substantively identical to the requirement of Section 1301.9 of the Mechanical Code, which requires supervision of such transfers by a person holding a Fire Department certificate of fitness. In accordance with FC102.2.2, persons supervising such fuel-oil transfer operation and performing the maintenance required by this section must obtain the certificate of fitness by July 1, 2009.

Section 7. Title 3 of the Rules of the City of New York is hereby amended by adding a new Chapter 7, to read as follows:

CHAPTER 7
FIRE-RESISTANT RATED CONSTRUCTION

§701-704 Reserved

Section 8. Title 3 of the Rules of the City of New York is hereby amended by adding a new Chapter 9, to read as follows:

CHAPTER 9
FIRE PROTECTION SYSTEMS

§901-01 Central Station Monitoring of Fire Alarm Systems
§901-02 Maintenance of Sprinkler System Pressure Tanks
§902 Reserved
§903-01 Flow Testing of Residential Sprinkler Systems

<u>§904-01</u>	<u>Clean Agent Fire Extinguishing Systems Acceptance Testing</u>
<u>§905-01</u>	<u>Standpipe System Pressure Reducing Devices</u>
<u>§906-01</u>	<u>Portable Fire Extinguishers for Power Operated Cranes</u>
<u>§906-02</u>	<u>Portable Fire Extinguishers for Fuel Oil-Burning Equipment</u>
<u>§907-01</u>	<u>Fire Alarm Recordkeeping, Smoke Detector Maintenance, Testing and Recordkeeping, and the Prevention of Unnecessary and Unwarranted Fire Alarms</u>
<u>§908-911</u>	<u>Reserved</u>
<u>§912-01</u>	<u>Periodic Testing of Standpipe System and Sprinkler Systems With Fire Department Connections</u>
<u>§913-914</u>	<u>Reserved</u>

§ 901-01 Central Station Monitoring of Fire Alarm Systems

(a) Scope. This section sets forth standards, requirements and procedures for:

(1) the monitoring and related maintenance of all *fire alarm systems* that are installed in *premises* located in New York City and that transmit an *alarm signal* to a *central station* that monitors such systems for the purpose of re-transmitting or otherwise reporting *fire alarms* to the *Department*; and

(2) the operation of the *central stations* that monitor and maintain *fire alarm systems*.

(b) Definitions. The following terms shall, for purposes of this section and used elsewhere in the rules, have the meanings shown herein:

Alarm service. The service provided by a *central station company* commencing upon the transmission from the *protected premises* of an *alarm signal*, a *supervisory signal*, or a *trouble signal*.

Approved central station company. A *central station company* that has been issued a *valid certificate of operation*.

Central station company. A person or entity engaged in the operation of a *central station*.

Central station signaling system. A system comprised of the *protective signaling system* at the *protected premises*, the *central station* physical plant, the exterior communications channels, and satellite stations, if any.

Designated representative. A person or entity designated by the subscriber who shall be responsible for receiving notifications from the *central station company* concerning the status of the *protective signaling system* at the *protected premises* and who is authorized to take action with respect to such system.

Mandatory system. A protective signaling system whose installation at a protected premises is required by law.

Proprietary central station. A central station operated by or on behalf of the owner of the protected premises monitored by the central station, that monitors protected premises other than the premises in which the central station is located. For purposes of this section and R4604-01, unless otherwise specifically provided, reference to “central station company” shall be deemed to include proprietary central stations.

Protective signaling system. A system or device installed at a protected premises and designed to transmit an alarm signal, a supervisory signal or a trouble signal.

Runner service. The dispatching to the protected premises of individuals designated by a central station company, other than the required number of operators on duty to monitor signals, to silence, reset and otherwise restore the protected signaling system to normal service. Such runners may be employees of the central station company, another approved central station company, or a service retained by the central station company, provided that the individuals are trained in and knowledgeable of the protective signaling systems for which they are providing runner service.

Subscriber. An owner of a protected premises, or an owner of a fire alarm system installed on such a premises, who has arranged for a central station company to monitor the fire alarm system on the protected premises for the purpose of reporting fire alarms to the Department.

Terminal. A number assigned by the Department which indicates a specific location and/or type of alarm signal at a protected premises.

Transmitter. A component of a protective signaling system that provides the link between a fire alarm system and the transmission channels.

Voluntary system. A protective signaling system whose installation at a protected premises is not required by law.

(c) Prohibited Fire Alarm System Monitoring. It shall be unlawful for:

(1) Any person or entity, pursuant to FC901.6.3.5, to operate a central station company or central station that monitors fire alarm systems in protected premises without having first obtained a certificate of operation pursuant to R115-01. A central station company shall obtain a certificate of operation prior to operating any central station or transmitting any alarms to the Department received from a protected premises.

(2) Any owner of a protected premises, or other person or entity to contract for, arrange, or otherwise cause or allow, a central station company to receive or retransmit alarm signals from a protected premises, unless such central station

company possesses a valid certificate of operation. This provision shall apply whether the protective signaling system installed at a protected premises is a mandatory or voluntary system.

(d) General Provisions.

(1) Applicable provisions of law. All central stations and proprietary central stations shall be designed, installed, operated and maintained in compliance with the requirements of FC Chapter 9, this section and NFPA 72. The relationship between the provisions of the Fire Code, this section and such referenced standard shall be as set forth in FC102.6.2.

(2) Compliance with Building Code and Electrical Code. All central stations and proprietary central stations shall be designed, installed, operated and maintained in compliance with the requirements of the Building Code and the Electrical Code.

(e) Central Stations. Central stations shall comply with the following design and installation requirements.

(1) Security. The central station operating room shall be locked at all times and access restricted to authorized persons only.

(2) Emergency power. Emergency power shall be provided for the exclusive use of the operating room and other areas vital to the continuous operation of the central station and its provision of fire alarm monitoring services. The emergency power supply shall function automatically upon failure of the normal power supply system. Emergency power systems shall be maintained in accordance with FC604.

(3) Listed equipment. The central station shall be equipped with devices, equipment and systems capable of automatically receiving and recording signals, as required by NFPA 72. Such devices, equipment and systems shall be listed by Factory Mutual, Underwriters Laboratories or other approved nationally recognized testing laboratory.

(4) Circuit adjusting equipment. Circuit adjusting instruments or equipment for emergency operations may be automatically initiated or manually operated upon receipt of a trouble signal.

(5) Retransmission of alarm signals. The retransmission of an alarm signal received at the Department shall be effected as follows:

(A) by the use of two (2) telephone lines provided with suitable voice transmitting, receiving and automatic recording equipment, provided that these lines shall not be used for any purpose except communication

between the *Department* and the *central station* and shall have terminal equipment located at the *central station* and the *Department* and shall be provided with twenty-four hour standby power; or

(B) any other means of retransmission deemed by the *Commissioner* to effect a retransmission at a level of reliability that equals or exceeds that under R901-01(e)(5)(A).

(6) Alternative voice communication capabilities. The company shall maintain at each *central station* at least one cellular telephone available for communication with the *Department* and the *protected premises* in the event that telephone circuitry is inoperable.

(7) The *central station company* shall bear all costs associated with the retransmission of *fire alarm signals* to the *Department*, including any costs incurred by the *Department*.

(f) Central Station Operations

(1) General responsibilities. A *central station company* shall be accountable to its subscriber to provide all of the requirements of this section, and shall set forth such obligation in its contract with the subscriber. In all cases where an *approved central station company* has subcontracted with another entity to provide services, the *central station company* shall be responsible for ensuring that the services provided by the subcontractor comply with this section and with all other applicable laws, rules, regulations and reference standards. A *central station company* may not subcontract signal monitoring or retransmission services or maintenance to a separate entity unless said separate entity is itself an *approved central station company*.

(2) Maintenance of central stations and transmitters

(A) A *central station company* shall be responsible for the maintenance of its *central stations* and the transmitters at *protected premises* within New York City monitored by such *central stations*. A *central station company* shall have available at all times designated individuals trained and knowledgeable in the maintenance and repair of *central station* devices, equipment and systems, including transmitters, so as to prevent or minimize any disruptions in *fire alarm system* monitoring. Such individuals shall be employees of the *central station company* (other than the required number of operators on duty to monitor signals); another *approved central station company*; or of the holder of a fire alarm installer license issued by the New York Secretary of State pursuant to Article 6-D of the New York State General Business Law or a master electrician licensed by the *Department of Buildings* and registered with the New York Secretary of State in accordance with such Article 6-D, who has been

retained to provide such service. In the event of a malfunction, repairs shall be immediately undertaken so as to restore proper operation and system monitoring as soon as possible.

(B) A central station company shall ensure that a complete and satisfactory test of all transmitters is conducted at each protected premises in compliance with the requirements of NFPA 72.

(C) A central station company shall test all paths of communication for the central station signaling system that are not supervised at least once every twelve hours. A record of such tests shall be maintained in the central station log.

(3) Monitoring of fire alarm systems

(A) A central station company shall have sufficient personnel on duty at all times to ensure immediate attention to all signals received. This shall include a minimum of two (2) operators at each central station, each of whom shall possess a certificate of fitness to operate central station equipment. A trainee functioning as an operator must work under the direct supervision and in the presence of an operator holding a certificate of fitness and may not be counted as one of the two (2) operators holding certificates of fitness as required by this section.

(B) Central station operators shall monitor and process all fire alarm signals before any other signals, regardless of the order in which they are received.

(C) Alarm signals shall be re-transmitted to the Department immediately upon receipt of the full signal at the central station. A full signal is deemed to be received at the time it is capable of being decoded.

(D) Alarm signals transmitted to the Department shall indicate the type of alarm received (e.g., automatic, valve or manual).

(4) Recordkeeping

(A) All records required to be maintained under this section shall be entered in a central station log which shall be maintained at each central station. The central station log shall be available at all times to the Department for inspection and copies shall be provided upon the Department's request. The central station log shall be kept on a yearly basis and be maintained for six (6) years following the period of use.

(B) The format of the central station log shall be either:

- (1) a bound (not spiral bound) logbook for each calendar year, with consecutively numbered lined pages with entries made in ink;
- (2) a computer database with a legend or key to all symbols and abbreviations; or
- (3) any other format approved by the *Commissioner*.

Where a computer format is used, the data may be stored on tape, disk or hard copy, provided that hard copies are maintained for 18 months following the period of use, in addition to the storage of the tape or disk for six (6) years following the period of use.

- (C) A *central station* signaling system shall receive and retransmit all signals and information which the subscriber is required by law to transmit, such as the location of the alarm source (building, floor, section, zone, or subdivision) and/or the type of *alarm signal* (e.g., automatic, valve or manual). *Central stations* presently unable to determine the type of *alarm signal* received due to the lack of sufficient transmitters at the *protected premises* shall be granted a period of time, as the *Department* deems reasonable, to make the conversions necessary to comply with this requirement.
 - (D) Subsequent alarm and *supervisory signals* received from the same building shall be retransmitted to the *Department* upon receipt.
 - (E) A combination *alarm signal* that by its nature is indicative of waterflow in a *sprinkler system* at the *protected premises* shall be retransmitted in the same manner as a *fire alarm signal*. In addition, the *designated representative* for the *protected premises* shall be notified as soon as possible.
 - (F) The dates and times of the receipt and retransmission of all signals shall be recorded in the *central station log*.
- (5) Runner service. A *central station company* shall ensure that a *fire alarm system* requiring manual silencing or resetting is restored to normal service no later than 90 minutes from receipt of an *alarm signal*. The *central station company* shall dispatch a runner to the *protected premises* for such purpose and shall immediately notify the *Department* once the system has been restored. A runner need not be dispatched and may be recalled if the *central station* confirms that the *fire alarm system* has already been restored, in which case the *central station company* shall immediately notify the *Department* of such fact.
- (6) Notification of service disruptions

(A) It is imperative that disruptions in *central station* service be detected as soon as possible and that service be restored immediately. The *Department* shall be notified of any disruption of *fire alarm* monitoring services regardless whether the disruption is due to failure of a *fire alarm system*, a *fire suppression system*, a *protective signaling system*, or *central station* equipment. The *central station company* shall make the following notifications:

(1) The *central station company* shall notify the *Department* whenever a *fire alarm system* or *fire protection system* is expected to be out of service for eight (8) hours or longer at a *protected premises*, where such information is available. This provision shall apply only to the installation of *mandatory systems*.

(2) The *central station company* must notify the *Department* and the *designated representative* for the *protected premises* forthwith in the event that a *central station* is either unable to receive *alarm signals* from a *protected premises* or to retransmit signals to the *Department* due to inoperative *central station* equipment or telephone circuitry.

In making the above-described notifications, the *central station company* shall identify to the *Department* the terminal assignment number(s) for the affected *premises*, where such information is available.

(B) A *central station company* shall record in the *central station* log the following information relating to disruptions in service:

(1) All instances in which a *fire alarm system* or *fire protection system* is out of service for eight (8) hours or more at a *protected premises*, where such information is ascertainable. This record shall identify the terminal assignment number for the *protected premises*, as well as the date, time and duration of the disruption of service.

(2) All instances in which a *protective signaling system* at a *protected premises* is out of service for two (2) hours or more. This record shall identify the terminal assignment number for the *protected premises*, as well as the date, time and duration of the disruption in service.

(7) Posting of certificate. A copy of the *certificate of operation* shall be posted at each *central station* operated by the *central station company*.

(g) Compensation. Every *central station company* shall pay compensation to the *Department* in accordance with the provisions of R4604-01. Failure to timely remit such

compensation shall be grounds for non-renewal, suspension or revocation of a *certificate of operation*, or denial of a new *certificate of operation*, in addition to any and all other remedies provided by law.

(h) Registration of Central Station-Monitored Fire Alarm Systems

(1) *Central station companies shall register each fire alarm system on each protected premises that it is monitoring by submitting to the Bureau of Fire Prevention, on the application form prescribed by the Department, the following information and such other information and documentation as the Department may require:*

(A) The address of the *protected premises* in which the *fire alarm system(s)* are installed;

(B) The number and type of *fire alarm systems* monitored at the *premises*, regardless of the number of *terminals* associated with each such system;

(C) The floors, or portions thereof, monitored by each *fire alarm system*;

(D) The name, address and telephone number of the *owner* or operator of each *fire alarm system*; and

(E) The type and location of each terminal, including *manual fire alarm boxes, sprinkler and standpipe system flow alarms and tamper switches, and heat, smoke and carbon monoxide detectors, associated with each fire alarm system.*

(2) *A central station company shall register with the Department each fire alarm system it proposes to monitor prior to the commencement of the receipt or retransmission of alarm signals from the fire alarm system, including resumption of previously discontinued or suspended monitoring service.*

(3) *The Department may deny a registration application upon a determination that the fire alarm system has not been installed and/or is not being operating in accordance with all applicable laws, rules and regulations, or other good cause. The Department may conduct an inspection of the protected premises to verify the proper installation and operation of the fire alarm system. A central station company shall not monitor any fire alarm system as to which the Department has denied registration.*

(4) *A central station company shall give prior written notice to the Department, on a form prescribed by the Department, of the discontinuance or temporary suspension of its monitoring of a fire alarm system, at least ten (10) days prior to such discontinuance or suspension. Five (5) additional days notice shall be provided if notice is given by mail.*

- (5) A central station company shall give written notice to the Department within seven (7) days of any change in any of the information set forth on its fire alarm system application form.

§ 901-02 Maintenance of Sprinkler System Pressure Tanks

- (a) Scope. This section sets forth requirements for the periodic maintenance of pressure tanks that supply water to sprinkler systems.
- (b) General Provisions. Water tanks that supply water to sprinkler systems shall be maintained in compliance with the requirements of FC901.6, NFPA 25, and this section.
- (c) Periodic Maintenance Requirements. Sprinkler system pressure tanks shall be inspected and tested at least monthly by a certificate of fitness holder and if necessary, corrective action taken, in accordance with the following procedure:
- (1) Close both the top and bottom valves on the sight glass level gauge.
 - (2) Open the petcock at the bottom of the gauge glass and drain the water out of the glass by cracking the top valve to clear the glass. Close the petcock. Open the top valve and allow air to enter the glass.
 - (3) Open the bottom valve to allow water to enter the gauge glass. Open the top valve.
 - (4) When the air and water levels stabilize, the level should be at the 2/3 level or the level required for the design of the system. Immediate corrective action shall be taken in the event the water level is below the design level.
 - (5) If the water level is too high, drain water using the emergency valve on the tank. After draining to the design level, introduce compressed air into the tank until the design air pressure is obtained.
- (d) Notification of Central Station. If the sprinkler system pressure tank is monitored by a central station, the central station company shall be notified before any testing is conducted.

§903-01 Flow Testing of Residential Sprinkler Systems

- (a) Scope. This section sets forth standards, requirements and procedures for flow testing of sprinkler systems in buildings, or parts thereof, classified as Occupancy Group R-2 and certain other residential occupancies. This section applies to all such sprinkler systems, including sprinkler systems that only protect a part of the building or space, such as compactor sprinkler systems.

- (b) Definition. The following term shall, for purposes of this section and used elsewhere in the rules, have the meanings shown herein:

Inspector's Test Connection. A pipe with a diameter of not less than one (1) inch, that is connected to the *sprinkler system* on the uppermost story of the building, at the end of the most remote branch line, to which is attached a valve that discharges the flow of water equivalent to one (1) sprinkler head of a type having the smallest orifice installed in the system.

- (c) General Provisions

- (1) Flow testing of sprinkler systems. *Sprinkler systems* in buildings or parts thereof, classified as *Occupancy Group R-2* (including *sprinkler systems* in apartment houses, apartment hotels and other residential buildings with three (3) or more dwelling units that are primarily occupied for the shelter and sleeping accommodation of individuals on a month-to-month or longer-term basis), and in every converted dwelling, or every tenement used, in whole or in part, for single room occupancy, regardless of occupancy classification, in which a *sprinkler system* has been installed pursuant to the requirements of the New York State Multiple Dwelling Law, shall be flow tested in compliance with the requirements of FC903.5.1 and 903.5.2 and this section.
- (2) Scheduling. Flow tests shall be scheduled on behalf of the *owner* by the *plumber* or master fire suppression contractor who is to conduct the test.
- (3) Other flow testing. The procedure and standard set forth in this section for required *sprinkler system* flow tests shall not be construed to prohibit an *owner* of a *sprinkler system* from conducting any other lawful flow test of such a system. The provisions of this section shall not be applicable to any such other flow test, except for the provisions governing the reporting and correction of *sprinkler systems* that fail flow tests.
- (4) Frequency. *Sprinkler systems* shall be flow tested annually, except that in buildings other than converted dwelling, or tenements used in whole or in part for single room occupancy, such system may be flow tested once every 30 months, provided that the pressure gauge located at or near the *inspector's test connection* is checked during the required monthly inspection to make certain that the system design pressure is being maintained.
- (5) Witnessing. A flow test of a *sprinkler system* shall be witnessed by a representative of the *Department* at least once every five (5) years. Fees for such witnessed test shall be as set forth in FC A03.1(20).

(6) Reporting of required flow tests. The initial flow test result reported to the Department shall include a copy of the installation contractor's Department of Buildings B Form FP85.

(7) Reporting of other flow tests. The result of a flow test not required by this section shall be reported to the Department in accordance with R903-01(e) to the extent required by such section.

(d) Flow Test Procedure and Standard

(1) The flow test required by this section is intended to ascertain whether there is sufficient pressure in the sprinkler system to ensure the flow of water in the event the system is activated. The flow test shall be conducted in the following manner:

(A) All control valves on the system, including the main supply control valves, shall be inspected and determined to be sealed in the "open" position either by an approved wire and seal or a lock and chain.

(B) The flow test shall be conducted using an inspector's test connection. Such inspector's test connection shall be installed in accordance with the Building Code. If a sprinkler system is not provided with an inspector's test connection, such test connection shall be installed in accordance with the Building Code prior to conducting any required flow test.

(C) The contractor's testing apparatus shall be attached liquid tight to the sprinkler system inspector's test connection. The contractor's testing apparatus shall consist of:

(1) an adapter that connects to the inspector's test connection valve;

(2) a calibrated pressure gauge with at least a two (2) inch diameter dial graduated in psi to at least twice the static pressure of the sprinkler system; and

(3) a valve and a length of hose suitable to drain the discharged water to a safe location.

(D) The inspector's test connection valve shall be opened, the contractor's testing apparatus valve shall be closed and the static pressure indicated on the inspector's test connection pressure gauge, if provided, and the contractor's testing apparatus pressure gauge recorded.

(E) The contractor's testing apparatus valve shall be fully opened allowing water to discharge from the system until the water runs clear, but in no event shall less than ten (10) gallons be discharged.

(F) The contractor's testing apparatus valve shall be closed and the static pressure indicated on the *inspector's test connection* pressure gauge, if provided, and the contractor's testing apparatus pressure gauge recorded.

(2) A *sprinkler system* shall be determined to have passed the flow test if:

(A) the static pressure indicated on the contractor's testing apparatus pressure gauge before and after draining the water is unchanged when all control valves are sealed in the open position;

(B) the contractor's testing apparatus pressure gauge indicates a pressure of at least 15 *psig* or the pressure required by hydraulic calculations, whichever is greater;

(C) the *inspector's test connection* pressure gauge, if provided, and the contractor's testing apparatus pressure gauge readings recorded, as required in R903-01(d)(1)(D) and (d)(1)(F), are similar.

(D) there is no other indication that the *sprinkler system* is not in perfect working order.

(e) Flow Testing Reporting Requirements

(1) Reporting of successful flow tests. When a *sprinkler system* passes a flow test required by this section, the plumber or master fire suppression contractor conducting such flow test shall certify that all control valves associated with the *sprinkler systems* covered by the report have been identified, inspected and observed to be sealed in the open position by either an approved wire seal or chain and lock; that they conducted a flow test of such *sprinkler systems* in accordance with the procedures and standards specified in R903-01(d); that the *sprinkler systems* passed the flow test in accordance with the criteria specified in R903-01(d); and that there is no other indication that the system is not in perfect working order. Such results shall be certified by completing a Residential Sprinkler System Flow Test Report in a form prescribed by the *Department*. Such report shall be submitted to the *Department* and maintained for examination as follows:

(A) Residential Sprinkler System Flow Test Reports for flow tests that are not required to be witnessed by a *Department* representative shall be completed and mailed to the *Department* within five (5) business days after the completion of such test. Such mailings shall be addressed to:

New York City Fire Department
Bureau of Fire Prevention
9 MetroTech Center, 3rd Floor
Brooklyn, NY 11201-3857

Attn: Fire Suppression Unit.

- (B) Residential Sprinkler System Flow Test Reports for flow tests witnessed by a *Department* representative shall be certified immediately upon completion of the flow test.
 - (C) The *owner* or managing agent of the building or space shall maintain a copy of each Residential Sprinkler System Flow Test Report for a period of not less than five (5) years from the test date. Such reports shall be maintained on the *premises* and made available for examination by any *Department* representative. Such reports shall be made available for examination by the occupants of the building or space during regular business hours.
- (2) Reporting of unsuccessful flow tests. Any *sprinkler system* that fails a flow test, whether or not such test is required by this section, is in violation of the requirement of FC901.6 that such system be maintained in good working order at all times. The *owner* of such *sprinkler system* shall take immediate corrective action and shall continue such corrective action until such time as the *sprinkler system* passes a flow test conducted in accordance with the procedure and standard required by this section. If such corrective action cannot be completed and a successful flow test result obtained by the close of business of the same day, the *plumber* or master fire suppression contractor conducting such flow test shall notify the *Department* by telephoning the *Department* communications office (dispatcher) for the borough in which the *premises* is located. Nothing contained herein shall preclude the *Department* from taking enforcement action with respect to any *sprinkler system* that is not in good working order.

§ 904-01 Clean Agent Fire Extinguishing Systems Acceptance Testing

- (a) Scope. This section sets forth standards, requirements and procedures for acceptance testing of *clean agent fire extinguishing systems*.
- (b) General Provisions. Pursuant to FC 901.5 and 904, *clean agent fire extinguishing systems* shall be inspected and tested before a representative of the *Department* prior to placing the system in operation, to ensure that such system is in good working order and operates as designed.
- (c) Installation Acceptance Testing. Inspection and acceptance testing of *clean agent fire extinguishing systems* shall be conducted to determine whether the system functions in compliance with the requirements of FC904.10, NFPA 2001, and the following standards and requirements:
 - (1) All detection, discharge, alarms and other system components are in good working order.

- (2) All piping is clear and unobstructed.
- (3) Except as otherwise provided in Section 4-7.2.2.12 of NFPA 2001 (where the total piping contains no more than one change in direction fitting between the storage container and the discharge nozzle, and where all piping is physically checked for tightness), the piping shall be tested to confirm that it is capable to maintain the following pressures:
 - (A) the maximum anticipated pressure at discharge for a period of ten (10) minutes with a pressure loss not exceeding 15 percent of the test pressure;
or
 - (B) the maximum anticipated pressure at discharge for a period of two (2) minutes with a pressure loss not exceeding three (3) percent of the test pressure; or
 - (C) 40 psig for a period of ten (10) minutes with a pressure loss not exceeding eight (8) PSI, after which the system shall be subjected to a discharge test.
- (4) The enclosure protected by the *clean agent fire extinguishing system* shall be capable of maintaining the design *clean agent* concentration level for the required holding period. An integrity test in accordance with Appendix B of NFPA 2001 or a discharge test shall be conducted of such enclosure.

§ 905-01 Standpipe System Pressure Reducing Devices

- (a) Scope. This section sets forth requirements for *standpipe system* pressure reducing devices.
- (b) Definitions. The following terms shall, for purposes of this section and used elsewhere in the *rules*, have the meanings shown herein:

Pressure reducing devices. Devices, including valves, installed in *standpipe systems* at or near hose outlet connections that act to limit both the static and dynamic water pressures downstream of the standpipe outlet valve.

Pressure restrictors. Removable fittings or "SECO Type" valves that restrict flowing water pressures by reducing the available cross-sectional area of flow.

- (c) General Provisions

- (1) Certificate of approval. *Pressure reducing devices* installed in a *standpipe system* shall be of an approved type and for which a *certificate of approval* has been issued.

(d) Pressure Reducing Device Requirements.

- (1) Location and pressure markings. Each *pressure reducing device* shall be permanently marked with the address of the *premises* in which it is installed, its floor location, and its designated pressure setting.
- (2) Adjustments and reporting. Upon initial installation of a *pressure reducing device*, and at least once every three (3) years thereafter, a master fire suppression contractor shall file an affidavit with the *Department* on behalf of the building owner attesting to the following:
 - (A) The building address and *owner's* name.
 - (B) The floor location of all *standpipe system pressure reducing devices* and the inlet pressure (static and operating) of each device.
 - (C) The setting of each device and the corresponding discharge flow rate (*gpm*), discharge pressure (*psig*), and the maximum outlet static pressure (*psig*).
 - (D) The name, address, and master fire suppression contractor license number of the person submitting the affidavit.
- (3) Flow testing. Upon order of the *Commissioner*, but at least once every three (3) years, *standpipe systems* with *pressure reducing devices* installed shall be flow tested with a minimum actual flowing discharge of 250 *gpm*. These tests shall be conducted by a master fire suppression contractor who shall provide the *Department* five (5) business days notice of the date and time of the test. The *Department* may witness these tests at its discretion.

§ 906-01 Portable Fire Extinguishers for Cranes

- (a) Scope. This section sets forth portable fire extinguisher requirements for cranes fueled by *liquid motor fuel* or a *flammable gas*.
- (b) Portable Fire Extinguisher Requirements. All cranes fueled by *liquid motor fuel* or *flammable gas* shall be provided with a portable fire extinguisher with at least a 10-B:C rating located either in the cab or in the immediate vicinity of the crane.

§ 906-02 Portable Fire Extinguishers for Fuel Oil-Burning Equipment

- (a) Scope. This section sets forth portable fire extinguisher requirements for stationary fuel oil-burning equipment in all occupancies, except *Occupancy Group R-3*.
- (b) Portable Fire Extinguisher Requirements. All stationary fuel oil-burning equipment, including boilers, emergency generators, furnaces, hot water heaters and space heaters,

shall be provided with a dry chemical type portable fire extinguisher with at least a 20-B:C rating, or a carbon dioxide type portable fire extinguisher with at least a 2-B:C rating. Such portable fire extinguisher shall be located not more than 30 feet from the fuel oil fired equipment. A travel distance of up to 50 feet may be allowed if a dry chemical portable fire extinguisher with at least a 40-B:C rating, or a carbon dioxide portable fire extinguisher with at least a 4-B:C rating, is provided.

§ 907-01 Fire Alarm Recordkeeping, Smoke Detector Maintenance, Testing and Recordkeeping, and the Prevention of Unnecessary and Unwarranted Fire Alarms

(a) Scope. This section sets forth standards, requirements and procedures for the operation and maintenance of *fire alarm systems* relating to fire alarm recordkeeping, *smoke detector* maintenance, testing and recordkeeping, and the prevention of *unnecessary* and *unwarranted alarms*.

(b) General Provisions

(1) Purpose. Pursuant to FC901.6, all *fire alarm systems* shall be maintained in good working order at all times. This section sets forth operating and maintenance requirements intended to minimize the number of *unwarranted* and *unnecessary alarms* transmitted by such systems that automatically transmit signals to the *Department* or a *central station*, including minimum *smoke detector* maintenance and testing requirements, the type and format of alarm and maintenance records to be kept and used in identifying defective smoke detectors and patterns of *unnecessary or unwarranted alarm* transmissions. Such alarms, which trigger an emergency response, are costly and endanger the public safety. This section sets forth the standard to which the *owners* (including lessees) of *premises* having such systems shall be held in regard to the transmission of such alarms.

(2) All *owners* shall comply with the requirements of this section and prevent *unnecessary* and *unwarranted alarms*.

(c) Prevention of Unnecessary and Unwarranted Alarms

(1) In any *premises* having a *fire alarm system* or a *smoke detector* that automatically transmits signals to the *Department* or a *central station*, the *owner* (including any lessee) of the *premises* shall be responsible for preventing the transmission of *unnecessary* or *unwarranted alarms*, and shall be liable for any violation of this section.

(2) It shall be unlawful to transmit three (3) or more *unnecessary* or *unwarranted alarms* in any six-month period.

(3) For purposes of this subdivision, the malicious transmission of a false alarm by activation of a manual fire alarm box shall not be construed as an unnecessary alarm.

(d) Alarm Log Book

(1) The provisions of this section shall apply to any premises having a defined fire alarm system.

(2) The fire safety director, or in buildings not requiring a fire safety director, a person designated by the owner, shall be responsible to make all log book entries required by this section.

(3) An alarm log book shall be maintained on the premises, at the building's main fire alarm control panel. In the absence of a secure location at the main fire alarm control panel, the alarm log book may be secured during non-business hours in another area provided it is made available for inspection by any Department representatives responding to an alarm on the premises. Alarm log book entries shall be made in chronological order, recording the location and causes of all alarm signals transmitted by such fire alarm system.

(4) The alarm log book shall be a bound book (other than spiral bound) with consecutively numbered and lined pages. The cover of the log book shall bear the inscription, "ALARM LOG BOOK", together with the name and address of the building. All entries shall be made in ink and dated. A separate log book shall be kept for each calendar year. Log books shall be retained for a period of three (3) years from the date of the last entry.

(5) The alarm log book shall be divided into three (3) separate sections as set forth below. Each section shall have a sufficient number of pages to allow for entries for at least one (1) year. The following log book entries are required and shall be made in each instance:

(A) Daily entries. The name of the person who made the entry, the certificate of fitness number of the fire safety director on duty, if applicable, and the time each tour of duty began and ended, shall be entered in the alarm log book on a daily basis. These entries shall be set forth in columns in the log book as follows:

Name Cert. of Fitness # Time Started Time Relieved

(B) System off-line entries. The date and time the alarm system was taken off-line, the reason for such action, the name and certificate of fitness number of the person notified at the central station (or other evidence of notification satisfactory to the Department), and the date and time the system was restored to service, shall be entered in the alarm log book in

each such circumstance. These entries shall be set forth in columns in the log book as follows:

Time Off Line Reason Off Line Central Station Name & No. Time Restored

(C) Activated alarm entries. The date and time the alarm activated, the type and location of the device (e.g., *smoke detector*, 27th floor, elevator lobby), the probable cause of the alarm, and the *Department* unit and officer responding shall be entered in the alarm log book in each such circumstance. These entries shall be set forth in columns in the log book as follows:

Date & Time Activated Location & Detector Type Probable Cause FDNY Unit & Officer

(D) Notification entries. The date and time of any notification to the occupants of the *premises* pursuant to FC Chapter 9 and R907-01(d), regarding a non-functioning or improperly functioning alarm system.

(e) Smoke Detector Maintenance and Recordkeeping

(1) Owner responsibility. The *owner* (including any lessee) of any *premises* monitored by a *defined fire alarm system* shall be responsible for the detector maintenance required by FC Chapter 9 and the *smoke detector* cleaning and testing required by this section.

(2) Certificate of fitness. The *smoke detector* cleaning and testing required by this section shall be performed by a person holding a *certificate of fitness* for *smoke detector* maintenance.

(3) Smoke detector maintenance company certificate. Such work shall be performed under the supervision of a company holding a *smoke detector maintenance company certificate*. All other *smoke detector* maintenance and testing shall be performed by a person possessing the requisite qualifications and experience, and any applicable license or certificate. Notwithstanding the foregoing, the *smoke detector* cleaning and testing required by this section may be performed by an *owner* of the *premises*, or an employee thereof, who possesses a *certificate of fitness* for *smoke detector* maintenance and the tools, instruments or other equipment necessary to perform *smoke detector* cleaning and testing required by this section.

(4) Smoke detector cleaning and testing

(A) All *smoke detectors* connected to a *defined fire alarm system* shall be cleaned and tested in compliance with the procedures set forth in the manufacturer's specifications and in NFPA 72, except that where such

procedures are inconsistent with the provisions of this section, the provisions of this section shall apply.

(B) All *smoke detectors* connected to a *defined fire alarm system* shall be:

(1) cleaned not less than once every six (6) months, except for analog (intelligent) *smoke detectors*, which shall be cleaned no later than one (1) week from receipt of an indication of the need for cleaning.

(2) tested for smoke entry not less than once a year.

(3) tested for sensitivity not less than once a year, except for analog (intelligent) *smoke detectors*, which shall be tested for sensitivity no later than one (1) week from receipt of an indication of the need for such testing.

(C) Any *smoke detector* not performing in conformance with the manufacturer's specifications or the standards set forth in NFPA 72 shall be re-calibrated, repaired or replaced, as required, in accordance with the manufacturer's recommendations and the requirements of said standard.

(5) Smoke detector maintenance recordkeeping

(A) The provisions of this section shall apply to any *premises* having a *defined fire alarm system*.

(B) A *smoke detector* maintenance log book shall be maintained on the *premises* in the office of the fire safety director, or, in buildings not requiring a fire safety director, in the building superintendent's office. Such log book shall state the total number of *smoke detectors* on the *premises* and list each *smoke detector* by location. Entries shall be made in such log book, in chronological order, regarding the installation, repair, maintenance and testing of the *smoke detectors*, and any signals transmitted by such detectors. Such entries shall include the date and nature of any inspection, cleaning, testing or calibration, and the name of the person and company performing such work, and any signal transmitted by analog (intelligent) *smoke detectors* communicating a need for cleaning and/or adjustment.

(C) The fire safety director, or in buildings not requiring a fire safety director, a person designated by the *owner*, shall be responsible to make all *smoke detector* maintenance log book entries required by this section.

(D) The *smoke detector* maintenance log book shall be a bound book (other than spiral bound) with consecutively numbered and lined pages. The cover of the log book shall bear the inscription, "SMOKE DETECTOR

MAINTENANCE LOG BOOK,” together with the name and address of the building or occupancy. All entries shall be made in ink and dated. A separate log book shall be kept for each calendar year. Log books shall be retained for a period of three (3) years from the date of the last entry. A computer record that is designed to prevent or detect alteration of information and that is otherwise maintained in a manner acceptable to the Department, may be maintained in lieu of a bound log book provided that such computerized record is available on the premises for inspection by any Department representative during business hours.

(E) A copy of the smoke detector manufacturer's recommended maintenance procedures shall be kept with the smoke detector maintenance log book.

(f) Compliance with Other Laws, Rules and Regulations. Nothing contained in this section shall be construed to authorize any installation, alteration or repair of electrical wiring or other component of a fire alarm system that any other law or rule, including the Electrical Code or the Building Code, requires to be performed by a licensed electrician.

§ 912-01 Periodic Testing of Standpipe and Sprinkler Systems With Fire Department Connections

(a) Scope. This section sets forth standards, requirements and procedures for testing standpipe systems and sprinkler systems that have fire department connections.

(b) General Provisions

(1) Periodic testing. Upon order of the Commissioner, but at least once every five (5) years, the following tests shall be conducted, at the owner's risk, by his or her representative before a representative of the Department:

(A) The entire standpipe system shall be subjected to a hydrostatic pressure test and a flow test to demonstrate its suitability for Fire Department use.

(B) Standpipe system and sprinkler system fire department connections shall be subjected to a hydrostatic pressure test to demonstrate their suitability for Fire Department use.

(2) The contractor shall have the system ready for test at the time of the appointment and shall have sufficient personnel present to conduct the test in a proper manner.

(3) All defects noted during the test must be corrected before the test can be approved.

(c) Standpipe Pressure and Flow Tests. Standpipe systems shall be tested in accordance with the following procedures:

(1) Hydrostatic test

- (A) A pressure of 50 *psi* in excess of static pressure shall be applied to the entire system before replacing clappers in fire department connection check valves. Where intermediate tanks are provided, static pressure must be calculated from the roof tank.
- (B) The test connection shall be made at the fire department connection.
- (C) *Standpipe systems* shall not be tested using air or other pneumatic methods.

(2) Flow test

- (A) No flow test shall be conducted when the outdoor ambient temperature is below 32°F.
- (B) Shut off supply to system (gravity tank or street supply).
- (C) Drain system at lowest outlet available.
- (D) Remove all lower check valve clappers and then replace the bonnet.
- (E) Connect a control valve to each fire department connection. The contractor shall provide a hose or make other provisions for draining of the water, so arranged as to hold the fire department connection clapper in an open position.
- (F) Open the tank control valve or the street control valve and fill the entire system.
- (G) Stretch the hose to curb or to a drain, and flush each fire department connection until water runs clear. Shut the water off as soon as it runs clear.

(3) System restoration

- (A) Restore the system by replacing clappers in check valve, opening all control valves and filling the system.
- (B) Properly vent all dead ends.
- (C) Inspect drips after protection is restored, to check if the lower check valves are leaking.

(D) The contractor shall endeavor to ensure that the *standpipe system* is not out of service overnight. If it is impracticable to restore the system for Fire Department use, the *certificate of fitness* holder shall notify the *owner* or *building manager* and the *Department*, by telephoning the *Department* communications office (dispatcher) for the borough in which the *premises* is located. If the *certificate of fitness* holder is not present, the contractor shall make such notifications.

(d) Sprinkler System Pressure Test

(1) The fire department connections for a *sprinkler system* shall be hydrostatically tested in accordance with the following procedures:

(A) If the fire department connection check valve is of the flange type, a blind gasket or blank disc shall be installed between the flanges at the inlet (dry side) of check valve.

(B) If the fire department connection check valve is the screw type valve without flanges, the line at the dry side of check valve must be cut and the end capped.

(C) The fire department connection header shall be filled with water and a 100 *psig* hydrostatic pressure maintained for 20 minutes.

(D) When the test is completed, the blind gasket or blank disc shall be removed and flange gasket replaced. If the pipe was cut to conduct the test, it shall be provided with flanges after the test so that it can be used when future tests are conducted.

(E) After blind gaskets or blank disc are removed and piping is properly reconnected, a final test equal to city main pressure shall be applied to the fire department connection header to check that the flange connection is water tight.

(F) Where static pressure in the *sprinkler system* exceeds 100 *psig* at the outlet side of the fire department connection check valve, the 100 *psig* pressure test may be applied directly to the fire department connection header.

(G) When the test is completed, the fire department connection header shall be drained and the drip valve left in good working order.

(H) When the fire department connections for perforated pipe systems are tested, the perforated branch lines shall be backed out and openings plugged.

- (1) Sprinkler system fire department connections shall not be tested using air or other pneumatic methods.
- (2) System restoration
 - (A) After maintaining the pressure at 100 psig for 20 minutes, the system shall be restored by removing plugs and reconnecting branch lines.
 - (B) The contractor shall endeavor to ensure that the *sprinkler system* is not out of service overnight. If it is impracticable to restore the system for Fire Department use, the *certificate of fitness* holder shall notify the *owner* or *building manager* and the *Department*, by telephoning the *Department communications office (dispatcher)* for the borough in which the *premises* is located. If the *certificate of fitness* holder is not present, the contractor shall make such notifications.

STATEMENT OF BASIS AND PURPOSE FOR CHAPTER 9 (FIRE PROTECTION SYSTEMS):

The chapter consists of nine sections. All are based on existing rules, except Section 906-02.

Section 901-01 governs the monitoring and related maintenance of all fire alarm systems that are installed in premises located in New York City and that transmit an alarm signal to a central station that monitors such systems for the purpose of retransmitting or otherwise reporting fire alarms to the Department. This section also governs the operation of the central stations that monitor and maintain fire alarm systems, and sets forth requirements for the certification of the alarm monitoring companies and other businesses that operate such central stations. These requirements are found in existing rule 3 RCNY §17-01.

In response to public comment, the final rule incorporates revisions that allow central station companies to utilize outside companies and licensed fire alarm installers, or other approved central station companies, to provide runner service and to maintain and test the transmitters at protected premises.

Section 901-02 sets forth periodic inspection requirements for sprinkler system pressure tanks. These requirements are found in existing rule 3 RCNY §37-04.

Section 903-01 sets forth requirements for flow testing of residential sprinkler systems. This section differs from the existing rule (3 RCNY §37-06) in incorporating the mandate of Local Law 45 of 2006. Local Law 45 of 2006 was enacted to streamline and consolidate under the Department's jurisdiction the inspection and flow testing requirements for residential sprinkler systems. Local Law 10 of 1999 was enacted after a series of fatal fires. Local Law 10 required owners of buildings classified in Occupancy Group J-2 (as defined in the 1968 Building Code) with four or more dwelling units to have a licensed contractor conduct a flow test of the sprinkler system at least once every 30 months, maintain records of those tests and have the Department

witness the flow test once every five years. However, the New York City Housing Maintenance Code had a similar sprinkler system flow testing requirement. Owners of converted dwellings and dwellings used as single room occupancies were required to have licensed plumbers conduct a flow test of the sprinkler systems annually. Accordingly, certain residential premises were subject to duplicative inspection and flow testing requirements. This section establishes uniform inspection and flow test requirements for all residential sprinkler systems subject to such requirements. Section 903-01 also differs from the existing rule (3 RCNY §37-06) in eliminating the sprinkler system flow test form, which had been attached to the rule as Appendix A, and substituting reference to a form prescribed by the Fire Department. The inclusion of the form in the rule was no longer deemed necessary almost nine years after the rule and form were first promulgated, and its inclusion made administrative changes to the form inconvenient. Contractors conducting the sprinkler system flow tests must continue to certify the results of the test in accordance with the provisions of the rule.

Section 904-01 sets forth requirements for acceptance testing of clean agent fire extinguishing systems. These requirements are found in existing rule 3 RCNY §15-08.

Section 905-01 sets forth requirements for standpipe system pressure reducing devices. These requirements are found in existing rule 3 RCNY §37-05.

Section 906-01 sets forth portable fire extinguisher requirements for power-operated cranes and derricks. These requirements are found in existing rule 3 RCNY §15-07.

Section 906-02 sets forth portable fire extinguisher requirements for fuel oil fired systems. This is a new rule that parallels the Board of Standards and Appeals requirements for such portable fire extinguishers.

Section 907-01 sets forth standards and requirements for fire alarm recordkeeping, smoke detector maintenance, testing and recordkeeping, and the prevention of unnecessary and unwarranted alarms. These requirements are found in existing rule 3 RCNY §17-06.

Section 912-01 sets forth requirements for periodic testing of standpipe system and sprinkler systems with Fire Department connections. These requirements are found in existing rules 3 RCNY §§37-02 and 37-03.

Section 9. Title 3 of the Rules of the City of New York is hereby amended by adding a new

Chapter 12, to read as follows:

CHAPTER 12
DRY CLEANING

§1201-1208 Reserved

Section 10. Title 3 of the Rules of the City of New York is hereby amended by adding a new Chapter 13, to read as follows:

CHAPTER 13
COMBUSTIBLE DUST-PRODUCING OPERATIONS

§1301-1304 Reserved

Section 11. Title 3 of the Rules of the City of New York is hereby amended by adding a new Chapter 15, to read as follows:

CHAPTER 15
FLAMMABLE FINISHES

§1501-1511 Reserved

Section 12. Title 3 of the Rules of the City of New York is hereby amended by adding a new Chapter 16, to read as follows:

CHAPTER 16
FRUIT AND CROP RIPENING

§1601-1607 Reserved

Section 13. Title 3 of the Rules of the City of New York is hereby amended by adding a new Chapter 18, to read as follows:

CHAPTER 18
SEMICONDUCTOR FABRICATION FACILITIES

§1801-1805 Reserved

Section 14. Title 3 of the Rules of the City of New York is hereby amended by adding a new Chapter 19, to read as follows:

CHAPTER 19
LUMBER YARDS AND WOOD WASTE MATERIALS

§1901-1909 Reserved

Section 15. Title 3 of the Rules of the City of New York is hereby amended by adding a new Chapter 20, to read as follows:

CHAPTER 20
MANUFACTURE OF ORGANIC COATINGS

§2001-2009 Reserved

Section 16. Title 3 of the Rules of the City of New York is hereby amended by adding a new Chapter 21, to read as follows:

CHAPTER 21
INDUSTRIAL FURNACES

§2101-2107 Reserved

Section 17. Title 3 of the Rules of the City of New York is hereby amended by adding a new Chapter 22, to read as follows:

CHAPTER 22
MOTOR FUEL-DISPENSING FACILITIES AND REPAIR GARAGES

§2201-2203 Reserved

§2204-01 Self-Service Automotive Liquid Motor Fuel-Dispensing Facilities

§2205-01 Underground Liquid Motor Fuel Storage Tanks at Motor Fuel-Dispensing Facilities

§2206-01 Design and Installation of Liquid Motor Fuel-Dispensing Systems at Motor Fuel-Dispensing Facilities

<u>§2206-02</u>	<u>Leak Detection System Functionality Testing</u>
<u>§2207</u>	<u>Reserved</u>
<u>§2208-01</u>	<u>Mobile Compressed Natural Gas Motor Fuel Systems</u>
<u>§2208-02</u>	<u>Self-Service Compressed Natural Gas Motor Fuel-Dispensing Facilities</u>
<u>§2209-2210</u>	<u>Reserved</u>
<u>§2211-01</u>	<u>Repair Garages For Vehicles Fueled by Lighter-Than-Air Fuels</u>

§ 2204-01 Self-Service Automotive Liquid Motor Fuel-Dispensing Facilities

- (a) Scope. This section sets forth requirements for the operation and maintenance of *self-service automotive liquid motor fuel-dispensing facilities*.
- (b) General Provisions
- (1) Facility operation and maintenance. All *self-service automotive liquid motor fuel-dispensing facilities* shall be operated and maintained in accordance with FC Chapter 22 and this section.
- (c) Operational and Maintenance Requirements
- (1) Movement of motor vehicles. The *facility* shall be operated so that movement of *motor vehicles* is orderly and consistent with the safe operation of the *facility*.
- (2) Repairs. *Motor vehicles* shall not be repaired in dispensing areas.
- (3) Control booth requirements
- (A) Housekeeping. The control booth shall be kept clean and orderly. The glass panels of the control booth shall be kept clean and unobstructed at all times. Access to the controls in the booth shall be kept unobstructed by equipment, merchandise or litter.
- (B) Operating manual. An operating manual consisting of a copy of this section, emergency procedures, and *facility* operating procedures (including the operation of the *fire extinguishing system*) shall be maintained in the control booth.
- (C) Portable fire extinguisher requirements. In addition to the portable fire extinguishers required by FC2205.5 to be provided in the dispensing area, two (2) portable fire extinguishers with at least a 40-B:C rating shall be provided within the control booth.

- (4) Daily inspections. The *certified attendant* shall conduct an inspection of the *facility* on at least a daily basis, and document such inspection in the log book required by R2204-01(c)(5). The inspection shall verify that:
- (A) The *fire extinguishing system* is properly pressurized, nozzles are clear and unobstructed, and heat detectors are undamaged and unobstructed.
 - (B) Portable fire extinguishers have been serviced and have adequate pressure.
 - (C) The *fire extinguishing system* remote manual pull station and the pump shutdown are clear of obstructions.
 - (D) Leak detection systems and other alarms are in good working order.
 - (E) Emergency procedures signage is posted, unobstructed and legible.
 - (F) Required lighting is in good working order.
 - (G) Any mirrors and/or *approved* closed-circuit television used to monitor dispensing operations are in good working order.
 - (H) The voice communications system is in good working order.
- (5) Maintenance log book. A maintenance log shall be kept on the *premises* for inspection by any *Department* representative. Such log shall list all *certified attendants* and other persons on the *premises* who hold *certificates of fitness*, with their numbers and expiration dates. Entries shall be made in such log book of the daily inspections required by this section, any maintenance or repair of any system, and any *fires*, spills or other unusual occurrences.
- (6) Fuel Dispensing
- (A) The *certified attendant* shall not dispense *liquid motor fuel* into a portable container in quantities requiring a *permit* unless the *certified attendant* verifies that the customer possesses all such *permits*.
 - (B) Persons dispensing *motor fuel* at a self-service *motor fuel-dispensing facility* shall hold a valid driver's license or be at least 18 years of age. The *certified attendant* or other *facility* personnel may require any member of the public to produce evidence of same.

§2205-01 Underground Liquid Motor Fuel Storage Tanks at Motor Fuel-Dispensing Facilities

- (a) Scope. This section sets forth standards, requirements and procedures for the maintenance of underground motor fuel storage tanks at *liquid motor fuel-dispensing facilities*.
- (b) General Provisions. Underground storage tanks for *liquid motor fuel* at *liquid motor fuel-dispensing facilities* shall be periodically inspected, tested and otherwise maintained in accordance with FC2205 and this section.
- (c) Periodic Maintenance Requirements. Underground storage tanks at *liquid motor fuel dispensing facilities* shall be maintained in accordance with the following procedures:
 - (1) Overfill prevention devices. The overfill prevention devices required by FC2206.10(18) shall be inspected for proper operation at least once every two (2) years by a person holding a *certificate of license*. Records of such inspection shall be maintained on the *premises* as set forth in FC107.7.
 - (2) Cathodic protection systems. Tanks and piping systems provided with cathodic protection systems shall be inspected, tested and otherwise maintained to ensure continuous corrosion protection. Cathodic protection systems shall be inspected for proper operation by a trained person knowledgeable of the requirements of the United States Environmental Protection Agency for such systems. Cathodic protection systems other than impressed current cathodic protection systems shall be inspected within six (6) months of installation and at least once a year thereafter. Impressed current cathodic protection systems shall be inspected at least once every 60 days.
 - (3) Leak detection systems. Leak detection systems shall be inspected for proper operation at least once a month by a *certificate of fitness* holder responsible for the supervision of the motor fuel-dispensing facility.

§2206-01 Design and Installation of Liquid Motor Fuel-Dispensing Systems at Motor Fuel-Dispensing Facilities

- (a) Scope. This section sets forth standards, requirements and procedures for the design, installation, and installation acceptance testing of the following devices, equipment and systems at *liquid motor fuel-dispensing facilities*:
 - (1) cathodic protection systems and coatings for underground storage tanks and piping; and
 - (2) *liquid motor fuel* dispensers and pumps.
- (b) General Provisions. Cathodic protection systems and motor fuel dispensers and pumps at *liquid motor fuel-dispensing facilities* shall be designed and installed in accordance with FC Chapter 22 and this section.

(c) Cathodic Protection Systems. Cathodic protection systems for underground storage tanks and piping for liquid motor fuel at liquid motor fuel-dispensing facilities shall be designed and installed in compliance with the following requirements:

(1) Steel storage tanks and piping systems shall be protected against exterior corrosion by either a sacrificial anode or an impressed current cathodic protection system designed in accordance with the applicable National Association of Corrosion Engineers (NACE) standard or other approved standard. Such system shall be designed to provide corrosion protection for not less than 30 years.

(2) Tanks protected by sacrificial anodes shall be electrically isolated from the piping system.

(3) Cathodic protection systems shall be designed by a trained person knowledgeable of the requirements of the United States Environmental Protection Agency for such systems. Such person shall first inspect the site and test the site for soil resistivity and the presence of stray currents. Such cathodic protection systems shall be installed under the personal supervision of such person.

(4) Cathodic protection systems shall be inspected and tested in the presence of a representative of the Department at the time of installation in compliance with the applicable National Association of Corrosion Engineers standard and the following procedures:

(A) All piping shall be subjected to a holiday test and tanks and associated piping shall be subjected to an electrical continuity test. Any holiday located during a spark test shall be repaired as per coating specifications before the tank or piping excavation is backfilled.

(B) Upon completion of the underground motor fuel storage tank installation, the following information and documentation shall be submitted to the Department:

(1) An "as-built" drawing showing number, size (weight) and location of all anodes and test stations.

(2) An affidavit in a form satisfactory to the Department, executed by the person who designed and supervised the installation of the cathodic protection system, setting forth the type of cathodic protection system installed, a description of the system and its location, the date of final inspection of the installed system, and such person's certification that the system has been installed and is functioning properly and that the system is designed to provide corrosion protection for at least 30 years.

- (d) Coatings. Coatings steel underground storage tanks and piping at motor fuel-dispensing facilities shall be designed and installed in compliance with the following requirements:
- (1) Types of coatings. Steel tanks shall be factory-coated with a dielectric material acceptable to the *Department*. The coating's coefficient of thermal expansion must be compatible with steel so that stresses due to temperature changes do not affect the soundness of the coating and the permanent bond which exists between the coating and the steel. The coating must be of sufficient density and strength so that it will not crack, wear, soften or disbond under normal service conditions. The coating must be stable under adverse underground electrolytic conditions and shall be chemically resistant to the products stored. The coating shall have been factory inspected for air pockets, cracks, blisters and electrically tested with a holiday detector at a minimum of 10,000 volts for coating defects such as pinholes.
 - (2) Site inspection. All coated tanks shall be inspected on site for coating defects prior to installation. An affidavit attesting to the integrity of the tank coating shall be submitted by a *certificate of license* holder upon the request of the *Department*.
- (e) Dispensers and Pumps. Upon completion of the installation of a motor fuel dispenser or motor fuel-dispensing pump, such dispenser and pump shall be tested for proper operation by a *certificate of license* holder. All readily accessible piping shall be inspected for any evidence of leaks. An affidavit executed by such installer attesting to compliance with this requirement shall be submitted to the Bulk Fuel Unit of the *Bureau of Fire Prevention*.

§ 2206-02 Leak Detection System Functionality Testing

- (a) Scope. This section sets forth standards, requirements and procedures for the periodic testing of underground *liquid motor fuel storage and dispensing systems* leak detection systems pursuant to FC2206.9.3.
- (b) General Provisions
- (1) Frequency. Pursuant to FC2206.9.3, a functionality test of the leak detection system shall be conducted, at the *owner's* risk, before a representative of the *Department* at least once every two (2) years.
 - (2) Supervision. The leak detection system functionality test shall be conducted by a holder of a *certificate of license* for *liquid motor fuel storage and dispensing systems*, or a person employed and supervised by such *certificate of license* holder. The individual conducting the test shall remain on the *premises* while

such test is being conducted and until the system has been returned to normal operation in accordance with R2206-02(c)(5). The *Department* may require individuals performing such leak detection test to be trained and/or certified by the manufacturer to conduct such test. Upon request, proof satisfactory to the *Department* shall be submitted attesting to the individual's training/certification for such leak detection system.

- (3) Scheduling. A leak detection system functionality test shall be scheduled with the Bulk Fuel Unit of the *Bureau of Fire Prevention*.
 - (4) Fire extinguishing system operational. No leak detection system functionality test shall be conducted if the *fire extinguishing system* required to protect the dispensers is out-of-service or not in good working order.
 - (5) Smoking and ignition sources. All sources of ignition in the test area shall be eliminated from the area in which a leak detection system functionality test is to be conducted. Signs reading "NO SMOKING - NO OPEN FLAMES" shall be conspicuously posted in such area.
 - (6) Testing area security. The areas surrounding the dispensers, tanks or other equipment or systems tested shall be cordoned off by portable barricades or signs, rope or tape to prevent unauthorized persons or *motor vehicles* from entering the area.
 - (7) Electrical equipment. All electrical equipment used for testing shall be of a type listed as intrinsically safe or suitable for use in hazardous locations. Interlocks shall be provided to ensure that grounding is made prior to electrical contact. Power to electrical equipment shall not be turned on until all electrical connections are made. Connection to power source shall be the final connection made.
- (c) Leak Detection System Testing Requirements. Functionality tests of leak detection systems shall be conducted in accordance with the manufacturer's instructions and the following standards and procedures:
- (1) Testing of probes. Except as provided in R2206-02(c)(2), leak detection probes shall be removed from their installed location, and manually tested by exposing such probes to *liquid motor fuel*. Probes capable of discriminating *liquid motor fuel* from water shall also be exposed to water. Leak detection probes which cannot be removed from their installed location may be tested by a method recommended by the manufacturer and acceptable to the *Department*.
 - (2) Testing of discharge line leak detectors. Discharge line leak detectors shall be tested by withdrawing *liquid motor fuel* from the impact valve port. *Liquid motor fuel* shall be withdrawn at a rate equal to the minimum rate that the line leak detector is required to activate.

- (3) Dispensing of fuel for testing purposes. The *liquid motor fuel* to be used for testing purposes shall be dispensed from the *liquid motor fuel* storage system into a metal *safety can* of a capacity not exceeding 2½ gallons. Except as provided in R2206-02(c)(2), such *liquid motor fuel* shall be withdrawn through the storage system dispenser. *Liquid motor fuel* withdrawn from the storage system shall be returned to the storage system through the fill connection.
- (4) Standard for successful test. A leak detection system test shall be deemed successful if:
- (A) each tank-interstitial leak detection probe in the system, when exposed to *liquid motor fuel* and, if designed for such purpose, water, causes the activation of the audible and visible alarm.
- (B) each pump sump leak detection probe in the system, when exposed to *liquid motor fuel* and, if designed for such purpose, water, causes:
- (1) the activation of the audible and visible alarm, and
- (2) the shutdown of the *liquid motor fuel* pump.
- (C) each dispenser pan leak detection probe in the system, when exposed to *liquid motor fuel* and, if designed for such purpose, water, causes:
- (1) the activation of the audible and visible alarm, and
- (2) the shutdown of the affected dispenser or *liquid motor fuel* pump.
- (D) each electronic line leak detector in the system, upon detection of *liquid motor fuel* leak, causes:
- (1) the activation of the audible and visible alarm, and
- (2) the shutdown of the *liquid motor fuel* pump or a significant restriction of *liquid motor fuel* flow.
- (E) each mechanical line leak detector in the system, upon detection of a *liquid motor fuel* leak, causes the shutdown of the *liquid motor fuel* pump or the stopping of *liquid motor fuel* flow at any rate exceeding three (3) gallons per hour.
- (5) Restoration of system. Upon successful completion of a leak detection system functionality test, *liquid motor fuel storage and dispensing system*, including the leak detection system, shall be returned to normal operation and checked to ensure that it is in good working order.

- (d) Portable Fire Extinguisher Requirements. A portable fire extinguisher having at least a 40-B:C rating shall be readily available for use.

§ 2208-01 Mobile Compressed Natural Gas Motor Fuel Systems

- (a) Scope. This section sets forth requirements for the design, installation, operation and maintenance of *mobile CNG motor fuel systems* and *mobile CNG cascades*.

- (b) Definitions. The following terms shall, for purposes of this section and as used elsewhere in the *rules*, have the meaning shown herein:

Mobile CNG motor fuel system. A *CNG motor fuel system* mounted on a vehicle chassis, intended to be driven to different sites for the purpose of dispensing *CNG* into portable *containers*, storage systems or *motor vehicle-mounted containers*.

Mobile CNG cascade. Multiple *CNG containers* connected together by rigid steel pipe or tubing, mounted on a trailer or *motor vehicle* chassis, and intended to be driven or towed to different sites for the purpose of dispensing *CNG* into portable or *motor vehicle-mounted containers*.

- (c) Mobile CNG Motor Fuel-Dispensing Systems. *Mobile CNG motor fuel systems* shall comply with the following requirements:

- (1) Design and installation requirements. The design and installation of mobile CNG motor fuel systems shall comply with the requirements of FC2208 and the following:

(A) Natural gas connections for the gas supply shall be designed and installed in compliance with the requirements of the natural gas utility and the Fuel Gas Code.

(B) Ventilation openings shall be approved by the Department.

(C) Labels reading “MANUAL CYLINDER SHUT OFF VALVE” in lettering a minimum of ½” high shall be placed on the appropriate access doors.

- (2) Fire safety precautions. The following fire safety precautions shall be observed at all times during operation of mobile *CNG motor fuel systems*:

(A) Mobile CNG motor fuel systems may only be operated outdoors.

- (B) The engine and ignition system of the *mobile CNG motor fuel system* and the *motor vehicle* into which CNG is being dispensed shall be off during dispensing operations.
 - (C) The wheels of such mobile systems shall be chocked during compressing and/or dispensing operations.
 - (D) *Motor vehicles* into which CNG is being dispensed shall be electrically grounded to the *mobile CNG motor fuel system*.
 - (E) A cellular telephone by which fires or other emergencies may be reported to the *Department* shall be provided to the *certificate of fitness* holder responsible for the operation of the *mobile CNG motor system*.
- (d) Mobile CNG Cascades. *Mobile CNG cascades* shall comply with the following requirements:
- (1) Design and installation requirements. The design and installation of *mobile CNG cascades* shall comply with the requirements of FC2208 and the following:

 - (A) A manual shut-off valve shall be provided. Such valve shall be accessible and shall be installed in a protected location to minimize damage from vibration and unsecured objects. Labels with a minimum of ½” letters indicating the location of the manual shut-off valve shall be affixed to the *mobile CNG cascade* at the valve or other conspicuous location.
 - (B) *CNG containers* and shut-off valves shall be color-coded as follows, and the pressure of each bank clearly indicated on the unit:

 - (1) High pressure – black
 - (2) Medium pressure – green
 - (3) Low pressure – orange
 - (C) Labels reading “COMPRESSED NATURAL GAS” in red lettering a minimum of six (6) inches high shall be placed on each side and the rear of the *mobile CNG cascade*.
 - (2) Fire safety precautions. The following fire safety precautions shall be observed at all times during operation of *mobile CNG cascades*:

 - (A) *Mobile CNG cascades* may only be operated outdoors.
 - (B) The wheels of such mobile cascade shall be chocked during operation.

(C) If attached to a *motor vehicle*, the engine and ignition system of the *motor vehicle* and the *motor vehicle* into which CNG is being dispensed shall be off during dispensing operations.

(D) When the *mobile CNG cascade* is used as a replacement for a dispenser, the cascade shall be located in an *approved* dispensing area and the *Department* shall be notified of the use of the cascade as a replacement and its location.

(e) Portable Fire Extinguisher Requirements. Each *mobile CNG motor fuel system* and each *mobile CNG cascade* shall be provided with a portable fire extinguisher having at least a 20-B:C rating.

§ 2208-02 Self-Service Compressed Natural Gas Motor Fuel-Dispensing Facilities

(a) Scope. This section sets forth requirements for the operation and maintenance of *self-service CNG motor fuel-dispensing facilities*.

(b) General Provisions

(1) Facility operation and maintenance. All *self-service CNG motor fuel-dispensing facilities* shall be operated and maintained in accordance with FC Chapter 22 and this section.

(c) Operational and Maintenance Requirements

(1) Movement of motor vehicles. The *facility* shall be operated so that movement of *motor vehicles* is orderly and consistent with the safe operation of the *facility*.

(2) Repairs. *Motor vehicles* shall not be repaired in dispensing areas.

(3) Control booth requirements

(A) Housekeeping. The control booth shall be kept clean and orderly. The glass panels of the control booth shall be kept clean and unobstructed at all times. Access to the controls in the booth shall be kept unobstructed by equipment, merchandise or litter.

(B) Operating manual. An operating manual consisting of a copy of this section, emergency procedures, and *facility* operating procedures shall be maintained in the control booth.

(C) Portable fire extinguisher requirements. In addition to the portable fire extinguishers required by FC2208.7.4.1 to be provided in dispensing

areas, two (2) portable fire extinguishers with at least a 40-B:C rating shall be provided within the control booth.

(4) Daily inspections. The *certified attendant* shall conduct an inspection of the *facility* on at least a daily basis, and document such inspection in the log book required by R2208-02(c)(5). The inspection shall verify that:

(A) The heat detectors are undamaged and unobstructed.

(B) Portable fire extinguishers have been serviced and have adequate pressure.

(C) The remote manual release (shutdown) is clear of obstructions.

(D) Audible and visible alarms are in good working order.

(E) Emergency procedures signage is posted, unobstructed and legible.

(F) Required lighting is in good working order.

(G) Any mirrors and/or *approved* closed-circuit television used to monitor dispensing operations are in good working order.

(H) The voice communications system is in good working order.

(5) Maintenance log book. A maintenance log shall be kept on the *premises* for inspection by any *Department* representative. Such log shall list all certified attendants and other persons on the *premises* who hold *certificates of fitness* with their numbers and expiration dates. Entries shall be made in such log book of the daily inspections required by this section, any maintenance or repair of any system, and any unusual occurrences.

(6) Fuel Dispensing. Persons dispensing *CNG* at a *self-service CNG motor fuel-dispensing facility* shall hold a valid driver's license or be at least 18 years of age. The *certified attendant* on other *facility* personnel may require any members of the public to produce evidence of same.

§ 2211-01 Repair Garages For Vehicles Fueled by Lighter-Than-Air Fuels

(a) Scope. This section sets forth standards, requirements and procedures for the issuance of *permits to repair garages* that repair and/or convert *CNG*, *LNG*, hydrogen and/or other vehicles fueled by lighter-than-air fuels.

(b) General Provisions. Pursuant to FC105.6, a permit must be obtained for the operation of any *repair garage*.

(c) Permit issuance. No original or renewal permit shall be issued to any repair garage that repairs and/or converts vehicles fueled by CNG, LNG, hydrogen or other lighter-than-air fuels, including facilities formerly permitted by the Department as a motor vehicle repair shop, unless such repair garage is in compliance with the requirements of FC2211.7, or documentation is submitted to the Department confirming that such repair garage was approved for the repair or conversion of such vehicles by the Department of Buildings pursuant to the 1968 Building Code.

STATEMENT OF BASIS AND PURPOSE FOR CHAPTER 22 (MOTOR FUEL-DISPENSING FACILITIES AND REPAIR GARAGES):

This Chapter consists of seven sections. Five are based on existing rules.

Section 2204-01 sets forth requirements for self-service motor fuel dispensing facilities. These requirements are found in existing rule 3 RCNY §21-19.

Section 2205-01 sets forth requirements for the maintenance of underground motor fuel storage tanks at motor fuel-dispensing facilities. These requirements are found in existing rule 3 RCNY §21-20.

Section 2206-01 sets forth requirements for the design and installation of motor fuel-dispensing facilities. These requirements are found in existing rule 3 RCNY §21-20.

Section 2206-02, a new rule, sets forth requirements for the leak detection system functionality test required by FC2206.9.3. Such test is designed to detect fuel escaping from underground motor fuel storage tanks and ancillary piping and equipment. The requirements and procedures set forth in the rule are substantively identical to existing Fire Department practice since the adoption of existing rule 3 RCNY §21-20 in 2000.

Section 2208-01 sets forth requirements for the design and operation of mobile CNG motor fuel systems. These requirements are found in existing rule 3 RCNY 23-01.

Section 2208-02 sets forth requirements for self-service CNG motor fuel dispensing facilities. These requirements are found in existing rule 3 RCNY §21-19.

Section 2211-01 is a new rule. It requires that repair garages that repair and/or convert CNG and other vehicles fueled by lighter-than-air fuels comply with the design and installation requirements of the Building Code. This rule makes such requirements applicable to any repair garage constructed pursuant to the 1968 Building Code or prior Building Code that had not been previously approved by the Department of Buildings for such use.

Section 18. Title 3 of the Rules of the City of New York is hereby amended by adding a new Chapter 23, to read as follows:

CHAPTER 23
HIGH-PILED COMBUSTIBLE STORAGE

§2301-2310 Reserved

Section 19. Title 3 of the Rules of the City of New York is hereby amended by adding a new Chapter 24, to read as follows:

CHAPTER 24
TENTS AND OTHER MEMBRANE STRUCTURES

§2401-2404 Reserved

Section 20. Title 3 of the Rules of the City of New York is hereby amended by adding a new Chapter 25, to read as follows:

CHAPTER 25
TIRE REBUILDING AND TIRE STORAGE

§2501-2509 Reserved

Section 21. Title 3 of the Rules of the City of New York is hereby amended by adding a new Chapter 28, to read as follows:

CHAPTER 28
AEROSOLS

§2801-2806 Reserved

Section 22. Title 3 of the Rules of the City of New York is hereby amended by adding a new Chapter 29, to read as follows:

CHAPTER 29
COMBUSTIBLE FIBERS

§2901-2906 Reserved

Section 23. Title 3 of the Rules of the City of New York is hereby amended by adding a new Chapter 30, to read as follows:

CHAPTER 30
COMPRESSED GASES

§3001-3003 Reserved
§3004-01 Carbon Dioxide
§3004-02 Anhydrous Ammonia
§3005-3008 Reserved

§ 3004-01 Carbon Dioxide

(a) Scope. This section sets forth standards, requirements and procedures for the storage, handling and use of carbon dioxide, in gaseous or liquid form.

(b) General Provisions

(1) Applicability. Carbon dioxide containers and systems shall be designed, installed, operated and maintained in compliance with the requirements of FC Chapter 30, this section, and as to matters not specifically set forth in the Fire Code or this section, Compressed Gas Association standards CGA G-6-1984 and G-6.1-1986. The provisions of this section shall not apply to the storage, handling and use of carbon dioxide in any refrigerating system, or to any portable carbon dioxide fire extinguisher or carbon dioxide fire extinguishing system, except as provided in R3004-01(d)(2).

(2) Periodic inspections

(A) Stationary containers and ancillary equipment shall be maintained in good working order, and visually inspected not less than once a month by the certificate of fitness holder.

(B) An inspection tag shall be affixed to every carbon dioxide container to document the following information:

(1) the date of the inspection;

(2) whether the system is in good working order; and

(3) the name and certificate number of the certificate of fitness holder that performed the inspection.

(c) Design and Installation Requirements

(1) Installation standard. Carbon dioxide systems shall be installed in accordance with the *Building Code* (including floor load limitation, wall piercing requirement or any other requirement affecting the integrity of a building member), *Mechanical Code* (including any ventilation requirements), Compressed Gas Association standards CGA G-6-1984 and G-6.1-1986, and the equipment manufacturer's design specifications and instructions.

(2) Overfill prevention. Automatic or *approved* manual means of preventing overfilling of the *container* shall be provided.

(3) Fill connections

(A) Separate fill connections. Each low pressure stationary *container* shall have its own fill connection and related piping.

(B) Location

(1) The fill connection shall be located so as not to impede *means of egress* or the operation of sidewalk cellar entrance doors, including during the delivery process.

(2) Fill connections shall be located outdoors, at least three (3) feet from the hinged side of any door.

(4) Piping systems

(A) Type of piping. Piping, hose, fittings and other equipment that comes in contact with carbon dioxide shall be metallic, certified by the manufacturer as suitable for carbon dioxide use and for the operating temperature and maximum operating pressure of the carbon dioxide system. For soda carbonation installations, the hose from the dispenser regulator to the dispenser may be nonmetallic, provided the operating pressure is less than 125 *psig*.

(B) Fill and vent line design temperatures. Fill and vent lines shall be hard piped and designed to withstand a temperature of minus 110°F.

(C) Type of valves, pressure regulators, and pressure relief valves. Valves, pressure regulators and pressure relief devices shall be suitable for carbon dioxide use and rated for the operating temperature and maximum operating pressure of the carbon dioxide system.

- (D) Piping pressure relief valves. Where liquid carbon dioxide can become trapped in the piping, pressure relief devices shall be provided. Pressure relief valves and vent lines from pressure relief valves shall not be provided with shut off valves or other obstructions which could render such valves inoperable. Pressure relief devices shall discharge in a manner designed to prevent harm to the public or delivery person.
- (E) Container pressure relief valves. Every *container* which contains more than 60 pounds of carbon dioxide shall have its *container* pressure relief valves discharge outdoors. Every pressure relief valve protecting piping shall discharge outdoors. The soda carbonation dispensing pressure regulator relief valve is not required to discharge outdoors.
- (F) Vent line pressure relief valves. Vent lines from pressure relief valves shall be of such a size, length and arrangement so as not to interfere with the proper operation of the valves. The size of the vents of pressure relief devices shall be equal or larger in size than the pressure relief device outlet size.
- (G) Soda carbonation regulators. For soda carbonation installations, the dispenser pressure regulator shall be designed to fail in the closed position.
- (H) Supports and protection. Piping shall be securely supported and braced, and installed with due allowance for thermal expansion and contraction. Expansion joints shall not be used. Piping shall be protected from physical damage.
- (I) Insulation. Insulation for carbon dioxide *containers* and ancillary equipment shall be of a noncombustible material.

(d) Operational Requirements

(1) Filling of containers

(A) Filling limits and restrictions

- (1) It shall be unlawful to fill high-pressure carbon dioxide *containers* from a *cargo tank*.
 - (2) Each low pressure carbon dioxide *container*, as defined in CGA Standard G-6.1-1986, shall not be filled to exceed 90 percent of its volumetric capacity at the *maximum allowable working pressure* of the *container*.
- (2) Supervision. The filling of a carbon dioxide *container* from any source shall be performed under the *personal supervision* of a *certificate of fitness* holder.

- (3) Installation acceptance testing. The piping system shall be pressure tested for leaks upon installation. The test is successful if there are no leaks when a test pressure of not less than 100 percent of the normal operating pressure is maintained for a period of time necessary to detect any leak, but in no case for less than one half hour.
- (4) Periodic testing and recordkeeping. The piping system shall be retested for leaks at least once every ten (10) years, or upon order of the *Department*. The piping system shall not be subjected to a pressure that exceeds its *maximum allowable working pressure*.
- (5) Cargo tank deliveries. Carbon dioxide containers shall be filled from *cargo tanks* in compliance with the following requirements:
 - (A) the *container* shall not be subjected to a pressure that exceeds its *maximum allowable working pressure*; and
 - (B) the piping system shall not be subjected to a pressure that exceeds its *maximum allowable working pressure*.
- (6) Notification of leaks. The *owner* or operator of any carbon dioxide system who becomes aware of any leak from the *container* or ancillary equipment, or other indication that the system is not in good working order, shall promptly notify the *certificate of fitness* holder. Such system shall be promptly restored to good working order.
- (7) Storage room signage required. Warning signs shall be conspicuously posted at all entrances to any room in which a carbon dioxide *container* is located stating, reading "WARNING: CARBON DIOXIDE STORAGE. CARE MUST BE TAKEN TO AVOID SUFFOCATION AND ASPHYXIATION."
- (8) Fill connection signage. Fill connections shall have a label affixed indicating the *maximum allowable working pressure* of the system.

§ 3004-02 Anhydrous Ammonia

- (a) Scope. This section sets forth the design, installation, operation and maintenance requirements for the storage, *handling* and use of anhydrous ammonia.
- (b) General Provisions. Anhydrous ammonia *containers* and systems shall be designed, installed, operated and maintained in compliance with the requirements of FC Chapter 30, this section, and as to matters not specifically set forth in the Fire Code or this section, Compressed Gas Association's Standard G-2 (8th edition). The provisions of this

section shall not apply to the storage, *handling* and use of anhydrous ammonia in any refrigerating system.

STATEMENT OF BASIS AND PURPOSE FOR CHAPTER 30 (COMPRESSED GASES):

The chapter consists of two sections. Both are based on existing rules.

Section 3004-01 sets forth the design, installation, operation and maintenance requirements for the storage, handling and use of carbon dioxide, in gaseous or liquid form. These requirements are found in existing rule 3 RCNY §23-11.

Section 3004-02 sets forth the design, installation, operation and maintenance requirements for the storage, handling and use of anhydrous ammonia. The current requirements for anhydrous ammonia are set forth in existing rules 3 RCNY §23-06, entitled “Storage and Use of Ammonia with Dissociating Equipment”, and 3 RCNY §23-07, entitled “Storage and Use of Anhydrous Ammonia for Duplicating Machines.” R3004-02 eliminates the existing requirements for these two applications and instead adopts by reference the Compressed Gas Association’s standard for the storage, handling and use of anhydrous ammonia.

Section 24. Title 3 of the Rules of the City of New York is hereby amended by adding a new Chapter 31, to read as follows:

CHAPTER 31
CORROSIVE MATERIALS

§3101-3105 Reserved

Section 25. Title 3 of the Rules of the City of New York is hereby amended by adding a new Chapter 32, to read as follows:

CHAPTER 32
CRYOGENIC FLUIDS

§3201-3206 Reserved

Section 26. Title 3 of the Rules of the City of New York is hereby amended by adding a new Chapter 35, to read as follows:

CHAPTER 35
FLAMMABLE GASES

<u>§3501-01</u>	<u>Acetylene</u>
<u>§3502-3506</u>	<u>Reserved</u>
<u>§3507-01</u>	<u>Compressed Natural Gas</u>
<u>§3508-01</u>	<u>Sanitary Landfill Methane Gas Recovery Facilities</u>

§ 3501-01 Acetylene

- (a) Scope. This section sets forth the prohibition against the manufacture and compressing of acetylene.
- (b) Prohibited Manufacture and Compressing. It shall be unlawful to manufacture and/or compress acetylene.

§ 3507-01 Compressed Natural Gas

- (a) Scope. This section sets forth standards, requirements and procedures applicable to the storage, *handling* and use of *CNG*. This section shall not apply to the following operations:
 - (1) the storage and use of *CNG* in a *non-production chemical laboratory*, the requirements for which are subject to the provisions of FC2706.
 - (2) the storage and filling of *containers* with *CNG* for use as a fuel in *motor vehicles* and other approved purposes, the requirements for which are subject to the provisions of FC2208.
 - (3) the storage and use of *CNG* in connection with special effects, the requirements for which are set forth in FC3309 and the rules.
 - (4) the transportation of *CNG*, the requirements for which are set forth in FC2707.
- (b) General Provisions
 - (1) General *CNG* requirements. The provisions of this section shall be applicable to all *CNG* materials, operations and/or *facilities* as follows:
 - (A) All *CNG* storage, *handling* and use governed by this section shall comply with the *design and installation document, permit, supervision, and general storage, handling and use requirements* set forth in R3507-01(c), (d), (e) and (f).

- (B) Outdoor and indoor CNG storage shall be in facilities that comply with the requirements for such facilities set forth in R3507-01(g) and (h).
 - (C) Stationary CNG installations shall comply with the requirements for such installations set forth in R3507-01(i).
 - (D) CNG storage, handling and use for the special applications set forth in R3507-01(j) (on construction sites, for emergency indoor repairs, for manhole operations, on motor vehicles, for mobile cooking uses, in commercial establishments, on moored vessels, torches used in the manufacture of jewelry, and use of CNG for emergency oil burner ignition) shall additionally comply with the applicable requirements of R3507-01(j).
- (2) Special CNG authorizations. This section authorizes the following storage, handling and/or use of CNG that is prohibited by FC3507.3 except as authorized by the Commissioner:
- (A) storage, handling and use of CNG below grade for emergency indoor repairs, as set forth in R3507-01(j);
 - (B) storage, handling and use in, and bringing or allowing into, residential occupancies or on lots containing a building used for a residential occupancy, of CNG containers with a capacity greater than 8.7 SCF, as set forth in R3507-01(j);
 - (C) storage, handling and use in, and bringing or allowing into, any non-residential building, of CNG containers with a capacity greater than 8.7 SCF, as set forth in R3507-01(h) and (j);
 - (D) handling and use on the roof of any building of CNG containers with a capacity greater than 8.7 SCF, as set forth in R3507-01(j);
 - (E) storage, handling or use of CNG for stationary CNG installations in any area where access to piped natural gas from a public utility is available, as set forth in R3507-01(j);
 - (F) storage, handling and use of CNG for space heating or water heating, as set forth in R3507-01(j); and
 - (G) use of nonmetallic pipe, tubing and components for devices, equipment and systems utilizing CNG, as set forth in R3507-01(j).

(c) Design and Installation Documents

- (1) When required. All CNG indoor and outdoor storage facilities shall be in facilities approved by the Department. All CNG storage, handling and use for stationary CNG installations shall be for installations approved by the Department. Design and installation documents for such storage facilities and stationary installations shall be submitted to the Department for review and Department approval obtained prior to any CNG storage or use.
- (2) Applications. Applications for design and installation document approval shall be made by or on behalf of the person who will be storing, handling or using the CNG, and submitted to the Bureau of Fire Prevention at Fire Department Headquarters prior to any CNG storage, handling or use. Applications for CNG installations other than on construction sites shall include a copy of the altered building application or other documentation filed with and approved by the Department of Buildings or other agency having jurisdiction over the installation.
- (3) Upon completion of any stationary CNG installation, an affidavit executed by the installer or plumber responsible for the installation certifying that the installation conforms to the requirements of this section and FC Chapter 35 shall be submitted to the Bureau of Fire Prevention at Fire Department Headquarters.

(d) Permits

- (1) When required. A CNG permit shall be obtained from the Department for the storage, handling or use of CNG as set forth in FC105.6.
- (2) Applications. Applications for issuance of a CNG permit shall be made by or on behalf of the person who will be storing, handling or using the CNG, except as otherwise provided in R3507-01(d)(3). Applications shall be submitted to the Bureau of Fire Prevention at Fire Department Headquarters prior to any CNG storage, handling or use.
- (3) Availability of piped natural gas. A CNG permit will not be issued by the Department for a stationary CNG installation located in an area where access to piped natural gas from a public utility is available. Any CNG storage and use pursuant to a permit issued on or after July 1, 2003 for a stationary CNG installation located in an area where access to piped natural gas from a public utility is not available shall be discontinued and all CNG containers removed from the premises within five (5) years of the date such access becomes available, and no such permit shall be renewed beyond such five-year period.

(e) Supervision

- (1) The storage, handling and use of CNG shall be supervised as set forth in FC3501.4.2 and this section.

(2) The connecting and disconnecting CNG containers with a capacity greater than 8.7 SCF shall be performed by a person holding a certificate of fitness. When such connecting and disconnecting is performed by a CNG supplier or distributor, a card or tag shall be conspicuously posted at the premises identifying the name and address of the supplier or distributor, the name of the certificate of fitness holder, and the number and expiration date of the certificate of fitness.

(f) General Storage, Handling and Use Requirements

(1) All devices, equipment and systems used for the storage or use of CNG shall be approved or listed by a nationally recognized testing laboratory.

(2) All devices, equipment and systems used for the storage or use of CNG shall be maintained and operated in accordance with the manufacturer's specifications.

(3) Only metallic pipe, tubing and components shall be used for CNG installations, appliances and equipment, except as provided in R3507-01(j)(2)(E), (j)(3)(B), (j)(4)(D), (j)(7)(D), (j)(9)(H) and (j)(10)(C). Where use of nonmetallic hose is allowed by this section, such hose shall be protected from twisting, abrasion and damage by proper installation and maintenance. Hoses showing any kind of defects, including burns or signs of wear, shall be rendered unsuitable for service and shall be replaced.

(4) Flexible metallic or nonmetallic hose shall be either:

(A) stamped by the manufacturer with the maximum allowable working pressure of 350 psig; or

(B) certified by the manufacturer as suitable for a working pressure of 350 psig.

(5) CNG containers shall be stored in an upright position and secured to prevent movement.

(6) CNG containers shall not be stored on shelves.

(7) All connection and disconnection of CNG containers for use shall be performed outdoors, except as otherwise authorized by this section. Where CNG use is allowed indoors, all connection and disconnection of CNG containers shall be performed in a well-ventilated area.

(8) CNG containers connected for use shall be adequately supported and braced.

(9) CNG containers connected for use shall be placed on a firm and noncombustible foundation.

- (10) CNG devices, equipment and systems shall be maintained at all times in a gas-tight condition. Any appliance, equipment or component which is not in a gas-tight condition shall be removed from use and promptly repaired or lawfully disposed of.
- (11) Each time a connection is made to a CNG container, or a leak is suspected, the connection shall be tested by the application of a soap solution or its equivalent to joints, valves and fittings. Open flames shall not be used to test connections for leaks.
- (12) CNG containers shall be protected at all times from the effects of weather and physical damage.
- (13) CNG shall be stored and used only if all safety devices on the equipment and systems are in good working order. Such devices shall not be disconnected or defeated. Any appliance or equipment with a safety device that is not in good working order shall be removed from use and promptly repaired, or lawfully disposed of.
- (14) Any empty CNG container that at any time previously has been filled with CNG shall be treated as though it contains CNG, and shall be stored and used in the same manner as a full CNG container, including storage in a storage facility in accordance with this section. Damaged or otherwise unusable CNG containers shall be promptly removed from the premises and lawfully disposed of.
- (15) Warning signs complying with the OSHA requirements, as set forth in Section 1910.145(D) of Part 1910 of Title 29 of the Code of Federal Regulations, shall be conspicuously posted at each CNG installation, storage location or use site. Such signs shall be at least ten (10) inches by fourteen (14) inches in size and shall bear the wording "DANGER - FLAMMABLE GAS - KEEP FIRE OR FLAME AWAY - NO SMOKING" in lettering at least two (2) inches high. The word "Danger" shall be in white on a red oval bordered in white which shall be on a black background at the upper part of the sign. The other required wording shall be in black on a white background in the lower part of the sign.
- (16) A CNG container shall not be moved unless the container's valves are closed, except when the container is mounted on a motor vehicle for use as a fuel for motive power.
- (17) CNG containers shall not be rolled or dragged on their side or rims. CNG containers shall only be moved by lifting and lowering, by hand or with equipment designed for such purposes.
- (18) CNG containers shall not be dropped or thrown from any height.

(g) Outdoor Storage Facilities

- (1) Except as otherwise provided in this section, all CNG containers shall be stored outdoors in a facility that conforms to the requirements of this section. In addition to complying with the requirements of FC 2703.12 and 3504.2, Table 3504.2.1, all outdoor CNG container storage facilities shall be:
- (A) not more than 54 square feet in area;
 - (B) protected from vehicle impact;
 - (C) protected from theft, tampering or unauthorized use by a metal open fence enclosure at least six (6) feet in height, and secured by a locked gate opening outward or a lockable ventilated metal locker of a type acceptable to the Department. Such fence enclosure or locker shall be mounted on and secured to a substantial concrete pad at grade level, which pad shall be constructed to prevent accumulation of rain and snow;
 - (D) located in a well ventilated area;
 - (E) directly accessible from the street. CNG containers being delivered to or taken from an outdoor storage location shall not be brought into or through any building or other structure; and
 - (F) provided with a portable fire extinguisher with at least a 10-B:C rating. Such portable fire extinguisher shall be located in a protective enclosure and affixed to the outside of the storage facility or placed at another readily accessible location not more than 30 feet from the facility.
- (2) No more than 2,500 SCF of CNG shall be stored in a pre-existing outdoor CNG storage facility unless such facility complies with the current Fire Code and rule requirements.
- (3) No outdoor CNG storage facility shall be located on a lot containing any building used for residential purposes.
- (4) No outdoor CNG storage facility shall be located within:
- (A) ten (10) feet of the nearest lot line, sidewalk or building on an adjoining lot, except as follows:
 - (1) no outdoor CNG storage facility shall be located within 50 feet from any building occupied as a multiple dwelling; and
 - (2) no outdoor CNG storage facility shall be located within 100 feet of the lot line of any property occupied for educational, health care or religious purposes;

- (B) ten (10) feet of any authorized parking for *motor vehicles*;
- (C) ten (10) feet of any combustible material;
- (D) 15 feet of any vent or fill line of any *flammable liquid or combustible liquid* storage tank; and
- (E) 20 feet of any aboveground *flammable liquid or combustible liquid* storage tank.

(h) Indoor CNG Storage

- (1) Except as provided in R3507-01(j), indoor storage of any *CNG container* with a capacity greater than 8.7 *SCF* of gas is prohibited in any residential occupancy and in any building where an outdoor storage location for such *CNG container* is available.
- (2) All indoor storage of *CNG containers* authorized by this section shall be stored in a separate room that conforms to the requirements of this section. Any such room shall be:
 - (A) constructed in compliance with the *Construction Codes*, including the *Building Code*;
 - (B) constructed of walls, floors and ceilings having at least a two (2) hour fire resistance rating;
 - (C) constructed with an access door that opens directly to the outdoors;
 - (D) used for no other purpose; and
 - (E) provided with a portable fire extinguisher with at least a 10-B:C rating. Such portable fire extinguisher shall be affixed to the outside of the storage room or placed at another readily accessible location not more than 30 feet from the room entrance.
- (3) No such room shall:
 - (A) be located at the property line adjoining a multiple dwelling, building occupied for educational, health care or religious purposes, place of public assembly, or other place of public gathering; and
 - (B) have ventilation openings located within five (5) feet of any building opening, including any doors, openable windows and intake and exhaust vents.

- (4) All delivery and pick-up of containers to or from an indoor CNG storage facility shall be through the outdoors access door only, not through the building.
- (i) Stationary CNG Installations. In addition to complying with the requirements of FC 2703.12 and 3504.2, and FC Table 3504.2.1, stationary CNG installations shall comply with the following requirements:
- (1) All CNG containers connected for use in a stationary installation shall be stored outdoors.
- (2) A single, accessible, outdoor, safely-located, and conspicuously-marked shutoff valve shall be provided wherever CNG piping enters a building or structure.
- (3) A single, accessible, safely-located and conspicuously-marked shutoff valve shall be provided for each appliance connected to a CNG container.
- (4) All new and repaired CNG piping shall be tested at one and one half (1½) times normal working pressure but not less than three (3) pound per square inch gauge, using air or inert gas. There shall be no drop in the shut-in pressure for a period of 30 minutes.
- (5) When CNG is piped indoors, a sign at least ten (10) inches high and fourteen (14) inches wide shall be conspicuously posted at the entrance to the building and shall bear the wording "Danger-Piped Compressed Natural Gas."
- (6) Metal pipe straps and hangers shall be suitable for the size of pipe and of such strength and quality that the piping cannot be accidentally dislodged. Spacing of hangers shall not exceed six (6) feet for one-half (½) inch pipe, eight (8) feet for three quarter (¾) and one (1) inch pipe, and ten (10) feet for one and one quarter (1¼) inch or larger pipe.
- (7) No CNG container connected for use shall be located within:
- (A) 50 feet from any building occupied as a multiple dwelling;
- (B) 100 feet of the lot line of any property occupied for educational, health care or religious purposes;
- (C) ten (10) feet of any combustible material; and
- (D) 20 feet of any aboveground flammable liquid or combustible liquid storage tank.
- (8) A portable fire extinguisher with at least a 10-B:C rating shall be provided whenever CNG is connected for use. The maximum travel distance to the portable fire extinguisher shall be 30 feet from the work location.

(j) Special Storage and Use Requirements

(1) All storage or use of CNG for the applications set forth in R3507-01(j) shall be in compliance with the respective requirements of R3507-01(j), in addition to the requirements set forth in R3507-01(c), (d), (e), (f) and (i).

(2) Construction sites

(A) A site-specific permit shall be obtained for CNG storage, handling and use on a construction site, except that a citywide CNG permit may be obtained for tar kettle, asphalt melter and torch operations where no reserve storage is needed and CNG containers are removed from the site at the end of each workday, and the construction work requiring CNG use is to be completed within 30 days of commencement.

(B) Except as provided in R3507-01(j)(2)(D), all CNG for use on construction sites shall be stored in outdoor storage facilities that comply with the requirements of R3507-01(g)(1)(B), (g)(1)(C) and (g)(1)(D). No construction site storage facility shall:

(1) have a capacity exceeding 21,250 SCF of CNG in any single facility or a total capacity at any construction site of 42,500 SCF of CNG;

(2) be within 50 feet of any CNG or other flammable gas storage facility;

(3) be within 25 feet of the building under construction;

(4) be within 50 feet of any aboveground flammable liquid or combustible liquid storage tank;

(5) be within 50 feet of any combustible material;

(6) be within 50 feet of any building occupied as a multiple dwelling;

(7) be within 100 feet of any subway entrance, exit, vent or other opening; and

(8) be within 100 feet of the lot line of any property occupied for educational, health care or religious purposes, place of public assembly, or other place of public gathering.

(C) Each construction site storage facility shall be provided with a portable fire extinguisher with at least a 40-B:C rating. Such portable fire extinguisher

shall be kept outside of the storage facility or placed at another readily accessible location not more than 30 feet from the facility.

(D) CNG containers may be stored inside an unoccupied building under construction where no allowable outdoor location is available, provided that such containers are stored on the ground floor at a location acceptable to the Department that is as far as possible but in no event less than ten (10) feet from any flue, stairwell, or elevator shaft, and the amount of CNG so stored is acceptable to the Department but in no event exceeds a total of 10,625 SCF of CNG. CNG containers may be stored at one additional location on the ground floor of the same building if a minimum separation distance of 70 feet between storage locations can be provided and maintained. The amount of CNG stored at such additional location shall not exceed 10,625 SCF of CNG.

(E) Pursuant to FC3507.3(14) and R3507-01(b)(2)(G), nonmetallic hose may be used at a construction site where:

(1) The construction activity does not allow use of stationary CNG devices, equipment or systems, necessitating a flexible connection between such device, equipment or system and the CNG container;

(2) The length of the hose does not exceed 30 feet;

(3) The hose is fabricated of materials that are designed for use with CNG; and

(4) The hose is color-coded red.

(F) Tar kettle and torch operations

(1) The use of CNG-fueled tar kettles shall be under the personal supervision of a certificate of fitness holder.

(2) All torch operations shall be performed by a certificate of fitness holder.

(3) It shall be unlawful for any person to operate, maintain or use a kindled tar kettle or torch in or on the roof of any building, except that torches may be used for emergency indoor repairs in accordance with R3507-01(j)(3), and may be used on the roof of any building having a roof of noncombustible construction.

(4) Fire guards shall be on continuous duty during all torch operations on the roof of a building. There shall be one fire guard on the roof for each torch operator, and there shall be at least one fire guard on

the floor or level below the torch operation. Such *fire guards* shall not be assigned any duties other than to remain alert and guard against *fire*, and shall be alert to sparks, the transmission of heat, and the potential ignition of combustible material. Such *fire guards* shall be responsible for ensuring that fire extinguishing equipment is readily accessible from the time torch operations are commenced until an hour after such operations are completed.

(5) A fire guard shall inspect all areas exposed to the effects of torch operations after the completion of torch operations for the purpose of detecting *fires*. The first inspection shall be conducted one-half hour after completion of torch operations; the second inspection one hour after completion of torch operations. The *fire guard* shall prepare and sign an inspection report confirming the safe condition of the *premises*. Such report shall be submitted to and retained by the person in charge of the torch operations.

(6) A portable fire extinguisher with at least a 2-A:20-B:C rating shall be provided for each torch operation.

(7) All movement of *CNG containers* within a building shall be performed in the following manner:

(a) *CNG containers* at all times shall be moved under the *personal supervision* of a *certificate of fitness* holder. At no time shall the *containers* be left unattended.

(b) *CNG containers* shall be moved to another floor of the building only by freight elevator, construction elevator, or passenger elevator when approved, and such elevator shall be occupied only by those persons engaged in moving the *containers*. *CNG containers* may be moved in building stairwells if such stairwells are unoccupied.

(G) Asphalt melters

(1) *CNG-fueled asphalt melters* shall be stored, *handled*, used and maintained in the same manner as *LPG-fueled tar kettles*, including the provisions of FC303 and R3507-01(j)(2)(F).

(H) Curing and drying applications

(1) The use of *CNG* for curing concrete, drying plaster and similar applications shall be prohibited in any occupied building, any location within 50 feet of an occupied building, and any location within 100 feet of the lot line of any property occupied for

educational, health care or religious purposes, a place of public assembly, or other place of public gathering.

(2) The use of CNG for curing concrete, drying plaster and similar applications shall be under the personal supervision of a certificate of fitness holder. The certificate of fitness holder shall inspect the area where CNG containers and heaters are in use on not less than an hourly basis. The results of each inspection shall be recorded in a log book which shall be maintained on the premises and made available for inspection by any Department representative.

(3) Heaters used for curing concrete, drying plaster and similar applications shall be placed at least six (6) feet from any CNG container or combustible material, and ten (10) feet from any tarpaulin cover. Such heaters shall only be used in a well-ventilated area and shall not be placed on unprotected wood flooring.

(4) Pursuant to FC3507.3(14) and R3507-01(b)(2)(G), nonmetallic hose may be used at a construction site where flexibility is required for such operation, provided that:

(a) The length of the hose is as short as practicable, but in no circumstance exceeds 30 feet;

(b) The hose is fabricated of materials that are designed for use with CNG; and

(c) The hose is color-coded red.

(5) The total capacity of CNG containers shall not exceed 2,500 SCF when used in manifold to serve a heater.

(6) CNG/heater assemblies shall be provided with a portable fire extinguisher with at least a 20-B:C rating located not more than 30 feet away. A travel distance of up to 50 feet is allowed if a portable fire extinguisher with at least a 40-B:C rating is provided.

(3) Emergency indoor repairs

(A) Pursuant to FC3507.3(6) and (7) and R3507-01(b)(2)(B) and (C), CNG equipment and containers may be used indoors, except in an occupied place of public assembly, for the purpose of performing emergency repairs. Such CNG use shall be subject to the following requirements:

(1) CNG use at the work site shall be limited to two (2) CNG containers, each with a capacity not greater than 170 SCF of gas;

(2) CNG containers with a capacity greater than 8.7 SCF shall not be left unattended;

(3) All CNG use shall be under the personal supervision of a certificate of fitness holder; and

(4) All CNG containers shall be removed from inside the building at the end of the work day.

(B) Pursuant to FC3507.3(14) and R3507-01(b)(2)(G), flexible nonmetallic hose may be used for emergency indoor repairs where the nature of the repair work requires a flexible connection between the device, equipment or system and the CNG container, provided that:

(1) The length of the hose does not exceed six (6) feet;

(2) The hose is fabricated of materials that are designed for use with CNG; and

(3) The hose is color-coded red.

(C) Pursuant to FC3507.3(3) and R3507-01(b)(2)(A), a single CNG container with a capacity not greater than 8.7 SCF may be used below grade for emergency indoor repairs provided the container is not left unattended.

(4) Manhole operations

(A) CNG containers and heaters shall not be brought into manholes or located within six (6) feet of manhole openings. CNG torches may be operated in manholes provided such operation is in compliance with OSHA requirements.

(B) CNG storage, handling and use at each manhole work site shall be limited to two (2) CNG containers, each with a capacity not greater than 285 SCF. Such CNG containers shall be removed from the work site at the end of each work day unless they are stored in a tool cart that:

(1) is constructed of steel;

(2) has a door at least one quarter inch thick that is locked at all times;

(3) has not less than 100 square inches of fixed ventilation at the top with a suitable screen as a flash arrestor;

- (4) has six-inch placards bearing United States Department of Transportation designation "1971" permanently affixed to two opposite exterior sides of the tool cart;
 - (5) has "No Smoking" signs permanently affixed to the tool cart in a conspicuous location;
 - (6) has the CNG containers positioned within the cart such that container shut-off valves are unobstructed and readily accessible; and
 - (7) is situated outdoors and is not located within the distances set forth in R3507-01(g)(4), except that R3507-01(g)(4)(B) and (g)(4)(C) shall not apply.
- (C) All CNG use shall be under the personal supervision of a certificate of fitness holder.
- (D) Pursuant to FC3507.3(14) and R3507-01(b)(2)(G), nonmetallic hose may be used for manhole operations where the task does not allow use of a stationary CNG appliance, necessitating a flexible connection between the appliance and the CNG container, provided that:
- (1) The length of the hose does not exceed 30 feet;
 - (2) The hose is fabricated of materials that are designed for use with CNG; and
 - (3) The hose is color-coded red.
- (5) Motor vehicles equipped with CNG containers
- (A) Motor vehicles equipped with CNG containers for use on the motor vehicle shall not be left unattended on any street, highway, avenue or alley; in any congested area; within 50 feet of the property line of any multiple dwelling, building occupied for educational, health care or religious purposes, place of public assembly, or any other place of public gathering; or within 50 feet of any subway entrance, exit, vent or other opening.
 - (B) CNG storage and use on any vehicle for the purpose of marking traffic lanes shall be limited to a total capacity not exceeding 3,400 SCF.
 - (C) CNG containers in motor vehicles (other than for use as a motor fuel) shall be installed in compliance with the requirements of NFPA 58 applicable to such installations. The references to LPG in NFPA 58 shall be deemed to refer to CNG.

- (D) Forklifts, tractors and similar *powered industrial trucks* equipped with *CNG containers* shall comply with the following requirements:
- (1) *CNG* storage and use on such vehicles and devices shall be limited to one (1) *container* with a capacity not greater than 340 *SCF*.
 - (2) All such *powered industrial trucks* shall be stored and used in locations with adequate ventilation.
 - (3) Such *powered industrial trucks* shall be parked, and the *CNG containers* connected or disconnected, a safe distance, not less than 25 away, from open flames or other heat or ignition sources, open pits, underground entrances, elevator shafts, or other hazardous conditions.
 - (4) Every *powered industrial truck* shall be provided with a portable fire extinguisher with at least a 2-B:C rating.
- (6) Mobile cooking uses. Mobile food units, as that term is defined in the New York City Health Code, 24 RCNY §89.01(c) (including but not limited to *motor vehicles*, pushcarts and stands), that are equipped with *CNG containers* for cooking purposes shall comply with the following requirements:
- (A) *CNG* storage and use shall be limited to two (2) *CNG containers* on all types of mobile food units. *CNG containers* on mobile food units that are not *motor vehicles* shall have a *container* capacity of not more than 170 *SCF*.
 - (B) No *flammable liquid* or *combustible liquid* shall be used for cooking or any other purpose on any mobile food unit.
 - (C) *CNG containers* in mobile food units that are *motor vehicles* (other than for use as a motor fuel) shall be installed in compliance with the requirements of NFPA 58 applicable to such installations. The references to *LPG* in NFPA 58 shall be deemed to refer to *CNG*.
 - (D) No mobile food unit shall store or use *CNG* for cooking or any other purpose within:
 - (1) two (2) feet of any combustible material;
 - (2) two (2) feet of any building, except that no mobile food unit shall store or use *CNG* for cooking or any other purpose within:

- (a) five (5) feet of any below-grade building opening, including any door, openable window or intake or exhaust vent;
 - (b) ten (10) feet of any building of wood frame construction;
 - (c) 20 feet of any building entrance; or
 - (d) ten (10) feet of any building occupied as a multiple dwelling, or any building occupied for educational, health care or religious purposes, a place of public assembly, or other place of public gathering;
- (3) five (5) feet of any flammable gas storage, including another mobile food unit equipped with CNG containers;
- (4) five (5) feet of any subway vent or other opening, except a subway entrance or exit;
- (5) ten (10) feet of any subway entrance or exit; and
- (6) ten (10) feet of any vent or fill line of any flammable liquid storage tank.
- (E) All mobile food units that are motor vehicles shall also comply with the restrictions applicable to vehicles equipped with CNG containers set forth in R3507-01(j)(5)(A).
- (F) CNG container valves shall be closed when the mobile food unit or its cooking equipment is not in use.
- (G) Each mobile food unit that is a motor vehicle shall be provided with a portable fire extinguisher with at least a 20-B:C rating. Each mobile food unit that is not a motor vehicle shall be provided with a portable fire extinguisher with at least a 2-B:C rating, which shall be mounted on the mobile food unit away from the heat source.
- (7) Commercial establishments. Commercial establishments that store and use CNG containers for oil burner ignition and/or cooking shall comply with the following requirements:
 - (A) CNG storage, handling and use shall be limited to CNG containers with a capacity not greater than 8.7 SCF of gas, unless the container is connected for use in a stationary installation.
 - (B) All CNG appliances and equipment shall be installed by a plumber.

- (C) Rigid piping shall be used for all connections between CNG devices, equipment and systems and CNG containers.
- (D) Flexible metallic hoses and/or tubing may be used where flexibility is required for commercial oil burner ignition or cooking operations, provided that the hose or tubing is designed for use with CNG, and the length of the hose or tubing does not exceed six (6) feet.
- (E) CNG storage and use for the purposes authorized by R3507-01(j)(7) is subject to the prohibition set forth in FC3507.3(11).
- (8) Moored vessels. Residentially occupied vessels moored in marinas that store and use CNG for space heating and cooking purposes shall comply with the following requirements:

 - (A) CNG storage and use shall be limited to a total capacity not exceeding 1,700 SCF.
 - (B) All CNG devices, equipment and systems used on such a vessel shall serve only that vessel and no others.
 - (C) All CNG devices, equipment and systems shall be installed either by the vessel manufacturer or by a plumber.
- (9) Torches used in the manufacture of jewelry. CNG may be stored and used for torches used in the manufacture of jewelry only in areas where access to piped natural gas from a public utility is not available, and where the manufacturing activity is a lawful use of the premises, as set forth on the Certificate of Occupancy for the premises or otherwise determined by the Department of Buildings. CNG storage and use for such torch operations shall comply with the following requirements:

 - (A) CNG storage and use shall be limited to a total capacity not exceeding 381 SCF of gas. The Department will not permit CNG storage or use in any one fire area in excess of this maximum capacity, irrespective of the number of manufacturing enterprises separately engaged in such torch operations within that one fire area.
 - (B) Storage and use of oxygen containers in connection with such torch operations shall be limited to a total capacity not exceeding 279 SCF. The Department will not permit oxygen storage or use in any one fire area in excess of this maximum capacity, irrespective of the number of manufacturing enterprises separately engaged in such torch operations within that one fire area.

- (C) All CNG storage and use for torch operations shall be under the *personal supervision of a certificate of fitness holder*.
- (D) All torches using CNG shall be *listed and labeled* by a nationally recognized testing laboratory.
- (E) All torch operations shall be performed at a work station with a surface made of, or covered with, a noncombustible material. Each CNG container connected for use shall be secured in an upright position, away from any heat source. The work station area shall be adequately ventilated.
- (F) CNG or oxygen containers shall not be manifolded.
- (G) Where fixed piping is used to pipe CNG or oxygen to the work station, such piping shall be made of either copper or steel, and shall be installed and tested in accordance with the provisions of R3507-01(i)(4) and (i)(6). Piping previously installed in the building for *natural gas* use shall not be used for CNG or oxygen for such torch operations. A *plumber* shall certify that the installation is in accordance with the requirements of this section.
- (H) Pursuant to FC3507.3(14) and R3507-01(b)(2)(G), nonmetallic hose may be used for such torch operations where the task does not allow use of stationary CNG devices or equipment, necessitating a flexible connection between the device or equipment and the CNG container, provided that:
 - (1) The length of the hose does not exceed six (6) feet;
 - (2) The hose is fabricated of materials that are designed for use with CNG, if for CNG connections, and of materials that are designed for use with oxygen, if for oxygen connections; and
 - (3) The hose is color-coded red, if for CNG connections, and color-coded green, if for oxygen connections.
- (I) Hoses that are worn or damaged, including those with burn marks, shall be replaced.
- (J) Each person shall operate only one torch at a time and such torch shall not be left unattended while ignited.
- (K) Container valves shall be closed when torches are not in use.
- (L) CNG and oxygen containers not connected for use shall be stored in a designated storage area used only for that purpose. Such storage area shall

be well-ventilated, away from heat sources, and at least three (3) feet from any combustible material. CNG and oxygen containers shall be stored separately, either at a distance of not less than 20 feet, or separated by a one-half (½) hour fire-rated wall not less than five (5) feet high.

(M) Smoking shall be prohibited on the premises and “No Smoking” signs shall be permanently affixed in conspicuous locations throughout the premises.

(N) A portable fire extinguisher with at least a 2-A:20-B:C rating shall be provided for every 2,500 square feet of area.

(10) Use of CNG for emergency oil burner ignition. Pursuant to FC3507.3(3), (6), (7) and (11), and R3507-01(b)(2)(A), (b)(2)(B), (b)(2)(C) and (b)(2)(E), CNG may be used for mobile emergency heating trailers for a period not to exceed 90 days, or when piped natural gas service is temporarily interrupted, provided that:

(A) CNG storage and use shall be limited to one (1) container with a capacity not exceeding 170 SCF.

(B) All CNG piping, tubing and hoses shall be installed by a plumber.

(C) Pursuant to FC3507.3(14) and R3507-01(b)(2)(G), nonmetallic hose may be used where the task does not allow use of a stationary CNG devices or equipment, necessitating a flexible connection between the device or equipment and the CNG container, provided that:

(1) The length of the hose does not exceed six (6) feet;

(2) The hose is fabricated of materials that are designed for use with CNG; and

(3) The hose is color-coded red.

§ 3508-01 Sanitary Landfill Methane Gas Recovery Facilities

(a) Scope. This section sets forth standards, requirements and procedures for the design, installation, operation and maintenance of methane recovery facilities that recover methane gas from sanitary landfills, process such gas to remove impurities, and/or compress, flare and odorize such gas.

(b) General Provisions

(1) Applicable provisions of law. Pursuant to FC3508.1, methane gas recovery facilities at sanitary landfills must be designed, installed, operated and maintained

in compliance with the requirements of the Fire Code, this section, the Construction Codes and the Electrical Code.

- (2) Design and installation documents. Design and installation documents for the facility, detailing the methane recovery process and fire protection systems, including a process flow diagram showing all vessels and instrumentation, shall be filed with the Department of Buildings and the Bureau of Fire Prevention, together with supporting information and documentation.
- (3) Supervision. The facility shall be under the continuous personal supervision (on a 24 hour, seven-day-a-week basis), by at least one (1) person holding a certificate of fitness for supervision of sanitary landfill methane recovery facilities, which qualifies the holder to perform or supervise gas compressing, fire alarm maintenance, and operation of a refrigerating system, at a sanitary landfill methane recovery facility.

(c) Design and Installation Requirements

- (1) Pressure Vessels. Pressure vessels shall be designed to comply with the ASME Boiler and Pressure Vessel Code. Manufacturer ASME data sheets for pressure vessels shall be maintained on the premises and made available for inspection by any Department representative.
- (2) Electrical equipment. Electrical equipment shall comply with the following requirements:
 - (A) Electrical equipment within 25 feet of any process equipment shall be explosion-proof, including the control center, electric service, overhead lights, air handling equipment, and the odorant room, if located within such area.
 - (B) Electrical instrumentation shall be designed to provide for fail-safe operation.
- (3) Piping systems. Process systems shall comply with the following requirements:
 - (A) Design. Except as otherwise provided in this section, the design and installation of piping systems shall comply with ANSI Standard B31.3.
 - (B) Types of materials
 - (1) All materials, including gaskets and thread compounds, shall be suitable for the temperatures to which they may be exposed. A materials list shall be prepared and submitted to the Department for review and acceptance.

- (2) Seamless steel pipe shall be used for process and transfer piping containing *flammable liquid* or *flammable gas*. Welded pipe may be used if seamless pipe is not available in the size required and if the weld and heat affected zone comply with ANSI Standard B31.3 (impact test) and are non-destructively examined in a manner acceptable to the *Department*. Notwithstanding the foregoing, plastic piping may be used for low pressure (15 *psig* or less) service for the wells and gathering lines used for collecting the raw gas from the landfill up to the feed gas inlet to the treatment and process plant.
- (3) Threaded steel pipe shall be at least Schedule 80 but no threaded pipe over 2-inch nominal pipe size shall be used for *flammable liquid* or *flammable gas*, and all threaded joints used shall be sealed with tetrafluorethylene (Teflon) tape or equivalent. Larger size threaded plastic piping is allowed when used in low pressure service as specified in R3508-01(c)(3)(B)(2).
- (4) All valves on piping containing *flammable gas* or *liquids* or *combustible liquids* shall be of steel construction
- (5) Gaskets on piping containing *flammable gases* or *flammable liquids* shall be of the compressed noncombustible type.
- (6) Piping insulation shall be of a noncombustible material.

(C) Pipe connections

- (1) Butt-welded joints shall be used where practicable. Socket welds are permitted on *flammable gas* or *flammable liquid* lines for branch pipe connections of less than two (2) inches diameter.
- (2) Expansion or contraction of piping shall be compensated for by use of appropriately designed piping loops or offsets. In addition, appropriately designed expansion joints may be used in piping carrying flammables or combustibles at pressures of 15 *psig* or less, and in piping carrying other materials at pressures of 100 *psig* or less.
- (3) All flanges for *flammable gas* or *flammable liquid* lines shall be raised face. Flanges and other pipe fittings two (2) inches to eight (8) inches shall be butt welded to the piping, ten (10) inches to 24 inches shall be slip on and welded.

(4) Shut-off valves and other control valves shall be installed so that their operation will not be affected by icing or other weather conditions.

(D) Weld certifications

(1) Welds of steel process piping shall be made by certified welders, and evidence of their certifications shall be filed with the Department. Piping welders shall be certified to the Department by their employers after qualifying under the ASME Boiler and Pressure Vessel Code, or API Standard 1104-1999.

(2) Upon completion of the installation, the owner or operator of the facility shall submit to the Bulk Fuel Unit of the Bureau of Fire Prevention an affidavit executed by the manufacturer or installer of the piping system, attesting to the integrity of all welds, including welds pre-fabricated in a piping shop.

(4) Refrigerating systems. Refrigerating systems, if used, shall utilize a nonflammable refrigerant.

(5) Emergency shut down of process equipment

(A) The process equipment shall be provided with an emergency shut-down system capable of automatic and manual operation. The emergency shut-down system shall initiate upon the following activation:

(1) Manual activation of the system at the process control center.

(2) Activation of the fire detection system detectors located in the feed gas engine compressors area, or in other areas as determined by the Department.

(B) Activation of the emergency shut-down system shall initiate audible and visible alarms at the control center, an audible alarm outside the control center, and a visible alarm at the field alarm panel, followed by automatic shut down of process equipment within two (2) minutes, and depressurization of process piping to 100 psig or less with seven (7) minutes, and to 20 psig or less within twelve (12) minutes. Instrument air compressors are not required to shut down upon activation of the emergency shut-down system.

(C) One (1) or more emergency shut-down system abort switches may be provided in the control center and/or in the field alarm panel that, when activated within the first two (2) minutes of initiation of the emergency shut-down system, causes an override of the emergency shut-down

system. Activation of such abort switch shall not interrupt any required transmission of alarms to central station. Manual activation of the emergency shut-down system shall override any abort switches.

(6) Alarm systems. Alarm systems shall be designed and installed in compliance with the following requirements:

(A) Methane gas detection system. A methane gas detection system that initiates audible and visible alarms in the control center at 25% LEL shall be provided throughout the facility. Such system shall have an audible alarm outside the control center and a visible alarm on the field alarm panel. The methane gas detection system may be interconnected with the emergency shut-down system when arranged to initiate such shut down if gas detection of 50% LEL is reached. Methane gas detectors shall be provided in the following locations:

(1) Feed gas compressor areas

(2) Feed gas intercool areas

(3) Vacuum compressor areas

(4) Vacuum module

(5) H.P. flash module

(6) Pretreatment module

(7) Solvent recovery system area

(8) Such other area as determined by the Department.

(B) Ultra-violet fire detection system. An ultra-violet fire detection system shall be provided to protect the gas compressor area. The system shall initiate an audible and visible alarm at the control center, and an audible alarm on the field alarm panel. Activation of the fire detection system shall initiate the facility emergency shut-down system and shall transmit a fire alarm to a central station.

(C) Manual fire alarm systems. At least one (1) manual fire alarm box shall be provided in the control center. At least one (1) additional manual fire alarm box shall be provided within the facility and near the facility entrance, which, if manually activated, shall transmit an alarm to a central station.

- (D) Process alarms. Process alarms for abnormal operating conditions shall be provided.
- (7) Yard hydrant system. The *facility* shall be provided with a yard hydrant system designed and installed in accordance with the requirements of FC508 and the *Building Code*. The yard hydrant system shall be designed and installed in compliance with the following requirements:
 - (A) Hydrants shall be a type complying with the requirements of the *Department of Environmental Protection* and have Fire Department approved threads;
 - (B) The hydrant system piping shall be a minimum eight (8) inches in diameter;
 - (C) Fire Department connections to the hydrant system piping shall be provided at one (1) or more *approved* locations;
 - (D) The system shall be supplied water from a source capable of providing a minimum of 2,500 *gpm*;
 - (E) A hydrant loop grid system shall be provided with block valves at one (1) or more *approved* locations for emergency and maintenance purposes;
 - (F) Hose reels and nozzles shall be provided at one (1) or more *approved* locations and shall be readily available for use; and
 - (G) Where required by the *Department*, fire water monitors shall be provided at one (1) or more *approved* locations.
- (8) Fire extinguishing systems. If a *fire extinguishing system* other than a *sprinkler system* is installed in an interior motor control room, it shall be of an approved type, and shall comply with FC904 and the *Building Code*.
- (9) Odorant room
 - (A) A *sprinkler system* or other *approved non-water fire extinguishing system* designed and installed in accordance with FC Chapter 9 and the *Building Code* shall be provided for protection of a gas odorant room.
 - (B) A fire detection system shall be provided in the odorant room. Activation of the fire detection system shall cause the gas valves to close gas valves and initiate audible and visible alarms locally and in the control center.

(C) A flammable gas detection system shall be provided in the odorant room. Activation of the flammable gas detection system shall initiate audible and visible alarms locally and in the control center.

(D) The odorant room shall be equipped with absorbing or neutralizing equipment to prevent escape of any odorant to the atmosphere.

(10) Lightning Protection and Grounding

(1) The highest structural steel, process vessels and columns shall be provided with lightning protection in accordance with the *Electrical Code*.

(2) All process equipment and piping shall be electrically grounded.

(11) Flammable and combustible liquids. *Flammable and combustible liquids*, in the gas recovery and treatment system, and in *stationary tanks*, shall be stored, *handled* and used in compliance with the requirements of FC Chapter 34 and the *rules*. Solvents with low *flash points* and solvents used at a temperature above their *flash points* may be used only when *approved*.

(12) Compressor enclosures. *Natural gas* compressors shall be located outdoors, except that such compressors may be partially enclosed in light-weight noncombustible construction for protection against the weather, provided such enclosure is open at the top and bottom in an approved manner that provides for adequate ventilation and explosion venting.

(13) Flaring systems. The design and installation of any flaring system shall be *approved*.

(14) Markings. Process, fire protection and other critical piping shall be identified in accordance with FC Chapters 9 and 27.

(15) Security. A fence constructed of noncombustible material shall be provided around the perimeter of the *facility*, at least 25 feet away from any process equipment.

(16) Fire apparatus. At least two (2) means of fire apparatus access shall be provided to the methane gas recovery facility.

(17) Space heating systems. Only hot water space heating systems may be installed within the facility. The location of any space heating plant shall be *approved*.

(d) Operational and Maintenance Requirements

- (1) Reporting of alarms. Initiation of the emergency shut-down system, whether manually or automatically activated, shall be followed by a telephone call from the control center to the *Department*.
- (2) Operator response to alarms
- (A) Upon activation of the emergency shut-down system, the lube oil pumps for the feed-gas engine compressors and *refrigerating system* compressors shall also be manually shut down as necessary to ensure the safe operation of the facility.
- (B) The emergency shut-down system abort switch authorized by R3508-1(c)(5)(C) may be activated only after the operator has investigated the cause of the alarm condition and determined that shut down of the system is unwarranted due to an *unwarranted alarm* or other good cause, and consistent with safe operation of the *facility*.
- (3) Piping systems
- (A) Installation testing. All process piping, except plastic piping used for wells and gathering lines, shall be hydrostatically pressure tested at the *owner's* risk by his or her representative before a representative of the *Department* for one (1) hour at twice the maximum operating pressure or 100 *psig*, whichever is greater, with no loss of pressure. Plastic piping used for wells and gathering lines shall be tested at 50 *psig*. In lieu of the testing of plastic piping for wells and gathering lines, an oxygen analyzer installed at the inlet side of the compressor to detect air leakage into the system may be accepted, providing such analyzer or detector will shut the plant down before any air mixture that can cause an explosion reaches the compressor. The oxygen analyzer may be installed at the discharge side of the first compressor stage, if evidence is submitted, satisfactory to the *Commissioner* that no "dieseling or compression" explosion can take place in the compressor due to air mixture, and that the oxygen analyzer can shut the plant down before detected "air" can reach any other portion of the plant where explosion in a *flammable gas*-air mixture is possible.
- (B) Installation system start-up testing. Prior to any initial startup of the process equipment, systems and sub-systems having piping previously tested pursuant to R3508-01(d)(3)(A) whose integrity has been breached by interconnected piping or equipment shall be hydrostatically retested at the *owner's* risk by his or her representative before a representative of the *Department*. The test pressure for each such system shall be the maximum anticipated operating pressure (above normal operating pressure), but in no case shall such pressure exceed the relief valve set pressures, machinery seals maximum design pressure, and the maximum

design pressure for process equipment. Systems shall be tested prior to any plant start-up operation.

(C) Piping system test modifications. When it is demonstrated to the satisfaction of the *Department* that a hydrostatic test is not feasible for piping and process equipment, the following alternative tests may be performed:

(1) A pneumatic pressure test of piping utilizing a soap test on all joints.

(2) An *approved* strength test of process equipment when the equipment will not sustain a pressure test.

(D) Pressure recording charts. All piping pressure tests required by this section shall be conducted using a pressure recording chart showing exact locations and the extent of such test performed. The *owner* or operator of the *facility* shall submit the results from such pressure recording chart to the *Department*.

(E) Weld testing. All welded joints on *flammable gas* or *flammable liquid* piping shall be 100% radiograph tested by an independent person or firm. Certifications on acceptance or rejection of each weld shall be filed with the *Department* by the *facility owner* or operator.

(4) Periodic testing of fire protection systems. Periodic testing of the fire detection, fire extinguishing, gas detection, alarm and emergency shut-down system shall be performed by the *certificate of fitness* holder. Such testing shall be performed at least annually at the *owner's* risk by his or her representative before a representative of the *Department*. Records of testing shall be maintained on the *premises*.

(5) Yard hydrant systems. The yard hydrant system shall be hydrostatically tested at the *owner's* risk by his or her representative before a representative of the *Department* at 300 *psig* for one (1) hour.

(6) Required signage. Instructions on the operation of the *facility fire protection systems* and a concise process flow diagram shall be conspicuously posted at an *approved* location.

(7) Hot work operations. *Hot work* operations within the *facility* shall comply with the requirements of FC Chapter 26. Such operations shall additionally be conducted under the *personal supervision* of the *certificate of fitness* holder for the *facility*.

- (8) Vegetation. A clearance distance of 25 feet shall be maintained from any process equipment to vegetation, and within 25 feet on either side of the fence required by FC3508-01(c)(15).
- (9) Smoking. It shall be unlawful to smoke within the *facility*. No smoking signs shall be conspicuously posted throughout the *facility* in accordance with FC310.
- (10) Periodic filing of reports. The *owner* or operator of the *facility* shall submit monthly reports of problems, unusual occurrences and incidents relating to the operation of the *facility*. Such reporting shall continue for one (1) year after issuance of the original permit authorizing operation of the *facility*.
- (f) Portable Fire Extinguisher Requirements. The *facility* shall be provided with portable fire extinguishers having at least a 40-B:C rating. The maximum travel distance to such extinguishers shall not exceed 30 feet.

STATEMENT OF BASIS AND PURPOSE FOR CHAPTER 35 (FLAMMABLE GASES):

The chapter consists of three sections. Two are based on existing rules.

Section 3501-01, a new rule, sets forth the prohibition against the manufacture and compressing of acetylene. This rule reflects longstanding agency practice, consistent with the prohibition in the former New York City Fire Prevention Code against the filling of containers with flammable gas unless authorized by the Fire Department. It parallels a similar prohibition for LPG.

Section 3507-01 sets forth requirements governing the storage, handling and use of CNG. These requirements are found in existing rule 3 RCNY §23-12.

Section 3508-01 sets forth requirements governing the design, installation, operation and maintenance of facilities that recover methane gas from sanitation landfills, including the processing, compressing, flaring and/or odorizing of such gas. These requirements are found in existing rule 3 RCNY §23-02.

Section 27. Title 3 of the Rules of the City of New York is hereby amended by adding a new Chapter 36, to read as follows:

CHAPTER 36 **FLAMMABLE SOLIDS**

§3601-3605 Reserved

Section 28. Title 3 of the Rules of the City of New York is hereby amended by adding a new Chapter 37, to read as follows:

CHAPTER 37
HIGHLY TOXIC AND TOXIC MATERIALS

§3701-3705 Reserved

Section 29. Subdivision (j) of §3809-01 of Title 3 of the Rules of the City of New York is hereby amended to read as follows:

§ 3809-01 Liquefied Petroleum Gases

* * *

(j) Special Storage and Use Requirements

* * *

(2) Construction sites

* * *

(G) Asphalt melters

- (1) *LPG*-fueled *asphalt melters* shall be stored, handled, used and maintained in the same manner as *LPG*-fueled *tar kettles*, in compliance with the provisions of FC303 and R3809-01(j)(2)(F), except as otherwise provided in R3809-01(j)(2)(G)(5) with respect to use of an *LPG*-fueled *asphalt melter* on a roof.
- (2) *LPG*-fueled *asphalt melters* shall be designed to utilize indirect heating and an enclosed flame, and shall be provided with a thermostatic control and an automatic shut-off to limit the temperatures to which the asphalt may be heated. Such melters shall be operated so as to limit the heating of the asphalt to a temperature not exceeding 425°F, or 50°F below the *flash point* of the asphalt, whichever is lower.
- (3) *Asphalt melter* covers shall be automatic-closing by *approved* devices designed to operate in the event of *fire*.
- (4) Only one (1) *LPG container* with a maximum capacity of 100 pounds of *LPG* may be connected to an *LPG*-fueled *asphalt melter*.

- (5) *LPG-fueled asphalt melters* may be used on the roof of any [unoccupied] building [100 feet or more in height] having a roof of noncombustible construction, provided that they are designed and operated in compliance with the following requirements:
- (a) *LPG-fueled asphalt melters* used on roofs shall have a design capacity of not more than 200 gallons of asphalt, or such lesser amount as may be safely supported by the roof structure.
 - (b) [Only one (1)] Not more than two (2) such asphalt [melter shall] melters may be brought onto or operated on a roof at a time.
 - (c) The *certificate of fitness* holder responsible for the *personal supervision* of such asphalt [melter] melters shall be provided with a cellular phone or other means of communication for immediate notification to the *Department of a fire* or other emergency.
 - (d) Only *LPG containers* connected for use shall be kept on the roof.

* * *

STATEMENT OF BASIS AND PURPOSE OF FINAL RULE:

Section 3809-01(j)(2)(G) is amended to allow the use of up to two LPG-fueled asphalt melters on a roof of non-combustible construction, regardless of the building height or whether the building is occupied. Subsequent to the promulgation of the rule, comment was received suggesting that the Fire Department’s regulations were unnecessarily restrictive, and that the rule should be amended to allow use of two asphalt melters on buildings of noncombustible construction of any height.

Section 30. Title 3 of the Rules of the City of New York is hereby amended by adding a new Chapter 39, to read as follows:

CHAPTER 39
ORGANIC PEROXIDES

§3901-3906 Reserved

Section 31. Title 3 of the Rules of the City of New York is hereby amended by adding a new Chapter 40, to read as follows:

CHAPTER 40
OXIDIZERS

§4001-4006 Reserved

Section 32. Title 3 of the Rules of the City of New York is hereby amended by adding a new Chapter 41, to read as follows:

CHAPTER 41
PYROPHORIC MATERIALS

§4101-4107 Reserved

Section 33. Title 3 of the Rules of the City of New York is hereby amended by adding a new Chapter 42, to read as follows:

CHAPTER 42
PYROXYLIN PLASTICS

§4201-4205 Reserved

Section 34. Title 3 of the Rules of the City of New York is hereby amended by adding a new Chapter 43, to read as follows:

CHAPTER 43
UNSTABLE(REACTIVE) MATERIALS

§4301-4306 Reserved

Section 35. Title 3 of the Rules of the City of New York is hereby amended by adding a new Chapter 44, to read as follows:

CHAPTER 44
WATER-REACTIVE SOLIDS AND LIQUIDS

§4401-4406 Reserved

Section 36. Title 3 of the Rules of the City of New York is hereby amended by adding a new Chapter 45, to read as follows:

CHAPTER 45
REFERENCED STANDARDS

§4501-4502 Reserved

Section 37. Title 3 of the Rules of the City of New York is hereby amended by adding a new Chapter 46, to read as follows:

CHAPTER 46
FEES

§4601-4603 Reserved

§4604-01 Compensation To Be Paid By Entities Engaged in the Operation of Auxiliary Fire Alarm Systems (effective until July 1, 2009)

§4604-01 Compensation for Operation of Auxiliary Fire Alarm Systems (effective July 1, 2009)

§4604-01 Compensation To Be Paid By Entities Engaged in the Operation of Auxiliary Fire Alarm Systems (effective until July 1, 2009)

(a) Scope. This section sets forth the compensation required to be paid to the City of New York pursuant to *Administrative Code* §15-127(a)(1) by a *central station company* or a *proprietary central station company* for operation of an *auxiliary fire alarm system*.

(b) Definition. The following term shall, for purposes of this section and used elsewhere in the *rules*, have the meanings shown herein:

Auxiliary fire alarm system. The re-transmission or other reporting to the *Department of alarm signals* from the monitoring of *fire alarm systems* by a *central station company*, *proprietary central station*, or any other person or company that receives compensation or derives any other financial benefit therefrom.

(c) Schedule of Fees. Each *central station company* or *proprietary central station company* that is engaged in the operation of *auxiliary fire alarm systems* shall pay an amount

which shall equal the product of the fee prescribed below, multiplied by the number of terminals (also known as "assignments"). The Department shall annually bill each entity for an amount based on the number of terminals in operation at any time during the period from the first day of July through the last day of June, and that amount shall be payable by the first day of the month of October. The fees shall be as follows:

Annual Fee Per Class E or Class J Terminal (pursuant to 1968 Building Code Occupancy Group E—Business and Occupancy Group J—Residential (Administrative Code §§27-253 and 27-263) \$135.00

Annual Fee Per Terminal All Other Types of Systems \$ 45.00

Fees for terminals placed in operation after the first day of the month of July shall be payable for the first operating period in accordance with the following table. Thereafter, fees for such terminals shall be payable on an annual basis.

<u>Quarter First in Operation</u>	<u>Fee per Class E or Class J terminal</u>	<u>Fee per terminal; all Other types of systems</u>
<u>7/2 to 9/30</u>	<u>\$135.00</u>	<u>\$45.00</u>
<u>10/1 to 12/31</u>	<u>\$100.00</u>	<u>\$35.00</u>
<u>1/1 to 3/31</u>	<u>\$ 70.00</u>	<u>\$25.00</u>
<u>4/1 to 6/30</u>	<u>\$ 35.00</u>	<u>\$12.00</u>

The Department shall, at the beginning of each quarter, bill each entity for an amount, in accordance with the schedule set forth above, based on the number of new terminals it placed in operation during the previous quarter, and that amount shall be payable by the first day of the next succeeding quarter.

- (d) Cancellation of Terminals. The cancellation of terminals shall not result in the refund of the terminal fee or any portion thereof.

§ 4604-01 Compensation for Operation of Auxiliary Fire Alarm Systems (effective July 1, 2009)

- (a) Scope. This section sets forth the compensation required to be paid to the City of New York pursuant to Administrative Code §15-127(a)(1) by a central station company or a proprietary central station, as those terms are defined in R901-02(b), for operation of an auxiliary fire alarm system.

- (b) Definition. The following term shall, for purposes of this section and used elsewhere in the rules, have the meanings shown herein:

Auxiliary Fire Alarm System. The re-transmission or other reporting to the Department of alarm signals from the monitoring of fire alarm systems by a central station company,

proprietary central station, or any other person or company that receives compensation or derives any other financial benefit therefrom.

(c) Required Compensation. Each central station company shall pay to the Department, on an annual basis, or such other basis as the Department may require or authorize, its proportionate share of the cost associated with its use of the Department's fire alarm communications system, as calculated in accordance with the provisions of this section.

(d) Computation of Compensation

(1) The Department will calculate, not less frequently than on an annual basis, the compensation each central station company is required to remit to the Department, in accordance with the computation set forth in this subdivision.

(2) Compensation shall be based on the costs of operating the Department's communications offices for the preceding fiscal year, allocated according to the number of fire alarm systems monitored by each central station company as of July 1st of the preceding fiscal year, and the volume of central station company alarm traffic generated by each central station company in the preceding fiscal year.

(3) Step One: Calculation of Total Central Station Company Cost. This amount will be calculated as follows:

(A) the total alarm traffic handled by the Department's communications offices is calculated for the preceding fiscal year;

(B) the alarm traffic generated by all central station companies ("total central station alarm traffic") is calculated as a percentage of the total alarm traffic for the preceding fiscal year; and

(C) the total cost of operating the Department's communications offices is calculated for the preceding fiscal year ("total operating cost") and is multiplied by the percentage representing the total central station alarm traffic in the preceding fiscal year, to obtain the cost attributable to the total central station alarm traffic for the preceding fiscal year ("total central station cost").

(4) Step Two: Calculation of Individual Central Station Compensation Amounts. These amounts will be calculated as follows:

(A) the total number of fire alarm systems monitored by central station companies as of July 1st of the preceding fiscal year, and the number of fire alarm systems monitored by each central station company as of such date, are tabulated, and the percentage of the total number of monitored

fire alarm systems is calculated for each central station company (“alarm system allocation”);

(B) the total central station alarm traffic generated by each central station company is separately tabulated for the preceding fiscal year, and each central station company’s percentage of the total central station alarm traffic is calculated (“alarm traffic allocation”);

(C) the two percentages representing the alarm system and alarm traffic allocations are averaged (added together and divided by two) to obtain a single combined percentage for each central station company (“total allocation”); and

(D) each central station company is charged the percentage representing its total allocation of the total central station cost for the preceding fiscal year.

(e) Billing and Payment

(1) The Department will bill each central station company on or about October 1st for the coming year, or such other date as the Department may designate.

(2) Each central station company shall remit payment in full no later than 60 days of receipt of the invoice.

(3) Any central station company that fails to timely remit payment shall additionally be liable to the Department for interest on the compensation due and owing to the Department. Such interest shall be computed for the period from the date of the bill to the date of payment, based on the amount of the bill and the rate of interest set forth in Section 5004 of the New York Civil Practice Law and Rules. Such interest shall constitute part of the compensation required by this section.

STATEMENT OF BASIS AND PURPOSE FOR CHAPTER 46 (FEES):

The chapter consists of an existing section currently in effect and a second existing section that will supersede it on July 1, 2009.

The first R4604-01, effective until July 1, 2009, sets forth the compensation required to be paid to the City of New York pursuant to Administrative Code §15-127(a)(1) by a central station company or a proprietary central station for operation of an auxiliary fire alarm system. The provisions of this rule are found in existing section 3 RCNY §17-04.

This section will be superseded on July 1, 2009, by the second R4604-01 (existing rule 3 RCNY §17-02), which takes effect on July 1, 2009.

Section 38. Title 3 of the Rules of the City of New York is hereby amended by adding a new Chapter 47, to read as follows:

CHAPTER 47
REFERENCED STANDARD MODIFICATIONS

§4701-01 Referenced Standard Modifications and Amendments Thereto
§4702-01 National Fire Protection Association Referenced Standards

§ 4701-01 Referenced Standard Modifications and Amendments Thereto

- (a) Scope. This section sets forth provisions relating to the Department's adoption of modifications to the Referenced Standards set forth in FC Chapter 45, adoption of amendments to the Referenced Standard modifications codified in FC Appendix B, and incorporation of such modifications and amendments into FC Appendix B.
- (b) General Provisions
- (1) Adoption. The Referenced Standards set forth in FC Chapter 45, and the modifications thereto, as codified in FC Appendix B, are amended as set forth in this chapter of the rules.
- (2) Incorporation. Pursuant to FC102.6.2, such Referenced Standard modifications and amendments to Referenced Standard modifications shall be deemed incorporated into FC Appendix B.
- (3) Identification of modifications and amendments.
- (A) The text of the Referenced Standard modifications to be incorporated into FC Appendix B is set forth in the respective sections of this chapter of the rules. The addition of such modifications to FC Appendix B is indicated by **underlining**.
- (B) When a Referenced Standard modification codified in FC Appendix B is to be amended, the existing, codified text of the Referenced Standard modification is shown, with the language deleted in [brackets] and language added **underlined**.

Note: Retain underlining of highlighted text in publication of final rule.

§4702-01 National Fire Protection Association Referenced Standards

- (a) Scope. This section sets forth modifications to the National Fire Protection Association Referenced Standards set forth in FC Chapter 45.
- (b) Referenced Standard Modifications. FC B01.1 is amended to read as follows:

B01.1 National Fire Protection Association standards. The provisions of the following National Fire Protection Association (NFPA) standards shall be modified as follows:

NFPA 11-2002. The provisions of NFPA 11-2002, Low Expansion Foam, shall be modified as follows:

1. Delete the language of Section 2.2 and replace with “As required by this code.”
2. Delete Chapter 9 in its entirety.

NFPA 11A-1999. The provisions of NFPA 11A-1999, Medium- and High-Expansion Foam Systems, shall be modified as follows:

1. Delete the language of Section 5.1.1 and replace with “As required by this code.”

NFPA 12-2002. The provisions of NFPA 12-2002, Carbon Dioxide Extinguishing Systems, shall be modified as follows:

1. Delete Section 1-3.13.
2. Delete Section 1-3.14.
3. Delete Section 1-7.4(c).
4. Delete exceptions 2 and 3 from Section 1-8.1.1.
5. In Section 1-8.3.7 delete “not more than 4 ft (1.2m)” and replace with “42 to 48 inches (1067 to 1219 mm)”, and add “at its center” at the end of the sentence.
6. In Section 1-8.4, replace “NFPA 72” with “Section 907 of the *Building Code*”.
7. Delete Section 1-9.1.1.

8. In Section 1-11.3.7, replace “NFPA 72” with “Section 907 of the Building Code”.

9. Delete Chapter 4 in its entirety.

10. Delete Chapter 5 in its entirety.

11. Delete Chapter 6 in its entirety.

12. In Section 7-1.1, replace “NFPA 70, National Electrical Code, 2002 Edition” with “Electrical Code”; replace “NFPA 72” with “Section 907 of the Building Code”.

NFPA 13-2002. The provisions of NFPA 13-2002, Installation of Sprinkler Systems, shall be modified to incorporate the “Modified Standards for Automatic Sprinkler, Standpipe and Fire Alarm Systems” as set forth in Appendix Q to the Building Code with respect to the design and installation of sprinkler systems.

NFPA 13R-2002. The provisions of NFPA 13R-2002, Standard for the Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height, shall be modified to incorporate the “Modified Standards for Automatic Sprinkler, Standpipe and Fire Alarm Systems” as set forth in Appendix Q to the Building Code with respect to the design and installation of sprinkler systems.

NFPA 16-2003. The provisions of NFPA 16-2003, Installation of Foam-Water Sprinkler and Foam-Water Spray Systems, shall be modified as follows:

1. Delete the language of Section 2.2 and replace with “As required by this code.”

2. Delete the language of Section 4.4.1 and replace with “A reserve supply of foam concentrate equal to that required for operation of the system for the required duration shall be available on site.”

3. Sections 5.8.1 and 5.10 are modified to indicate the appropriate section of the Building Code.

4. In Section 5.12.2, replace “NFPA 72” with “Section 907 of the Building Code”.

5. Delete items (1) through and including (10) of Section 7.3.1 and replace with “As required by this code.”

NFPA 17-2002 The provisions of NFPA 17-2002, Dry Chemical Extinguishing Systems, shall be modified as follows:

1. In section 2.2, replace “NFPA 70, National Electrical Code, 2002 Edition” with “Electrical Code”, and replace “NFPA 72” with “Section 907 of the Building Code”.
2. Section 3.2.4 is modified to indicate the Department as the governing agency.
3. Delete Section 3.4.3.
4. Delete Section 4.2.
5. Section 5.7.1.7.1 is modified to require the location of alarm stations to be “42 to 48 inches (1067 to 1219 mm) above the floor at its center”.
6. Section 5.4.7 is modified to indicate the appropriate section of the *Building Code* and add a new sentence to the end of the section to read “The fire extinguishing system shall report alarm and trouble signals.”
7. Delete Chapter 8 in its entirety.
8. Delete Section 9.10.
9. Add a new sentence to the end of section 10.2, to read “10.2 Before any work is commenced the applicant shall submit plans to the Department of Buildings and the Department for approval.”
10. Add a new section 10.4.3.6, to read “The completed system shall be tested by the installer, at his own risk, as required by other provisions of this code before any approval shall be issued.”
11. Add a new sentence to the end of Section 10.5, to read “Clear and concise operating instruction for the system shall be permanently posted at the entrance to the space containing the system.”

NFPA 17A-2002. The provisions of NFPA 17A-2002, Wet Chemical Extinguishing Systems, shall be modified as follows:

1. In section 2.2, replace “NFPA 70, National Electrical Code, 2002 Edition” with “Electrical Code”, and replace “NFPA 72” with “Section 907 of the Building Code”.
2. Section 3.2.3 is modified to indicate the department as the governing agency.
3. In section 4.7, replace “NFPA 70, National Electrical Code” with “Electrical Code”.
4. In section 5.2.1.9, replace “NFPA 72” with “Section 907 of the Building Code”.
5. Section 5.2.1.10 is modified to require the location of alarm stations to be “42 to 48 inches (1067 to 1219 mm) above the floor at its center”.
6. Add a new section, 6.1, to read “6.1. Before any work is commenced, the applicant shall submit plans to the New York City Department of Buildings and the department for approval.”
7. Add a new section, 6.4.4, to read “6.4.4. Clear and concise operating instructions for the system shall be permanently posted at the entrance to the space containing the system.”

NFPA 72-2002. The provisions of NFPA 72-2002, National Fire Alarm Code, shall be modified to incorporate the “Modified Standards for Automatic Sprinkler, Standpipe and Fire Alarm Systems” as set forth in Appendix Q to the Building Code with respect to the design and installation of fire alarm systems.

NFPA 750-2000. The provisions of NFPA 750-2000, Standard on Water Mist Fire Protection Systems, shall be modified as follows:

1. In Section 2-10.2.1, delete "NFPA 72" and replace with "Section 907 of the Building Code" and add “and tied-in to the building fire alarm system for monitoring of alarm, trouble and supervisory signals” to the end of the section.
2. In Section 2-10.3.6, add “Manual release to be installed 42 to 48 inches (1067 to 1219 mm) above the floor at its center and located at egress.”

NFPA 2001-2004. The provisions of NFPA 2001-2004, Clean Agent Fire Extinguishing Systems, shall be modified as follows:

1. In Section 1.5.2.1, delete “NFPA 70- National Electrical Code” and replace with “Electrical Code”.
2. In Section 2.2, delete “NFPA 70- National Electrical Code” and replace with “Electrical Code” and delete “NFPA 72” and replace with “Section 907 of the Building Code”.
3. Delete Chapter 7 in its entirety.

Note: Retain underlining of highlighted text in publication of final rule.

STATEMENT OF BASIS AND PURPOSE FOR CHAPTER 47 (REFERENCED STANDARD MODIFICATIONS):

The chapter includes two sections. The first section, R4701-01, explains how modification of Reference Standards and amendment of existing Referenced Standards modifications will be made, pursuant to the authority granted to the Department by FC102.6.2. The second section, R4702-01, sets forth modifications of existing National Fire Protection Association (NFPA) Referenced Standards. The Referenced Standard modifications conform the Referenced Standards to modifications to such standards set forth in the Building Code.

Pursuant to the authority granted by FC 102.6.2, such modifications and amendments shall be deemed incorporated into FC Appendix B.

Section 39. Title 3 of the Rules of the City of New York is hereby amended by adding a new Chapter 48, to read as follows:

CHAPTER 48
PRE-EXISTING FACILITIES

<u>§4801</u>	<u>Reserved</u>
<u>§4802-01</u>	<u>Pre-Existing Definitions</u>
<u>§4803-01</u>	<u>Pre-Existing General Precautions Against Fire</u>
<u>§4804-4808</u>	<u>Reserved</u>
<u>§4809-01</u>	<u>Pre-Existing Fire Protection Systems</u>
<u>§4810-01</u>	<u>Pre-Existing Means of Egress</u>
<u>§4811-4821</u>	<u>Reserved</u>
<u>§4822-01</u>	<u>Pre-Existing Motor Fuel-Dispensing Facilities and Repair Garages</u>
<u>§4823-4829</u>	<u>Reserved</u>
<u>§4830-01</u>	<u>Pre-Existing Compressed Gases</u>
<u>§4831</u>	<u>Reserved</u>
<u>§4832-01</u>	<u>Pre-Existing Cryogenic Fluids</u>
<u>§4833-4834</u>	<u>Reserved</u>

- §4835-01 Pre-Existing Flammable Gases
- §4836-4837 Reserved
- §4838-01 Pre-Existing Liquefied Petroleum Gases
- §4839-4844 Reserved

§4802-01 Pre-Existing Definitions

- (a) Scope. This section sets forth definitions of terms used in the *Fire Prevention Code* and former Fire Department *rules* in effect on June 30, 2008 that are consolidated in Chapter 48 of the *rules*.
- (b) Definitions

Board of Standards and Appeals. New York City Board of Standards and Appeals.

Department of Buildings. New York City Department of Buildings.

Department of Small Business Services. New York City Department of Small Business Services.

§4803-01 Pre-Existing General Precautions Against Fire

- (a) Scope. This section consolidates the *Fire Prevention Code* and former Fire Department *rules* in effect on June 30, 2008 that are applicable to the design and installation of fire safety precautions in *pre-existing facilities*.
- (b) Definitions. Reserved
- (c) Boatyards, Marinas and Similar Facilities. Boatyards, marinas and similar facilities in compliance with former Fire Department *rule* 3 RCNY §5-01 are allowed and would be approved under the provisions of the Fire Code and the *rules*, and accordingly, such *facilities* shall be designed and installed in compliance with the requirements of R301-01, except that in *pre-existing facilities* with *fire apparatus access roads* less than 38 feet wide, such *fire apparatus access roads* shall be continued in compliance with the provisions of former Fire Department *rule* 3 RCNY §5-01(b) until such time as such *facilities* may be required to comply with the Fire Code and the *rules* with respect to such access roads.

- (1) Former Fire Department Rule 3 RCNY §5-01(b)

§5-01 Fire Protection of Boatyards, Marinas and Similar Occupancies

- (b) For firefighting purposes, adequate unobstructed aisles and cross aisles of at least 20 foot width shall be provided for both length

and width of premises and maintained clear in all directions so that no point in the yard is further than 75 feet from an access aisle in any direction.

(d) Automotive salvage and wrecking facilities. Automotive salvage and wrecking facilities in compliance with former Fire Department rule 3 RCNY §4-01 are allowed and would be approved under the provisions of the Fire Code and the rules, and accordingly, such facilities shall be designed and installed in compliance with the requirements of FC316, except that in pre-existing facilities with fire apparatus access roads less than 38 feet wide, such fire apparatus access roads shall be continued in compliance with the provisions of the former Fire Department rule 3 RCNY §4-01(e)(2)(i) until such time as such facilities may be required to comply with the Fire Code and the rules with respect to such access roads.

(1) Former Fire Department Rule 3 RCNY §4-01(e)(2)(i)

§4-01 Fire Protection of Automotive Salvage and Wrecking Establishments

(e) Fire protection requirements.

* * *

(2) Access and separation.

* * *

(i) Driveways having a minimum width of fifteen feet shall be provided and shall be so spaced that a maximum grid system of not over fifty feet by one hundred feet is produced. Driveways shall be maintained unobstructed to provide access for Fire Department equipment.

§4809-01 Pre-Existing Fire Protection Systems

(a) Scope. This section consolidates the Fire Prevention Code and former Fire Department rules in effect on June 30, 2008 that are applicable to the design and installation of fire protection systems in pre-existing facilities.

(b) Definitions. Reserved

(c) General Provisions Pre-existing facilities with fire protection systems the design and installation of which would not be allowed or approved under the Fire Code, but which, pursuant to FC102.3 and R102-01, may be continued with respect to such fire protection

systems under the applicable laws, rules and regulations in effect prior to the Fire Code, shall continue to comply with the provisions of such laws, rules and regulations, including former Fire Department rules 3 RCNY 15-04, 17-07 and 17-08, as applicable, with respect to such fire protection systems, until such time as such facilities may be required to comply with the Fire Code and the rules with respect to the design and installation of such fire protection systems.

(d) Commercial Cooking Fire Extinguishing Systems

(1) Former Fire Department Rule 3 RCNY §15-04

§ 15-04 Extinguishing Systems for Hoods, Vent Pipes, Flues or Ducts*

[*FOOTNOTE IN ORIGINAL: Section is applicable to systems installed on or after 12/14/62 but before 12/6/68. Systems or system changes made post 12/6/68 shall be in accordance with RS 13-3 (Building Code) and NYC Administrative Code §§27-4275 & 27-779.]

- (a) Plans. The installer or occupant shall submit three (3) sets of paper cloth drawings to the Bureau of Fire Prevention for approval before any work is commenced. These shall show the entire installation in plan and section, viz: all hoods; ducts; dampers; heat detector units; pipes; nozzles; fans; gas controls; automatic trip devices; manual operating controls; all other details for compliance with these regulations.
- (b) Tests. The completed system shall be tested by the installer or occupant, at his or her own risk, in the presence of a Fire Department representative before an approval shall be issued.
- (c) Cleaning. The hood and exhaust ducts shall be thoroughly cleaned and be in good repair before the system is installed. They shall be so maintained at all times.
- (d) Operation and control. The extinguishing system shall be automatic or both automatic and manual in operation. The manual controls shall be accessibly located at least ten (10) feet from the range and sealed in the closed position with a light wire seal or a break glass control. A sign to indicate the purpose of such valve or control shall be affixed thereto. The automatic operation shall be arranged to shut off the gas, exhaust fans and close the dampers in the exhaust system. The automatic releasing equipment and heat detecting units shall be Underwriters Laboratories approved.

* * *

(f) Location of nozzles and heat detectors. The entire duct system and any deep frying units shall be provided with an adequate number of nozzles. One nozzle shall be installed at the inlet of each duct and one at the inlet side of the damper. Duct nozzles shall not exceed ten (10) feet on centers. Heat detecting units shall be located at all duct inlets.

* * *

(h) Carbon dioxide

(1) Where carbon dioxide is used: There shall be provided at least one fifty (50) pound cylinder of such gas for each installation up to four hundred (400) cubic feet of hood and duct volume up to the damper. For every additional four hundred (400) cubic feet, or portion thereof, an additional fifty (50) pound cylinder shall be installed.

(2) Electrical requirements for the installation of thermostatic detection systems and the operation of safety devices when carbon dioxide systems are used as the extinguishing agent in hoods, vent pipes, flues or ducts to exhaust interior cooking spaces are:

(i) Plans. The plans submitted for approval shall have marked thereon the location of the thermostatic detectors, the damper locations, all alarms, the electrical and mechanical operations of the safety devices as hereby required.

(ii) Equipment approval. All the electrical equipment shall be approved by the Board of Standards and Appeals or the Underwriters Laboratory for the installation for the class of detection, operation and alarm.

(iii) Wiring. The electrical equipment shall be operated on closed circuits, 120 volt systems. The wire shall be rubber covered RHW #14 AWG, installed in rigid iron or steel conduits.

(iv) Operation requirements

(A) The thermostatic device shall be either of a type that is manually reset or the control system shall be so arranged that some

manual operation is required to restart the fan after the thermostat has operated. The thermostats shall operate on a 350°F. temperature. The thermostats shall be installed in a manner to enable the removal of the thermostat for repair or testing.

(B) A light, normally on, installed within the hood installation room, to give indication that the source of current for the carbon dioxide system is out of service shall be required.

(C) An alarm bell will be required when two or more 50 lb. carbon dioxide cylinders are required. The alarm shall sound upon the operation of the thermostatic device.

(D) An emergency manual control, preferably in the form of a break glass station, to operate the system is required.

(E) The fan shut down, gas valve closure, damper operations may be electrically or mechanically operated to operate the electric controls.

(i) Fine water spray. Where a fine water spray is used:

All pipe sizes shall conform with and all valve sizes shall conform to the Building Code of the City of New York.

The minimum static pressure at the highest nozzle shall not be less than thirty (30) p.s.i.

One half (1/2) inch open, wide pattern nozzles shall be installed throughout. A water flow alarm may be installed if desired.

(j) Steam. Where steam is used:

A continuous source of steam supply of not less than fifteen (15) p.s.i. shall be provided. The pipe sizes at the source of supply shall not be less than one and one-half (1 1/2) inches in diameter and not less than three quarter (3/4) inch for the last steam jet or outlet. Such outlet shall be a standard one-half (1/2) inch open sprinkler head.

The pipe fittings and valve shall be steam standard. A control valve sealed open shall be located at the source of steam supply.

A steam trap shall be installed on the steam line in such a location so as to remove all condensation up to the automatic control valve located at or near the ranges or ducts.

- (k) Application. These rules shall apply to all new installations and to existing systems hereafter altered in any manner.

Note: Retain underlining of highlighted text in publication of final rule.

(e) Fire Alarm Systems

- (1) Former Fire Department Rule 3 RCNY §17-07

§17-07 Installation of Interior Fire Alarm Signal Systems in Multiple Dwellings Having Single Room Occupancies

- (a) In every such building there shall be provided an adequate and reliable electric, closed circuit interior fire alarm system in accordance with the requirements of the Fire Commissioner.
- (1) Buildings exceeding six stories in height, or having more than five thousand square feet in area in any one story, shall be provided with a coded system.
- (2) Buildings not exceeding six stories in height, or having more than five thousand (5,000) square feet in area in any one story, shall be provided with a coded system or a non-coded system.
- (b) The interior fire alarm system shall be installed in a workmanlike manner and in accordance with standard trade practices.
- (c) The alarm system shall be so arranged and connected that the operation of any fire alarm station shall sound an alarm on the sounding devices simultaneously throughout the premises.
- (d) Sending stations
- (1) There shall be provided, on each story, and in the basement at least one fire alarm sending station located in a natural path of escape from fire at a readily accessible

location designated by the Fire Chief and Commissioner, which always shall be kept unobstructed.

(2) Additional sending stations may be required where the travel distance from any one point, on the floor, exceeds one hundred and fifty (150) feet to the fire alarm station. (Not more than twenty (20) stations will be permitted on any one circuit or loop.)

(e) Sounding devices

(1) There shall be provided sufficient sounding devices, such as bells, gongs, horns, or whistles, so that the signals will be clearly audible to all the occupants of the building. In no case shall the sounding devices be less than two (2) in number.

(2) Not more than fourteen (14) direct, nor more than ten (10) alternating current gongs will be permitted on any one gong circuit.

(f) Control board

(1) There shall be provided in the basement pump room, engine room of janitors quarters, an approved control board designed to operate the alarm system.

(2) The control board shall be provided with an approved type trouble bell so connected that any disarrangement of the circuit wiring will sound a distinctive signal continually.

(g) Wiring

(1) All electric wiring for the interior fire alarm system shall be of copper, rubber insulated, protected by a braid, and be not less than number 14 Brown & Sharpe wire gauge. The wiring shall be protected from mechanical injury by standard weight, rigid iron conduit, properly bonded and grounded.

(2) The conduit shall be grounded to a water pipe by at least number 10 B. & S. gauge copper wire and approved copper ground clamps.

(h) Sources of electric energy

- (1) The source of energy used to operate the interior fire alarm system shall be obtained from the public service companies' mains, and shall not exceed a potential of 240 volts, either alternating or direct current.
- (2) When energy cannot be obtained from a central station power system, storage batteries in duplicate may be accepted when specifically approved by the Fire Chief and Commissioner.
- (3) When energy is supplied by a central station power system, the fire alarm cutout shall be the first connection, and as near as possible to the electric meter registering current consumed by the hall lighting system.
- (4) The fusible cutout shall be contained in a sealed or locked metal cabinet painted Fire Department red, and stenciled, "Interior Fire Alarm."

Not less than fifteen (15) ampere, enclosed type cartridge fuse will be accepted. Screw plug fuses are prohibited.

(i) Layout. Before the installation or extension of any fire alarm system, specifications thereof, showing complete details of the proposed installation shall be submitted by the owner or agent to the Fire Chief and Commissioner for examination and approval.

(j) Instruction cards

- (1) There shall be provided an approved instruction card, properly marked, framed under glass and securely mounted at each fire alarm station.
- (2) The location of the nearest street fire alarm box or the quarters of the nearest engine or truck company shall be shown on this card.

(k) Watchmen's time detector system

- (1) There shall be provided an approved system of watchmen's time detectors to record the movements or patrol of the watchmen.
- (2) The watchmen's time detector stations shall be so located that the watchman will be compelled to cover all public

portions of the premises at least once every two hours to record complete round of signals upon the watchman's time detector clock.

* * *

(2) Former Fire Department Rule 3 RCNY §17-08

§17-08 Telegraphic Alarm Communications in Theaters, Opera Houses and Concert Halls

(a) By virtue of the authority vested in the Fire Commissioner under §15-127(b)(1) of the Administrative Code, telegraphic communication to the Fire Department shall be required from theaters, opera houses, concert halls and similar places of amusement if such occupancies are provided with a stage, scenery and dressing rooms, seating capacity exceeds 299 persons and live performances are presented. The telegraphic communication (alarm box) shall be tested daily and prior to each performance and maintained unobstructed and in proper working order at all times.

(b) Telegraphic alarm communications to the Fire Department shall not be required from motion picture theaters or common show motion picture theaters. A motion picture theater is a public hall or room in which motion pictures are displayed, in which the seating capacity does not exceed 600 persons and in which no stage or scenery is provided.

A common show motion picture theater is a theater, with or without stage, scenery and dressing rooms, in which the seating capacity exceeds 600 persons and motion pictures only are exhibited.

(c) A common show motion picture theater provided with stage, scenery and dressing rooms may periodically present live performances. In so doing, such occupancies convert to live performance theaters and as such, telegraphic communications to the Fire Department shall be required in accordance with subdivision (a) above, except that such telegraphic communications shall not be required if six or less live performances are presented annually and the following is complied with:

(1) Licensee shall notify the Bureau of Fire Prevention, in writing, at least five (5) days in advance of the time and dates of such live performances.

(2) A non-coin operated telephone without connection through any switchboard shall be installed backstage prior to any live performance. This telephone shall be for the exclusive purpose of transmitting a telephone alarm in the event of fire or other emergency. A card of instructions for reporting a fire or other emergency to the Fire Department shall be posted at the location of the telephone. Such card shall be approved by the Bureau of Fire Prevention.

(3) Two (2) competent persons in the employ of the licensee shall be constantly available during the live performances to perform the following emergency duties:

(i) One (1) such person shall remain near the backstage telephone during the performance for the exclusive purpose of transmitting an alarm via the phone in the event of fire in the theater.

Such person shall not be required to perform any other duties during the live presentation.

(ii) The second person shall be assigned by the licensee as a "street box runner" who shall be familiar with the nearest city fire alarm box and how to operate same. He or she shall be required to perform no other duties during the live presentation than to transmit any necessary alarm from the street box.

(d) Any of the foregoing notwithstanding, theaters constructed in accordance with the provisions of the 1968 Building Code shall be provided with telegraphic alarm communications to the Fire Department, as required by the 1968 Building Code as follows:

(1) All occupancies classified by the Department of Buildings as F-1a occupancies, regardless of seating capacity.

F-1a occupancy is an occupancy in which persons assembled comprise a seated or otherwise passive audience to a performance or presentation and have their

attention focused in a common direction and in which scenery and scenic elements are used. (§ 27-255) Typical occupancies are theaters, playhouses and opera houses (§ 27-239-Table 3-2). F-1a occupancies shall be provided with an emergency control panel located in stage area equipped with an alarm system and intercom system connected to manager's office, the dressing rooms, and to supervisory central fire station. (§ 27-546(b)(10)). Emergency control panel in F-1a occupancies shall be manned in accordance with the requirements of the Fire Department. Since the fire control panel alarm system is a required system, a person holding a Certificate of Fitness shall be required. (§§ 27-546(b)(1) and 27-4265(g)).

- (2) All occupancies classified by the Department of Buildings as F-3 or F-4 occupancies, having stages with scenery or scenic elements, regardless of seating capacity.

F-3 occupancy is an occupancy in which persons assembled are physically active and do not have a common center of attention (§ 27-257). Typical occupancies are exhibition halls, galleries and museums. (§ 27-239-Table 3-2)

F-4 occupancy is an occupancy in which persons assemble for dancing, eating or for a combination of dancing, eating, drinking, or entertainment. (§ 27-258) Typical occupancies are night clubs, cabarets, dance halls and banquet halls. (§ 27-239-Table 3-2)

Section 27-549(a) of the Building (Administrative) Code provides that F-3 or F-4 occupancies having stages with scenery of scenic elements regardless of capacity shall comply with the provisions of the Building (Administrative) Code applicable to F-1a occupancies. As indicated in subdivision (d)(1) above emergency control panels with an alarm system connected to a control station is required in F-1a occupancies. A Certificate of Fitness is required for person manning such emergency control panel.

Note: Theater management shall be required to record Certificate of Fitness information in the Theater Inspection Log Book. See § 31-04 of these rules.

- (e) When non-required telegraphic alarm communication systems are installed, such systems shall be maintained in proper working order or shall be removed from the premises.

* * *

Note: Retain underlining of highlighted text in publication of final rule.

§4810-01 Pre-Existing Means of Egress

- (a) Scope. This section consolidates the *Fire Prevention Code* and former rules in effect on June 30, 2008, that are applicable to the design and installation of *means of egress* in *pre-existing facilities*.
- (b) Definitions. Reserved
- (c) General Provisions. *Pre-existing facilities* with *means of egress* the design and installation of which would not be allowed or approved under the Fire Code, but that, pursuant to FC102.3 and R102-01, may be continued with respect to such *means of egress* under the applicable laws, rules and regulations in effect prior to the Fire Code, shall continue to comply with the provisions of such laws, rules and regulations, including former Fire Department rule 3 RCNY 17-05, until such time as such *facilities* may be required to comply with the Fire Code and the *rules* with respect to the design and installation of such *means of egress*.
- (d) Electro-Magnetic Door Holders
 - (1) Former Fire Department Rule 3 RCNY §17-05

§17-05 Voluntary Installation of Electro-Magnetic Door Holders

- (a) Scope. To provide rules for the installation of electro-magnetic door holders or similar approved devices and to carry out the provisions of the Board of Standards and Appeals resolution as adopted under Cal. 109-63 S.A., printed in Bulletin No. 11, Vol. L, dated March 18, 1965.
- (b) Definitions

Approved. "Approved" shall mean by the Board of Standards and Appeals and bearing the label indicating such approval.

Electro-Magnetic Door Holders. "Electro-magnetic door holders" are a hold-open device for swinging fire doors to be utilized with approved self-closing door closers and automatic

detection, or sensing devices, and/or approved interior fire alarm system, whichever applies.

Voluntary Installations. "Voluntary installations" are installations which are not required by any law, regulations, or violation.

* * *

(d) Permissible installations

(1) Electro-magnetic door holders may only be installed for double swinging fire and smoke barrier doors installed by order of the Fire Department to sub-divide corridors for fire and smoke barriers.

(2) Where other doors are required to be closed, or to be self-closing by any provisions of the Administrative Code, the installation of such devices may only be made after the Board of Standards and Appeals has granted permission for specific locations.

(e) Electrical requirements

(1) The electro-magnetic device shall be so interconnected that the operation of the interior fire alarm system shall de-energize the device thereby permitting the doors to close.

(2) The control system shall be of a closed circuit type.

(3) The control release panel which shall consist of relays, terminal plates, etc., of approved type mounted in an approved manner.

(4) A master relay shall be installed to lock the system in a non-operating condition until set manually.

(5) For every fifteen electro-magnetic door holders a separate contact or relay shall be installed.

(6) A trouble relay which will indicate any defects in the control system shall be provided. A trouble bell shall be installed which will indicate any defects and shall be actuated by the trouble relay. Such system shall be connected to the house side of the current transformer

buss, through an approved cut-out without use of transformers, or rectifiers utilizing 120-208 volt service.

(7) A test means shall be provided to test the system and to operate the system manually.

(8) The equipment and installation shall be in conformance with interior fire alarm requirements and as stated in the Board of Standards and Appeals rules governing the installation of interior fire alarm systems (§ 811 of the B.S.A. rules).

* * *

§4822-01 Pre-Existing Motor Fuel-Dispensing Facilities and Repair Garages

(a) Scope. This section consolidates the *Fire Prevention Code* and Fire Department *rules* in effect on June 30, 2008, that are applicable to the design and installation of *pre-existing motor fuel-dispensing facilities* and *repair garages*.

(b) Definitions. Reserved

(c) Facilities in Compliance With Former Fire Department Rules in Effect on June 30, 2008. *Liquid motor fuel storage and dispensing facilities, marine liquid motor fuel-dispensing facilities, compressed natural gas motor fuel-dispensing facilities, and repair garages* in compliance with former Fire Department *rules* 3 RCNY §21-20, 21-21, 23-01, and/or 26-01, as applicable, in effect on June 30, 2008, are allowed and would be approved under the provisions of the Fire Code and the *rules*, and accordingly, such *facilities* shall be designed and installed in compliance with the requirements of FC Chapter 22 and the *rules*, except that where the distance of vent lines and fill and vapor recovery connections to lot lines in *pre-existing liquid motor fuel-dispensing facilities* and *marine motor fuel-dispensing facilities* is not in compliance with FC 3404.2.7.3.3 and 3404.2.7.5.2, compliance with such clearance distance requirements is not required until such time as such facilities are required to comply with the Fire Code and the *rules* with respect to such clearance distances.

(d) Pre-Existing Facilities. *Liquid motor fuel-dispensing facilities, marine fuel-dispensing facilities* and *CNG motor fuel-dispensing facilities* lawfully not in compliance with former Fire Department *rules* 3 RCNY §21-20, 21-21 and/or 23-01, as applicable, in effect on June 30, 2008, shall be designed and installed in compliance with applicable laws, rules and regulations, as set forth in R102-01(c)(3). Pre-existing firehouses with diesel motor fuel dispensing systems shall continue to comply with the requirements set forth in former Fire Department rule 3 RCNY §21-14 until such time as such *facilities* are required to comply with the Fire Code and the *rules* with respect to the design and installation of such motor fuel dispensing systems.

(e) Diesel Liquid Motor Fuel Dispensing Systems in Existing Firehouses

(1) Former Fire Department Rule 3 RCNY §21-14

§21-14 Installation of Diesel Fuel Storage Systems in Existing Firehouses

(a) Scope

- (1) No person or agency shall install diesel fuel oil storage equipment for use in existing firehouses except as provided in these rules.
- (2) These rules shall not apply to installations in other than existing firehouses.
- (3) All installations made under these rules shall be made by a licensed installer.
- (4) For the purpose of these rules the term "licensed installer" shall be interpreted to mean a person licensed to install fuel oil systems or gasoline storage systems or a licensed plumber.

(b) General requirements

- (1) Diesel storage systems for existing firehouses shall consist of two (2) tanks of 275 gallons capacity or one (1) tank of 550 gallons capacity. See subdivision (m) of this section for schematic drawing of installation.
- (2) Two (2) tank systems shall be equipped with valves to permit each tank to be isolated from the other.
- (3) All installations shall conform with the provisions of Article 17 of Subchapter 14 of Chapter 1 of Title 27 of the Administrative Code insofar as they apply to the installation of storage tanks except as hereinafter provided for.

(c) Oil permitted. Oil stored in storage systems installed under these rules shall be diesel fuel oil as defined in § 27-4002(10)(b) of the Administrative Code of the City of New York.

(d) Material and construction of tanks

- (1) All tanks for the storage of diesel fuel oil shall be built of steel plates made by the open hearth or basic oxygen process. Such plates shall be free from physical imperfections, such as laminations, cracks, mill scale, etc. All steel must be new, in good condition and free from rust.
- (2) All tanks shall be welded. Flanges or other pipe connections shall be sealed. Filler of any kind between plates is prohibited.
- (3) Plate thickness

 - (i) Tanks of 275 gallons capacity shall have a minimum thickness of shell and head plate No. 10 manufacturer's standard gauge (.134") steel plate.
 - (ii) Tanks of 550 gallons capacity shall be subject to the following requirements:

 - (A) Tanks 36" in diameter and less-at least 1/4" shell and 1/4" heads.
 - (B) Tanks 37" to 72" in diameter-at least 1/4" shell and 5/16" heads.
- (4) Tanks shall be cylindrical, oval, elongated oval or round and shall have dished heads with a curvature the radius of which is not greater than the diameter of the tank. Dished heads shall be formed with an adequate cylindrical extension rim to provide a welding surface.
- (5) At time of installation all storage tanks shall bear a permanently fixed plate, spot-welded or equivalent, bearing the name of tank manufacturer, the gauge of material and capacity of tank. All shop fabricated storage tanks shall be installed without structural alteration.
- (6) All openings shall be through the top of the storage tanks except that tanks shall be provided with a 1" capped opening in the bottom for cleaning and protection against corrosion.

(7) Tanks shall be painted with two (2) coats black asphaltum and stenciled with the lettering "Diesel Fuel Only." Letters to be white and 4" high.

(e) Location of tanks

(1) Storage tanks shall be installed in the cellar above ground. Bottom of tanks shall be 12" above slab mounted on substantial incombustible supports and located not less than seven feet (7') of clear unobstructed space measured horizontally from any furnace or source of exposed flame unless protected as provided in §§27-829(a)(2) or (3) of the Administrative Code and at least two feet (2') from any surface where the temperature exceeds 165 deg. F.

(2) Tanks shall be located as near as practicable below the location of the dispensing pump which shall be located on the apparatus floor.

(f) Piping

(1) Materials.

(i) All piping shall be new, standard, full-weight black steel, properly marked and duly approved.

(ii) Fittings shall be malleable iron.

(2) Installation

(i) Piping shall be run in a substantial and workmanlike manner. Exposed piping shall be protected against mechanical injury and shall be securely supported with rigid metal fasteners or hangers. Pitch shall be a minimum 1/2" per 10' to tanks.

(ii) Fill suction and vent line connections to tanks shall have swing joints.

(iii) All joints shall be made with Litharge and Glycerine or Board of Standards and Appeals approved pipe joint compound.

(3) Vent pipe

- (i) An open vent of steel, without trap and draining to the tank, shall be provided for each storage tank. The lower end of the vent pipe shall not extend through the top of the storage tank more than one inch (1"). Cross connection between vent pipe and fill pipe is prohibited.
- (ii) Vent pipes may not be run into a common header.
- (iii) Vent pipes shall not be less than one and one-quarter inches (1 1/4") in diameter.
- (iv) Vent pipes shall be provided with an approved weatherproof hood having a free area of not less than the pipe size area and shall terminate not less than two feet (2') nor more than twelve feet (12') above the fill pipe terminal. Vent pipe terminal shall be visible from location of the fill pipe terminal.
- (v) Each tank shall be equipped with a "Scully Vent Alarm" or equal and shall be audible from the location of the fill pipe terminal.

(4) Fill pipe

- (i) Fill pipe shall terminate outside the building. The fill pipe terminal shall be located on the building wall a minimum eighteen inches (18") and a maximum two feet (2') above grade and at least (2') from any building opening and five feet (5') from any subway grating at or below the level of the fill pipe terminal.
- (ii) A common fill pipe and header shall be installed in two (2) tank systems. The area of a common header pipe shall be no smaller than the largest branch fill pipe.

Where a common fill pipe and header is installed, a shut-off valve shall be installed at each tank. Valve shall be sealed open. See §21-14(m) for schematic drawing of installation.
- (iii) Fill pipe terminal shall be 2" or 3" left hand thread "Flagg Fill Pipe Terminal," Board of Standards

and Appeals Calendar No.345-35-SA or approved equal. The outer flange of the fill pipe terminal or the seal cap shall be provided with letters reading "Diesel Oil" and the calendar number under which the fill pipe terminal and the seal cap have been approved. Where there is a storage system of a volatile flammable oil and/or a storage system for fuel oil and a storage system for diesel fuel oil is to be used in the same premises, the terminal of the diesel oil fill pipe shall be provided with a left hand thread and the fill pipe fitting shall be a different size than the fill pipe(s) for the volatile flammable oil system and/or the fuel oil system. In lieu of the foregoing fill boxes may be of a type approved by the Board of Standards and Appeals and shall have cast in its cover an identifying name or symbol to differentiate between fuel oil for heating and diesel oil as motor fuel.

(iv) A porcelain enameled metal sign with 2" lettering reading "Diesel Oil" shall be permanently attached two feet (2') above the fill box on an adjacent wall.

(v) Where the top of the storage tank is above the fill pipe terminal, the fill pipe shall have connected to the top of the tank and be provided with a shut-off valve and swing check valve which shall be located at the fill pipe terminal, or the shut-off valve may be located inside the building at or below the level of the fill pipe terminal, in an accessible location.

(5) Suction lines

(i) Suction lines shall be one and one-half inch (1 1/2") black steel.

(ii) Suction lines shall extend to within four inches (4") of the bottom of each tank.

(iii) In two (2) tank systems suction lines from each tank shall be run into a common header.

Where a common suction line and header is installed, a check valve and a shut-off valve shall

be installed at each tank. See §21-14(m) for schematic drawing of installation.

(g) Valves and control of oil flow

(1) All valves shall be brass gate type suitable for use with oil.

(2) In a two (2) tank system, a shut-off valve shall be installed in the suction line and in the fill line to each tank. Valves shall be sealed open. See § 21-14(m) for schematic drawing of installation.

(3) A check valve shall be installed in the suction line to each tank. See §21-14(m) for schematic drawing of installation.

All check valves shall be angle check double poppet, similar to Buckeye No. 464 or approved equal.

(h) Oil level indicating devices and test wells

(1) Oil level indicating devices

(i) Individual approved direct reading liquid level gauges shall be mounted on each tank calibrated in gallons to the rated capacity of each tank.

(ii) Oil level indicating devices shall be constructed of substantial materials so designed that there can be no leakage of oil or oil vapor.

(2) Test wells shall not be permitted. Unused tank openings shall be permanently sealed to prevent removal of plugs or cover

(i) Dispensing pump.

(1) Specifications.

(i) Pump shall be electric, not-computer, explosion proof type, model #U535 of the A.O.Smith Corporation (Board of Standards and Appeals Calendar No. 483-55-SA) or approved equal. All parts of pumps coming in contact with liquid shall be either galvanized or brass.

- (ii) Pump shall be equipped with a discharge register and fitted with a tumbler lock equipped with two (2) keys.
- (iii) Pump shall be equipped with a filter having a replaceable element (WIX or equivalent), fifteen feet (15') of hose and an automatic shut-off nozzle. Hose and nozzle shall be of a type approved by the Board of Standards and Appeals for use in dispensing diesel fuel.
- (iv) Pump shall be equipped with a crank for manual operation in case of power failure.
- (v) Pump to have words "Diesel Fuel" stenciled across the front panel in white letters 1" high.

(2) Location.

- (i) Pump shall be located on the apparatus floor in a location near apparatus doors and convenient for supplying tanks of motor vehicles directly by means of dispensing hose.
- (ii) Where practicable, pump shall be located above the storage tank which shall be located in the cellar.
- (iii) Pump shall be mounted on a concrete pad 30" long by 18" wide by 12" high.

(j) Permits, plans and inspection of storage tanks and piping

- (1) Permits. No diesel fuel oil storage system installed under these rules shall be operated until it is inspected and approved by a representative of the fire commissioner except that temporary operation shall be permitted upon the filing by the licensed installer of a certified statement that such equipment and the installation conforms with the plan for the installation and with applicable provisions of law.

(2) Plans

(i) Plans for the installation of diesel fuel oil storage tanks in existing firehouses shall be prepared by the Fire Department buildings unit and submitted to the Bureau of Fire Prevention for approval before installation of the system. All such plans shall show compliance with these rules.

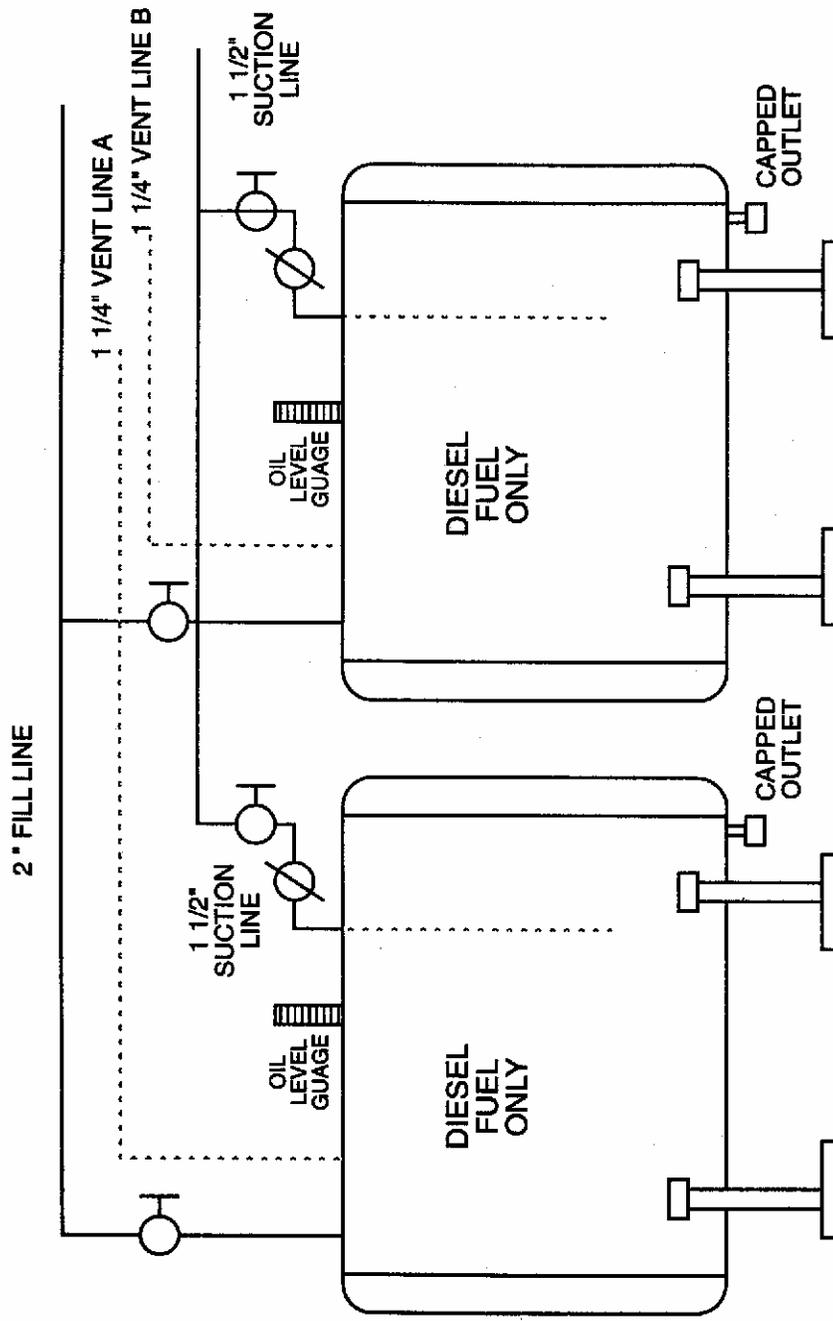
(ii) Plans for the installation of diesel fuel storage tanks in existing firehouses being remodeled under a modernization program shall be prepared by the agency charged with the modernization and shall be submitted by such agency to the Bureau of Fire Prevention for approval before installation of the system. All such plans shall show compliance with these rules.

(k) Fire protection. Tanks, pumps and piping shall be maintained oil tight and kept clear at all times.

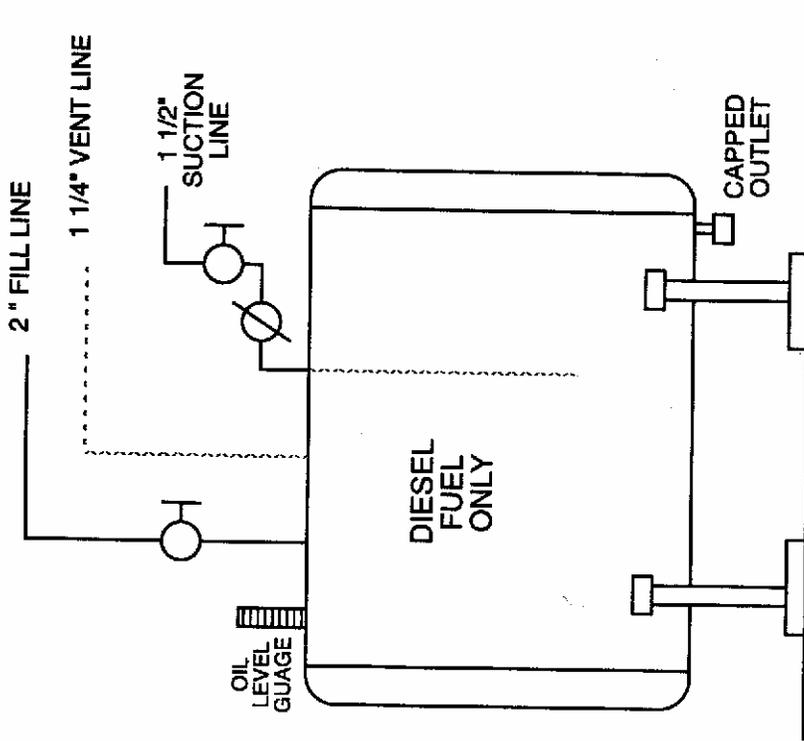
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(m) Schematic drawings

(1) Schematic drawing for two (2) 275 gallon tanks.



(2) Schematic drawing for 550 gallon tank.



§4830-01 Pre-Existing Compressed Gases

- (a) Scope. This section consolidates the *Fire Prevention Code* and former Fire Department *rules* in effect on June 30, 2008, that are applicable to the design and installation of *compressed gas* installations in *pre-existing facilities*.
- (b) Definitions. Reserved
- (c) General Provisions. *Pre-existing facilities* with *compressed gas* installations the design and installation of which would not be allowed or approved under the Fire Code, but that, pursuant to FC102.3 and R102-01, may be continued with respect to such *compressed gas* installations under the applicable laws, rules and regulations in effect prior to the Fire Code, shall continue to comply with the provisions of such laws, rules and regulations, including former Fire Department *rules* 3 RCNY 12-03, 23-10, 23-06 and 23-07, as applicable, until such time as such *facilities* may be required to comply with the Fire Code and the *rules* with respect to such *compressed gas* installations.
- (d) Medical Gases
 - (1) Former Fire Department Rule 3 RCNY §12-03

§12-03 Storage of Oxygen Cylinders for Use in Institutional Occupancies

* * *

- (c) Storage of oxygen cylinders
 - (1) When outdoor storage or a separate storage building is not feasible, oxygen cylinders shall be stored in an approved storage room.
 - (i) The storage room shall conform to the Building Code, but shall have a fire resistive rating of at least one (1) hour.
 - (ii) Storage room shall be provided with natural outside ventilation consisting of an open louvre having an area equivalent to at least one percent of the storage room area, or, in lieu thereof an adequate mechanical exhaust system shall be provided. Control for mechanical exhaust system to be located outside of the storage room. Ventilation shall conform to the Building Code, but shall not be less than the foregoing requirements.

(iii) Storage room to have fireproof door without louvres.

(iv) A sign shall be provided on the outside of the door to the storage room reading:

OXYGEN STORAGE
NO SMOKING-NO OPEN FLAMES

[lettering] Lettering shall not be less than two (2) inches in height and shall be either RED ON A WHITE or WHITE ON A RED background.

(v) All electric lights, switches, relays and other electrical equipment shall be vapor proof design if such equipment is located in the storage room.

(vi) Oxygen Storage Rooms shall not communicate directly with anesthetizing locations or storage locations for combustible or flammable anesthetic agents.

(2) Liquid oxygen cylinders may be stored only on special permit of the Fire Commissioner under such conditions as he or she deems necessary.

(3) When outdoor storage is utilized for oxygen cylinders: Cylinders shall be protected against extremes of weather, and from the ground beneath to prevent rusting.

(i) During winter, cylinders shall be protected against accumulation of ice and snow.

(ii) During summer, cylinders shall be screened against the continuous direct rays of the sun.

(d) General storage rules

(1) Oxygen cylinders shall not be stored with flammable gases, oils, grease, etc.

(2) Cylinders to be properly secured to prevent damage and away from sources of heat.

(3) An oxygen cylinder for immediate and emergency use may be kept on each floor in a cabinet, closet or room. (This is in addition to cylinders in actual use.)

* * *

(6) No recharging of cylinders to be conducted on premises.

* * *

Note: Retain underlining of highlighted text in publication of final rule.

(2) Former Fire Department Rule 3 RCNY §23-10

§23-10 Design, Construction and Erection of Central Oxygen and Nitrous Oxide Piping Systems in Hospitals

(a) Scope. This section applies only to installations made prior to the Department of Buildings taking jurisdiction on December 6, 1968 over these type installations as specified in Section P114.12 of Reference Standard 16.

(b) General

(1) Piping systems herein described must not be used for the distribution of combustible anesthetic gases.

(2) Where oxygen or nitrous oxide piping is exposed, it shall be painted green for oxygen service and blue for nitrous oxide service.

(3) All current rules published by the National Fire Protection Association under chapter “Recommended Safe Practices for Hospital Operating Rooms”, and rules adopted by the Compressed Gas Association, Inc., shall be observed insofar as applicable for the construction and use of central piping systems. In addition to these rules, the following guide specifications shall be observed:

(c) Manifold room

(1) All electrical lights, switches, relays, and other electrical equipment shall be of vapor proof design if such equipment is located in the manifold room.

(2) Manifold room shall have fireproof door without louvres. Provide lettering on outside of door leading to manifold

room. Letters are to be not less than 2 inches high, reading “Oxygen Room-No Smoking”.

- (3) Provide exhaust system for ventilating manifold room. If natural outside ventilation is not provided, provide adequate mechanical exhaust system. Control for mechanical exhaust system shall be outside of manifold room.

* * *

(d) Manifold header

- (1) Manifold shall be of substantial design. Manifold and header controls shall be securely bolted to wall or floor by means of substantial supports.
- (2) Manifold header shall be constructed of bronze or brass. High pressure headers, fitting and connecting coils shall be capable of withstanding a test pressure of not less than 4,000 pounds per square inch.
- (3) Leads of connections attaching cylinders to manifold shall be of annealed brass, bronze or copper and of suitable strength and flexibility. Check valve to be provided in each lead to prevent backflow.
- (4) Approved type pressure reducing valves shall be installed in manifold assembly to maintain a delivery pressure of not more than 50 pounds per square inch in the distribution system. Pressure gauges marked “Oxygen” or “Nitrous Oxide” respectively shall be provided in conspicuous location in order to permit observation of delivery pressure.
- (5) A built-in pressure relief valve shall be provided on the reduced side of the manifold header. Relief valve shall be set at not over 100 pounds per square inch. Discharge of relief valve shall be piped to outside air.
- (6) Means shall be provided to prevent the connection of nitrous oxide cylinders to an oxygen manifold and vice versa.

* * *

(e) Distribution system

(1) Oxygen or nitrous oxide distribution piping shall be standard full weight iron pipe size, brass or copper pipe with substantial brass or copper fittings or copper tubing type K or B with approved fittings and shall be made clean before installation and protected against mechanical injury. Proper allowance shall be made for expansion and contraction, jarring and vibration. Brass used for piping shall have a copper content of not less than 83 percent.

* * *

(3) Threads shall be in accordance with American type pipe thread standards. Threaded joints shall be screwed and soldered or screwed with litharge and glyserine. Threadless type joints shall be brazed with high temperature brazing alloy.

(4) Provide shut-off valve for each individual vertical riser. Shut-off valve shall be located in a conspicuous location. Shut-off valve shall be mounted in a wall box. Cover of box shall be marked, "Riser shut-off valve oxygen service do not dose except in emergency." Cover of box shall have locking means with key for opening box in separate receptacle, mounted next to the shut-off box.

(5) Pipe shafts for vertical risers shall be vented at the top except such shafts which are not open between floors and in which piping is carried through sleeves packed with oil free incombustible material at the floor levels.

(6) Horizontal distributing branches taken off main risers on each floor shall be provided with a shut-off valve or shut-off valves so that oxygen service for an entire floor or section of a floor may be shut off without affecting service on other floors. Such shut-off valve shall be provided in each branch line for every twelve outlets or for every hundred feet of branch line, passageway between furthest outlet and shut-off valve to be unobstructed.

(7) Floor shut-off valves shall be located in conspicuous manner and in easy reach, properly marked, either recessed or exposed, or

(8) The following may be substituted as conforming with paragraphs (4) and (7) of subdivision (e) above: A valve box fitted with an emergency replaceable polystyrene window with a pull ring assembly, which can be snapped out in an emergency. This door window shall be lettered "Caution-Oxygen or Nitrous Oxide Valve. Close only in emergency-Pull ring to break window."

(f) Outlet valves and outlet boxes

(1) For operating rooms and anesthesia rooms

(i) For each operating or anesthesia room provide a separate shut-off valve so that shutting off gas supply to one operating or anesthesia room will not affect the supply to others. Valves shall be located on the outside of such rooms and be accessible at all times for use in emergency. Valves shall be mounted in recessed boxes or in such manner that they are protected against mechanical injury. Valves shall be of acceptable type and marked to prohibit tampering or inadvertent closing.

(ii) Where oxygen is piped in combination with other anesthetic gases, individual wall outlets shall be fitted with safety keyed outlet valves so as to prohibit the accidental connection of an oxygen line to a nitrous oxide line and vice versa. Safety keyed outlet valves shall be automatically closed when safety key on the take-off line is disconnected from the outlet valve.

(iii) Where oxygen only is piped to operating or anesthesia rooms, not combined with other anesthetic gases, an approved type oxygen wall outlet valve with dust cap and chain is acceptable.

(2) Wall outlets in patient and treatment rooms

(i) An approved type oxygen and shut-off valve with dust cap and chain, or an automatic safety keyed outlet valve, or a combination of both shall be provided exposed or in a flush mounted recessed

wall box so that various accessories may be connected to such outlet valves.

* * *

(g) Alarm systems. A closed circuit electrical operating alarm system shall be provided that will give a visible and audible signal when the pressure in the system varies eight pounds above or below the normal line pressure of 50 pounds. All equipment shall be approved by the Board of Standards and Appeals of the City of New York. All wiring shall be installed standard weight rigid iron conduit, and conductors shall be not less than #14 gauge copper wire. Alarm indicating panel shall be located in a strategic location in the hospital where it is under observation at all times. The system shall be connected to the house side of the owner's lighting meter through an approved 3-wire National Electric Code (N.E.C.) cartridge fuse cut-out having a removable strap or neutral bar. This cut-out cabinet shall be painted red, provided with a lock and stenciled "OXYGEN ALARM".

* * *

(e) Anhydrous Ammonia

(1) Former Fire Department Rule 3 RCNY §23-06

§23-06 Storage and Use of Ammonia with Dissociating Equipment

(a) Location. Location, of a tank, is to be approved by the Department of Buildings after a site inspection by a representative of the fire department.

(b) Storage

(1) Storage of ammonia in cylinders shall be in an area of masonry which has been approved by the Department of Buildings. This area shall be independently vented to the outer air.

(2) Storage of ammonia in tanks.

(i) Tanks may be located above ground outside of buildings.

(ii) Such tanks shall be provided with: Protection against the sun's rays; electrical groundings;

protection against damage by a barrier satisfactory to the fire commissioner; a water deluge system over the tank; a remote control for such deluge system; a vandal-proof fence which will surround the tank.

(3) Tanks located inside the buildings shall be equipped with both manual and automatic deluge systems.

(c) Piping and valves

(1) All piping shall be extra heavy black steel properly supported and protected against mechanical injury and atmospheric corrosion and all fittings and valves forged or cast steel (not galvanized).

* * *

(3) Provide dual relief valves from NH3 storage tank so that either relief valve may be removed for servicing without impairing protection of tank.

(4) All relief valves shall discharge in vent line piped at least 10' above roof of building and above any exposure within 25'. Such vents shall be equipped with rain caps.

(d) Ammonia dissociators

(1) All dissociators or ovens used with dissociated ammonia, hydrogen or hydrogen-nitrogen mixtures shall be approved for such use by the Board of Standards and Appeals.

(2) All dissociator rooms shall be fireproof or fire resistive, sprinklered, and have independent fixed ventilation which shall conform with § 27-4131 of the Administrative Code.

* * *

(4) Each oven or dissociator shall be vented to the outer air by rigid steel piping or a sheet metal duct with all joints tight.

(e) General requirements

(1) Ammonia storage tanks shall meet the specifications of the American Society of Mechanical Engineers, or be approved by the Board of Standards and Appeals for such purposes.

* * *

(3) Ammonia storage tanks shall not exceed 1,000 gallons in capacity.

(4) Tanks shall not be filled to more than 54% waterweight of capacity (approximately 85% by volume).

(5) Liquid outlets from tanks shall be protected with excess flow valves.

* * *

(7) Instruction cards or operating charts shall be posted at or near the storage tanks, dissociators and ovens.

* * *

(9) No mercury manometers or mercury seals shall be used at any time.

(10) All premises wherein ammonia in bulk is stored or used shall have at least twelve (12) sulphur tapers ready for use in event of a leak.

(2) Former Fire Department Rule 3 RCNY §23-07

§23-07 Storage and Use of Anhydrous Ammonia for Duplicating Machines

(a) Scope. This section shall be applicable whether or not a permit is required under Chapter 4 of Title 27 of the Administrative Code. In cases of a conflict of this section with the requirements of the Board of Standards and Appeals, the latter shall prevail.

(b) Appliance shall be approved by New York City Board of Standards and Appeals and bear a permanently affixed label indicating such approval and its calendar number. Installation shall comply with the requirements of that resolution.

- (c) Only one cylinder of anhydrous ammonia, not exceeding 150 lbs. capacity shall be used, except that each machine may have one reserve cylinder in the use area when properly manifolded to a pressure relief valve in accordance with §23-07(d) and the supply valve is in the open position. All cylinders shall be secured by chain or other suitable means to prevent accidental toppling. Machines using a cylinder of 8 lbs. net weight or less of anhydrous ammonia, in addition to the permitted manifolded reserve, may have an additional 8lbs. reserve supply, without manifold, in the use area in a metal cabinet marked in accordance with §23-07(i).
- (d) Relief valves shall be provided for anhydrous ammonia machines and such valves shall be set at not over 250 p.s.i. Relief valves shall be piped to a safe location in outer air by not less than 1/2 inch pipe. Piping to the outer air is not required for machines using a cylinder of eight pounds net weight or less if its relief valve is piped into an absorber.
- (e) An excess flow valve shall be installed in the lines at or near the cylinder outlet; however, an excess flow valve is not required where a fitting is used with an orifice diameter, of a #60 drill size or less, properly installed.
- (f) Systems using anhydrous ammonia cylinders, any of which exceed 8 lbs., shall be exhausted directly to a safe location in outer air through a duct of 4" minimum diameter. Air flow is to be insured by a mechanical blower with a minimum capacity of 175 cubic feet per minute incorporated into the machine. The provision of ventilation shall comply with Chapter 1 of Title 27 of the Administrative Code.
- (g)
- (1) In addition to those permitted in §23-07(c), reserve anhydrous ammonia cylinders stored shall not exceed a total of 300 lbs. net weight of anhydrous ammonia for use by any single occupant. Such storage shall be outdoors—protected from sun and all mechanical injury when such outside storage is permitted by the Zoning Resolution and is approved by the Department of Buildings or Department of [Ports and Trade] **Small Business Services**—or indoors in a separate room with ventilation to the outer air through a duct of 4" minimum diameter with inlet near ceiling. Plans for reserve storage rooms are to be approved by Department of Buildings or Department

of [Ports and Trade] Small Business Services before construction is commenced, with a copy of approved plans to be filed with the Bureau of Fire Prevention. The door to the reserve storage room is to be self-closing and vapor tight if such doors lead to the interior of the building.

(2) The reserve storage room shall be equipped with open sprinkler heads which are placed in operation by a properly labelled valve located outside the storage room. The sprinkler line may be connected to house water supply in non-sprinkler buildings if lines are of adequate size according to the Administrative (Building) Code.

* * *

(i) Warning signs shall be posted to be visible when entering rooms where anhydrous ammonia is used or stored. Such signs shall be visible whether doors are open or closed in accordance with the following format:

<p style="text-align: center;"><u>NOTICE</u> <u>THIS AREA CONTAINS ANHYDROUS AMMONIA</u> <u>IN CASE OF AN AMMONIA LEAK OR IF</u> <u>A VERY STRONG AMMONIA ODOR IS PRESENT</u></p> <p><u>1. CALL THE FIRE DEPT. (PHONE # _____)</u> <u>2. A NON-COIN PHONE MAY BE FOUND AT _____</u> <u>3. NOTIFY ALL PERSONNEL TO EVACUATE THE AREA</u> <u>4. SHUT OFF ALL OPEN FLAMES</u> <u>5. DO NOT SHUT OFF THE DUPLICATING MACHINE SINCE THAT</u> <u>WOULD SHUT OFF THE BLOWER PROVIDING HELPFUL AIR</u> <u>EXHAUST</u> <u>6. CLOSE ALL DOORS TO ADJOINING AREA</u></p>

* * *

(k) All open flames shall be shut off in the event of an anhydrous ammonia leak.

(l) Twelve sulphur tapers, litmus paper or unexposed Diazo sensitized paper shall be provided readily accessible and located in the vicinity of the machine and reserve storage room. Such materials shall be in suitable condition to detect ammonia leaks.

- (m) A permanent chart listing safety precautions for handling anhydrous ammonia shall be posted at storage facility and where machine is used.
- (n) The emergency number for the fire department shall be posted in a conspicuous and permanent manner.
- (o) All relief devices, except as provided in §23-07(d) shall be piped directly to the outer air. Such piping shall be adequately secured and protected from physical damage. There shall be no shut-off valves in this piping.
- (p) Detailed instructions for the operation of the anhydrous ammonia system shall be posted in a conspicuous and permanent manner.
- (q) The anhydrous ammonia cylinder shall be connected to the duplicating machines with high pressure stainless steel flexible connector rated at 4500 p.s.i. bursting pressure and/or with synthetic rubber hose with braid reinforcement with bursting pressure rating of 1750 p.s.i. and/or with equivalent rigid iron or steel pipe.
- (r) All appurtenances such as flow meters, pressure regulators and pressure gauges shall be suitable for pressure involved and constructed of material suitable for use with anhydrous ammonia.

* * *

Note: Retain underlining of highlighted text in publication of final rule.

§4832-01 Pre-Existing Cryogenic Fluids

- (a) Scope. This section consolidates the *Fire Prevention Code* and former Fire Department rules in effect on June 30, 2008, that are applicable to the design and installation of *cryogenic fluid* installations in *pre-existing facilities*.
- (b) Definitions. Reserved
- (c) General Provisions. *Pre-existing facilities* with *cryogenic fluid* installations the design and installation of which would not be allowed or approved under the Fire Code, but which, pursuant to FC102.3 and R102-01, may be continued with respect to such *cryogenic fluid* installations under the applicable laws, rules and regulations in effect prior to the Fire Code, shall continue to comply with the provisions of such laws, rules and regulations, including former Fire Department *rule 3 RCNY 23-03*, until such time as such *facilities* may be required to comply with the Fire Code and *rules* with respect to such *cryogenic fluid* installations.

(d) Liquefied Natural Gas

(1) Former Fire Department Rule 3 RCNY §23-03

§23-03 Manufacture, Storage, Transportation, Delivery and Processing of Liquefied Natural Gas

- (a) Scope. This section has been developed for New York City because of the congested air patterns, high population density and numerous underground subways, tunnels, sewers and other conduits indigenous to this locality.

This section shall apply to all liquefied natural gas installations both constructed and operated after the date of promulgation and to the safety of operation, to alterations or redesign of existing facilities not covered by existing criteria. This section shall be applicable also to the waterborne transportation and delivery of LNG as it relates to land based facilities. In all matters not specifically provided for herein, the Regulations of the Department of Transportation and the Public Service Commission of the State of New York, and NFPA STD 59A, 1975 shall apply.

- (b) Definitions

Agency Having Jurisdiction. Agency having jurisdiction means the local authority having responsibility as prescribed in the Charter and Administrative Code of the City of New York, e.g., Fire Department, Department of Buildings, Department of [Ports and Trade] [Small Business Services](#).

Approved. Approved means sanctioned by the agency having jurisdiction for use or operation, after inspection, test or acceptance of data supporting the safety and/or effectiveness of the design, equipment or process.

Barge (LNG). Barge is a vessel, with or without its own propulsion system, inspected and approved by the U.S. Coast Guard for transportation and delivery of LNG on waterways within the Port of New York.

Barrel. Barrel is a unit of volume equal to 42 U.S. gallons.

Berm. Berm is a concrete or compacted earth structure constructed directly against or closely surrounding the container

to a height 10 per cent in excess of the design liquid level to serve as the primary impounding area.

Deriming (defrosting or deicing). Deriming (defrosting or deicing) means the removal by heat and evaporation, sublimation, or solution of accumulated constituents which form solids, e.g., water and CO₂ from the low temperature process equipment.

Design Pressure. Design pressure is the pressure used in the design of equipment, container or vessel for the purpose of determining the minimum permissible thickness of physical characteristics of its different parts. When applicable, static heads shall be included in the design pressure to determine the thickness of any specific part.

Dike. Dike is compacted earth, a concrete, or other non-combustible structure used to establish an impounding area suitable for containing the fluids involved.

Fail Safe. Fail safe is the design feature which provides for safe condition in the event of malfunction of control devices, detection of fire or gas leak or interruption of any energy source.

Impounding area. Impounding area is an area which limits by dikes, berms or natural topography, the containment of spilled LNG, flammable refrigerants or other low flash liquids.

Incombustible or Non-combustible. Incombustible or non-combustible means a material which, in the form in which it is used in construction, will not ignite and burn when subjected to fire. However, any material which liberates flammable gas when heated to any temperature up to 1380 degrees Fahrenheit for five minutes shall not be considered non-combustible. No material shall be considered non-combustible which is subject to increase in combustibility beyond the limits established above, through the effects of age, fabrication or erection techniques, moisture, or other interior or exterior atmospheric conditions.

Installations. Installations includes tanks, liquefaction and vaporization facilities, processing equipment, piping and associated loading and unloading facilities, and all fire protection.

Liquefied Natural Gas (LNG). Liquefied natural gas means a gas in the liquid state composed predominately of methane and

which may contain minor quantities of ethane, propane, nitrogen or other components common to natural gas.

Maximum Allowable Working Pressure. Maximum allowable working pressure means the maximum gage pressure permissible at the bottom of completed equipment, container or vessel in its operating position for a design temperature.

psia. Pounds per square inch absolute.

psig. Pounds per square gage.

Primary Components. Primary components, in general, include those whose failure would permit leakage of the liquid being stored, those exposed to a temperature between -60(degrees)F and -270(degrees)F, and those subject to thermal shock. The primary components shall include, but will not be limited to, the following parts of a double-wall tank; shell plates, bottom plates, knuckle plates, compression rings, shell stiffeners, manways, and nozzles including reinforcement shell anchors, pipe, tubing, forgings, and boltings on both inner and outer tank and the roof plates of the inner tank. All LNG liquid and vapor piping and fittings shall be considered primary components.

Process Equipment. Process equipment means all systems required to condition, liquefy, or vaporize natural gas in all areas of application referred to in these regulations.

Risk Analysis. Risk analysis means a methodology of assessment of an identified hazard utilizing a systematic evaluation of failure modes, probabilities and consequences resulting in quantitative data supporting recommendations for corrective action.

Secondary Components. Secondary components, in general, include those which will normally not be in contact with the refrigerated liquid being stored, those exposed to product vapors and having a design metal temperature of -60(degrees)F or higher.

Service Building. Service building is a building used for office, maintenance, shops, electrical distribution, garage or storage.

Tanker (LNG). Tanker means an ocean-going vessel, inspected and approved by the U.S. Coast Guard for the transportation and delivery of LNG.

Tanks

- (i) **LNG storage vessels.** LNG vessels or containers of more than 2,500 gallons capacity operating at not more than 2.5 *psig*.
- (ii) **Process, satellite, or similar tanks.** LNG vessels or containers with a capacity of 2,500 gallons or less.

(c) Plant site

- (1) **Minimum clearances.** Minimum clearances shall be maintained between LNG containers, flammable refrigerant storage tanks, flammable liquid storage tanks, building, structures and plant equipment and plant property lines as prescribed in the chart of minimum distance requirements (Figure 1), unless otherwise provided in these regulations. Siting of tanks shall further be based on radiation and vapor dispersions studies made by competent authorities prior to approval of site plans in order to establish the minimum distance of the property line and to critical occupancies.

	LNG Container	Impounded Liquid	Process Equipment ⁶	Vaporizers	Process Contr. Houses	Fire Pump House Fire Prot. Control	Marine Transfer Facilities	Critical Occupancy	Service Buildings	Property Line or Navigable Water	Boil-Off Compressor	Flare Stack or Ignition Source	Sewers, Undergrd. Ducts, Drains
LNG Container	250 ²		250 ⁵	250 ⁵	500	500	250 ⁵	1000 ¹	250	250 ²	100	250 ²	500
Impounded Liq.			150	150	250 ²	500	250	1000 ¹	250	200 ²		250	50
Process Equipment ⁶	250 ⁵	150		100	100 ³	200	250	250	100	100		100	
Vaporizers	250 ⁵	150	100		200	200	250	250	200	100	100	100	
Process Contr. Houses	500	250 ²	100 ³	200			250	150	100		100	250	
Fire Pump House Fire Prot. Contr.	500	500	200	200			200	100	100		100	250	
Marine Trans. Facilities	250 ⁵	250	250	250	250	200		1000	100 ⁴	100	200	250	
Critical Occupancy	1000 ¹	1000 ¹	250	250	150	100	1000				100	250	
Service Buildings	250	250	100	200	100	100	100 ⁴				100	100	
Property Line or Navigable Water	250 ²	200 ²	100	100			100				100	100	
Boil-off Compressor	100			100	100	100	200	100	100	100		100	
Flare Stack or Ignition Source	250 ²	250	100	100	250	250	250	250	100	100	100		
Sewers, Undergrd. Ducts, Drains	500	50											

Figure 1.

Notes:

1. Hospitals, schools, places of assembly, bridges, tunnels, etc.
2. Or one and a quarter tank diameters, whichever is greater, except that tanks of not more than 2500 gallons shall be spaced according to the diameter criteria, but not less than 100 feet.
3. Except where a four-hour unpierced wall separates the control room from flammable liquid handling and explosion venting is provided.
4. For vessels up to 30,000 bbls. cap. Increase to 200 feet for vessels up to 50,000 bbls. and increase to 300 feet for vessels in excess of 50,000 bbls.
5. Or one tank diameter, which ever is greater.
6. Includes cold box.

Thermal radiation and vapor dispersion study. A thermal radiation and vapor dispersion study shall be submitted, prepared by recognized experts in thermodynamics, selected by the owner and acceptable to the Fire Department. The study should include vapor dispersion characteristics resulting from spills caused by total failure modes of the storage tanks, or equipment, or piping. The study should show equilibrium temperatures within a radius of 1,500' of the tank, at wind velocities of 00, 30, and 60 mph, at points where R 1,500', 1,200' and 1,000', 800', 600', 500', 400', 300', 200' and 100' from flame surface (innertank wall) in events where an entire tank or group of tanks are involved in a fire. Attention shall also be given to the possibility of local overheating and fires in impounding areas.

(2) Site plans

- (i) Proposed site plan. A proposed site plan shall be filed with the Fire Department indicating all major characteristics of the site, showing plant buildings, tanks, containers, dikes, process areas, transfer areas, major LNG piping, lot lines, shore lines, and exposures within 1,500' of lot lines. Such aerial photos as the Fire Department may require shall be included. Site plans shall include underground channels, such as conduits, pipelines, drainage ditches, and similar channels.
- (ii) Soil selection. LNG tanks, cold boxes, piping and supports, and other cryogenic equipment shall be properly sited, designed and constructed so that no damage from freezing or heaving of the soil will develop. The soil shall be selected, prepared, and protected in accordance with the requirements of the agency having jurisdiction. (Department of [Ports and Trade] **Small Business Services** or Department of Buildings.)
- (iii) Protection of site. Plant sites shall be protected from the forces of nature as flooding by rains, high tides, or soil erosion by grading, draining and dikes. Grass, weeds, trees, or undergrowth shall be cleared within 25 feet of any piping, container, or process equipment.

Note: Retain underlining of highlighted text in publication of final rule.

(3) Facility description. A complete description of the facility shall be filed with the site plan, indicating LNG tanks and sizes, method of liquefaction and vaporization, other methods of acquiring LNG, and fire extinguishing systems. Also included shall be a detailed analysis of the typical product to be stored.

(4) Roads. At least two all-weather roads shall be provided at least 20 feet in width providing access to all areas of the facility. The roads shall be designed in accordance with the specifications of the American Association of State Highway Officials for a uniformly distributed load of 600 pounds per square foot or for the maximum vehicular wheel load that could be imposed thereon, whichever develops the greater stresses. Such design shall take into consideration the weight, height, and turning radius of the heaviest vehicles of the fire department which may have occasion to use the roads. Current specifications of such vehicles shall be obtained from the fire department. Equipment shall be provided to maintain the roads free of snow and ice accumulations and shall at all times be maintained in serviceable condition. Entry gates at least as wide as the road shall be located remote from each other to provide alternate means of access to the plant.

(5) Fences. A protective fence of incombustible material shall be erected at the property line, at least eight feet in height, having locked gates openable only to authorized persons on proper identification.

(d) Tank site-design, general

(1) Berm height. The maximum height from the ground level to the top of the berm shall be 60 feet and the minimum ratio of the diameter of the container to maximum liquid level shall be 3:1 (See Figure 2).

(2) Tanks over 2,500 gallons. LNG stored in tanks over 2,500 gallons shall be protected from spillage by quadruple containment, i.e., a primary cryogenic container, a secondary cryogenic container, a concrete or earth berm which shall serve both as a tertiary container

and primary impounding area, and lastly an outer dike or impounding area which shall constitute the secondary impounding area.

(i) Tanks over 2,500 to 100,000 gallons. Tanks over 2,500 gallon capacity to 100,000 gallons shall be enclosed in a berm of compacted earth suitably protected against soil erosion or a reinforced concrete berm. The outer shell shall be adequately protected against corrosion.

(ii) Tanks over 100,000 gallons. Tanks over 100,000 gallon capacity shall be enclosed in reinforced concrete berm designed to withstand (without damage to the primary container) the impact of the heaviest aircraft which can operate to or from any airport within a radius of ten miles at a speed of 200 knots. The effectiveness of the berm in providing such protection shall be proven by a finite element analysis or block analysis or other acceptable method.

(e) Impounding areas, berms, dikes. Every LNG container shall be located within both primary and secondary impounding areas or dikes, except that tanks with capacity of not over 2,500 gallons need only a primary impounding area or dike.

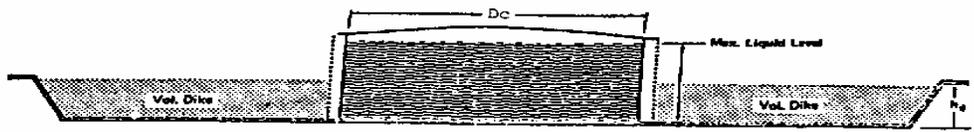
(1) Impounding areas

(i) Impounding area. The impounding area formed by dikes or natural topography shall slope away from the tank to a basin provided for minor spills and shall further slope away from waterways or property lines. Cryogenically suitable approved pumps manually controlled and piping on incombustible and cryogenically suitable supports shall be used to return such spills to a tank where possible.

(ii) Impounding area construction. Impounding areas shall not contain underground channels, drains, conduits, or sewers. If disposal of storm water is required, it shall be pumped over the dikes by means of fixed piping and manually controlled.

(2) Impounding areas formed by dikes or natural topography

- (i) Capacity. The minimum capacity of the area shall be 150 percent of the maximum liquid capacity of the container, LNG piping and processing equipment, for which the area is provided; except that 250 percent or greater capacity shall be required where foaming, vigorous boiling or other expansion phenomena may be encountered.
- (ii) Container restrictions. Not more than one container shall be installed in a single dike and the maximum ratio of highest liquid level in the container to the height of the dike at the required capacity level shall be 2:1 (See Figure 2).
- (3) Siting of primary impounding areas for containers 2,500 gallons or less (not bermed). Provision shall be made to prevent a radiation flux from a fire over the primary impounding area from exceeding 1500 BTU/HR/Ft² at ground level at a property line which can be built upon, when ambient atmospheric conditions are zero wind speed, 70 degrees Fahrenheit temperature radiation flux of 1500 BTU/HR/Ft² is about the level at which protection for humans should be provided. This provision may be complied with, if siting shall be in accordance with Figure 1 or with the formula: $d_1 = \text{two times the square root of } A \text{ (whichever is greater)}$ where d_1 is the distance in feet from the nearest edge of impounded liquid in the primary impounding area to process equipment, vaporizers, service buildings, process and fire control houses, transfer facilities, ignition sources or to the property line which may be built upon or to a navigable waterway, (but the minimum distance to the near edge of such waterway or property line shall be 200 feet) and $A = \text{surface areas of impounded liquid.}$



D_c	=	$\frac{3.0}{1}$	(Min.)
Max. Liquid Level			
Max. Liquid Level	=	$\frac{2.0}{1}$	(Max.)
h_d			
Volume Dike	=	$\frac{1.5}{1}$	(Min.)
Volume Container			

RATIO OF DIKE HEIGHT TO LIQUID LEVEL
FIGURE 2

- (4) Siting of primary impounding areas for containers over 2,500 gallons (bermed). In the case of bermed tanks, provision shall also be made to prevent a radiation flux from a fire over the primary impounding area from exceeding 1500 BTU/HR/Ft² at ground level at a property line, which can be built upon, when ambient atmospheric conditions are zero wind speed, 70 degrees Fahrenheit temperature, and 50 percent relative humidity. This provision may be complied with if siting shall be in accordance with Figure 1 or the following formula: $d_2 =$ one and one-quarter times the square root of A (whichever is greater). A = the cross-sectional area of the inner diameter of the berm, $d_2 =$ distance in feet from the nearest edge of liquid in the impounding area to process equipment, service buildings, vaporizers, ignition sources, process and fire control houses and to other LNG containers or to a transfer facility. Notwithstanding the foregoing, the edge of any impounded LNG shall not be closer than 1,000 feet to any critical occupancy such as a school, hospital, place of assembly, bridge, or tunnel.
- (5) Berms. Berms of reinforced concrete shall be at least ten feet thick, liquid tight, and strong enough to meet the requirement of § 23-03 (e)(4). Berms of compacted earth shall be at least ten feet wide at the top and have a slope of 1:1 1/2. Two steel or concrete access stairways from

the base to the top of the berm shall be erected diametrically opposite each other.

(6) Dikes

(i) Dikes shall be constructed of compacted earth or concrete capable of withstanding thermal shock through a temperature range of -260 degrees Fahrenheit to 1800 degrees Fahrenheit and capable of withstanding full hydraulic head and hydraulic surge.

(ii) Dikes shall be liquid tight without openings for pipes. Access roads and ramps for construction, maintenance, and fire protection vehicles are required to pass over the top of the dikes.

(iii) Secondary impounding areas shall be provided for each tank over 2500 gallon capacity.

(7) Surrounding areas

(i) No sewers, underground ducts, or drains will be permitted within 500 feet of the LNG storage tank, or 50 feet of any impounding area.

(ii) Drainage shall be accomplished by grading, normal evaporation, or by non-automatic means to a safe location. Where impounding areas are to be drained, all drainage piping shall pass over the top of the dike.

(iii) The following areas shall be graded and drained in a manner that will minimize the possibility of endangering personnel, structures, or equipment, or adjoining property through accidental spills or leaks.

(A) Process areas.

(B) Vaporization areas.

(C) In-plant LNG, flammable liquid, and flammable refrigerant transfer areas.

(D) Areas surrounding flammable refrigerant and flammable liquid storage tanks.

(f) Spacing of equipment and structures. Minimum clearances shall be maintained for equipment and structures as noted in this subdivision (f). All equipment and structures referred to in this subdivision (f) shall conform to the minimum clearances as presented in Figure 1.

(1) Vaporizers

(i) Vaporizers shall be located at least 100 feet from process equipment, boil-off compressors, flare stacks, property lines or navigable waters, flammable storage of 2,500 gallons or less, and loading or unloading connections other than marine transfer facilities; at least 150 feet from any impounding area; at least 200 feet from service buildings, process control houses or fire protection control facilities; and at least 250 feet from marine transfer facilities, critical occupancy or flammable storage over 2,500 gallons.

(ii) Vaporizers and their primary heat sources shall be located at least 100 feet from any source of ignition.

(iii) No vaporizer shall be located in an enclosed structure or building, unless such enclosure is satisfactorily ventilated and provided with combustible gas detection, alarm and shut down as per § 23-03(g)(2)(ii) is in conformance with §§ 23-03(g)(1)(i) and 23-03(g)(1)(ii) for construction and explosion venting, is provided with an explosion suppression system conforming with NFPA-69 of 1973 and applicable resolution of the Board of Standards and Appeals, and with all electrical equipment and lighting conforming with the New York City Electrical Code for operation in hazardous atmospheres; supplementary heating of the enclosure shall be only by means suitable for hazardous atmospheres.

(2) Multiple vaporizers

- (i) Clearance in multiple heated vaporizer installations shall be as recommended by the manufacturer, but not less than five feet.
 - (ii) In multiple vaporizer installations, an adjacent vaporizer or primary heat source shall not be considered to be a source of ignition.
 - (iii) Process heaters or other units of fired equipment are not considered to be sources of ignition with respect to vaporizer siting provided they are interlocked so they cannot operate when a vaporizer is operating or when the piping system serving the vaporizer is either cooled down or in the process of cooling down.
- (3) Process equipment. Process equipment containing LNG, refrigerants, flammable liquids or gases shall be located at least 100 feet from sources of ignition, property line which may be built on, control rooms, offices, shops, or other occupied structures; at least 200 feet from fire protection control center; and at least 250 feet from marine transfer facilities or critical occupancy buildings, except that control rooms may be located in a building housing flammable gas compressors if construction complies with § 23-03 (g)(2).
- (4) Fired equipment and sources of ignition. Fire equipment (other than vaporizers) or other sources of ignition shall be located at least 250 feet from any impounding area, container, transfer facility, fire pump house and control, process control house, or critical occupancy; and at least 100 feet from process equipment, vaporizers, service buildings, property line which may be built on, and boil-off compressors, except as provided in § 23-03(f)(2)(iii).
- (5) Loading and unloading facility
- (i) A pier or dock for pipeline transfer of LNG shall be located so that any tanker or barge moored thereto for loading, unloading, or containing gas shall be located at least 1000 feet from any bridge over a navigable waterway or critical occupancy; at least 250 feet from LNG storage containers, impounding areas, process equipment, process control houses, vaporizers, flare stacks or ignition

sources; at least 200 feet from fire pump houses, fire protection control facilities or boil-off compressors; and at least 100 feet from service buildings, property line, or any structure intended for human occupancy for vessels having a capacity up to 30,000 barrels of LNG; 200 feet for vessels having a capacity of 50,000 barrels except for plant structures essential to transfer operations.

(ii) LNG and flammable liquid loading and unloading connections other than marine shall be at least 250 feet from sources of ignition, except as provided in § 23-03(f)(1)(i) process areas, control buildings, and storage containers; and 200 feet from other occupied buildings. This does not apply to structures or equipment directly associated with the transfer operation.

(6) LNG storage containers. LNG storage containers shall be sited in accordance with Figure 1, except as may be modified under § 23-03 (c)(1). LNG storage containers shall be located at least 1000 feet from any critical occupancy; at least 500 feet from process control houses, fire pump houses, fire protection control facilities and sewers, underground ducts or drains; at least 250 feet or one and one-quarter tank diameters, whichever is greater, from another LNG container, property line, navigable water, flare stack or ignition source; at least 250 feet or one tank diameter, whichever is greater, from process equipment, vaporizers or marine transfer facilities; and at least 250 feet from any service building.

(7) LNG impounding areas. LNG primary impounding areas shall be located in accordance with Figure 1 or distances derived from § § 23-03 (e)(3) or 23-03 (e)(4), whichever is greater. All impounding areas shall be located at least 1000 feet from any critical occupancy; 500 feet from fire pump house or fire protection control facilities; 250 feet from any process control house, service building, marine transfer facility, flare stack or ignition source; 200 feet from any property line or navigable water; 150 feet from process equipment or vaporizer; and 50 feet from any sewers, underground ducts or drains.

(8) Boil-off compressors. Boil-off compressors shall be located at least 200 feet from marine transfer facilities

and at least 100 feet from storage tanks, vaporizers, process control houses, fire pump house, service building, critical occupancy, property lines, or navigable waters, or to flare stacks or ignition sources.

(9) Process control houses. Process control houses shall be located at least 500 feet from LNG containers; 250 feet from any impounding area, marine transfer facility, flare stack or ignition source; 200 feet from any vaporizer; 150 feet from critical occupancy; and 100 feet from service buildings, boil-off compressors or process equipment.

(10) Fire protection. Fire pump house and fire protection control facilities shall be located at least 500 feet from LNG containers; 250 feet from any impounding area, marine transfer facility, flare stack or ignition source; 200 feet from any vaporizer; and 100 feet from critical occupancy or service buildings.

(g) Buildings and structures.

(1) Construction

(i) General. All buildings and structures shall be of non-combustible construction classified as Group I in the Administrative Code, § 27-274. Buildings or structural enclosures in which LNG, flammable refrigerants or flammable gases are handled, stored or used shall be of lightweight non-combustible construction Class I-E with non-load bearing walls, and explosion venting conforming to the requirements of NFPA STD 68-1974 and the Department of Buildings as specified in the Administrative Code, § 27-401.

(ii) Prohibited areas. All such buildings shall be built on grade without below grade areas.

(2) Rooms containing flammables or cryogenic fluids

(i) General. If rooms containing cryogenic or flammable fluids are located within or attached to building in which such fluids are not handled, i.e., control rooms, shops, etc., there will be permitted one common wall which shall be Class I-A construction, or four-hour fire resistance rating

without openings, and designed to withstand an explosive force of at least 100 psf. and shall be gas-tight.

(ii) Explosion protection. Such rooms shall be further protected against explosion by installation of the following equipment:

(A) Exhaust system. A continuously operation high and low level mechanical exhaust system capable of venting at the rate of at least 1 cfm of air per square foot of floor area. This shall be a dual rate system which will double its exhaust capability on detection of a flammable gas or vapor of 10 per cent Lower Explosive Limit (LEL), such detector shall then initiate the Emergency Shut Down (ESD) at 25 per cent LEL. The exhaust system shall extend to all areas, pits or floor depressions.

(B) Ventilators. A system of open ridge ventilators shall be provided.

(h) Process systems

(1) Process equipment locations. Processing equipment containing LNG, flammable refrigerants or gases shall be located outdoors, insofar as possible, to facilitate manual fire fighting, and dispersal of accidentally released liquids and gases. When necessary to locate such systems indoors, buildings shall comply with § 23-03(g).

(2) Pumps and compressors

(i) Materials of construction. Pumps and compressors shall be constructed of materials suitable for the conditions of temperature, pressure, and use which they are expected to encounter and shall be approved and certified to the Fire Department as hereinafter provided.

(ii) Valves. Every pump and compressor shall be valved so that it can be isolated for maintenance. In addition, when installed in parallel, each discharge line shall have a check valve.

- (iii) Pressure relief. Pump and compressors shall be provided with a pressure relieving device on the discharge to limit the pressure to the maximum safe working pressure of the casing and downstream equipment.
- (iv) Vent and relief valves. Each pump shall be provided with an adequate vent and relief valve which will prevent over-pressuring the pump casing during the maximum possible rate of cooldown.
- (v) Pump installation. Pumps used for transfer of liquids at temperatures below -20 degrees Fahrenheit shall be provided with suitable means of precooling to reduce the effect of thermal shock.
- (vi) Foundation and sumps. The foundations and sumps for cryogenic pumps shall be of incombustible construction, designed and constructed to prevent frost heaving.
- (3) Flammable refrigerant and liquid storage. Installation of storage tanks for flammable refrigerants and liquids shall comply with the requirements of Chapter 4 of Title 27 of the Administrative Code.
- (4) Process equipment

 - (i) Siting. Process equipment shall be sited in accordance with the distance requirements of § 23-03 (f).
 - (ii) Boilers. Boilers shall be designed, fabricated, approved, and certified in accordance with the requirements of the Administrative (Building) Code.
 - (iii) Heat exchangers. Shell and tube heat exchangers shall be designed, fabricated, tested, inspected, approved, and certified by the manufacturer in accordance with the requirements of the Tubular Exchanger Mfrs. Assoc. (TEMA) 1968 edition. Certification certificates shall be filed with the

Fire Department. The shells and internals of all exchangers shall be pressure tested, inspected, and stamped in accordance with Section VIII, Division 1, of the ASME Boiler and Pressure Vessel Code, 1971 edition, when such components fall within the jurisdiction of this code. A copy of the ASME certification of test and inspection shall be filed with the Fire Department.

(iv) Engine and turbines. Installation of internal combustion engines or gas turbines shall comply with the requirements of Chapter 1 of Title 27 of the Administrative Code and NFPA 37, 1970 (Installation and Use of Stationary Combustion Engines and Gas Turbines).

(v) Boiloff and flash gas systems

(A) A boiloff and flash gas handling system separate from container relief valves shall be installed for the safe disposal of vapors generated in the process equipment and LNG containers.

(B) LNG containers shall have their boiloff and flash gases discharge safely to atmosphere or closed system, designed to prevent inbreathing of air.

(C) Provision may be made to introduce natural gas or nitrogen into the containers in the event a vacuum is experienced if the natural gas so introduced will not create a flammable mixture in the container.

(vi) Process equipment supports. Where the structural stability of process equipment is essential to plant safety, the supports for the equipment shall be protected against a two hour fire exposure or be protected against cold liquid or both, if they are subject to such exposures.

(5) Depressurizing equipment

- (i) Emergency depressurization. Provisions shall be made for depressurizing equipment containing gases and liquids in case of fire, failure of the equipment or similar emergency. Emergency controls for depressurization shall be readily accessible and suitably designated.
 - (ii) Gas and liquid disposal. Gases in the processing equipment shall be vented to the flare stack and LNG shall be relieved to a dump tank or holding reservoir, which shall be vented to the flare stack. The liquid dump tank or holding reservoir shall be of cryogenically suited material large enough to contain all LNG in the processing equipment. Construction shall be in accordance with Subchapter 17 of Chapter 4 of Title 27 of the Administrative Code. The tank or holding reservoir shall be protected against fire by being buried or enclosed in 4-hour rated material, unless it can be proven to the satisfaction of the Fire Department that the anticipated amount of LNG can be quickly vaporized and relieved to the flare stack, and no LNG will accumulate.
 - (iii) Compression equipment vents. Compression equipment handling flammable gases shall be provided with adequate vents piped to relieve to the flare line.
- (6) Cold box construction. The cold box structure and equipment shall be constructed of incombustible material. Cold boxes shall be considered as flammable gas containers for the purpose of purging and shall be subject to the regulations relative thereto as contained in this regulation. If a flammable gas-air mixture is detected in the cold box, inert purge gas shall be introduced until a flammable mixture no longer exists.
- (7) Air injection. Air shall not be injected or introduced by the owner into the plant inlet gas stream.
- (8) Process report. A process report shall be filed with the Fire Department, for review; such report shall contain the following:

- (i) Process information on incoming feed gas treatment, refrigeration, liquefaction, vaporization, deriming, and odorization.
- (ii) Basis for approval of all equipment used with reference to the standards of construction, e.g., ASME, ANSI, Chapter 4 of Title 27 of the Administrative Code, and Chapter 1 of Title 27 of the Administrative Code.
- (iii) All other items specified in § 23-03(u)(5)(ii).

(i) Stationary LNG containers, general

(1) Primary container

- (i) Suitability for service. The primary container for LNG shall be cryogenically suited material. All materials in direct contact with LNG shall be physically, chemically, and thermally compatible with LNG. NFPA STD 59A-1975, § 423, shall be used as a guide in such determination. Storage containers for LNG shall be designed for the minimum temperature of LNG to be stored at atmospheric pressure. Container foundations shall be capable of withstanding contact with LNG so as not to threaten structural integrity.
- (ii) Structural design. Structural design shall be predicated on the density of the product to be stored but not less than 29.3 pounds per cubic foot and suitable allowance made for the requirements of hydropneumatic testing found in § 23-03(s) of these regulations. No product with a density greater than that for which the container has been designed shall be stored until permission has been obtained from the Fire Department based on supporting data and calculations and approvals granted by the Department of Buildings and/or Department of [Ports and Trade]Small Business Services. If deemed applicable by the Department of Buildings and/or Department of [Ports and Trade]Small Business Services, seismic loads shall be considered in the design.

- (iii) Insulation. Insulation in both non-load bearing and load-bearing areas shall be incombustible. Exposed insulation shall contain, or be inherently a vapor barrier, be water free and resist dislodgement by fire hose streams. An outer shell used to contain loose insulation shall be constructed of steel or concrete. Exposed weatherproofing shall be incombustible. No combustible or flammable adhesives for insulations shall be used.
- (2) Inspections, general. Prior to initial operation, containers shall be inspected to assure compliance with the engineering design and with the material, fabrication, assembly, and test procedures of this regulation. These inspections and tests shall be made by the operator and his or her designated employee in the presence of and witnessed by representatives of the Fire Department, Department of [Ports and Trade]Small Business Services, Department of Buildings or other agencies having jurisdiction. Testing of LNG containers shall be conducted in accordance with the requirements contained in § 23-03(s) of these regulations.
- (3) Maximum pressure. The operator shall specify the maximum allowable working pressure which shall include a satisfactory margin above the operating pressure, and the maximum allowable vacuum.
- (4) LNG tank marking. Each container shall be identified by the installation of a permanent and legible plate at the ground level approach, with the following information:
- (i) Builder's name and date built.
 - (ii) Nominal liquid capacity in barrels.
 - (iii) Design pressure for methane gas at top of tank.
 - (iv) Maximum permissible density of liquid to be stored.
 - (v) Maximum level to which container may be filled with stored liquid and with water for testing purposes.

- (vi) Maximum temperatures in degrees Fahrenheit for which container was designed.
- (5) Tank penetrations. Penetrations of storage containers shall be through the roof only and all such penetrations shall be marked so as to be clearly identifiable as to function under all operating conditions.
- (6) Maximum capacity. The maximum capacity of any LNG tank shall be 300,000 barrels.
- (7) Prohibited tank types. The following types of tanks shall be prohibited:

 - (i) "Frozen hole" inground containers.
 - (ii) Tanks of more than 2,500 gallons capacity designed to operate at more than 2.5 psig.
- (j) Metal containers

 - (1) General. Metal containers shall be 9 per cent nickel steel alloy, stainless steel, aluminum, or other metal authorized under Section VIII, Division 1, ASME Boiler and Pressure Vessel Code, 1971 edition, for use at -260 degrees Fahrenheit. The use of a non-rigid container or liner is prohibited. Metallic tanks shall be fabricated in accordance with the requirements of API STD 620, Appendix Q, July 1973 or equivalent, except as herein modified.
 - (2) Foundations. Above ground LNG containers shall be supported on suitable concrete foundations designed to comply with Chapter 1 of Title 27 of the Administrative Code and API Standard 620, Appendix Q, July 1973, for a container to be tested with water to the top of the shell. The design shall be done by an engineer qualified in this specialty and reviewed and filed with the Department of [Ports and Trade] **Small Business Services** or Department of Buildings by a professional engineer licensed in the State of New York, and a copy of the approved plan filed with the Fire Department.
 - (3) Containers designed for 15 psig or less. Welded primary and secondary containers designed for not more than 15 psig shall comply with API Standard 620, Appendix Q,

July 1973 except as herein modified. All welds shall be made by welders licensed by the Department of Buildings under Article 3 of Subchapter 2 of Chapter 1 of Title 26 of the Administrative Code. All butt welds shall be 100 per cent radiographed (horizontal and vertical). Lap welds shall be subjected to a vacuum box test as per API 620, July 1973. A solution vacuum box test shall also be made of the inner and outer tank bottom corner welds, inner tank reinforcing plate to shell welds, reinforcing plate to neck welds and neck-to-shell welds. Magnetic particle or other acceptable methods shall be permitted where other methods are impractical, subject to the approval of the Fire Department and Department of Buildings and/or Department of [Ports and Trade]Small Business Services. All fluxes used in welding shall be thoroughly removed.

- (4) Containers designed for more than 15 *psig*
- (i) General. Containers shall be double-walled with inner container holding the LNG surrounded by insulation contained by the outer jacket. The insulation shall be evacuated or purged.
 - (ii) Inner container. The inner container shall be fabricated of material authorized by the ASME Boiler and Pressure Vessel Code, Section VIII, Division 1, 1971 edition, for cryogenic liquids at -260 degrees Fahrenheit. The inner container shall be of welded construction conforming to the ASME Boiler and Pressure Vessel Code, Section VIII, Division 1, 1971 edition, and designed for a pressure not less than total of working pressure, LNG hydrostatic head and vacuum, if any. The inner container shall be supported concentrically within the jacket by a system capable of sustaining the maximum loads.
 - (iii) Outer jacket. The outer jacket shall be of welded steel construction in accordance with the ASME Boiler and Pressure Vessel Code, Section VIII, Division 1, 1971 edition. In the case of positive pressure purge, the jacket shall be designed to be capable of structurally supporting the inner tank and insulation and maximum positive pressure of the purge gas; in the case of vacuum use the

jacket shall be designed to resist an external pressure at not less than 15 *psig*. The jacket shall be equipped with a relief device functioning at a pressure not greater than the internal design pressure of the jacket, the external design pressure of the inner tank or 25 psi, whichever is less.

(iv) Thermal barriers. Thermal barriers shall be provided between cold lines and the jacket. Only incombustible insulation compatible with LNG and natural gas shall be used between the inner container and jacket. Such insulation shall be water free, capable of withstanding thermal cycling between -260 degrees Fahrenheit and 1800 degrees Fahrenheit without decomposition, embrittlement, settling or deterioration, and chemically non-reactive with LNG or natural gas. The inner container shall be designed to withstand without collapsing, the external pressure of the insulation and purge gas.

(v) Support systems. Support systems shall be designed with due consideration to expansion and contraction of the inner container and all thermal stresses created. Saddles and legs shall be designed to withstand the effects of LNG fires, spills, wind loads, shipping loads, erection loads and seismic loads, and accidents attributable to motor vehicles.

(5) Internal lines. Internal lines between the inner container and the jacket shall be designed for the pressure rating of the inner container and allowance made for thermal stresses created. No bellows shall be permitted in the annular space. All such internal lines shall be of materials acceptable under the ASME Boiler and Pressure Vessel Code, Section VIII, Division 1, 1971 edition, for cryogenic liquid at -260 degrees Fahrenheit.

(k) Concrete containers. Prestressed concrete containers. This subdivision k applies to the design and construction of prestressed concrete containers for any operating pressure, whether externally or internally insulated and for prestressed concrete walls or berms surrounding any container. Non-metallic tanks shall be prefabricated or poured in place reinforced concrete. After the concrete has attained 90 per cent

of 28-day strength the tank shall be post-stressed with steel wires, both vertically and circumferentially for tank walls and floors to assure that concrete will remain in compression during all phases of tank operation. Except as modified in these regulations, construction, materials, and tests shall be in accord with applicable ACI, ASTM, and API specifications enumerated in § § 423 and 424 of Standard 59A-1975 of the NFPA code. The Department of Buildings or Department of [Ports and Trade] **Small Business Services** shall provide surveillance and inspection to insure compliance with the applicable requirements and shall require such tests and engineering data as it deems necessary and appropriate.

(1) Foundations. Concrete LNG containers shall be supported on foundations of concrete, steel or combination which shall have been designed and constructed in accordance with recognized structural engineering practices to ensure a stable foundation. Anchorage shall be provided to counteract flotation forces unless it can be proven to the satisfaction of the Department of Buildings and/or Department of [Ports and Trade] **Small Business Services** that such is not necessary. All exposed steel shall be fireproofed with concrete or insulation resistant to dislodgement by hose streams, and shall have a minimum fire-resistant rating of 4 hours. The foundations shall be designed to support the concrete tank filled with water to the top of the shell during tests. The design shall be done by an engineer qualified in this specialty and reviewed and filed with the Department of [Ports and Trade] **Small Business Services** or Department of Buildings by a professional engineer licensed in the State of New York, and a copy of the approved plan filed with the Fire Department.

(2) Container construction

(i) Design and construction of the container shall comply with applicable provisions of Chapter 1 of Title 27, Administrative Code and/or recognized standards accepted by the Department of Buildings and/or Department of [Ports and Trade] **Small Business Services** to provide maximum safety. No construction on any container shall begin until such agency shall have certified to the Fire Department that the container, as designed, does meet the required standards and is

satisfactory for the storage of LNG, has provided the Fire Department with such data concerning the container which the Fire Department deems necessary, and after the Fire Department has indicated, in return, its acceptance of the design. Materials subject to LNG temperature shall be selected, specified, tested, and utilized in accordance with the requirements of the Fire Department and the Department of Buildings and/or Department of [Ports and Trade]Small Business Services based on recognized engineering standards. The tank shall be designed to withstand testing by filling with water to the top of the shell.

- (ii) The use of the alternative materials of construction may be approved by the Department of Buildings and/or Department of [Ports and Trade]Small Business Services provided that after due investigation such agency is satisfied that such substitutions provide, at least, an equivalent degree of safety and further provided that the Fire Department concurs in such substitution.
- (iii) Roof structures and suspended ceilings shall be of materials suitable for cryogenic temperatures and so constructed as to prevent total roof collapse in the event of internal fire. Roof guides shall be incorporated into the structure to minimize the possibility of the roof falling into the tank in the event of pressure surge within the container.
- (iv) The seal between the wall and floor shall be of a type acceptable to the Fire Department and the Department of [Ports and Trade]Small Business Services and/or Department of Buildings. It shall not be a corrugated type expansion seal.

Note: Retain underlining of highlighted text in publication of final rule.

(1) Container purging

- (1) Purging. Purging shall be conducted by experienced and qualified personnel under the direction of an experienced engineer competent in this specialty, who shall prepare a written procedure for review and acceptance by the Fire

Department prior to the start of purging. Responsibility and authority for the purging operations should be vested in a person who is familiar with the properties and nature of the materials involved and the construction and function of the equipment to be purged. [He] The person should be capable of deciding how the purging should be done and of judging whether it is proceeding satisfactorily and when it is properly completed. He or she should be able to detect any hazards and to decide how best to overcome any difficulties that might arise. He or she should plan and discuss the schedule of the entire operation with operating, maintenance, engineering, testing and safety personnel involved.

(2) Container into service. Prior to placing an LNG container into service the air must be displaced by an inert gas such as nitrogen in an acceptable manner so that at no time will there be a flammable mixture in the container.

(3) Container out of service. Prior to taking a container out of service the natural gas shall be purged with an inert gas such as nitrogen in a safe manner. All tank interior maintenance and repairs shall be performed in an atmosphere of inert gas.

(4) Purging operation

(i) During purging operation the interior of the container shall be continuously monitored for the presence of oxygen and flammable gas.

(ii) Good organization, planning and preparation with full agreement of all concerned are essential for a successful purging project. The following factors must be decided upon:

(A) Equipment to be purged and how it should be separated.

(B) Inerts to be used, how obtainable, and how introduced and vented.

(C) Method for testing completeness of the purging and end point to be attained.

- (D) Selection and assignment of a responsible supervisor and operating personnel.
- (E) Preparation of a written "procedure," detailing the sequence of all operations related to the purging, including the time of performance and estimated duration.
- (iii) Selection of the time for performing the purging may be affected by many factors not directly related to the operation itself, such as: demands and loads, availability of personnel to perform the repair work or task for which the purging is undertaken, and weather conditions. It is desirable to start the purge operation at a time that will permit completion of purging, the introduction and removal of the inerts and the return to service of the system during daylight hours.
- (iv) When more than one unit or piece of equipment is involved, the purging should be broken down into several successive operations, with their sequence definitely decided upon and their timing clearly calculated and scheduled. Each successive part of a large scale operation may well be considered a separate purging. It is important to set down the decisions reached in a written "procedure" which is definite as to consecutive steps. For instance, that no valve is left open when it should be closed or vice versa.
- (v) After review and acceptance of the written procedure by the Fire Department, the purging supervisor may proceed with the selection of those required to assist in the operation. All should then be instructed together in the work to be done. Each [man] person should understand what he or she is to do and its importance in relation to the work others must perform.
- (vi) Those selected to aid in the purging operation should have definite responsibilities. For example, one [man] person may be made responsible for the production and continuity of supply of inerts, a second, who has analytical and

chemical testing training, responsible for the testing of the contents in or escaping from the purged chambers. These [men] persons should concentrate all their attention on their indicated duties and should not be expected to perform any other tasks. As many other [men] persons as deemed necessary should be assigned for the general purging operations.

Note: Retain underlining of highlighted text in publication of final rule.

(m) Cooldown procedure

- (1) Cooling down shall be limited to a rate and distribution pattern which will not cause allowable thermal stresses in the container and LNG piping to be exceeded.
- (2) Cooldown shall be conducted by qualified and experienced personnel under the supervision of an engineer competent in this procedure.
- (3) The container, associated piping and joints shall be under continuous surveillance to detect any failures or leaks.

(n) Pressure and vacuum control

- (1) General. LNG containers and associated equipment and piping shall be provided with means of maintaining pressure and vacuum within design limits by admitting or discharging natural gas as needed. The means provided for the admission and release of gas as required in this subdivision (n) shall be acceptable to the Fire Department.
- (2) Sizing. Sizing such pressure control devices shall include consideration of, (but not limited to), the following factors:
 - (i) For pressure
 - (A) Loss of refrigeration.
 - (B) Failure of a control device or other deviation from normal operation.

(C) Vapor displacement and flash vaporization including thermal roll-over during and subsequent to filling, and flash vaporization resulting from pump recirculation.

(D) Drop in barometric pressure.

(E) Exposure to fire or radiation from fire, or other heat source.

(ii) For vacuum

(A) Withdrawal of liquid at maximum rate.

(B) Withdrawal of vapor at maximum compressor suction rate.

(C) Rise in barometric pressure.

(D) Reduction in vapor pressure resulting from the introduction of sub-cooled LNG into the vapor space.

(3) Vents. In addition to the pressure control means required under the foregoing, LNG containers shall be provided with dual sets of direct acting pressure and vacuum vents communicating with the atmosphere, with each set sized for total relief. Fire exposure must be considered in the sizing of pressure relief vents.

(4) Vent calculations. Copies of venting and relief valve calculations for LNG storage tanks and equipment shall be furnished to the Fire Department.

(o) Vaporization

(1) General. There are various classifications of vaporizers. This subdivision (o) describes these classifications and their associated equipment.

(i) Heated vaporizers. Heated vaporizers are those vaporizers which derive their heat from the combustion of fuel, electric power, or waste heat and can be of direct fired, indirect fired, or remote fired.

- (ii) Ambient vaporizers. Ambient vaporizers are those vaporizers deriving their heat from natural sources.
 - (iii) Process vaporizers. Process vaporizers are those which derive their heat from another thermodynamic or chemical process or in such a fashion as to conserve or utilize the refrigeration from the LNG.
- (2) Prohibited vaporizers. Flammable heat transporting mediums are prohibited for any type of vaporizer, except that natural gas may be used in derime heaters.
- (3) Design and materials of construction. ASME Boiler and Pressure Vessel Code, Section VIII, Division 1, 1971 edition shall govern the design, fabrication and inspection of vaporizers. Materials used shall be suitable for the temperatures and pressures to which they may be exposed.

Vaporizer heat exchangers. Vaporizer heat exchangers shall be designed for a working pressure at least equal to the maximum discharge pressure of the LNG pump or pressurized container system supplying them, whichever is greater.

- (4) Vaporizer and vaporizer piping valves
- (i) Automatic equipment. Automatic equipment acceptable to the Fire Department shall be provided to prevent discharge of LNG or gas into a distribution system at a temperature above or below the design temperature of the sendout system.
 - (ii) Block valves. Manifolded vaporizers shall have both inlet and discharge block valves at each vaporizer.
 - (iii) Discharge and relief valves materials and construction. The discharge valve of each vaporizer and piping components and relief valves upstream of that valve shall be suitable for operation at LNG temperatures.

- (iv) Inlet valves. In order to prevent a leak of LNG into idle vaporizers there shall be two inlet valves and a safe means of disposal of gas which may be trapped between them shall be provided.
- (v) Heat source shut-off valves. Each heated vaporizer shall be provided with heat source shut-off valves at the vaporizer and at a point at least fifty feet distant.
- (vi) Vaporizer shut-off valve. The LNG line to each vaporizer shall be provided with a shut-off valve at least fifty feet distant from the vaporizer operable from a remote point and manually at its installed location.
- (vii) Derime heater shut-off valves. If natural gas is used with a derime heater, shut-off valves shall be provided to both feed and discharge lines, located at least fifty feet from the heater.
- (viii) Relief devices
 - (A) Each vaporizer and/or heater shall be provided with a safety relief valve providing an effective rate of discharge. Relief valve calculations shall be submitted to the Fire Department for review and acceptance and shall include allowance for pressures developed due to fire exposure. The relief valve capacity of vaporizers shall be such that the relief valve(s) will discharge 150% of rated vaporizer natural gas flow capacity without allowing the pressure to rise more than 10% above the vaporizer maximum allowable working pressure.
 - (B) Relief valves on heated vaporizers shall be located so that they are not subjected to normal operating temperatures in excess of their design temperature.
- (5) Safety controls. In order to assure safe operation, heated vaporizers shall be provided with fully automatic, fail-

safe controls, electrically classified by New York City Administrative (Electrical) Code to operate in hazardous atmospheres, to accomplish the following where applicable:

- (i) Prepurge for 1 3/4 minutes with air or inert gas heat exchanges of combustible gases. Purge timer, solenoid control pilot and fuel gas valves and ignition time limit switch to be provided.
- (ii) Startup on low fire start by pilot only, with burners then lit by pilot as they open.
- (iii) Monitor for process temperature, pressure and/or flow with shutdown if any parameter is exceeded.
- (iv) Monitor flue gases with flue gas analyzer to detect gas or unburned fuel, also to report surplus oxygen.
- (v) Shutdown on insufficient air. Combustion air blower and combustion air pressure switch to be provided for combustion air blower and fuel gas and combustion air proportional control valve to be provided.
- (vi) Shutdown on electrical malfunction.
- (vii) Shutdown on flame failure of pilot or burner.
- (viii) Shutdown on high stack temperature (no restart possible until the temperature returns to normal operating temperature).
- (ix) Vary burner gas and air input with LNG flow rate to maintain output process temperature within prescribed limits. (Automatic proportional temperature control).
- (x) Alert manager of the plant in event the door is opened for any reason, by means of a tamper control with supervisory signal to be provided in the electrical panel box. (This is to guard against by-passing of controls by any operator).

(xi) Prevent over firing of unit by use of a combustion air blower designed with limited capacity.

(p) Piping

(1) Design and materials. General.

(i) Design. The design and fabrication of piping systems shall comply with American National Standard (ANSI) B31.3 "Petroleum Refinery Piping," except as modified by this subdivision (p).

(ii) Materials. All materials, including gaskets and thread compounds, shall be suitable for the temperatures to which they may be exposed, including fire. A materials list shall be prepared and submitted to the Fire Department for review and acceptance.

(2) Seamless pipe. Seamless pipe, only, shall be used for process and transfer piping handling LNG, flammable refrigerants, flammable liquids or gases, except that welded pipe may be used if seamless pipe is not available in the size required and if the weld and heat affected zone complies with ANSI B31.3 Subsection 3232.2 (impact tests) and is non-destructively examined in a manner acceptable to the Fire Department. Furnace lap-welded, furnace butt-welded or spiral-welded pipe is not acceptable for flammable gas, refrigerant or LNG. All fluxes used in welding shall be thoroughly removed.

(3) Threaded pipe. Threaded pipe shall be at least Schedule 80, but no threaded pipe over 2 inches nominal pipe size shall be used for flammable liquid or gas, and all such threaded joints used must be seal-welded, or sealed by other means acceptable to the Fire Department. No threaded pipe shall be used for cryogenic service.

(4) Thermal expansion. Thermal expansion shall be provided for by means of piping bends, loops or offsets. Expansion joints of the bellows, slip, and ball type are prohibited for lines handling flammable liquids or gases.

(5) Prohibited materials. A liquid line on a storage container, coldbox or other major item of insulated equipment

external to the outer shell or jacket whose failure can release a significant quantity of flammable fluid shall not be made of aluminum, copper or copper alloy, or other material that has low resistance to flame temperatures.

(6) Prohibited fabrication. Socket welds on piping shall be prohibited except for branch connections not over 2 inches diameter; threaded pipe joints not seal welded, expanded, flared, compression, caulked, brazed and soldered joints are prohibited except as permitted in § 23-03(p)(3) and 23-13(p)(7). Flange joints shall be held to a minimum. Butt-welded joints shall be used wherever possible.

(7) Pipe fittings

(i) General.

(A) Metals may be joined for cryogenic service by silver brazing. Silver brazing may be used on copper to copper joints, copper to copper alloys, and copper to stainless steel. Dissimilar metals may be joined by flanges or transition joint techniques which have been proven by test.

(B) The number of threaded or flanged joints shall be held to a minimum and used only where absolutely necessary, such as material transitions, instrument connections or where required for maintenance.

(C) Care shall be taken to insure the tightness of all bolted connections. Spring washers or other devices designed to compensate for the contraction and expansion of bolted connections during normal operating cycles shall be used where required.

(ii) Threaded nipples. Threaded nipples shall be at least Schedule 80.

(iii) Malleable iron. Malleable iron fittings are permitted only in auxiliary systems for oil, water,

air, etc., and shall not be used to convey flammable refrigerants, gases, or liquids.

(iv) Plugs. Solid plugs or bull plugs made of at least Schedule 80 seamless pipe shall be used for threaded plugs.

(v) Flanges. Flanges shall be butt welded to the piping. All flanges shall be raised face and shall be concentric serrated in conformance with Manufacturers Standardization Society of the Valve and Fitting Industry, MSS-SP-6, 1963.

(8) Gaskets. Gaskets on piping conveying LNG, flammable refrigerants or gases shall be metal, metal jacketed or retained spiral wound.

(9) Prohibited conditions. The following practices and conditions shall be prohibited:

(i) Compression-type couplings shall not be used where they will be subjected to temperatures below minus 20 degrees Fahrenheit (minus 28.9 degrees Centigrade), unless such couplings meet the requirements of 318 of ANSI B31.3.

(ii) Threaded pipe shall be avoided for service temperatures below -20 degrees Fahrenheit. Where permitted, threaded joints shall be sealed as per § 23-03(p)(3).

(iii) No bends in fittings beyond those which are designed or fabricated into the fitting are permitted.

(10) Valves

(i) General. In addition to complying with ANSI B31.3, Section 307, valves shall comply with ANSI B31.5 or B31.8 or API 6D if design conditions fall within their scope.

(ii) Extended bonnet valves.

(A) Extended bonnet valves with or without bellows seals shall be used for service

temperatures below -50 degrees Fahrenheit.

(B) Extended bonnet valves shall be installed with stems positioned above the horizontal.

(iii) Shut-off valves

(A) Shut-off valves shall be provided on all LNG, flammable refrigerant, flammable liquid and flammable gas containers, tank and vessel connections, except those for relief valves, those for liquid level gaging devices, and those that are blanked or plugged. Shut-off valves shall be located as close as possible to the containers or vessels they protect.

(B) The design and installation of an internal valve shall be such that any failure of the penetrating nozzle from outside stresses will be beyond the shut-off seats of the internal valve.

(C) The number of shut-off valves shall be the minimum required for safe and efficient operation.

(iv) Blocking and manual valves

(A) Required automatic blocking valves. Automatic blocking valves of "fail safe" type shall be installed in addition to manual valves to limit and isolate leaks, and to protect the plant in case of fire or other emergency, as follows:

(a) Natural gas feed line to the liquefaction system (where it enters plant).

(b) Natural gas feed line to the derime heater.

- (c) LNG fill line from the cold box to the LNG container (at cold box).
 - (d) LNG withdrawal lines to booster pumps from tank (at the pumps, at the tank and at the dike).
 - (e) LNG feed line to the vaporizers (at vaporizer).
 - (f) Natural gas line outlet from vaporizers to sendout line (at vaporizer).
 - (g) Natural gas vapor boil-off line from tank to process area (near tank).
 - (h) Discharge line of refrigerant compressor.
 - (i) Additional valves for isolation shall be installed as required by the Fire Department.
- (B) Automatic blocking valve operation and activation. These valves shall be capable of manual operation and shall operate automatically on:
- (a) Detection of fire at tank, dike, vaporizer or process area or fire endangering the valve.
 - (b) Indication of over-pressure (beyond maximum operating pressure) or under-pressure (leak or rupture).
 - (c) Actuation of emergency shut-down system, manually, or automatically at process control house or other selected sites.
 - (d) Manual operation of natural gas control valve.

(v) Safety and relief valves

(A) Safety and relief valves shall be arranged to prevent damage. No shut-off valves are permitted in a line of relief. Relief valve settings shall be sealed.

(B) A thermal expansion relief valve shall be installed to prevent overpressure in any section of a liquid pipeline which can be isolated by valves. Thermal expansion relief valves shall be set to operate above the maximum normal operating pressure and less than the rated test pressure of the line it protects.

(C) Discharge from such valves shall be directed to minimize hazard to personnel and equipment. Flammable liquids and gases shall be discharged to the plant system connected to an operating flare stack.

(vi) Valve installation. Valves and other control valves shall be installed so that their operation will not be affected by icing.

(vii) Valve identification. Valves shall be identified at their locations by a number and where feasible a brief statement of its function.

(11) Pipe supports and piping insulation

(i) Pipe supports. Supports for piping shall be capable of withstanding a two-hour fire exposure except that supports subject to exposure to cryogenic liquid or essential to plant safety shall be capable of withstanding such exposure without excessive heat transfer which can affect piping restraints due to icing, or embrittlement of supporting steel, and to a fire of four hours duration.

(ii) Piping insulation. Piping insulation shall be of incombustible material; where space limitation or

other conditions are such as to make the use of incombustible insulation impracticable, then insulation having a flame spread rating of 25 or less per ASTM-E-84 may be used, providing that such insulation is covered with at least two inches of incombustible material held in place by a metal covering and stainless steel strapping when permitted by the Fire Department.

(12) Pipe identification. Process, fuel, high pressure steam, fire protection and other critical piping shall be identified by color coding, painting or labeling, subject to the approval of the Fire Department.

(13) Welding

(i) Certification of welders. Only certified welders shall be employed and certifications of welders filed with the Fire Department. Piping welders shall be certified by their employers after qualifying under Section IX-ASME Boiler and Pressure Vessel Code 1971, or Standard for Welding Pipelines (API Standard 1104) 1968.

(ii) Radiographic inspection. All welded joints on flammable liquid or gas piping shall be subjected to radiographic testing by an outside person or firm qualified to perform radiographic testing under Section IX-ASME Boiler and Pressure Vessel Code (1971) or API Standard 1104. Certifications on acceptance or rejection of each weld shall be filed with the Fire Department by the owner.

(iii) Visual inspection. All welded joints shall be subject to visual examination, over the entire O.D. and I.D. (with mirrors or other means), by the welding inspector employed by the owners.

(iv) Supplementary inspection. Supplementary examinations for soundness shall be made as required by the Fire Department of welds on pipe and fittings conveying cryogenic liquids, high heat and high pressure flammable liquids or flammable gases, and flammable refrigerants. These shall include:

- (A) Ultrasonic over entire O.D. and/or
 - (B) Liquid penetrant over entire O.D. (for non-magnetic material), and/or
 - (C) Magnetic particle test for magnetic material.
 - (D) Welds shall be rejected for cracks and unworkmanlike welding.
- (v) Practices and techniques. The following practices and techniques shall be observed:
- (A) Scabs, slivers, seams, laps, tears, abrasions, and mechanical marks must be removed within the minimum wall thickness.
 - (B) When welding impact tested materials, qualified welding procedures shall be used to minimize degradation of the low temperature properties of the material.
 - (C) When welding to thin wall pipe, techniques shall be exercised to avoid burn-through.
 - (D) Electric arc or inert gas-shielded welding shall be used in piping for service below -20 degrees Fahrenheit.
- (14) Weld identification. Weld identification markings for pipe which will be subject to service temperatures below -20 degrees Fahrenheit shall comply with the following:
- (i) Marking shall be made with a material compatible with the basic material or with a round-bottom low stress die, except that materials less than one-quarter inch thick shall not be die-stamped.
 - (ii) Aluminum shall be marked with chalk wax-base crayons or marking inks containing organic coloring.

(15) Testing of piping

- (i) Pressure tests shall be made of all piping in accordance with § 23-03(s) of these rules relating to the procedures. Carbon and low alloy steel piping shall not be pressure tested at metal temperatures below 35 degrees Fahrenheit.
- (ii) Such tests shall be made in the presence of a representative of the fire department and the written results thereof promptly filed with the fire department.
- (iii) Records of such tests shall include clear identification of the piping, pressure, test medium, temperature thereof, ambient temperature, duration and shall remain a permanent record.

(16) Purging of piping systems. Purging of air or gas shall be done in a safe manner. ANSI B31.8, Section 841.285 may be used as a guide. Blow down and purge connections shall be provided to facilitate purging of process and flammable gas piping.

(17) Corrosion control

- (i) Underground and submerged piping shall be protected and maintained in accordance with the principles of the National Association of Corrosion Engineers Standard RP-01-69 (1972 Revision), Control of External Corrosion of Underground or Submerged Metallic Piping System.
- (ii) Precautions shall be taken for the protection of austentic stainless steel and aluminum alloys to prevent corrosion and pitting from corrosive atmospheric and industrial media during storage, construction, fabrication, testing and service. These media include but are not limited to chlorides and compounds of sulphur or nitrogen. Where insulation materials can cause corrosion of aluminum or stainless steel, suitable inhibitors or water-proof barriers shall be utilized.

(q) Instrumentation and electrical services

- (1) Liquid level gaging. LNG containers. Each LNG container shall be equipped with approved liquid level gaging devices acceptable to the fire department.
- (i) High level alarm. Each LNG container shall be equipped with approved liquid level alarm separate from the liquid level gaging device which will sound at the control house and at the marine unloading station when the liquid level is at 95 percent of the maximum filling height. In addition, a visible alarm shall be provided in the control board at the control house and marine station.
- (ii) High level cut-off device. A high level cut-off device in addition to the alarm shall be provided to automatically reduce the flow of LNG to the container at 95 percent and cut it off at 98 percent.
- (iii) Try cocks. No liquid try cocks are permitted.
- (2) Liquid level gaging. Tanks for refrigerants and/or flammable process fluids. Each refrigerant and/or flammable process fluid tank shall be equipped with approved liquid level gaging devices acceptable to the fire department.
- (i) High level alarm and cut-off device. Each storage tank shall be equipped with a liquid level gage and a high liquid level alarm and automatic cutoff as in § 23-03(q)(1)(i) and 23-03(q)(1)(ii).
- (ii) Try cocks. No liquid try cocks are permitted.
- (3) Pressure gages
- (i) LNG containers and other pressure vessels. Each LNG container and pressure vessel shall be equipped with a pressure gage connected to the container above the maximum liquid level. The LNG container shall also be provided with a pressure recorder.
- (ii) Liquefaction systems. Pressure gages shall be placed upstream and downstream of process

equipment where trace contaminants in the feed stream may deposit, as an aid to the scheduling of deriming operations.

(4) Vacuum gages. Vacuum jacketed equipment shall be provided with instruments for checking the absolute pressure in the annular space.

(5) Temperature indicators. Temperature monitoring devices shall be provided in various locations of the LNG Plant as follows:

(i) LNG containers. Temperature monitoring devices shall be provided in LNG containers to assist in controlling temperatures when placing the container in service and for calibrating liquid level gages.

(ii) Vaporizers. Vaporizers shall be provided with indicators to monitor inlet temperatures of LNG, outlet temperatures of vaporized gas and heating medium fluids and stack temperatures.

(iii) Liquefaction systems. Liquefaction systems shall be provided with temperature monitoring devices upstream and downstream of process equipment.

(iv) Foundations. Temperature monitoring equipment and heating cables shall be provided where foundations supporting cryogenic containers and equipment could be adversely affected by freezing or frost heaving of the ground.

(6) Additional instrumentation. In addition to the foregoing there shall be provided sufficient temperature measuring instruments for floor, inner tank wall, outer tank insulation, roof and hung ceiling, and other indicators such as wall movement transducers, strain gages, etc., that the Fire Department may require, to assure the prompt detection of an LNG leak or variation from the normal operating parameters in any container.

(7) Emergency shut-down

(i) Power or instrument air failure. Instrumentation for liquefaction, storage and vaporization facilities

shall be designed so that in the event of power failure or instrument air failure the system will go into a "fail safe" condition until the system can be reactivated or secured.

(ii) Automatic shut-down. Provision shall be made for automatic shut-down of major items of equipment (e.g., compressors of a liquefaction facility, liquid send-out pumps and vaporizers and isolation valves), manually from several locations remote from the equipment and accessible in an emergency, and automatically in the event of fire detection or a major leak. In addition on fire detection, the emergency shut-down shall include automatic activation of the fire extinguishing system in the area of detection, and shall include automatic notification to the Fire Department via a central office. The emergency shut-down shall be accompanied by audible and visible trouble signal at the control house and sounding of the plant alarm.

(8) Electrical equipment

(i) General. Electrical equipment and wiring shall be of the type specified by and installed in accordance with the New York City Electrical (Administrative) Code and a certificate of inspection issued by the Bureau of Electrical Control shall be filed with the Fire Department. Where the New York City Electrical (Administrative) Code makes no provisions, NFPA Std. 70 shall apply. All alarm, detection, and communication systems shall conform to § 23-03(t)(7)(i)(B).

(ii) Secondary electrical power. A secondary source of electrical power shall be provided sufficient for LNG control, venting, plant shut down, operation of fire protection equipment (including fire pumps). Gas turbine or diesel drive may be accepted as satisfying this requirement. Such secondary power supply shall be so installed and arranged to provide for an uninterruptible switchover from primary to secondary power supply in case of primary power supply failure.

- (iii) Electrical grounding. All tanks, piping, and equipment shall be electrically grounded.
- (iv) Lightning protection. LNG storage tanks shall be protected against lightning in accordance with the New York City Electrical (Administrative) Code and NFPA Std. 78. An affidavit shall be filed to this effect with the Fire Department.
- (v) Warning light. An explosion-proof red or amber warning light of adequate intensity shall be provided at the dome of the tank.
- (vi) Stray currents. If stray currents may be present, or if impressed currents are used in loading or unloading systems (e.g., cathodic protection) protective measures to prevent ignition shall be taken in accordance with "Protection Against Ignitions Arising Out of Static Lightning and Stray Currents"- API-RP 2003 (1967). Particular attention shall be given to protection of underground lines and structures from accelerated corrosion, and the use of insulated flanges to prevent currents or use of bonding cables to prevent potential differences at pipe and equipment interfaces.
- (vii) Lighting. Lighting of adequate intensity shall be provided for all parts of the plant including the access roads to, and in the plant, and such lighting shall conform to the New York City Electrical (Administrative) Code.

(r) Transfer of LNG and refrigerants

- (1) Scope. This subdivision (r) applies to the transfer of refrigerants, flammable liquids and flammable gases between storage containers or tanks and points of receipt or shipment as permitted by pipeline, tank car, tank vehicle or marine vessel, with the following restrictions:

 - (i) LNG shall be received or shipped by Coast Guard approved marine vessel only, except where other means of transportation is permitted by the Fire Department.

- (ii) Flammable or combustible liquids, gases, or refrigerants shall be received only by approved pipeline or permitted trucks complying with the specifications of the Fire Department or by Coast Guard approved marine vessels.
 - (iii) Liquefied flammable gases shall be received only by Coast Guard approved marine vessels unless in containers complying with Subchapter 17 of Chapter 4 of Title 27 of the Administrative Code.
 - (iv) Non-flammable gases, whether liquefied or not, shall be received only in permitted trucks complying with the specifications of the Fire Department, tank cars or Coast Guard approved marine vessels.
 - (v) Transfer facilities shall comply with the appropriate provisions of these regulations relating to siting, piping systems, fire protection and instrumentation and to specific provisions of this subdivision (r).
- (2) LNG compatibility. LNG being transferred into storage containers shall be compatible with that already in the container. Means shall be provided to prevent stratification which may result in rollover and extensive evolution of vapor. The means of accomplishing this objective shall be stated in the operating manual, which shall be acceptable to the Fire Department.
- (3) Odorization. No gas in liquid or gaseous state shall be transferred into or out of the plant, effective January 1, 1979, unless it is satisfactorily odorized.
- (4) Piping system. The transfer lines shall comply with the requirements of this subdivision (r).
- (i) Blocking valves. Blocking valves shall be provided at the extremities of marine liquid transfer lines. The valves at the discharging end may be manually operated. The valves at the receiving end shall be capable of remote shutdown and provided with "fail safe" features.

- (ii) Precooling. Provision shall be made for precooling transfer lines used to convey cryogenic liquids.
- (iii) Check valves. Check valves shall be provided as required in transfer systems and located as close as possible to the point of connection to any system from which backflow can occur.
- (iv) Vent line. A vent line of sufficient capacity shall be provided for LNG transfer lines, fabricated of cryogenically suited materials, connected to the high point of the transfer line and vented to the flare system.
- (v) Supports. The liquid and vent lines shall be supported on incombustible supports. When steel is used, insulation shall be provided at points of contact. Cryogenic lines shall be insulated with incombustible insulation for personnel protection.
- (vi) Vent valve and pressure gage location. Vent valves and pressure gages shall be provided equidistant along LNG lines at approximately 1000 foot intervals.
- (vii) Transfer line fabrication. Transfer lines shall be fabricated of materials suited for the service intended, welded and 100 per cent of all welds radiographed; when radiography is not possible, other non-destructive tests may be used. Expansion loops may be installed with flanges and gaskets and made up with suitable stainless steel bolts. Piping shall conform to § 23-03(p) and stress level shall not exceed 40 percent of specified minimum yield strength.
- (viii) Drains. A drain or bleeder valve shall be provided to empty piping after block valves are closed.
- (ix) Pipe routing. Where piping passes under roadways, ramps shall be provided and suitable protection to protect the pipe from impact loads. Such protection shall be in the form of a steel

casing so that the transfer piping can be monitored for leaks.

(5) Pump and compressor drive

- (i) Suitability. Pumps and compressors shall be designed and tested for the service temperatures and pressures to which they may be subjected.
- (ii) Signal lights. Signal lights shall be provided at the loading or unloading area to indicate when a remotely located pump or compressor used for loading or unloading is idle or in operation.
- (iii) Parallel pumps. When pumps are in parallel, each pump suction and discharge line shall contain a block valve designed for at least the maximum operating pressure of the system. If centrifugal pumps are used, a check valve shall be placed between each pump discharge and the outlet block valve.
- (iv) Shutdown devices. In addition to the locally mounted devices for shut-down of the pump or compressor drive, a remote device readily accessible to the certificate of fitness holder supervising the transfer shall be provided to shut down the pump or compressor in emergency. Remotely located pumps and compressors used for loading marine vessels shall be provided with controls at the loading area and at the pump or compressor site for shutdown.

(6) Marine shipping and receiving

- (i) General. Design, construction and operation of piers, docks and wharves shall comply with the requirements of the Department of [Ports and Trade] **Small Business Services** and the U.S. Coast Guard.
- (ii) General cargo. General cargo, other than ships stores for the LNG tanker shall not be handled over the pier within 200 feet of the transfer connection and no cargo shall be handled while LNG or flammable liquids are being transferred.

Ship bunkering shall not be done simultaneously with LNG loading or unloading operations.

- (iii) Vehicle traffic. Vehicle traffic is prohibited on the pier or dock while transfer operations are in progress. Suitable warning signs and barricades shall be posted at all points of access to the pier when transfer operations are in progress.
- (iv) Pipeline location. Pipelines shall be located on the pier in such manner that they are not exposed to physical damage from any source.
- (v) Isolation valves and bleed connections. Isolation valving and bleed connections shall be provided at the loading or unloading manifold for both liquid and vapor return lines so that hoses and arms can be blocked off, drained or pumped out and depressured before disconnecting. Valves shall be located at the point of hose or arm connection to the manifold. Bleeds or vents shall discharge to a safe area such as the line to the flare stack.
- (vi) Block valves. In addition to the isolation valves at the manifold, each vapor return and liquid transfer line shall be provided with a readily accessible block valve, on shore where the line approaches the dock or pier. Where there is more than one line, valves shall be grouped close enough for fast manual operation but not so close that fire at one valve would endanger personnel required to operate the others. Valves shall be identified as to service. Valves shall be power operated from a remote point as well as manual.
- (vii) Check valves. Pipelines used for liquid unloading only shall be provided with check valves adjacent to the manifold isolation valve.
- (viii) Vapor return line. Either the vapor return line shall connect to the vessel's vapor return connection, or a safe means for vapor removal shall be provided.
- (ix) Loading arms and hoses. Loading arms and hoses shall be constructed of material suitable for the

product conveyed and the pressures to be encountered. Connections shall be capable of being disconnected quickly without product loss. Hoses shall be approved for the service and designed for a bursting pressure of not less than five times the working pressure.

- (x) Type of hose and pipe. Flexible metallic hose or pipe and swivel joints shall be used. Couplings shall be suitable for operating conditions and fabricated of durable materials.
- (xi) Loading arm supports. Loading arms and hoses shall be adequately supported. The design of counter-weights shall take into consideration the formation of ice.
- (xii) Hose testing. Hoses shall be tested at least semi-annually to the maximum pump pressure of relief valve setting and shall be visibly inspected before each use for damage or defects.
- (xiii) Vessel transfer precautions. Prior to transfers, an English-speaking officer of the vessel in charge of cargo transfer and the shore terminal supervisor shall personally inspect their respective facilities to ensure that transfer equipment is in proper working condition. After being satisfied that their inspections disclose no defect or cause for concern, they shall agree on safe transfer procedures and review the emergency procedures, including verification of ship-to-shore communications.

Note: Retain underlining of highlighted text in publication of final rule.

- (7) Additional precautions. In addition to the fixed fire protection required by these regulations the following precautions and procedures shall be followed in regard to marine loading or unloading of LNG:
 - (i) At least 72 hours before the arrival of any tanker or barge, the Coast Guard and the New York Fire Department shall be notified of the date, time and point of entering the Port of New York for the

purpose of organizing an escort for the vessel, if required, or standby fire protection.

- (ii) No loaded vessel shall enter the Port or traverse its waters after sundown or before sunrise, or in inclement weather without the approval of the Coast Guard and concurrence by the Fire Department.
- (iii) Except as permitted by the Coast Guard no loaded vessel shall enter the Port if hazard exists due to heavy traffic, congestion, or waterfront fires which endanger passage.
- (iv) No vessel shall be docked for loading or unloading until inspected and certified by the Coast Guard.
- (v) Except as permitted by the Coast Guard no vessel shall enter the Port under unfavorable tide conditions. Sufficient tug-boats to control the vessel shall be provided at all times.
- (vi) Half-hourly patrols of the transfer line shall be made by operating personnel with certificates of fitness equipped with 2-way radio and portable dry chemical extinguishers and lights shall be available.
- (vii) Means shall be provided at the pier to transmit an alarm to the Fire Department.
- (viii) A dry chemical fire truck conforming to § 23-03(t)(4)(vi) with operating personnel shall be stationed on the pier near the LNG manifold, continuously during LNG transfer.
- (ix) Vessels and loading arms shall be electrically bonded.
- (x) Warning signs in lettering large enough to be seen from the channel shall be posted at each end of the pier or dock to inform approaching vessels of the transfer operation.

- (xi) No vessel larger than 30,000 barrel capacity shall transfer LNG on a dead-end waterway.
- (xii) A barrier acceptable to the Fire Department and the Coast Guard shall be provided on the water side of the barge or tanker to protect against collision impact while docked. Such barrier may be of either permanent or temporary nature.
- (8) Tank vehicle loading and unloading facilities

 - (i) Loading facility. Loading and unloading facilities shall comply with the applicable provisions of Chapters 1 and 4 of Title 27 of the Administrative Code and applicable provisions of the Zoning Resolution.
 - (ii) Tank vehicles. Tank vehicles shall load or unload flammable or combustible liquids only after they have been inspected and authorized by the fire department and when in charge of a person with a certificate of fitness.
- (9) Pipeline deliveries of flammable or combustible liquids.

 - (i) Pipelines. Petroleum pipelines delivering flammable or combustible liquids to LNG plants or related facilities shall comply with the regulations of the fire department.
 - (ii) Storage tanks. Tankage for the storage of flammable or combustible liquids and/or petroleum products for LNG plants or related facilities shall comply with the applicable requirements of Subchapter 8 of Chapter 4 of Title 27 of the Administrative Code.
- (10) Communications. Communications shall be provided at a loading or unloading location so that the operator can be in contact with other remotely located personnel who are associated with the loading or unloading operation and with the control house. Communication shall be by means of telephone, public address or two-way radio with audible alarm signals which can be heard throughout the plant actuated at the control house in case of emergency.

(s) Testing and testing procedures. Testing and testing procedures shall conform to the requirements of this subdivision (s).

(1) System testing. System and sub-systems of piping in the plant, previously tested hydrostatically or pneumatically, and equipment interconnected by such piping, will be combined to form total integrated systems as dictated by process and plant operation conditions, and given a pneumatic holding test in the presence of a fire department inspector to assure tightness of the system and its joints. The test pressure for each system shall be the highest pressure possible (above operating pressure) which will not disturb relief valves at their normal settings, nor machinery seals, nor exceed equipment design limitations. Systems to be tested prior to any plant start-up operation shall include (but not be limited to):

- (i) Natural gas pretreatment and liquefaction system
- (ii) Natural gas boiloff, recondenser and recompression system
- (iii) LNG product sendout system
- (iv) LNG loading and unloading systems
- (v) Vent header collection system
- (vi) Instrument air system
- (vii) Nitrogen purge system
- (viii) Cooling water system

Test charts and affidavits covering these tests shall be submitted to the fire department.

(2) LNG containers 15 PSIG or less

- (i) Initial container tests. The double and single roof containers operating at 15 psig or less shall be tested before placing in operation by filling with water to the top of the shell and applying an overload air pressure of 1.25 times the pressure for which the vapor space is designed. Container design shall be such that under such test

conditions maximum fill shall not produce a stress in any part of the tank exceeding 80 percent of specified minimum yield strength or 50 percent of the specified minimum tensile strength of the material. In addition, the outer shell and roof test procedure shall be in accordance with Q8.2.1 of API 620, Appendix Q, July, 1973.

(ii) Inner container retest. Inner containers shall be hydropneumatically tested every five years, or in lieu thereof metal containers may be tested by the Charpy Impact Test method as follows:

(A) As many samples as the fire department may deem necessary shall be cut from sheets of metal used in the construction of the container including a number of welded samples or other materials from which samples may be obtained are as follows: Concrete, prestressing steel, etc.

(B) Samples shall be placed in a basket and continuously immersed in LNG contained in the tank.

(C) Three samples shall be withdrawn in the presence of a representative of the fire department in accordance with the following schedule:

At the end of six months, one year, two years, three years, five years and every five years thereafter.

(D) On being withdrawn, samples shall be maintained at the proper temperature and tested promptly by a laboratory acceptable to the Fire Department. A report of the result in affidavit form shall be submitted to the Fire Department.

(E) This does not preclude the requirement for a hydropneumatic test at any time should the Fire Department feel the necessity thereof.

- (3) LNG containers. More than 15 psig LNG containers operating at more than 15 psig, associated vaporizers and piping shall be tested hydrostatically, prior to being placed in operation, and every five years thereafter at two times the maximum operating pressure, except that if the resultant test pressure would exceed 300 psi the test pressure shall be reduced to 1 2/3 times the maximum operating pressure.
- (4) Pneumatic pressure testing of containers. The following steps should be observed when performing a pneumatic pressure test:
- (i) Apply to the enclosed space above the water level an air pressure equal to 1.25 times the pressure for which the vapor space is designed.
 - (ii) Hold test pressure for 1 hour.
 - (iii) Reduce air pressure to equal design pressure.
 - (iv) Above the water level, check with soap film, linseed oil, or other suitable material all welded joints, all welds around openings, and all piping joints against which the pneumatic pressure is acting. A visual inspection may be substituted for the soap film inspection of the welded joint if previously checked with liquid penetrant or with a vacuum box. The soap film inspection shall still be made, above the water level, of all welds around openings, all piping joints, and the compression ring welds including the attachment welds to the roof and shell. This shall be required on original test and may be required on retests where leaks are suspected.
 - (v) Check the opening pressure or vacuum of the pressure and vacuum relief valves by pumping air or nitrogen above the water level and releasing the pressure, followed by a partial withdrawal of water from the tank.
 - (vi) Recheck and retighten the anchor bolts, if provided, after the tank has been emptied of water and is at atmospheric pressure.

- (vii) Apply air pressure, equal to the design pressure, to the empty tank and check the anchor bolts, if provided, and foundation for uplift.
- (viii) Inspect all welded seams in the bottom and the corner weld between the shell and bottom, by means of a soap film and vacuum box test in initial testing.

(5) Piping

- (i) Hydrostatic testing and alternates. Piping shall not leak when hydrostatically tested in the presence of a representative of the fire department for one hour at 200 percent (2X) maximum operating pressure or 100 psi whichever is greater. In lieu of a hydrostatic test, cryogenic piping, instrument air piping, derime system and dry chemical systems piping shall not leak when tested pneumatically (in conjunction with a soap and halide test) for one hour, as follows:
 - (A) External cryogenic piping (outside of cold box)-200 percent of design pressure (minimum 100 psi).
 - (B) Internal cryogenic piping (inside of cold box)-150 percent of design pressure, but not less than 200 percent of operating pressure (minimum 100 psi).
 - (C) Instrument air piping-200 percent of design pressure (minimum 100 psi).
 - (D) Derime system-200 percent of design pressure (minimum 300 psi).
 - (E) Dry chemical piping-150 percent of design pressure but not less than 200 percent of operating pressure (minimum 100 psi).
 - (F) Transfer lines and arms for LNG-200 percent of operating pressure (minimum 200 psig).

(ii) Pneumatic testing-piping. Pneumatic testing shall be conducted as follows:

(A) Introduce air or dry nitrogen into the system and raise pressure to 50 psi to determine if major leaks exist. Repair any leaks found.

(B) Release the pressure in the system. Introduce freon up to 15 psi. Admit air or nitrogen and raise the system to the proper test pressure.

(C) Inspect the system for leaks with a soap solution and then with halide (freon) leak detector. Repair leaks found at this time, and retest.

(D) Upon completion of steps (A), (B), (C) above apply the pneumatic holding test at the prescribed test pressure for one hour. This test to be witnessed by a representative of the fire department.

(E) At conclusion of test, piping and associated equipment shall be purged with nitrogen.

(F) Soap and halide tests may be witnessed or spot-checked by a fire department representative but all pressure tests shall be witnessed.

(G) Affidavits shall be submitted at the conclusion of each test certifying that each has been carried out according to the requirements of the fire department.

(6) On-site tests. All on-site tests shall be witnessed by a representative of the fire department and test charts, and affidavits submitted.

(7) Fire protection systems. Operational tests of all fire protection systems shall be made in the presence of a representative of the Fire Department including but not limited to:

- (i) Yard hydrant systems
 - (ii) Sprinkler and deluge systems
 - (iii) Fire pumps
 - (iv) Dry chemical and foam systems
 - (v) Fire detectors and alarm systems
 - (vi) Combustible gas detectors and alarm systems
 - (vii) Plant fire trucks
 - (viii) Emergency shutdown systems as described in § 23-03(q)(7)
 - (ix) Electrical and communication systems
 - (x) Leak detection and alarms
- (t) Fire protection and safety. This section covers the minimum equipment and procedures required to control, extinguish and minimize the effects of fires and leaks or spills of LNG, flammable refrigerants, liquids or gases and are in addition to previously stated requirements for dikes, impounding areas, blocking valves or other similar provisions.
- (1) Basic fire protection
 - (i) General. The basic fire protection consists of the following:
 - (A) Yard hydrant systems
 - (B) Water sprinkler and deluge systems
 - (C) Dry chemical systems
 - (D) Foam systems where required
 - (E) Special extinguishing systems where required

- (F) Alarm systems for detecting combustible gas and fires and means for notifying the Fire Department
 - (G) Emergency shut-down (see § 23-03(q)(7))
 - (H) A trained fire brigade
 - (I) A training manual and pre-fire plan
 - (J) Control of ignition sources
- (ii) Periodic testing. Operational retests of fire protection systems shall be made annually, witnessed by a representative of the Fire Department.
- (2) Yard hydrant systems. Every LNG facility shall be protected by a system of yard hydrants with hose provided throughout, including marine transfer locations, installed, tested and approved in accordance with the requirements of the Administrative (Building) Code, except, that when it is proven to the satisfaction of the Fire Department that due to the nature of the soil, excessive corrosion of mains will occur, piping fabricated of corrosion resistant material such as asbestos cement pipe may be accepted, but the code requirements for test pressure shall be maintained. Hydrants shall be fed from a minimum 10" looped main. Monitor nozzles shall be located as required by the Fire Department. Systems shall be wet, maintained at a pressure not less than 50 *psig* at all times, and capable of being raised by the plant fire pumps to a greater operating pressure of at least 125 *psig* or other pressures designated by the Fire Department.
- (i) Hydrants. Hydrants shall be of the "New York City" type with two 2 1/2" Fire Department male threaded outlets with hydrant spacing according to the Administrative Code, except that hydrants and mains shall not be placed within impounding areas.
 - (ii) Water supply. Where the water supply is from salt water, no connection to a city water main is permitted.

(iii) Fire pumps

- (A) General. Fire pumps shall be installed in a water pump house and shall be of sufficient capacity to supply all anticipated needs of the water systems required by the Fire Department.
 - (B) Power sources. At least two fire pumps having alternate power sources, one of which shall be electrical, shall be provided.
 - (C) Fire pump house location. The fire pump house shall be located as remotely as possible and in accordance with the distances as shown in Figure 1, § 23-03(c)(1).
 - (D) Fire pump house protection. The pump house shall be of in and/or combustible construction and protected by an outside deluge system designed to maintain the interior temperature at a level no higher than can be endured safely by a pump operator and the pumping and electrical equipment.
- (iv) Salt water supply. When the hydrant supply is salt water, the salt water supply shall be taken from coffer dams and inlets thereto protected by noncorrodible mesh screens capable of screening out all debris over 1/2" in cross-section. Such screens shall be removable for cleaning.
- (v) Drafting site. Adjacent to the salt water pump house, a drafting site shall be maintained for the use of the largest Fire Department pumper. Such site shall be built according to the requirements of the Fire Department. Suction connections shall be 12" plain for superpumper use and 4 1/2" male New York Fire Department threaded for regular land engines.

- (vi) Drafting site manifold. A manifold shall be installed at the drafting site whereby the Fire Department may augment the yard salt water hydrant system by a land engine. The manifold design shall include eight 4 1/2" female swivel inlets and four 3" female swivel inlets (New York Fire Department threads).
- (vii) Fireboat facilities. Provision shall be made for mooring a New York City fireboat as near as possible to the salt water pump house, subject to the approval of the Fire Department and a manifold consisting of six 3 1/2" Fire Department threaded, female swivel, valved connections shall afford the capability of augmenting the yard hydrant system by a fireboat.
- (viii) Land engine facilities. At least two siamese connections, with Fire Department threads, each having two or more 3" female swivel inlets with New York Fire Department threads, shall be provided for use by land engines for any yard hydrant system fed by City water. Owing to variable site conditions the proposed location of these siamese connections shall be submitted to the Fire Department for approval.
- (ix) Check valves. Check valves shall be installed in all inlets to the system.
- (x) Sectional valves. The yard hydrant system shall be provided with sectional valves in a manner satisfactory to the Fire Department, so that it can be utilized even if part of the piping is out of service.
- (3) Water sprinkler and deluge systems. Based on radiation studies noted in § 23-03 (c)(1), exterior sprinkler systems shall be provided for buildings which could become untenable or where equipment could be damaged or rendered inoperable in event of a major LNG fire, e.g.: Control house, compressor, fire pump house, fireboat connection, drafting site, and any building or location normally occupied or which requires personnel to be at their posts in emergencies.

- (i) System operation. Each system shall operate automatically on fire detection anywhere in the plant when the ambient temperature on the outer face of the building reaches 135 degrees Fahrenheit. Each system shall be capable of remote manual operation.
- (ii) Tests. Operational and hydrostatic tests (at 200 psi) of all sprinkler, and deluge systems shall be witnessed by a representative of the Fire Department before acceptance.
- (iii) Interior sprinkler system. Buildings in which combustibles or inflammables are stored, including warehouses and garages, shall be protected by an interior sprinkler system, when within 500 ft. of any LNG storage or process equipment.
- (iv) LNG container deluge system. Every LNG container or tank required by these regulations to be bermed shall be protected by a water deluge system completely encircling the roof at the top of the berm. This system shall have a two-fold purpose:
 - (A) To reduce the effect of radiated heat to exposures in the event of fire in the tank.
 - (B) To reduce the effect of radiated heat from another tank or tanks in a complex.
- (v) Nozzles. The number and arrangement of nozzles and the associated piping shall be subject to the approval of the Fire Department and based on radiation studies. Water supply shall be sufficient, and the pattern of distribution such that the protected equilibrium temperatures will be achieved to the satisfaction of the Fire Department.
- (vi) Water deluge operation. The water deluge systems for LNG containers shall operate automatically when fire detectors react to fire in the tank or any tank or diked area, or the marine transfer area. For other areas, an override

permitting a delay not exceeding five (5) minutes may be provided for operation of the water deluge systems. All systems shall be capable of remote manual operation from the control house and near the system.

(4) Dry chemical systems. In all matters not specifically provided in this subdivision (t), NFPA Std. 17, 1972, shall apply.

(i) System design

(A) Systems shall be designed for a minimum flow rate of .035 pounds per second per square foot and a minimum time of discharge of 30 seconds.

(B) Systems shall be engineered for each of the areas to be protected and plans filed with the Fire Department together with design and experimental data relative to range and effectiveness.

(ii) Typical areas. Typical of areas requiring fixed dry chemical systems are:

(A) LNG tank pump discharge

(B) Vent gas compressors

(C) Vent area of tank roof

(D) Vaporizer booster pumps

(E) Liquefaction unit and gas treatment unit

(F) Vaporizer and regenerator heater areas

(G) Marine loading arm areas

(H) Loading and unloading areas

(I) Run-off ditches and impounding areas

(J) Other areas requiring fixed dry chemical protection shall be as specified by the fire

department, and may be either automatically or manually activated. Hose lines connected to fixed systems shall be provided for manual use, where designated by the fire department.

(iii) System operation

(A) Except as may be otherwise provided for in systems required under § 23-03(t)(7)(iv)(D) and systems required under § 23-03(t)(4)(ii)(J), dry chemical fire extinguishing systems shall be actuated automatically immediately on fire detection without time delay or overrides. On actuation of the dry chemical system a visual and audible alarm signal shall be transmitted which will identify the system in operation. Each system shall be capable of remote manual operation, near the system and at the control house.

(B) Operational and pneumatic tests shall be made of all equipment in the presence of a representative of the fire department.

(iv) Piping protection. Buried piping shall be wrapped, cathodically protected and have a minimum earth cover of three (3) feet or be otherwise protected against mechanical injury, fire or contact with LNG. Where piping passes under roads or ramps it shall be suitably protected with steel casings.

(v) Nozzles. The number and type of nozzles shall be selected to provide complete coverage of the area or zone protected with the required concentration of dry chemical in conjunction with the data required to be submitted under § 23-03(t)(4)(i).

(vi) Fire truck (dry chemical). Dry chemical. A dry chemical mobile, self-powered or trailer type with dedicated tractor, fire truck shall be provided for support operation of automatic systems and/or flexibility of operations in controlling LNG or

surface Class A, B and C fires throughout the plant, in accordance with the following criteria.

(A) Truck capacity. The design of the truck and dry chemical unit shall be acceptable to the Fire Department, but shall be not less than 4000 pounds dry chemical capacity. The dry chemical used shall be of the type, and compatible with the discharge rate used in the fixed systems.

(B) Truck Equipment. The truck shall be outfitted with such equipment that it will be a self-sufficient unit; e.g., hose, nozzles, tools, lights, self-contained breathing apparatus, and extinguishers for handling small fires of the Class A, B and C types.

(vii) Truck Operator

(A) A qualified fire truck operator shall be on duty at all times without exception and the truck shall be stored indoors where it is easily accessible to the assigned personnel.

(B) All operating employees shall be regularly drilled and trained in the operation of the vehicle and equipment.

(C) The person in charge of the mobile unit shall obtain a certificate of fitness from the fire department.

(viii) Truck reservation. The truck shall not be taken off the property except for major repairs in which event the fire department shall be immediately notified.

(ix) Truck connection to fixed piping. Where the area protected by a fixed system is physically beyond the reach of hand hose lines from the mobile truck, an inlet to the fixed piping system shall be provided whereby the truck dry chemical unit can augment the system.

(x) Portable extinguishers. Such portable and wheeled dry chemical extinguishers shall be strategically located throughout the plant as may be required by the fire department. A program for monthly inspection and required recharging shall be established.

(5) Foam systems

(i) General

(A) For the protection of pipe ditches and other impounding areas of limited size, a high expansion foam system may be installed in addition to dry chemical, with the concurrence of the fire department.

(B) In all matters not specifically provided in this subdivision (t), NFPA 11A 1970, High Expansion Foam Systems, shall apply.

(ii) Foam system capability. The foam system shall be capable of producing foam at a 500:1 ratio with discharge at an initial rate to cover the hazard to a depth of 5 feet within two minutes, except where other ratios and/or rates are acceptable to the fire department. A maintenance rate after the initial two minutes, shall be required to maintain a foam blanket over the dike or impounding area, assuming a steady state evaporation rate of 0.01 inch per minute of depth of LNG liquid in the dike or impounding area.

(iii) Foam system supplies. Sufficient foam concentrate shall be provided to permit continuous operation as per § 23-03(t)(5)(ii) plus a 50 percent reserve. Foam concentrate shall not be stored beyond its shelf life expectancy. Foam concentrate shall be stored and maintained at temperatures between 35 degrees Fahrenheit and 120 degrees Fahrenheit except where a low temperature foam concentrate has been approved.

- (iv) Foam compatibility with dry chemical. The foam concentrate shall be compatible with dry chemical used to suppress LNG fires.
- (6) Special extinguishing systems. Special extinguishing systems such as Halon 1301 or carbon dioxide may be used in certain locations acceptable to the fire department, and also under the conditions set forth by the fire department.
- (7) Alarm systems

 - (i) General

 - (A) Alarm systems shall be designed so that every portion of the area protected is under surveillance by the scanning or detecting devices, and shall be automatic in operation in that the device shall set in motion, without manual assistance, the fire extinguishing systems designated for the area. If it becomes necessary to take any system off automatic; e.g., for repairs or alteration, the fire department shall be immediately notified.
 - (B) Every alarm system shall be connected to the fire department via a central office, and the fire department shall be notified immediately of the transmission of an alarm. This means that the transmission of an alarm shall be followed by a telephone call from the control house to the fire department by using telephone number assigned by the fire department.
 - (C) All alarm systems shall be closed circuit electrical, and fail-safe for pneumatic components.
 - (D) Plans for every alarm, detection, and communications system shall be submitted to the fire department for approval, and acceptance of systems shall be subject to an operational test and inspection of the systems by the fire department.

(ii) Alarm boxes. Manually operated alarm boxes, in the number and locations specified by the fire department, shall be incorporated into the alarm system.

(iii) Combustible gas detector system

(A) General operation. A combustible gas detector system shall be provided which shall sound an audible alarm at the location and a visual and audible alarm at the control house at 25 percent of the lower explosive limit. At 50 percent LEL emergency shutdown shall be initiated automatically placing the plant in "fail-safe" condition with simultaneous transmission of an alarm to the central office. These limits shall apply except as otherwise specified in § 23-03(g)(2)(ii)(A).

(B) Combustible gas detector locations. Combustible gas detectors shall be provided at the following typical locations (as well as additional locations required by the fire department upon examinations of plans).

((a)) Control and auxiliary room

((b)) Compressor rooms

((c)) Liquefaction equipment

((d)) Gas treating equipment

((e)) Vaporizer booster pumps

((f)) Vent gas compressors

((g)) LNG pumps

((h)) Tank vents

((i)) At base of tank (at least one detector in each quadrant)

((j)) At intervals along runs of LNG piping

((k)) Marine transfer points

((l)) Customer loading stations

((m)) High pressure gas inlets and outlets

(iv) Fire detection system

(A) General operations.

((a)) A fire detection "closed circuit" system utilizing approved devices and equipment shall be provided throughout the plant which will give an audible and visual alarm in the control house, and indicate the location, and an audible alarm throughout the plant.

((b)) Such systems shall automatically actuate the fire extinguishing systems in the area involved, trip the plant to "fail-safe" and transmit an alarm to the fire department via an approved central office connection.

(B) Fire detectors. Ionization type or ultra violet detectors shall be used in buildings and ultra violet types outdoors. Other types of detectors acceptable to the fire department may also be used.

(C) Detector locations. Fire detectors shall be provided at the following locations (in addition to others which the fire department may require on examination of plans).

((a)) Control and auxiliary rooms

((b)) Compressor rooms

((c)) Liquefaction equipment

((d)) Gas treating equipment

((e)) Vaporizer booster pumps

((f)) Vent gas compressors

((g)) Vaporizers

((h)) LNG pumps

((i)) Tank vents

((j)) At intervals along runs of LNG piping

((k)) Marine transfer points

((l)) Customer loading stations

((m)) High pressure gas inlets and outlets

(D) Detector shielding. Where it is impossible or impracticable to shield fire detectors from spurious responses, consideration shall be given to the following options which shall be subject to approval of the fire department for each area protected.

((a)) Shielding of detectors

((b)) Installation in pairs, positioned to survey the protected area, and requiring response of both to a source of flame. Response of one detector alone shall only alarm but shall not initiate fire protection system or emergency shutdown.

((c)) Provision of a ten second delay which would require maintenance of the activating light source for

ten seconds before initiating the alarm and extinguishing system (this is intended to prevent operation by a lightning flash or momentary reflected light).

(8) Trained fire brigade

(i) General. In every LNG facility a full-time fire brigade shall be maintained consisting of operational employees thoroughly trained in the use of fire extinguishing equipment and tools and in the operation of the facility.

(ii)

(A) Safety director. An individual responsible for overall plant safety shall be employed, whose duties include:

((a) The correction of fire hazards which are brought to his or her attention in any manner.

((b) The training of the fire brigade and responsibility for its manpower and efficiency.

((c) The organization of a training manual which shall emphasize operational safety in every area of the plant.

((d) Pre-fire planning, details of which shall be developed through liaison and regular combined drills with local fire department units under the supervision of the local deputy chief.

((e) Maintenance of records of drills, training, lectures, incidents of any emergency nature, and copies of reports forwarded to supervisors. [He] The safety director shall insure that an immediate report

[be] is sent by telephone of every fire, leak, or spill, to the Bureau of Fire Prevention and follow with a written report. This shall be in addition to the normal transmittal of an alarm.

((f) Establishment of a regular maintenance program for fire protection equipment, supervision of all maintenance and repair work to verify compliance with fire regulations. [He] The safety director shall have the authority and duty to stop all work being done in violation of fire department or company safety regulations.

(B) Safety director selection. The safety director shall be selected on the basis of experience consisting of at least five years experience in a paid fire department, or in industrial fire protection and safety in a gas plant or bulk petroleum terminal or chemical refinery or in fire protection engineering or related fields.

(C) Safety director's responsibility. The safety director shall be responsible to, and subject only to authority of top management; e.g., vice president status, in the performance of his or her duties.

(D) Certificate of fitness. The safety director shall obtain a certificate of fitness from the Fire Department qualifying him or her in this capacity and in the knowledge and operation of all protection systems.

(iii) Deputy safety directors. As many deputy safety directors shall qualify and be certified as are necessary to ensure that a Deputy Safety Director will be on duty at all times when the Safety Director is off duty.

(iv) Fire brigade

- (A) The fire brigade on duty at all times shall be selected so that a sufficient number is on duty to operate vital controls, start up fire protection systems should automatic devices fail, transmit alarms, secure the plant, extinguish incipient fires, and place equipment back in service when no longer required. In no case shall less than three [men] persons be on duty at any time.
- (B) A daily roster of members of the brigade in each shift shall be maintained, and every brigade member shall be aware of his or her assigned post and duties.
- (v) Protective clothing. Protective clothing and asbestos suits shall be provided for all members of the brigade on duty. Additional asbestos suits or similar equipment shall be provided, as required by the Fire Department.

Note: Retain underlining of highlighted text in publication of final rule.

- (9) Training manual and pre-fire planning
 - (i) Training manual. A training manual for the fire brigade shall be submitted by the safety director to the Fire Department for acceptance.
 - (ii) Composition of manual. The manual shall consist of the following:
 - (A) Table of organization showing chain of command and levels of responsibility.
 - (B) Drill schedule showing areas of plant, dates and times and showing that all members on duty must participate.
 - (C) Standard drill operations, a short description of equipment and manpower requirements, and the objective.
 - (D) Pre-fire plans and actions to be taken in the event of fire, explosion or spills; e.g., a

major leak in a tank, a leak in an LNG transfer line, a fire at the pier during unloading, or a compressor explosion.

- (E) Provision for first aid training.
- (F) Description of all fire safety systems, alarms, extinguishers, methods of operation and regular maintenance and tests.
- (G) Applicable fire department regulations, re: welding, open flames, smoking, housekeeping, etc.
- (H) Emergency telephone numbers of City Departments, Coast Guard, and company personnel to be called.
- (I) A final color-coded composite drawing showing all fire protection systems. In addition, copies of the drawing shall be provided for all fire department units charged with responsibility relative to the plant.

(10) Control of ignition sources

- (i) Smoking, welding and hot work. Smoking, or the carrying of lighted cigars, cigarettes or pipes, and the use of non-process open flames within the plant area shall be prohibited with the following exception:
 - (A) Smoking may be permitted in areas designated by the Board of Standards and Appeals under such conditions as it may impose.
 - (B) Welding, cutting, and similar operations may be conducted at times and places specifically authorized by the Safety Director. No contractor shall be permitted to proceed with any repairs, alteration, or fabrication except under the authority of the Safety Director who shall see that all

required permits or approvals have been obtained from the Fire Department, Department of Buildings, and/or Department of [Ports and Trade] **Small Business Services**.

(C) No welding, cutting, or similar *hot work*, or any repair, alteration, or testing shall proceed except when conforming to the provisions of applicable regulations of the Fire Department, Department of Buildings, and/or Department of [Ports and Trade] **Small Business Services**.

Note: Retain underlining of highlighted text in publication of final rule.

(ii) Prohibited use at LNG spills or leaks. The use of equipment, tools, or heating devices which are not approved for use in combustible atmospheres shall not be used in those areas where LNG has spilled or leaked.

(11) Housekeeping. Good housekeeping for fire prevention, containment and access shall be maintained with emphasis on the following:

(i) No rubbish, or brush shall be permitted to accumulate.

(ii) Storage shall be confined to storehouses, closets, lockers, or other approved locations.

(iii) Roadways shall be kept clear-no parking shall be permitted except in parking areas provided for employees, outside contractors, visitors, etc. Such parking areas shall be in locations acceptable to the Fire Department.

(iv) Dikes and berms shall be maintained at prescribed heights and contours.

(v) Employees shall be directed to report all defects, malfunctions, breakdowns, and evidence of deterioration to superiors for correction.

(12) Repairs, alterations, inspections, and entries. All repairs, alterations, inspections, and entries by personnel into any vessel, tank, or container which has contained any flammable gas or liquid shall be made under inert atmospheric conditions as determined and certified by a Marine Chemist possessing a valid certificate issued by the National Fire Protection Association in accordance with NFPA St. 306-1972, after his or her personal examination and testing. Such certification shall be made daily before start of any work in the vessel.

Note: Retain underlining of highlighted text in publication of final rule.

(u) Requirements for Plans, Approvals, Affidavits and Documentation. Specific data is required by the Fire Department to support certification of LNG facilities.

(1) General requirement for permit. No permit or permission to operate an LNG facility to load or unload a container or vessel will be granted until the Fire Department is satisfied through approval inspections and the acceptance of required documentation that the regulations are complied with and no undue hazard exists. "Risk Analysis" of equipment or procedures shall be submitted as directed by the Fire Department.

(2) Professional engineer-of-record. The owner shall appoint a professional engineer-of-record who shall have authority to act as liaison with the Fire Department, file documents, comply with the Fire Department's requirements, file required reports and exercised resident supervision over construction, repair or modification and operation, during planning and construction and for a period of five years from completion.

(3) Data submittal schedule. Plans, approvals, affidavits, documentation and other data shall be submitted on a schedule which will permit adequate review by the Fire Department and in accordance with the following paragraphs of this subdivision (u).

(4) Planning phase data. The following data shall be provided to support review of the Owner's application for approval of a LNG Project with New York City. Fire Department recommendations to the Board of Standards

and Appeals, or other authorized agency for approval of this application, will be based on analysis of this data.

- (i) Proposed site plan. A proposed site plan shall be filed with the Fire Department indicating all major characteristics of the site, showing plant buildings, tanks, containers, dikes, process areas, transfer areas, major LNG piping lot lines, shore lines, and exposures within 1500 feet of lot lines. Such aerial photos as the Fire Department may require shall be included. Site plans shall include underground channels, conduits and such, as well as pipelines, drainage ditches and similar channels.
- (ii) Description of facility. A complete description of the facility shall be filed with the proposed site plan. It shall indicate the proposed quantities and methods of receiving, storing, processing and distributing LNG within the facility. A detailed analysis of the product to be stored shall be included. Fire protection, safety and operational control systems shall be indicated with statements as to the basis upon which each were selected.
- (iii) Thermal radiation and vapor dispersion study. A thermal radiation and vapor dispersion study shall be submitted, prepared by recognized experts in thermodynamics selected by the owner and acceptable to the Fire Department. The study should include vapor dispersion characteristics resulting from spills caused by total failure modes of the storage tanks, or equipment or piping. The radiation study should assume an entire tank or group of tanks are involved in a fire and should show equilibrium temperatures within a radius of 1500 feet of the tank, at wind velocities of 0, 30 and 60 mph, at points where R 1500 feet, 1200 feet, 1000 feet, 800 feet, 600 feet, 500 feet, 400 feet, 300 feet, 200 feet and 100 feet from flame surface. Attention shall also be given to the possibility of local overheating and fires in impounding areas.
- (iv) Fire prevention criteria document. A Fire Prevention Criteria Document shall be submitted

as a companion document to the Proposed Site Plan and the Description of Facility. It shall contain the criteria by which the owner plans to meet the requirements of this regulation and all other requirements of the Fire Department. The document shall be maintained throughout the plant construction and start-up phase reflecting all major requirements of the Fire Department. Criteria shall be organized by plant and fire protection systems and shall include the following:

- (A) Design and performance criteria
- (B) Test plans and procedures
- (C) Training requirements and plans
- (D) Operational plans and procedures
- (E) Compliance approvals and affidavits

(5) Design phase data. The following data shall be provided to support review of the Owner's application to build a LNG plant within New York City. Fire Department recommendations to the Department of Buildings or Department of [Ports and Trade] Small Business Services for approval of the building permit(s) will be based on the analysis of this data.

- (i) Construction drawings
 - (A) The Fire Department shall have access to all site plans, construction drawings, equipment drawings, installation drawings, specifications and other data utilized by the Contractor(s) for construction of the plant. The Fire Department shall be provided, on request, copies of the above data required for their reviews and analysis, and plans shall be filed for approval with the Department of [Ports and Trade] Small Business Services or Department of Buildings.

- (B) Copies of venting and relief valve calculations for LNG storage tanks shall be furnished.
- (C) Data on power needs and secondary power capacity to provide power for LNG control, venting, plant shutdown, fire protection systems (including fire pumps).
- (D) Plans showing locations and construction of Fire Department siamese, manifolds, suction connections, hydrant systems, dry chemical systems, water spray systems, foam systems, gas and fire detectors, alarm and communication systems shall be submitted to the Fire Department for acceptance.

Note: Retain underlining of highlighted text in publication of final rule.

- (ii) Process report. A process report shall be filed with the Fire Department (Bureau of Fire Prevention), for review; such report shall contain the following:
 - (A) Process information on incoming feed gas treatment, refrigeration, liquefaction, vaporization, deriming, and odorization.
 - (B) Basis for approval of all equipment used with reference to the standards of construction, e.g., ASME, ANSI, Chapters 1 and 4 of Title 27 of the Administrative Code.
 - (C) Suitability of materials of construction for the pressures and temperatures to be encountered by equipment, piping, valves, and insulation.
 - (D) Adequacy of safety features, including temperature and pressure relief, instrumentation and control panels, emergency shutdown and fire shutdown devices, isolation valves, dump tanks, flare

stacks, electrical equipment and test procedures.

- (E) Plot plan showing location of each piece of equipment, valves, piping, safety devices, instrumentation, etc., and distances between equipment, tank, property lines, open flames, etc.
 - (F) Flow charts which shall show all equipment, safety devices and instrumentation with pressure and temperature at all points to be indicated.
 - (G) Equipment summary sheets or charts for each piece of equipment, safety and relief device, valve, piping, etc., indicating its function, operating pressure and temperature, material of construction, insulation and safety devices.
 - (H) Relief device calculations shall be included as well as supporting ASME and manufacturers' affidavits.
 - (I) A final color-coded composite line drawing showing all equipment in the fire protection systems. In addition, copies of the drawing shall be provided for all fire department units charged with responsibility relative to the plant.
- (iii) Fire protection report. A manual for training the fire brigade shall be submitted for acceptance by the Fire Department. The data manual shall designate and include the duties of the Safety Director, Deputy Safety Director, fire brigade personnel. It shall describe the functions, operations, maintenance and tests required for all fire protection and prevention in the facility. A final color-coded composite line drawing showing all equipment in the fire protection systems shall be provided. Copies of the drawing will be provided to all Fire Department units charged with responsibility relative to the plant.

- (6) Design compliance, approvals and affidavits. Affidavits shall be provided by the Company, the architectural and engineering firm and the engineer-of-record that the plant design is in compliance with the following:
- (i) The design conforms to NFPA 59A, 1975, in all respects not covered herein.
 - (ii) Construction is in accordance with the New York City Building Code, Chapter 1 of Title 27 of the Administrative Code, and any applicable Board of Standards and Appeals Resolution.
 - (iii) All compressed gas vessels (air, nitrogen, etc.) shall conform to Subchapter 17 of Chapter 4 of Title 27 of the Administrative Code and any applicable resolution of the Board of Standards and Appeals.
 - (iv) All refrigeration equipment shall conform to the requirements of Chapter 1 of Title 27 of the Administrative (Building) Code, with the provision that where mixtures of flammable gases or liquids not listed therein are used as refrigerants, approval from a nationally recognized testing laboratory shall be submitted with a request for acceptance. Refrigerant vessels shall conform to the ASME code and refrigerant piping, fittings and relief devices shall conform to ANSI B31.5 or ANSI B31.8.
 - (v) All pipe joints shall be welded by certified welders and radiographed. Certifications of welders and welds shall be filed with the Fire Department.
 - (vi) Electrical lighting, wiring, equipment and devices conform to the New York City Electrical Code, Chapter 3 of Title 27 of the Administrative Code.
 - (vii) LNG storage tank is to be protected against lightning in accordance with the New York City Electrical (Administrative) Code and NFPA-78.
 - (viii) All materials are suitable for the temperature and pressure involved.

- (ix) All equipment and devices (including LNG pumps) are of approved type (approved by the Board of Standards and Appeals or other acceptable nationally recognized testing organization, such as Underwriters Laboratories, Factory Mutual, Factory Insurance Association, U.S. Coast Guard, etc.).
- (x) Lubricating oil tanks shall conform to the requirements of Chapter 1 of Title 27 of the Building (Administrative) Code, and the regulations of the Fire Department.
- (xi) Color-coding of piping systems shall meet the requirements of the Fire Department.
- (7) Construction and plant start-up phase data. The following data is required by the Fire Department to assure that all construction meets the requirements for safe operation and that trained personnel and adequate procedures are available for plant operation. No permit for start-up operations shall be given until these are complied with.

 - (i) Test data. The results of operational, hydrostatic and pneumatic test shall be submitted in the form of test charts and/or reports signed and dated by the company representatives and Fire Department representative witnessing the tests.
 - (ii) Construction approvals and affidavits. Evidence of Approval and Affidavits shall be provided by the resident engineer that all construction has been accomplished in accordance with the design requirements stated in § 23-03(u)(6).
 - (iii) Data required prior to cooldown and start-up (debugging stage).

 - (A) A survey of the plant by a licensed surveyor shall be filed with the Fire Department showing the location of the LNG tanks, all equipment and buildings and indicating that all distance and

topographical requirements have been complied with.

(B) Evidence of approval by the Department of [Ports and Trade] **Small Business Services** or Department of Buildings, whichever has jurisdiction, shall be submitted to the Fire Department showing that the LNG tanks, berms and dikes have been constructed according to approved plans and the requirements of all agencies having authority and jurisdiction. Supporting affidavits shall be submitted by the owner, the engineer-of-record, and the contractors stating that the tanks have been so constructed and are suitable and safe for the purpose intended.

(C) An affidavit shall be submitted by the owner and the engineer-of-record that all requirements of the Fire Department and any other regulatory agency have been complied with.

(D) At least two responsible employees on each shift shall obtain certificates of fitness from the Fire Department to supervise the operation of the facility. Such employees shall be selected on the basis of knowledge and experience in LNG plant operation, and fire protection systems, refrigeration systems, processing, maintenance and repair, and transfer operations.

Note: Retain underlining of highlighted text in publication of final rule.

(8) Operations phase data requirements. The following data is required prior to approval for the initial operating permit by the Fire Department and as applicable for renewal.

(i) Permit. An annual Fire Department permit shall be obtained, the fee to be in accordance with § 27-4027 of the Administrative Code.

(ii) As-built approved plans. The Fire Department shall be provided with a copy of the as-built approved plans which shall include:

(A) Plot plans

(B) Tank plans

(C) Process area plot plan

(D) Fire protection systems plans showing yard hydrants and mains, dry chemical, water deluge, sprinklers, foam systems, water supplies, pumps, combustible gas detection systems and other alarm systems, underground piping, channels, conduits, ducts or sewers.

(E) Plans showing structural features

(F) As-built survey

(G) Radiation and vapor dispersion studies

(iii) Reports

(A) A semi-monthly progress report shall be submitted to the Fire Department by the engineer-of-record after the start of operations indicating the status of the plant, any deviations from normal operations, incidents, malfunctions, etc.

(B) A quarterly report shall be submitted to the Fire Department by the owner and engineer-of-record indicating alterations and changes at the plant and the reasons therefor, malfunctions and the reasons therefor, and an instrumentation study and analysis. The semi-monthly reports shall be continued until the Fire Department is satisfied that they are no longer necessary.

(iv) Operating data and test.

(A) An affidavit shall be submitted indicating maximum density of LNG to be stored.

(B) A program shall be submitted for the periodic Charpy testing of samples immersed in the LNG as required by § 23-03(s)(2)(ii).

(C) Procedures shall be submitted for acceptance of all purging operations. Such procedures shall be incorporated in the operating manual.

* * *

(x) References

ACI—American Concrete Institute

514-59 Recommended practice for Measuring, Mixing and Placing of Concrete

525-63 Minimum Requirements for Thin-Section Precast Concrete Construction

318.71 Building Code Requirements for Reinforced Concrete, with Modifications under BS&A, Cal. No. 239-72BCR

506-66 Recommended Practice for Shotcreting

ACI Committee Report 344—Design and Construction of Circular Prestressed Concrete Structures

311-64 Recommended Practice for Concrete Inspection

ANSI—American National Standard Code for Pressure Piping (American Society of Mechanical Engineers)

B-31.3 Petroleum Refinery Piping—1966

B-31.5 Refrigeration Piping Systems—1967

B-31-8 Gas Transmission and Distribution Piping Systems—1968

API—American Petroleum Institute-

620 Recommended Rules for Design and Construction of Large, Welded, Low-Pressure Storage Tanks

App. Q Low-Pressure Storage Tanks for Liquefied Natural Gas—July 1973

1104 Standard for Welding Pipelines—1968

6D Standard for Pipeline Valves—1968

ASME—American Society of Mechanical Engineers

Boiler and Pressure Vessel Code

Section VIII—Unfired Pressure Vessels—1971

Section IX—Qualification of Welders—1971

MSS-SP-6 Manufacturers Standardization Society of the Valve
and Fitting Industry - Standard Practice—1963

NFPA—National Fire Protection Association—Standards—

11A High Expansion Foam Systems—1970

17 Dry Chemical Systems—1972

37 Installation and Use of Stationary Combustion Engines
and Gas Turbines—1970

59A Production, Storage, and Handling of Liquefied Natural
Gas—1975

68 Guide for Explosion Venting—1974

69 Guide for Explosion Prevention Systems—1973

78 Lightning Protection Code—1968

306 Control of Gas Hazards on Vessels—1972

§4835-01 Pre-Existing Flammable Gases

- (a) Scope. This section consolidates the *Fire Prevention Code* and former Fire Department *rules* in effect on June 30, 2008, that are applicable to the design and installation of *flammable gas* installations in *pre-existing facilities*.
- (b) Definitions. Reserved
- (c) Ethylene Oxide. The design and installation of ethylene oxide systems used for sterilization purposes in compliance with former Fire Department *rule* 3 RCNY §23-08 in effect on June 30, 2008 are allowed and would be approved under the provisions of the Fire Code and the *rules*, and accordingly, such *facilities* shall be designed and installed in compliance with the requirements of FC3506.
- (d) Compressed Natural Gas. The design and installation of *compressed natural gas* storage facilities in compliance with former Fire Department *rule* 3 RCNY §23-12 are allowed and would be approved under the provisions of the Fire Code and the *rules*, and accordingly, such facilities shall be designed and installed in compliance with the requirements of FC3507 and R3507-01, except that *pre-existing CNG* storage facilities with reduced clearance distances shall be continued in compliance with the provisions of the former Fire Department *rule* 3 RCNY §23-12(g) and (i) with respect to clearance distances until such time as such *facilities* may be required to comply with the Fire Code and the *rules* with respect to their design and installation.
- (1) Former Fire Department Rule 3 RCNY §23-12(g)(4)(i) and (i)(7)

§23-12 Storage and Use of Compressed Natural Gas

(g) Outdoor CNG container storage facilities.

* * *

(4) No outdoor CNG storage facility shall be located within:

(i) five (5) feet of any building opening, including any door, openable window, intake or exhaust vent;

* * *

(i) Stationary CNG installations.

* * *

(7) No CNG container connected for use shall be located within:

(i) five (5) feet of any building opening, including any door, openable window or intake or exhaust vent;

(ii) five (5) feet of the nearest lot line, sidewalk or building on an adjoining lot * * *;

(iii) five (5) feet of any parked motor vehicle;

(iv) five (5) feet of any vent or fill line of any flammable or combustible liquid storage tank;

(e) Acetylene *Pre-existing* acetylene storage facilities the design and installation of which would not be allowed or approved under the Fire Code, but which, pursuant to FC102.3 and R102-01, may be continued under the applicable laws, rules and regulations in effect prior to the Fire Code, shall continue to comply with the provisions of such laws, rules and regulations, including former Administrative Code §27-4101, until such time as such *facilities* may be required to comply with the Fire Code and the *rules* with respect to their design and installation.

(1) Former Administrative Code §27-4101

§27-4101 Acetylene

- a. Approval of generator. It shall be unlawful to generate acetylene, except in a generator or other suitable apparatus of a type for which a certificate of approval shall have been issued; provided, however, that nothing contained in this section shall be construed as requiring a certificate of approval for an acetylene generator having a carbide capacity not exceeding five pounds.
- b. Containing building. Each building or compartment used for the generation and compression of acetylene, to a pressure greater than fifteen pounds to the square inch, shall be designed and constructed in accordance with all applicable provisions of the building code, and shall be used for no other purpose.
- c. Stationary apparatus. Each stationary apparatus for generating acetylene shall be equipped with liquid seals, a safety valve, a blowoff valve or other automatic appliance for limiting the pressure of the gas to not more than fifteen pounds to the square inch at a temperature of seventy degrees Fahrenheit. The apparatus shall be installed in a waterproof compartment having the floor, walls and roof of brick or reinforced concrete. The size of such compartment shall not exceed that required to allow the free operation of the apparatus and the storage of the necessary carbide. Each such apparatus shall bear the name of the manufacturer and the year of its manufacture, and shall be identified by a serial number.
- d. Compression. It shall be unlawful to compress acetylene, or transport, store or sell acetylene compressed to a greater than two hundred fifty pounds to the square inch at a temperature of seventy degrees Fahrenheit.
- e. Dissolving and absorbing. It shall be unlawful to generate, transport, store or sell acetylene compressed to a pressure greater than fifteen pounds to the square inch, except when it be dissolved in acetone, or other similar solvent, and simultaneously absorbed into asbestos or other suitable porous material, and confined in a tank or cylinder of a type for which a certificate of approval shall have been issued.
- f. Liquid. It shall be unlawful to generate, manufacture, transport or sell any liquid acetylene.
- g. Residue of carbide. All solid residue of calcium carbide shall be promptly removed from the building and disposed of; and it shall be unlawful to discharge any such residue into a public drain or sewer.

* * *

- j. Ventilating, heating and lighting. Each building or compartment used for the generation or compression of acetylene shall be well ventilated, shall be heated only by steam or hot water, and shall be artificially lighted only by electric lights having airtight bulbs, globes or tubes.

* * *

§4838-01 Pre-Existing Liquefied Petroleum Gases

- (a) Scope. This section consolidates the *Fire Prevention Code* and former Fire Department *rules* in effect on June 30, 2008, that are applicable to the design and installation of *pre-existing liquefied petroleum gases* storage facilities.

- (b) Definitions. Reserved

- (c) Facilities in Compliance With Former Fire Department Rules in Effect on June 30, 2008. LPG storage facilities in compliance with former Fire Department *rule 3* RCNY §25-01 in effect on June 30, 2008 are allowed and would be approved under the provisions of the Fire Code and the *rules*, and accordingly, such *facilities* shall be designed and installed in compliance with the requirements of FC Chapter 38 and the R3809-01, except that where the storage facility clearance distances from building openings; stationary LPG installations clearance distances from building openings, lot lines, buildings on an adjoining lots, sidewalks, *motor vehicles*, and vent and fill lines of *flammable* or *combustible liquid* storage tanks; and previously exempt storage and use (as set forth in 3 RCNY §25-01(k)); of such outdoor storage facility are lawfully not in compliance with the requirements of such chapter and rule, such *pre-existing conditions* shall be continued in compliance with the provisions of former Fire Department *rule 3* RCNY §25-01(g), (i) and (k), as applicable, until such time such facilities may be required to comply with the design and installation requirements of the Fire Code and rules with respect to such *conditions*.

- (1) Former Fire Department Rule 3 RCNY §25-01(g), (i) and (k)

§25-01 Storage and Use of Liquefied Petroleum Gases

- (g) Outdoor storage facilities.

* * *

- (4) No outdoor storage facility shall be located within:

(i) five (5) feet of any building opening, including any door, openable window, intake or exhaust vent;

* * *

(i) Stationary LPG installations.

* * *

(7) No LPG container connected for use shall be located within:

(i) five (5) feet of any building opening, including any door, openable window or intake or exhaust vent;

(ii) five (5) feet of the nearest lot line, sidewalk or building on an adjoining lot * * *;

(iii) five (5) feet of any parked *motor vehicle*;

(iv) five (5) feet of any vent or fill line of any flammable or combustible liquid storage tank;

* * *

(k) Pre-existing storage and use.

(1) Exemptions. Subject to the provisions of paragraph (2) of this subdivision, LPG storage and use in or for the following existing facilities and installations shall be maintained and operated in accordance with the original approval conditions and the provisions of this section, except as follows:

(i) The provisions of paragraph (5) of subdivision (f) and paragraph (7) of subdivision (i) of this section shall not apply to any stationary LPG installation that was issued a Department permit prior to the effective date of this section, including the stationary LPG installations described in paragraph (7) of subdivision (j) and subparagraphs (ii), (iii) and (iv) of this paragraph.

- (ii) The provisions of paragraph (5) of subdivision (c) and paragraph (5) of subdivision (i) of this section shall not apply to a LPG container installation in a residential occupancy that was issued a Department permit prior to the effective date of this section.
- (iii) The provisions of paragraph (13) of subdivision (c) of this section shall not apply to LPG storage and use for non-residential space heating or water heating when a Department permit for such storage and use was issued prior to the effective date of this section.
- (iv) The provisions of paragraphs (8) and (10) of subdivision (c) and paragraph (5) of subdivision (f) of this section shall not apply to a roof-mounted emergency generator installation that was issued a Department permit prior to the effective date of this section.
- (v) The provisions of subdivision (g) and paragraph (5) of subdivision (f) of this section shall not apply to an outdoor LPG storage facility that was issued a Department permit prior to the effective date of this section.
- (vi) The provisions of item (iii) of paragraph (2) of subdivision (h) and paragraph (4) of subdivision (h) of this section shall not apply to an indoor LPG storage facility that was issued a Department permit prior to the effective date of this section.

(2) Discontinuance of exempt storage and use.

- (i) The LPG storage and use authorized by subparagraphs (1)(i), (ii), (iii) and (iv) of this subdivision shall be discontinued and all LPG containers removed from the premises:
 - (A) by December 31, 2004, if access to natural gas from a public utility is available on the effective date of this rule; or
 - (B) within five years after access to natural gas from a public utility becomes available, if such access is not available on the effective date of this rule.
- (ii) Notwithstanding any other provision of this subdivision, the Department may require any facility or installation

granted an exemption by this subdivision to comply with all applicable provisions of this section and may require discontinuance and removal of any facility or installation not in compliance with the provisions of this section, where the Department finds that such facility or installation has been operated contrary to the original approval conditions or poses an undue danger to public safety.

Provisions Referenced in §25-01(k)

(c) General prohibitions.

* * *

(5) store or use in, or bring or allow into, any residential occupancy or on any lot containing a building used for a residential occupancy, any LPG container with a capacity greater than sixteen and four tenths ounces (16.4 oz.), except as provided in subdivision (j) and (k) of this section.

* * *

(8) use on the roof of any building any LPG container with a capacity greater than sixteen and four tenths ounces (16.4 oz.), except as provided in subdivisions (j) and (k) of this section.

* * *

(10) store or use LPG for a stationary installation in any area where access to natural gas from a public utility is available, except as provided in subdivision (k) of this section.

* * *

(13) store or use LPG for space heating or water heating, except as provided in subdivisions (j) and (k) of this section.

* * *

(f) General storage and use.

* * *

(5) Storage and use of LPG in quantities exceeding twenty five hundred (2,500) standard cubic feet of gas (approximately 300 pounds) constitutes a high hazard occupancy as set forth in Article

3 of Subchapter 3 of the New York City Building Code. Any such quantities of LPG shall be stored and used in compliance with the Building Code requirements applicable to high hazard occupancies, except as provided in subdivision (k) of this section.

* * *

(g) Outdoor storage facilities.

(1) Except as otherwise provided in this section, all LPG containers shall be stored outdoors in a facility that conforms to the requirements of this subdivision. All outdoor LPG storage facilities shall be:

(i) not more than fifty four (54) square feet in area;

(ii) protected from vehicle impact;

(iii) protected from theft, tampering or unauthorized use by a metal open fence enclosure at least six (6) feet in height, secured by a locked gate opening outward, or by a lockable ventilated metal locker of a type for which a Certificate of Approval has been issued by the Department. Such fence enclosure or locker shall be mounted on and secured to a substantial concrete pad at grade level, which pad shall be constructed to prevent accumulation of rain and snow;

(iv) located in a well ventilated area. There shall be a minimum clearance of ten (10) feet from any surrounding walls more than eight (8) feet high on at least three sides of the outdoor storage facility;

(v) directly accessible from the street. LPG containers being delivered to or taken from an outdoor storage location shall not be brought into or through any building or other structure; and

(vi) equipped with at least one 10-B-C rated fire extinguisher in a protective enclosure. Such fire extinguisher shall be affixed to the outside of the storage facility or placed at another readily accessible location not more than thirty (30) feet from the facility.

(2) No more than twenty five hundred (2,500) standard cubic feet of LPG (approximately 300 pounds) shall be stored in an outdoor LPG storage facility.

(3) No outdoor storage facility shall be located on a lot containing any building used for residential purposes.

(4) No outdoor storage facility shall be located within:

(i) five (5) feet of any building opening, including any door, openable window, intake or exhaust vent;

(ii) ten (10) feet of the nearest lot line, sidewalk or building on an adjoining lot, except as follows:

(A) twenty (20) feet of any building of wood frame construction;

(B) fifty (50) feet from any building occupied as a multiple dwelling; and

(C) one hundred (100) feet of the lot line of any property occupied for educational, health care or religious purposes, place of public assembly, or other place of public gathering;

(iii) ten (10) feet of any parked motor vehicle;

(iv) ten (10) feet of any combustible material;

(v) fifteen (15) feet of any vent or fill line of any flammable or combustible liquid storage tank;

(vi) twenty (20) feet of flammable gas storage;

(vii) twenty (20) feet of any aboveground flammable or combustible liquid storage tank; and

(viii) one hundred (100) feet of any subway entrance or exit, vent or other opening.

* * *

(h) Indoor LPG storage.

* * *

(2) All indoor storage of LPG with an individual capacity greater than sixteen and four tenths ounces (16.4 oz.) authorized by this rule shall be stored in a separate room that conforms to the requirements of this subdivision. Any such room shall be:

* * *

(iii) constructed with an access door that opens directly to the outdoors:

* * *

(4) all delivery and pick-up of containers to or from an indoor LPG storage facility shall be through the outdoors access door only, not through the building.

* * *

(i) Stationary LPG installations.

* * *

(5) When LPG is piped indoors, a sign at least ten (10) inches high and fourteen (14) inches wide shall be conspicuously posted at the entrance to the building and shall bear the wording "Danger-LPG Piping".

* * *

(7) No LPG container connected for use shall be located within:

(i) five (5) feet of any building opening, including any door, openable window or intake or exhaust vent;

(ii) five (5) feet of the nearest lot line, sidewalk or building on an adjoining lot, except as follows:

(A) ten (10) feet of any building of wood frame construction;

(B) fifty (50) feet from any building occupied as a multiple dwelling; and

(C) one hundred (100) feet of the lot line of any property occupied for educational, health care or

religious purposes, place of public assembly, or other place of public gathering;

(iii) five (5) feet of any parked motor vehicle;

(iv) five (5) feet of any vent or fill line of any flammable or combustible liquid storage tank;

(v) ten (10) feet of any combustible material;

(vi) twenty (20) feet of any flammable gas storage;

(vii) twenty (20) feet of any aboveground flammable or combustible liquid storage tank; and

(viii) one hundred (100) feet of any subway entrance, exit, vent or other opening.

* * *

(j) Special storage and use.

* * *

(7) Commercial establishments. Commercial establishments which store and use LPG for cooking and oil burner ignition shall comply with the following requirements:

(i) LPG storage and use shall be limited to LPG containers with a capacity not greater than 16.4 ounces unless the container is connected for use in a stationary installation.

(ii) All LPG appliances and equipment shall be installed by a plumber licensed by the New York City Department of Buildings.

(iii) Rigid piping shall be used for all connections between LPG appliances and equipment and LPG containers.

(iv) LPG storage and use for the purposes authorized by this paragraph is subject to the prohibition set forth in paragraph (10) of subdivision (c) of this section, and shall be discontinued in accordance with the provisions of paragraph (2) of subdivision (k) of this section.

* * *

STATEMENT OF BASIS AND PURPOSE FOR CHAPTER 48 (PRE-EXISTING FACILITIES):

As set forth in R102-01, this chapter implements the provisions of FC102.3 with respect to facilities and conditions which were lawfully existing on July 1, 2008, the effective date of the Fire Code, and which, pursuant to FC102.3, in part may be continued in compliance with laws, rules, regulations and permit conditions pre-dating the Fire Code.

This chapter contains eight sections consolidating for convenient reference and enforcement purposes design and installation requirements derived from the New York City Fire Prevention Code and former Fire Department rules for pre-existing boatyards, marinas and similar facilities, automotive salvage and wrecking facilities, fire protection systems, means of egress, motor fuel-dispensing facilities, repair garages, compressed gases, cryogenic fluids, flammable gases and liquefied petroleum gases.

Section 40. Title 3 of the Rules of the City of New York is hereby amended by adding a new Chapter 49, to read as follows:

CHAPTER 49
MISCELLANEOUS

§4900-01 Adjudications

§4900-02 Schedule of Charges for Fire Department Ambulance Service

§ 4900-01 Adjudications

- (a) Scope. This section sets forth the *Department's* policy with respect to adjudications.
- (b) Definitions. The following term shall, for purposes of this section and as used elsewhere in the *rules*, have the meaning shown herein.

OATH. New York City Office of Administrative Trials and Hearings.

- (c) Adjudications. Pursuant to New York City Charter §1043, the *Department* designates OATH as the forum for adjudication of any matters requiring adjudication. The OATH administrative law judge shall submit to the Fire Commissioner the record of the hearing conducted in the matter and a written report of the hearing, including proposed findings of fact and conclusions of law, a recommended decision and, if applicable, a recommended penalty. The Fire Commissioner shall render the final determination of the matter.

§ 4900-02 Schedule of Charges for Fire Department Ambulance Service

See text of existing rule.

STATEMENT OF BASIS AND PURPOSE FOR CHAPTER 49 (MISCELLANEOUS)

Chapter 49 contains two sections. Both are based on existing rules.

Section 4900-01 sets forth the Fire Department's policy with respect to adjudications, as required by New York City Charter §1043. The section is substantively identical to existing rule 3 RCNY 2-01.

Section 4900-02 sets forth the schedule of charges for Fire Department ambulance services. The section was recently promulgated in a separate rulemaking proceeding.

FDNY Rules (second installment) (3/4/09 final)