



Legislation Text

File #: Int 2430-2021, **Version:** A

Int. No. 2430-A

By Council Members Borelli, Gennaro, Kallos and Louis (by request of the Mayor)

A Local Law to amend the New York city fire code, in relation to the advancement and regulation of energy storage systems and the adoption of current fire safety standards as incorporated in the 2015 edition of the international fire code.

Be it enacted by the Council as follows:

Section 1. Legislative intent. This local law arises from the mandate of section 29-104 of the administrative code, which requires the fire commissioner to review the latest edition of the international fire code and submit to the city council such proposed amendments to the New York city fire code as the fire commissioner determines should be made. Section 29-104 was enacted by local law 26 of 2008, which adopted a new fire code for New York city based on the international fire code, with amendments to reflect the unique New York city environment. The first code revision cycle was completed with the enactment of local law 148 of 2013, commonly referred to as the 2014 fire code. This local law completes the second code revision cycle and amends the 2014 fire code to incorporate new fire safety standards and technologies adopted or reflected in the international fire code since the 2009 edition that was the basis for the 2014 fire code. The fire code amendments enacted by this local law include a comprehensive revision of the requirements for energy storage systems, with the goal of establishing a regulatory framework that opens the door to the use of lithium-ion and other new battery technologies to power buildings and building systems, while assuring appropriate building fire safety. These technologies offer the potential to increase energy efficiency and reduce New York city's carbon footprint. The amendments enacted by this local law will fulfill the goal of local law 26 of keeping the New York city fire code current and relevant to the fire safety challenges facing New York city.

? 2. Chapters 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44 and 45 of the New York city fire code, chapter 2 of title 29 of the administrative code of the city of New York, are renumbered chapters 20, 21, 22, 33, 24, 25, 26, 27, 28, 29, 30, 23, 32, 31, 34, 35, 50, 51, 37, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67 and 80, respectively.

?3. The New York city fire code, chapter 2 of title 29 of the administrative code of the city of New York, as added by local law 26 for the year 2008, and amended by local laws 37, 39, 41 and 64 for the year 2009, local laws 2, 100 and 148 for the year 2013, local laws 1 and 17 for the year 2014, local law 187 for the year 2017, local law 195 for the year 2018, local law 103 for the year 2019, and local laws 33 and 34 for the year 2021, and section 2 of this local law, is amended to read as follows:

CHAPTER 1

ADMINISTRATION

SECTION FC 101

GENERAL

101.1 Title. This code, including any appendices hereto, shall be known as the New York City Fire Code, hereinafter referred to as "this code" or "the code." All section numbers in this code shall be deemed to be preceded by the designation "FC."

101.2 Scope. This code governs:

1. The manufacturing, storage, handling, use, sale and transportation of hazardous materials and combustible materials, except for the installation of storage tanks and auxiliary storage tanks for oil-burning equipment.

2. The design, installation, operation and maintenance of devices, equipment and systems designed to prevent, mitigate, control and extinguish fire, explosions or other life safety hazards.

3. Emergency preparedness and planning, including procedures to provide information, guidance, direction and assistance to protect occupants of buildings, structures and premises in the event of fire[, explosion, biological, chemical or hazardous material incident or release, natural disaster, medical emergency or other emergency] or non-fire emergency, or the threat thereof.

4. The prevention, mitigation and control of hazards to firefighters and emergency responders during emergency operations.

5. The operation and maintenance of any manual, automatic or other fire alarm or fire extinguishing device, equipment or system.

101.3 Intent. The purpose of this code is to establish reasonable minimum requirements and standards for life safety and property protection, to accomplish the purposes set forth in FC101.2.

101.4 Severability. If a section, subsection, sentence, clause or phrase of this code is adjudged by any court of competent jurisdiction to be invalid, such judgment shall not affect, impair, or invalidate the remainder thereof, but shall be confined in its operation to the section, subsection, sentence, clause or phrase thereof directly involved in the controversy in which such judgment shall have been rendered.

SECTION FC 102 APPLICABILITY

102.1 Design and installation provisions. The design and installation provisions of this code shall apply to:

1. Facilities established and conditions arising on or after the effective date of this code.
2. Facilities and conditions not lawfully existing prior to the effective date of this code.
3. Facilities and conditions lawfully existing prior to the effective date of this code, except as otherwise provided in FC 102.3, 102.4 and 102.5.

102.2 Operational and maintenance provisions. The operational and maintenance provisions of this code, including permit and certification requirements, shall apply to all facilities, operations, conditions, uses and occupancies, regardless of when they were established or arose.

102.2.1 Existing permits and certificates continued. Permits and certificates for facilities, operations, conditions, uses and occupancies issued pursuant to the New York City Fire Prevention Code and in effect on the effective date of this code shall remain in effect until they expire unless sooner revoked or suspended in accordance with this code. Renewal of such permits and certificates shall be in accordance with the provisions of this code.

102.2.2 New permits and certificates. Whenever this code is amended or a rule is promulgated to require a permit or certificate for a facility, operation, condition, use or occupancy, and no permit or certificate was previously required therefor pursuant to this code or the rules, such facility, operation, condition, use or occupancy may be continued without such permit or certificate for a period of 1 year from the effective date of such amendment or rule, except as may otherwise be provided by such amendment or rule.

102.3 Lawfully existing conditions as of June 30, 2008. Except as otherwise provided in FC102.5, the following conditions, which were lawfully existing on June 30, 2008, but which would not be allowed or approved under the fire code enacted effective as of July 1, 2008, may be continued in compliance with the requirements of the New York City Fire Prevention Code and other laws, rules, regulations and permit conditions that existed when such conditions were lawfully allowed or approved and as such requirements may be amended from time to time:

1. The facilities that may be maintained on a premises, and the design and installation of such facilities;
2. The materials that may be manufactured, stored, handled or used in or on a premises, and the conditions of such manufacturing, storage, handling and/or use; and

3. The operations that may be conducted and/or the conditions under which such operation may be conducted.

102.4 Lawfully existing conditions as of the date of fire code amendments. Except as otherwise provided in FC102.5, the following conditions lawfully arising on or after July 1, 2008, and lawfully existing on the effective date of an amendment to this code, which would not be allowed or approved under such amendment, may be continued in compliance with the provisions of this code existing prior to such amendment, and other applicable laws, rules and regulations, and the terms and conditions of any permits and other approvals, applicable at the time such facility was lawfully allowed or approved, and as such provisions may be amended from time to time:

1. The facilities that may be maintained on a premises, and the design and installation of such facilities;
2. The materials that may be manufactured, stored, handled or used in or on premises, and the conditions of such manufacturing, storage, handling and/or use; and
3. The operations that may be conducted and/or the conditions under which such operation may be conducted.

102.5 Fire code compliance of lawfully existing conditions. A lawfully existing condition, as set forth in FC 102.3 and 102.4, shall, notwithstanding the provisions of such sections, comply with the requirements of this code under the following circumstances:

1. When specifically required by this code.
2. When the commissioner determines such facility or condition constitutes a life safety hazard.
3. When the part of the building, structure, facility or premises in which the lawfully existing condition exists undergoes a change in use or occupancy.
4. When the part of the building, structure, facility or premises in which the lawfully existing condition exists undergoes alteration, whether made voluntarily, or as a result of damage, deterioration or other cause.

102.6 Relationship with other applicable codes, standards and rules.

102.6.1 Referenced codes. Any codes or other provisions of law referenced in this code, including those referenced in FC Chapter [45] 80, shall be considered part of the requirements of this code to the prescribed extent of each such reference. Where differences or inconsistencies arise between the provisions of this code and any other code or provision of law referenced in this code, the more restrictive provision shall govern.

102.6.1.1 Construction codes and Electrical Code references. References in this code to the construction codes or the Electrical Code shall not be deemed to be a grant of authority to the commissioner to enforce such codes, provided, however, that the department may require proof of compliance with the requirements of such codes [pursuant to FC105.3.9] in connection with permit issuance, plan approval or other department approval or authorization.

102.6.2 Appendices and referenced standards. Any appendix to this code and any referenced standard in FC Chapter [45] 80 shall be considered part of the requirements of this code to the prescribed extent of each such reference. The provisions of any appendix or referenced standard may be amended by the commissioner pursuant to the rule making process set forth in the charter. Where differences or inconsistencies arise between the referenced standards, the provisions of this code or any rules promulgated thereunder, the provisions of this code or such rules shall govern.

102.6.3 Rules. The commissioner may promulgate rules in accordance with the charter and this code.

102.7 Subjects not regulated by this code. Where no applicable fire safety or other safety standards or requirements are set forth in this code, or applicable laws, codes, rules or regulations enforced by the commissioner, facilities, operations and conditions in a building, structure, facility or other premises shall comply with nationally recognized fire safety or other safety standards of the particular industry, as approved. Nothing herein shall derogate from the authority of the commissioner to determine compliance with the requirements of the codes, standards, or rules for those facilities, operations and conditions within such buildings, structures, facilities or other premises within the commissioner's

jurisdiction or responsibility.

102.8 Matters not adequately provided for in this code. Requirements that are essential for fire safety in an existing or proposed building, structure, or premises, or in connection with the regulation of any material, operation or facility, which are not specifically provided for by this code may be established by the commissioner.

102.9 Internal references and inconsistent provisions. Where one chapter, section or other provision of this code requires compliance with or otherwise references another chapter, section or other provision of this code, such reference shall be construed in a manner that harmonizes the various provisions and furthers the purpose of this code. Where British and metric units of measurement conflict, the British units shall govern.

SECTION FC 103 RESERVED

SECTION FC 104 DUTIES AND POWERS OF COMMISSIONER

104.1 Enforcement. The commissioner shall be responsible for the administration, interpretation and enforcement of this code. The commissioner may adopt policies, procedures, rules and regulations in order to clarify or implement the application of its provisions. Such interpretations, policies, procedures, rules and regulations shall be in compliance with the intent and purpose of this code and shall, except in those instances in which a modification has been granted, not have the effect of waiving requirements specifically provided for in this code.

104.1.1 Asbestos abatement activity. Notwithstanding any other provision of law, the commissioner may designate officers and employees of the Department of Environmental Protection to issue notices of violation, violation orders and Criminal Court process at premises in which asbestos abatement activity is taking place, for violations of this code and other laws, rules and regulations enforced by the department.

104.1.2 Review of design and installation. The commissioner may authorize the Department of Buildings to review construction documents filed with that agency for compliance with the design and installation requirements of this code for [battery] stationary energy storage systems, fire apparatus access roads, rooftop access and obstructions, and such other design and installation requirements as the commissioner, in consultation with the Commissioner of Buildings, may determine facilitates the design and construction process. The manner and scope of such review and the standards to be applied thereto shall be established by the commissioner in consultation with the Commissioner of Buildings, consistent with FC104.2.1.

104.2 Applications and approvals. The [commissioner] department shall receive, review and, if satisfactory, approve, applications for permits, certificates and other approvals, and design and installation documents required to be submitted to the [commissioner] department by this code or the construction codes, issue permits, inspect buildings, structures, facilities, premises, marine vessels, watercraft and motor vehicles for the purpose of enforcing compliance with the requirements of this code, and otherwise administer, implement and enforce the provisions of this code.

104.2.1 Acceptance of professional certification. The [commissioner] department shall not accept professional certification of compliance with the requirements of this code and the rules in lieu of required department inspections, witnessing of tests, or approval of design and installation documents, except as otherwise provided in this section. [Professional certification may only be accepted] The department may accept professional certification of compliance with the construction codes, this code and the rules with respect to fire alarm system devices or equipment that are not part of the [building's core fire alarm system. The commissioner shall adopt a written policy setting forth procedures by which professionally certified fire alarm system devices or equipment will be audited by the department to ensure the accuracy of such professional certifications.] building core, in accordance with the following requirements:

1. For purposes of this section, "professional certification" or "professionally certified" means the submission to the department of a signed, personal verification by a person holding a certificate of fitness for professional certification of fire alarm and emergency alarm installations and testing who is a registered design professional, master electrician, special electrician, or fire alarm system installer with NICET-Level III certification licensed by or registered with the State of New York, that accompanies an application and/or design and installation documents filed with the department that attests that such application or design and installation documents do not contain any false information and that such application or

design and installation documents are in compliance with all applicable laws, rules and regulations.

[104.2.1.1 Disqualification for false certification.] 2. The department shall adopt a written policy setting forth procedures by which professionally certified fire alarm system devices or equipment will be audited by the department to ensure the accuracy of such professional certifications.

3. The [commissioner] department may adopt rules setting forth the penalty for submission of false or fraudulent documents certifying compliance with the requirements of this code and the rules. Penalties may include disqualification from submission of professionally certified applications[, as set forth in FC104.2.1].

4. Nothing contained herein shall be deemed to prohibit the submission of design and installation documents [by registered design professionals] for department review and approval in lieu of professional certification.

104.3 Right of entry. The commissioner and his or her authorized representatives, in the discharge of their duties, shall have the right to enter upon and inspect, at all reasonable times, any building, structure, facility, premises, marine vessel, watercraft, vehicle or any part thereof, for the purpose of determining compliance with the requirements this code and other applicable laws, rules and regulations enforced by the department. If access is not obtained, the commissioner shall have recourse to remedies provided by law to secure entry.

104.4 Identification. When entering property pursuant to FC104.3, officers and employees of the department shall identify themselves by exhibiting the badge or other official identification of the department; and other authorized representatives of the commissioner shall identify themselves by producing and exhibiting their authority in writing signed by the commissioner.

104.5 Notices and orders. Notices, orders and violations may be issued by or in the name of the commissioner in accordance with Title 15 of the New York City Administrative Code to enforce the provisions of this code or the rules.

104.5.1 Seizure of contraband material. The commissioner may order the seizure, destruction or other arrangement for disposal thereof of any device, equipment or other article, the manufacture, storage, handling, use, transportation or sale of which is prohibited by this code or the rules, or which is manufactured, stored, handled, used, transported or sold in violation thereof.

104.6 Official records. The department shall keep official records of applications received, approvals, inspections, administrative decisions, permits and certificates issued, modifications approved, fees collected, and notices, orders and violations, and such other records as the commissioner may prescribe. Such official records shall be retained for the period required for retention of public records.

104.7 Approved devices and equipment. All devices, equipment or other articles approved by the commissioner shall be designed, constructed, installed and used in accordance with such approval. Devices, equipment and other articles required by the provisions of this code to be of a type for which a certificate of approval has been issued shall be designed, constructed, installed and used in accordance with such certificate approval conditions, FC112 and the rules.

104.7.1 Device, equipment and system reuse. Devices, equipment and systems shall not be reused or reinstalled unless they have been reconditioned, tested and placed in good and proper working condition. Devices, equipment and systems that are unsafe to operate or use shall not be operated or used.

104.7.2 Technical assistance. To determine the acceptability of technologies, processes, products, facilities, materials and uses attending the design, operation or use of a building, structure, facility or other premises subject to inspection by the commissioner, the commissioner may require the owner to provide, at the owner's expense, a technical opinion and report prepared by a registered design professional or other individual or organization whose qualifications are acceptable to the commissioner. Such individual or organization shall evaluate the safety of the design, operation or use of the building, structure, facility or other premises and the facilities, operations and conditions situated or conducted thereon, as applicable.

104.8 Modifications. When the circumstances, conditions, limitations or surroundings of any business, occupation, trade, industry or premises to which this code or the rules apply are unusual, or such as to render it impracticable to enforce all the provisions applicable thereto, the commissioner may waive or modify such provisions to such extent, for such period

of time, as the commissioner may deem necessary consistent with public safety.

104.8.1 Application for modification. Any owner or other person subject to a provision of this code or the rules may request the modification of such provision in accordance with this section.

104.8.1.1 Submission. Any person seeking a modification shall submit a written request to the commissioner stating the grounds thereof supported by relevant evidence and citation to this code or any other law, rule or regulation or other legal authority. Any additional information or other supplemental submission requested by the commissioner shall be filed with the department within 20 calendar days of the date of the request, or within such other time as may be prescribed by the commissioner.

104.8.1.2 Determination. The commissioner shall render a written determination denying the request, or granting such modification as the commissioner determines is necessary and appropriate upon such terms and conditions as the commissioner may prescribe.

104.8.1.3 Stay of enforcement. The filing of such request for a modification shall not stay the enforcement of the provision. The person filing such modification may request a stay of enforcement of such provision. Such request shall be in writing and shall be subject to the same requirements as a modification. The commissioner shall expeditiously render a written determination of such request for a stay, giving due consideration to the interests of public safety, the costs of compliance, and the apparent merits of the request.

104.8.2 Board of standards and appeals variances. Notwithstanding any other provision of law, rule or regulation, no application for a variance shall be granted by the board of standards and appeals in approving changes in bulk storage in excess of the standards set forth in this code or the rules, as it may apply to the storage of liquefied natural gas, synthetic or substitute natural gas or [naphtha] naphtha in the liquid or gaseous state.

104.9 Alternative devices, equipment and systems. The provisions of this code and the rules are not intended to prevent the design, installation or use of any device, equipment or system not specifically prescribed or prohibited by this code or the rules, provided that any such alternative has been approved by the commissioner. The commissioner may approve such an alternative device, equipment or system where the commissioner finds that the proposed design, installation or use is satisfactory and complies with the intent of the provisions of this code or the rules, and that the device, equipment or system offered is, for the purpose intended, at least the equivalent of that prescribed in this code or the rules in quality, strength, effectiveness, fire resistance, durability and safety.

104.10 Fire investigations. The commissioner may investigate the cause, origin and circumstances of any fire, explosion or other life safety hazard.

104.11 Authority at fires and other emergencies. The firefighting personnel in charge at the scene of a fire or other emergency involving the protection of life or property, or any part thereof, shall have the authority to direct such operation as necessary to extinguish or control any fire, perform any rescue operation, investigate the existence of suspected or reported fires, gas leaks or other hazardous conditions or situations, or take any other action necessary in the reasonable performance of duty. In the exercise of such power, firefighting personnel may prohibit any person, vehicle, marine vessel, watercraft or object from approaching the scene and may remove, or cause to be removed or kept away from the scene, any vehicle, marine vessel, watercraft or object which could impede or interfere with the operations of the department and, in the judgment of firefighting personnel, any person not actually and usefully employed in the extinguishing of such fire or in the preservation of property in the vicinity thereof.

104.11.1 Barricades. The firefighting personnel in charge at the scene of a fire or other emergency may place ropes, guards, barricades or other obstructions across any street, alley, place or private property in the vicinity of such operation so as to prevent accidents or interference with the lawful efforts of the department to manage and control the situation.

104.11.2 Obstructing representatives of the department. It shall be unlawful to obstruct, interfere with or otherwise hamper any representative of the department in conducting any inspection, issuing any notice, order or violation, or otherwise enforcing the provisions of this code, or any other law, rule or regulation enforced by the department, or otherwise executing the performance of his or her lawful duties.

104.11.3 Systems and devices. No person shall render a life safety device, equipment or system inoperative during an

emergency except as directed by the firefighting personnel in charge of the scene of a fire or other emergency.

104.11.4 Authority to disconnect utility service. The department shall have the authority to disconnect or authorize disconnection of water, natural gas, electricity or other utility service in or on a building, structure or premises when necessary to safely or effectively conduct firefighting or other emergency operations or to abate a condition presenting an imminent danger to fire or life safety. If utility service has not been restored when the department leaves the premises and there is no representative of the owner at the premises, the department shall notify the utility within a reasonable time thereafter.

104.12 Cooperation of other departments. Upon request of the commissioner, it shall be the duty of all departments to cooperate with the department at all times and to furnish the department with such information, reports and assistance as the commissioner may require.

SECTION FC 105 PERMITS AND OTHER APPROVALS

105.1 General. Permits and other approvals shall be required as set forth in FC105.

105.1.1 Permits required. It shall be unlawful to manufacture, store, handle, use, sell or transport a hazardous material or combustible material, or to conduct an operation or to maintain a facility for which a permit is required pursuant to the provisions of this code, without such permit. Permits required by this code shall be obtained from the commissioner. Permit and other applicable fees shall be paid prior to issuance of the permit. [Issued permits shall be kept on the premises designated therein at all times and shall be readily available for inspection by any representative of the department.]

105.1.2 Types of permits. There shall be [three] two types of permits as follows:

1. Site-specific permit. Such permit authorizes the permit holder to manufacture, store, handle, use or sell hazardous materials or combustible materials, or conduct an operation or maintain a facility at a specific premises or location, for which a permit is required by FC105.6.

2. Citywide permit. Such permit authorizes the permit holder to store, handle, use, or sell hazardous materials, or conduct an operation on a citywide basis, for which a permit is required by FC105.6. A citywide permit is valid to temporarily store, handle, use or sell hazardous materials or to conduct an operation at one or more locations subject to the following restrictions:

2.1. The duration of such activity at any individual location does not exceed 30 calendar days and all hazardous materials associated with such activity are removed from the location at the end of the workday. Periods of activity in excess of 30 calendar days at any one location shall require a site-specific permit.

2.2. The quantity of hazardous materials being temporarily stored and used does not exceed 5 gallons (19 L) of gasoline, or 250 gallons (946 L) of any other flammable liquid, and 300 gallons (1136 L) of any combustible liquid. Storage or use of hazardous materials in quantities exceeding these amounts requires a site-specific permit for each location at which such storage or use occurs.

[3. Transportation permit. Such permit authorizes the permit holder to transport, pick up and deliver hazardous materials.]

2.3. Any vehicle used to transport a hazardous material and/or equipment for an operation requiring a citywide permit is subject to inspection by the department.

105.1.3 Permits for the same premises or location. When more than one permit is required for the same premises or other location or portion thereof, the commissioner may consolidate such permits into a single permit; provided that each type of hazardous material, operation or facility is listed in the permit, and provided further that the total fees payable for such single permit shall be determined by adding the fees for the permits consolidated into the single permit.

105.1.4 [Approval of design and installation documents. The department shall approve design and installation documents

required by this code or the rules by marking such documents and/or by issuing a separate written approval.] Reserved.

105.1.5 Insurance. The commissioner may require applicants for permits or other approvals to obtain and furnish proof of general liability insurance, in such amounts and in accordance with such requirements as may be set forth in this code or the rules, otherwise required by law, or required as a condition of the permit or other approval. The permit or other approval shall expire by operation of law if any such required insurance lapses, expires or is cancelled during the term of the permit or other approval.

105.2 Permit application. Application for a permit required by this code shall be made to the commissioner in such form and detail as the commissioner may prescribe. Applications for permits shall be accompanied by design and installation documents and/or such other information or documentation as may be prescribed by this code, the rules or the department. Applications for permits relating to the storage, handling, use or transportation of high explosives shall be accompanied by proof of United States citizenship.

105.2.1 Reserved.

105.2.2 Inspection of premises and installations. Before a permit or other approval is issued, the commissioner may inspect the building, structure, facility, premises, marine vessel, watercraft or vehicle to confirm the facts set forth in the application, determine compliance with the requirements of this code, the rules and other applicable laws, rules or regulations enforced by the commissioner, or to evaluate whether any restrictions should be imposed as a condition of the permit or other approval. The department may require the applicant to arrange any such inspection, and require the applicant to attend such inspection with his or her design professionals, contractor or other appropriate representatives. When a department inspection is required upon completion of an installation or other work or requested by the department, the applicant shall notify the department upon completion of such work and request such inspection, arrange for the presence of the appropriate representatives at such inspection, correct any deficiencies identified during such inspection, and keep the installation or other work accessible for department inspection until department approval is obtained.

105.2.3 Time limitation on application. An application for a permit or other approval shall be deemed to have been abandoned 180 calendar days after the date of filing, unless such application has been diligently prosecuted or a permit or other approval shall have been issued; except that the commissioner may grant one or more extensions of time for additional periods not exceeding 90 calendar days each if there is reasonable cause.

105.2.4 Action on application. Completed permit applications for the manufacture, storage, handling, use, transportation or sale of flammable or combustible liquids, combustible materials or hazardous materials or an operation or facility that comply with the requirements of this code and other applicable laws, rules and regulations shall be approved by the commissioner no later than 40 calendar days after the submission thereof, except that on or before the fortieth day, the commissioner may, for good cause, extend such time for an additional 40 calendar days. Permit applications that do not comply with the requirements of this code and other applicable laws, rules and regulations shall be denied or preliminarily denied no later than 40 calendar days from the submission thereof and written notice of such denial or preliminary denial, stating the grounds therefor, shall be promptly given to the applicant. When a permit application has been denied or preliminarily denied and is thereafter revised and resubmitted to meet the stated grounds for denial, the revised completed application shall be approved or denied or preliminarily denied in accordance with the foregoing procedures and time periods.

105.3 Authority granted by permit or other approval. A permit or other approval shall constitute permission to manufacture, store, handle, use, sell or transport hazardous materials or combustible materials, conduct an operation, or maintain a facility, as applicable, in accordance with this code and the rules where a permit is required by FC105.6. Such permission shall not be construed as authority to violate, cancel or set aside any of the provisions of this code, the rules or other applicable laws, rules or regulations.

105.3.1 Permit issuance and renewal. Every permit or renewal thereof granted by the commissioner shall be for a period specified therein, not to exceed 2 years, or as set forth in FC105.6, and shall expire at the end of such period unless the commissioner approves its renewal. Permits are not transferable and any change in occupancy, operation, tenancy or ownership shall require that a new permit be issued.

105.3.2 through and including 105.3.4 Reserved.

105.3.5 Posting the permit. Permits shall be posted in a conspicuous location on the premises designated therein at all times and shall be readily available for inspection by any representative of the department.

105.3.6 Compliance with the requirements of the code. The issuance or granting of a permit shall not be construed to be a permit for, or an approval of, any violation of any of the provisions of this code or of other law, rule or regulation. Permits purporting to authorize any such violation shall not be valid. The department's approval of design and installation documents or other submission, in connection with or independent of a permit application, shall not prevent the department from requiring the correction of errors in such documents or other submission. Any addition to, or alteration of, approved design and installation documents shall be approved in advance by the department.

105.3.7 Reserved.

105.3.8 Hazardous industries. Except as otherwise provided in this code, no person shall engage in a hazardous industry, trade, occupation, activity or operation requiring the manufacture, storage, handling, sale, use or transportation [of hazardous] of hazardous materials or combustible materials without a permit, issued upon such conditions as the commissioner deems necessary in the interest of public safety.

105.3.9 Compliance with the requirements of the construction codes and Electrical Code. The commissioner may require that the applicant for a permit or renewal thereof demonstrate, by submission of a certificate of occupancy or other authorization or approval issued by the Department of Buildings, that the building, structure or premises or portion thereof used for the manufacture, storage, handling or use of flammable or combustible liquids, combustible materials or hazardous materials, and all operations or facilities subject to this code, are designed, constructed and occupied in accordance with the certificate of occupancy, the construction codes and the Electrical Code.

105.3.9.1 Department of Buildings required approval. No permit shall be issued when work requires the approval of the Commissioner of Buildings in connection with a material, operation or facility unless proof is submitted to the department that such work has been approved by the Commissioner of Buildings.

105.4 Design and installation documents. Design and installation documents required to be submitted to the department pursuant to the provisions of this code, the rules or the construction codes, including but not limited to those set forth below, or as directed by the commissioner to demonstrate or document that a device, equipment, system, operation or facility regulated by this code is designed and installed in accordance with this code, shall be submitted in accordance with this section. Such submissions shall be reviewed by the department for compliance with the requirements of this code, the rules and other applicable laws, rules and regulations enforced by the department. The time limitations for approval of design and installation documents and for deeming such submissions abandoned shall be as set forth in FC 105.2.3 and 105.2.4.

[1.] Aerosol products storage facilities:

[1.1.] 1. General purpose warehouses ([FC2804] FC5104).

[1.2.] 2. Aerosol warehouses ([FC2804] FC5104).

[1.3.] 3. Liquid storage rooms ([FC2804] FC5104).

[1.4.] 4. Liquid warehouses ([FC2804] FC5104).

[1.5.] 5. Outdoor storage ([FC2805] FC5105).

[1.6.] 6. Retail display ([FC2806] FC5106).

[2.] Aircraft fueling systems ([FC1106] FC2006).

[3.] Ammonia diffusion systems for refrigerating systems using ammonia refrigerant (FC606).

Automated Parking Garage (FC611).

Auxiliary radio communication (ARC) systems, fire department in-building (FC510).

[4.] Cellulose nitrate film storage facilities (FC306).

[5.] Combustible fibers storage facilities:

[5.1.] 1. Loose fiber storage ([FC2904] FC3704).

[5.2.] 2. Baled fiber storage ([FC2905] FC3705).

[6.] Combustible material storage (FC315).

[7.] Commercial cooking system fire extinguishing systems (FC904).

[8.] Corrosive materials systems and facilities:

[8.1.] 1. Storage ([FC3104] FC5404).

[8.2.] 2. Handling and use ([FC3105] FC5405).

[9.]Cryogenic fluids systems and facilities:

[9.1.] 1. Storage (FC [3203] 5503 and [3204] 5504).

[9.2.] 2. Handling and use (FC [3203] 5503 and [3205] 5505).

[9.3.] 3. Liquefied natural gas facilities ([FC3206] FC5506).

Distilleries (FC 4004 and 4005).

[10.] Dry cleaning systems using Class II and III solvents ([FC1207] FC2107).

Emergency alarms (FC908):

1. Flammable alcohol vapor (FC4003).

2. Gaseous hydrogen (FC5808).

3. Hazardous materials (FC 5004 and 5005).

4. Lighter-than-air motor fuels (FC 2308, 2309 and 2311).

5. Medical gases (FC5306).

6. Flammable gases distribution piping operating above 15 psig (FC Table 908.1).

7. Ozone gas (FC6005).

8. Refrigerants (FC606).

9. Toxic/highly toxic materials (FC6004).

Energy storage systems, stationary (FC608.6).

[11.] Explosion control systems for certain hazardous materials and special uses (FC911).

[12.] Explosion (dust) protection systems for combustible metals, metal powders, metal dusts and sulfur ([FC1304] FC2204).

[13.] Explosives ([FC3304] FC5604).

[14.] Facilities in which a fumigant or insecticidal fogger are designed to be used in a stationary installation ([FC1703] FC2603).

[15.] Fire alarm systems and fire command centers (FC907 and [Section] Sections 403, 907 and 911 of the Building Code).

[16.] Fire apparatus access roads and security gates installed across such roads (FC503).

[17. Fire department in-building auxiliary radio communication systems (FC511).]

Fire extinguishing systems (sprinkler systems listed separately):

1. Aerosol (FC904).

2. Carbon dioxide (FC904).

3. Clean agent (FC904).

4. Dry chemical (FC904).

5. Foam (FC904).

6. Halon (modification of lawfully existing installations) (FC904).

- 7. Water mist (FC904).
- 8. Wet chemical (FC904).

[18.] Fixed guideway transit and passenger rail systems (FC321):

- [18.1.] 1. Emergency ventilation systems.
- [18.2.] 2. Emergency voice communication systems.
- [18.3.] 3. Means of egress.
- [18.4.] 4. Standpipe systems and other fire protection systems.

[19.] Flammable and combustible [liquids] liquid systems and facilities:

- [19.1.] 1. Piping, equipment, tanks, plants, terminals, fuel-dispensing facilities and similar facilities where flammable and combustible liquids are manufactured, stored, handled or used, including dispensing ([FC3404] FC5704).
- [19.2.] 2. Group M occupancy wholesale and retail sales uses ([FC3404] FC5704).
- [19.3.] 3. Liquid storage rooms ([FC3404] FC5704).
- [19.4.] 4. Liquid storage warehouses ([FC3404] FC5704).
- [19.5.] 5. Outdoor storage ([FC3404] FC5704).
- [19.6.] 6. Bulk plants and terminals ([FC3406] FC5706).

[20.] Flammable [gases] gas systems and facilities:

- [20.1.] 1. Storage ([FC3504] FC5804).
- [20.2.] 2. Handling and use ([FC3505] FC5805).
- [20.3.] 3. CNG storage in portable containers ([FC3508] FC5811).
- [20.4.] 4. Methane gas recovery from landfills ([FC3509] FC5809).
- [20.5.] 5. Compressing of a flammable gas, including piped natural gas, to a pressure exceeding 6 psig (41.4 kPa) (FC Chapter [35] 58).
- [20.6.] 6. Detection and alarm systems (FC 908.9 and 2211.7.2).
- [20.7.] 6. Hydrogen fuel gas rooms (FC5808).

[21.] Flammable [solids] solid systems and facilities:

- [21.1.] 1. Storage ([FC3604] FC5904).
- [21.2.] 2. Handling and use ([FC3605] FC5905).

[22.] Flammable/combustible spraying, dipping or powder-coating systems and facilities:

- [22.1.] 1. Spray booths (spray finishing) ([FC1504] FC2404).
- [22.2.] 2. Spray rooms (spray finishing) ([FC1504] FC2404).
- [22.3.] 3. Dip tanks ([FC1505] FC2405).
- [22.4.] 4. Spray booths (powder coating) ([FC1506] FC2406).
- [22.5.] 5. Spray rooms (powder coating) ([FC1506] FC2406).
- [22.6.] 6. Limited spraying space ([FC1504] FC2404).

[23.] Flaring systems for refrigerating systems using flammable or toxic or highly toxic refrigerants (FC606).

[24.] Hazardous materials systems and facilities (FC [2703] 5003, [2704] 5004 and [2705] 5005) (applicable to compressed gases, corrosive materials, cryogenic fluids, explosives, flammable and combustible liquids, flammable gases, flammable solids, highly toxic and toxic materials, LPG, organic peroxides, oxidizers, pyrophoric materials, unstable (reactive) materials and water-reactive solids and liquids):

- [24.1.] 1. Tanks ([FC2703] FC5003).
- [24.2.] 2. Piping, tubing, valves and fittings ([FC2703] FC5003).
- [24.3.] 3. Highly toxic and toxic compressed gas rooms ([FC2703] FC5003).

[25.] Highly toxic and toxic materials systems and facilities:

- [25.1.] 1. Storage, handling and use of highly toxic and toxic solids and liquids ([FC3703] FC6003).
- [25.2.] 2. Storage, handling and use of highly toxic and toxic compressed gases ([FC3704] FC6004).
- [25.3.] 3. Ozone gas generators ([FC3705] FC6005).
- [25.4.] Detection and alarm systems (FC 908.3 and 3704.2).

[26.] High-piled combustible storage areas ([FC2301] FC3201).

[27.] Industrial furnaces ([FC2101] FC3001).

[28.] LPG ([FC3801] FC6101).

[29.] Marina fire protection systems ([FC319] FC3605).

[30.] Medical gases:

[30.1.] 1. Storage and piping systems ([FC3006] FC5306).

[30.2.] Monitoring and alarm systems (FC3006.4.)

[31.] Motor fuel dispensing facilities and repair garages ([FC2201] FC2301):

[31.1.] 1. Fleet motor fuel-dispensing facilities.

[31.2.] 2. Full-service motor fuel-dispensing facilities.

[31.3.] 3. Self-service motor fuel-dispensing facilities.

4. Repair garages for vehicles fueled by lighter-than-air motor fuels.

[32.] Natural gas distribution piping systems designed for or operated at 15 psig (103 kPa gauge) or greater (Fuel Gas Code).

[33.] Nonflammable compressed gases systems and facilities ([FC3003] FC5303).

[34.] Non-water fire extinguishing systems:

34.1. Wet chemical systems (FC904).

34.2. Dry chemical systems (FC904).

34.3. Foam systems (FC904).

34.4. Carbon dioxide systems (FC904).

34.5. Halon systems (modification of lawfully existing installations) (FC904).

34.6. Clean agent systems (FC904).

34.7. Aerosol systems (FC904).

35.] Organic coating manufacturing process facilities ([FC2005] FC2905).

[36.] Organic peroxides storage and facilities:

[36.1.] 1. Storage ([FC3904] FC6204).

[36.2.] 2. Handling and use ([FC3905] FC6205).

[37.] Oxidizer systems and facilities:

[37.1.] 1. Storage ([FC4004] FC6304).

[37.2.] 2. Handling and use ([FC4005] FC6305).

[38.] Oxygen-fuel gas systems (FC [2601] 3501 and [2609] 3509).

[39.] Private fire hydrant systems ([FC508]FC507).

[40.] Pyrophoric materials systems and facilities:

[40.1.] 1. Storage ([FC4104] FC6404).

[40.2.] 2. Handling and use ([FC4105] FC6405).

[40.3.] 3. Storage, handling and use of silane gas (FC [4104] 6404 and [4105] 6405).

[41] Pyroxylin plastics systems and facilities ([FC4204] FC6504).

Roof access (altered roofs) (FC 504.4 and 504.5)

[42.] Semiconductor fabrication facilities:

[42.1.] 1. Facilities ([FC1803] FC2703).

[42.2.] 2. Fabrication areas ([FC1803] FC2703).

[42.3.] 3. Hazardous production material (HPM) rooms ([FC1803] FC2703).

[43.] Sprinkler systems where the design requirements are specified in this code (FC [2209] 2309, [2306] 3206, [2307] 3207, [2308] 3208, [2309] 3209, [2310] 3210, [2804] 5104, [2806] 5106 and [3404] 5704).

[44.] Treatment systems for refrigerating systems using toxic or highly toxic refrigerants (FC606).

[45.] Unstable (reactive) materials systems and facilities:

[45.1.] 1. Storage ([FC4304] FC6604).

[45.2.] 2. Handling and use ([FC4305] FC6605).

[46.] Vehicle tunnels and bridges (FC322):

[46.1.] 1. Emergency ventilation systems.

[46.2.] 2. Emergency voice communication systems.

[46.3.] 3. Means of egress.

[46.4.] 4. Standpipe systems and other fire protection systems.

[47.] Water-mist fire extinguishing systems (FC904).

48. Water-reactive solids and liquids systems and facilities:

48.1.] 1. Storage ([FC4404] FC6704).

[48.2.] 2. Handling and use ([FC4405] FC6705).

[49.] Yard hydrant systems (FC [508.2.3] 507.2.3 and [3406.4.10.5] 5706.4.10.5).

105.4.1 Submissions. Design and installation documents shall be submitted in such number and in such form and detail as may be prescribed by the commissioner. The design and installation documents shall be prepared by a registered design professional. The commissioner may require that such submissions be made in an approved electronic format or medium or online application.

Exception: Design and installation documents for pre-engineered fire extinguishing systems for commercial cooking systems may be prepared by a licensed master fire suppression piping contractor.

105.4.2 Information on design and installation documents. Design and installation documents shall be drawn to scale. Design and installation documents shall indicate the location, nature and extent of the work proposed and demonstrate compliance with the requirements of this code, the rules and other applicable laws, rules and regulations.

105.4.3 Approved documents required. When department review of design and installation documents is required by this code or other laws, rules or regulations, it shall be unlawful to construct or alter any facility, or install, alter or remove any device, equipment or system, without first having obtained department approval of the design and installation documents.

105.4.4 Approved documents. The department shall approve, or deny, or preliminarily deny design and installation documents in accordance with the procedures and time periods set forth in FC105.2.4. Department approval of design and installation documents may be made subject to the requirements of the Building Code and other applicable laws, rules and regulations, and shall be documented and effective as set forth in this section.

105.4.4.1 Terms of approval. The department may make its approval of design and installation documents subject to such terms and conditions as the department may prescribe by rule or specify as part of the approval. Department approval of design and installation documents for fire alarm systems, fire extinguishing systems, and/or other devices, equipment, systems or facilities that do not require a Department of Buildings work permit, may incorporate by reference terms and conditions of the construction codes relating to work permits and licensing, including those in Articles 105 and 106 of Chapter 1 and Article 410 of Chapter 4 of Title 28 of the Administrative Code.

105.4.4.2 Method of approval. Upon approval of design and installation documents, the department shall mark such approval upon such documents and/or issue a letter of [approval] acceptance or other form of written authorization.

105.4.4.3 Limitations of approval. Department approval of design and installation documents is limited to the laws, rules and regulations enforced by the department and for which approval has been sought. Department approval shall not

relieve the applicant of the responsibility of compliance with the requirements of this code, the rules and any other applicable laws, rules or regulations.

105.4.4.4 Authorization to perform work. Department approval of design and installation documents authorizes performance of the work encompassed by the approval, subject to all other applicable laws, rules or regulations, including, when applicable, the requirement to obtain a work permit from the Department of Buildings, provided, however, that where department approval of design and installation documents is for devices, equipment, systems or facilities that do not require a Department of Buildings work permit, commencement of the work may be made contingent on department issuance of a project authorization following submission of contractor licensing information and such other information and documentation as may be required in accordance with FC105.4.4.1.

105.4.5 Inspection and testing. The commissioner may require that, upon completion, any installation for which approved design and installation documents are required by this code or the rules be inspected and/or subjected to acceptance testing in the presence of a department representative.

105.4.6 Corrected documents. Where field conditions necessitate any change from the approved design and installation documents, corrected design and installation documents or other documentation acceptable to the department shall be submitted.

105.4.7 Retention of design and installation documents. One set of approved design and installation documents shall be retained by the commissioner. [One set of approved] Approved design and installation documents, with the department stamp and/or other indicia of approval, shall be returned to the applicant, and shall be kept on the site of the building or structure or at the work site at all times and readily available for inspection by any representative of the department until the [required permit is posted on the premises as required by FC105.3.5, or where no permit is required, until the work performed under such approved design and installation documents has been] installation or other work has been inspected [and] and/or approved by the department.

105.5 Revocation. The commissioner may revoke a permit issued under the provisions of this code when:

1. the permit is used for a location or establishment other than that for which it was issued.
2. the permit is used for a purpose or operation other than that listed in the permit.
3. conditions and limitations set forth in the permit have been violated.
4. there has been a false statement or misrepresentation material to the issuance of the permit.
5. the party engaging in the manufacture, storage, handling, use, sale or transportation of hazardous materials or combustible materials, or conducting an operation or maintaining a facility is different from the party to whom the permit was issued.
6. the permit holder fails, refuses or neglects to timely comply with the commissioner's orders or notices of violation duly served in accordance with this code, or other law, rule or regulation enforced by the department.
7. the permit was issued in error or in violation of this code or other applicable law, rule or regulation.
8. circumstances or conditions material to the issuance of the permit applied for have changed.
9. other good cause exists.

105.6 Required permits. The commissioner shall issue the following permits for the manufacture, storage, handling, use, transportation and sale of the following materials, the conduct of the following operations, and the design, installation, operation and maintenance of the following facilities in accordance with this code and the construction codes, including the Building Code:

Aerosol products. A permit is required to store, handle or use an aggregate quantity of Level 1, 2 or 3 aerosol products in excess of 100 pounds (45.4 kg) net weight.

Alcohol-based hand rubs. The storage, handling and use of alcohol-based hand rubs is subject to the following permit requirements:

1. A permit is required to store, handle or use flammable or combustible alcohol-based hand rubs on a premises, for use on the premises, in quantities exceeding 275 gallons (1041 L), when stored, handled or used in a portable container designed for consumer use, with a capacity not exceeding 68 fluid ounces (2.01 L), that does not require handling of the contents, including disposable wall-mounted and table-top dispensers and wall-mounted dispensers using sealed refills.
2. A flammable liquids permit or combustible liquids permit, as applicable, is required to store, handle or use flammable or combustible alcohol-based hand rubs in any tank, intermediate bulk container or stationary installation; portable container with a capacity exceeding 68 fluid ounces (2.01 L); or portable container of any size that requires handling of the contents prior to use for hand sanitizing purposes, including any pouring, pumping or other transfer of the contents to a dispenser.

Amusement buildings. A permit is required to [maintain or] establish and operate a special amusement building.

Asphalt melter. A permit is required to store, handle or use an asphalt melter.

Automotive salvage and wrecking facilities. A permit is required to establish and operate an automotive salvage and wrecking facility.

Auxiliary radio communication (ARC) systems. A permit is required to establish and operate a fire department in-building auxiliary radio communication system.

Aviation operations. A permit is required for the following aviation operations:

1. To operate or maintain an aircraft-fueling vehicle.
2. To operate or maintain an aircraft-fueling system.
3. To conduct a helicopter landing at other than an approved heliport, helistop or airport.
4. To conduct a helicopter lift operation.
5. To conduct a hot air balloon operation.

Cellulose nitrate film. A permit is required to store, handle or use cellulose nitrate film in the following quantities:

1. Any quantity in a Group A occupancy.
2. Quantities of 10 pounds (4.54 kg) or more in other than a Group A occupancy.

Coke-fueled salamanders. A permit is required to store, handle or use coke-fueled salamanders at a construction site.

Combustible dust-producing operations. A permit is required to [maintain or operate a grain elevator, flour starch mill, feed mill, or a plant pulverizing aluminum, coal, cocoa, magnesium, spices or sugar, or other combustible dust as defined in FC Chapter 2] establish and operate any facility that generates combustible dust, including grain handling, milling and storage, powder coating, printing, and woodworking operations.

Combustible fibers. A permit is required to store or handle combustible fibers in quantities exceeding 100 cubic feet (2.8 m³).

Exception: A permit is not required for agricultural storage.

Combustible liquids. See "Flammable and combustible liquids."

Combustible material storage. A permit is required to store in any building, structure, premises or facility more than 2,000

cubic feet (56.6 m³) gross volume of combustible empty packing cases, boxes, barrels or similar containers, rubber (excluding tires), cork or similar combustible material, including combustible waste, or more than 1,000 pounds (454 kg) of flammable plastic foam products, regardless of volume.

Exceptions:

1. A permit is not required for such storage in buildings or structures protected throughout by a sprinkler system.
2. A permit is not required if the storage is kept exclusively in a dedicated area of a building or structure which is protected throughout by a sprinkler system and separated from the rest of the building or structure by 2-hour fire-resistance-rated construction.

Commercial [cooking systems] kitchen. A permit is required to [maintain or] establish and operate a commercial [cooking system] kitchen. A separate permit shall be required for each kitchen or other separate cooking area that is a commercial kitchen.

Compressed gases. A permit is required to store, handle or use compressed gases in quantities exceeding those set forth in FC Table 105.6(1).

Exceptions: A permit is not required for the:

1. storage and use of compressed gases in the fuel tank of a motor vehicle, aircraft, marine vessel or watercraft for motive power.
2. handling and use of medical-grade gaseous oxygen by trained and knowledgeable medical personnel engaged in providing licensed health care at patient locations citywide, outside of health care facilities, on a citywide response basis. This exception does not apply to any premises at which such gaseous oxygen is being stored.
3. handling of medical-grade gaseous oxygen by trained and knowledgeable medical personnel at any premises at which such oxygen is stored for use in the provision of licensed health care at patient locations citywide, outside of health care facilities, on a citywide response basis, but which is not used at such premises. This exception includes making connections for purposes of ascertaining the contents of the container and attaching ancillary equipment, but does not include filling, refilling or hydrostatic testing of the container.

FC TABLE 105.6(1)

PERMIT QUANTITIES FOR COMPRESSED GASES

TYPE OF GAS

QUANTITY (SCF)

Corrosive

400

Flammable, except at construction sites

400

Liquefied petroleum gas at construction sites

170 (20 lb)

Acetylene at construction sites

100

Highly toxic

Any Quantity

Nonflammable and nonoxidizing, except carbon dioxide

3,000

Carbon dioxide, low-pressure carbon dioxide beverage dispensing systems

3500

Carbon dioxide, all other

4,500

Oxidizing

504

Pyrophoric

Any Quantity

Toxic

Any Quantity

Unstable (reactive)

Any Quantity

Water reactive

Any Quantity

For SI: 1 cubic foot = 0.02832 m³.

Compressing gases. A permit is required to compress:

1. a flammable gas, including piped natural gas, to a pressure exceeding 6 psig (41.4 [Kpa] kPa).
2. a nonflammable, corrosive or oxidizing gas, including air, to a pressure exceeding 100 psig (689.5 [Kpa] kPa).

Exception: Outdoor air compressing at other than a fair or festival.

Cryogenic fluids. A permit is required to manufacture, store, handle or use, including dispensing, cryogenic fluids in quantities exceeding those set forth in FC Table 105.6(2).

Exceptions: A permit is not required for the:

1. storage and use of cryogenic fluids in the fuel tank of a motor vehicle, aircraft, marine vessel or watercraft for motive power or for refrigerating the cargo.
2. storage, handling or use of liquid oxygen home care containers and liquid oxygen ambulatory containers in compliance with the requirements of [FC4006] FC6306 in residential dwelling units and residential health care dwelling units and sleeping rooms in Group I-1, I-4 and R occupancies.
3. handling and use of medical-grade liquid oxygen by trained and knowledgeable medical personnel engaged in providing licensed health care at patient locations citywide, outside of health care facilities, on a citywide response basis. This exception does not apply to any premises at which such liquid oxygen is being stored.
4. handling of medical-grade liquid oxygen at any premises at which such oxygen is stored by trained and knowledgeable medical personnel for use in the provision of licensed health care at patient locations citywide, outside of health care facilities, on a citywide response basis, but which is not used at such premises. This exception includes making connections for purposes of ascertaining the contents of the container and attaching ancillary equipment, but does not include filling, refilling or hydrostatic testing of the container.

FC TABLE 105.6(2)

PERMIT QUANTITIES FOR CRYOGENIC FLUIDS

TYPE OF CRYOGENIC FLUID

INDOORS

(gallons)

OUTDOORS (gallons)

Flammable

More than 1

10

Nonflammable

60

100

Oxidizing (includes oxygen)

10

50

Physical or health hazard not indicated above

Any Quantity

Any Quantity

For SI: 1 gallon = 3.785 L.

Distilleries. A permit is required to establish and operate a distillery.

Dry cleaning facilities. A permit is required to [maintain or] establish and operate dry cleaning equipment that utilizes a Class II or Class III solvent.

Energy storage systems, stationary. A permit is required to install and operate a stationary energy storage system.

Exceptions: A permit is not required for:

1. indoor systems in Group R-3 occupancies, including an energy storage system installed in a Group R-3 dwelling or in an attached or detached garage serving such a dwelling, or mounted on an exterior wall of such a dwelling or garage.

2. outdoor systems with an aggregate rated energy capacity of 20 kWh or less.

Explosives. A permit is required to store, handle, use or sell explosives as follows:

1. Store, sell or offer for sale any quantity of black powder and smokeless powder.

2. Store, sell or offer for sale any quantity of blasting caps.

3. Store, sell or offer for sale two hundred or more shells of small arms ammunition.

4. Store, handle, use, sell or offer for sale any quantity of explosives, other than those specified in Items 1, 2 and 3 above.

[Fire department in-building auxiliary radio communication systems. A permit is required to maintain or operate a fire department in-building auxiliary radio communication system.]

Fireworks. A permit is required for each display or other event involving the handling, discharge or other use, or storage for use, of fireworks.

Flammable and combustible liquids. A permit is required:

1. to store, handle or use Class I liquids, other than paints, varnishes, lacquers, gasoline and other petroleum-based Class I liquids, in quantities exceeding 5 gallons (19 L), except that a permit is not required for the storage or use of such liquids in the fuel tank of a motor vehicle, aircraft, marine vessel, or watercraft.

2. to store, handle or use amounts of gasoline and other petroleum-based Class I liquids other than paints, varnishes and lacquers, in quantities exceeding 2 1/2 gallons (9.5 L), except that a permit is not required for the storage or use of such liquids in the fuel tank of a motor vehicle, aircraft, marine vessel, or watercraft.

3. to store, handle or use Class II or Class III liquids with a flash point of 300°F (149°C) or less, other than paints, varnishes and lacquers, in quantities exceeding 10 gallons (38 L), except that a permit is not required for the:

3.1. storage or use of such liquids in the fuel tank of a motor vehicle, aircraft, marine vessel, or watercraft.

3.2. storage of fuel oil in stationary storage tanks in Group R-3 occupancies for use in stationary fuel oil burning equipment.

4. to store, handle or use Class I, Class II or Class III liquids having a flash point of 300°F (149°C) or less that are commonly used for painting, varnishing, staining or other similar purposes, including paint, varnish and lacquer, in quantities exceeding 20 gallons (76 L).

5. to store, handle or use petroleum-based Class III liquids with a flash point exceeding 300°F (149°C), in quantities exceeding 70 gallons (266L), except that a permit is not required for the storage and use of such liquids in the fuel tank of a motor vehicle, aircraft, marine vessel or watercraft for motive power.

6. to operate a bulk plant or terminal or bulk transfer facility where flammable and combustible liquids are blended, produced, processed, transported, stored, dispensed or used.

7. to manufacture flammable or combustible liquids.

8. to store and/or use fuel oil stored on a barge, marine vessel or watercraft moored to or anchored at privately owned waterfront property.

9. to store and use fuel oil in quantities exceeding 10 gallons (38 L) on mobile heating and power generating trailers.

10. to store and use gasoline in quantities exceeding 21/2 gallons (9.5 L) in a single item of portable fueled equipment lawfully stored in accordance with FC313 or an aggregate of 10 gallons (38 L) in all such portable fueled equipment stored at a premises.

Fleet Fueling. The transfer of Class II and III liquids directly from a cargo tank through approved dispensing equipment into the fuel tank of a motor vehicle at an approved off-street location where fleet vehicles are parked.

Floor finishing. A permit is required to conduct floor finishing or surfacing operations over an area exceeding 350 square feet (33 m2) using Class I or Class II liquids.

Fruit and crop ripening. A permit is required to [maintain or] establish and operate a fruit-, or crop-ripening facility or conduct a fruit-ripening process using ethylene gas.

Fumigation and insecticidal fogging. A permit is required to [maintain or] establish and operate a facility in which a fumigant or insecticidal fogger is used in a stationary installation.

Hazardous materials. A permit is required to store, handle or use hazardous materials in quantities exceeding those set forth in FC Table 105.6(3).

FC TABLE 105.6(3)

PERMIT QUANTITIES FOR HAZARDOUS MATERIALS

TYPE OF MATERIAL

QUANTITY

Combustible liquids

See FC105.6 for flammable and combustible liquids

Corrosive materials

Gases

Liquids

Solids

See FC Table 105.6(1)

55 gallons

1000 pounds

Explosive materials

See FC105.6 for explosive materials

Flammable materials

Gases

Liquids

Solids

See FC Table 105.6(1)

See FC105.6 for flammable and combustible liquids

See FC Table 105.6(4)

Highly toxic materials

Gases

Liquids

Solids

See FC Table 105.6(1)

Any quantity

Any quantity

Oxidizing materials

Gases

Liquids

Class 4

Class 3

Class 2

Class 1

Solids

Class 4

Class 3

Class 2

Class 1

See FC Table 105.6(1)

Any quantity

1 gallon

10 gallons

55 gallons

Any quantity

10 pounds

100 pounds

500 pounds

Organic peroxides

Liquids

Class I

Class II

Class III

Class IV

Class V

Solids

Class I

Class II

Class III

Class IV

Class V

Any quantity

Any quantity

1 gallon

2 gallons

No Permit Required

Any quantity

Any quantity

10 pounds

20 pounds

No Permit Required

Pyrophoric materials

Gases

Liquids

Solids

See FC Table 105.6(1)

Any quantity

Any quantity

Toxic materials

Gases

Liquids

Solids

See FC Table 105.6(1)

10 gallons

100 pounds

Unstable (reactive) materials

Gases

Liquids

Class 4

Class 3

Class 2

Class 1

Solids

Class 4

Class 3

Class 2

Class 1

See FC Table 105.6(1)

Any quantity

Any quantity

5 gallons

10 gallons

Any quantity

Any quantity

50 pounds

100 pounds

Water-reactive Materials

Gases

Liquids

Class 3

Class 2

Class 1

Solids

Class 3

Class 2

Class 1

See FC Table 105.6(1)

Any quantity

5 gallons

55 gallons

Any quantity

50 pounds

500 pounds

For SI: 1 gallon = 3.785 L, 1 pound = 0.454 kg.

FC TABLE 105.6(4)
PERMIT QUANTITIES FOR FLAMMABLE SOLIDS
FORMS OF FLAMMABLE SOLID
INDOORS
(pounds)
OUTDOORS
(pounds)
Pigs, ingots, billets, heavy castings
100
1,000
Light castings, light metallic products
100
125
Scraps, shavings, powders, dusts|1010|100
Other flammable solids|1010|100
For SI: 1 pound = 0.454 kg.

Hazardous production material (HPM) facilities. A permit is required to store, handle or use hazardous production materials.

High-piled storage. A permit is required to use an area exceeding 500 square feet (46 m2) in a building or structure or part thereof as a high-piled storage area.

Hot work operations. A permit is required to conduct hot work [using oxygen and a flammable gas.], including the following types of hot work:

1. use of a flammable gas with oxygen.
2. use of flammable gas without oxygen at a construction site where a Department of Buildings work permit is required.
3. use of electric arc equipment at a construction site where a Department of Buildings work permit is required.
4. use of any open flame in a torch-applied roof system.
5. public demonstration of hot work, other than in an accredited educational institution or program.

Hydrogen fuel gas room. A permit is required to establish and operate a hydrogen fuel gas room for the generation, storage, handling and use of gaseous hydrogen.

Industrial furnaces. A permit is required to [maintain or] install and operate an industrial furnace regulated by FC Chapter [21] 30.

Liquefied petroleum gas (LPG). A permit is required to store, handle or use LPG in quantities exceeding those set forth in FC Table 105.6(1).

Exceptions: A permit is not required for:

1. stationary LPG installations in Group R-3 occupancies.
2. the storage and use of LPG in the fuel tank of a motor vehicle, aircraft, marine vessel or watercraft for motive power.

Lumber yards. A permit is required to store lumber exceeding 100,000 board feet (8,333 ft3) (236 m3).

Methane recovery. A permit is required for the recovery of methane from landfills and related processing.

Motor fuel-dispensing facilities. A permit is required to [maintain or] establish and operate the following types of motor fuel-dispensing facilities:

1. Fleet motor fuel-dispensing facilities.
2. Full-service motor fuel-dispensing facilities.
3. Self-service motor fuel-dispensing facilities.

Natural gas liquefaction facility. A permit is required to [maintain or] establish and operate a natural gas liquefaction facility.

Non-production chemical laboratory units. A permit is required to store, handle or use hazardous materials in a laboratory unit in quantities exceeding 1 gallon (3.8 L) of flammable liquid, 1 gallon (3.8 L) of combustible liquid or 75 SCF (2.12 m3) of flammable gas.

Non-tobacco hookah establishments. A permit is required to [maintain or] establish and operate a non-tobacco hookah establishment pursuant to Chapter 5 of Title 17 of the Administrative Code and FC310.7.

Open flames. A permit is required to use open flames:

1. in any public assembly occupancy.
2. in any other place of public gathering.
3. in a covered mall building.

Organic coatings. A permit is required to conduct an organic-coating manufacturing operation producing more than 1 gallon (4 L) of an organic coating in one day.

Places of assembly. A permit is required to [maintain or] establish and operate a place of assembly. The term of such permit shall be for a period not to exceed 1 year.

Portable fueled space heaters. A permit is required to store, handle or use portable fueled space heaters that are fueled:

1. by a combustible liquid.
2. by compressed natural gas (CNG).
3. by liquefied petroleum gas (LPG).
4. by piped natural gas, except in Group R-3 occupancies.

Pyrotechnic material. A permit is required to store, handle or sell, including storage for sale, any quantity of pyrotechnic materials, articles and devices, other than pyrotechnic materials, articles and devices used solely for a purpose other than to create a special effect.

Pyroxylin plastics. A permit is required to store, handle and/or use pyroxylin plastics as follows:

1. To store, handle and/or use raw pyroxylin plastic in quantities exceeding 25 pounds (11 kg).
2. To use any quantity of raw pyroxylin plastic for the assembly or manufacture of articles.

Refrigerating system. A permit is required to [maintain or] install and operate a refrigerating system that uses a group A1, A2, A3, B1, B2 or B3 refrigerant or that is mounted on or suspended from a roof or ceiling.

Exceptions:

1. A refrigerating system of less than five horsepower that uses a group A1 refrigerant and that is not mounted on or suspended from a roof or ceiling.

2. A refrigerating system installed in the residence portion of any building, installed in motor vehicles, aircraft, marine vessels, watercraft or tank cars, or employing water or air as a refrigerant.

Repair garages. A permit is required to [maintain or] establish and operate a repair garage.

Special effects. A permit is required for [:

1. the discharge or other use for any purpose of any material, article or device of an explosive, flammable or combustible nature used to create a special effect, including fireworks meeting the definition of fireworks, 1.4G, and pyrotechnic materials, articles or devices.

2. the storage for use in a special effects display or other event of any material, article or device of an explosive, flammable or combustible nature, including fireworks meeting the definition of fireworks, 1.4G, and pyrotechnic materials, articles or devices.] the conduct of a special effects display, and all related storage, handling, use and transportation of pyrotechnic special effects materials and/or non-pyrotechnic special effects materials.

Spraying or dipping. A permit is required to conduct a spraying or dipping operation utilizing flammable or combustible liquids or the application of powder coatings regulated by FC Chapter [15] 24.

Sulfur. A permit is required to store, handle or use sulfur in quantities exceeding 200 pounds (90.8 kg).

Tar kettles. A permit is required to store, handle or use a tar kettle.

Tire-rebuilding plants. A permit is required to [maintain or] establish and operate a tire-rebuilding plant.

Tires, scrap tires and tire byproducts. A permit is required to store tires, scrap tires and tire byproducts, except tires mounted on vehicles, in quantities exceeding:

1. twenty-five hundred cubic feet (71 m³) of total volume of scrap tires or one thousand tires, whichever is less, either outdoors, or in buildings of noncombustible construction that are protected throughout by a sprinkler system.

2. two hundred fifty cubic feet (7.1 m³) of total volume of scrap tires or one hundred tires, whichever is less, in buildings of combustible construction, or in buildings of noncombustible construction that are not protected throughout by a sprinkler system.

Transportation of hazardous materials. A permit is required to transport hazardous materials [in or on a]:

1. in or on a marine vessel or watercraft transporting upon the navigable waters within the city, any quantity of explosives for delivery at a wharf, pier, bulkhead, or other structure over or contiguous to such navigable waters, or to a marine vessel or watercraft lying thereto, in excess of the quantity required for the vessel or craft's own use.

2. in connection with a business or operation requiring a permit or certificate of fitness under this code, including any New York City-based business or operation engaged in the transportation or delivery of hazardous materials, in or on a:

2.1. motor vehicle transporting a flammable liquid in a quantity exceeding 1,000 pounds (454 kg) aggregate gross weight, except vehicles transporting paint products prominently labeled as such in accordance with applicable laws, rules and regulations.

[3.] 2.2. motor vehicle transporting a combustible liquid in a quantity exceeding 1,000 pounds (454 kg) aggregate gross weight, except vehicles transporting paint products prominently labeled as such in accordance with applicable laws, rules and regulations.

[4.] 2.3. motor vehicle transporting a compressed gas in any quantity exceeding the limits set forth in FC Table 105.6(1) or

105.6(2).

[5.] 2.4. motor vehicle transporting any quantity of explosives, except small arms ammunition.

Exceptions: A permit is not required for:

1. the transportation of hazardous materials for transshipment when transported in a motor vehicle operated in compliance with the route and time requirements of [FC2707.11] FC5007.11 and the rules.

2. the storage and use of hazardous materials in the fuel tank of a motor vehicle, marine vessel or watercraft for motive power.

3. hazardous materials on motor vehicles, marine vessels or watercraft used for refrigerating the cargo.

4. the transportation by motor vehicle of medical-grade gaseous or liquid oxygen by trained and knowledgeable medical personnel engaged in providing licensed health care at patient locations citywide, outside of health care facilities, on a citywide response basis.

SECTION FC 106 INSPECTIONS

106.1 Inspection authority. The commissioner may enter and examine any building, structure, facility, premises, marine vessel, watercraft or vehicle in accordance with FC104.3, including any such place, boat or vehicle that has been issued a permit or other approval, for the purpose of enforcing this code or any other law, rule or regulation enforced by the commissioner.

106.2 Reserved.

106.3 Concealed work. Whenever any installation subject to inspection, testing and/or approval in accordance with this code, the construction codes or any other law, rule or regulation prior to use is covered or concealed without having first been inspected, tested and/or approved, the commissioner may require that such work be exposed for inspection.

106.4 Sharing results of inspections. The commissioner, in coordination with the Commissioner of Buildings and the Commissioner of Environmental Protection, shall establish a procedure to share information regarding violations in accordance with Section 28-103.7.1 of the New York City Administrative Code.

SECTION FC 107 MAINTENANCE

107.1 Maintenance required. Whenever any device, equipment, system, operation, installation, fire apparatus access road, or facility regulated by this code or the rules is installed or established, including any signage or other condition or ancillary equipment necessary for its proper operation or maintenance, whether or not required for compliance with the requirements of this code or the rules, such device, equipment, system, operation, installation or facility shall thereafter be continuously maintained in good working order, in accordance with this code, the rules, the construction codes, [and the] permit or other approval conditions and approved design and installation documents, manufacturer's instructions, and any other law, rule or regulation enforced by the commissioner. Periodic inspection, testing or other actions required to ensure proper operation and maintenance shall be conducted in accordance with such laws, rules, regulations, approvals and instructions. When any inspection, test or other circumstance discloses a non-compliant condition, the necessary repairs or other corrective actions shall be taken to render such condition compliant with all applicable requirements and restore such device, equipment, system, operation, installation, fire apparatus access road or facility to good working order. All signs and other items required to be posted, and required markings, shall be maintained in a secure and legible condition and not obstructed from view.

107.2 [Testing and operation. Devices, equipment and systems requiring periodic inspection, testing or operation to ensure maintenance shall be inspected, tested or operated as set forth in this code the rules.

107.2.1 Test and inspection records. Required test and inspection records shall be available at all times for inspection by

any representative of the department or such records as the commissioner designates shall be filed with the department.

107.2.2 Reinspection and testing. Where any work, installation or test required to be witnessed by a representative of the department does not pass an initial inspection or test, the necessary corrections shall be made so as to achieve compliance with the requirements of this code or other law, rule or regulation enforced by the commissioner. The non-complying condition shall then be corrected and arrangements made for reinspection and/or retesting.]

Reserved.

107.3 Supervision. Maintenance and testing shall be under the supervision of a competent person who shall ensure that such maintenance and testing are conducted at specified intervals in accordance with this code and the rules. When required by specific provisions of this code or the rules, such person shall be certified by the department or the Department of Buildings.

107.4 Tampering with or rendering equipment inoperable. It shall be unlawful for any person to deface, obscure, remove or otherwise tamper with or render inoperable or inaccessible any fire protection system, fire hydrant, fire detection and alarm system, portable fire extinguisher or other fire appliance and related appurtenances, except as necessary during emergencies, maintenance, repairs, alterations, drills, prescribed testing or as otherwise authorized by the commissioner.

Exception: Non-emergency use of fire hydrants approved by the Department of Environmental Protection.

107.4.1 Temporary covering of fire protection devices. Coverings placed on or over fire protection devices to protect them from damage during construction operations shall be removed immediately upon the completion of each work shift.

107.4.2 Other tampering. Locks, gates, doors, barricades, chains, enclosures, signs, tags or seals required by this code, the rules, permit or order of the commissioner shall not be removed, defaced, obscured, unlocked and/or otherwise rendered illegible or inoperable.

107.5 Owner/occupant responsibility. The owner shall be responsible at all times for the safe maintenance of a building, structure and premises in accordance with this code, and shall conduct any and all inspections or tests necessary for such maintenance. Correction and abatement of violations of this code and the rules shall be the responsibility of the owner. If an occupant creates, or allows to be created, hazardous conditions in violation of this code or the rules, the occupant shall also be responsible for the abatement of such hazardous conditions.

107.6 Overcrowding. It shall be unlawful to cause overcrowding, maintain an indoor or outdoor space in an overcrowded condition, or allow an indoor or outdoor area or space to become overcrowded. The commissioner may order remedial actions necessary to abate the overcrowding condition and prevent future recurrence of such condition, including suspending or terminating the event or other gathering, vacating the premises, enforcing the lawful use and maximum occupancy of the premises and/or requiring the provision of fire guards.

107.7 Recordkeeping. A written record of the inspections, tests, servicing, fire watch and other operations and maintenance required by this code, the rules, the referenced standards and any other required recordkeeping referenced therein, shall be maintained on the premises or other approved location for a minimum of 3 years, unless a different period of time is specified in such code, rules or referenced standards. The commissioner may prescribe the form and format of such recordkeeping. Such records shall be made available for inspection by any department representative, and a copy of such records shall be provided to the department upon request, without charge. The department additionally may require that certain records be filed with the department[. Electronic filings may be made in lieu of paper filings, when approved] in such manner as the department may prescribe, including online electronic submission, other electronic format or paper filing.

SECTION FC 108 RESERVED

SECTION FC 109 VIOLATIONS

109.1 Violations. The provisions of this code and the rules shall be enforced in accordance with this chapter, Title 15 of the New York City Administrative Code and the rules.

109.2 Penalties. Penalties for violations of this code and the rules shall be in accordance with this chapter, Title 15 of the New York City Administrative Code and the rules.

109.2.1 Transportation of extremely hazardous materials. Except for transportation subject to [FC2707.4] FC5007 and in addition to any other penalties provided by law, rule or regulation, a person who transports explosives, fireworks, chlorine, or any hazardous material in violation of this code or the rules shall be guilty of a misdemeanor and upon conviction thereof shall be punished by a fine of not less than one thousand dollars and not more than ten thousand dollars, or imprisonment for not more than 6 months or both, for each offense.

109.2.2 Failure to provide fire protection systems. In addition to any other penalties provided by law, rule or regulation, any person who shall violate, or refuse, or neglect to comply with any provision of law requiring a sprinkler system, fire alarm system or emergency lighting in a Group A occupancy shall upon conviction thereof be punished by a fine of not less than five hundred dollars nor more than ten thousand dollars for the first violation, not less than one thousand dollars nor more than ten thousand dollars for the second violation, not less than fifteen hundred dollars nor more than ten thousand dollars for the third violation, and not less than two thousand dollars nor more than ten thousand dollars for the fourth violation, and every subsequent violation, or, for any such violation by imprisonment for not more than 6 months, or by both such fine and imprisonment.

109.2.3 Criminal liability. In the event that any person is burned by the explosion of any material the sale of which is prohibited by this code, or which has not been approved as herein provided, and death ensues therefrom, in addition to any other penalties provided by law, rule or regulation, the person found guilty of selling the material shall be deemed guilty of a felony, and, upon conviction, shall be punished by a fine of not less than one thousand dollars, nor more than five thousand dollars, or by imprisonment for a term not less than 1 year nor more than 5 years; and in case of a bodily injury the person injured may maintain an action for damages against the person violating the provisions of this code.

109.2.4 Civil penalty for use of fireworks without a permit. [Notwithstanding] Notwithstanding any other provision of law, and in addition to any criminal penalties that may apply, any person who violates FC105.6 by discharging or otherwise using fireworks without a permit shall be liable for a civil penalty of seven hundred fifty dollars, which may be recoverable in a proceeding before the New York City Environmental Control Board. For the purposes of subdivision e of Section 15-230 of the Administrative Code, such violation shall be deemed to be hazardous.

SECTION FC 110 RESERVED

SECTION FC 111 ORDER TO DISCONTINUE WORK

111.1 Order. Whenever the commissioner finds any work regulated by this code or the rules being performed in a manner contrary to the provisions of such code or the rules, any design and installation document approved by the department, or any condition of a permit, or otherwise being performed in an unsafe manner, the commissioner may issue an order to discontinue work. For purposes of this section, the term "work" shall include any of the following regulated by this code or the rules: the manufacturing, storage, handling, use or transportation of any material, and any device, equipment or system in connection therewith; the conduct of any operation; and the operation of any facility.

111.2 Issuance. An order to discontinue work shall be in writing and shall be issued to the owner or other person authorizing, supervising or engaging in the work. Upon issuance of an order to discontinue work, the cited work shall immediately cease. The order to discontinue work shall state the reason for the order, and the conditions under which the cited work may resume.

111.3 Emergencies. Where an emergency exists, the commissioner shall not be required to give written notice prior to ordering the work discontinued.

SECTION FC 112 CERTIFICATE OF APPROVAL

112.1 Approval of articles, equipment and devices. Where required by this code or the rules, the manufacturer of any

article, equipment or device installed in any facility or used in connection with any material or operation shall obtain a certificate of approval for the design, installation, operation and/or maintenance of such article, equipment or device. Certificates of approval are required for:

1. Auxiliary radio communication (ARC) systems, fire department in-building:

1.1. Base stations.

1.2. Radio consoles.

2. Bars, grills, grates or similar devices placed over emergency escape and rescue openings, and openings onto fire escapes.

3. Commercial cooking exhaust systems:

3.1. Ductless hoods.

3.2. Emission control devices.

3.3. Prefabricated hoods.

3.4. Grease filters.

4. Distillery stills.

5. Energy storage systems, stationary:

5.1. Storage battery unit, including pre-engineered and pre-packaged systems.

5.2. Mobile systems.

6. Fire protection devices, equipment and systems:

6.1. Fire alarm control units, and medical gas, toxic, highly toxic and flammable gas detection system control panels.

6.2. Fire department connections, standpipe system hose outlets and pressure reducing valves.

6.3. Pre-engineered non-water fire extinguishing systems, including foam fire extinguishing systems installed in connection with commercial cooking systems.

7. Flame-retardant chemicals and treatment.

8. High and/or low explosive products, devices, and firing systems in connection with blasting.

9. Metal hydride hydrogen storage systems.

10. Piped natural gas pressure boosters.

11. Pre-manufactured spray rooms and pre-manufactured spray booths that circulate heated air.

112.2 Conditions of approval. The [commissioner] department may set forth in the certificate of approval conditions on the approved purpose or use of such article, equipment or device, or type, class or kind thereof, as may be necessary in the interest of public safety. The [commissioner] department may include under a single certificate of approval more than one type, class or kind of article, equipment or device of a similar design or common characteristic.

112.3 Markings. Each article, equipment or device, or type, class or kind thereof, for which a certificate of approval has been issued shall have the number of such certificate plainly stamped or otherwise affixed upon it.

112.4 List of acceptable laboratories, articles and devices. A current list of all testing services and laboratories acceptable to the [commissioner] department for the purpose of testing articles, equipment and devices, and a current list of all acceptable articles, equipment and devices shall be maintained by the department and made available for public inspection.

112.5 Application. Applications for a new or renewal certificate of approval required by the provisions of this code or the rules shall be made to the [commissioner] department, in such form and detail as the [commissioner] department may prescribe, including such information and documentation as the [commissioner] department may require. An application for a certificate of approval shall include complete drawings of and specifications for the article, equipment or device for which approval is sought and, unless the [commissioner] department determines that it is impracticable, the article, equipment or device itself shall be attached to or submitted with the application. The [commissioner] department may require that the article, equipment or device be examined, tested or demonstrated at the applicant's expense in a manner prescribed by the [commissioner] department, including examination and testing by a testing laboratory acceptable to the [commissioner] department. In those instances where a testing or performance standard is not prescribed by this code or the rules, the article, equipment or device or type, class or kind of article, equipment or device shall have been examined and tested in a manner acceptable to the [commissioner] department.

112.6 Issuance. The [commissioner] department may grant an application for a certificate of approval upon a determination that the application article, equipment or device is designed for the purpose for which it is to be used and can be safely operated in accordance with this code, the rules and other applicable laws, rules and regulations.

112.6.1 Term of certificate. Every certificate or renewal thereof granted by the commissioner shall be for a period as specified therein, not to exceed 3 years, and shall expire at the end of such period unless the [commissioner] department approves its renewal.

112.6.2 Time for submission of renewal applications. Applicants may apply for renewal during the period from 60 calendar days prior to a certificate's expiration date to not more than 1 year after such date. The commissioner shall not renew certificates that have been expired for more than 1 year. Applicants holding such certificates must apply for an original certificate and comply with all the original certificate requirements.

112.6.3 Renewal. Certificate renewals shall be at the discretion of the [commissioner] department in the interest of public safety. The department may reevaluate the design and safety of the article, equipment or device in light of changes in applicable laws, rules or regulations, new technology, and safety concerns arising from the use of the article, equipment or device.

112.7 Expired certificates. It shall be unlawful to install articles, equipment or devices authorized by a certificate after the term of such certificate has expired.

112.8 Certificate revocation and suspension. The [commissioner] department may, at any time, revoke or suspend a certificate for good cause. The certificate holder shall be afforded notice and an opportunity to be heard prior to any such suspension or revocation except that, in the circumstance of an imminent threat to public safety, such notice and opportunity to be heard may be given promptly after such revocation or suspension.

112.9 Maintenance on premises. A copy of the certificate of approval shall be maintained at the premises for review by persons installing, operating or maintaining the approved article, equipment or device, and for inspection by any representative of the department.

SECTION FC 113 CERTIFICATES OF FITNESS AND QUALIFICATION

113.1 Supervision required. The commissioner may require that a material, operation or facility subject to the provisions of this code, the rules, or other laws, rules and regulations enforced by the department, be manufactured, stored, handled, used, maintained, inspected and tested, transported, conducted by, or operated under the supervision of, a person holding a certificate pursuant to this section. The commissioner may require such supervision to be personal supervision or general supervision of the material, operation or facility. Where a reference in this code is made to a certificate of fitness without identifying the type of certificate, such reference shall be to the certificate of fitness

designated by the commissioner as appropriate to conduct or supervise the material, operation or facility.

113.1.1 Work location. Except as otherwise provided in this code or the rules, the commissioner may issue certificates for one or more designated work locations.

113.2 Duties. In addition to any other responsibilities specified in this code or the rules, a certificate holder shall be responsible for:

1. the safe manufacturing, storage, handling, use, operation, maintenance, inspection, testing, repair and/or supervision of the material, operation or facility, and emergency preparedness, for which the certificate is required, in accordance with this code, the rules, and any other applicable laws, rules and regulations.

2. notifying the department of any fire, explosion, reportable leak or other release of hazardous material, or other emergency related to the duties of his or her certificate.

3. keeping such certificate upon his or her person or otherwise readily available on the premises for inspection by any representative of the department, at all times while conducting or supervising the material, operation, facility or emergency preparedness for which the certificate is required.

113.3 Applications. Applications for new or renewal certificates required by the provisions of this code or the rules shall be made to the commissioner, in such form and detail as the commissioner may prescribe, including such information and documentation as the commissioner may require.

113.4 Minimum qualifications. Applicants for certificates shall comply with the following minimum requirements:

1. Be at least 18 years of age, or such age above the age of 18 as may be required by law, rule or regulation.

2. Have a reasonable understanding of the English language and be able to answer satisfactorily such questions as may be asked of such applicant upon his or her examination.

3. Present such evidence of his or her character, habits and past employment, as may be satisfactory to the commissioner.

4. Present such evidence of his or her qualifications as set forth in the rules or the department's notice of examination for such certificate.

5. Pass an examination, administered by the department or other entity that tests the applicant's knowledge of the code, law, rules and regulations governing the regulated material, operation or facility, and the precautions and other actions necessary to ensure the proper and safe performance of his or her duties as a certificate holder.

6. When applying for a certificate of fitness relating to storage, handling and use of explosives, present proof of United States citizenship.

113.5 Investigation. Applicants are subject to an investigation by the department in connection with their application and their qualifications and fitness for the certificate.

113.6 Fingerprinting. Applicants for a certificate of fitness for the storage, use and handling of explosives, fireworks, pyrotechnics and special effects shall be fingerprinted and a criminal background check conducted for the purposes authorized by law. The commissioner may require such fingerprinting and criminal background check for other certificates.

113.7 Issuance. The commissioner may grant an application for a certificate upon a determination that the applicant possesses the qualifications and fitness required for such certificate, as set forth in the code and the rules.

113.7.1 Term of certificate. Every certificate or renewal thereof granted by the commissioner shall be for a period as specified therein, not to exceed 3 years, and shall expire at the end of such period unless the commissioner approves its renewal.

113.7.2 Time for submission of renewal applications. Applicants may apply for renewal during the period from 60 calendar days prior to a certificate's expiration date to not more than 1 year after such date. The commissioner shall not renew certificates that have been expired for more than 1 year. Persons holding such certificates must apply for an original certificate and comply with all of the original certificate requirements.

113.7.3 Renewal. Certificate renewals shall be at the discretion of the commissioner in the interest of public safety based on a review of the certificate holder's qualifications and fitness. The department may review the certificate holder's qualifications and fitness and may require a certificate holder to complete a department-approved continuing education program and/or provide other proof of the holder's continuing qualifications and fitness.

113.8 Expired certificates. It shall be unlawful to perform or provide such supervision for a material, operation or facility authorized by a certificate after the term of such certificate has expired.

113.9 Certificate revocation and suspension. The commissioner may, at any time, revoke or suspend a certificate for misconduct, or other good cause. The certificate holder shall be afforded notice and an opportunity to be heard prior to any such suspension or revocation except that, in the circumstance of an imminent threat to public safety, such notice and opportunity to be heard may be given promptly after such revocation or suspension.

SECTION FC 114 CERTIFICATES OF LICENSE

114.1 Supervision required. The commissioner may require that the installation, alteration, testing and repair of liquid motor fuel storage and dispensing equipment and systems, and flammable or combustible liquid storage systems, be conducted by a person holding a certificate of license or by an employee of such certificate holder working under his or her direct supervision.

114.2 Duties. In addition to any other responsibilities specified in this code or the rules, a certificate of license holder shall be responsible for:

1. the proper and safe installation, alteration, testing and repair of liquid motor fuel storage and dispensing equipment and systems, and flammable or combustible liquid storage systems in accordance with this code, the rules, and any other applicable laws, rules and regulations.
2. verifying that all required approvals from the department have been obtained prior to installing, altering, testing or repairing liquid motor fuel storage and dispensing equipment, and flammable or combustible liquid storage systems.
3. notifying the department of any fire, explosion, reportable leak or other release of hazardous material, or other emergency related to the duties of his or her certificate.

114.3 Applications. Applications for new or renewal certificates required by the provisions of this code or the rules shall be made to the commissioner, in such form and detail as the commissioner may prescribe, including such information and documentation as the commissioner may require.

114.4 Minimum qualifications. Applicants for certificates shall comply with the following minimum requirements:

1. Be at least 18 years of age.
2. Have a reasonable understanding of the English language and be able to answer satisfactorily such questions as may be asked of such applicant upon his or her examination.
3. Present such evidence of his or her character and past employment, as may be satisfactory to the commissioner.
4. Present such evidence of his or her qualifications set forth in the rules or the department's notice of examination for such certificate.
5. Pass an examination, administered by the department or other entity, that tests the applicant's knowledge of the code,

law, rules and regulations governing the installation, alteration, testing and repair of liquid motor fuel storage and dispensing equipment and systems and flammable and combustible liquid storage systems the precautions and other actions necessary to ensure the proper and safe performance of his or her duties as a certificate holder.

114.5 Investigation. Applicants and their principals are subject to an investigation by the department in connection with their application and their qualifications and fitness for the certificate.

114.6 Fingerprinting. The commissioner may require the fingerprinting and criminal background check of applicants for a certificate for purposes authorized by law.

114.7 Issuance. The commissioner may grant an application for a certificate of license upon a determination that the applicant possesses the qualifications and fitness required for such certificate, as set forth in the code and the rules.

114.7.1 Term of certificate. Every certificate or renewal thereof granted by the commissioner shall be for a period as specified therein, not to exceed 2 years, and shall expire at the end of such period unless the commissioner approves its renewal.

114.7.2 Time for submission of renewal applications. Applicants may apply for renewal during the period from 60 calendar days prior to a certificate's expiration date to not more than 1 year after such date. The commissioner shall not renew certificates that have been expired for more than 1 year. Persons holding such certificates must apply for an original certificate and comply with all of the original certificate requirements.

114.7.3 Renewal. Certificate renewals shall be at the discretion of the commissioner in the interest of public safety based on a review of the certificate holder's qualifications and fitness. The department may review the certificate holder's qualifications and fitness and may require a certificate holder to complete a department-approved continuing education program and/or provide other proof of the holder's continuing qualifications and fitness.

114.8 Expired certificates. It shall be unlawful to engage in the business authorized by a certificate after the term of such certificate has expired.

114.9 Certificate revocation and suspension. The commissioner may, at any time, revoke or suspend a certificate for misconduct or other good cause. The certificate holder shall be afforded notice and an opportunity to be heard prior to any such suspension or revocation except that, in the circumstance of an imminent threat to public safety, such notice and opportunity to be heard may be given promptly after such revocation or suspension.

114.10 Insurance. The commissioner may require certificate holders to obtain and furnish proof of general liability insurance, in such amounts and in accordance with such requirements, as may be set forth in the code or the rules, otherwise required by law, or required as a condition of the certificate issuance. The certificate shall expire by operation of law if any such required insurance lapses, expires or is cancelled during the term of the certificate.

SECTION FC 115 COMPANY CERTIFICATES

115.1 Duties. A certificate holder shall be responsible for the safe manufacturing, storage, handling, use, operation, maintenance, inspection, testing, repair and/or supervision of the activity for which the certificate is required, in accordance with this code, the rules and any other applicable laws, rules or regulations.

115.2 Applications. Applications for new or renewal certificates required by the provisions of this code or the rules shall be made to the commissioner, in such form and detail as the commissioner may prescribe, including such information and documentation as the commissioner may require.

115.3 Minimum qualifications. Applicants and their principals shall submit evidence acceptable to the commissioner of such experience and qualifications as set forth in this code, the rules or the department's notice of examination for such certificate.

115.4 Investigation. Applicants and their principals are subject to an investigation by the department in connection with their application and their qualifications and fitness for the certificate.

115.5 Fingerprinting. The commissioner may require the fingerprinting and criminal background check of applicants for a certificate and their principals.

115.6 Issuance. The commissioner may grant an application for a company certificate upon a determination that the applicant possesses all of the qualifications for such certificate, as set forth in the code and the rules.

115.6.1 Term of certificate. Every certificate or renewal thereof granted by the commissioner shall be for a period as specified therein, not to exceed 2 years, and shall expire at the end of such period unless the commissioner approves its renewal.

115.6.2 Time for submission of renewal applications. Applicants may apply for renewal during the period from 60 calendar days prior to a certificate's expiration date to not more than 1 year after such date. The commissioner shall not renew certificates that have been expired for more than 1 year. Persons holding such certificates must apply for an original certificate and comply with all of the original certificate requirements.

115.6.3 Renewal. Certificate renewals shall be at the discretion of the commissioner in the interest of public safety based on a review of the certificate holder's qualifications and fitness. The department may review the certificate holder's qualifications and fitness and may require a certificate holder to complete a department-approved continuing education program and/or provide other proof of the holder's continuing qualifications and fitness.

115.7 Expired certificates. It shall be unlawful to engage in the business authorized by a certificate after the term of such certificate has expired.

115.8 Certificate revocation and suspension. The commissioner may, at any time, revoke or suspend a certificate for misconduct or other good cause. The certificate holder shall be afforded notice and an opportunity to be heard prior to any such suspension or revocation except that, in the circumstance of an imminent threat to public safety, such notice and opportunity to be heard may be given promptly after such revocation or suspension.

115.9 Misrepresentation as department employees. No person may falsely represent himself or herself to be a member or agent of the department.

115.10 Insurance. The commissioner may require certificate holders to obtain and furnish proof of general liability insurance, in such amounts and in accordance with such requirements, as may be set forth in the code or the rules, otherwise required by law, or required as a condition of the certificate issuance. The certificate shall expire by operation of law if any such required insurance lapses, expires or is cancelled during the term of the certificate.

SECTION FC 116 EXPEDITOR REGISTRATION CERTIFICATES

116.1 Registration. No person may submit, file, request, negotiate or otherwise seek approval of applications for issuance of permits, or other approvals, including approval of design and installation documents, without first having obtained an expeditor registration certificate in accordance with this section and the rules. It shall be unlawful to hold oneself out to the public or otherwise represent that one is "registered with the fire department," "registered" or make any similar representation in such a manner as to convey the impression that such person is registered with the department unless such person is registered in accordance with this section.

Exceptions: The following persons are exempt from the provisions of this section:

1. Any person or entity making application on his, her or its own behalf. If the applicant is a partnership or corporation, the general partners and principal officers thereof shall be included within this exception. Principal officers of a corporation shall include the president, vice presidents, secretary and treasurer.
2. The occupants of a premises that is the subject of the application, if authorized by the owner to file the application.
3. Registered architects licensed by the New York State Department of Education.

4. Professional engineers licensed by the New York State Department of Education.
5. Attorneys admitted to practice in New York State.
6. Plumbers when such application relates to work performed under their license.
7. Master fire suppression piping contractors licensed by the Commissioner of Buildings, when such application relates to work performed under their license.
8. Master electricians licensed by the Commissioner of Buildings, when such application relates to work performed under their license.
9. Certificate of license holders, when such application relates to work performed under their license.
10. FLS director and FEP coordinator certificate of fitness holders when the application relates to the emergency preparedness plan of the building for which they are registered.
11. Managing agents registered with the New York City Department of Housing Preservation and Development or the New York State Secretary of State.
12. Construction site fire safety managers when the application relates to fire safety at a construction site for which such certificate holder provides supervision.
13. Persons holding a certificate of fitness for professional certification of fire alarm and emergency alarm installations and testing.

116.2 Applications. Applications for new or renewal expeditor registration certificates required by FC116.1 shall be made to the commissioner, in such form and detail as the commissioner may prescribe, including such information and documentation as the commissioner may require.

116.3 Investigation. Applicants are subject to an investigation by the department in connection with their application and their qualifications and fitness for the certificate.

116.4 Fingerprinting. The commissioner may require fingerprinting and a criminal background check for a certificate for purposes authorized by law.

116.5 Issuance. The commissioner may grant an application for a certificate upon a determination that the applicant possesses all of the qualifications for such certificate, as set forth in the code and the rules, qualifying the applicant to appear before the department to submit, file, request, negotiate or otherwise seek approval of applications for issuance of permits, or other approvals.

116.5.1 Term of certificate. Every certificate or renewal thereof granted by the commissioner shall be for a period as specified therein, not to exceed 2 years, and shall expire at the end of such period unless the commissioner approves its renewal.

116.5.2 Time for submission of renewal applications. Applicants may apply for renewal during the period from 60 calendar days prior to a certificate's expiration date to not more than 1 year after such date. The commissioner shall not renew certificates that have been expired for more than 1 year. Persons holding such certificates must apply for an original certificate and comply with all of the original certificate requirements.

116.5.3 Renewal. Certificate renewals shall be at the discretion of the commissioner in the interest of public safety based on a review of the certificate holder's qualifications and fitness.

116.6 Expired certificates. It shall be unlawful to engage in the business authorized by a certificate when the term of such certificate has expired.

116.7 Certificate revocation and suspension. The commissioner may, at any time, revoke or suspend a certificate for

misconduct or other good cause. The certificate holder shall be afforded notice and an opportunity to be heard prior to any such suspension or revocation except that, in the circumstance of an imminent threat to public safety, such notice and opportunity to be heard may be given promptly after such revocation or suspension.

SECTION FC 117 FEES

117.1 Fees. Fees shall be as set forth in FC Appendix A.

117.2 Fee exemptions. Exemptions from department fees shall be in accordance with FC 117.2.1 through 117.2.3.

117.2.1 Permit, inspection and performance test fee exemption. The provisions of this code as to the payment of fees for permits, inspections or witnessing of required system performance tests shall not apply to premises used and owned or operated by a religious or educational institution, corporation or association organized and operated exclusively for religious or educational purposes that is qualified as an exempt organization pursuant to United States Internal Revenue Code Section 501(c)(3), provided that no part of the net earnings enures to the benefit of any private shareholder or individual; and provided further, that this exemption shall apply only to such portions of the premises used by such religious or educational institution, corporation or association predominantly as one of the following:

1. A house of worship, or dwelling units for members of the clergy of such religious institution, corporation or association situated on or adjacent to the same premises as such house of worship. For purposes of this section, "house of worship" shall mean that part of a premises classified in Occupancy Group A-3 that is used by members of a religious institution, corporation or association principally as a meeting place for divine worship or other religious observances, and "member of the clergy" shall mean a clergyman or minister, as defined in the religious corporations law, who officiates at or presides over such religious observances for such religious institution, corporation or association, and who does not derive his or her principal income from any other occupation or profession.

2. A school accredited by the state of New York providing kindergarten through twelfth grade education.

117.2.2 Individual certificate fee exemption. Employees of the city who submit evidence satisfactory to the commissioner that they require such certificate as a condition of their continued employment with the city shall be exempt from payment of any application, written examination, practical examination and renewal fees. This fee exemption shall not include any required late renewal or fingerprinting fees. Certificate holders converting their certificate from fee-exempt to non-fee-exempt status shall be required to pay all applicable original application, written examination and practical examination fees previously waived.

117.2.3 Company certificate fee exemption. Agencies of the city that require certificates to conduct the business of their agency shall be exempt from payment of certificate fees.

117.3 Penalties and fees for late renewal. Failure to timely render payment of fees for any certificate, permit or other approval issued by the commissioner, or service provided by the department, shall be sufficient grounds for denial of a certificate, permit or other approval or service, or renewal thereof. Fees for late renewal shall be in accordance with FC 117.3.1 through 117.3.2.2.

117.3.1 Late renewal of certificates. In addition to the payment of the renewal fee, any applicant renewing a certificate more than 90 calendar days but less than 1 year after its expiration date shall be subject to a late filing charge of 50 percent of the renewal fee or twenty-five dollars, whichever is greater.

117.3.2 Late renewal of permits. Fees for late permit renewal shall be in accordance with FC 117.3.2.1 and 117.3.2.2, except the commissioner may waive the payment of late filing fees or prior annual fees, or both, upon a determination that the late renewal was caused by circumstances beyond the control of the applicant.

117.3.2.1 Renewal within one year. In addition to the payment of the renewal fee, any applicant renewing a permit more than 90 calendar days but less than 1 year after its expiration date shall be subject to a late filing charge of 50 percent of the renewal fee.

117.3.2.2 Renewal after one year. In addition to the payment of the renewal fee, any applicant renewing a permit later

than 1 year after its expiration date shall be subject to a late filing charge of 100 percent of the renewal fee. Such applicant shall be liable also for all the annual fees which should have been paid from the date on which the permit expired to the date on which such permit was renewed.

117.3.3 Late payment of fees for services. All fees for services rendered by the department, including inspections and witnessing of tests, shall be paid within 30 calendar days of receipt of the bill therefor. Any disputes regarding such bill shall be submitted in writing within 20 calendar days of the date of receipt thereof. Failure to timely remit payment shall subject the owner or other person receiving such service to be additionally 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.

117.4 Liens on property for permit and inspection fees. Liens on property for permit and inspection fees shall be as follows:

1. Any unpaid fee for an inspection performed by the department pursuant to law or rule, any unpaid fee for the issuance or renewal pursuant to this code of a permit to manufacture, store, handle, use or sell hazardous materials or combustible materials, or conduct an operation or maintain a facility on land or in a building specified therein, and any unpaid penalties imposed for late payment of any such renewal fees shall constitute a lien upon the land and buildings upon or in respect to which such inspection was performed, or upon the land and buildings specified in such permit, as hereinafter provided.

2. There shall be filed in the office of the department a record of all fees for inspections performed by or on behalf of the department, all fees for permits to manufacture, store, handle, use or sell hazardous materials or combustible materials, or conduct an operation or maintain a facility on land or in a building issued or renewed by the department, and all penalties for late payment of any such renewal fees imposed by the department. Such records shall be kept on a building by building basis and shall be accessible to the public during normal business hours. An entry of a fee on the records of the department shall constitute notice to all parties.

3. All such unpaid fees shall constitute a lien upon the land and building upon or in respect to which such inspection was performed, or upon the land and buildings specified in such permit, when the amount thereof shall have been definitely computed as a statement of account by the department, and the department shall cause to be filed in the office of the city collector an entry of the account stated in the book in which such charges against the premises are to be entered. Such lien shall have a priority over all other liens and encumbrances except for the lien of taxes and assessments. However, no lien created pursuant to this section shall be enforced against a subsequent purchaser in good faith or mortgagee in good faith unless such transaction occurred after the date of entry of a fee on the records of the department pursuant to FC117.4(2).

4. A notice thereof, stating the amount due and the nature of the charge, shall be mailed by the city collector, within 5 business days after such entry, to the last known address of the person whose name appears on the records in the office of the city collector as being the owner or agent or as a person designated by the owner to receive tax bills or, where no name appears, to the premises, addressed to either the owner or the agent.

5. If such charge is not paid within 30 calendar days from the date of entry, it shall be the duty of the city collector to receive interest thereon at a rate of 15 percent per annum, to be calculated to the date of payment from the date of entry.

6. Such charges and the interest thereon shall continue to be, until paid, a lien on the premises. Such lien shall be a tax lien within the meaning of Sections 11-319 and 11-401 of the New York City Administrative Code and may be sold, enforced or foreclosed in the manner provided in Chapters 1, 3 and 4 of Title 11 of the New York City Administrative Code or may be satisfied in accordance with Section 1354 of the New York State Real Property Actions and Proceedings Law.

7. Such notice mailed by the city collector pursuant to this section shall have stamped or printed thereon a reference to this section of this code.

8. In any proceedings to enforce or discharge a lien created pursuant to this section, the validity of the lien shall not be subject to challenge based on the lawfulness of the inspection, or the propriety and accuracy of the fee for which a lien is claimed, except as provided in this section.

9. No such challenge may be made except by the owner of the property, or a mortgagee or lienor whose mortgage or lien would, but for the provisions of this section, have priority over the department's lien.

117.5 Disposition of revenues. All fees, fines and forfeitures and all proceeds of suits for penalties, which may be paid or collected pursuant to this code, shall be paid into the general fund of the city established pursuant to Section 109 of the New York City Charter.

CHAPTER 2 DEFINITIONS

SECTION FC 201 GENERAL

201.1 Scope. Unless otherwise expressly stated, the following terms shall, for the purposes of this code, have the meanings set forth in this chapter.

201.2 Interchangeability. Words stated in the present tense include the future; words stated in the masculine gender include the feminine and neuter; the singular number includes the plural and the plural the singular.

201.3 Terms defined in other codes. Where terms are not defined in this code and are defined in the construction codes or Electrical Code, such terms shall have the meanings ascribed to them as in those codes. Any reference to any of the construction codes shall be deemed to include any related or other applicable provisions of any of the construction codes.

201.4 Terms not defined. Where terms are not defined through the methods authorized by this section, such terms shall have the ordinarily accepted meanings as the context implies.

SECTION FC 202 DEFINITIONS

AEROSOL. [See FC2802.1.] A product that is dispensed from a container by a propellant, classified as follows:

Level 1. [See FC2802.1.] Aerosol products with a total chemical heat of combustion that is greater than 0 and less than or equal to 8,600 British thermal units per pound (Btu/lb) (20 kJ/g).

Level 2. [See FC2802.1.] Aerosol products with a total chemical heat of combustion that is greater than 8,600 Btu/lb (20 kJ/g), but less than or equal to 13,000 Btu/lb (30 kJ/g).

Level 3. [See FC2802.1.] Aerosol products with a total chemical heat of combustion that is greater than 13,000 Btu/lb (30 kJ/g).

AEROSOL CONTAINER. [See FC2802.1.] A metal can, or a glass or plastic bottle designed to dispense an aerosol.

AEROSOL WAREHOUSE. [See FC2802.1.] A Group H or S occupancy used exclusively for the nonretail storage and transshipment of aerosol products.

AIR OVERPRESSURE. Blast-induced air pressure greater than the surrounding atmospheric pressure; measured and reported in pounds per square inch (psi).

[AIRBLAST. See FC3302.1.]

AIRCRAFT LANDING SITE. [See FC1102.1.] An area of land or water or a structural surface that is designed or used for the landing or takeoff of aircraft, other than helicopters, and any appurtenant areas, but which is not designed or used for fueling, defueling, maintenance, repairs or storage of such aircraft.

AIRCRAFT OPERATION AREA. [See FC1102.1.] Any area used or intended for use for the parking, taxiing, takeoff,

landing or other aviation-related operations.

AIR-INFLATED STRUCTURE. [See FC2402.1.] A structure whose structural elements are inflated and maintained by elevated air pressure and are not occupiable spaces.

AIRPORT. [See FC1102.1.] An area of land or structural surface that is designed or used for the landing and takeoff of aircraft with an overall length greater than 39 feet (11 887 mm) and an overall exterior fuselage width greater than 6.6 feet (2012 mm), and any appurtenant areas that are designed or used for aviation facilities and operations.

AIR-SUPPORTED STRUCTURE. [See FC2402.1.] A structure, the shape of which is attained and maintained by elevated air pressure, and the occupancy of which is within the area of elevated pressure.

ALARM NOTIFICATION APPLIANCE. [See FC902.1.] A fire alarm system component, such as a bell, horn, speaker, light, text display or vibration device that issues an audible, tactile, and/or visual alert.

ALARM SIGNAL. [See FC902.1.] A signal indicating an emergency requiring immediate action, such as a signal indicative of fire.

ALCOHOL-BASED HAND RUB. [See FC3402.1.] An alcohol-containing preparation designed for application to the hands for anti microbacterial or other medicinal purpose that contains ethanol or isopropanol.

ALCOHOL-BLENDED MOTOR FUEL. [See FC2202.1.] Gasoline blended with ethanol or other alcohol with an alcohol concentration greater than 15 percent by volume.

ALCOHOL PROCESSING. See Distillery Operations.

ALCOHOL PROCESS TANK. See Distillery Equipment.

ALCOHOL STORAGE AREA. Any area outside of the distilled spirits processing area in which raw alcohol, distilled spirits and/or alcohol that is a Class II or Class III combustible liquid is stored.

ALCOHOL STORAGE EQUIPMENT. See Distillery Equipment.

ALTERATION. Any addition to, or modification of, an existing installation or facility, other than any repair made in the ordinary course of maintenance.

AMMONIUM NITRATE. [See FC3302.1.] A chemical compound represented by the formula NH_4NO_3 .

ANNUNCIATOR. [See FC902.1.] A unit containing one or more indicator lamps, alphanumeric displays, or other equivalent means in which each indication provides status information about a circuit, condition or location.

APPLICATION. An application submitted to the commissioner for a permit, certificate or other approval or determination issued or made by the commissioner pursuant to this code or other law, rule or regulation, including documents and oral representations submitted in connection with such application.

APPROVED. Acceptable to the commissioner.

APPROVED TESTING LABORATORY. A nationally recognized testing laboratory or other approved agency or organization that conducts scientific testing of any material, operation or facility regulated by this code (including any article, equipment or device) to assess its performance based on a national, industry or other approved standard, including an approved testing agency designated by the Department of Buildings.

ARRAY. [See FC2302.1.] Each separate high-piled storage configuration, taking into consideration the type of packaging, flue spaces, height of storage and compactness of storage.

ARRAY, CLOSED. [See FC2302.1.] A storage configuration having a 6-inch (152-mm) or smaller width vertical flue space that restricts air movement through the stored commodity.

ASPHALT MELTER. [See FC302.1.] 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.

ASSEMBLY AREA. [See FC402.1.] A designated area outside of a building to which building occupants are directed to report upon implementation of a partial or full evacuation in accordance with a comprehensive fire safety and emergency action plan or a fire and emergency preparedness plan.

[ASSISTANT BLASTER. See FC3302.1.]

AUTOMATED CONTAINER EXCHANGE SYSTEM. A self-service storage rack system designed to individually house and vent LPG containers, or, when approved by the department, other compressed gas containers, with each container in a separate compartment. Automated container exchange systems are typically associated with a vending system that accepts payment and allows a customer to remove a full container with the option to insert an empty container in its place.

AUTOMATED RACK STORAGE. [See FC2302.1.] A method of stocking racks and retrieving stored products or pallets of products from racks, whereby the movement of products and pallets of products is controlled by computer or other automated means.

AUTOMATIC. [See FC902.1.] As applied to fire protection devices, any device, equipment or system that initiates emergency system function as a result of a predetermined temperature rise, rate of temperature rise, or combustion products, without the necessity for human intervention.

AUTOMOTIVE SALVAGE AND WRECKING FACILITY. [See FC302.1.] Any premises used for the dismantling and/or wrecking of motor vehicles in connection with the sale of auto parts or scrap metal.

AVIATION FACILITY. [See FC1102.1.] Any premises upon which an aircraft landing site, airport, heliport, helistop, seaplane base or other aviation-related operation is located or conducted.

BALED COTTON. [See FC2902.1] A natural seed fiber wrapped in and secured with industry-accepted materials, typically consisting of burlap, woven polypropylene, polyethylene or cotton or sheet polyethylene, secured with wire or bands. The term baled cotton includes lint removed from the cottonseed (linters) and residual materials from the ginning process (motes).

BALED COTTON, DENSELY PACKED. [See FC2902.1.] Baled cotton with a packing density of at least 22 pounds per cubic foot (360 kg/m³). A bale of densely-packed baled cotton typically measures 55 inches (1397 mm) in length, 21 inches (533 mm) in width, and 27.6 to 35.4 inches (701 to 899 mm) in height.

BARREL. See Distillery Equipment.

BARRICADE. [See FC3302.1.] A structure or other artificial or natural barrier constructed in connection with the storage, handling and use of explosives that is designed to withstand the rapid release of energy in an explosion and provides a shield from the impact of the explosion. A straight line from the top of any sidewall of a building containing explosives to the eave line of any magazine or other building or to a point 12 feet (3658 mm) above the center of a railway or highway shall pass through such barrier.

Artificial Barricade. [See FC3302.1.] An artificial mound or revetment, including a barrier constructed of sandbags, with a minimum thickness of 3 feet (914 mm).

Natural Barricade. [See FC3302.1.] Terrain or other natural features of the ground.

BARRICADED. [See FC3302.1.] Protected by a barricade.

[BATTERY TYPES. See FC602.1.]

Lithium-ion battery. See FC602.1.

Lithium metal polymer battery. See FC602.1.

Nickel cadmium (Ni-Cd) battery. See FC602.1.

Nonrecombinant battery. See FC602.1.

Recombinant battery. See FC602.1.

Stationary storage battery. See FC602.1.

Valve-regulated lead acid (VRLA) battery. See FC602.1.

Vented (Flooded) lead acid battery. See FC602.1.]

BEVERAGE ALCOHOL. For purposes of FC Chapter 40, ethanol produced for human consumption, regardless of the raw material or process used in its production, including any alcohol-water mixture.

Distilled Spirits. A beverage for human consumption that is produced by distillation of alcohol in a still and that is a Class I flammable liquid (typically, at least 16 percent alcohol). For purposes of FC Chapter 40, distilled spirits include all alcohol in a distillery that has been distilled, including process alcohol and finished goods, regardless of whether such distilling is undertaken for the purpose of rectifying, purifying, refining and/or other purpose.

Finished Goods. Distilled spirits bottled or otherwise packaged for retail or wholesale use. Finished goods do not include distilled spirits stored in a barrel for aging.

Process Alcohol. Any beverage alcohol that is a Class I flammable liquid (typically, an alcohol-water mixture with an alcohol content of at least 16 percent), that has been distilled but not yet packaged as finished goods. Process alcohol is typically stored at a distillery in alcohol process tanks and other alcohol processing equipment.

Raw Alcohol. Any beverage alcohol that is a Class I flammable liquid and that is stored, handled or used prior to distilling it at a distillery. Raw alcohol is typically transported in intermediate bulk containers.

BIN BOX. [See FC2302.1.] A five-sided container with the open side facing an aisle. Bin boxes are self-supporting or supported by a structure designed so that little or no horizontal or vertical space exists around the boxes.

BINARY EXPLOSIVE. A pre-packaged product consisting of two separate components, that, when combined, constitute an explosive subject to the regulatory requirements of the United States Department of Treasury, Bureau of Alcohol, Tobacco, Firearms and Explosives, as set forth in 27 CFR Part 555.

BIODIESEL. A diesel motor fuel blend containing motor fuel produced from organic materials, such as vegetable oil and animal fats, that are converted to motor fuel through the process of transesterification.

BLAST AREA. [See FC3302.1.] The blast site and surrounding area within the influence of flying rock, missiles and concussion.

BLAST MONITORING CERTIFICATE. A written statement issued by the department to a company authorizing such company to conduct blast monitoring associated with blasting operations.

BLAST MONITORING SPECIALIST. A person holding a certificate of fitness for blast monitoring, who is responsible for monitoring the impacts of blast vibrations and air overpressure generated by blasting operations.

BLAST SITE. [See FC3302.1.] The area in which explosives are being or have been loaded and which includes all holes loaded or to be loaded for the same blast and a minimum distance of 50 feet (15 240 mm) in all directions from the perimeter of such area.

BLASTER. [See FC3302.1.] A person holding a certificate of fitness for blasting operations, who is in charge of and responsible for a blasting operation.

BLASTER, APPRENTICE. A person holding a certificate of fitness for blasting apprentice who is qualified to supervise explosives storage and handling and blasting operations, sometimes referred to as a powder carrier, and who assists the blaster in performing such duties.

BLASTING AGENT. [See FC3302.1.] A mixture consisting of fuel and an oxidizer that is used for blasting and classified by United States Department of Transportation regulations as Division 1.5, provided that the finished product, as mixed for use or shipment, cannot be detonated by means of a No. 8 test detonator when unconfined.

BLASTING CONTRACTOR CERTIFICATE. [See FC3302.1.] A written statement issued by the department to a company authorizing such company to conduct blasting operations, and to be responsible for all storage, handling, use and transportation of explosives in connection therewith.

BLASTING CREW. [See FC3302.1.] Members of a work force trained and knowledgeable in the safe storage, handling and use of explosives, including apprentice blasters, loaders and the magazine keepers.

BLASTING OPERATION. [See FC3302.1.] The use of explosives in conjunction with construction or demolition projects or other lawful purposes approved by the commissioner.

BLASTING SEISMOGRAPH. An instrument that measures and records the intensity, frequency, and duration of blast-induced ground vibration and air overpressure.

BOILING POINT. [See FC2702.1.] The temperature at which the vapor pressure of a liquid equals the atmospheric pressure of 14.7 pounds per square inch (psia) (101 kPa) or 760 mm of mercury. Where a boiling point is unavailable for the material in question, or for mixtures which do not have a constant boiling point, for the purposes of this classification, the 20-percent evaporated point of a distillation performed in accordance with ASTM D 86 shall be used as the boiling point of the liquid.

BOTTLING. See Distillery Operations.

BRITISH THERMAL UNIT (BTU). The heat necessary to raise the temperature of 1 pound (0.454 kg) of water by 1°F (0.5565°C).

BUILDING. An enclosed structure designed or occupied to house any use or occupancy.

BUILDING CODE. The [2008] New York City Building Code in effect on and after July 1, 2008, and as amended thereafter.

BUILDING OCCUPANTS. [See FC402.1.] All persons in the building, including employees, building staff and visitors.

BULK NITROUS OXIDE SYSTEM. [See FC4002.1.] A system comprised of stationary or portable nitrous oxide storage containers, pressure regulators, safety devices, vaporizers, manifolds, interconnecting piping and/or other devices or equipment, up to the point where nitrous oxide at service pressure first enters the supply line, that has a storage capacity of more than 28,000 SCF (793 m³) of nitrous oxide in liquid or gaseous state, including unconnected reserves in or at the same building, structure or premises.

BULK OXYGEN SYSTEM. [See FC4002.1.] A system comprised of stationary or portable oxygen storage containers, pressure regulators, safety devices, vaporizers, manifolds, interconnecting piping and/or other devices or equipment, up to the point where oxygen at service pressure first enters the supply line, that has a storage capacity of more than 20,000 SCF (566 m³) of oxygen in liquid or gaseous state, including unconnected reserves in or at the same building, structure or premises.

BULK PLANT OR TERMINAL. [See FC3402.1.] Any premises upon which flammable or combustible liquids are received from marine vessel, watercraft, pipeline, tank car or cargo tank and are stored or blended in bulk for the purpose of distributing such liquids by marine vessel, watercraft, pipeline, tank car, cargo tank or container.

BULK TRANSFER. [See FC3402.1.] The loading or unloading of flammable or combustible liquids from or between marine vessels, watercraft, pipelines, tank cars, cargo tanks or storage tanks.

BULLET RESISTANT. [See FC3302.1.] Constructed so as to resist penetration of a bullet of 150-grain M2 ball ammunition having a nominal muzzle velocity of 2,700 feet per second (fps) (824 mps) when fired from a 30-caliber rifle at a distance of 100 feet (30 480 mm), measured perpendicular to the target.

CARGO TANK. [See FC2702.1.] A vehicle other than a railroad tank car, marine vessel, or watercraft with a tank mounted thereon or built as an integral part thereof, used for the transportation of flammable or combustible liquids, LPG or other hazardous materials, including self-propelled vehicles and full trailers and semi-trailers, with or without motive power, and carrying part or all of the load.

CARTON. A cardboard or fiberboard box enclosing a product.

CEILING LIMIT. [See FC2702.1.] The maximum concentration of an airborne contaminant to which one may be exposed shall be as established by the regulations of the United States Department of Labor, as set forth in 29 CFR Part 1910.1000, or if not listed therein, the ceiling Recommended Exposure Limit (REL-C) concentrations published by the U.S. National Institute for Occupational Safety and Health (NIOSH), the Threshold Limit Value - Ceiling (TLV-C) concentrations published by the American Conference of Governmental Industrial Hygienists (ACGIH), the ceiling Workplace Environmental Exposure Level (WEEL-Ceiling) Guides published by the American Industrial Hygiene Association (AIHA), or other approved standard.

CENTRAL STATION. [See FC902.1.] A facility that receives alarm signals from a protected premises and retransmits or otherwise reports such alarm signals to the department.

CERTIFICATE OF APPROVAL. A written statement issued by the commissioner, certifying that an article, device or equipment, or type, class or kind thereof, has been examined, tested and approved for a specific purpose or use in conformity with the requirements of the construction codes, this code or the rules.

CERTIFICATE OF FITNESS. A written statement issued by the commissioner certifying that the person to whom it is issued has passed an examination as to his or her qualifications or is otherwise deemed qualified to perform one or more of the following duties, for which such certificate is required by this code or the rules: supervise a facility; conduct or supervise an operation; supervise the storage, handling and/or use of a material; or conduct or supervise emergency planning and preparedness activities.

CERTIFICATE OF LICENSE. A written statement issued by the commissioner authorizing the operation of a business to install, alter, test or repair liquid motor fuel storage and dispensing equipment and systems or flammable or combustible liquid storage systems, for which such certificate is required by this code or the rules.

CERTIFICATE OF OPERATION. [See FC902.1.] A written statement issued by the commissioner approving the operation of a central station, for which such certificate is required by this code or the rules, or the construction codes.

CERTIFICATE OF QUALIFICATION. [See FC602.1.] A written statement issued by the commissioner certifying that the person to whom it is issued has passed an examination as to his or her qualifications to direct, control and supervise the operation of a refrigerating system, for which such certificate is required by this code or the rules.

CERTIFIED ATTENDANT. [See FC2202.1.] A person holding a certificate of fitness for the supervision of a full-service motor fuel-dispensing facility or self-service motor fuel-dispensing facility.

CHEMICAL. [See FC2702.1.] An element, chemical compound or mixture of elements or compounds or both.

CHEMICAL NAME. [See FC2702.1.] The scientific designation of a chemical in accordance with the nomenclature system developed by the International Union of Pure and Applied Chemistry, the Chemical Abstracts Service rules of nomenclature, or a name that will clearly identify a chemical for the purpose of conducting an evaluation.

CHEMICAL STORAGE BUILDING. A detached prefabricated structure designed and installed and listed for indoor

storage of hazardous materials, that is constructed with a fire resistance rating of not less than one hour, which vents to the outdoors, and which is equipped with applicable fire protection systems and spill containment.

CITYWIDE STANDARD KEY. [See FC502.1.] A key of special or controlled design, also known as a "2642" key, approved by the commissioner which serves to operate elevator emergency recall and emergency in-service operation service switches and other devices or locks as required by the construction codes, including the Building Code, this code or the rules.

CLEAN AGENT. [See FC902.1.] Electrically nonconducting, volatile, or gaseous fire extinguishant that does not leave a residue upon evaporation.

CLOSED CONTAINER. [See FC2702.1.] A container sealed by means of a lid or other device capable of preventing the escape of liquid, vapor or dusts in the ordinary course of storage, handling or use.

CLOSED SYSTEM. The use of any compressed gas, and the use of a solid or liquid hazardous material in equipment or a vessel or system that remains closed during normal operation, such that vapors emitted during the operation of such equipment, vessel, or system are not liberated outside of the equipment, vessel or system and the gas or hazardous material is not exposed to the atmosphere during such operation. Examples of closed systems include hazardous materials conveyed through a piping system into closed equipment or a closed vessel or system.

CNG. [See FC2202.1.] Compressed natural gas.

[CNG MOTOR FUEL SYSTEM. See FC2202.1.]

COKE. [See FC302.1.] A solid carbonaceous material manufactured from the distillation of bituminous coal, petroleum or coal tar, with a thermal heating value of not more than 13,200 British thermal units per hour (3869 W), a volatile composition of not more than 0.5 percent, an NFPA Standard 704 fire hazard rating of not more than 1, and an NFPA Standard 704 reactivity rating of 0.

COKE-FUELED SALAMANDER. [See FC302.1.] A metal vessel, typically cylindrical in shape, used to burn coke in the open air for the purpose of maintaining an open fire for construction-related curing and drying. A coke-fueled salamander does not utilize a combustible liquid or flammable gas and does not generate a flame in a sustained or controlled manner and therefore is not an open flame device or portable space heater as those terms are used in this code.

COMBUSTIBLE DUST. [See FC1302.1.] Finely divided solid material that is 420 microns or less in diameter, will pass through a U.S. standard No. 40 sieve and, when dispersed in air in sufficient concentrations, can be ignited by a flame, spark or other source of ignition.

COMBUSTIBLE FIBERS. [See FC2902.1.] Readily ignitable and free-burning materials in a fibrous or shredded form, such as cocoa fiber, cotton, excelsior, hay, hemp, henequen,istle, jute, kapok, oakum, sisal, Spanish moss, straw, tow, wastepaper, or other natural or synthetic fibers that possess similar qualities, but excluding densely packed baled cotton.

COMBUSTIBLE GAS DETECTOR. A device designed to sample the atmosphere and detect the presence of ignitable flammable or explosive vapors or gases, expressed as a volume percent in air.

COMBUSTIBLE LIQUID. [See FC3402.1.] For purposes of transportation, a combustible liquid, as defined in the regulations of the United States Department of Transportation, as set forth in 49 CFR Section 173.120. For all other purposes, a liquid, other than a compressed gas or cryogenic fluid, having a closed cup flash point at or above 100°F (38°C), classified as follows:

Class II. Liquids having a closed cup flash point at or above 100°F (38°C) and below 140°F (60°C).

Class IIIA. Liquids having a closed cup flash point at or above 140°F (60°C) and below 200°F (93°C).

Class IIIB. Liquids having closed cup flash points at or above 200°F (93°C).

COMBUSTIBLE WASTE. Any substance, item or other organic or inorganic matter that presents a fire hazard and is a

byproduct or residue of the construction, use or occupancy of any premises, or any activity conducted thereon, that has no economic value in connection with such use or occupancy. A combustible waste that has economic value in connection with the use and occupancy of such premises shall be deemed to be a combustible material.

COMMERCIAL COOKING APPLIANCES. [See FC602.1.] Appliances used in a commercial food service establishment for heating or cooking food and which produce grease vapors, steam, fumes, smoke or odors that are required to be removed through a local exhaust ventilation system. Such appliances shall include deep fat fryers; upright broilers; griddles; broilers; steam-jacketed kettles; hot-top ranges; under-fired broilers (charbroilers); ovens; barbecues; rotisseries; and similar appliances. For the purpose of this definition, a commercial food service establishment shall include any building or structure used for the preparation and serving of food, other than commercial cooking appliances in carts or other mobile stands operated by street vendors.

COMMERCIAL COOKING EXHAUST SYSTEM SERVICING COMPANY CERTIFICATE. [See FC902.1.] A certificate issued by the commissioner to a person engaged in the business of inspecting and cleaning commercial cooking equipment exhaust systems, which authorizes such person to inspect and clean commercial cooking equipment exhaust systems, for which such certificate is required by this code or the rules.

COMMERCIAL COOKING SYSTEM. [See FC902.1.] A commercial cooking system consists of one or more commercial cooking appliances; one or more Type I hoods and/or downdraft hoods that exhaust the heat, smoke and grease-laden vapors generated by the appliances; and the fire extinguishing system that protects the appliances. Commercial cooking systems include grease removal devices and exhaust ducts (except for ductless hoods) and, when required, emission control devices.

COMMERCIAL KITCHEN. A commercial food service establishment, as defined by Section 81.03(s) of the New York City Health Code, in which one or more commercial cooking appliances has been installed for which the Mechanical Code requires a Type I hood and a fire extinguishing system.

COMMISSIONER. Fire Commissioner of the City of New York or his or her duly authorized representative.

COMMODITY. [See FC2302.1.] Items in high-piled combustible storage, including products and product packaging.

COMPRESSED GAS. [See FC3002.1.] A material, or mixture of materials, that is a gas at 68oF (20oC) or less at 14.7 psia (101 kPa) of pressure; and has a boiling point of 68oF (20oC) or less at 14.7 psia (101 kPa) that is either liquefied, nonliquefied or in solution at that temperature and pressure, except that gases which have no other health- or physical-hazard properties are not considered to be compressed until the pressure in the packaging exceeds 41 psia (282 kPa) at 68oF (20oC). Compressed gases shall be classified as follows:

Compressed gases in solution. [See FC3002.1.] Nonliquefied gases that are dissolved in a solvent.

Compressed gas mixtures. [See FC3002.1.] A mixture of two or more compressed gases contained in a single packaging, the hazard properties of which are represented by the properties of the mixture as a whole.

Liquefied compressed gases. [See FC3002.1.] Gases that, in a packaging under the charged pressure, are partially liquid at a temperature of 68oF (20oC).

Nonliquefied compressed gases. [See FC3002.1.] Gases, other than those in solution, that are in a packaging under the charged pressure and are entirely gaseous at a temperature of 68oF (20oC).

COMPRESSED GAS CONTAINER. [See FC3002.1.] A pressure container designed to hold compressed gases at pressures greater than one atmosphere at 68oF (20oC).

COMPRESSED GAS SYSTEM. [See FC3002.1.] An assembly of components, such as containers, reactors, pumps, compressors and connecting piping and tubing, designed to contain, distribute or transport compressed gases.

COMPUTATIONAL FLUID DYNAMICS ANALYSIS. [See FC302.1.] A simulation and analysis of air flow, including temperature gradients, and for a fire, the products of combustion, over time and distance.

CONIFER. [See FC802.1.] Any tree, plant or shrub containing pitch, including hemlock, balsam, pine and fir.

CONSTRUCTION CODES. The [2008] New York City construction codes, consisting of the New York City Building, Fuel Gas, Mechanical and Plumbing Codes, and General Administrative Provisions, in effect on and after July 1, 2008, and as amended thereafter.

CONSTRUCTION SITE. [See FC1402.1.] Any location at which a building, structure, premises or facility is undergoing construction, alteration or demolition.

CONTAINER. [See FC2702.1.] For solid and liquid hazardous materials, a vessel of 60 gallons (227 L) or less in capacity used for storage or transportation. For compressed gases, a cylinder, pressure vessel or tank designed for pressures greater than one atmosphere at 68°F (20°C). Pipes, piping systems, engines and engine fuel tanks associated with solid or liquid hazardous materials or compressed gases, shall not be deemed to be containers if in active use.

CONTAINMENT SYSTEM. [See FC3702.1.] A gas-tight recovery system comprised of devices or equipment which, when placed over or around the portion of the compressed gas container that is leaking, stops or controls the escape of gas from the container.

CONTAINMENT VESSEL. [See FC3702.1.] A gas-tight vessel which, when installed or placed over or around a leaking compressed gas container, confines the container and the gas leaking therefrom.

CONTINUOUS GAS DETECTION SYSTEM. [See FC1802.1.] A gas detection system where the analytical instrument is maintained in continuous operation and sampling is performed without interruption on a cyclical basis at intervals not to exceed 30 minutes.

CONTROL AREA. [See FC2702.1.] Spaces within a building wherein quantities of hazardous materials not exceeding the maximum allowable quantities per control area are stored, handled or used, including any dispensing.

COOKING OIL. Any plant, animal or synthetic fat used in cooking. Cooking oil is typically liquid at room temperature, although some cooking oils that contain saturated fat are solid. For purposes of this code, cooking oil will be deemed to be a Class IIIB combustible liquid unless otherwise demonstrated by approved documentation.

CORROSIVE MATERIAL. [See FC3102.1.] A material that causes full thickness destruction of human skin at the site of contact within a specified period of time when tested by methods set forth in DOTn regulations 49 CFR Sections 173.136 and 173.137, or a liquid that has a severe corrosion rate on steel or aluminum based on the criteria set forth in DOTn regulation 49 CFR Section 173.137(c)(2).

COVERED MALL. [See FC402.1.] A Group M building housing separate mercantile tenant spaces and/or other similar occupancies and a common pedestrian area (which may include atrium spaces) that provides access to the main public entrances to such tenant spaces and/or occupancies. A covered mall does not include an exterior perimeter building or tenant space (commonly referred to as an anchor store or anchor building) with direct pedestrian access to the covered mall, provided that such building or tenant space has a lawful means of egress independent of the covered mall.

CRYOGENIC CONTAINER. [See FC3202.1.] A pressure container, low-pressure container or atmospheric container of any size designed or used for the transportation, handling or storage of a cryogenic fluid, and which utilizes venting, insulation, refrigeration or a combination thereof to maintain the pressure within design parameters for such container and to keep the contents in a liquid state.

CRYOGENIC FLUID. [See FC3202.1.] A fluid having a boiling point lower than -130°F (-89.9°C) at 14.7 pounds per square inch absolute (psia) (an absolute pressure of 101.3 kPa).

[DANGER ZONE. See FC3302.1.]

DECORATION. [See FC802.1.] Any item that is used for acoustical, aesthetic or artistic enhancement of an interior space, including artwork, banners, curtains, draperies, decorative greens, fabrics, hangings, and streamers, but not including acoustical materials regulated by the Building Code as an interior finish.

DEDICATED USE BUILDING. A building housing a stationary energy storage system that allows human entry (walk-in) but is not designed or used for human occupancy.

DEFLAGRABLE WOOD DUST. Wood particulate that will propagate a flame front when suspended in air, thus presenting a fire or explosion hazard, or the process-specific oxidizing medium over a range of concentrations, regardless of particle size or shape; wood particulate with a mass median particle size of 500 micros or smaller (i.e., material that will pass through a U.S. No. 35 Standard Sieve), having a moisture content of less than 25 percent (wet basis).

DEFLAGRATION. [See FC2702.1.] An exothermic reaction, such as the extremely rapid oxidation of a flammable dust or vapor in air, in which the reaction progresses through the unburned material at a rate less than the velocity of sound. A deflagration can have an explosive effect.

DEPARTMENT. The Fire Department of the City of New York.

DEPARTMENT OF BUILDINGS. New York City Department of Buildings.

DEPARTMENT OF ENVIRONMENTAL PROTECTION. New York City Department of Environmental Protection.

DESIGN AND INSTALLATION DOCUMENTS. Plans and specifications, or other written, graphic and pictorial documents or submissions, setting forth the location, design, arrangement and physical characteristics of the device, equipment, system, operation or facility for which approval by the commissioner is sought.

DESIGN PRESSURE. [See FC2702.1.] The maximum gauge pressure that a pressure vessel, device, component or system is designed to withstand safely under the temperature and conditions of use.

DETACHED BUILDING. [See FC2702.1.] A separate single-story building, without a basement or crawl space, used for the storage, handling or use of hazardous materials and located an approved distance from other buildings or structures.

DETEARING. [See FC1502.1.] A process for rapidly removing excess wet coating material from a dipped or coated object or material by passing it through an electrostatic field.

DETONATING CORD. [See FC3302.1.] A flexible cord containing a center core of high explosive designed to initiate other explosives when activated.

DETONATION. [See FC3302.1.] An exothermic reaction with explosive effect that utilizes shock compression as the principal heating mechanism and generates a shock wave in the material that establishes and maintains a reaction that progresses through the material at a rate greater than the velocity of sound.

DETONATOR. [See FC3302.1.] A device containing any initiating or primary explosive used for initiating detonation that contains no more than 154.32 grains (10 grams) of total explosives by weight, excluding ignition or delay charges. The term includes electric blasting caps of instantaneous and delay types, blasting caps for use with safety fuses, detonating cord delay connectors, and noninstantaneous and delay blasting caps which use detonating cord, shock tube or any other replacement for electric leg wires.

DIP TANK. [See FC1502.1.] A tank, vat or other container of flammable or combustible liquid in which articles or materials are immersed for the purpose of coating, finishing, treating and similar processes.

DISCHARGE AREA. [See FC1102.1.] For purposes of aviation operations, any portion of a premises or other location to which an external load is to be delivered by helicopter.

DISCHARGE SITE. [See FC3302.1.] The immediate area surrounding the mortars or other devices discharging fireworks for purposes of an outdoor fireworks display.

DISPENSING. [See FC2702.1.] The pouring or transferring by other means of any material from a container, tank or similar vessel, which would release dusts, fumes, mists, vapors or gases to the atmosphere, unless such release is prevented by a device, equipment or system designed for that purpose.

DISPENSING DEVICE, OVERHEAD TYPE. [See FC2202.1.] A dispensing device mounted above a dispensing area, typically within a canopy structure, and characterized by the use of an overhead hose reel.

DISPLAY SITE. [See FC3302.1.] The area in which an outdoor fireworks display is conducted, including the discharge site, the fallout area, and the required separation distance from the discharge site to spectator viewing areas, but excluding spectator viewing areas.

DISTILLED SPIRITS. See Beverage Alcohol.

DISTILLED SPIRITS PROCESSING AREA. Any area of a distillery in which distilling, alcohol processing and bottling operations are being conducted.

DISTILLERY. Any building or premises designed or used for the manufacturing of distilled spirits, and related storage, handling and use of alcohol. A distillery is characterized by the installation of a still to produce distilled spirits and the conduct of other distillery operations on its premises. A warehouse or liquid storage warehouse used solely for the storage of distilled spirits is not a distillery, provided that such warehouse operation is not conducted in a building containing a distillery, but in a separate building with no openings into the distillery.

Small Distillery. A small distillery is a distillery with one or more stills with an aggregate capacity of not more than 250 gallons (946 L) and an individual still capacity of not more than 125 gallons (473 L), and a total quantity of raw alcohol and distilled spirits stored on the premises of not more than 1,500 gallons (5678 L). Department approval shall be required for any storage, handling and use of grain on the premises for alcohol production, including the quantity of grain and any milling thereof.

Medium Distillery. A medium distillery is a distillery with one or more stills with an aggregate capacity of not more than 1,500 gallons (5678 L) and an individual still capacity of not more than 750 gallons (2839 L), and a total quantity of raw alcohol and distilled spirits stored on the premises of not more than 6,000 gallons (22 710 L).

Large Distillery. A large distillery is a distillery with one or more stills with an aggregate capacity of not more than 8,000 gallons (30 280 L) and an individual still capacity of not more than 2,000 gallons (7570 L), and a total quantity of raw alcohol and distilled spirits stored on the premises of not more than 20,000 gallons (75 700 L).

DISTILLERY EQUIPMENT. All devices, equipment and systems designed for the manufacturing, storage and handling of raw alcohol or distilled spirits. It does not include such building systems, commercial cooking systems and other kitchen equipment, and other devices, equipment and systems when they are installed or used outside of the distilled spirits processing or storage area.

Alcohol Process Tank. A flammable liquid storage tank designed or used in a distillery for beverage alcohol processing.

Closed Alcohol Process Tank. An alcohol process tank that is designed to receive and transfer its contents through piping or other means in a manner that does not allow the escape of liquid or vapor under normal operating conditions.

Open Alcohol Process Tank. An alcohol process tank that is designed or used to receive and/or transfer its contents in a manner that exposes the alcohol to the atmosphere and/or allows vapors to be released during alcohol processing under normal operating conditions.

Alcohol Storage Equipment. Any tank or portable container used for the storage of raw alcohol or process alcohol, including intermediate bulk containers and barrels, and storage of finished goods.

Alcohol Storage Tank. Except as otherwise provided with respect to intermediate bulk containers, any vessel having a liquid capacity exceeding 60 gallons (227 L) and designed for stationary installation.

Barrel. A portable wood container, also commonly referred to as a cask, that is typically constructed of wooden staves and heads held together by metal hoops. In a distillery, barrels are used to store process alcohol for a period of months or longer. The barrel typically allows alcohol vapors to escape. For purposes of FC Chapter 40, barrel does not include wax-lined and other barrels designed and used for packaging of finished goods rather than for aging of distilled spirits.

Intermediate Bulk Container. A Department of Transportation-approved portable container, constructed of metal and/or plastic, designed for the shipment of alcohol (excluding finished goods), with a maximum capacity of 660 gallons (2498 L). Intermediate bulk containers stored, handled or used in a distillery shall be deemed to be a portable container even if their capacity exceeds 60 gallons (227 L), provided, however, that an intermediate bulk container of any capacity that is part of a stationary installation in a distillery or otherwise fixed in place shall be deemed to be a storage tank.

Still. Any apparatus designed to produce distilled spirits by separating and condensing alcohol vapors from an alcohol-water mixture to produce a higher proof alcohol. Stills typically consist of a distillation pot, one or more columns, and a condenser, but some stills, such as column stills, are designed to operate without a distillation pot. Where reference is made in this code to the capacity of a still (reflecting the size of the distillation pot), such reference shall be deemed to include the equivalent production capacity, as determined by the department, of a column still or other still without a distillation pot.

DISTILLERY OPERATIONS. Distillery operations include any and all operations conducted in a distillery that involve the manufacturing, storage, handling or use of distilled spirits. Distillery operations typically include storage and handling of raw alcohol; distilling; storage and handling of process alcohol; bottling; and storage, handling and (in a distillery serving area) use of finished goods. In distilleries that produce alcohol from grains or other raw materials, distillery operations may also include storage, handling and use of such raw materials and combustible liquids and combustible waste with an alcohol content of less than 16 percent.

Alcohol Processing. The processing of distilled spirits following distillation up to the point of bottling, including blending, gauging, agitating, filtering, flavoring, traditional and alternative aging (including barrel storage), and barrel filling and emptying.

Bottling. Filling and packaging of bottles and other containers with distilled spirits for retail or wholesale use.

Distilling. The production of distilled spirits or other processing of alcohol in a still.

DISTILLERY SERVING AREA. Any area on the premises of a distillery designed or used to accommodate the public, including any tasting area for the on-premises consumption of distilled spirits or other area for serving of food and/or drink and/or conduct of classes, tours and other events.

DISTILLERY WASTE PRODUCTS. Any flammable or combustible liquid, solid or other material that is a by-product or residue of, or otherwise generated in connection with the distillation process or other alcohol processing that will not be used in the finished goods.

DISTILLING. See Distillery Operations.

DOMESTIC COOKING HOOD. A hood serving a domestic cooking appliance as part of a domestic cooking system.

DOMESTIC COOKING SYSTEM. A system typically installed in residential and institutional occupancies that consists of one or more domestic cooking appliances designed and installed in accordance with the construction codes, including related exhaust and fire extinguishing systems.

DOTn. United States Department of Transportation.

DOTy. United States Department of Treasury.

DRAFT CURTAIN. [See FC2302.1.] A structure arranged to limit the spread of smoke and heat along the underside of the ceiling or roof.

DRY CLEANING. [See FC1202.1.] The process of removing dirt and stains or otherwise cleaning apparel, textiles, rugs and other items with nonaqueous liquid solvents.

DRY CLEANING FACILITY. [See FC1202.1.] A facility in which dry cleaning and associated operations are conducted, including the office, receiving area and storage rooms.

DRY CLEANING ROOM. [See FC1202.1.] An occupiable space within a building used for dry cleaning, the installation, storage and/or use of dry cleaning equipment and/or the storage of dry cleaning solvents.

DRY CLEANING SYSTEM. [See FC1202.1.] Equipment used to perform dry cleaning, including immersion or agitation in solvent of the items to be cleaned, and the extraction of solvent from such items.

DUCTLESS HOOD. A Type I hood that collects the heat, smoke and grease-laden vapors generated by commercial cooking appliances without an exhaust duct system. Also known as a ventless hood or recirculating hood system.

EARLY SUPPRESSION FAST-RESPONSE (ESFR) SPRINKLER. [See FC2302.1.] A sprinkler listed for early suppression fast-response performance.

ELECTRIC BARBECUE. [See FC302.1.] Any device designed for heating or cooking food on an open grate cooking surface above exposed heating elements. An electric grill that has its heating elements embedded within a solid cooking surface is not an electric barbecue.

ELECTRICAL CODE. The [2007] New York City Electrical Code in effect on July 1, 2008, and as amended thereafter.

ELECTROSTATIC FLUIDIZED BED. [See FC1502.1.] A container holding powder coating material that is aerated from below so as to form an air-supported expanded cloud of such material which is electrically charged with a charge opposite to the charge of the object to be coated. Such object is transported through the container immediately above the charged and aerated materials in order to be coated.

EMERGENCY ALARM SYSTEM. [See FC902.1.] A system to provide indication and warning of an emergency condition involving a release of hazardous materials or other hazardous material incident.

EMERGENCY CONTROL STATION. [See FC1802.1.] An approved location on the premises of a semiconductor fabrication facility staffed by trained personnel that monitor the operation of equipment and systems including alert and alarm signals.

EMERGENCY ESCAPE AND RESCUE OPENING. [See FC1002.1.] An operable window, door or other similar device that provides for a means of escape and access for rescue in the event of an emergency.

EMERGENCY SHELTER. [See FC402.1.] The temporary use and occupancy of a premises, or part thereof, including but not limited to armories, auditoriums, community centers, gymnasiums, houses of worship and schools, that are not designed to be occupied for emergency housing, but are authorized by the Department of Buildings to be operated and/or occupied for such purposes for more than fifteen persons for more than 30 consecutive days.

EMERGENCY SHUTOFF VALVE. A valve designed to shut off the flow of gases or liquids.

EMERGENCY SHUTOFF VALVE, AUTOMATIC. A fail-safe self-closing valve designed to shut off the flow of liquids or gases upon activation of the valve's control system by automatic means.

EMERGENCY SHUTOFF VALVE, MANUAL. A manually operated valve designed to shut off the flow of liquids or gases.

ENCAPSULATION. A method of packaging, for purpose of high-piled combustible storage, as that term is defined in NFPA 13.

ENERGY STORAGE SYSTEM, STATIONARY. A rechargeable system for the storage of electrochemical energy, designed as a stationary installation (including mobile systems) and consisting of one or more interconnected storage batteries, capacitors, inverters and other electrical equipment. A stationary energy storage system is typically used to provide electrical power and includes associated fire protection, explosion mitigation, ventilation and/or exhaust systems. Stationary energy storage systems include the following types of systems:

Indoor System. A stationary energy storage system installed inside a building.

Mobile System. A stationary energy storage system mounted on a trailer or otherwise installed for mobile use.

Outdoor System. A stationary energy storage system installed outdoors, including mobile systems and systems installed on a rooftop.

ETHANOL. A volatile, flammable (Class I) liquid with the chemical formula C_2H_5OH or equivalent, also commonly referred to as ethyl alcohol or grain alcohol.

EVACUATION. [See FC402.1.] The emptying of a building or part thereof of building occupants in response to a fire or non-fire emergency.

EXCESS FLOW CONTROL. [See FC2702.1.] A fail-safe system or other approved device, equipment or system designed to shut off flow caused by a rupture in a pressurized piping system.

EXCESS FLOW VALVE. [See FC3702.1.] A valve inserted into a compressed gas container that is designed to shut off the flow of gas in the event that its predetermined flow is exceeded.

EXHAUSTED ENCLOSURE. [See FC2702.1.] A device, typically consisting of a hood equipped with a fan that serves to capture and exhaust fumes, mist, vapors and gases generated at a workstation or other local environment. An exhausted enclosure does not include a room provided with general ventilation.

EXIT. [See FC1002.1.] That portion of a means of egress system which is separated from other interior spaces of a building or structure by fire-resistance-rated construction and opening protectives as required to provide a protected path of egress travel between the exit access and the exit discharge. Exits include vertical exits, exterior exit doors at the level of exit discharge, vertical exit enclosures, exit passageways, exterior exit stairs, exterior exit ramps and horizontal exits, but do not include access stairways, aisles, exit access doors opening to corridors or corridors. This term shall include the locations on a premises at which egress may be had from an enclosed outdoor space.

EXIT ACCESS. [See FC1002.1.] That portion of a means of egress system that leads from any occupied portion of a building, structure or premises to an exit.

EXIT DISCHARGE. [See FC1002.1.] That portion of a means of egress system between the termination of an exit and a public way.

EXIT DISCHARGE, LEVEL OF. [See FC1002.1.] The story at the point at which an exit terminates and an exit discharge begins.

EXPANDED PLASTIC. [See FC2302.1.] A foam or cellular plastic material having a reduced density based on the presence of numerous small cavities or cells dispersed throughout the material.

EXPLOSION. [See FC2702.1.] An effect produced by the sudden violent expansion of gases, whether or not accompanied by a shock wave or disruption, of enclosing materials, including the effects of the following sources of explosion:

1. Chemical changes such as rapid oxidation, deflagration or detonation, decomposition of molecules and runaway polymerization (usually detonations).
2. Physical changes such as pressure tank ruptures.
3. Atomic changes (nuclear fission or fusion).

EXPLOSIVE. [See FC3302.1.] A chemical compound, mixture or device, the primary or common purpose of which is to function by explosion. The term includes, but is not limited to, dynamite, black powder, pellet powder, initiating explosives, detonators, safety fuses, squibs, detonating cord, igniter cord and igniters. The term "explosive" includes any material determined to be within the scope of Chapter 40 of Title 18 of the United States Codes, and any material classified as an explosive by the hazardous materials regulations of the United States Department of Transportation, as set forth in 49 CFR Section 173.52, except fireworks. Explosives are classified in accordance with the following United States Department of Transportation classification and other terms in common usage:

United States Department of Transportation Class 1 explosives.

Division 1.1. Explosives that present a mass explosion hazard.

Division 1.2. Explosives that present a projection hazard but not a mass explosion hazard.

Division 1.3. Explosives that present a fire hazard and either a minor blast hazard or a minor projection hazard, or both, but not a mass explosion hazard.

Division 1.4. Explosives that present a minor explosion hazard. The explosive effects are largely confined to the package and no projection of fragments of appreciable size or range is to be expected. Such explosives are not subject to mass explosion when exposed to fire.

Division 1.5. Explosives that present a mass explosion hazard but which are so insensitive that there is very little probability of initiation or of transition from burning to detonation under normal conditions of transport.

Division 1.6. Explosives consisting of extremely insensitive articles that do not present a mass explosion hazard, and present a negligible probability of accidental initiation or propagation.

High Explosive. [See FC3302.1.] Explosives, including dynamite, that, when detonated, are characterized by a high rate of reaction, high pressure development, and the presence of a detonation wave, and that can be caused to detonate by means of a No. 8 test blasting cap, when unconfined.

Low Explosive. [See FC3302.1.] Explosives that will burn or deflagrate when ignited, and which are characterized by a rate of reaction that is less than the speed of sound, and low pressure development. Examples of low explosives include black powder, igniter cords, igniters, safety fuses, small arms ammunition and primers, and propellants, 1.3C.

[Mass-detonating] Mass-Detonating Explosives. [See FC3302.1.] Division 1.1, 1.2 and 1.5 explosives that, whether individually or in combination, or loaded into ammunition or containers, explode virtually instantaneously when a small portion is subjected to fire, concussion, impact, the impulse of an initiating agent, or the effect of a considerable discharge of energy from without, with severe explosive effect, including the potential for structural damage to adjacent objects, and explosive propagation to other explosives stored in proximity, such that two or more quantities in proximity must be considered as one for quantity-distance purposes.

[UN/DOTn Class 1 Explosives. See FC3302.1.]

EXTERNAL LOAD. [See FC1102.1.] Cargo transported by, but not within, the helicopter.

EXTRA-HIGH-RACK COMBUSTIBLE STORAGE. [See FC2302.1.] Storage on racks of Class I, II, III or IV commodities that exceed 40 feet (12 192 mm) in height and storage on racks of high-hazard commodities that exceed 30 feet (9144 mm) in height.

FABRICATION AREA. [See FC1802.1.] An area within a semiconductor fabrication facility in which processes using hazardous production materials are conducted.

FACILITY. Any premises subject to a design or installation requirement of this code, or at, in or upon which a material regulated by this code is manufactured, stored, handled, used or transported, or an operation regulated by this code is conducted.

FAIL-SAFE. A feature of the design of a device, equipment or system that automatically counteracts the effect of an anticipated possible source of failure, or prevents or mitigates a hazardous condition by automatically compensating for a failure or malfunction of the device, equipment or system.

FALLOUT AREA. [See FC3302.1.] The area over which aerial shells or other aerial fireworks are fired and intended to combust, deflagrate or detonate, including the area into which debris and unexploded aerial fireworks are expected to fall given the direction and strength of the wind, and the angle or placement of the mortars or other devices discharging

fireworks.

FEP. [See FC402.1.] Fire and emergency preparedness.

FEP STAFF. [See FC402.1] The individuals identified in a fire and emergency preparedness plan as responsible for the implementation of such plan, including but not limited to FEP coordinators.

FINISHED GOODS. See Beverage Alcohol.

FINISHED PYROXYLIN PLASTIC PRODUCTS. [See FC402.1.] Any product to which a pyroxylin plastic has been applied that does not require further manufacturing with respect to the application of such pyroxylin plastic or any further application of pyroxylin plastic.

FIRE. A rapid, persistent chemical reaction that releases heat and light, especially the burning of a combustible substance in the presence of oxygen. For purposes of this code, a flame used in any lawful, properly operating device, equipment or system or other controlled setting shall not be considered a fire.

FIRE ALARM BOX, MANUAL. [See FC902.1.] A manually operated device used to initiate an alarm signal.

FIRE ALARM SIGNAL. [See FC902.1.] A signal initiated by a fire alarm-initiating device such as a manual fire alarm box, automatic fire detector, water-flow switch, or other device whose activation is indicative of the presence of a fire or fire signature.

FIRE ALARM SYSTEM. [See FC902.1.] Any system, including any interconnected fire alarm sub-system, of components and circuits arranged to monitor and annunciate the status of fire alarm or supervisory signal-initiating devices.

FIRE APPARATUS ACCESS ROAD. [See FC502.1.] A road that serves to provide access for fire apparatus from a public street to the frontage space of one or more buildings not directly fronting on a public street. A fire apparatus access road includes any road that serves such purpose whether denominated as a driveway, parking lot lane or private road.

FIRE AREA. The aggregate floor area enclosed and bounded by fire walls, fire barriers, exterior walls and/or horizontal assemblies of a building. Areas of the building not provided with surrounding walls shall be included in the fire area if such areas are included within the horizontal projection of the roof or floor next above.

FIRE COMMAND CENTER. The principal attended or unattended location where the status of the detection, alarm communications and control systems is displayed, and from which the system(s) can be manually controlled.

FIRE DEPARTMENT STANDARD KEY. [See FC502.1.] A key of special or controlled design, also known as a "1620" key, for the use of department personnel and others specifically authorized by the commissioner, which serves to operate all switches, locks and other devices required to be operable by a citywide standard key.

FIRE DETECTOR, AUTOMATIC. [See FC902.1.] A device designed to detect the presence of a fire signature and to initiate action.

FIRE DOOR ASSEMBLY. Any combination of a fire door, frame, hardware, and other components that together, as an opening protective, provide a specific degree of fire protection to the opening.

FIRE DRILL. [See FC402.1.] A training exercise by which building occupants are familiarized with and/or practice the procedures for the safe, orderly and expeditious sheltering in place, in-building relocation, partial or full evacuation, or any combination thereof, in the event of a fire, in accordance with the emergency preparedness plan for the premises.

FIRE EXTINGUISHING SYSTEM. [See FC902.1.] An approved system of devices and equipment that discharges an approved fire extinguishing agent onto or in the area of a fire. The term includes (water-based) sprinkler systems and (water and non-water-based) alternative fire extinguishing systems, as those terms are used in the Building Code. An automatic fire extinguishing system incorporates a device that detects a fire and activates the system. A manual fire extinguishing system does not detect a fire and requires manual activation to discharge the fire extinguishing agent.

FIRE GUARD. A person holding a certificate of fitness for such purpose, who is trained in and responsible for maintaining a fire watch.

FIRE LANE. [See FC502.1.] A public or private road, roadway lane, parking lot lane or other surface designed to allow vehicular access, that has been specifically designated by means of signs or roadway markings as a priority thoroughfare for fire apparatus.

FIRE PARTITION. A vertical assembly of materials designed to restrict the spread of fire.

FIRE POINT. [See FC3402.1.] The lowest temperature at which a liquid will ignite and achieve sustained burning when exposed to a test flame in accordance with ASTM D 92.

FIRE PROTECTION SYSTEM. [See FC902.1.] Approved devices, equipment and systems or combinations of systems used to detect a fire, activate an alarm, extinguish or control a fire, control or manage smoke and products of a fire or any combination thereof, including fire extinguishing systems, fire alarm systems and standpipe systems.

FIRE PUMP. A pump used exclusively for fire protection, also commonly referred to as automatic standpipe pump, foam pump, limited service pump, special service pump, sprinkler booster pump or water mist system pump. A pump used solely for filling a tank is not a fire pump.

FIRE-RETARDANT COATING. [See FC802.1.] An approved coating that, when applied to the surface of scenery in an approved manner, imparts flame resistance and reduces flame spread.

FIRE WATCH. A temporary measure intended to ensure continuous and systematic surveillance of a building or portion thereof by one or more qualified individuals for the purposes of identifying and controlling fire hazards, including detecting early signs of fire, raising an alarm of fire, notifying the department, and performing such other fire safety duties as may be prescribed by the commissioner.

FIREWORKS. [See FC3302.1.] An article or device that does not present a mass explosion hazard, that is manufactured or used to produce a visible or an audible effect for entertainment or other display purposes by combustion, deflagration or detonation, and that meets the definition of 1.4G fireworks or 1.3G fireworks as set forth herein.

Fireworks, 1.3G. [See FC3302.1.] Large fireworks devices classified as UN0335 by the United States Department of Transportation regulations, intended for use in fireworks displays and designed to produce audible or visible effects by combustion, deflagration or detonation, including firecrackers containing more than 130 milligrams (2 grains) of explosive composition, aerial shells containing more than 40 grams of pyrotechnic material, and other display pieces which exceed the limits for classification as 1.4G fireworks.

Fireworks, 1.4G. [See FC3302.1.] Small fireworks devices, classified as UN 0336 by United States Department of Transportation regulations, containing restricted amounts of pyrotechnic materials designed primarily to produce visible or audible effects by combustion.

FIREWORKS CONTRACTOR CERTIFICATE. [See FC3302.1.] A written statement issued by the commissioner to a company authorizing such company to conduct a fireworks display and to be responsible for all storage, handling, use and transportation of fireworks in connection therewith.

FIREWORKS DISPLAY. [See FC3302.1.] The discharge of fireworks for an outdoors public display.

FLAME-RESISTANT MATERIAL. [See FC802.1.] Material that meets the flame propagation performance criteria of NFPA 701, either because it is inherently flame-resistant or because it has been subjected to a flame-retardant treatment.

FLAME-RETARDANT TREATMENT. [See FC802.1.] An approved chemical that, when applied to a material in an approved manner, imparts flame resistance to a material.

FLAME SPREAD. [See FC802.1.] The propagation of flame over a surface.

FLAMMABLE AND COMBUSTIBLE LIQUID STORAGE SYSTEM. [See FC3402.1.] A flammable or combustible liquid

storage tank and all devices, equipment and systems associated with such tank, including the tank, piping, valves, fill connection, vent lines, pumps and any other ancillary equipment, except liquid motor fuel storage and dispensing systems and flammable and combustible liquid storage systems at a bulk plant or terminal used for bulk transfer operations.

FLAMMABLE CRYOGENIC FLUID. [See FC3202.1.] A cryogenic fluid that is flammable in its vapor state.

FLAMMABLE FINISHES. [See FC1502.1.] Material coatings in which the material being applied is a flammable liquid, combustible liquid, combustible powder or flammable or combustible gel coating.

FLAMMABLE GAS. [See FC3502.1.] A material which has a boiling point and becomes a gas at 68°F (20°C) or less at 14.7 pounds per square inch absolute (psia) (101 kPa) of pressure which:

1. Is ignitable at 14.7 psia (101 kPa) when in a mixture of 13 percent or less by volume with air, in accordance with testing procedures set forth in ASTM E 681; or
2. Has a flammable range at 14.7 psia (101 kPa) with air of at least 12 percent, regardless of the lower explosive limit, in accordance with testing procedures set forth in ASTM E 681.

FLAMMABLE LIQUEFIED GAS. [See FC3502.1.] A liquefied compressed gas which, under a charged pressure, is partially liquid at a temperature of 68°F (20°C) and which is a flammable gas.

FLAMMABLE LIQUID. [See FC3402.1.] For purposes of transportation, a flammable liquid defined in the regulations of the United States Department of Transportation, as set forth in 49 CFR Section 173.120. For all other purposes, a liquid, other than a compressed gas or cryogenic fluid, having a closed cup flash point below 100°F (38°C), classified as follows:

Class I. A flammable liquid or liquids with the properties of a Class IA, IB and/or Class IC liquid.

Class IA. Liquids having a flash point below 73°F (23°C) and having a boiling point below 100°F (38°C).

Class IB. Liquids having a flash point below 73°F (23°C) and having a boiling point at or above 100°F (38°C).

Class IC. Liquids having a flash point at or above 73°F (23°C) and below 100°F (38°C).

FLAMMABLE LIQUID MOTOR FUEL. [See FC2202.1.] Gasoline or other flammable liquids used as fuel in the operation of motor vehicles, motorcycles, watercraft and aircraft.

FLAMMABLE MATERIAL. A material capable of being readily ignited from common sources of heat or at a temperature of 600°F (316°C) or less.

FLAMMABLE SOLID. [See FC3602.1.] A solid, other than a blasting agent or other explosive, whether in elemental or alloy form, that is capable of causing fire through friction, absorption or moisture, spontaneous chemical change, or heat retained from manufacturing or processing, or which has an ignition temperature below 212°F (100°C) or which burns so vigorously and persistently when ignited as to create a serious hazard. A chemical shall be considered a flammable solid if upon testing using the method prescribed in CPSC regulations, as set forth in 16 CFR Section 1500.44, it ignites and burns with a self-sustained flame at a rate greater than 0.1 inch (2.5 mm) per second along its major axis.

FLAMMABLE VAPOR AREA. [See FC1502.1.] The interior of any room, booth or area, including spray rooms, spray booths, exhaust ducts and drying rooms, or other areas in which, as a result of flammable finishing operations, the concentration of flammable constituents (vapor, gas, fume, mist or dust) in air exceeds 25 percent of their lower flammable limit (LFL).

FLAMMABLE VAPORS OR FUMES. [See FC2702.1.] The concentration of flammable constituents in air that exceeds 25 percent of their lower flammable limit (LFL).

FLASH POINT. [See FC3402.1.] The minimum temperature in degrees Fahrenheit at which a liquid will give off sufficient

vapors to form an ignitable mixture with air near the surface or in the container, but will not sustain combustion. The flash point of a liquid shall be determined by appropriate test procedure and apparatus as specified in ASTM D 56, ASTM D 93 or ASTM D 3278.

FLEET FUELING. The transferring of Class II and III liquids directly from a cargo tank through approved dispensing equipment into the fuel tanks of motor vehicles at approved off-street locations where fleet vehicles are parked.

FLEET MOTOR FUEL-DISPENSING FACILITY. [See FC2202.] A motor fuel-dispensing facility wherein motor fuel is stored and/or dispensed into the fuel tank of a motor vehicle, motorcycle, marine vessel or watercraft owned or operated by or on behalf of the owner of the facility, and where such dispensing operations are conducted by persons employed by or on behalf of the owner of the facility. There are four approved types of fleet motor fuel-dispensing facilities:

Fleet automotive hydrogen motor fuel-dispensing facility (motor vehicles)
Fleet automotive liquid motor fuel-dispensing facility (motor vehicles and motorcycles)
Fleet CNG motor fuel-dispensing facility (motor vehicles, marine vessels and watercraft)
Fleet marine liquid motor fuel-dispensing facility (marine vessel and watercraft)

FLOAT. [See FC302.1.] A floating dock or structure to which marine vessels or watercraft may be moored and which is typically used as means by which passengers and freight may be transferred from ship to shore.

FLOOR FINISHING OPERATION. [See FC1502.1.] Any activity involving the surfacing or finishing of a floor, including but not limited to cleaning, stripping, sealing, painting, varnishing, lacquering, staining and waxing.

FLS. [See FC402.1.] Fire and life safety.

FLS STAFF. [See FC402.1] The individuals required to implement a comprehensive fire safety and emergency action plan, as identified in such plan, including but not limited to the FLS director, deputy FLS director, members of the FLS brigade or other FLS staff, and any staff designated as critical operations staff.

FLUIDIZED BED. [See FC1502.1.] A container holding powder coating material that is aerated from below so as to form an air-supported expanded cloud of such material through which the preheated object to be coated is immersed and transported.

FLUE SPACE, LONGITUDINAL. In high-piled combustible storage, the vertical space between rows of storage perpendicular to the direction of loading.

FLUE SPACE, TRANSVERSE. In high-piled combustible storage, the horizontal space between rows of storage parallel to the direction of loading.

FREQUENCY. The number of ground vibration or air overpressure waves generated by blasting operations that pass a fixed point in a given amount of time, usually measured in Hertz (Hz) or cycles per second.

FRONTAGE SPACE. [See FC502.1.] A street or an open space in front of and adjoining the main front entrance to the building and not less than 30 feet (9144 mm) in any dimension that is accessible from a public street or fire apparatus access road, provides access to the building, and serves as a staging area for firefighting and other emergency operations. It shall be designed and constructed to allow operation of department apparatus on the front side of the building and shall be maintained free of obstructions that may interfere with its use by the department.

FUEL GAS CODE. The [2008] New York City Fuel Gas Code in effect on July 1, 2008, and as amended thereafter.

FULL-SERVICE MOTOR FUEL-DISPENSING FACILITY. [See FC2202.] A motor fuel-dispensing facility wherein motor fuel is dispensed into the fuel tank of motor vehicles, motorcycles, marine vessels or watercraft by a certified attendant or, when under the personal supervision of a certified attendant, by persons employed by or on behalf of the owner of the facility. There are four approved types of full-service motor fuel-dispensing facilities:

Full-service automotive hydrogen motor fuel-dispensing facility (motor vehicles)
Full-service automotive liquid motor fuel-dispensing facility (motor vehicles and motorcycles)

Full-service CNG motor fuel-dispensing facility (motor vehicles, marine vessels and watercraft)
Full-service marine liquid motor fuel-dispensing facility (marine vessel and watercraft)

FUME CLASS 1. [See FC3302.1.] A classification established by the Institute of Makers of Explosives. Explosives meeting the requirements of this classification will provide less than 0.16 cubic feet (0.00453 m³) of poisonous gases upon detonation of 0.44 pounds (200 grams) of explosive.

FUMIGANT. [See FC1702.1.] A substance which by itself or in combination with any other substance emits or liberates a gas, fume or vapor utilized for the destruction or control of insects, rats or other vermin or fungi, germs or similar conditions, as distinguished from insecticides and disinfectants which are essentially effective in the solid or liquid phases. Examples are methyl bromide, ethylene dibromide, hydrogen cyanide, carbon disulfide and sulfuryl fluoride.

FUMIGATION. [See FC1702.1.] The utilization within an enclosed space of a fumigant in concentrations that are hazardous or acutely toxic to humans.

FUMIGATION AND INSECTICIDAL FOGGING OPERATION COMPANY CERTIFICATE. [See FC1702.1.] A certificate issued by the commissioner to a person engaged in the business of fumigation and insecticidal fogging operations, which authorizes an owner or principal of such business to conduct such fumigation and insecticidal fogging operations, for which such certificate is required by this code or the rules.

FURNACE. [See FC2102.1.] A compartment, receptacle, enclosed chamber or structure that is capable of being heated to a high temperature in order to heat the contents thereof. Furnaces may be heated by internal or external sources, including gas burners, oil burners, electrical elements, infrared lamps, induction heaters and steam radiation systems, regardless of whether denominated as an oven or furnace. Furnaces shall be classified as follows:

[CLASS A. See FC2102.1.] Class A. A furnace that has heat utilization equipment operating at or near atmospheric pressure and that presents a potential explosion or fire hazard if flammable volatiles or combustible materials are processed or heated in the furnace. Such flammable volatiles or combustible materials include those originating from paints, powders, inks, and adhesives from finishing processes, such as dipped, coated, sprayed and impregnated materials; the substrate material; wood, paper and plastic pallets, spacers or packaging materials; or polymerization or other molecular rearrangements.

[CLASS B. See FC2102.1.] Class B. A furnace that has heat utilization equipment operating at approximately atmospheric pressure wherein there are no flammable volatiles or combustible materials being heated.

[CLASS C. See FC2102.1.] Class C. A furnace with any type of heating system and a special atmosphere supply system that is potentially hazardous due to a flammable or other special atmosphere being used for treatment of material in process, including integral quench furnaces and molten salt bath furnaces.

[CLASS D. See FC2102.1.] Class D. A furnace with any type of heating system that operates at temperatures from above ambient to over 5,000°F (2760°C) and at pressures normally below atmospheric, including special processing atmosphere furnaces.

FURNISHING. [See FC802.1.] Furniture or items other than structural elements, building service equipment or interior finishes that are installed or placed in a building for the human comfort or other use of the occupants.

GAS CABINET. [See FC2702.1.] A fully enclosed, noncombustible enclosure used to provide an isolated environment for compressed gas containers in storage or use, including any doors and access ports for exchanging containers and accessing pressure-regulating controls.

GAS ROOM. [See FC2702.1.] A separately ventilated, fully enclosed room in which only compressed gases and associated equipment and supplies are stored or used.

GASEOUS HYDROGEN. A nontoxic, gaseous hydrogen-containing mixture that is not less than 95 percent hydrogen gas by volume and not more than 1 percent oxygen by volume.

GENERAL SUPERVISION. Except as otherwise provided in this code, supervision by the holder of any department

certificate who is responsible for performing the duties set forth in FC113.2 but need not be personally present on the premises at all times.

GEOPHONE. A device that measures particle velocity. The ground vibration measurements detected by a geophone are recorded by a blasting seismograph.

GLOBAL STRAIN METHOD. A calculation of the structure differential motion, resulting from blast-induced ground vibration and/or air overpressure, encompassing the whole of the structure. Global strain is used to estimate potential crack damage over the entire height of a building or structure. The global strain is computed using measurements at upper and lower building corners.

Global Shear Wall Strain. Computation of the peak lateral time-correlated differential displacement between the upper and lower structure. Global strain is calculated using measurements on a vertical at the corner closest to the blast, divided by the height of the building. Global shear wall strain must be ascertained to compute global tensile wall strain.

Global Tensile Wall Strain. Computation of the peak change in building diagonal length over the original length as measured from time-correlated horizontal motions, reported in micro-strains (10⁻⁶ inch/inch).

Strain. A change in length or deformation of a material or structure component as the result of an applied load, numerically equal to the change in length divided by the original length, reported in 10⁻⁶ inch/inch or micro-strains.

GROUND VIBRATION. Energy traveling through the earth as a result of blasting operations; measured and reported in Hertz (Hz).

HANDLING. [See FC2702.1.] The movement of a material in its container, the removal of the material from its container, or any other action or process that may affect the material, other than its storage or use.

HAZARDOUS MATERIALS. [See FC2702.1.] Those chemicals or substances that are physical hazards or health hazards as defined and classified in this code, whether the materials are in usable or waste condition.

HAZARDOUS PRODUCTION MATERIAL (HPM). [See FC1802.1.] A solid, liquid or gas associated with semiconductor manufacturing that has a degree-of-hazard rating in health, flammability or instability of Class 3 or 4 as defined in NFPA 704 and which is used directly in research, laboratory or production processes which have, as their end product, materials that are not hazardous.

HEALTH HAZARD. [See FC2702.1.] A classification of a chemical for which there is statistically significant evidence that acute or chronic health effects are capable of occurring in exposed persons. The term "health hazard" includes chemicals that are toxic, highly toxic and corrosive.

HELICOPTER LIFT OPERATION. [See FC1102.1.] The movement of an external load with the use of a helicopter.

HELIPORT. [See FC1102.1.] An area of land or water or a structural surface that is designed or used for the landing and takeoff of helicopters, and any appurtenant areas which are designed or used for heliport facilities and operations.

HELISTOP. [See FC1102.1.] An area of land or water or a structural surface that is designed or used for the landing or takeoff of helicopters, but which is not designed or used for fueling, defueling, maintenance, repairs or storage of helicopters, including any staging or other appurtenant areas.

HI-BOY. [See FC302.1.] A cart used to move hot roofing materials on a roof.

HIGH-PILED COMBUSTIBLE STORAGE. [See FC2302.1.] Storage of combustible materials in closely packed piles or combustible materials on pallets, in racks or on shelves where the top of storage is greater than 12 feet (3658 mm) in height. High-piled combustible storage also includes certain high-hazard commodities, such as rubber tires, Group A plastics, flammable liquids, idle pallets and similar commodities, where the top of storage is greater than 6 feet (1829 mm) in height.

HIGH-PILED STORAGE AREA. [See FC2302.1.] An area within a building, structure or premises that is designed or used

for high-piled combustible storage.

HIGH-RISE BUILDING. [See FC402.1.] Any building designed or constructed in accordance with the Building Code that has one or more occupied floors more than 75 feet (22 860 mm) above the lowest level of fire department vehicle apparatus access, and, with respect to any building lawfully existing on July 1, 2008, any building designed or constructed in accordance with the 1968 Building Code, any prior Building Code, or other applicable laws, rules and regulations, that is more than six stories or 75 feet (22 860 mm) in height.

HIGH-RISE FLOOR. [See FC402.1.] Any occupied floor in a high-rise building that is at or above the height that causes such building to be classified as a high-rise building.

HIGH-RISE MEGASTRUCTURE. Any building or structure that has an occupied floor 800 feet (243 840 mm) or more above the lowest level of fire department vehicle access.

HIGH-VOLTAGE TRANSMISSION LINE. [See FC302.1.] An electrical power transmission line operating at or above 66 kilovolts.

HIGHLY TOXIC MATERIAL. [See FC3702.1.] A chemical that is lethal at the following doses or concentration:

1. A chemical that has a median lethal dose (LD50) of 50 milligrams or less per kilogram of body weight when administered orally to albino rats weighing between 200 and 300 grams each; or
2. A chemical that has a median lethal dose (LD50) of 200 milligrams or less per kilogram of body weight when administered by continuous contact for 24 hours (or less if death occurs within 24 hours) with the bare skin of albino rabbits weighing between 2 and 3 kilograms each; or
3. A chemical that has a median lethal concentration (LC50) in air of 200 parts per million by volume or less of gas or vapor, or 2 milligrams per liter or less of mist, fume or dust, when administered by continuous inhalation for 1 hour (or less if death occurs within 1 hour) to albino rats weighing between 200 and 300 grams each.

HIGHWAY. [See FC3302.1.] A public street.

HOOD. [See FC602.1.] An air-intake device used to capture by entrapment, impingement, adhesion or similar means, grease and similar contaminants before they enter a duct system.

Type I. [See FC602.1.] A kitchen hood for collecting and removing grease vapors and smoke.

HOT AIR BALLOON OPERATION. [See FC1102.1.] The filling of balloons with hot air for purposes of display or flight.

HOT TAPPING. Hot work conducted on a tank or piping while the tank or piping is in service and contains a flammable or combustible liquid.

HOT WORK. [See FC2602.1.] Cutting, welding, thermit welding, brazing, soldering, grinding, thermal spraying, thawing pipe, cadwelding, installation of torch-applied roof systems or any other similar operation or activity.

HOT WORK AREA. [See FC2602.1.] The area exposed to sparks, hot slag, radiant heat, or convective heat as a result of hot work.

HOT WORK EQUIPMENT. [See FC2602.1.] Electric or gas welding or cutting equipment used for hot work.

HOT WORK PROGRAM. [See FC2602.1.] A program, implemented by a responsible person designated by the owner of a building or structure in or on which hot work is being performed, to oversee and issue authorizations for such hot work for the purpose of preventing fire and fire spread.

HOT WORK PROGRAM AUTHORIZATIONS. [See FC2602.1.] Authorizations issued by the responsible person under a hot work program allowing welding or other hot work to be performed at the premises.

HPM FLAMMABLE LIQUID. [See FC1802.1.] For purposes of semiconductor fabrication facilities, an HPM liquid that is defined as either a Class I flammable liquid or a Class II or Class IIIA combustible liquid.

HPM ROOM. [See FC1802.1.] For purposes of semiconductor fabrication facilities, a room used in conjunction with or serving a Group H-5 occupancy, where HPM is stored or used and which is classified as a Group H-2, H-3 or H-4 occupancy.

HYDRANT-FUELING VEHICLE. [See FC1102.1.] A type of aircraft fueling vehicle that is equipped to transfer fuel between a fuel hydrant and an aircraft.

HYDROGEN FUEL GAS ROOM. A separately ventilated, fully enclosed room designed for the generation of gaseous hydrogen for immediate on-premises use in fuel cells or other energy production process, and incidental storage of gaseous hydrogen. A hydrogen fuel gas room does not include a room designed or operated for production or dispensing of hydrogen motor fuel.

HYPERBARIC FACILITY. A building, structure, or space used to house a hyperbaric chamber and associated service equipment for medical applications and procedures at pressures above normal atmospheric pressure.

IMMEDIATELY DANGEROUS TO LIFE AND HEALTH (IDLH). [See FC2702.1.] The concentration of air-borne contaminants that poses a threat of death, immediate or delayed permanent adverse health effects, or effects that could prevent escape from such an environment, as established by the National Institute of Occupational Safety and Health (NIOSH) based on both toxicity and flammability. It generally is expressed in parts per million by volume (ppm v/v) or milligrams per cubic meter (mg/m³). If adequate data do not exist for precise establishment of IDLH concentrations, an independent certified industrial hygienist, industrial toxicologist, appropriate regulatory agency or other source approved by the commissioner shall make such determination.

IMPAIRMENT COORDINATOR. [See FC902.1.] The person responsible for ensuring that proper safety precautions are taken when a fire protection system is out of service.

IN-BUILDING RELOCATION. [See FC402.1.] The controlled movement of building occupants from an endangered area of a building to an in-building relocation area within the same building in response to a fire or non-fire emergency.

IN-BUILDING RELOCATION AREA. [See FC402.1.] A designated area in a building to which building occupants may be relocated in accordance with the emergency preparedness plan for the premises.

INCOMPATIBLE MATERIALS. [See FC2702.1.] Materials that, if mixed or combined, could explode, generate heat, gases or other byproducts, or react in a way hazardous to life or property.

INERT GAS. Argon, helium, krypton, neon, nitrogen, xenon or other gas that does not react with other materials under atmospheric pressures and other conditions ordinarily encountered in common use.

INHABITED BUILDING. [See FC3302.1.] A building regularly occupied in whole or in part as a habitation for human beings, or any house of worship, school building, railroad station, store or other structure where people are accustomed to assemble.

INITIATING DEVICE. [See FC902.1.] A system component that originates transmission of a change-of-state condition, such as in a smoke detector, manual fire alarm box, or supervisory switch.

INSECTICIDAL FOGGING. [See FC1702.1.] The utilization of insecticidal liquids passed through fog-generating units where, by pressure and turbulence, and with or without addition of heat, such liquids are transformed and discharged in the form of fog or mist blown into an area to be treated.

INTENSITY. As pertaining to ground vibration, the speed of particle movement (particle velocity), measured in inches per second.

INTERIOR FINISH. [See FC802.1.] Construction materials that form the exposed interior surfaces of a building and that are part of or affixed to walls, fixed or folding partitions, ceilings, and other construction elements.

INTERMEDIATE BULK CONTAINER. See Alcohol Storage Equipment.

IRRITANT. A material which is not corrosive, but which causes a reversible inflammatory effect on living tissue by chemical action at the site of contact. A material shall be classified a skin irritant if, when tested in accordance with the regulations of the United States Consumer Product Safety Commission, as set forth in 16 CFR Section 1500.41, it results in an empirical score of 5 or more. A material shall be classified as an eye irritant in accordance with the regulations of the United States Consumer Product Safety Commission, as set forth in 16 CFR Section 1500.42.

JOB SITE. [See FC3302.1.] The construction site at which blasting operations are being conducted, including the blast site and blast area.

KEY BOX. [See FC502.1.] A secure device with a lock operable only by a citywide standard key or other approved key.

KILOWATT HOURS (kWh). A measurement of electrical energy.

LABELED. A [listed] material, device, equipment or system to which has been attached a label, symbol or other identifying mark of a nationally recognized testing laboratory or other approved organization, and whose labeling indicates compliance with nationally recognized standards and designates suitable usage.

LABORATORY CHEMICAL. [See FC2702.1.] A material with a health, flammability and/or instability hazard ranking of 2, 3 or 4 as defined in NFPA 704.

LABORATORY UNIT. [See FC2702.1.] An enclosed space of a minimum one-hour fire-rated construction, designed or used as a non-production laboratory. Laboratory units may include one or more separate laboratory work areas, and accessory storage rooms or spaces within or contiguous with the laboratory unit, such as offices and lavatories.

LARGE-AREA BUILDING. [See FC402.1.] A building that is not a high-rise building, but is either a Group B office building within the meaning of Section 907.2.2.2 of the Building Code that has a total gross area of more than 100,000 square feet (9290 m²) or a building of an occupancy type other than Group R-2 or Group R-3 that has a total gross area of more than 100,000 square feet (9290 m²).

LIMITED-SPRAYING SPACE. [See FC1502.1.] An area in which spraying operations for touch-up or spot painting of a surface area of 9 square feet (0.84m²) or less per workpiece are conducted.

LIQUEFIED NATURAL GAS (LNG). [See FC2202.1.] A fluid in the liquid state composed predominantly of methane and which may contain minor quantities of ethane, propane, nitrogen or other components normally found in natural gas.

LIQUEFIED PETROLEUM GAS (LPG). [See FC3802.1.] A material which is composed predominantly of the following hydrocarbons or mixtures of them: propane, propylene, butane (normal butane or isobutane) and butylenes. Methylacetylene-propadiene mixtures (MAPP-gas) shall be deemed to be an LPG.

LIQUID. [See FC2702.1.] A material having a melting point that is equal to or less than 68°F (20°C) and a boiling point that is greater than 68°F (20°C) at 14.7 psia (101 kPa). When not otherwise identified, the term "liquid" includes both flammable and combustible liquids.

LIQUID MOTOR FUEL. [See FC2202.1.] Gasoline, diesel fuel or other flammable or combustible liquids used as fuel in the operation of motor vehicles, motorcycles, marine vessels and watercraft.

LIQUID MOTOR FUEL STORAGE AND DISPENSING SYSTEM. [See FC2202.1.] A liquid motor fuel storage tank and all motor fuel storage and dispensing equipment associated with such tank, including the tank, piping, valves, fill connection catchment basins, vent lines, pumps, dispensing devices and any other ancillary equipment.

LIQUID OXYGEN AMBULATORY CONTAINER. [See FC4002.1.] A liquid oxygen container with a capacity not exceeding 0.396 gallons (1.5 liters) that constitutes a medical device, as that term is defined in Chapter 9 of Title 21 of the United States Code Section 321, that is designed to be filled from a liquid oxygen home care container, and that is designed for portable use to supply oxygen for medical purposes, and that is used for such purpose.

LIQUID OXYGEN HOME CARE CONTAINER. [See FC4002.1.] A liquid oxygen container with a capacity not exceeding 15.8 gallons (60 liters) that constitutes a medical device, as that term is defined in Chapter 9 of Title 21 of the United States Code Section 321, and that is designed and used for medical purposes in a residential or resident health care setting in a Group I-1, I-4 or R occupancy.

LIQUID STORAGE ROOM. [See FC3402.1.] A room classified as a Group H-3 occupancy used for the storage of flammable or combustible liquids in an unopened condition.

LIQUID STORAGE WAREHOUSE. [See FC3402.1.] A building classified as a Group H-2 or H-3 occupancy used for the storage of flammable or combustible liquids in barrels and closed containers.

LIQUID-TIGHT CONSTRUCTION. Construction designed to prevent a liquid manufactured, stored, handled or used in a room or other area from escaping from such room or other area by means of penetration through a surface.

LISTED. A material, device, equipment or system included on a list published by a nationally recognized testing laboratory or other approved organization performing product evaluations that maintains periodic inspection of production of such listed material, device, equipment or system, and whose listing indicates compliance with nationally recognized standards and designates suitable usage.

LOADER. [See FC3302.1.] A person holding a certificate of fitness for explosives handling, who handles explosives and performs explosives loading operations.

[LONGITUDINAL FLUE SPACE. See FC2302.1.]

LOW-PRESSURE CONTAINER. [See FC3202.1.] A storage container designed to withstand an internal pressure greater than 1/2 pound per square inch gauge (psig) (3.4 kPag) but not greater than 15 psig (103.4 kPag).

LOWER EXPLOSIVE LIMIT (LEL). [See FC2702.1.] See "Lower flammable limit."

LOWER FLAMMABLE LIMIT (LFL). [See FC2702.1.] The minimum concentration of vapor in air at which propagation of flame will occur in the presence of an ignition source. The LFL is sometimes referred to as LEL or lower explosive limit.

MAGAZINE. [See FC3302.1.] A building, structure or container approved for storage of explosives.

Indoor. A portable structure, such as a box, bin or other container, constructed as required for Type 2, 4 or 5 magazines in accordance with NFPA 495, NFPA 1124 or the regulations of the Bureau of Alcohol, Tobacco, Firearms and Explosives of the United States Department of Justice, as set forth in 27 CFR Part 555, so as to be fire resistant and theft resistant.

Type 1. A permanent structure, such as a building or other permanent structure constructed in accordance with the requirements of NFPA 495, NFPA 1124, or the regulations of the Bureau of Alcohol, Tobacco, Firearms and Explosives of the United States Department of Justice, as set forth in 27 CFR Part 555, that is bullet-resistant, fire-resistant, theft-resistant, weather-resistant and ventilated.

Type 2. A portable or mobile structure, such as a box, skid-magazine, trailer or semitrailer, constructed in accordance with NFPA 495, NFPA 1124 or the regulations of the Bureau of Alcohol, Tobacco, Firearms and Explosives of the United States Department of Justice, as set forth in 27 CFR Part 555, that is fire resistant, theft resistant, weather resistant and ventilated, and if used outdoors, bullet resistant.

Type 3. A portable structure for the temporary storage of explosives, such as a "day box," constructed in accordance with NFPA 495, NFPA 1124, or the regulations of the Bureau of Alcohol, Tobacco, Firearms and Explosives of the United States Department of Justice, as set forth in 27 CFR Part 555, that is fire-resistant, theft-resistant and weather-resistant.

Type 4. A permanent, portable or mobile structure such as a building, box, semitrailer or other mobile container constructed in accordance with NFPA 495, NFPA 1124, or the regulations of the Bureau of Alcohol, Tobacco, Firearms and Explosives of the United States Department of Justice, as set forth in 27 CFR Part 555, that is fire-resistant, theft-resistant and weather-resistant.

Type 5. A permanent, portable or mobile structure such as a building, box, bin, tank, semitrailer, bulk trailer, tank trailer, bulk truck, tank truck or other mobile container constructed in accordance with NFPA 495, NFPA 1124, or the regulations of the Bureau of Alcohol, Tobacco, Firearms and Explosives of the United States Department of Justice, as set forth in 27 CFR Part 555, that is theft resistant.

MAGAZINE KEEPER. [See FC3302.1.] A person holding a certificate of fitness for explosives storage who is in charge of and responsible for the storage and handling of explosives in an explosives magazine.

MAIN ENTRANCE. For purposes of FC505, the main entrance to a dwelling unit is the primary means of entry to, and egress from, the dwelling unit. Such main entrance typically opens into an area that affords unimpeded access to the rooms and corridors of the dwelling unit.

MANUAL STOCKING METHODS. [See FC2302.1.] For purposes of high-piled combustible storage, stocking methods utilizing ladders or other nonmechanical equipment to move stock.

MARINA. [See FC302.1.] A facility on, in or around a body of water, protected by natural or manmade features, that is used or designed to be used for the mooring, servicing or storage of marine vessels or watercraft, or the provision of services to the passengers and crews of such vessels or watercraft. A marina typically is comprised of one or more docks, piers, wharfs, and storage and fueling facilities for watercraft.

[MATERIAL SAFETY DATA SHEET (MSDS). See FC2702.1.]

MASTER FIRE SUPPRESSION PIPING CONTRACTOR. A licensed master fire suppression piping contractor, as that term is defined by the Building Code.

MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA. [See FC2702.1.] The maximum amount of a hazardous material allowed to be stored or used within an indoor or an outdoor control area.

MAXIMUM ALLOWABLE WORKING PRESSURE (MAWP). [See FC3202.1.] The maximum pressure permissible at the top of a container in its operating position for a designated temperature, as established by the container manufacturer.

MEANS OF EGRESS. [See FC1002.1.] A continuous and unobstructed path of vertical and horizontal egress travel from any occupied portion of a building, structure or premises to a public way. A means of egress consists of three separate and distinct parts: the exit access, the exit and the exit discharge.

MECHANICAL CODE. The [2008] New York City Mechanical Code in effect on July 1, 2008, and as amended thereafter.

MECHANICAL STOCKING METHODS. [See FC2302.1.] For purposes of high-piled combustible storage, stocking methods utilizing motorized vehicles or hydraulic jacks to move stock.

MEGAWATT HOURS (MWh). A measurement of electrical energy.

MEMBRANE STRUCTURE. [See FC2402.1.] An air-inflated, air-supported, cable or frame-covered structure or tent, as defined in Chapter 31 of the Building Code.

METAL HYDRIDE. [See FC3502.1.] A chemical compound composed of one or more hydrogen-absorbing metallic elements, and hydrogen.

METAL HYDRIDE HYDROGEN STORAGE SYSTEM. [See FC3502.1.] A closed system designed to store and release hydrogen through the use of a metal hydride.

MICROPHONE. A sensor used to measure air overpressure. The air overpressure measurements detected by a microphone are recorded by a blasting seismograph.

MICROTURBINE. [See FC3502.1.] A turbine-driven electrical generator with an electric generating capacity of not more than 500 kW, fueled by piped natural gas that is compressed by ancillary compressing equipment to a pressure

exceeding 6 psig (41.4 kPa).

MINIMUM SECURED RADIUS. [See FC3302.1.] A minimum separation distance based on the size of the largest fireworks shell to be used in the display.

MIXED-OCCUPANCY BUILDING. [See FC402.1.] A building or structure housing more than one occupancy or type of occupancy required by FC Chapter 4 to prepare an emergency preparedness plan.

MORTAR. [See FC3302.1.] A tube or similar device in which fireworks, shells or other aerial fireworks are directed and discharged into the air.

MOTOR VEHICLE. [See FC2202.1.] A vehicle or other conveyance having more than two running wheels and using liquid motor fuel or flammable gas as fuel for generating motive power, except such vehicles as have a storage tank with a maximum capacity for less than 2 gallons (7.6 L) of liquid motor fuel or flammable gas that generates energy that is equivalent to the energy generated by 2 gallons (7.6 L) of gasoline.

MUCKING. [See FC3302.1.] The removal, usually by heavy machinery, of debris or other broken material resulting from a blast.

MULTI-FLOOR DWELLING UNIT. [See FC502.1.] For purposes of FC505, a dwelling unit or other residential occupancy with living space on a floor other than the floor upon which the entrance door to such room, unit or occupancy is located, or which is accessed by means of an interior stair or passageway from an entrance door on another floor.

MULTIPLE-STATION ALARM DEVICE. [See FC902.1.] Two or more single-station alarm devices that can be interconnected such that actuation of one causes all integral or separate audible alarms to operate. It also can consist of one single-station alarm device having connections to other detectors or to a manual fire alarm box.

NATURAL DECORATIVE GREEN. [See FC802.1.] A bough of a natural tree or part thereof, and any natural vegetation that has been cut, including preserved vegetation.

NATURAL GAS. A mixture of hydrocarbon gases and vapors, consisting principally of methane in gaseous form.

NATURAL TREE. [See FC802.1.] Any live tree, plant or shrub, including conifer, that is rooted in soil.

NATURAL VEGETATION. Live plants used as a decorative or other element in the design of any room or other area of a building, including common areas. Natural vegetation includes living walls and other vertical gardens, and vegetation in room dividers and other large planters.

NESTING. [See Section 3002.1.] A method of securing flat-bottomed compressed gas containers upright in a tight mass using a contiguous three-point contact system whereby all containers within a group have a minimum of three points of contact with other containers, walls or bracing.

NET EXPLOSIVE WEIGHT (net weight). [See FC3302.1.] The weight of an explosive expressed in pounds, representing the aggregate amount of explosives contained within a building or structure, including a magazine, used to establish quantity-distance relationships.

NON-FIRE EMERGENCY. [See FC402.1.] An active shooter or other law enforcement emergency; biological, chemical or radiological release; building or other structural collapse; earthquake; explosion; heat wave, hurricane, storm surge, tornado or other weather emergency; medical emergency; natural gas leak; nuclear incident; tidal wave; a declaration of emergency by a lawful authority; or other emergency, other than fire, affecting the premises or the safety of building occupants; or the threat thereof.

NON-FIRE EMERGENCY DRILL. [See FC402.1.] A training exercise by which building occupants are familiarized with and/or practice the procedures for safe, orderly and expeditious sheltering in place, in-building relocation, partial or full evacuation, or combination thereof, in the event of a non-fire emergency, in accordance with the emergency preparedness plan for the premises.

NON-PRODUCTION LABORATORY. [See FC2702.1.] A building or portion thereof wherein chemicals or gases are stored, handled or used on a non-production basis for testing, research, experimental, instructional or educational purposes.

NON-PYROTECHNIC SPECIAL EFFECT. Any material, article or device of a flammable, combustible or otherwise dangerous nature, other than a pyrotechnic material, article, or device, used to create a special effect, including demonstration laser products and chemicals and equipment used to generate fog or haze.

NORMAL TEMPERATURE AND PRESSURE (NTP). [See FC2702.1.] A temperature of 70°F (21°C) and a pressure of 1 atmosphere (14.7 psia (101 kPa)).

OCCUPANCY. The purpose or activity for which a building or space is used or designed to be used. References to occupancy classification shall be deemed to include the equivalent occupancy classifications under the 1968 Building Code and all prior Building Codes or other applicable laws, rules and regulations. The occupancy classifications used in this code are defined as follows:

Group A. An assembly occupancy, including Groups A-1, A-2, A-3, A-4 and A-5, as defined in Section 303 of the Building Code.

Group B. A business occupancy, as defined in Section 304 of the Building Code.

Group E. An educational occupancy, as defined in Section 305 of the Building Code.

Group F. A factory and industrial occupancy, including Groups F-1 and F-2, as defined in Section 306 of the Building Code.

Group H. A high-hazard occupancy, including H-1, H-2, H-3, H-4 and H-5, as defined in Section 307 of the Building Code.

Group I. An institutional occupancy, including Groups I-1, I-2, I-3 and I-4, as defined in Section 308 of the Building Code.

Group M. A mercantile occupancy, as defined in Section 309 of the Building Code.

Group R. A residential occupancy, including Groups R-1, R-2 and R-3, as defined in Section 310 of the Building Code.

Group S. A storage occupancy, including Groups S-1 and S-2, as defined in Section 311 of the Building Code.

Group U. A utility and miscellaneous occupancy, as defined in Section 312 of the Building Code.

OFFICE BUILDING. [See FC402.1.] A Group B occupancy designed and arranged to provide offices and other areas for the conduct of business ordinarily conducted in offices.

OPEN FIRES. [See FC302.1.] The burning of materials wherein products of combustion are emitted directly into the ambient air without passing through a stack or chimney from an enclosed chamber. For the purpose of this definition, a chamber shall be regarded as enclosed when, during the time combustion occurs, only apertures, ducts, stacks, flues or chimneys necessary to provide combustion air and permit the escape of exhaust gas are open.

OPEN FLAME. [See FC302.1.] A flame that is generated by any material or device in a sustained and controlled manner and that is not securely enclosed by noncombustible material, such as a candle that is unenclosed or enclosed in a globe or lantern, or a gas light lantern, for decorative and lighting purposes; flaming foods and beverages, and food warming. An open flame does not include a flame generated in a sustained and controlled manner in the following devices, equipment and systems:

1. Any fireplace, furnace, grill, hot water heater, oven, stove or other similar stationary appliance and any outdoor stationary decorative gas appliance, which shall comply with the construction codes and applicable provisions of this code.

2. Lighted smoking paraphernalia, which shall comply with FC310.

3. Portable fueled devices, including any torch, which shall comply with FC313.

OPEN-FLAME DEVICE. [See FC302.1.] A device utilizing an open flame.

OPEN SYSTEM. The use of a solid or liquid hazardous material in equipment or a vessel, or system that remains open during normal operation, such that vapors are emitted during the operation of such equipment, vessel or system and the material is exposed to the atmosphere during such operation. Examples of open systems for solids and liquids include dispensing from or into open beakers or containers, dip tank and plating tank operations.

OPERATING PRESSURE. The pressure at which a device, equipment or system operates.

ORGANIC COATING. [See FC2002.1.] A liquid mixture of binders such as alkyd, acrylic or oil, and flammable and combustible liquids, such as hydrocarbon, ester, ketone or alcohol, which, when spread in a thin film, convert to a durable protective and decorative finish.

ORGANIC PEROXIDE. [See FC3902.1.] An organic compound having a double oxygen or peroxy (-O-O-) in its chemical structure. Organic peroxides can present an explosion hazard (detonation or deflagration), can be shock sensitive, can be susceptible to decomposition into various unstable compounds over an extended period of time and are classified as follows based upon their hazardous properties:

Class I. [See FC3902.1.] Organic peroxides that are capable of deflagration but not detonation.

Class II. [See FC3902.1.] Organic peroxides that burn very rapidly and that pose a moderate reactivity hazard.

Class III. [See FC3902.1.] Organic peroxides that burn rapidly and that pose a moderate reactivity hazard.

Class IV. [See FC3902.1.] Organic peroxides that burn in the same manner as ordinary combustibles and that pose a minimal reactivity hazard.

Class V. [See FC3902.1.] Organic peroxides that burn with less intensity than ordinary combustibles or do not sustain combustion and that pose no reactivity hazard.

Unclassified detonable. [See FC3902.1.] Organic peroxides that are capable of detonation and pose an extremely high-explosion hazard through rapid explosive decomposition.

OUTDOOR CONTROL AREA. [See FC2702.1.] An outdoor area that contains hazardous materials in amounts not exceeding the maximum allowable quantities of FC Table 5003.1.1(3) or 5003.1.1(4).

OUT-OF-SERVICE SYSTEM. [See FC902.1.] A fire protection system that is not fully functional; or whose operation is impaired or is otherwise not in good working order.

OVERCROWDING. A condition that exists when: (1) the number of occupants present in any premises or part thereof exceeds (a) the maximum number of occupants specified for such premises or part thereof by the certificate of occupancy or other authorization issued by the Department of Buildings; or (b) in the absence of such certificate or authorization, the maximum number of occupants established by using the applicable occupant-area allowances set forth in Section 1004.1 of the Building Code; or (c) with respect to a rooftop place of assembly or place of public gathering, the number of occupants present in any such place exceeds one person per 10 square feet (0.929 m²) of the rooftop area to be used for such purpose; or (2) the commissioner determines that a threat exists to the safety of the occupants of any premises or part thereof by reason of the number of persons on the premises and/or the presence of persons sitting and/or standing in locations that may obstruct or impede access to means of egress, including obstructing or impeding access to aisles, passages, corridors, stairways or exits.

OWNER. The owner of the freehold of any real property (as defined in section two of the Real Property Law), or of a lesser estate therein, a mortgagee or vendee in possession, assignee of rents, receiver, executor, trustee, lessee, agent, or any other person, firm or corporation, directly or indirectly in control of real property. Any reference in this code to the owner of any building, structure or premises shall be deemed to designate collectively any and all of the foregoing,

including, but not limited to, the owner of the freehold or lesser estate therein and a managing agent designated by such owner pursuant to Section 27-2098 of the New York City Administrative Code.

OXIDIZER. [See FC4002.1.] A material that readily yields oxygen or other oxidizing gas, or that readily reacts to promote or initiate combustion of combustible materials and, if heated or contaminated, can result in vigorous self-sustained decomposition, classified as follows:

Class 1. [See FC4002.1.] An oxidizer that causes a readily measurable increase in the burning rate of combustible materials with which it comes in contact, but less than a moderate increase.

Class 2. [See FC4002.1.] An oxidizer that causes a moderate increase in the burning rate of combustible materials with which it comes in contact.

Class 3. [See FC4002.1.] An oxidizer that causes a severe increase in the burning rate of combustible materials with which it comes in contact.

Class 4. [See FC4002.1.] An oxidizer that can undergo an explosive reaction due to contamination or exposure to thermal or physical shock and causes a severe increase in the burning rate of combustible materials with which it comes in contact.

OXIDIZING CRYOGENIC FLUID. [See FC4002.1.] An oxidizing gas in the cryogenic state.

OXIDIZING GAS. [See FC4002.1.] A gas that can support and accelerate combustion of other materials more than air does.

OZONE GAS GENERATOR. [See FC3702.1.] Equipment which produces ozone.

PASS-THROUGH. [See FC1802.1.] For purposes of semiconductor fabrication facilities, an enclosure installed in a wall with a door on each side that allows chemicals, HPM, equipment, and parts to be transferred from one side of the wall to the other.

PEAK PARTICLE VELOCITY (PPV). The highest amplitude of ground motion among three mutually orthogonal components, measured by a triaxial geophone and reported in inches per second (in/s).

PERMISSIBLE EXPOSURE LIMIT (PEL). [See FC2702.1.] The maximum allowed 8-hour time-weighted-average concentration of an air-borne contaminant as established by the regulations of the United States Department of Labor, as set forth in 29 CFR Part 1910.1000, the Recommended Exposure Limit (REL) concentrations published by the U.S. National Institute for Occupational Safety and Health (NIOSH), the Threshold Limit Value-Time Weighted Average (TLV-TWA) concentrations published by the American Conference of Governmental Industrial Hygienists (ACGIH), the Workplace Environmental Exposure Level (WEEL) Guides published by the American Industrial Hygiene Association (AIHA), or other approved standard.

PERMIT. A written statement issued by the commissioner authorizing the manufacture, storage, handling, use or transportation of a hazardous material, or other material, or to conduct an operation or to maintain a facility, for which a permit is required by this code.

PERSONAL SUPERVISION. Except as otherwise provided in this code, supervision by the holder of any department certificate who is required to be personally present on the premises, or other proximate location acceptable to the department, while performing the duties for which the certificate is required.

PESTICIDE. [See FC2702.1.] A substance or mixture of substances, including fungicides, but excluding any product defined as a drug in the Federal Food, Drug and Cosmetic Act, intended for the purpose of preventing, repelling or killing pests or pest infestations, or for use as a plant regulator, defoliant or desiccant.

PIER. [See FC302.1.] A structure built over the water, typically supported by piles.

PIPED NATURAL GAS. Natural gas supplied by means of piping connected to a distribution system operated by a public

utility.

PLACE OF ASSEMBLY. A building or other premises, or portion thereof, used for gatherings, as regulated by the Building Code.

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.

PLUMBING CODE. The [2008] New York City Plumbing Code in effect on July 1, 2008, and as amended thereafter.

PORTABLE COOKING EQUIPMENT. [See FC902.1.] Commercial cooking equipment, provided with or installed with wheels.

PORTABLE FIRE EXTINGUISHER SALES COMPANY CERTIFICATE. [See FC902.1.] A certificate issued by the commissioner to a person engaged in the business of selling portable fire extinguishers door to door to owners of buildings or business for use on their premises, which authorizes such person to engage in such business and supervise such sales.

PORTABLE FIRE EXTINGUISHER SERVICING COMPANY CERTIFICATE. [See FC902.1.] A certificate issued by the commissioner to a person engaged in the business of servicing portable fire extinguishers, which authorizes such person to engage in such business and supervise the provision of such servicing by certificate of fitness holders.

PORTABLE FUELED EQUIPMENT. [See FC302.1.] Any portable device, equipment or system, whether or not flue-connected, that utilizes a flammable or combustible liquid or flammable gas as a fuel, including any portable device, equipment or system that generates a flame in a sustained or controlled manner that is not an open-flame device.

PORTABLE SPACE HEATER. [See FC302.1.] Any portable equipment designed or used for space heating that utilizes a combustible liquid or flammable gas as a fuel, whether or not flue-connected.

POWERED INDUSTRIAL EQUIPMENT. [See FC302.1.] Equipment used in commercial and industrial applications, including floor scrubbers and floor buffers, powered by a lead-acid battery system or other storage battery.

POWERED INDUSTRIAL TRUCK. [See FC302.1.] A forklift, tractor, platform lift truck or motorized hand truck powered by a lead-acid battery system or other storage battery, a metal hydride hydrogen storage system or an internal combustion engine. Powered industrial trucks do not include farm vehicles or motor vehicles for highway use.

POWERED MOBILITY DEVICES. Motorized bicycles, motorized scooters and other personal mobility devices powered by a lithium-ion or other storage battery. The term does not include motor vehicles or motorcycles or other mobility devices that must be registered with the New York State Department of Motor Vehicles.

PREMISES. Any real property, including buildings and structures thereon, or any part thereof.

PRESIGNAL SYSTEM. [See FC902.1.] A fire alarm system having a feature that allows initial fire alarm signals to sound in a constantly attended central location and for which a human action is subsequently required to achieve a general alarm, or a feature that allows the control equipment to delay the general alarm by more than one minute after the start of the alarm processing.

PRESSURE VESSEL. [See FC2702.1.] A closed vessel designed to operate at pressures above 15 psig (103 kPa).

PRIMARY CONTAINMENT. The first level of containment, consisting of the inside portion of that container which comes into immediate contact on its inner surface with the material being contained.

PRIMER. [See FC3302.1.] A unit, package or cartridge of explosives, including a detonator or detonator/detonating cord combination, that is used to initiate a main charge of explosives or blasting agents.

PRIVATE ROAD. [See FC502.1.] A private driveway, lane or street, or other means of vehicular access to one or more buildings, structures or premises not directly fronting on a public street. A private road does not include a public street.

[PRIVATE STREET. See FC502.1.]

PROCESS TRANSFER. [See FC3402.1.] The transfer of flammable or combustible liquids between cargo tanks or tank cars and containers, tanks piping and other equipment that is to be used in process operations.

PROCESSING VESSEL. [See FC3402.1.] A tank or other container used in manufacturing or other process operation that involves the use of a flammable or combustible liquid supplied from other than a cargo tank, tank car or pipeline.

PRODUCTION LOCATION. Any location approved for the purpose of motion picture, television or commercial production by the Mayor's Office of Media and Entertainment pursuant to its rules. Such approvals are commonly referred to as filming permits.

PROOF OF COMPLIANCE. Department-issued decals, tags or other forms of documentation, individually marked and/or numbered to identify the company and person who performed certain fire safety inspections, testing, cleaning servicing and/or other required or regulated activities.

PROPELLANT. [See FC2802.1.] The liquefied or compressed gas in an aerosol container that expels the contents from an aerosol container when the valve is actuated. A propellant is considered flammable if it forms a flammable mixture with air, or if a flame is self-propagating in a mixture with air.

PROTECTED EXPOSURE. [See FC3302.1.] Any premises, building, structure, facility, installation, street, railway, natural feature or other thing or place determined by the department to require protection from a fireworks display by reason of its proximity to the discharge site and the fallout area and the risk of resulting harm from aerial or other fireworks.

PROTECTED PREMISES. [See FC902.1.] A building, occupancy or structure located in the city that is equipped with a fire alarm system that transmits an alarm signal to the department or a central station that monitors such system for the purposes of reporting fire alarms to the department, whether or not the installation of such system on the premises is required by law.

PROXIMATE AUDIENCE. [See FC3302.1.] An audience closer to pyrotechnic devices than allowed by NFPA 1123.

PYROTECHNIC. A controlled exothermic chemical reaction timed to create the effects of heat, hot gas, sound, dispersion of aerosols, emission of visible light or a combination of such effects to achieve the maximum effect from the least volume of pyrotechnic composition.

PUBLIC STREET. [See FC502.1.] All streets, including marginal streets, record streets and restricted use streets, established on the city map maintained pursuant to Section 198 of the New York City Charter or dedicated for general public use and accepted for such purposes by the City of New York, constructed and open for passage.

PYROPHORIC MATERIAL. [See FC4102.1.] A material with an autoignition temperature in air, at or below a temperature of 130°F (54°C).

PYROTECHNIC ARTICLE OR DEVICE. [See FC3302.1.] Any article or device containing a pyrotechnic material or pyrotechnic effect simulation equipment.

PYROTECHNIC EFFECT SIMULATION. The use of a chemical mixture that is not a pyrotechnic material to initiate or maintain combustion, deflagration or detonation to produce a visible or audible effect, in a manner that simulates a pyrotechnic effect.

PYROTECHNIC EFFECT SIMULATION EQUIPMENT. Any device, equipment or system that simulates a pyrotechnic effect, including spark-generating equipment.

PYROTECHNIC MATERIAL. [See FC3302.1.] A chemical mixture consisting predominantly of solids that, upon ignition, are capable of producing a controlled, self-sustaining, and self-contained exothermic reaction, that functions without external oxygen, resulting in a visible or audible effect by combustion, deflagration, or detonation.

PYROTECHNIC SPECIAL EFFECT. A special effect created through the use of a pyrotechnic material, article, or device.

PYROTECHNIC SPECIAL EFFECTS CONTRACTOR CERTIFICATE. A written statement issued by the department to a company authorizing such company to conduct a pyrotechnic display and to be responsible for all storage, handling, use and transportation of pyrotechnic materials in connection therewith.

[PYROTECHNIC SUPPLIER CERTIFICATE. See FC3302.1.]

PYROXYLIN PLASTIC. [See FC4202.1.] Any plastic substance, material or compound, other than cellulose nitrate film, that has soluble cotton or similar cellulose nitrate as a base, by whatever name known, in the form of blocks, sheets, tubes or other fabricated shapes, including raw pyroxylin plastics and finished pyroxylin plastic products.

RACK STORAGE. [See FC2302.1.] For purposes of high-piled combustible storage, any storage system, except shelf storage.

RAILWAY. [See FC3302.1.] A subway, railroad, railway or other similar means of transportation.

RAW PYROXYLIN PLASTIC. [See FC4202.1.] Any pyroxylin plastic in the form of blocks, slabs, rods tubes or other shapes, that is to be used in a manufacturing process.

READY BOX. [See FC3302.1.] A container with a self-closing cover that is of a material and construction sufficient to protect fireworks from burning debris and from precipitation or other weather conditions. A tarpaulin structure shall not be deemed sufficient for use as a ready box.

REDUCED FLOW VALVE. [See FC3702.1.] A valve equipped with a restricted flow orifice and inserted into a compressed gas container that is designed to reduce the maximum flow from the valve under full-flow conditions. The maximum flow rate from the valve is determined with the valve allowed to flow to atmosphere with no other piping or fittings attached.

REFINERY. [See FC3402.1.] A plant in which flammable or combustible liquids are produced on a commercial scale from crude petroleum, gasoline or other hydrocarbon sources.

REFRIGERANT. [See FC602.1.] The fluid used for heat transfer in a refrigerating system; the refrigerant absorbs heat and transfers it at a higher temperature and a higher pressure, usually with a change of state.

REFRIGERATING SYSTEM. [See FC602.1.] A combination of interconnected refrigerant-containing parts constituting one closed refrigerant circuit in which a refrigerant is circulated for the purpose of extracting then expelling heat.

REGISTERED DESIGN PROFESSIONAL. An architect registered to practice the profession of architecture, or an engineer licensed to practice the profession of engineering, as set forth in the laws, rules and regulations of the State of New York.

REGULAR BUSINESS HOURS. [See FC402.1.] Times of day and days of the week during which a building or occupancy is normally occupied and business is conducted, and any time when a building or occupancy required to have a comprehensive fire and emergency action plan is occupied by more than five hundred persons, or more than one hundred persons above or below the street level. The number of persons employed in a building or occupancy during regular business hours shall be computed based on the work shift or other regular work schedule during which the largest number of employees or other persons working at the premises are present at the premises.

REMOTE SOLVENT RESERVOIR. [See FC3402.1.] A liquid solvent container enclosed against evaporative losses to the atmosphere during periods when the container is not being utilized, except for a solvent return opening not larger than 16 square inches (10 322 mm²), which allows pump-cycled used solvent to drain back into the reservoir from a separate solvent sink or work area.

REPAIR GARAGE. [See FC2202.1.] A building, structure or portion thereof used for servicing or repairing motor vehicles or motorcycles, including motor vehicles and motorcycles powered by liquid motor fuel, storage batteries and/or lighter-than-air gaseous motor fuel.

RESIDENTIAL FIRE PIT. A freestanding vessel in which an open fire, fueled by wood or LPG, that is kindled and maintained outdoors on residential premises for private, non-commercial purposes.

RESIN APPLICATION AREA. [See FC1502.1.] An area where reinforced plastics are used to manufacture products by hand lay-up or spray-fabrication methods.

RESPONSIBLE PERSON. [See FC2602.1.] A person trained in the fire safety hazards associated with hot work and in the necessary and appropriate measures to minimize those hazards, who is designated by the owner of a premises to authorize the performance of hot work at the premises.

RETAIL DISPLAY AREA. [See FC2802.1.] The area of a Group M occupancy open for the purpose of viewing or purchasing merchandise offered for sale. Individuals in such establishments are free to circulate among the items offered for sale which are typically displayed on shelves, racks or the floor.

ROLL COATING. [See FC1502.1.] The process of coating, spreading and impregnating fabrics, paper or other materials as they are passed directly through a tank or trough containing flammable or combustible liquids, or over the surface of a roller revolving partially submerged in a flammable or combustible liquid.

RUBBISH. Combustible and noncombustible waste materials, including dust, dirt, ashes, rags, paper, cartons, cans, plastic and glass containers, and discarded appliances.

RULES. Rules of the [commissioner] department, promulgated pursuant to the authority granted by the New York City Charter, this code, or other law, rule or regulation.

SAFETY CAN. [See FC2702.1.] An approved container with a capacity of not more than 5-gallons (19 L) and equipped with a spring-closing lid and spout cover designed to relieve internal pressure when exposed to fire.

SAFETY DATA SHEET (SDS). A document prepared in accordance with the regulations of the United States Department of Labor, as set forth in 29 CFR Part 1910.1200 or a federally approved state OSHA plan which sets forth information concerning a hazardous material.

SCENERY. [See FC802.1.] Any or all of those devices ordinarily used on a stage in the presentation of a theatrical, artistic, musical or other similar live performance, or at a production location, such as back drops, side tabs, teasers, borders or scrim, rigid flats, set pieces, and all properties, except costumes.

SEAPLANE BASE. [See FC1102.1.] An area of water that is used for the landing or takeoff of airplanes, and any appurtenant areas of land or water designed or used for fueling, defueling, maintenance, repair or storage of seaplanes.

SECONDARY CONTAINMENT. [See FC2702.1.] A device, equipment or system designed to contain liquid or solid, that is external to and separate from the primary containment device, equipment or system.

SEED COTTON. [See FC2902.1.] Cotton in its raw, unprocessed (unginned) form, an agricultural commodity consisting of cotton fiber (lint) attached to the seed of the cotton plant.

SELF-SERVICE MOTOR FUEL-DISPENSING FACILITY. [See FC2202.] A motor fuel-dispensing facility wherein motor fuel is dispensed by customers of the facility from a motor fuel storage and dispensing system into the fuel tank of motor vehicles or motorcycles. There are two approved types of self-service motor fuel-dispensing facilities:

Self-service automotive liquid motor fuel-dispensing facility (motor vehicles and motorcycles)
Self-service CNG motor fuel-dispensing facility (motor vehicles)

SEMICONDUCTOR FABRICATION FACILITY. [See FC1802.1.] A building or structure, or part thereof, in which electrical circuits or devices, commonly known as semiconductors, are manufactured on solid crystalline substances having electrical conductivity greater than insulators but less than conductors.

SEPARATION DISTANCE. [See FC3302.1.] The distance that is to be maintained during the fireworks display from the outer perimeter of the discharge area to each viewing area or protected area. The separation distance represents the

distance determined by the department to be necessary and sufficient to secure viewing areas and protected areas from hazards associated with a fireworks display, including but not limited to blast, fire, fallout and noise hazards.

SERVICE CORRIDOR. [See FC1802.1.] For purposes of semiconductor fabrication facilities, a fully enclosed passage, other than one designated as a required means of egress, through which HPM can be moved during handling.

SHELF STORAGE. [See FC2302.1.] For purposes of high-piled combustible storage, storage on shelves less than 30 inches (762 mm) deep with the distance between shelves not exceeding 3 feet (914 mm) vertically.

SHELTER IN PLACE. [See FC402.1.] The precaution of directing building occupants to remain indoors, at their present location, in response to a fire or non-fire emergency.

SINGLE-STATION SMOKE ALARM. [See FC902.1.] An assembly incorporating the detector, the control equipment, and the alarm-sounding device in one unit, operated from a power supply either in the unit or obtained at the point of installation.

SMALL ARMS AMMUNITION. [See FC3302.1.] A shotgun, rifle or pistol cartridge, and any cartridge for propellant-actuated devices, excluding ammunition containing bursting charges or incendiary, trace, spotting or pyrotechnic projectiles.

SMALL ARMS AMMUNITION PRIMERS. [See FC3302.1.] Small percussion-sensitive explosive charges, encased in a cap, used to ignite propellant powder.

SMOKE ALARM. [See FC902.1.] A single- or multiple-station alarm responsive to smoke and not connected to a fire alarm system.

SMOKE DETECTOR. [See FC902.1.] A listed device that senses visible or invisible particles of combustion.

SMOKE DETECTOR MAINTENANCE COMPANY CERTIFICATE. [See FC902.1.] A certificate issued by the commissioner to a person engaged in the business of performing smoke detector cleaning and testing, which authorizes such person to engage in such business and supervise the performance of such cleaning and testing by certificate of fitness holders.

SMOKELESS PROPELLANTS. [See FC3302.1.] Solid propellants, commonly referred to as smokeless powders, used in small arms ammunition, cannons, rockets, propellant-actuated devices and similar articles.

SOLID. [See FC2702.1.] A material that has a melting point and decomposes or sublimates at a temperature greater than 68°F (20°C).

SOLID SHELVING. [See FC2302.1.] For purposes of high-piled storage, shelving that is solid, slatted or of other construction located in racks and that obstructs sprinkler discharge down into the racks.

SOLVENT DISTILLATION UNIT. [See FC3402.1.] An appliance that receives contaminated flammable or combustible liquids and which distills the contents to remove contaminants and recover the solvents.

SPECIAL AMUSEMENT BUILDING. A building that is temporary, permanent or mobile that contains a device or system that conveys passengers or provides a walkway along, around or over a course in any direction as a form of amusement arranged so that the egress path is not readily apparent due to visual or audio distractions or an intentionally confounded egress path, or is not readily available because of the mode of conveyance through the building or structure.

SPECIAL EFFECT. [See FC3302.1.] A visible or audible effect used for entertainment or other display purposes, often used to create an illusion.

SPECIAL INDUSTRIAL EXPLOSIVE DEVICE. [See FC3302.1.] An explosive power pack containing an explosive charge in the form of a cartridge or construction device, including, but not limited to, explosive rivets, explosive bolts, explosive charges for driving pins or studs, cartridges for explosive-actuated power tools and charges of explosives used in automotive air bag inflators, jet tapping of open hearth furnaces and jet perforation of oil well casings.

[SPEED BUMP. See FC502.1.]

SPONSOR. [See FC3302.1.] The person that has retained a fireworks contractor to conduct a fireworks display, and to whom the fireworks display permit is issued.

SPRAY BOOTH. [See FC1502.1.] A mechanically ventilated appliance of varying dimensions and construction provided to enclose or accommodate a spraying operation and to confine and limit the escape of spray vapor and residue and to exhaust it safely.

SPRAY ROOM. [See FC1502.1.] A room designed to accommodate spraying operations constructed in accordance with the Building Code. The room enclosure shall be at least 2-hour fire-resistant rated.

SPRAYING SPACE. [See FC1502.1.] The interior of a spray room, spray booth, exhaust duct, or other area in which, as a result of flammable finishing operations, surfaces are exposed to flammable vapors or mists or combustible dust, and are susceptible to accumulation of flammable or combustible residues or deposits.

SPRINKLER SYSTEM. [See FC902.1.] A fire extinguishing system, other than a water mist fire extinguishing system, that uses water as the sole extinguishing agent.

STAGED EVACUATION. Building or occupancy with a fire alarm system that is programmed for a staged evacuation sequence of operation, in which alarm notification devices activate on the floor on which a fire occurs, the floor above, and in some buildings, the floor below. Fire alarm systems that are not programmed for staged evacuation typically activate alarm notification devices on all floors (full evacuation) to initiate evacuation by all building occupants.

STAGING AREA. [See FC1102.1.] Any portion of a premises or other location from where an external load is to be lifted by helicopter.

STANDARD CUBIC FEET (SCF). [See FC2702.1.] Cubic feet of gas at normal temperature and pressure (NTP).

STANDPIPE, MULTI-ZONE. [See FC902.1.] A standpipe system that is vertically subdivided as required by the construction codes, including the Building Code, into zones to limit the maximum operating pressure in the system. Each zone will have its own individual automatic water supply.

STANDPIPE SYSTEM. [See FC902.1.] Piping installed in a building or structure that serves to transfer water from a water supply to hose connections at one or more locations in a building or structure used for firefighting purposes.

STEEL. Hot- or cold-rolled as defined by the Building Code.

STILL. See Distillery Equipment.

STORAGE BATTERY. An electrochemical device, equipment or system designed to store and generate electrical energy. Types of storage batteries include:

Flow Battery. A storage battery that stores and generates an electrical current by ion exchange through a membrane separating liquid electrolytes.

Lead-Acid Battery. A storage battery that is comprised of lead electrodes immersed in sulfuric acid electrolyte, including vented (flooded) or valve regulated lead acid (VRLA) batteries.

Lithium-Ion Battery. A storage battery in which an electrical current is generated by lithium ions embedded in a carbon graphite or nickel metal-oxide substrate placed in a high-viscosity carbonate mixture or gelled polymer electrolyte.

Lithium Metal Polymer Battery. A storage battery in which an electrical current is generated by the interaction between lithiated positive active material electrically separated from metallic lithium or lithiated negative active material, and nonaqueous liquid or polymerized electrolytes.

Nickel-Cadmium (Ni-Cd) Battery. An alkaline storage battery in which the positive active material is nickel oxide, the negative active material contains cadmium, and the electrolyte is potassium hydroxide.

Nickel Metal Hydride (NiMH) Battery. An alkaline storage battery in which the positive active material is nickel oxide, the negative active material is a hydrogen-absorbing alloy, and the electrolyte is potassium hydroxide.

Nonrecombinant Battery. A storage battery in which, under conditions of normal use, hydrogen and oxygen gases created by electrolysis are vented into the air outside of the battery.

Recombinant Battery. A storage battery in which, under conditions of normal use, hydrogen and oxygen gases created by electrolysis are converted into water inside the battery instead of venting into the air outside of the battery.

Valve-Regulated Lead-Acid (VRLA) Battery. A lead-acid battery consisting of sealed cells furnished with a valve that opens to vent the battery whenever the internal pressure of the battery exceeds the ambient pressure by a set amount. In VRLA batteries, the liquid electrolyte in the cells is immobilized in an absorptive glass mat (AGM cells or batteries) or by the addition of a gelling agent (gel cells or gelled batteries).

Vented (Flooded) Lead-Acid Battery. A lead-acid battery consisting of cells that have electrodes immersed in liquid electrolyte. Flooded lead-acid batteries have a provision for the user to add water to the cell and are equipped with a flame-arresting vent which permits the escape of hydrogen and oxygen gas from the cell in a diffused manner such that a spark, or other ignition source, outside the cell will not ignite the gases inside the cell.

STORAGE BATTERY UNIT. A storage battery system in the configuration in which it was tested and listed to Underwriters Laboratories (UL) Standard 9540, including any cabinet or other enclosure.

STRAIN. See Global Strain Method.

STRUCTURE. Any construction on, above or below real property, including buildings, enclosures, sheds and tents.

SUPERVISORY SIGNAL. [See FC902.1.] A signal indicating the need for action in connection with the supervision of guard tours, fire extinguishing systems or equipment, fire alarm systems or the maintenance features of related systems.

SUPERVISORY SIGNAL-INITIATING DEVICE. [See FC902.1.] An initiating device, such as a valve supervisory switch, water level indicator, or low-air pressure switch on a dry-pipe sprinkler system, that triggers a supervisory signal.

SYSTEM. [See FC2702.1.] An assembly of devices, equipment, containers, appurtenances, pumps, compressors and connecting piping that is designed to perform a complex and/or complete function.

TANK. A vessel containing more than 60 gallons (227 L).

TANK, ATMOSPHERIC. [See FC2702.1.] A storage tank designed to operate at pressures from atmospheric through 1.0 pound per square inch gauge (760 mm Hg through 812 mm Hg) measured at the top of the tank.

TANK, PORTABLE. [See FC2702.1.] A container of more than 60-gallon (227 L) capacity, and designed to be loaded into or on or temporarily attached to a transport vehicle, marine vessel, or watercraft and equipped with skids, mountings or accessories to facilitate handling of the tank by mechanical means. It does not include any cargo tank or tank car.

TANK, PRIMARY. [See FC3402.1.] A listed atmospheric tank used to store liquid.

TANK, PROTECTED ABOVEGROUND. An atmospheric aboveground tank listed in accordance with UL 2085, including the design requirements of integral secondary containment, protection from physical damage, and an insulation system designed to reduce the heat transferred to the primary tank when the tank is exposed to a high-intensity liquid pool fire.

TANK, STATIONARY. [See FC2702.1.] A container having not less than 1,000-pound (454 kg) water capacity, designed primarily for stationary installations, and not intended to be moved in the course of normal use.

TAR KETTLE. [See FC302.1.] 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.

TENT. [See FC2402.1.] A nonpressurized membrane structure of a fabric weather barrier supported by poles and guys in which the fabric weather barrier does not impart stability to the structure. Tents need not be fully enclosed on the sides.

THEFT RESISTANT. [See FC3302.1.] Construction designed to deter unauthorized entry into magazines or other explosives storage facilities, so as to prevent unauthorized access to stored explosives.

TNT EQUIVALENT. [See FC3302.1.] A measurement of the quantity of an explosive calculated by reference to the quantity of trinitrotoluene that contains the equivalent explosive energy.

TOOL. [See FC1802.1.] For purposes of semiconductor fabrication facilities, a device, storage container, workstation, or process machine used in a fabrication area.

TORCH-APPLIED ROOF SYSTEM. [See FC2602.1.] Bituminous roofing systems using membranes that are adhered by heating with a torch and melting asphalt back coating instead of mopping hot asphalt for adhesion.

TOXIC MATERIAL. [See FC3702.1.] A chemical that is lethal at the following doses or concentration:

1. A chemical that has a median lethal dose (LD50) of more than 50 milligrams per kilogram, but not more than 500 milligrams per kilogram of body weight when administered orally to albino rats weighing between 200 and 300 grams each; or
2. A chemical that has a median lethal dose (LD50) of more than 200 milligrams per kilogram but not more than 1,000 milligrams per kilogram of body weight when administered by continuous contact for 24 hours (or less if death occurs within 24 hours) with the bare skin of albino rabbits weighing between 2 and 3 kilograms each; or
3. A chemical that has a median lethal concentration (LC50) in air of more than 200 parts per million but not more than 2,000 parts per million by volume of gas or vapor, or more than 2 milligrams per liter but not more than 20 milligrams per liter of mist, fume or dust, when administered by continuous inhalation for 1 hour (or less if death occurs within 1 hour) to albino rats weighing between 200 and 300 grams each.

Exception: Chlorine. Although chlorine is, by definition, a toxic material, for purposes of this code it shall be classified as a highly toxic material.

TRAFFIC CALMING DEVICES. Roadway features of fire apparatus access roads designed or installed to reduce traffic volume and/or vehicle speed, including street alignment, barriers, speed bumps and speed tables.

[TRANSVERSE FLUE SPACE. See FC2302.1.]

TROUBLE SIGNAL. [See FC902.1.] A signal initiated by the fire alarm system or device indicative of a fault in a monitored circuit or component.

TUBE TRAILER. [See FC3002.1.] A tractor trailer upon which a number of tubular gas containers have been installed, typically with a manifold connecting the container valves, that is used to deliver and dispense a compressed gas.

UNNECESSARY ALARM. [See FC902.1.] An alarm signal transmitted by a fire alarm system which functioned as designed, but for which a department response proved unnecessary. An example of an unnecessary alarm is an alarm triggered by smoke from a lit cigarette in a non-smoking area, when the presence of such smoke does not implicate fire safety concerns.

UNSTABLE (REACTIVE) MATERIAL. [See FC4302.1.] A material, other than an explosive, which in the pure state or as commercially produced, will vigorously polymerize, decompose, condense or become self-reactive and undergo other violent chemical changes, including explosion, when exposed to heat, friction or shock, or in the absence of an inhibitor, or in the presence of contaminants, or in contact with incompatible materials. Unstable (reactive) materials are classified as follows:

Class 1. [See FC4302.1.] Materials that in themselves are normally stable but which can become unstable at elevated temperatures and pressures.

Class 2. [See FC4302.1.] Materials that in themselves are normally unstable and readily undergo violent chemical change but do not detonate. This class includes materials that can undergo chemical change with rapid release of energy at normal temperatures and pressures, and that can undergo violent chemical change at elevated temperatures and pressures.

Class 3. [See FC4302.1.] Materials that in themselves are capable of detonation or of explosive decomposition or explosive reaction but which require a strong initiating source or which must be heated under confinement before initiation. This class includes materials that are sensitive to thermal or mechanical shock at elevated temperatures and pressures.

Class 4. [See FC4302.1.] Materials that in themselves are readily capable of detonation or explosive decomposition or explosive reaction at normal temperatures and pressures. This class includes materials that are sensitive to mechanical or localized thermal shock at normal temperatures and pressures.

UNWARRANTED ALARM. [See FC902.1.] An alarm signal transmitted by a fire alarm system which failed to function as designed as a result of improper installation, improper maintenance, malfunction, or other factor. Examples of unwarranted alarms are alarms resulting from improper smoke detector placement, improper detector setting for installed location, lack of system maintenance, and control panel malfunction.

VAPOR PRESSURE. [See FC2702.1.] The pressure exerted by a volatile fluid, as determined in accordance with ASTM D 323.

VENDOR. [See FC3302.1.] Any person engaged in the transportation and storage of explosives in connection with the sale of such explosives for blasting operations.

VESSEL. [See FC302.1.] A motorized watercraft, other than a seaplane, used or capable of being used as a means of transportation, including watercraft not primarily used for transportation purposes, such as houseboats.

VIEWING AREA. [See FC3302.1.] Areas designated for viewing a fireworks display, to which spectators are restricted.

VOICE COMMUNICATION CAPABILITY. [See FC402.1.] The ability to communicate to the occupants of a building or occupancy by means of a fire alarm system with one-way or two-way voice communication.

WATER MIST SYSTEM. A fire extinguishing system which uses water mist as a fire extinguishing agent. Very fine droplets of water are generated and released under pressure as a mist.

WATER-REACTIVE MATERIAL. [See FC4402.1.] A material that explodes, violently reacts, produces flammable, toxic or other hazardous gases, and/or generates enough heat to cause autoignition or ignition of combustible materials upon exposure to water or moisture. Water-reactive materials are classified as follows:

Class 1. [See FC4402.1.] Materials that react with water with some release of energy, but not violently.

Class 2. [See FC4402.1.] Materials that react violently with water or cause water to boil upon contact; produce flammable, toxic or other hazardous gases upon contact with water; or adjoining combustible materials.

Class 3. [See FC4402.1.] Materials that react explosively with water without requiring heat or confinement.

WHARF. [See FC302.1.] A structure or bulkhead constructed along the shore of an inlet, lake or river, or other navigable body of water, used or designed to be used to tie up vessels so that they may lie alongside the shore, and/or to anchor piers or floats.

WORKSTATION. [See FC1802.1.] For purposes of semiconductor fabrication facilities, a defined space within a fabrication area in which a specific function, laboratory procedure or research activity relating to semiconductor

manufacture is conducted. A workstation may include equipment using HPM, hazardous materials storage cabinets, flammable liquid storage cabinets or gas cabinets, ventilation equipment, fire protection devices, detection devices and electrical devices.

ZONING RESOLUTION. The New York City Zoning Resolution.

CHAPTER 3 GENERAL PRECAUTIONS AGAINST FIRE

SECTION FC 301 GENERAL

301.1 Scope. This chapter shall govern the operation and maintenance of buildings, structures and premises with respect to precautions to prevent fire and the spread of fire. This chapter shall additionally govern the design, installation, operation and maintenance of the operations, facilities and premises set forth herein.

301.2 Permits. Permits shall be required as set forth in FC105.6.

SECTION FC 302 DEFINITIONS

302.1 Definitions. The following terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings [shown herein] set forth in FC202.

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.]

AUTOMOTIVE SALVAGE AND WRECKING FACILITY. [Any premises used for the dismantling and/or wrecking of motor vehicles in connection with the sale of auto parts or scrap metal.]

COKE. [A solid carbonaceous material manufactured from the distillation of bituminous coal, petroleum or coal tar, with a thermal heating value of not more than 13,200 British thermal units per hour (3869 W), a volatile composition of not more than 0.5 percent, an NFPA Standard 704 fire hazard rating of not more than 1, and an NFPA Standard 704 reactivity rating of 0.]

COKE-FUELED SALAMANDER. [A metal vessel, typically cylindrical in shape, used to burn coke in the open air for the purpose of maintaining an open fire for construction-related curing and drying. A coke-fueled salamander does not utilize a combustible liquid or flammable gas and does not generate a flame in a sustained or controlled manner and therefore is not an open flame device or portable space heater as those terms are used in this code.]

COMPUTATIONAL FLUID DYNAMICS ANALYSIS. [A simulation and analysis of air flow, including temperature gradients, and for a fire, the products of combustion, over time and distance.]

ELECTRIC BARBECUE. [Any device designed for heating or cooking food on an open grate cooking surface above exposed heating elements. An electric grill that has its heating elements embedded within a solid cooking surface is not an electric barbecue.]

FLOAT. A floating dock or structure to which marine vessels or watercraft may be moored and which is typically used as means by which passengers and freight may be transferred from ship to shore.]

HI-BOY. [A cart used to move hot roofing materials on a roof.]

HIGH-VOLTAGE TRANSMISSION LINE. [An electrical power transmission line operating at or above 66 kilovolts.]

MARINA. A facility on, in or around a body of water, protected by natural or manmade features, that is used or designed to be used for the mooring, servicing or storage of marine vessels or watercraft, or the provision of services to the

passengers and crews of such vessels or watercraft. A marina typically is comprised of one or more docks, piers, wharfs, and storage and fueling facilities for watercraft.]

OPEN FIRES. [The burning of materials wherein products of combustion are emitted directly into the ambient air without passing through a stack or chimney from an enclosed chamber. For the purpose of this definition, a chamber shall be regarded as enclosed when, during the time combustion occurs, only apertures, ducts, stacks, flues or chimneys necessary to provide combustion air and permit the escape of exhaust gas are open.]

OPEN FLAME. [A flame that is generated by any material or device in a sustained and controlled manner and that is not securely enclosed by noncombustible material, such as a candle that is unenclosed or enclosed in a globe or lantern, or a gas light lantern, but not a flame contained in a furnace or other similar approved device, equipment or system. Torches operated in accordance with FC Chapter 26 and lighted smoking paraphernalia shall not be considered an open flame.]

OPEN-FLAME DEVICE. [Any device utilizing an open flame.

PIER. A structure built over the water, typically supported by piles.]

PORTABLE FUELED EQUIPMENT. [Any portable device, equipment or system, whether or not flue-connected, that utilizes a flammable or combustible liquid or flammable gas as a fuel, except an open-flame device.]

PORTABLE SPACE HEATER. [Any portable equipment designed or used for space heating that utilizes a combustible liquid or flammable gas as a fuel, whether or not flue-connected.]

POWERED INDUSTRIAL EQUIPMENT. [Equipment used in commercial and industrial applications, including floor scrubbers and floor buffers, powered by a lead-acid battery system.]

POWERED INDUSTRIAL TRUCK. [A forklift, tractor, platform lift truck or motorized hand truck powered by a lead-acid battery system, a metal hydride hydrogen storage system or an internal combustion engine. Powered industrial trucks do not include farm vehicles or motor vehicles for highway use.]

POWERED MOBILITY DEVICES.

PRODUCTION LOCATION.

RESIDENTIAL FIRE PIT.

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.

VESSEL. A motorized watercraft, other than a seaplane, used or capable of being used as a means of transportation, including watercraft not primarily used for transportation purposes, such as houseboats.

WHARF. A structure or bulkhead constructed along the shore of an inlet, lake or river, or other navigable body of water, used or designed to be used to tie up vessels so that they may lie alongside the shore, and/or to anchor piers or floats.]

SECTION FC 303

TAR KETTLES AND ASPHALT MELTERS

303.1 Transporting. Tar kettles and asphalt melters shall not be transported or otherwise moved when the heat source for the kettle or melter is operating.

Exception: Tar kettles and asphalt melters in the process of patching road surfaces.

303.2 Location. Tar kettles and asphalt melters shall not be located within 20 feet (6096 mm) of any combustible material, combustible building surface or any building opening and within a controlled area identified by the use of traffic cones, barriers or other approved means. Tar kettles, asphalt melters and pots shall not be utilized indoors or on the roof of a

building or structure, except that LPG-fueled asphalt melters may be utilized on the roof of a building or structure in accordance with the rules. Roofing kettles, and operating tar kettles and asphalt melters shall not block means of egress, gates, roadways or entrances.

303.3 Location of fuel containers. Fuel containers shall be located at least 10 feet (3048 mm) from the burner.

Exception: Containers properly insulated from heat or flame are allowed to be within 2 feet (610 mm) of the burner.

303.4 Supervision. An operating tar kettle or asphalt melter requiring a permit shall be under the personal supervision of a person holding a certificate of fitness. The certificate of fitness holder shall be within 100 feet (30 480 mm) of the kettle or melter, have the kettle or melter within sight and have unobstructed access to the kettle or melter. Ladders and other obstacles shall not form a part of the route between the certificate of fitness holder and the kettle or melter. The certificate of fitness holder shall not have to climb or descend a ladder or circumvent any obstacle to gain access to the kettle or melter.

303.5 Portable fire extinguishers. There shall be at least one portable fire extinguisher complying with the requirements of FC906 and with a minimum 3-A:40-B:C rating within 25 feet (7620 mm) of each tar kettle and asphalt melter during the period such kettle or melter is being utilized, and one additional portable fire extinguisher with a minimum 3-A:40-B:C rating on the roof being covered.

303.6 Lids. Tar kettles and asphalt melters shall be equipped with tight-fitting lids.

303.7 Hi-boys. Hi-boys shall be constructed of noncombustible materials. Hi-boys shall be limited to a capacity of 55 gallons (208 L). Fuel sources or heating elements shall not be allowed as part of a hi-boy.

303.8 Kettle and asphalt melter construction. Any kettle used as a tar kettle and any melter used as an asphalt melter shall be constructed of noncombustible materials.

303.9 Fuel containers under air pressure. It shall be unlawful to store, handle or use fuel containers that operate under air pressure.

303.10 Flammable liquid fuel. It shall be unlawful to store, handle or use tar kettles or asphalt melters that utilize flammable liquid as a fuel.

303.11 Roofing operations. Roofing operations, including repairs, using open-flame devices shall comply with the requirements of [FC1417] FC3317 and FC Chapters [26] 35 and [35] 58.

SECTION FC 304 STORAGE AND ACCUMULATION OF RUBBISH AND OTHER COMBUSTIBLE WASTE

304.1 Accumulation of combustible waste. It shall be unlawful to cause or allow rubbish and other combustible waste to accumulate in a building or structure or upon a premises.

304.1.1 Maintenance. Roofs, courts, yards, vacant lots, alleys, parking lots, open spaces, and the space beneath a grandstand, bleacher, pier, wharf, or other similar structure, shall be regularly cleaned so as to prevent the accumulation of any rubbish, vegetation or other combustible waste.

304.1.2 Vegetation. Weeds, grass, vines, brush or other vegetation that is capable of being ignited shall be regularly pruned, or cleared and removed for a distance of 10 feet (3048 mm) from any building or structure.

304.2 Unsafe storage of combustible waste prohibited. It shall be unlawful to store rubbish or other combustible waste in a manner that creates a fire hazard or public nuisance.

304.3 Containers. Rubbish and other combustible waste stored pending removal in a building or structure or upon a premises shall be stored in accordance with this section, and any other applicable law, rule or regulation.

304.3.1 Spontaneous ignition. Rubbish and other combustible waste susceptible to spontaneous ignition, such as oily rags, shall be stored in a listed disposal container. Contents of such containers shall be removed and disposed of daily.

304.3.2 Capacity exceeding 40 gallons. Dumpsters and other containers with a capacity exceeding 40 gallons (0.15 m3) shall be provided with lids. Such containers and their lids shall be constructed of noncombustible materials or of materials having a peak rate of heat release not exceeding 300 kW/m2 when tested in accordance with ASTM E 1354 at an incident heat flux of 50 kW/m2 in the horizontal orientation, and listed and labeled as such.

304.3.3 Capacity exceeding 200 gallons. Dumpsters and other containers with an individual capacity exceeding 200 gallons (0.76 m3) shall not be stored indoors, and shall not be stored outdoors within 5 feet (1524 mm) of combustible walls, openings or combustible roof eave lines.

Exceptions:

1. Dumpsters or containers in areas protected throughout by a sprinkler system.
2. Storage in a building or structure of Type I or Type IIA construction or other construction with an equivalent fire rating, where such building or structure is located not less than 10 feet (3048 mm) from other buildings or structures and used exclusively for container or dumpster storage.

304.3.4 Wastebaskets in Group I-2 and I-3 occupancies. Wastebaskets and other waste containers, including their lids, used in Group I-2 and I-3 occupancies shall be constructed of noncombustible materials or of materials having a peak rate of heat release not exceeding 300 kW/m2 when tested in accordance with ASTM E 1354 at an incident heat flux of 50 kW/m2 in the horizontal orientation. Metal wastebaskets and other metal waste containers with a capacity of 20 gallons (76 L) or more shall be listed in accordance with UL 1315 and shall be provided with a noncombustible lid.

304.4 Outdoor storage. Outdoor storage of combustible waste at a transfer station, recycling facility, or other lawful outdoor combustible waste storage facility, shall comply with the requirements of FC315.

SECTION FC 305 IGNITION SOURCES

305.1 Clearance from ignition sources. Clearance between ignition sources, such as luminaires, heaters and open-flame devices, and combustible materials shall be maintained in an approved manner.

305.2 Hot ashes and spontaneous ignition sources. Hot ashes, cinders, smoldering coals or greasy or oily materials subject to spontaneous ignition shall not be deposited in a combustible container, or within 10 feet (3048 mm) of other combustible material, including combustible walls and partitions and combustible waste, or within 2 feet (610 mm) of openings to buildings or structures.

Exception: The minimum required separation distance to other combustible materials shall be 2 feet (610 mm) where the material is deposited in a covered, noncombustible container placed on a noncombustible floor, ground surface or stand.

305.3 Open-flame warning devices. It shall be unlawful to use an open-flame device on roadways as a warning signal or for any other purposes.

Exception: The use of fusees at the scene of an emergency or as required by standard railroad operating procedures.

305.4 Deliberate or negligent burning. It shall be unlawful to deliberately or through negligence set fire to or cause the burning of combustible material or combustible waste in such a manner as to endanger the safety of persons or property.

SECTION FC 306 MOTION PICTURE FILM AND SCREENS

306.1 Motion picture projection rooms. Electric arc, xenon or other light source projection equipment which develops hazardous gases, dust or radiation and the projection of ribbon-type cellulose nitrate film, regardless of the light source used in projection, shall be operated within a motion picture projection room complying with the requirements of Chapter

4 of the Building Code.

306.2 Cellulose nitrate film storage, handling and use. Cellulose nitrate film shall be stored, handled and used in accordance with NFPA 40 and subject to the approval of the commissioner.

306.2.1 Supervision. The handling and use of cellulose nitrate film, including motion picture projection, shall be under the personal supervision of a person holding a certificate of fitness. The storage of cellulose nitrate film shall be under the general supervision of a person holding a certificate of fitness.

306.3 Motion picture screens. The screens upon which motion pictures are projected shall be of noncombustible construction as set forth in Chapter 6 of the Building Code, or shall meet the flame propagation performance criteria of NFPA 701, or shall comply with the requirements for a Class A interior finish in accordance with Chapter 8 of the Building Code. Screens installed prior to the effective date of this code shall comply with the applicable Building Code requirements. The construction supporting such motion picture screens shall be of noncombustible construction as set forth in Chapter 6 of the Building Code, and shall comply with the load bearing requirements of the Building Code.

SECTION FC 307 OPEN FIRES

307.1 General. Kindling, building, maintaining or using an open fire is prohibited.

Exceptions:

1. Portable outdoor barbecues as authorized by FC307.5.
2. Outdoor noncommercial barbecue fires in equipment provided by and located in city parks where such open fires are allowed by the Department of Parks and Recreation.
3. In connection with training of fire brigades or similar purposes by persons or entities where such training is required by law, rule or regulation.
4. Approved open fires used for special effects in connection with television, motion picture, theatrical and other entertainment productions.
5. Coke-fueled salamanders at a construction site in accordance with FC307.6 and the rules.
6. Lighting of charcoal for hookah use on the premises of non-tobacco hookah establishments in accordance with FC310 and the rules.
7. Residential fire pits as authorized by FC307.7.

307.2 Authorization. Open fires allowed pursuant to FC307.1 may only be kindled, built, maintained or used with the prior written authorization of the agencies with regulatory jurisdiction, property owner and other required approvals, and only when such open fires are maintained in compliance with all conditions of such authorization or approval. The commissioner may prohibit the kindling, building, maintaining or use of open fire or order the extinguishment of any open fire allowed by this section, upon a determination that such open fire will create an undue hazard because of conditions in the surrounding environment.

307.3 Reserved.

307.4 Attendance. Open fires shall be constantly attended until the fire is extinguished. A minimum of one portable fire extinguisher complying with the requirements of FC906 with a minimum 4-A rating or other approved on-site fire-extinguishing equipment, such as a garden hose connected to an approved water supply, shall be available for immediate use.

307.5 Portable outdoor barbecues. Charcoal, electric, and LPG and piped natural gas-fueled portable outdoor barbecues may be operated and maintained in compliance with the requirements of this section.

307.5.1 General. Portable outdoor barbecues burning charcoal, powered by electricity, or fueled by LPG containers or piped natural gas may be stored and used on any residential premises in compliance with the requirements of this section and the rules. Portable outdoor barbecues burning charcoal, powered by electricity, or fueled by piped natural gas may be stored and used on any other premises in compliance with the requirements of this section and the rules, except as may be restricted by the Zoning Resolution or the Department by rule or order. Stationary outdoor grills and other outdoor cooking equipment shall be installed in accordance with the Building and Mechanical Codes, and operated and maintained in accordance with this section.

307.5.2 Grate area. The total grate area of a portable outdoor barbecue shall not exceed 10 square feet (0.929 m²).

307.5.3 Clearance distances. Portable outdoor barbecues shall not be stored or used within 10 feet (3048 mm) of any combustible waste, combustible material, or any combustible building surface, including combustible roofs and decks. To the maximum extent feasible, windows, doors and other building openings within 10 feet (3048 mm) of a barbecue in use shall be kept closed. An entrance door shall be closed immediately after entering or exiting the building while the barbecue is in use.

307.5.4 Fire extinguishing equipment. A garden-type hose attached to a water supply, or a minimum of one portable fire extinguisher complying with the requirements of FC906 with a minimum 4-A rating, shall be provided for any portable outdoor barbecue, and shall be readily accessible whenever the portable outdoor barbecue is in use. A portable fire extinguisher complying with the requirements of FC906 and with a Class K rating shall be provided for any portable outdoor barbecue used for commercial cooking purposes, and shall be readily accessible whenever such barbecue is in use.

307.5.5 Natural gas piping. The natural gas piping supplying portable outdoor barbecues designed to use piped natural gas shall be designed and installed in accordance with the Fuel Gas Code.

307.5.6 LPG containers. Portable outdoor barbecues fueled by LPG containers shall additionally comply with the requirements of FC307.5.6.1 and 307.5.6.2.

307.5.6.1 Group R-2 occupancies. Only portable outdoor barbecues designed for use with LPG containers with a capacity of 16.4 ounces (0.465 kg) may be stored or used on the premises of a Group R-2 occupancy. Indoor storage of 16.4-ounce (0.465 kg) LPG containers for this or any other purpose is limited to a maximum of four such containers per dwelling unit.

307.5.6.2 Group R-3 occupancies. Portable outdoor barbecues designed for use with LPG containers with a capacity of 20 pounds (9.08 kg) or LPG containers with a capacity of 16.4 ounces (0.465 kg) may be stored or used on the premises of a Group R-3 occupancy. Twenty-pound LPG containers shall not be stored or used indoors, or on any rooftop or balcony. A maximum of two 20-pound LPG containers may be used to fuel a portable outdoor barbecue. Indoor storage of 16.4-ounce (0.465 kg) LPG containers for this or any other purpose is limited to a maximum of four such containers per dwelling unit.

307.5.7 Cleaning. Portable outdoor barbecues shall be periodically cleaned by removing grease or fat accumulations from grills and in trays below the grill.

307.6 Coke-fueled salamanders. Coke and coke-fueled salamanders may be stored, handled and used for construction-related curing and drying at construction sites in accordance with this section and the rules.

307.6.1 Supervision. The handling and use of coke and coke-fueled salamanders at construction sites, including the extinguishment of the coke, shall be under the personal supervision of a certificate of fitness holder. A certificate of fitness holder may not supervise the handling or use of more than fifty coke-fueled salamanders, or the handling or use of coke or coke-fueled salamanders that are located on more than one floor. The storage of coke and coke-fueled salamanders at construction sites shall be under the general supervision of a certificate of fitness holder.

307.7 Residential Fire Pits. Residential fire pits may be stored and used to maintain an open fire in compliance with the requirements of this section and the rules on the premises of a detached Group R-3 occupancy in any R1, R2, or R3 residential zoning district.

307.7.1 Safe operations. Residential fire pits must be operated in accordance with manufacturer instructions for such residential fire pit, and shall be constantly attended while a fire is lit.

307.7.2 Clearance distances. Residential fire pits shall not be stored or used within 10 feet (3048 mm) of any combustible waste, combustible material, or any combustible building surface. To the extent feasible, windows, doors and other building openings within 25 feet (7620 mm) of a residential fire pit in use shall be kept closed. An entrance door shall be closed immediately after entering or exiting the building while a residential fire pit is in use.

307.7.3 Design and operation. The department may establish by rule standards for the design, installation, operation and maintenance for residential fire pits, provided that such rules are consistent with provisions established by this section.

307.7.4 Hazardous environmental conditions. The department may prohibit use of residential fire pits in any location upon determination that such activity creates an undue fire hazard because of conditions in the surrounding environment, including during wind conditions or red flag weather.

SECTION FC 308 OPEN FLAMES

308.1 General. This section governs the use of open flames in all buildings, structures and premises.

308.2 Use of open flames. Open flames may be lighted, maintained and used only as allowed in this section. Stationary appliances, including cooking, space heating and water heating appliances, are not open-flame devices subject to this section and shall be designed and installed in accordance with the construction codes. Portable fueled devices, equipment and systems, including LPG-fueled cookstoves and torches, shall be operated in accordance with FC313.

308.3 Prohibitions. It shall be unlawful to:

1. cause or allow an open flame to be lit or maintained in any room or other area of a building, structure, premises, marine vessel, watercraft or other place in which a hazardous material is stored, handled or used, or where conditions exist that could cause ignition of flammable vapors or combustible material.
2. use or maintain in any area in which smoking is prohibited, as set forth in FC310 or elsewhere in this code, a lighted match or other flame which has not been approved for use by the [commissioner] department in such areas.
3. place or discard, or cause to be placed or discarded, an open flame, lighted match or other flaming substance or object on any surface or article where it can cause the ignition of combustible material or combustible waste, or otherwise cause an unwanted fire.
4. store or use candles, incense or similar open-flame producing items in Group R-1 college and university dormitories.
5. use or maintain an open flame or open-flame device in or on a building, structure or premises as a signal or marker, except that fusees may be used on roadways to alert motorists to stopped vehicles or other emergency condition.
6. light and release or allow to become airborne any lantern, balloon, or other item or craft containing or fueled by a flame or other heat-producing material, except for balloon operations authorized by FC Chapter 20 and other operations authorized by the department.

[308.3 Use of open flames. Open flames may only be lighted, maintained and used in Group A occupancies and public gathering places in accordance with this section.

308.3.1 Flaming food and beverage preparation. The preparation of flaming foods or beverages in Group A occupancies and public gathering places shall be in accordance with FC 308.3.1.1 through 308.3.1.5.

308.3.1.1 Dispensing. Flammable or combustible liquids used in the preparation of flaming foods or beverages shall be dispensed from one of the following:

1. A 1-ounce (29.6 ml) container; or
2. A container not exceeding 1-quart (946.5 ml) capacity with a controlled-pouring device that will limit the flow to a 1-ounce (29.6 ml) serving.

308.3.1.2 Containers not in use. Containers shall be secured to prevent spillage when not in use.

308.3.1.3 Serving of flaming food. The serving of flaming foods or beverages shall be done in a safe manner and shall not create flames higher than 6 inches (152.4 mm). The pouring, ladling or spooning of liquids is restricted to a maximum height of 8 inches (203 mm) above the receiving receptacle.

308.3.1.3.1 Ignition. The flaming food or beverage shall be ignited on serving tables. Such tables shall have noncombustible tops or, if the top is combustible, it shall be protected by a noncombustible mat. The mat, when used, shall cover the entire top of the table. Flames shall be extinguished before serving the food or beverage.

308.3.1.4 Location. Flaming foods or beverages shall be prepared only in the immediate vicinity of the table being served. Flaming foods and beverages shall not be transported or carried while burning.

308.3.1.5 Fire protection. The person preparing the flaming foods or beverages shall have a wet cloth towel immediately available for use in smothering the flames in the event of an emergency and, in addition to portable fire extinguishers required by FC906, carbon dioxide type extinguishers with at least a 5-B rating shall be kept within 25 feet (7620 mm) of the area in which flaming foods and beverages are ignited and at the doorway between the kitchen and the dining area.]

308.3.2 Open-flame decorative devices. Open-flame decorative devices, including wall-mounted candles, torch sconces, insect-repellant candles in glass jars or metal cans, tabletop candles and oil lamps, free standing torch holders and candelabras, shall comply with the following requirements:

1. Class I and Class II liquids and LPG shall not be used.
2. Liquid- or solid-fueled lighting devices containing more than 8 ounces (237 ml) of fuel must self-extinguish and not leak fuel at a rate of more than 0.25 teaspoon per minute (1.26 ml per minute) if tipped over.
3. The device or holder shall be constructed to prevent the spillage of liquid fuel or wax at the rate of more than 0.25 teaspoon per minute (1.26 ml per minute) when the device or holder is not in an upright position.
4. The device or holder shall be designed so that it will return to the upright position after being tilted to an angle of 45 degrees from vertical.

Exception: Devices that self-extinguish if tipped over and do not spill fuel or wax at the rate of more than 0.25 teaspoon per minute (1.26 ml per minute) if tipped over.

5. The flame shall be enclosed except where openings on the side are not more than 0.375 inch (9.5mm) diameter or where openings are on the top and the distance to the top is such that a piece of tissue paper placed on the top will not ignite in 10 seconds.

6. Enclosures shall be made of noncombustible materials and securely attached to the open-flame device.

Exception: An enclosure is not required to be attached to any open-flame device that will self-extinguish if the device is tipped over.

7. Fuel canisters shall be safely sealed for storage.

8. Storage and handling of combustible liquids shall be in accordance with FC Chapter 34.

9. Shades, where used, shall be made of noncombustible materials and securely attached to the open-flame device holder or enclosure.

10. Candelabras with flame-lighted candles shall be securely fastened in place to prevent overturning, and shall be located away from occupants using the area and away from possible contact with drapes, curtains or other combustibles.

11. Open-flame decorative devices in Group A occupancies and other buildings, structures and premises used for a public gathering shall additionally comply with the requirements of applicable rules promulgated by the commissioner designed to ensure the safe use of such devices.

308.3.3 Separation from combustibles. Open flames shall be kept at a safe distance from decorations, decorative vegetation or other combustible materials.

308.3.4 Aisles and exits. Lighted candles shall be prohibited in areas where occupants stand, or in an aisle or exit.

308.3.5 Reserved.

308.3.6 Theatrical performances. Where use is approved in conjunction with theatrical performances, open flames shall be used in accordance with FC Chapter 33 and NFPA 160.

308.3.7 Prohibition. It shall be unlawful to light, maintain or use an open flame in a Group A occupancy or other building or structure used for a public gathering.

Exceptions:

1. Open flames may be used in the following locations and circumstances, provided that precautions are taken to prevent ignition of combustible material and otherwise ensure the safety of occupants, in accordance with this code, the rules and the permit:

1.1. Where necessary for ceremonial or religious purposes.

1.2. On stages and platforms as a necessary part of a performance in accordance with FC308.3.6.

1.3. Where candles on tables are securely supported on substantial noncombustible bases and the candle flames are protected in accordance with FC308.3.2(5).

1.4. The preparation of flaming foods or beverages in accordance with FC308.3.1.

1.5. Open-flame devices using LPG for demonstrations in exhibitions or trade shows.

1.6. Open-flame devices for food warming and browning.

1.7. Open-flame decorative devices in accordance with FC308.3.2.

2. Nonportable heat-producing equipment installed in compliance with the requirements of FC Chapter 6 and the Mechanical Code.

3. Natural gas light fixtures installed in compliance with the requirements of the Building Code and the Plumbing Code, and approved precautions are taken to prevent ignition of combustible materials.

308.4 Torches for removing paint. It shall be unlawful to remove paint in or on buildings, structures or premises with a torch or any other flame-producing device. Such paint removal may be performed using heat-producing devices other than open-flame devices. The person using such heat-producing device to remove the paint shall remain at the location where the heating operation was performed to maintain a fire watch for not less than 1 hour after using such device.

308.5 Signals and markers. Open-flame devices, such as lanterns or kerosene road flares, shall not be operated or used as a signal or marker in or on any building, structure or premises.

Exception: The proper use of fusees at the scene of an emergency or as required by standard railroad operating procedures.]

308.4 General safety precautions. Open flames and open-flame devices are ignition sources that can readily ignite combustible materials. When their use is allowed by this section, all safety precautions appropriate to the circumstances shall be observed, including the following requirements:

1. Candles and other unenclosed open flames shall be constantly attended while lit.
2. Open flames and open-flame devices, including lighted candles, shall be protected from accidental contact by appropriate placement, and secured from tipping or other movement by a suitable candleholder or other device.
3. Open flames and open-flame devices, including lighted candles, except open-flame devices designed to be surface mounted, shall be placed on a noncombustible surface.
4. Open flames and open-flame devices, including lighted candles, shall be kept at least 3 feet (914 mm) from any combustible material or combustible waste.
5. Open flames and open-flame devices, including lighted candles, shall not be placed or kept in any corridor, stairwell or exit.
6. Open flame food warming devices shall be placed on non-combustible surfaces and constantly attended while lit. LPG-fueled open flame food warming devices shall not be used for food warming except where authorized by the department by issuance of an open flame permit.

308.5 Use of open flames in assembly occupancies and places of public gathering. Open flames may be lighted, maintained and used in Group A occupancies and public gathering places only as allowed in FC 308.5.1 through 308.5.4 and the rules.

308.5.1 Prohibitions. It shall be unlawful to light, maintain or use an open flame in a Group A occupancy or other building or structure used for a public gathering.

Exceptions:

1. Open flames are allowed in the following locations when used for the following purposes, provided that safety precautions are taken to prevent ignition of combustible material and otherwise ensure the safety of occupants in accordance with FC308.4, other applicable provisions of this code and the rules, and the terms and conditions of the permit or other approval:
 - 1.1. Use of candles and open-flame devices in accordance with FC308.5.2.
 - 1.2. The preparation of flaming foods or beverages in accordance with FC308.5.3.
 - 1.3. Special effects in connection with a theatrical performance or other event for which a special effect permit has been granted in accordance with FC308.5.4.
 - 1.4. Open-flame devices for food warming in accordance with the rules.
 - 1.5. Open-flame devices for demonstrations in exhibitions or trade shows in accordance with the rules.
 - 1.6 Where necessary for ceremonial or religious purposes.
2. Natural gas light fixtures installed in compliance with the requirements of the Building Code and the Plumbing Code, and approved precautions are taken to prevent ignition of combustible materials.

308.5.2 Open-flame decorative devices. Open-flame decorative devices, including wall-mounted candles, torch sconces, insect-repellant candles in glass jars or metal cans, tabletop candles and oil lamps, free standing torch holders and candelabras, shall comply with the following requirements:

1. Use of Class I and Class II liquids, including alcohol, and LPG in open flame decorative devices, is prohibited.
2. Liquid- or solid-fueled lighting devices containing more than 8 ounces (237 ml) of fuel must self-extinguish and not leak fuel at a rate of more than 0.25 teaspoon per minute (1.26 ml per minute) if tipped over.
3. The device or holder shall be constructed to prevent the spillage of liquid fuel or wax at the rate of more than 0.25 teaspoon per minute (1.26 ml per minute) when the device or holder is not in an upright position.
4. The device or holder shall be designed so that it will return to the upright position after being tilted to an angle of 45 degrees from vertical.

Exception: Devices that self-extinguish if tipped over and do not spill fuel or wax at the rate of more than 0.25 teaspoon per minute (1.26 ml per minute) if tipped over.

5. The flame shall be enclosed except where openings on the side are not more than 0.375 inch (9.5mm) diameter or where openings are on the top and the distance to the top is such that a piece of tissue paper placed on the top will not ignite in 10 seconds.

6. Enclosures shall be made of noncombustible materials and securely attached to the open-flame device.

Exception: An enclosure is not required to be attached to any open-flame decorative device that will self-extinguish if the device is tipped over.

7. Fuel canisters shall be safely sealed for storage.
8. Storage and handling of combustible liquids shall be in accordance with FC Chapter 57.
9. Shades, where used, shall be made of noncombustible materials and securely attached to the open-flame device holder or enclosure.
10. Candelabras with flame-lighted candles shall be securely fastened in place to prevent overturning, and shall be located away from occupants using the area and away from possible contact with drapes, curtains or other combustibles.
11. Open-flame devices shall not be placed in any aisle, standing area, corridor or component of the means of egress.

308.5.3 Flaming food and beverage preparation. The preparation and serving of flaming foods and beverages in Group A occupancies and public gathering places shall be in accordance with FC 308.5.3.1 through 308.5.3.4.

308.5.3.1 Dispensing of liquid. Alcohol or other flammable or combustible liquid used in the preparation of flaming food and beverages shall be stored in a container with a capacity not exceeding 1 quart (946.5 ml) and dispensed from such container using a controlled-pouring device limiting the flow to a 1-ounce (29.6 ml) serving. The container shall have a secure cap or lid or one designed to prevent spillage when not in use.

308.5.3.2 Ignition and serving of flaming food. Flaming food shall be ignited and served as follows:

1. Flaming food shall be ignited on a noncombustible surface or, if the surface is combustible, it shall be protected by a noncombustible mat that covers the entire top surface of the table.
2. The flames generated for flaming food shall not exceed 6 inches (152.4 mm) above the serving dish. Any pouring, ladling or spooning of liquids is restricted to a maximum height of 8 inches (203 mm) above the receiving receptacle.
3. Flaming food shall not be ignited on or above the table at which the patrons to whom the food is to be served are seated. Flaming food shall be ignited on a nearby serving table or cart at least 3 feet (914 mm) from patrons, or lighted in the kitchen and transported to the table on a serving cart.
4. The flames generated by flaming food shall be extinguished before the food is placed on the table before the patron.

5. The person preparing the flaming foods shall have a wet cloth towel immediately available for use in smothering the flames in the event of an emergency. In addition to portable fire extinguishers required by FC906, a portable fire extinguisher with a minimum 2-A:10B rating shall be kept at or near the location where flaming food or beverage is ignited.

308.5.3.3 Ignition and serving of flaming beverages. Ignition and serving of flaming beverages at patron tables shall be conducted in the same manner as flaming food, as set forth in FC308.5.3.2. Flaming beverages shall not be ignited and served on bars and counters at which the public is seated unless a safe perimeter of at least 3 feet (914 mm) from any patrons can be established and maintained while the beverage is lighted and flaming.

308.5.3.4 Staff training. Any staff serving flaming food or beverages shall be trained and knowledgeable in the safe ignition and handling of such food or beverages.

308.5.4 Special effects. Use of open flames as a special effect is allowed in conjunction with theatrical performances and in other places of assembly or public gathering only when authorized by the department. When approved, open flames shall be used in accordance with FC Chapter 56 and NFPA 160.

308.6 [Portable fueled open-flame devices. Portable open-flame devices fueled by flammable gases or combustible liquids shall be enclosed or used in such a manner as to prevent the flame from contacting or igniting combustible material or combustible waste.] Alcohol-fueled decorative open-flame devices. Alcohol-fueled decorative open-flame devices shall be designed, installed, operated and maintained in accordance with FC 308.6.1 through 308.6.5.

308.6.1. Prohibitions. It shall be unlawful to install or use a stationary or portable alcohol-fueled open-flame device in Group A, E and I occupancies, and public gathering spaces. It shall be unlawful to use portable alcohol-fueled open-flame devices in Group R occupancies.

308.6.2 Design. Stationary and portable alcohol-fueled open-flame devices installed or used in New York City shall be designed in accordance with the following requirements:

1. The device shall be constructed of metal, fire-resistant glass and/or other noncombustible material of sufficient thickness as to be capable of withstanding the heat generated by the open flames.
2. The device shall be constructed to provide protection from the flames at the maximum flame height the device is capable of generating.
3. The open flame shall be generated in a controlled manner through the use of a wick, valve or other approved method. A device that generates a flame in an uncontrolled manner is an open fire prohibited by FC307.1.
4. The device shall have a means of manually extinguishing the flame, either by a shutoff valve, a means of manually closing the device that cuts off the supply of oxygen to the flame thereby extinguishing the flame, or other approved method. The method by which the flame is extinguished shall not require use of a battery-powered device.
5. The device shall use solid fuel or be fueled through a pump or other means of liquid fuel transfer from a container to the device without spillage. Only the type of fuel specified for the device shall be used.
6. The fuel capacity of the device shall not exceed 64 fluid ounces (1888 ml) or the equivalent in solid fuel, except as authorized by the department.
7. The device shall be listed by a nationally recognized testing laboratory.

308.6.3 Installation. All stationary and portable alcohol-fueled open-flame devices shall be installed or placed in accordance with listing requirements, manufacturer's instructions and the following fire safety requirements:

1. The device shall be installed or placed at a location protected from movement and air drafts, and at least 3 feet (914 mm) from combustible surfaces and materials, including upholstered furniture, draperies, and wood surfaces.
2. The device shall be installed or placed in a room of sufficient size and ventilation to avoid dangerous accumulations of

carbon monoxide or carbon dioxide, taking into consideration the capacity of the device's alcohol reservoir and rate of burning. In no event shall a device be installed or used in a room smaller than that recommended by the manufacturer's instructions.

3. Devices designed for stationary installation shall be securely affixed to the floor, wall or ceiling or in furniture to prevent movement. No devices shall be installed in or on a wall or ceiling, or in a wooden cabinet or other furniture of combustible construction, unless it is of a type for which a certificate of approval has been issued by the department.

308.6.4 Safety precautions. Alcohol-fueled decorative devices shall be used in accordance with manufacturer's instructions and the following safety precautions:

1. A lighted device shall not be left unattended. Flames shall be extinguished when the person responsible for attending to the operation of the device leaves the room or goes to sleep. The shutoff switch or device closure shall be used to ensure that the alcohol flames, which are not always readily visible, are extinguished.

2. A device shall not be fueled or moved when it is lighted or when it is not lighted but still hot.

3. A smoke alarm and a carbon monoxide alarm, or detectors, shall be installed in any room in which an alcohol-fueled decorative device is installed or used.

4. A portable fire extinguisher for household use shall be kept readily available in any room in which an alcohol-fueled decorative open-flame device is installed or used.

308.6.5 Storage of fuel. Alcohol stored for use in alcohol-fueled decorative open-flame devices shall be stored in a tightly sealed container in a cool location, away from heat and ignition sources. Such fuel storage is limited to 1 gallon (3.8 L).

SECTION FC 309

POWERED INDUSTRIAL TRUCKS, [AND] EQUIPMENT AND MOBILITY DEVICES

309.1 General. Powered industrial trucks, [and] powered industrial equipment and powered mobility devices shall be designed, operated and maintained in accordance with this section.

309.2 Powered industrial trucks. Powered industrial trucks fueled by flammable or combustible liquids or flammable gases shall be designed and operated in accordance with FC 309.2.1 through 309.2.5.

[309.1.1] 309.2.1 Hazardous locations. Powered industrial trucks that are [used] operated in areas designated as hazardous (classified) locations in accordance with the Electrical Code shall be listed and labeled for use in such environments in accordance with NFPA 505. Entry by [non-classified] equipment that is not listed or approved as suitable for the specific classified location may be allowed for the purpose of maintenance or other necessary business operation where the owner has established an entry authorization procedure and has verified that the entry area is clear of hazardous environment and will remain so for the duration of the entry.

[309.1.2] 309.2.2 Powered industrial trucks using flammable gas fuel. Powered industrial trucks that use LPG or other flammable gas as fuel shall be limited to one fuel container with a capacity not greater than 40 pounds (18.16 kg) or 340 SCF (9.63 m³) of flammable gas, whichever is less, except that powered industrial trucks used to resurface ice that are designed to operate with more than one such container shall be limited to operating with two such containers. Liquefied gas containers installed in a horizontal position shall be of such a design that the pressure relief valve will discharge vapor properly. Powered industrial trucks that use LPG or other flammable gas as fuel shall not be parked near open flames or other heat or ignition sources, or near open pits, underground entrances, elevator shafts, or similar areas. Such powered industrial trucks shall be stored and used in locations with adequate ventilation. It shall be unlawful to store or use such powered industrial trucks in a basement, cellar or other areas below grade.

[309.2 Battery chargers. Battery chargers used to charge batteries in powered industrial trucks and powered industrial equipment shall be of an approved type. Combustible storage shall be kept a minimum of 3 feet (914 mm) from battery chargers. Battery charging shall not be conducted in areas accessible to the public.

309.3 Ventilation. Ventilation shall be provided in an approved manner in battery-charging areas to prevent the

accumulation of flammable gas.

309.4 Portable fire extinguishers. Powered industrial trucks shall be equipped with one 2-B:C rated portable fire extinguisher. Battery-charging areas shall be provided with a portable fire extinguisher complying with the requirements of FC906 having a minimum 4-A:20-B:C rating within 20 feet (6096 mm) of the battery charger.]

[309.5] 309.2.3 Fueling. Powered industrial trucks using a flammable or combustible liquid or flammable gas fuel shall be fueled in compliance with the requirements of [FC309.5.1] FC 309.2.3.1 through [309.5.4] 309.2.3.4.

[309.5.1] 309.2.3.1 Location. All fueling, including container replacement, shall be conducted outdoors or in areas specifically approved for that purpose, and in accordance with this code and the rules.

309.2.3.2 Liquid fuels. Fixed liquid fuel-dispensing equipment for powered industrial trucks shall be designed, installed, operated and maintained in accordance with FC Chapter 23. Emergency refueling of powered industrial trucks using portable containers shall be in accordance with FC Chapters 23 and 57. The engine of a powered industrial truck shall be shut off and the operator shall not be on or inside the truck during refueling.

[309.5.2] 309.2.3.3 Container replacement. Outdoor connecting and disconnecting of fuel gas containers shall be conducted away from open pits, underground entrances, or other areas below grade, and away from all open flames or other heat or ignition sources. Fueling of powered industrial trucks shall be in accordance with FC Chapter [38] 61, if LPG-powered, and FC Chapters [22] 23 and [35] 58, if CNG-powered, and the rules.

[309.5.3] 309.2.3.4 Fixed fuel-dispensing equipment. Fixed liquid fuel-dispensing equipment for powered industrial trucks and for filling of portable containers used to fuel powered industrial equipment shall be designed, installed, operated and maintained in accordance with FC Chapter 22.]

[309.5.4] 309.2.3.4 Hydrogen fueling. Filling of containers for powered industrial trucks with hydrogen, including metal hydride hydrogen storage system containers, shall be conducted in accordance with [FC2209] FC2309.

[309.6] 309.2.4 Repairs. Repairs to fuel systems or electrical systems, and repairs utilizing open flame or welding, shall be done in [approved] an indoor or outdoor location[s or in indoor areas specifically] approved for that purpose.

[309.7] 309.2.5 Storage. When not in use, powered industrial trucks [that use a liquid and/or a gas fuel] shall be stored in approved designated storage areas. Each storage area shall be provided with a portable fire extinguisher complying with the requirements of FC906 having a minimum 4-A:20-B:C rating.

309.3 Battery-powered industrial trucks, industrial equipment and mobility devices. Powered industrial trucks, powered industrial equipment and powered mobility devices using a storage battery shall be designed in accordance with FC309.3.1, and shall be charged and stored in a storage, charging and/or repair facility, including any storage or charging area in Group B, R-2 or M occupancy, that is designed, installed, operated and maintained in accordance with the construction codes, Electrical Code and FC 309.3.2 through 309.3.4.

Exceptions.

1. Storage and charging in a Group R-3 occupancy or in a dwelling unit in a Group R-2 occupancy of not more than 5 powered mobility devices using a storage battery, provided that such devices are for personal use.

2. Charging of a single powered mobility device by and in the presence of its owner or user.

309.3.1 Battery chargers. Powered industrial trucks, powered industrial equipment and powered mobility devices using a storage battery shall be charged in accordance with the manufacturer's instructions and the applicable listing standard using the original equipment manufacturer-supplied charging equipment, or other charging equipment suitable for the purpose, that is designed in accordance with applicable federal, New York State and/or New York City laws, rules or regulations, and listed:

1. pursuant to UL Standard 1564 or other approved listing of an approved testing laboratory; or

2. for use with the truck, item of equipment or device in accordance with UL Standard 2272, UL Standard 2849 or other approved listing of an approved testing laboratory.

309.3.2 Battery inspection. A storage battery shall be inspected for cracks, punctures, leaking contents or other damage prior to charging or re-charging if the battery was dropped, involved in a collision or otherwise subjected to a potential mechanism of damage. Damaged batteries shall not be re-used. Damaged batteries and batteries at the end of their useable life shall be promptly removed from the premises and lawfully disposed of.

309.3.3 Battery charging areas. Powered industrial trucks, powered industrial equipment and powered mobility devices using a storage battery shall be charged in a suitable indoor room or area or outdoor location that:

1. has sufficient natural or mechanical ventilation in accordance with the Mechanical Code to prevent the accumulation of any flammable or other gases that may be discharged during normal charging operations;
2. has an adequate electrical supply and a sufficient number of electrical receptacles to allow the charging equipment for each truck, item of equipment or device to be directly connected to a receptacle. Extension cords and power strips shall not be used. A minimum of 3 feet (914 mm) shall be maintained between each truck, item of equipment or device during charging operations;
3. has an adequate electrical supply and a sufficient number of electrical receptacles to allow the charging equipment for battery packs and other removable storage batteries to be directly connected to a receptacle. Extension cords and power strips shall not be used. Battery packs and other removable storage batteries shall not be stacked or charged in an enclosed cabinet (unless the cabinet is specially designed and approved by the department for such purpose). Except as otherwise approved by the department, a minimum distance of 2 feet (610 mm) shall be maintained between each battery pack or other removable storage battery during charging operations, provided that the aggregate energy capacity of battery packs or other removable storage batteries that can be charged in a single fire area does not exceed 20 kWh. A minimum distance of 3 feet (914 mm) shall be maintained if the aggregate energy capacity exceeds 20 kWh. The aggregate energy capacity of battery packs or other removable batteries that can be charged in a single fire area shall not exceed 50 kWh.
4. is not used for the storage of combustible materials, combustible waste or hazardous materials;
5. is separated by a fire barrier with a minimum one-hour fire-resistance rating from areas in which repairs or other servicing is conducted on the storage battery or other electrical components of the truck, item of equipment or mobility device;
6. where six or more trucks, items of industrial equipment or devices using a storage battery are being charged at a single indoor location, is dedicated for battery charging and secured from unauthorized entry; separated by a fire barrier which encloses the entire space with a minimum one-hour fire-resistance rating; and protected by a fire sprinkler system and one or more smoke detectors or smoke alarms. If the building or occupancy is equipped with a fire alarm system, the smoke detector shall be connected to such system. If the ambient temperature of the room during battery charging operations exceeds the limitations set forth in the manufacturer's instructions or the equipment listing, the room or area shall be temperature controlled to prevent over-heating or other unsafe battery condition; and
7. is provided with a portable fire extinguisher complying with the requirements of FC906 having a minimum 4-A:20-B:C rating.

309.3.4 Storage areas. Indoor storage rooms or areas or outdoor enclosures used for the storage, but not charging or repair, of powered industrial trucks, powered industrial equipment and powered mobility devices using a storage battery shall comply with the requirements of FC 309.3.3(4), (5) and (7).

SECTION FC 310 SMOKING

310.1 General. Smoking, including the carrying of a lighted pipe, cigar, cigarette or any other type of smoking paraphernalia or material, shall be conducted in accordance with this section.

310.2 Prohibitions. It shall be unlawful to:

1. smoke in any area in which smoking is prohibited, as set forth in this section or elsewhere in this code.
2. place or discard, or cause to be placed or discarded, any lighted pipe, cigar, cigarette or other type of smoking paraphernalia or material where it can cause the ignition of combustible material or combustible waste, or otherwise cause an unwanted fire.
3. smoke in any building, structure, premises or part thereof where flammable or combustible materials or explosives are manufactured, stored, handled, used or transported.
4. smoke in the following occupancies and spaces:
 - 4.1. Cellars and basements, except in R-3 occupancies.
 - 4.2. Group A occupancies and public gathering places, except for smoking non-tobacco smoking products in a non-tobacco hookah establishment in accordance with FC310.7.
 - 4.3. Group M occupancies, except for smoking non-tobacco smoking products in a non-tobacco hookah establishment in accordance with FC310.7.
 - 4.4. Hospitals, nursing homes, rehabilitation facilities and similar medical facilities housing the ill, aged and infirm, except within designated smoking rooms when in compliance with the requirements of the Title 17 of the Administrative Code, the New York City Health Code and rules promulgated by the commissioner.
 - 4.5. On any bulkhead, dock, drydock, shipyard, pier, wharf, warehouse or shed on the waterfront.
 - 4.6. On board any ship, barge, ferry, lighter, carfloat, scow, and all other similar floating watercraft or equipment whether berthed or moored at a dock, wharf, pier, or to a marine vessel made fast thereto or in a shipyard.
 - 4.7. Factories as set forth in Section 283 of the New York State Labor Law.
 - 4.8. Lumber yard or woodworking facility as set forth in FC2803.5.3.
 - 4.9. As otherwise prohibited by this code or the rules.

310.3 "No Smoking" signs. When smoking is prohibited by this code or the rules, durable "No Smoking" signs shall be conspicuously posted at approved locations throughout the facility or other location in accordance with FC310, or as otherwise specifically provided in this code. The content, lettering, size and color of required "No Smoking" signs shall be in accordance with the rules, or as otherwise approved by the commissioner.

310.3.1 Location. "No Smoking" signs shall be conspicuously posted at all entrances to facilities in which smoking has been entirely prohibited and any area therein where hazardous materials are stored, handled or used. Facilities or areas within such facilities in which smoking is allowed in designated areas shall have signs indicating that smoking is allowed in designated areas only.

310.4 Removal of signs prohibited. A posted "No Smoking" sign shall not be removed, obscured or rendered illegible.

310.5 Compliance with "No Smoking" signs. It shall be unlawful to smoke, or discard or deposit any burning substance, in any building, structure or premises or part thereof, in which "No Smoking" signs are posted pursuant to this code or the rules or otherwise for fire safety purposes.

310.6 Ash trays. Where smoking is allowed, suitable noncombustible ash trays or receptacles shall be provided at appropriate locations.

310.7 Non-tobacco hookah establishments. Smoking of non-tobacco smoking products is allowed in non-tobacco hookah establishments lawfully operating pursuant to Chapter 5 of Title 17 of the Administrative Code (as those terms are defined

therein), provided that such establishments are designed, installed, operated and maintained in accordance with the following requirements:

310.7.1. Permits. Permits shall be required as set forth in FC105.6.

310.7.2 Supervision. The storage of coal and other solid or liquid flammable and combustible materials in non-tobacco hookah establishments shall be under the general supervision of a person holding a certificate of fitness. The handling and use of charcoal and other solid or liquid flammable and combustible materials in non-tobacco hookah establishments shall be under the personal supervision of a person holding a certificate of fitness.

310.7.3 Use of charcoal or other material for smoking paraphernalia. Where smoking paraphernalia requires the use of lighted charcoal or any other solid or liquid flammable or combustible material, such material shall be stored, handled and used in accordance with this section and the rules.

310.7.3.1 Smoking paraphernalia. Smoking paraphernalia shall comply with such safety measures as may be prescribed in the rules to minimize the risk of fire associated with the use of such paraphernalia.

310.7.3.2 Storage of charcoal. Charcoal shall be stored in [the same manner as solid fuel used for commercial cooking operations, as set forth in FC 609.5.2 and the rules] accordance with FC315.7. Other flammable or combustible materials shall be stored in compliance with the requirements of this code [or] and the rules.

310.7.3.3 Preparation, handling and disposal of charcoal and other materials. Charcoal shall be prepared for use in an [enclosed stationary furnace or oven vented to the outdoors in accordance with the Construction Codes, in] approved indoor or outdoor area, on a noncombustible surface, using an approved [vessel] device heated by an electric element or other approved device or method, stored in an oven or other approved noncombustible vessel, and vented by means of a hood, or in a room with an approved ventilation system, or other approved method, as set forth in the rules. Lighted charcoal and ashes, cinders and other fire debris, and other combustible waste shall be handled and disposed of in such manner as may be prescribed in the rules to minimize the risk of fire.

310.7.3.4 Portable fire extinguishers. In addition to complying with the requirements of FC906, a portable fire extinguisher with at least a [5-B] 2-A:10-B:C rating shall be provided and maintained in a non-tobacco hookah establishment in the charcoal preparation area and in each area in which non-tobacco smoking products are smoked.

310.7.3.5 Decorations. Decorations in non-tobacco hookah establishments shall be flame-resistant in accordance with FC805 and the rules.

310.8 Hazardous environmental conditions. The commissioner may prohibit lighted matches, cigarettes, cigars or other burning substances in any location upon a determination that such activity creates an undue fire hazard because of conditions in the surrounding environment.

SECTION FC 311

VACANT AND TEMPORARILY UNOCCUPIED PREMISES

311.1 Vacant buildings. Any vacant building, structure or premises, or part thereof, shall be deemed to constitute a temporarily unoccupied building and shall be safeguarded and maintained in compliance with the requirements of this section, unless such building, structure or premises has been deemed unsafe pursuant to Article 216 of Title 28 of the Administrative Code, in which case it shall be safeguarded and maintained in compliance with the requirements of the Department of Buildings and/or the Department of Housing, Preservation and Development, as applicable.

311.2 Temporarily unoccupied buildings. Temporarily unoccupied buildings, structures, premises or parts thereof, including tenant spaces, shall be secured and protected in accordance with this section.

311.2.1 Security. Exterior openings and interior openings accessible to unauthorized persons, including tenants, shall be locked or otherwise protected to prevent entry by unauthorized persons.

311.2.2 Fire protection. Fire alarm, sprinkler and standpipe systems shall be maintained in an operable condition at all times, except as authorized by the commissioner.

311.2.3 Fire separation. Fire-resistance-rated partitions, fire barriers, and fire walls, including those separating temporarily unoccupied tenant spaces from the remainder of the building shall be maintained. Openings, joints, and penetrations in fire-resistance-rated assemblies shall be protected in accordance with Chapter 7 of the Building Code.

311.3 Removal of combustible waste. The owner of any building, structure or premises, or part thereof, that is deemed unsafe, and any temporarily unoccupied building, structure or premises, or part thereof, shall remove therefrom and prevent accumulations of rubbish and other combustible waste by regular cleaning of the premises.

Exception: Temporarily unoccupied buildings, structures, premises or parts thereof undergoing construction or repair in accordance with the Building Code, where rubbish and other combustible waste is controlled and removed in accordance with FC304.

311.4 Removal of hazardous materials. The owner of any vacant building, structure or premises, or part thereof, that contains hazardous materials and that is deemed unsafe pursuant to Article 216 of Title 28 of the Administrative Code shall comply forthwith with the facility closure requirements of [FC2701.6] FC5001.6. The owner of a temporarily unoccupied building, structure or premises, or part thereof, that contains hazardous materials regulated by FC Chapter [27] 50 shall comply with the facility closure requirements of [FC2701.6] FC5001.6. Vacant and temporarily unoccupied buildings, structures or premises, and all parts thereof, shall thereafter be maintained free of hazardous materials, including hazardous waste material, except as approved by the commissioner.

311.5 Covered malls. Unoccupied tenant spaces in covered malls shall be:

1. kept free from the storage of any combustible materials.
2. kept separate from other tenant spaces and areas of the mall by maintaining any fire separation requirement of the Building Code during the period of time that the space remains unoccupied or under reconstruction.
3. periodically inspected on at least a weekly basis to ensure that the space is being maintained in accordance with this section. Doors to spaces shall be secured from entry by keeping all doors locked at all times when the space is unoccupied.
4. kept free from rubbish and other combustible waste.

SECTION FC 312 VEHICLE IMPACT PROTECTION

312.1 General. Vehicle impact protection required by this code shall be provided by posts that comply with the requirements of FC312.2 or [by other approved physical barriers that comply with the requirements of] FC312.3, and FC312.4.

312.2 Posts. Posts used to provide vehicle impact protection shall comply with the following requirements:

1. Constructed of steel not less than 4 inches (102 mm) in diameter and concrete filled.
2. Spaced not more than 4 feet (1219 mm) between posts on center.
3. Set not less than 3 feet (914 mm) deep in a concrete footing of not less than a 15-inch (381-mm) diameter.
4. Set with the top of the posts not less than 3 feet (914 mm) above grade.
5. Located not less than 3 feet (914 mm) from the protected object.

312.3 Other barriers. [Physical barriers shall be a minimum of 36 inches (914 mm) in height and shall resist a force of 12,000 pounds (53 375 N) applied 36 inches (914 mm) above the adjacent ground surface.] Barriers meant to resist, deflect or visually deter vehicular impact, other than posts in accordance with FC312.2, shall be designed and installed in an approved manner commensurate with anticipated impact scenarios.

312.4 Fire apparatus access. Posts and other barriers that may obstruct or impede fire apparatus access shall be removable by the department in an approved manner.

SECTION FC 313 PORTABLE FUELED EQUIPMENT

313.1 Scope. The storage, handling and use of portable fueled equipment shall be governed by this section and the rules.

313.2 General. Portable fueled equipment shall be stored, handled and used in accordance with this section.

313.3 Prohibitions. It shall be unlawful to:

1. Store, handle or use indoors portable fueled equipment, including lawn-care equipment, snow blowers, portable generators [and], kerosene and other portable space heaters, and any portable fueled device, equipment or system that generates a flame, other than one installed in accordance with the construction codes. The owner of a building, structure or premises shall not provide, or cause to be provided, any such equipment, including equipment designed for space heating.

Exceptions:

1. Indoor storage of lawn-care equipment, power washers, snow blowers, portable generators and other portable fueled equipment designed for outdoor use in a garage or garage space separated from dwelling spaces or other occupancies in accordance with the Building Code, or in a building classified as a Group U occupancy; or in another approved storage area in a building. This exception shall not apply to portable space heaters.

2. The indoor storage, handling and use of portable fueled equipment where authorized by this code, including portable fueled equipment allowed by this section, open-flame devices allowed by [FC 308 and 314] FC308, displays allowed by FC314, and construction equipment allowed by FC Chapter [14] 33, and portable fueled equipment allowed for demonstrations at exhibitions and trade shows by the rules.

3. The storage of portable fueled equipment for sale or distribution in a mercantile or storage occupancy.

4. The storage, handling and use of portable fueled equipment in a business, factory or mercantile occupancy engaged in the business of manufacturing or repairing of such equipment, provided that portable space heaters are operated solely in connection with such manufacturing or repair, and are not used for space heating purposes.

2. Store, handle or use for space heating, other than storage for sale, any portable fueled equipment that utilizes a flammable liquid as a fuel, or, except as authorized by FC313.5, that utilizes a combustible liquid as a fuel. Any such portable fueled equipment that shows evidence of having been used shall be deemed to be or have been in use.

3. Use any portable fueled equipment that utilizes waste oil as a fuel. Any such portable fueled equipment that shows evidence of having been used shall be deemed to be or have been in use.

4. Remove paint in or on buildings, structures or premises with a torch or any other flame-generating device. Paint removal may be conducted using heat-producing devices other than portable fueled equipment. The person using such heat-producing device to remove the paint shall remain at the location where the heating operation was conducted to maintain a fire watch for not less than 1 hour after using such device.

313.4 Confiscation and removal. The commissioner may confiscate or order the removal of portable fueled equipment from indoor or outdoor locations where the storage, handling or use of such equipment is determined by the commissioner to be hazardous.

313.5 Portable space heaters. Portable fueled equipment used for space heating shall additionally be stored, handled and used in accordance with FC 313.5.1 and 313.5.2.

313.5.1 Listing and labeling of space heaters. Portable space heaters and other portable fueled equipment used for

space heating shall be listed and labeled.

313.5.2 Authorized uses. Portable space heaters may be used for space heating as set forth in FC 313.5.2.1 through 313.5.2.6.

313.5.2.1 Portable natural gas heaters. Portable space heaters fueled by piped natural gas may be stored, handled and used for outdoor use when designed, installed, operated and maintained in accordance with this code, including FC313.6, the rules and the construction codes, including the Building Code.

313.5.2.2 Construction sites. Portable space heaters may be stored, handled and used at construction sites in accordance with FC Chapter [14] 33 and the rules.

313.5.2.3 Reserved.

313.5.2.4 Local emergency. In the event of failure during severe cold weather of a central heating unit in any building or structure other than a private dwelling, multiple dwelling or Group A occupancy, portable space heaters approved for such indoor use may be used for a period not to exceed 2 weeks when such use has been approved.

313.5.2.5 Public emergencies. In the event of a public emergency which disrupts, interferes with or impairs the operation or use of equipment, supplies or utilities normally utilized for heating, use of portable space heaters for indoor or outdoor use may be authorized by the commissioner upon a declaration of emergency by the mayor.

313.5.2.6 Supervision. The handling and use of portable space heaters shall be under the personal supervision of a certificate of fitness holder or a plumber. The storage of portable space heaters, and the fuel therefor, shall be under the general supervision of a certificate of fitness holder or a plumber.

Exception: Group R-3 occupancies.

313.6 Portable natural gas heaters. Portable space heaters fueled by piped natural gas shall be designed, operated and maintained in accordance with FC 313.6.1 through 313.6.5.

313.6.1 Clearance to buildings. Heaters shall be located outdoors and at least 5 feet (1524 mm) from any building or structure.

313.6.2 Clearance to combustible materials. Heaters shall not be located beneath, or closer than 5 feet (1524 mm) to combustible decorations and combustible overhangs, awnings, sun control devices or similar combustible attachments to buildings or structures.

313.6.3 Proximity to exits. Heaters shall not be located within 5 feet (1524 mm) of exits or exit discharges.

313.6.4 Tip-over switch. Heaters shall be equipped with a tilt or tip-over switch that automatically shuts off the flow of gas if the appliance is tilted more than 15 degrees (0.26 rad) from the vertical.

313.6.5 Guard against contact. The heating element or combustion chamber of heaters shall be permanently protected so as to prevent accidental contact by persons or material.

313.7 Torches. Where allowed, indoor use of torches shall be in accordance with FC Chapters 35, 58 and 61 and the rules. Indoor use of LPG-fueled torches in residential occupancies for soldering, food browning and other household uses, shall be limited to torches with an LPG container capacity of 16.4 ounces in accordance with FC Chapter 61 and the rules.

SECTION FC 314 INDOOR DISPLAYS

314.1 General. Indoor displays in any occupancy shall be designed and installed in accordance with FC 314.2 through 314.4.

314.2 Fixtures and displays. Fixtures and displays of goods for sale to the public shall be arranged so as to maintain free, immediate and unobstructed access to exits as required by FC Chapter 10 and the construction codes, including the Building Code.

314.3 Highly combustible goods. It shall be unlawful to display highly combustible goods, including flammable or combustible liquids, liquefied flammable gases, oxidizing materials, pyroxylin plastics and agricultural goods, in main exit access aisles, corridors, common areas of covered malls, or within 5 feet (1524 mm) of entrances to exits and exterior exit doors.

314.4 Vehicles and watercraft. [Watercraft and fueled] Fueled and electric vehicles[,] (including motor vehicles, motorcycles and mopeds[,]) and watercraft that are displayed indoors shall comply with the following requirements:

1. [Batteries] Vehicle and watercraft engines shall not be operated at any time when the display is open to the public. Liquid-fueled vehicle and watercraft engine batteries shall be disconnected[,] or the engine otherwise disabled from starting by installation of an ignition lock, "kill switch" (relay) or other approved means. Battery or other electrical connections that are disconnected shall be adequately taped to prevent arcing. For electric and gaseous-fueled vehicles:

1.1. Battery power necessary to preserve vehicle safety features shall be maintained.

1.2. Appropriate safety measures shall be implemented to prevent the engine from being started and/or the vehicle from moving or other approved means, including securing the engine start key or fob and preventing remote engine start.

2. Fuel in fuel tanks shall not exceed [one-quarter] one-eighth tank or [5] 2.5 gallons ([19] 9.5 L) (whichever is less). Gaseous-fueled vehicles or watercraft shall contain no more fuel than the energy equivalent of 2.5 gallons (9.5 L) of gasoline.

3. Fuel tanks and fill openings shall be closed and secured with a locking gas cap.

4. Fueling or defueling shall not be conducted indoors.

5. No repairs or other work shall be conducted on a motor vehicle or watercraft in the display area.

6. Where indoor display of motor vehicles and watercraft is in Group A occupancies and other public gathering places, aisles with an unobstructed minimum width of 3 feet (914 mm) shall be maintained.

7. Such [additional] other requirements as the [commissioner] department may promulgate [governing the display of such vehicles and watercraft in Group A occupancies, and buildings, structures or premises used for public gatherings.] by rule.

314.5 Required clearance from fire safety systems. Sprinklers and fire alarm systems shall not be obstructed by indoor displays.

314.5.1 Sprinkler systems. A sprinkler system shall be installed in or under covered kiosks, displays, booths, or concession stands that exceed 4 feet (1219 mm) in width. The clearance between any sprinkler head deflector installed above the top of the kiosks, displays, booths, or concession stands shall not be less than 18 inches (457 mm).

Exception: Open-grid and drop-out ceilings complying with the requirements of NFPA 13, as modified by FC Appendix B, may be installed beneath sprinklers.

314.5.2 Fire alarm systems. Sufficient clearance shall be provided between kiosks, displays, booths, or concession stands and fire alarm and carbon monoxide systems equipment and devices including detectors and strobes, so as not to interfere with their operation.

SECTION FC 315 COMBUSTIBLE MATERIALS STORAGE AND OTHER STORAGE HAZARDS

315.1 General. [Combustible materials] Storage of materials shall be [stored, handled and used] in accordance with this

section.

Exception: Storage of materials during construction and demolition operations shall comply with the requirements of FC Chapter [14] 33.

315.2 Storage in buildings. Storage of [combustible] materials in buildings shall be orderly and stacked materials shall be stable. Storage [area] of combustible materials shall be separated from heaters or heating devices by distance or shielding so that ignition cannot occur.

315.2.1 Ceiling clearance. Storage shall be maintained 2 feet (610 mm) or more below the ceiling in areas of buildings not protected by a sprinkler system, or a minimum of 18 inches (457 mm) below sprinkler head deflectors in areas protected by a sprinkler system, provided, however, that storage of noncombustible materials to the ceiling may be authorized by the department when such storage is within 30 inches (762 mm) of a fire partition.

315.2.2 Means of egress. [Combustible materials] Materials shall not be stored in a manner that obstructs egress from any building, structure or premises.

315.2.3 Equipment rooms. Combustible material shall not be stored in boiler rooms, mechanical rooms or electrical equipment rooms.

315.2.4 Attic, under-floor and concealed spaces. Attic, under-floor and concealed spaces used for storage of combustible materials shall be protected on the storage side as required for 1-hour fire-resistance-rated construction. Openings shall be protected by assemblies that are self-closing and are of noncombustible construction or solid wood core not less than 1.75 inches (44.5 mm) in thickness. Storage shall not be placed on exposed joists.

Exceptions:

1. Areas protected throughout by sprinkler systems.
2. Group R-3 and Group U occupancies.
3. Groups S-1 and S-2 occupancies.

315.3 Outdoor storage. Outdoor storage of combustible materials[shall not be located within 10 feet (3048 mm) of a property line or within 50 feet (15 240 mm) of the nearest wall of a building occupied as a Group A occupancy, Group E educational occupancy, Group I-2 occupancy, or any building, structure or premises used for a public gathering] in quantities in excess of 32 cubic feet (0.91 m³) shall comply with FC 315.3.1 through 315.3.6.

[315.3.1 Storage beneath overhead projections from buildings. Combustible materials stored or displayed outdoors at locations adjoining buildings or structures that are protected throughout by a sprinkler system shall not be stored or displayed under eaves, canopies or other projections or overhangs that are not protected by a sprinkler system.]

315.3.1 Property line. Except as otherwise provided in FC315.3.5, outdoor storage of combustible materials shall not be located within 10 feet (3048 mm) of a property line.

[315.3.2 Height. Storage in the open shall not exceed 20 feet (6096 mm) in height.]

315.3.2 Adjoining properties. Except as otherwise provided in FC315.3.5, outdoor storage of combustible materials shall not be located within 50 feet (15 240 mm) of the nearest wall of a building occupied as a Group A occupancy, Group E educational occupancy, Group I-2 occupancy, or any building, structure or premises used for a public gathering.

315.3.3 [Reduced separation distance. The separation distances required by FC 315.3 may be reduced when approved and when in compliance with the requirements of FC 315.3.3.1 through 315.3.3.3.]Building walls, openings and overhead projections. Except as otherwise provided in FC315.3.5, outdoor storage of combustible materials shall not be located:

1. Within 10 feet (3048 mm) of any building wall that is constructed of a combustible material;
2. Within 10 feet (3048 mm) of any building opening, regardless of the wall construction; and

3. Under building eaves, canopies, awnings and other overhangs.

[315.3.3.1 Fencing. The outdoor storage area shall be enclosed by an approved well-constructed and maintained fence between 10 and 18 feet (3048 and 5486 mm) in height above the street level. If any building having an unpierced fire wall adjoins the enclosure, no fence shall be required on that side.

315.3.3.2 Separation from building openings. The outdoor storage area shall be completely separated from any window or door openings of any wall of an adjoining building by a well-constructed and maintained fence of noncombustible material of an approved height, erected at least 6 feet (1829 mm) from such opening and extending at least 6 feet (1829 mm) on each side thereof and continued to the sides of the enclosure or carried to the walls of the building.

315.3.3.3 Pile height. The outdoor storage at any point shall not be piled higher than 2 feet (610 mm) below the top of the fence required by FC 315.3.3.1.

315.3.4 Portable fire extinguishers. At least one portable fire extinguisher with a rating of at least 4-A shall be provided for every 2,500 square feet (232.3 m²) of storage area, or portion thereof, or in lieu thereof, a hose of at least 1 inch (25 mm) in diameter, equipped with a nozzle of at least 1/2 inch (12.7 mm) in diameter, sufficient in length to reach all parts of the enclosure, and connected to an adequate water supply may be provided.]

315.3.4 Height. Outdoor storage shall not exceed 20 feet (6096 mm) in height or such lower maximum height allowed by the Building Code or Zoning Resolution.

315.3.5 Reduced separation distance. The separation distances set forth in FC315 may be reduced when the combustible materials are:

1. Stored in approved cabinets or containers as set forth in FC315.7.2.2, or other approved cabinet or container suitable for the type or quantity of stored combustible material;
2. Where appropriate to the type of stored combustible material, enclosed by a solid fence of an approved noncombustible material and an approved height. The combustible materials shall not be piled higher than 2 feet (610 mm) below the top of the fence; and/or
3. One or more other approved fire protection measures are provided.

315.3.6 Portable fire extinguishers. At least one portable fire extinguisher with a rating of at least 4-A shall be provided for every 2,500 square feet (232.3 m²) of storage area, or portion thereof, or in lieu thereof, a hose of at least 1 inch (25 mm) in diameter, equipped with a nozzle of at least 1/2 inch (12.7 mm) in diameter, sufficient in length to reach all parts of the enclosure, and connected to an adequate water supply may be provided.

315.4 Space underneath grandstands and bleachers. Except where enclosed in not less than 1-hour fire-resistance-rated construction in accordance with the Building Code, spaces underneath grandstand and bleacher seating shall not be occupied or utilized for purposes other than means of egress.

315.5 Storage underneath high-voltage transmission lines. It shall be unlawful to store hazardous materials or combustible materials outdoors within the utility easement underneath high-voltage transmission lines.

315.6 Storage in plenums. It shall be unlawful to use plenums for storage of combustible or other material, including equipment and cabling that has been taken out of service and abandoned, unless such equipment and cables have been tagged for future use in accordance with Electrical Code. The accessible portion of such abandoned equipment and cables shall be removed.

315.7 Storage of solid fuel. Storage of wood, charcoal or other combustible material for use as solid fuel, including for use in commercial cooking appliances, fireplaces or solid fuel-burning equipment approved by the Department of Buildings, and in non-tobacco hookah establishments, shall be in accordance with FC 315.7.1 through 315.7.3, except that storage of solid fuel in Group R-2 occupancies shall be in accordance with FC315.7.4.

Exceptions:

1. Storage for sale of solid fuel in a mercantile establishment.
2. Group R-3 occupancies.

315.7.1 Supply for immediate use. Not more than a one-day supply of solid fuel may be kept in the same room as the solid fuel-burning equipment or in the room with the fuel loading or clean-out doors or other opening. Unless the solid fuel-burning equipment is designed for internal storage of solid fuel, the solid fuel stored in such room shall not be located:

1. Within 3 feet (914 mm) of the solid-fuel burning equipment or any other heating or cooking appliance;
2. Within 6 feet (1829 mm) of any solid fuel loading opening or door of the solid fuel-burning equipment; or
3. Above any cooking or heating equipment, flue or vent.

315.7.2 Additional solid fuel storage. Solid fuel in excess of a one-day supply shall be stored indoors and/or outdoors in accordance with FC 315.7.2.1 through 315.7.2.2.

315.7.2.1 Indoor. Solid fuel may be stored indoors in:

1. A room dedicated to the storage of not more than 150 cubic feet (4.3 m³) of solid fuel, provided that such storage room is protected by a sprinkler system and enclosed by a minimum of 1-hour fire barriers and horizontal assemblies (walls, floor and ceiling) constructed in accordance with the Building Code; or

2. A building or occupancy protected throughout by a sprinkler system, in metal cabinets dedicated to the storage of solid fuel that:

- 2.1. Are designed and constructed in accordance with FC5003.8.7 (for hazardous materials storage);
- 2.2. Are placed on a stable, noncombustible surface; and
- 2.3. Have a maximum aggregate capacity of 75 cubic feet (2.1 m³); or

3. Metal cabinets designed and installed in accordance with FC315.7.2.1(2) that are located in a room that is protected by a sprinkler system and enclosed by a minimum of 1-hour fire barriers and horizontal assemblies (walls, floor, and ceiling) constructed in accordance with the Building Code, but such room is not required to be dedicated solely to the storage of solid fuel.

315.7.2.2 Outdoor. Solid fuel shall be stored in well-constructed metal cabinets or containers (with welded seams) dedicated to the storage of solid fuel that:

1. Have securely-closing, close-fitting metal door or lids;
2. Are placed on a concrete or other stable, noncombustible surface;
3. Have a maximum aggregate capacity of 75 cubic feet (2.1 m³); and
4. Are designed and constructed in accordance with FC5003.8.7 (for hazardous materials storage) or, if not located within 6 feet (1829 mm) of a combustible surface, are designed and well-constructed of steel having a thickness of not less than 0.0478 inch (1.2 mm) (18 gauge).

315.7.3. Protection of solid fuel. Solid fuel shall be protected by:

1. Keeping the doors or lids to a solid fuel storage room, cabinet or container closed;
2. Posting a durable sign or marking that reads "SOLID FUEL - KEEP FIRE AWAY" at the entrance to a solid fuel storage

room or storage cabinet or container; and

3. Storing charcoal and similar combustible materials in their original packaging, or in noncombustible containers with securely-closing lids and an internal vertical dimension of not more than 48 inches (1219 mm).

315.7.4 Storage of solid fuel in Group R-2 occupancies. Storage of solid fuel in Group R-2 occupancies, including storage for use in fireplaces and solid fuel-burning equipment approved by the Department of Buildings, shall be in accordance with FC 315.7.4.1 and 315.7.4.2.

315.7.4.1 Indoor storage. Indoor storage of solid fuel shall not exceed 4 cubic feet (0.11 m³) of solid fuel in each dwelling unit, which shall be stored in a safe manner away from sources of ignition.

315.7.4.2 Outdoor storage. Outdoor storage of solid fuel shall be in accordance with FC315.7.2.2.

SECTION FC 316 HAZARDS TO EMERGENCY RESPONDERS

316.1 Hoistway and shaftway protection. The doors and/or gates to hoistways, freight elevator shafts, trap doors and other means used to provide access to vertical openings, shall be kept closed and secured, or otherwise protected, except when being used to provide access, and shall be closed, secured or otherwise protected, as applicable, at the end of each work day.

316.2 Shaftway markings. Vertical shafts shall be identified as required by this section.

316.2.1 Exterior access to shaftways. Outside openings accessible to the department and which open directly on a hoistway or shaftway communicating between two or more floors in a building shall be plainly marked with the word SHAFTWAY in red letters at least 6 inches (152 mm) high on a white background. Such warning signs shall be placed so as to be readily discernible from the outside of the building.

316.2.2 Interior access to shaftways. Door or window openings to a hoistway or shaftway from the interior of the building shall be plainly marked with the word SHAFTWAY in red letters at least 6 inches (152 mm) high on a white background. Such warning signs shall be placed so as to be readily discernible.

Exception: Marking shall not be required on shaftway openings which are readily discernible as openings onto a shaftway by the construction or arrangement.

316.3 Pitfalls. Installations designed to disable, injure, maim or kill intruders are prohibited. No person shall install or use firearms, sharp or pointed objects, razor wire, explosives, flammable or combustible liquid containers, or dispensers containing highly toxic, toxic, irritant, piercing sounds or other hazardous materials in a manner which may passively or actively disable, injure, maim or kill a firefighter or other emergency responder who enters a building or premises, forcibly or otherwise, for the purpose of controlling or extinguishing a fire, rescuing trapped occupants or rendering other emergency assistance.

316.4 Security device. It shall be unlawful to install, operate or maintain a security device that emits any substance that could obscure a means of egress in any building, structure or premises.

SECTION FC 317 AUTOMOTIVE SALVAGE AND WRECKING FACILITIES

317.1 General. Automotive salvage and wrecking facilities shall be designed, installed, operated and maintained in accordance with this section. The design and installation provisions of this section shall apply to both new and existing facilities.

317.2 Prohibitions. It shall be unlawful to:

1. Dispose of any fuel or flammable or combustible liquid waste by discharging or otherwise disposing of such fuel or liquid waste in any drain or sewer, upon any premises, or in any river, stream or other body of water.

2. Light or maintain an open fire for the burning, dismantling, salvaging, scrapping wrecking of motor vehicles or parts thereof.

317.3 Supervision. Automotive salvage and wrecking facilities shall be supervised as follows:

1. The facility shall be under the personal supervision of a person holding a certificate of fitness for automotive salvage and wrecking facilities, who shall ensure that the facility is designed, installed, operated and maintained in accordance with this code and other applicable laws, rules, and regulations.

2. The [de-fueling] defueling of motor vehicle fuel tanks and the transfer of fuel from the defueling equipment shall be conducted by or under the personal supervision of a certificate of fitness holder.

3. Hot work shall be personally conducted by a person holding a certificate of fitness for such work in accordance with FC Chapter 35.

317.4 Facility requirements. Automotive salvage and wrecking facilities shall be in accordance with FC 317.4.1 through 317.4.3.

317.4.1 Licensing. Department permits and other approvals shall be issued to an automotive salvage and wrecking facility only if such facility is licensed and maintained in accordance with requirements of the New York State Department of Motor Vehicles and the New York City Department of Consumer Affairs.

317.4.2 Lawful occupancy. Department permits and other approvals shall be issued to automotive salvage and wrecking facilities only if use of the premises for such facility is authorized by the certificate of occupancy or otherwise constitutes a lawful use of the premises.

317.4.3 Design requirements. Automotive salvage and wrecking facilities shall be designed in accordance with FC 317.4.3.1 through 317.4.3.3.

317.4.3.1 Facility enclosure. The facility shall be enclosed on all sides by a solid, opaque fence or wall at least 8 feet (2438 mm) in height in accordance with the Building Code and the Zoning Resolution.

317.4.3.2 Fire apparatus roads. The facility shall be accessible from fire apparatus roads with a minimum unobstructed width of 20 feet (6096 mm). An outdoor area of the facility shall be accessible by fire apparatus roads on all four sides with a distance between such roads of not greater than 50 feet (15 240 mm) by 100 feet (30 480 mm).

317.4.3.3 Defueling area. The defueling of motor vehicle fuel tanks shall be conducted at an approved location that is protected throughout by a fire extinguishing system.

317.5 Operation and maintenance. Automotive salvage and wrecking facilities shall be operated and maintained in accordance with FC 317.5.1 through 317.5.4.

317.5.1 Fire apparatus access roads. Fire apparatus access roads shall be maintained unobstructed to provide access for department apparatus.

317.5.2 Torch operations. Torch operations shall be conducted in accordance with FC Chapter [26] 35 and in compliance with the following requirements:

1. Torch operations shall be conducted at least 35 feet (10 668 mm) from combustible waste, other motor vehicles, stacks of motor vehicles or other combustible material, unless protection in the form of noncombustible shields or covers are provided to restrict the scattering of sparks and molten metal.

2. Torch operations shall not be conducted in any location where hazardous gases or vapors may be present. Fuel tanks of motor vehicles shall be emptied of fuel and purged of all flammable vapors before any torch operations are commenced.

3. Compressed gas containers, when in use, shall be properly supported and placed a safe distance from torch operations.

4. Compressed gas containers, when not in use, and reserve containers, shall be properly supported and stored in a location remote from torch operations. The valves of such containers shall be closed and protected from mechanical damage by the placement of protective caps. Empty containers shall be treated as full.

5. Torch operation areas shall be protected by a charged hose line, at least 1 inch (25 mm) in diameter, connected to an approved source of water. In lieu of such hose line, at least four portable fire extinguishers with a minimum 2-A rating each may be provided.

6. The torch operator or a person designated as a fire watch shall search the torch operation area immediately after operations to determine that no sparks or molten metal remain in the area. Additionally, a second such search shall be conducted 1/2 hour thereafter. A record of such searches shall be maintained in a log book at the premises and made available for inspection by any representative of the department.

317.5.3 Draining of motor vehicle fluids. The draining of fluids from motor vehicles shall be in accordance with FC 317.5.3.1 and 317.5.3.2.

317.5.3.1 Draining of motor vehicle fuel tanks. As soon as practicable after arrival, the fuel tank of motor vehicles received at salvage and wrecking facilities shall be defueled through the vehicle's fuel connection, or other approved procedure. Defueling equipment shall be listed for such purpose as a complete assembly and shall have a container capacity not exceeding 65 gallons (246 L). The fuel recovered by the defueler shall be transferred to a storage tank complying with the requirements of FC Chapter [22] 23 or [34] 57, as applicable. Defueling equipment shall not be used to fuel motor vehicles.

317.5.3.2 Draining of other motor vehicle fluids. Crankcase oil and other flammable or combustible liquid waste shall be removed from motor vehicles and stored outdoors, in tanks complying with the requirements of FC Chapter [34] 57, or, when approved, portable containers.

317.5.4 Emergency operations. In automotive salvage and wrecking facilities provided with cranes for the purpose of moving or stacking motor vehicles, procedures shall be developed by the owner such that a crane operator would be made available in a reasonable period of time in the event that crane operation is required during a fire or other emergency.

317.6 Excessive fires. The occurrence of more than two fires in an automotive salvage and wrecking facility during any 12-month period shall give rise to a rebuttable presumption that the owner has failed to properly maintain the facility in compliance with the requirements of this section, and shall be grounds for revocation of department permits and other approvals, or other appropriate enforcement action.

317.7 Air bags. Undeployed waste air bags shall be stored and handled at automotive salvage and wrecking facilities in accordance with the FC 317.7.1 through 317.7.3.

317.7.1 Limitation on storage. Not more than 250 undeployed waste air bags shall be stored at an automotive salvage and wrecking facility unless the facility is an approved air bag waste collection facility in accordance with EPA regulations and registered with the New York State Department of Environmental Conservation.

317.7.2 Storage of undeployed waste air bags. No later than the end of each workday, undeployed waste air bags shall be packaged for shipment and disposal in compliance with DOTn regulations and stored in a cool, dry and secure area, free of oil, grease, detergent, or water, at least 50 feet from any hot work area or other source of ignition. The air bag leads shall be protected from stray current by shunting them and wrapping them in electrical tape or by other approved method. Storage of more than 250 undeployed waste air bags shall require that the automotive salvage and wrecking facility be an approved air bag waste collection facility.

317.7.3 Removal of undeployed waste air bags. Undeployed waste air bags shall be disposed of by a lawful waste hauler in accordance with EPA, DOTn and New York State Department of Environmental Conservation regulations.

SECTION FC 318
ROOFTOP GARDENS AND LANDSCAPING

318.1 General. Rooftop gardens and landscaping, including living walls, shall be designed, installed, operated and maintained in accordance with the construction codes, including the Building Code and this section.

318.2 Rooftop access and obstructions. Rooftop gardens and landscaping subject to the rooftop access and obstruction provisions of FC504.4 shall be designed and installed in compliance with the requirements of that section.

318.3 Maintenance of vegetation. Rooftop gardens and landscaping shall be maintained in a healthy condition and shall not be allowed to encroach upon areas required to be kept clear. Vegetation shall be regularly pruned for these purposes and vegetation capable of being ignited shall be regularly cleared and removed from the rooftop and the building.

318.4 Maintenance equipment. Portable fueled equipment, including flammable and combustible liquid fuels, used for the maintenance of rooftop garden and landscaping vegetation shall be stored in accordance with FC 313 and [3404.3.4.4] 5704.3.4.4.

318.5 Water supply. Rooftop gardens or landscaping exceeding 250 square feet (23 m²) shall be provided with a rooftop garden hose connected to an approved water supply. Where the size of the rooftop garden, extent of landscaping, type of vegetation, and/or premises maintenance history warrant, the department may require installation of an irrigation system or other approved method of hydration to ensure proper maintenance of the vegetation.

SECTION FC 319
[MARINAS] RESERVED

[319.1 Scope. This section shall govern the design, installation, operation and maintenance of marinas mooring or storing more than five marine vessels or watercraft 65 feet (19 812 mm) or less in length.

319.2 General. Marinas shall be designed, installed, operated and maintained in accordance with the requirements of NFPA 303 and this section.

319.3 Fire safety precautions. Marinas shall comply with the fire safety precautions set forth in NFPA 303 and this section.

319.3.1 Combustible waste. Marinas shall be kept free of accumulations of combustible waste in accordance with FC304. Rubbish and other combustible waste shall not be allowed to accumulate beneath marina structures, piers or wharves.

319.3.2 Sources of ignition. Open flames and open-flame devices shall not be used within 3 feet (914 mm) of combustible material. Open flames, open-flame devices and other sources of ignition shall not be stored or used in the areas in which smoking is prohibited pursuant to FC319.3.3. Portable electric lights approved for use in a hazardous location shall be used where flammable vapors may be present, and shall be equipped with safety devices designed to prevent physical damage to the bulbs.

319.3.3 Smoking. It shall be unlawful to smoke in the following areas of a marina, and any other areas as the commissioner may proscribe by rule:

1. Where fuels are stored or dispensed.
2. Where flammable or combustible liquids are stored, handled or used.
3. Battery storage and battery charging areas.
4. Covered or enclosed boat storage areas.

319.3.4 Lumber and other combustible material storage. Lumber and other combustible materials shall be stored in accordance with FC Chapter 19, at a location separate from the area in which marine vessel construction or repair, marine vessel or watercraft fueling, or other work involving the handling or use of flammable or combustible liquids or open flames is conducted.

319.4 Marina operations. Marinas shall be operated in accordance with NFPA 303 and this section.

319.4.1 Storage. Marine vessels and watercraft shall be stored in accordance with Chapter 7 of NFPA 303 and this section.

319.4.1.1 Clearances. No vessel or watercraft shall be stored closer than 3 feet (914 mm) to any lot line, or closer than 3 feet (914 mm) horizontally from another vessel, unless access for firefighting operations is provided in another approved manner.

319.4.1.2 Combustible waste and cargo. All combustible waste and cargo shall be removed from vessels and watercraft in storage.

319.4.1.3 Batteries and fuel. Where practicable, batteries and all fuel shall be removed from the vessel. Where removal of batteries is impracticable, precautions during charging of batteries shall be taken in accordance with FC319.3. Where removal of fuel is impracticable, all tank stop valves shall be closed and the tank inspected to ensure that there are no leaks. Adequate ventilation shall be provided for hull and bilge areas.

319.4.1.4 Covers. Shrink-wrapped plastic or other material used to cover vessels in storage shall be flame-resistant in accordance with FC Chapter 8 and the rules.

319.4.2 Hot work operations. Hot work operations and other use of open flames shall comply with the requirements of FC Chapter 26 and this section. All flammable liquid, combustible liquid or flammable gas, except the fuel in stationary storage tanks of vessels, shall be removed from the vessel before any hot work is performed on the vessel. In addition, before hot work is performed 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 vessel's stationary fuel tank or fuel piping, both the tank and the piping shall first be emptied and purged. All areas of the vessel, including the bilge, shall be ventilated to eliminate any flammable and combustible vapors before any hot work is commenced.

319.4.3 Engine test stand fuel supply. Engine test stands shall be supplied by a fuel storage system complying with the requirements of FC Chapter 34. The fuel tank supplying the engine test stand shall be installed outdoors, and the fuel tank and piping located a safe distance from engine exhaust. The fuel piping shall be of steel construction and provided with an automatic shutoff valve designed to shut off the fuel supply in the event of a fire.

319.5 Flammable and combustible liquids and flammable gases. The storage, handling and use of flammable and combustible liquids and flammable gases shall be in accordance with FC Chapters 34, 35 and 38 and this section.

319.5.1 Marine liquid fuel dispensing. Marine liquid motor fuel-dispensing facilities shall be designed, installed, operated and maintained in accordance with FC Chapter 22.

319.5.2 Use for cleaning. Use of flammable and combustible liquids for cleaning purposes shall be in accordance with FC3405.3.6.1.

319.5.3 Storage arrangements. Except when displayed for sale in sealed containers, flammable and combustible liquids shall be stored in liquid storage cabinets, liquid storage rooms or in approved underground storage systems. Such installations shall comply with the requirements of FC Chapters 22 and 34.

319.5.4 Quantity limitations when stored for sale. Flammable and combustible liquids displayed for sale in sealed containers shall comply with the requirements of FC Chapters 22 and 34, as applicable, except in no case shall the quantities displayed exceed 200 gallons (757 L).

319.5.5 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 the rules. CNG on vessels used for residential purposes shall be stored, handled and used in compliance with the requirements of FC Chapter 35 and the rules.

319.6 Fire protection systems and equipment. Marinas shall be equipped with fire protection systems and equipment in accordance with this section.

319.6.1 Standpipes. If the furthest point of any pier or float exceeds 250 feet (76 200 mm) from a fire apparatus-accessible location, the pier or float shall be equipped throughout with a standpipe system in accordance with NFPA 303. Systems shall be provided with hose connections located such that no point on the marina pier or float system exceeds 150 feet (45 720 mm) from a standpipe hose connection. Such system shall have a design capacity of 250 gallons per minute (946 L/min) and shall be provided with one or more fire department connections at an approved location, and when required by the commissioner, to an approved water supply. Standpipe hose connection locations shall be clearly identified by a flag or other approved means designed to be readily visible from the pier accessing the float system.

319.6.2 Yard hydrant system. Fire apparatus-accessible locations as required by FC319.7.1 shall be within 250 feet (76 200 mm) of a fire hydrant or other approved water supply, and shall be situated such that a hose stream from 250 feet (76 200 mm) of hose line stretched from such location will reach all portions of the premises.

319.6.3 Portable fire extinguishers. One non-freezing type portable fire extinguisher of the ordinary (moderate) hazard type shall be provided at each required standpipe hose connection. Where there is no standpipe connection, one non-freezing type portable fire extinguisher with at least a 2-A rating shall be provided for every 2,500 square feet (232 m²), or part thereof. Additional portable fire extinguishers, suitable for the hazards involved, shall be provided and maintained in accordance with FC906.

319.7 Fire department access. Fire apparatus access shall be provided to a marina facility as set forth in Chapters 4 and 7 of NFPA 303, and FC 319.7.1 and 319.7.2.

319.7.1 Access road. A road capable of supporting a department firefighting apparatus, with a width of not less than 20 feet (6096 mm) or a width as required by FC503, where applicable, shall be provided from a public street to one or more fire apparatus-accessible locations on the premises.

319.7.2 Aisles. Any outdoor area of the marina shall be accessible by fire apparatus on all four sides, with a distance between the fire apparatus-accessible aisles of not more than 75 feet (22 860 mm). Such access aisles shall be kept unobstructed.

319.7.3 Parking. Motor vehicles shall not be parked on fire apparatus access roads or aisles, unless approved.

319.7.4 Slip identification. Slips and other mooring spaces shall be individually identified by a number and/or letter, which shall be conspicuously marked or posted. The direction to each slip and mooring space shall be conspicuously marked or posted at the base of each pier, finger pier, float and finger float.

319.7.5 Fire department staging areas. Staging areas for fire department access and firefighting operations shall be provided on all floats. An area at least 4 feet wide by 10 feet long (1219 mm by 3048 mm), exclusive of walkways, with a curb or barrier having a minimum height of 4 inches (102 mm) shall be provided and maintained unobstructed at each standpipe hose connection for this purpose. Each staging area shall be identified by a durable sign reading "FIRE DEPARTMENT STAGING AREA-KEEP CLEAR."

319.8 Emergency communications and preparedness. Emergency communications and emergency preparedness shall be in accordance with FC 319.8.1 and 319.8.2.

319.8.1 Communications. The marina shall be provided with a public address system or other approved means of notifying occupants of a fire on the premises. A telephone not requiring a coin to operate or another approved, clearly identified means to notify the department, shall be provided on the premises in an approved location.

319.8.2 Emergency preparedness. Marina owners shall designate 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 on the premises in a conspicuous approved location.]

SECTION FC 320 LAUNDRY CARTS

320.1 Laundry carts with a capacity of 1 cubic yard or more. Laundry carts with an individual capacity of 200 gallons (1 cubic yard or 0.76 m³) or more used for laundry purposes shall be constructed of noncombustible materials or of materials having a peak rate of heat release not exceeding 300 kW/m² at an incident heat flux of 50 kW/m² when tested in a horizontal orientation in accordance with ASTM E 1354, and shall be listed and labeled as such.

SECTION FC 321 FIXED GUIDEWAY TRANSIT AND PASSENGER RAIL SYSTEMS

321.1 Scope. This section shall govern the design, installation, operation and maintenance of underground, open cut, surface and elevated fixed guideway transit and passenger rail systems.

321.2 Design and installation. The design and installation of fire safety and life safety systems for fixed guideway transit and passenger rail systems, including emergency ventilation systems, emergency voice communication systems, fire protection systems and means of egress, shall be in accordance with NFPA 130 and all Annexes thereto, as modified by FC Appendix B; the Electrical Code; the provisions of the construction codes applicable to fire safety and life safety systems; and this section.

321.2.1 Fire scenario design parameters. Approved fire scenarios used for designing fixed guideway transit and passenger rail systems shall be in accordance with Sections [4.6] 4.4 and [A 4.6] A 4.4.2 of NFPA 130, as modified by FC Appendix B, and the following:

1. The worst case scenario, as set forth in NFPA 130, as modified by FC Appendix B, shall be used for both the station and trainway designs.
2. Computational fluid dynamics analysis for the fire simulation shall be performed for an approved period of time, both with and without mitigating systems, including but not limited to ventilation and sprinkler protection.
3. The tenable condition parameters reported in the computational fluid dynamics analysis, including but not limited to heat, visibility and carbon monoxide, shall be precisely reported in the analysis.

321.3 Operation and maintenance. The operation and maintenance of fixed guideway transit and passenger rail systems shall be in accordance with NFPA 130 and all Annexes thereto, as modified by FC Appendix B.

321.4 Construction site fire safety. Construction operations of fixed guideway transit and passenger rail systems, including stations and tunnels, shall be conducted in accordance with Chapter 33 of the Building Code; this code, including FC Chapter [14] 33; and NFPA 130, as modified by FC Appendix B. Approved fire extinguishing systems shall be provided for construction shanties and construction storage facilities and areas.

SECTION FC 322 ROAD TUNNELS, BRIDGES AND OTHER LIMITED ACCESS HIGHWAYS

322.1 Scope. This section shall govern the design, installation, operation and maintenance of road tunnels, bridges and other limited access highways used or designed to be used by motor vehicles.

322.2 Design and installation. The design and installation of fire safety and life safety systems for road tunnels, bridges and other limited access highways, including emergency ventilation systems, emergency voice communication systems, fire protection systems and means of egress, shall be in accordance with NFPA 502, as modified by FC Appendix B; the Electrical Code; the provisions of the construction codes applicable to fire safety and life safety systems; and this section.

322.2.1 Fire scenario design parameters. Approved fire scenarios used for designing road tunnels shall be in accordance with NFPA 502, as modified by FC Appendix B, and the following:

1. The worst case scenario, as set forth in NFPA 502, as modified by FC Appendix B, shall be used for designs.
2. Computational fluid dynamics analysis for the fire simulation shall be performed for an approved period of time, both with and without mitigating systems, including but not limited to ventilation and sprinkler protection.

3. The tenable condition parameters reported in the computational fluid dynamics analysis, including but not limited to heat, visibility and carbon monoxide, shall be precisely reported in the analysis.

322.3 Operation and maintenance. The operation and maintenance of road tunnels, bridges and other limited access highways used or designed to be used by motor vehicles shall be in accordance with NFPA 502, as modified by FC Appendix B.

322.4 Construction site fire safety. Construction operations of road tunnels, bridges and other limited access highways shall be conducted in accordance with Chapter 33 of the Building Code; this code, including FC Chapter [14] 33; and NFPA 502, as modified by FC Appendix B. Approved fire extinguishing systems shall be provided for construction shanties and construction storage facilities and areas.

SECTION FC 323 WASTEWATER TREATMENT AND COLLECTION FACILITIES

323.1 Scope. This section shall govern the design, installation, operation and maintenance of fire protection systems and other fire safety measures at wastewater treatment and collection facilities.

323.2 General. Fire protection systems and other fire safety measures at wastewater treatment facilities shall be designed, installed, operated and maintained in accordance with NFPA 820.

SECTION FC 324 ELECTRIC GENERATING PLANTS

324.1 Scope. This section shall govern the design, installation, operation and maintenance of fire protection systems and other fire safety measures at electric generating plants.

324.2 General. Fire protection systems and other fire safety measures at electric generating plants shall be designed, installed, operated and maintained in accordance with NFPA 850, except for microturbine installations, which shall be designed, installed, operated and maintained in accordance with [FC3510] FC5810.

SECTION FC 325 PRODUCTION LOCATIONS

325.1 Scope. This section shall govern the protection of fire safety at production locations used for filming and rigging, except for soundstages, production studios and approved production facilities, as those terms are defined in NFPA 140.

325.2 General. Production locations shall comply with the fire safety measures required by this section and by NFPA 140, as applicable.

325.3 Permits. Permits shall be required as set forth in FC105.6.

325.4 Interagency coordination. The department shall develop and establish, in consultation with the Mayor's Office of Film, Theatre and Broadcasting, or an officer, employee or unit of the Department of Small Business Services as may be authorized to issue permits in accordance with paragraph r of subdivision 1 of section 1301 of the charter or pursuant to its rules, and such other agencies as the department determines to be necessary and appropriate, a protocol and other processes to:

1. Provide to the department real-time access to information submitted to the Mayor's Office of Film, Theatre and Broadcasting, or an officer, employee or unit of the Department of Small Business Services as may be authorized to issue permits in accordance with paragraph r of subdivision 1 of section 1301 of the charter or pursuant to its rules, in connection with permit applications;
2. Provide notification to the local firehouse each time a permit for filming or rigging is issued for activities that occur at a production location within the area of response for such firehouse.

3. Enable the department to evaluate relevant fire safety considerations at production locations, familiarize local firehouses or other members of the department with field conditions, including alterations being performed at such locations, in advance of and during the course of rigging and filming, and provide additional production location information in a timely manner to firefighters and other emergency response personnel during fire and non-fire emergencies; and

4. Coordinate approval of permit applications to allow the department to determine whether any premises associated with the proposed production location is subject to any outstanding department or Department of Buildings violation that the department determines constitutes a life safety hazard sufficient to warrant denial of the application. The Mayor's Office of Film, Theatre and Broadcasting, or an officer, employee or unit of the Department of Small Business Services as may be authorized to issue permits in accordance with paragraph r of subdivision 1 of section 1301 of the charter or pursuant to its rule, shall deny such permit application when the department makes such a determination.

325.5 Fire safety at production locations. The department shall promulgate rules addressing fire safety at production locations. Such rules shall establish fire safety standards, procedures and requirements in consideration of such location's occupancy, construction and condition, including factors such as whether means of egress are impeded and a working sprinkler system exists, and the nature of the production activities to take place at such location, including set construction or other alterations, and whether pyrotechnic or other special effects will be conducted. Such rules may require the following fire safety measures:

1. The presence of one or more production location fire safety managers, to be designated by the permit holder, during production activities determined by the department to require such supervision. Production location fire safety managers shall have such qualifications and duties as set forth in FC325.6 and the rules.
2. The presence of department representatives or standby fire apparatus during production activities, as determined by the department.
3. Directing the cessation of filming activities when an unsafe condition arises that is detrimental to fire safety, until such time as such condition is corrected.
4. Such other fire safety measures as the department may require.

325.6 Production location fire safety manager. When required by the rules, production locations shall be under the personal supervision of one or more production location fire safety managers, each of whom shall hold the required certificate of fitness. The permit holder shall designate such production location fire safety managers before the commencement of the activity authorized by a permit for rigging and shooting pursuant to 43 RCNY ? 9-01.

325.6.1 Fire safety manager duties. The production location fire safety manager shall have such duties and responsibilities as set forth in the rules, including but not limited to:

1. Ensuring compliance with the requirements of this code and other laws, rules and regulations enforced by the department.
2. Personally inspecting and monitoring the production location, confirming that permits or other required approvals have been obtained, and completing fire safety surveys or other recordkeeping.
3. Notifying the permit holder of any conditions detrimental to fire safety in accordance with the rules.

325.7 Means of egress. Means of egress shall be maintained free from obstruction at production locations. Prior approval of the Department of Buildings and/or the department shall be obtained in accordance with applicable laws, rules and regulations for any alteration or obstruction of the means of egress.

325.8 Housekeeping. All production locations shall be maintained free of accumulation of combustible waste in accordance with FC304.

325.9 Portable fire extinguishers. The permit holder responsible for a production location shall provide one or more portable fire extinguishers when required by the rules.

(L.L. 2021/034, 3/28/2021, eff. 7/26/2021)

CHAPTER 4 EMERGENCY PLANNING AND PREPAREDNESS

SECTION FC 401 GENERAL

401.1 Scope. This chapter governs emergency reporting, planning and preparedness.

401.2 Emergency reporting.

401.2.1 Reporting to department. Any owner, occupant or other person who becomes aware of a fire or explosion or any other emergency shall immediately report such emergency to the department. No owner or other person shall issue any directive or take any action to prevent or delay the reporting of a fire or other emergency to the department.

401.2.2 Signage. A durable, legible sign setting forth the following information for reporting a fire or other emergency (including the text to be inserted based on the building's location) shall be posted in a conspicuous location in the lobby of the main front entrance of a Group A, B, E, F, I, M and R-1 building:

Fire alarm box at _____ and _____
(Name of street) (Name of street)
or

To report a fire or other emergency by telephone dial ["911" or, depending upon the borough in which the property is located, insert one of the following telephone numbers:

Bronx properties	(718) 430-0200
Brooklyn properties	(718) 965-8300
Manhattan properties	(212) 570-4300
Queens properties	(718) 476-6200
Staten Island properties	(718) 494-4296]

"911." Such sign may include, in buildings or occupancies with a designated telephone number for reporting of emergencies occurring in or affecting the building or occupancy, such telephone number, provided that such signage states that the fire and emergency first be reported to "911."

Exception: Buildings exempt from such sign requirement as set forth in the rules.

401.3 Emergency preparedness plans. The emergency preparedness plans required by this chapter shall serve to assure that procedures are in place that can be timely implemented in the event of a fire or non-fire emergency to provide the information, guidance, direction and assistance needed to protect the safety of building occupants, including, if necessary, effecting their evacuation, relocation or sheltering in place. Such emergency preparedness plans shall further serve to assure that knowledgeable assistance is readily available on the premises to emergency response personnel responding to a fire or non-fire emergency at the premises.

401.3.1 General. The owner of any premises required by this chapter to have an emergency preparedness plan shall cause such plan to be prepared for such premises in the form prescribed by the commissioner, and periodically reviewed and amended, in accordance with this section and the rules. The commissioner may prescribe by rule the qualifications of the person preparing such plans.

401.3.2 Types of emergency preparedness plans. This chapter establishes the following three types of emergency preparedness plans, which reflect the use, size, complexity and risk vulnerability of the building or occupancy; the presence of building staff and/or other building occupants capable of implementing such plan; the availability of voice communication capability; and other considerations:

1. Level 1: comprehensive fire safety/emergency action plan (FC401.4).
2. Level 2: fire and emergency preparedness plan (FC401.5).
3. Level 3: fire and emergency preparedness guide and notices (FC401.6).

401.3.2.1 Multi-building campus plans. The fire commissioner may approve a multi-building campus emergency preparedness plan, including specific minimum staffing qualifications and levels, for educational and health care occupancies subject to FC408, 410 and/or FC413, with certain specified emergency preparedness functions performed by staff assigned to multiple campus buildings. Such multi-building campuses shall consist of a single block, contiguous blocks or other approved geographic area, or a series of physically interconnected buildings.

401.3.3 Maintenance on premises. A copy of the emergency preparedness plan shall be maintained at the premises for which such plan is required and kept readily available for inspection at all times. The department may require that the emergency preparedness plan be maintained at an approved location on the premises in an approved first responder box secured by a citywide standard key to ensure availability of the plan at all times.

401.3.4 Building information card and floor plans. In buildings or occupancies required to prepare a comprehensive fire safety and emergency action plan, and in high-rise buildings and large-area buildings required to prepare a fire and emergency preparedness plan, or such other building or occupancy as required by this chapter or the rules, a building information card depicting and/or setting forth the fire safety information prescribed by the commissioner by rule shall be maintained on the premises and submitted or otherwise made available to the department as set forth in the rules. An amended building information card shall be submitted for department review and approval as set forth in the rules. When required by this code or rule, building floor plans [for any such building or occupancy] shall be submitted to the [Department] department in an approved manner.

401.3.5 Periodic review and revision. Emergency preparedness plans and building information cards shall be reviewed and updated as necessitated by changes in staff assignments, use or occupancy, or the design and arrangement of the premises, but at least annually. An entry shall be made in the log book required by FC401.8 documenting such review, and indicating the general nature of any amendments to be made to such plan. Submission of an amended emergency preparedness plan shall not be required solely by reason of staffing changes or revisions to the building information card. Fire and emergency preparedness guides and notices shall be reviewed prior to each distribution required by this code or the rules, and shall be revised within 60 days of any change in building construction or service equipment materially affecting the content of such guide or notice.

401.3.6 Applicability to existing buildings and occupancies. The preparation of an emergency preparedness plan shall constitute an operational requirement. Except as otherwise provided in this section, owners of buildings and occupancies required by this chapter to have a comprehensive fire safety and emergency action plan shall have 24 months from the promulgation of rules implementing such emergency preparedness plan provisions of this chapter to prepare such plan and submit it to the department for acceptance. Owners of buildings and occupancies required by this chapter to have any other emergency preparedness plan shall have 18 months from the promulgation of rules implementing such emergency preparedness plan provisions of this chapter to prepare such plan and, if required by this chapter, submit it to the department for acceptance.

401.3.6.1 New and existing buildings and occupancies. Until rules implementing the emergency preparedness plan provisions of this chapter take effect, buildings and occupancies required to prepare an emergency preparedness plan under this code shall comply with the emergency preparedness plan requirements set forth in the Fire Code and rules in effect on the date prior to the effective date of this section.

[401.3.6.2 Updating of existing fire safety and evacuation plans. Any owner of a Group B office building existing on the effective date of this section that is required by this chapter to have a comprehensive fire safety and emergency action (Level 1) plan and:

1. for which building a fire safety and evacuation plan was submitted and approved by the Department prior to January 1, 2000, and has not been comprehensively amended since January 1, 2011, shall prepare and submit for department approval within 3 years of the effective date of this section a comprehensive fire safety and emergency action (Level 1) plan complying with the requirements of this chapter and the rules. This provision shall not be construed to

extend the time for compliance with provisions of this chapter requiring the preparation and periodic review and revision of such plans.

2. for which building a fire safety and evacuation plan was submitted and approved by the Department on or after January 1, 2000, but prior to January 1, 2011, and has not been comprehensively amended since January 1, 2011, shall prepare and submit for department approval within 5 years of the effective date of this section a comprehensive fire safety and emergency action (Level 1) plan complying with the requirements of this chapter and the rules. This provision shall not be construed to extend the time for compliance with provisions of this chapter requiring the preparation and periodic review and revision of such plans.]

401.3.7 Existing emergency preparedness staffing. Any building or occupancy that prior to [the effective date of this section] March 30, 2014, obtained department approval of the voluntary installation of a fire alarm system with [two-way voice communication] a staged evacuation sequence and was required to provide a fire safety director or other specified emergency preparedness staffing shall [maintain such staffing unless a higher level of staffing is required by this chapter] provide staffing in accordance with this chapter and the rules.

401.3.8 Cooperation. All owners, employers of building occupants (including lessees of tenant spaces and similar occupancies) and building occupants shall cooperate in the development and coordination of emergency preparedness plans, including designation of building occupants to assist in the implementation of such plan.

401.4 Comprehensive fire safety/emergency action plan (Level 1). Level 1 plans and staffing shall be in accordance with FC 401.4.1 through 401.4.5, the provision of the FC 404 through 415, as applicable, and the rules.

401.4.1 General. The commissioner shall promulgate rules establishing standards, procedures and requirements for a written comprehensive fire safety and emergency action plan that addresses the safety of occupants of premises in the event of a fire, explosion, biological, chemical or nuclear incident or release, natural disaster, or other emergency, or the threat thereof, or a declaration of emergency by a lawful authority, and for the coordination of the emergency response to a medical emergency at the premises.

401.4.2 Form. The rules shall specify the form of the comprehensive fire safety and emergency action plan and supporting documentation.

401.4.3 Content. The rules shall specify the information to be contained in the comprehensive fire safety and emergency action plan, which shall include the following information and documentation, and/or such other information and documentation as the commissioner may prescribe:

1. The designation of an FLS director and other FLS staff, and their respective duties and responsibilities, including FLS staff responsible for the operation of building elevators, fire protection systems, mechanical ventilation systems, building utilities, and other building service equipment.
2. The procedures for reporting a fire or other emergency to the department, including the primary and alternative means of such reporting.
3. The procedures for coordinating with firefighting, emergency medical service and other emergency response personnel, including notifying such personnel upon arrival of the location of the emergency and the response thereto.
4. The means provided for receiving and monitoring public emergency notification systems in accordance with FC401.9.
5. The procedures for notifying building occupants of a fire or other emergency, including the primary and alternative means of such notification, the alarm or tone sounded to alert building occupants, and the information communicated to building occupants.
6. The actions to be taken in response to a fire and each type of non-fire emergency, and whether the response will require the sheltering in place, in-building relocation, partial or full evacuation of building occupants, or combination thereof, and the procedures for each such response.
7. The procedures for accounting for building occupants after such occupants have been in-building relocated, or partially

or fully evacuated to a safe area.

8. The procedures for identifying any persons on the premises who are qualified and willing to provide cardio-pulmonary resuscitation or other emergency medical care to building occupants upon notification by the FLS director.

9. Site plans indicating the following:

9.1. Surrounding buildings and streets, including cross streets, and fire apparatus access roads.

9.2. The location of building occupant assembly areas.

10. A written description of the following building components and service equipment and their location, as applicable:

10.1. Access to and egress from the building, including entrances and exits.

10.2. Corridors and exit passageways providing access to exit stairwells or exit discharges.

10.3. Stairwells with letter designation.

10.4. Access and convenience stairs.

10.5. Elevators, with bank letter and car number designations.

10.6. Fire command center.

10.7. Floor warden and firefighter telephones.

10.8. Manual fire alarm boxes.

10.9. Fire department connections, and sprinkler and standpipe system control valves.

10.10. Areas of the building not protected by a sprinkler system.

10.11. Emergency power generators and associated fuel storage.

10.12. Evacuation and in-building relocation routes.

10.13. Areas of refuge and in-building relocation areas.

10.14. Any evacuation assistance devices.

10.15. Automatic external defibrillators required by law to be maintained for public use.

11. Sprinkler system and standpipe system riser diagrams, identifying the locations of the following, as applicable:

11.1. Water supply.

11.2. Fire department connections.

11.3. Gravity and pressure tanks.

11.4. Fire pumps.

11.5. Water supply control valves.

11.6. Piping, except branch sprinkler piping.

12. Locations of hazardous material storage in quantities requiring a permit, and hazardous material operations and facilities regulated by this code.

13. Procedures for identifying in advance building occupants who require assistance to participate in the plan because of an infirmity or disability or other special need, and approved procedures for providing for such assistance.

14. A fire safety maintenance program.

15. A building information card in accordance with FC401.3.4.

401.4.4 Submission and acceptance. Every comprehensive fire safety and emergency action plan shall be submitted to the department for acceptance in the manner prescribed by the department. Acceptance of such plans shall be obtained prior to occupancy of the building or occupancy.

401.4.5 Fire and life safety staff. The owner of any premises required by this chapter to have a comprehensive fire safety and emergency action plan shall designate competent persons to act as FLS staff, including a person designated to serve as FLS director. The owner shall employ or otherwise retain sufficient FLS staff to implement such plan during regular business hours and to otherwise comply with the requirements of this chapter and the rules. The persons designated as FLS staff shall possess such qualifications and/or hold such certificates of fitness as are required by this chapter or the rules.

401.4.5.1 Fire and life safety director. The comprehensive fire safety and emergency action plan shall designate an FLS director and deputy FLS directors who shall hold an FLS director certificate of fitness. The FLS director shall have the following duties and responsibilities and such other duties and responsibilities as the commissioner may prescribe by rule:

1. The FLS director shall be present in the building at all times during regular business hours. When the FLS director is absent during regular business hours, a deputy FLS director shall be present in the building and shall perform the duties of the FLS director. When a building other than a Group R-1 transient residential building or occupancy is occupied, but the number of building occupants falls below the level requiring the presence of an FLS director, the FLS building evacuation supervisor may perform the duties of the FLS director. The FLS director shall endeavor to ensure that adequate FLS staff is present during regular business hours, and, in the absence of designated staff, shall designate interim FLS staff.

2. In the event of a fire, a medical emergency or other non-fire emergency in the building, the FLS director shall report to the fire command center or designated alternative location; implement such fire safety and/or non-fire emergency actions as are warranted by the circumstances, in accordance with the provisions of the comprehensive fire safety and emergency action plan, this code and the rules; notify arriving emergency response personnel of the nature of the emergency and the response thereto; and comply with the directions of the emergency response personnel and/or other lawful authority.

3. The FLS director designated shall be fully familiar with the provisions of the comprehensive fire safety and emergency action plan and shall conduct the FLS staff training and fire and non-fire emergency drills required by FC 401.4.5.2 and 401.7.

Exception: FLS staff training and fire and non-fire emergency drills may be conducted by a person holding a certificate of fitness as FEP coordinator or fire drill conductor under the personal supervision of the FLS director.

401.4.5.2 Training. FLS staff shall be trained in the performance of their duties in accordance with the comprehensive fire safety and emergency action plan.

401.4.5.2.1 Initial training. FLS staff shall receive initial training in the contents of the comprehensive fire safety and emergency action plan upon their designation as FLS staff. Such training shall familiarize them with:

1. their duties in the event that it is necessary to implement fire safety or non-fire emergency actions in accordance with such plan; and

2. appropriate fire prevention measures for the occupancy.

401.4.5.2.2 Refresher training. With the exception of the FLS director, FLS staff shall receive, and participate in, periodic refresher training to maintain their state of readiness.

401.4.5.2.3 Duration and frequency of training. The duration and frequency of initial and refresher training of FLS staff shall be in accordance with FC Table 401.4.5.2.3.

FC TABLE 401.4.5.2.3
FLS STAFF TRAINING
FLS STAFF MEMBER
INITIAL TRAINING
DURATION
REFRESHER TRAINING
DURATION AND FREQUENCY

FIRE SAFETY	
NON-FIRE EMERGENCY	
FIRE SAFETY	
NON-FIRE EMERGENCY	
Deputy FLS directors (all occupancies)	
Not applicable	
Not applicable	
1 hour annually	
1 hour semiannually	
FLS building evacuation supervisors	
2 hours	
3 hours	
1 hour annually	
1 hour semiannually	
All other FLS staff	
1 hour	
2 hours	
1 hour annually	
1 hour annually	

401.4.5.2.4 Training methods. FLS staff training sessions shall be provided in the form of live instruction and, if desired, computerized training. At least one-half (1/2) of the FLS staff training sessions required each year shall be in the form of live instruction, which may incorporate video presentations and/or review of other educational materials. The balance of the required training sessions may be conducted in the form of approved computerized training, without live instruction, provided that such computerized training is interactive, and includes an evaluation of the FLS staff members' understanding of the training materials.

401.4.5.2.5 Recordkeeping. A written record of FLS staff training shall be maintained in the log book required by FC401.8. An entry shall be made in such log book for each training session conducted.

401.5 Fire and emergency preparedness plan (Level 2). Level 2 plans and staffing shall be in accordance with FC 401.5.1 through 401.5.5, the provisions of FC 404 through 415, as applicable, and the rules.

401.5.1 General. The commissioner shall promulgate rules establishing standards, procedures and requirements for a written fire and emergency preparedness plan that provides for fire safety and non-fire emergency preparedness in buildings or occupancies of a lesser size, complexity, and/or risk vulnerability than those requiring a comprehensive fire safety and emergency action plan, and for the coordination of the emergency response to a medical emergency at the premises.

401.5.2 Form. Fire and emergency preparedness plans shall have a simplified, standardized format that allows for completion by persons without specialized qualifications. The rules promulgated by the commissioner shall specify the

form of such plans and any supporting documentation.

401.5.3 Content. The rules promulgated by the commissioner shall specify the information to be contained in the fire and emergency preparedness plan, which shall include the following information and documentation, and/or such other information and documentation as the commissioner may prescribe:

1. The designation of the FEP coordinator, by name, certificate number and position at the premises, and other FEP staff, by name and/or position at the premises, and certificate number, if required.
2. The procedure by which a fire or other emergency is reported to the department, and the FEP staff responsible for ensuring such reporting.
3. The procedure for notifying building occupants of a fire or other emergency, and the FEP staff responsible for ensuring such notification.
4. The procedure for coordinating with firefighting, emergency medical service and other emergency response personnel, including notifying such personnel upon arrival of the location of the emergency and the response thereto, and the FEP staff responsible for such coordination.
5. The procedure for monitoring a public emergency notification system in accordance with FC401.9.
6. Procedures for identifying and assisting building occupants who require assistance because of an infirmity, disability or other special need.
7. Identification of fire prevention measures appropriate to the occupancy, to be included in staff training and drills, and the FEP staff or building staff responsible for addressing any unsafe conditions, including:
 - 7.1. Unobstructed and unimpeded access to means of egress.
 - 7.2. Proper storage and removal of combustible materials and combustible waste on the premises.
 - 7.3. Maintenance of decorative vegetation.
 - 7.4. Proper use of extension cords, outlets and electrical equipment.
 - 7.5 Maintenance of sprinkler head clearances.
 - 7.6 Posting and maintenance of "No Smoking" signs required by this code.
8. The procedure for the ongoing monitoring of the premises during regular business hours to verify compliance with the following requirements, and the FEP staff responsible for such monitoring:
 - 8.1. Access to the means of egress is unobstructed and unimpeded.
 - 8.2. The premises does not become overcrowded.
 - 8.3. Allowable use of open flames and open-flame devices is being conducted properly and safely.
 - 8.4. The prohibition against smoking, where required by this code or the rules, is being observed.

401.5.4 Submission and acceptance. [Fire] Except as otherwise provided in FC401.5.4.1, fire and emergency preparedness plans prepared for a high-rise building or a large-area building shall be submitted for department acceptance, prior to occupancy of the building or occupancy, in the manner prescribed by the department. All other fire and emergency preparedness plans shall be maintained on the premises and made available for review by a department representative. If such plan is unavailable or determined to be deficient, the department may order that a plan prepared in compliance with this chapter and the rules be submitted to the department for acceptance. [Nothing contained herein shall preclude the department from establishing by rule a procedure for the on-line preparation and filing of all fire and

emergency preparedness plans required pursuant to this chapter.]

401.5.4.1 Submission of plans not required. Fire and emergency preparedness plans prepared for a high-rise building or a large-area building are not required to be submitted for department acceptance in the following circumstances:

1. High-rise buildings and large-area buildings with a fire alarm that is programmed for full, not staged, evacuation;
2. Low-rise, large-area Group I-1 buildings; and
3. Low-rise Group R-1 dormitories and low-rise Group R-2 student apartments, with more than fifty rooms above street level (which are treated as large-area buildings by the Building Code).

401.5.4.2 Electronic filing of plans. The following emergency preparedness plans and, when required, building information cards, building floor plans and other supporting documentation, shall be electronically filed with the department for review and approval in the manner prescribed by the department:

1. Comprehensive fire safety/emergency action (Level 1) plans.
2. Fire and emergency preparedness (Level 2) plans, when filing is required by the code or rules or ordered by the department for enforcement purposes.

401.5.5 Fire and emergency preparedness staff. The owner of any premises required by this chapter to have a fire and emergency preparedness plan shall designate competent persons to act as FEP staff, including a person designated to serve as the FEP coordinator pursuant to FC401.5.5.1. An owner of such a premises shall not be required to employ or otherwise retain staff solely for purposes of complying with the requirements of this chapter, but shall designate persons employed or otherwise working at the premises to serve as FEP staff and assign them the duties and responsibilities necessary to implement the fire and emergency preparedness plan and otherwise comply with the requirements of this chapter and the rules.

401.5.5.1 Fire/emergency preparedness coordinator. A manager or other responsible FEP staff member employed at the premises shall be designated in the fire and emergency preparedness plan as the FEP coordinator and shall hold an FEP coordinator certificate of fitness. A person holding a certificate of fitness as an FLS director may serve as the FEP coordinator without obtaining a separate certificate of fitness. The FEP coordinator shall have the following duties and responsibilities and such other duties and responsibilities as the commissioner may prescribe by rule:

1. The FEP coordinator shall be fully familiar with the provisions of the fire and emergency preparedness plan and shall conduct the FEP staff training and fire and non-fire emergency drills required by FC 401.5.5.2 and 401.7.

Exception: FEP staff training and fire and non-fire emergency drills may be conducted by a person holding a certificate of fitness as fire drill conductor under the general supervision of the FEP coordinator.

2. The FEP coordinator need not be personally present on the premises during regular business hours, but shall be responsible for overseeing and monitoring the performance of the duties and responsibilities of the FEP staff set forth in the fire and emergency preparedness plan.
3. The FEP coordinator shall endeavor to ensure that adequate FEP staff is present during regular business hours, and, in the absence of designated FEP staff, shall designate interim FEP staff.

401.5.5.2 Training. FEP staff shall be trained in the performance of their duties in accordance with the fire and emergency preparedness plan.

401.5.5.2.1 Initial training. FEP staff shall receive 1 hour of initial training in the fire and emergency preparedness plan upon their designation as FEP staff. Such training shall familiarize them with:

1. their duties in the event the fire and emergency preparedness plan is implemented; and
2. appropriate fire prevention measures for the occupancy.

401.5.5.2.2 Refresher training. With the exception of the FEP coordinator, FEP staff shall receive 30-minutes quarterly refresher training.

401.5.5.2.3 Training methods. FEP staff training shall be provided in the manner set forth in FC401.4.5.2.4.

401.5.5.2.4 Recordkeeping. A written record of FEP staff training shall be maintained in the log book required by FC401.8. An entry shall be made in such log book for each training session conducted.

401.6 Fire and emergency preparedness guide and notices (Level 3). Level 3 guides and notices shall be in accordance with FC 401.6.1 through 401.6.5, and the rules.

401.6.1 General. The commissioner shall promulgate rules establishing standards, procedures and requirements for a:

1. fire and emergency preparedness guide that serves to inform building occupants and building staff about the building, fire prevention measures and fire and non-fire emergency preparedness; and/or
2. fire and non-fire emergency notices that serve to inform building occupants, building staff and visitors as to whether to shelter in place or evacuate the building, and other procedures to be followed in the event of a fire or non-fire emergency.

401.6.2 Form. The fire and emergency preparedness guide and notices shall be in such form as prescribed by the commissioner by rule.

401.6.3 Content. The rules promulgated by the commissioner shall specify the information to be contained in the fire and emergency preparedness guide and notices, which shall include the following information, and/or such other information and documentation as the commissioner may prescribe:

1. Fire and Emergency Preparedness Guide.

1.1. Construction type.

1.2. Fire protection systems.

1.3. Voice communication systems.

1.4. Means of egress.

1.5. Guidance with respect to sheltering in place, evacuation and other procedures to be followed in the event of fire or non-fire emergency.

1.6. Lessons learned from fires in similar occupancies.

1.7. Medical emergencies.

2. Fire and Emergency Preparedness Notices.

2.1. Construction type.

2.2. Guidance with respect to sheltering in place, evacuation and other procedures to be followed in the event of fire or non-fire emergency.

401.6.4 Distribution and posting. The fire and emergency preparedness guide shall be distributed to building occupants and building service employees as set forth in the rules. The fire and emergency preparedness [guide] notice shall be posted within each dwelling unit and at such other locations as set forth in the rules.

401.6.5 Occupancy-specific requirements. The form, content, distribution and posting of the fire and emergency preparedness guide and notices may vary by occupancy. Occupancies required to prepare a fire and emergency

preparedness guide and/or notices shall be as set forth in this chapter or the rules.

401.7 Drills and education for fire and non-fire emergencies. Separate [Fire] fire and non-fire emergency drills and education shall be conducted, in the manner prescribed in this section and the rules, and with the frequency set forth in FC Table 401.7.6, in buildings and occupancies required to have an emergency preparedness plan pursuant to this chapter[, except Group R-2 apartment buildings and occupancies.] and in such other buildings and occupancies as provided in this chapter. Group R-2 apartment buildings and occupancies are not required to conduct drills, except in high-rise megastructures and student apartment buildings.

401.7.1 Content. Drills and other forms of education shall be conducted to enhance the fire and non-fire emergency preparedness of building occupants, including building staff and employees of building tenants. Drills shall serve to familiarize building occupants as to the proper actions to take in the event of a fire or other emergency, the primary and secondary evacuation and in-building relocation routes, and fire prevention measures appropriate to the occupancy. The commissioner shall promulgate rules prescribing standards, procedures and requirements for the conduct of fire and non-fire emergency drills and educational sessions, including their subject matter and duration. Drills shall be in the form of live instruction, except as authorized by the rules.

401.7.2 [Combined drills and education. A single drill or educational session shall address both fire and non-fire emergency preparedness. All drills and educational sessions shall make mention that different directions may be given to building occupants depending upon whether there is a fire or other emergency, and the nature of the non-fire emergency.] Reserved.

401.7.3 Timing. Drills shall be scheduled in a manner that best assures the participation of regular building occupants. Drills may be conducted on different work shifts and/or during non-business hours to facilitate the participation of building occupants.

401.7.4 Participation in drills and education. Except as otherwise provided in this chapter, all building occupants in the building or occupancy, or part thereof, wherein a fire and non-fire emergency drill or educational activity is being conducted, shall participate in such drill or educational activity, including building staff and FLS or FEP staff with responsibility for such building or occupancy, or part thereof. Owners and employers of building occupants, including lessees of tenant spaces and similar occupancies, shall require such participation.

401.7.5 Alarm activation. The fire alarm system shall be activated each time a fire drill or non-fire emergency drill is conducted to initiate the drill and familiarize building occupants with the alarm tones. Nothing in this code shall be construed to prohibit the activation of the fire alarm signal for the purposes of conducting a fire drill or a non-fire emergency drill.

Exception: In buildings or occupancies in which all building occupants are not required by this code to participate in the drill, the fire alarm system need not be activated to initiate the drill, provided that, in accordance with the rules, another means is employed to familiarize those building occupants participating in the drill with the fire alarm tones that would be sounded in the event of an actual emergency.

401.7.6 Frequency. The frequency of each required [combined] fire drill and each required non-fire emergency [drills] drill, for each type of occupancy, shall be in accordance with FC Table 401.7.6.

FC TABLE 401.7.6

DRILL PARTICIPATION AND FREQUENCY

TYPE OF BUILDING OR OCCUPANCY

REQUIRED PARTICIPATION

FREQUENCY

Group A

Regular building occupants.

Participation of patrons, guests and visitors not required.

Semiannually

Group M

Group R-1, except homeless shelters and dormitoriesa

Group R-1 homeless shelters and emergency shelters

All building occupants

Monthly

Group B officea

All building occupants

Semiannually

Group B colleges and universities

All building occupants

In accordance with New York State Education Law

Group E educational

Group R-1 dormitory and Group R-2 student apartment buildings

Group R-2 high-rise megastructures

All building occupants

Semi-annually

Group E day care facilities

All building occupants

Monthly

Group F

All building occupants

Monthly

Group H

All building occupants

Semiannually

Group I-1

All building occupants

Bimonthlyb

Group I-2

Regular building occupants.

Participation of patients and visitors not required.

Semiannually

Group S

Regular building occupants.

Participation of visitors not required.

Semiannually

a. In the 2 years following acceptance of a comprehensive fire safety and emergency action plan, drills shall be conducted quarterly.

b. In the first year of occupancy of an I-1 building or occupancy, drills shall be conducted monthly.

401.7.7 Non-fire emergency education. When required by this chapter, building occupants shall receive non-fire emergency education. In buildings and occupancies in which non-fire emergency drills are not conducted, such education shall consist of the distribution of educational materials explaining the different types of non-fire emergencies and the types of responses to such emergencies, including sheltering in place, relocating within the building, or evacuating the building. Such materials shall be distributed to building staff and employees of building tenants prior to their commencing work at the premises.

401.7.8 Recordkeeping. Drills and education shall be documented by entries in the logbook required to be maintained in accordance with FC401.8.

401.8 Emergency preparedness recordkeeping. Buildings and occupancies required to have an emergency preparedness plan pursuant to this chapter, except buildings and occupancies required to prepare a fire and emergency guide and

notice, shall maintain a log book in accordance with this section.

401.8.1 General. A log book or other approved system of recordkeeping shall be maintained for purposes of documenting emergency preparedness.

401.8.2 Format. A bound log book with consecutive numbered pages, an approved electronic format, or other approved form of recordkeeping, shall be maintained in accordance with the requirements of FC107.7.

401.8.3 Entries. Entries shall be made in the log book to document drills, education, staff training, plan review and amendment, plan implementation and/or such other information as the commissioner may require by rule.

401.9 Access to public emergency notification systems. While performing the duties of such position, FLS directors and FEP coordinators shall have access to NYC Notify, CorpNet or such other approved public emergency notification system providing notice of New York City emergencies as the commissioner may prescribe by rule. Such access may be by means of any portable or desktop device readily available for use on the premises under their supervision. The commissioner may prescribe by rule buildings and occupancies in which FLS directors and FEP coordinators shall have access to a public emergency notification system.

401.10 Periodic inspection. Any building, occupancy, or part thereof required to have a comprehensive fire safety and emergency action plan, fire and emergency preparedness plan, and/or a public gathering site plan pursuant to the provisions of this chapter or the rules shall be subject to periodic fire safety inspection by the department, including inspection of any such plan to confirm that it has been prepared and/or implemented in compliance with the requirements of this chapter and the rules.

401.11 Workplace exit inspections. In addition to any other inspections that the department may conduct, the department shall inspect Group M occupancies to determine whether workplace exits are locked in violation of Section 1001.3.1 of the Building Code. A minimum of fifty unannounced inspections shall be conducted each year. Such inspections shall include, but not be limited to, premises at which violations of such section are known or suspected to have occurred.

SECTION FC 402 DEFINITIONS

402.1 Definitions. The following terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meaning [shown herein] set forth in FC202.

ASSEMBLY AREA. [A designated area outside of a building to which building occupants are directed to report upon implementation of a partial or full evacuation in accordance with a comprehensive fire safety and emergency action plan or a fire and emergency preparedness plan.]

BUILDING OCCUPANTS. [All persons in the building, including employees, building staff and visitors.]

COVERED MALL. [A Group M building housing separate mercantile tenant spaces and/or other similar occupancies and a common pedestrian area (which may include atrium spaces) that provides access to the main public entrances to such tenant spaces and/or occupancies. A covered mall does not include an exterior perimeter building or tenant space (commonly referred to as an anchor store or anchor building) with direct pedestrian access to the covered mall, provided that such building or tenant space has a lawful means of egress independent of the covered mall.]

EMERGENCY SHELTER. [The temporary use and occupancy of a premises, or part thereof, including but not limited to armories, auditoriums, community centers, gymnasiums, houses of worship and schools, that are not designed to be occupied for emergency housing, but are authorized by the Department of Buildings to be operated and/or occupied for such purposes for more than fifteen persons for more than 30 consecutive days.]

EVACUATION. [The emptying of a building or part thereof of building occupants in response to a fire or non-fire emergency.]

FEP. [Fire and emergency preparedness.]

FEP STAFF. [The individuals identified in a fire and emergency preparedness plan as responsible for the implementation of such plan, including but not limited to FEP coordinators.]

FIRE DRILL.

FLS. [Fire and life safety.]

FLS STAFF. [The individuals required to implement a comprehensive fire safety and emergency action plan, as identified in such plan, including but not limited to the FLS director, deputy FLS director, members of the FLS brigade and any staff designated as critical operations staff.]

FIRE DRILL. A training exercise by which building occupants are familiarized with and/or practice the procedures for the safe, orderly and expeditious sheltering in place, in-building relocation, partial or full evacuation, or any combination thereof, in the event of a fire, in accordance with the emergency preparedness plan for the premises.]

HIGH-RISE BUILDING. [Any building designed or constructed in accordance with the 1968 Building Code, any prior Building Code, or other applicable laws, rules and regulations, that is more than six stories or 75 feet (22 860 mm) in height, and any building designed or constructed in accordance with the Building Code that has one or more occupied floors more than 75 feet (22 860 mm) above the lowest level of fire department vehicle apparatus access.]

HIGH-RISE FLOOR. [Any occupied floor in a high-rise building that is at or above the height that causes such building to be classified as a high-rise building.]

IN-BUILDING RELOCATION. [The controlled movement of building occupants from an endangered area of a building to an in-building relocation area within the same building in response to a fire or non-fire emergency.]

IN-BUILDING RELOCATION AREA. [A designated area in a building to which building occupants may be relocated in accordance with the emergency preparedness plan for the premises.]

LARGE-AREA BUILDING. [A building that is not a high-rise building, but is either a Group B office building within the meaning of Section 907.2.2.2 of the Building Code that has a total gross area of more than 100,000 square feet (9290 m²) or a building of an occupancy type other than Group R-2 or Group R-3 that has a total gross area of more than 100,000 square feet (9290 m²).]

MIXED-OCCUPANCY BUILDING. [A building or structure housing more than one occupancy or type of occupancy required by this chapter to prepare an emergency preparedness plan.]

NON-FIRE EMERGENCY. [A biological, chemical or nuclear incident or release; declaration of emergency by a lawful authority; explosion; medical emergency; natural disaster; or other emergency affecting the premises or the safety of building occupants.]

NON-FIRE EMERGENCY DRILL. [A training exercise by which building occupants are familiarized with and/or practice the procedures for safe, orderly and expeditious sheltering in place, in-building relocation, partial or full evacuation, or combination thereof, in the event of a non-fire emergency, in accordance with the emergency preparedness plan for the premises.]

OFFICE BUILDING. [A Group B occupancy designed and arranged to provide offices and other areas for the conduct of business ordinarily conducted in offices.]

REGULAR BUSINESS HOURS. [Times of day and days of the week during which a building or occupancy is normally occupied and business is conducted, and any time when a building or occupancy required to have a comprehensive fire and emergency action plan is occupied by more than five hundred persons, or more than one hundred persons above or below the street level. The number of persons employed in a building or occupancy during regular business hours shall be computed based on the work shift or other regular work schedule during which the largest number of employees or other persons working at the premises are present at the premises.]

SHELTER IN PLACE. [The precaution of directing building occupants to remain indoors, at their present location, in

response to a fire or non-fire emergency.]

STAGED EVACUATION.

VOICE COMMUNICATION CAPABILITY. [The ability to communicate to the occupants of a building or occupancy by means of a fire alarm system with one-way or two-way voice communication.]

SECTION FC 403 PUBLIC GATHERINGS

403.1 General. The commissioner may establish requirements to ensure fire safety at indoor and outdoor public gatherings, including arcades, bazaars, cafes, carnivals, displays, entertainment, exhibits, rooftop events and street fairs. Such requirements may include preparation and submission to the department of a site plan, including identification of materials, operations and facilities regulated by the Fire Code that will be stored, conducted or maintained in conjunction with the public gathering; pre-event fire safety inspection; provision of fire guards or other qualified personnel; and provision and maintenance of fire apparatus access, and of aisles and other means of access to and egress from the public gathering. Persons conducting such fire watch shall have the duties and responsibilities set forth in FC901.7.2.1 with respect to the areas being monitored in connection with public gatherings. The commissioner may conduct periodic inspections of public gathering places that are used or frequented on a regular basis.

403.2 Overcrowding prohibited. Overcrowding shall not be caused, maintained or allowed in any indoor or outdoor area or space used for public gatherings.

403.3 Limitations on standing. Where the Building Code, certificate of occupancy or approved seating plan allows audience members to stand at performing arts or other indoor or outdoor events at which seating is provided for the audience, standing areas shall be maintained in accordance with FC407.5.

SECTION FC 404 OFFICE BUILDINGS

404.1 General. Group B office buildings and occupancies shall comply with the emergency preparedness requirements set forth in FC 401, 416 and this section.

404.2 Emergency preparedness in office buildings and occupancies with comprehensive fire safety/emergency action plans. Group B office buildings and occupancies required by FC404.2.1 to have a comprehensive fire safety and emergency action plan shall comply with the emergency preparedness requirements of this section.

404.2.1 Comprehensive fire safety/emergency action plan (Level 1). A comprehensive fire safety and emergency action plan in accordance with FC401.4 shall be prepared for:

1. a high-rise or large-area Group B office building occupied or designed to be occupied by more than five hundred persons, or more than one hundred persons above or below the street level.
2. a Group B office occupancy occupied or designed to be occupied by a total of more than one hundred persons on one or more high-rise floors.
3. any other Group B office building, and any other Group B office occupancy, occupied or designed to be occupied by more than five hundred persons, or more than one hundred persons above or below the street level, that was required to have a fire safety director under the New York City Fire Prevention Code or this code prior to the effective date of this section.
4. any other Group B office building or occupancy as to which the commissioner determines that preparation of such a plan is in the interest of public safety given the location, use or occupancy of the building.

Exception: Office buildings and occupancies subject to FC404.2.1(1), [and] (2) and (3) that have lawfully installed [an interior] a fire alarm system without voice communication capability.

404.2.2 Fire and life safety staff. The comprehensive fire safety and emergency action plan required by FC401.4 shall designate FLS staff consisting of an FLS director, deputy FLS directors, FLS building evacuation supervisors, FLS wardens, deputy FLS wardens, FLS brigade members and searchers, to exercise the authority and perform the duties of their respective FLS assignments. FLS staff shall be provided with initial and refresher FLS staff training in accordance with FC401.4.5.2. FLS brigade members shall be trained in the use of portable fire extinguishers.

404.3 Emergency preparedness in office buildings and occupancies with fire and emergency preparedness plans. Group B office buildings and occupancies required by FC404.3.1 to have a fire and emergency preparedness plan shall comply with the emergency preparedness requirements of this section.

404.3.1 Fire and emergency preparedness plan (Level 2). A fire and emergency preparedness plan in accordance with FC401.5 shall be prepared for a Group B office building or occupancy occupied or designed to be occupied by more than five hundred persons, or more than one hundred persons above or below street level, other than buildings and occupancies subject to FC404.2.

404.3.2 Fire and emergency preparedness staff. The commissioner may prescribe by rule that, in Group B office buildings and occupancies that are provided with voice communication capability (other than buildings and occupancies subject to FC404.2), there shall be present during regular business hours one or more members of the FEP staff required pursuant to FC401.5.5 who hold a certificate of fitness for emergency announcements and other fire safety duties.

SECTION FC 405 HOTELS, MOTELS AND OTHER TRANSIENT RESIDENTIAL OCCUPANCIES

405.1 General. Group R-1 buildings and occupancies, including any hotel, motel, boarding house, hostel and single room occupancy, shall comply with the emergency preparedness requirements set forth in FC 401, 405.2, 405.3, 405.5 and 416.

Exceptions:

1. Homeless shelters and emergency shelters, which shall comply with FC 401, 405.4, 405.5 and 416.
2. Dormitories operated by or affiliated with educational institutions, which shall comply with the requirements of FC 401, 410 and 416.

405.2 Emergency preparedness in transient residential buildings and occupancies with comprehensive fire safety/emergency action plans. Group R-1 residential buildings and occupancies required by FC405.2.1 to have a comprehensive fire safety and emergency action plan shall comply with the emergency preparedness requirements of this section.

405.2.1 Comprehensive fire safety/emergency action plan (Level 1). A comprehensive fire safety and emergency action plan in accordance with FC401.4 shall be prepared for:

1. a high-rise Group R-1 residential building, including hotels and club houses providing similar accommodation.
2. a Group R-1 residential building or occupancy with a total of more than fifty sleeping rooms above street level, or communal sleeping facilities above street level occupied or designed to be occupied by a total of more than fifty lodgers, and which is provided with voice communication capability.

405.2.2 Fire and life safety staff. The comprehensive fire safety and emergency action plan required by FC405.2.1 shall designate FLS staff consisting of an FLS director, deputy FLS directors and a sufficient number of FLS [brigade] staff members to exercise the authority and perform the duties of their respective FLS assignments. FLS staff shall be provided with initial and refresher FLS staff training in accordance with FC401.4.5.2. FLS [brigade] staff members shall be trained in the use of portable fire extinguishers.

405.3 Emergency preparedness in transient residential buildings and occupancies with fire and emergency preparedness plans. Group R-1 residential buildings and occupancies required by FC405.3.1 to have a fire and emergency

preparedness plan shall comply with the emergency preparedness requirements of this section.

405.3.1 Fire and emergency preparedness plan (Level 2). A fire and emergency preparedness plan in accordance with FC401.5 shall be prepared for a Group R-1 residential building or occupancy (other than buildings and occupancies subject to FC405.2) with a total of more than thirty sleeping rooms, or more than fifteen sleeping rooms above street level, or communal sleeping facilities occupied or designed to be occupied by a total of more than thirty lodgers, or more than fifteen lodgers above the street level.

405.3.2 Fire and emergency preparedness staff. The commissioner may prescribe by rule that in Group R-1 buildings and occupancies provided with voice communication capability (other than buildings and occupancies subject to FC405.2) there shall be present during regular business hours one or more members of the FEP staff required pursuant to FC401.5.5 who hold a certificate of fitness for emergency announcements and other fire safety duties.

Exception: Any Group R-1 residential building or occupancy [provided with voice communication capability] with staged evacuation that was required by the New York City Fire Prevention Code or this code prior to the effective date of this section to have a fire safety director present in the building during regular business hours shall retain such staffing.

405.4 Emergency preparedness in homeless shelters and emergency shelters. Group R-1 residential buildings or occupancies operated or occupied as a homeless shelter, and any emergency shelter, shall comply with the emergency preparedness requirements of this section.

405.4.1 Comprehensive fire safety/emergency action plan (Level 1). A comprehensive fire safety and emergency action plan in accordance with FC401.4 shall be prepared for[:

1.] a high-rise Group R-1 or high-rise Group I-1 homeless shelter.

[2. a Group R-1 homeless shelter that is provided with voice communication capability, and either has a total of more than fifty rooms above street level or has communal sleeping facilities above street level occupied or designed to be occupied by a total of more than fifty lodgers.]

405.4.2 Fire and life safety staff. The comprehensive fire safety and emergency action plan required by FC405.4.1 shall designate fire and life safety staff in accordance with FC405.2.2.

405.4.3 Fire and emergency preparedness plan (Level 2). A fire and emergency preparedness plan in accordance with FC401.5 shall be prepared for a Group R-1 and Group I-1 building or occupancy operated or occupied as a homeless shelter (other than buildings and occupancies subject to FC405.4.1), and any emergency shelter.

405.4.4 Fire and emergency preparedness staff. The fire and emergency preparedness plan required by FC405.4.3 shall designate an FEP [shelter] coordinator and a sufficient number of [deputy FEP] shelter coordinators, with such qualifications, duties and authority as set forth in the rules.

405.4.4.1 FEP coordinator and shelter coordinators. The FEP [shelter] coordinator and [deputy FEP] shelter coordinators designated in the fire and emergency preparedness plan shall hold [an FEP shelter coordinator certificate] the respective certificates of fitness for said duties, and shall have the following duties and responsibilities and such other duties and responsibilities as prescribed by rule:

1. The FEP coordinator shall have the duties and responsibilities set forth in FC401.5.

2. The FEP coordinator or a shelter coordinator shall be present in the building at all times while the building is occupied. When the FEP [shelter] coordinator is absent, a [deputy] FEP shelter coordinator shall be present in the building and shall perform the emergency preparedness duties [of the FEP shelter coordinator] designated in the rules and the fire and emergency preparedness plan.

[2]3. In the event of a fire, a medical emergency or other non-fire emergency, the FEP coordinator or the shelter coordinator on duty shall report to the fire command center or designated alternative location, and, if appropriate, implement the fire and emergency preparedness plan in accordance with its terms and the provisions of the rules, and notify arriving emergency response personnel and incident commander of the fire or non-fire emergency, the building

response thereto, and the building's fire protection systems.

[3]4. The FEP [shelter] coordinator and [deputy FEP] shelter coordinators designated in the FEP plan shall be fully familiar with the provisions of the fire and emergency preparedness plan. The FEP [shelter] coordinator shall conduct staff training and fire and non-fire emergency drills required by FC401.

405.4.5 Fire guard patrols in emergency shelters. Buildings or parts thereof occupied or operated to be occupied by emergency shelters shall be continuously patrolled by a fire guard. Every area of the building shall be patrolled at least once every hour.

405.5 Fire and emergency notice. There shall be posted on or immediately adjacent to the main entrance door of guest rooms in Group R-1 buildings and occupancies and any emergency shelter a notice that provides the following information and guidance to building occupants, and/or such other information as the commissioner may prescribe by rule:

1. A visual representation of the location to each exit stairwell, the route thereto, and the number of doors opening onto the public corridor that must be passed to reach each such stairwell.

2. Location of manual fire alarm boxes.

3. A written description and/or visual representation of the procedures to be followed in the event of a fire, smoke condition or other emergency.

SECTION FC 406 APARTMENT BUILDINGS

406.1 General. Apartment buildings and other Group R-2 buildings and occupancies shall comply with the emergency preparedness requirements set forth in FC 401, 416 and this section.

406.2 Emergency preparedness in apartment buildings. Apartment buildings and other Group R-2 buildings and occupancies shall comply with the following emergency preparedness requirements:

406.2.1 Fire emergency preparedness guide and notices (Level 3). Fire and emergency preparedness guide and notices in accordance with [FC401.7] FC401.6 and the rules shall be prepared, and periodically reviewed and amended, for a Group R-2 building or occupancy.

406.2.2 Non-sequential or non-standard floor numbering. The [commissioner] department shall promulgate rules establishing requirements for the electronic submission of floor numbering lists to the department by owners of Group R-2 buildings or occupancies that are [150] 125 feet ([45 720] 38 100 mm) or more in height, and such other occupancies as the [commissioner] department may designate by rule. Such rules shall provide that each owner of a building with non-sequential or non-standard floor numbering, as defined by rule, shall submit to the department a floor numbering list indicating the floor numbers assigned to each floor, and submit an amended floor numbering list within 2 business days of a change in any floor numbering designation.

406.2.3 Hurricane evacuation notices. The owner of any Group R-2 building or occupancy within a hurricane evacuation zone, as designated by the commissioner of the office of emergency management, shall cause a hurricane evacuation notice to be posted within the building or occupancy. Such notice shall serve to inform building occupants of the current hurricane evacuation zone designation for that building and the methodology for determining their closest hurricane evacuation centers, through 311 or the online Hurricane Evacuation Zone finder. Such notice shall be in such form as prescribed by the commissioner by rule and shall be posted within a common area of the building and such other locations as set forth in the rules.

406.2.4 Fire and emergency preparedness plan (Level 2) and fire and emergency preparedness staff. A fire and emergency preparedness plan in accordance with FC401.5 shall be prepared for Group R-2 high-rise megastructure buildings and occupancies, in addition to compliance with the requirements of FC401.6. There shall be present during regular business hours one or more members of the FEP staff required pursuant to FC401.5.5 who hold a certificate of fitness for emergency announcements and other fire safety duties.

406.3 Responsibility of cooperative or condominium apartment owners. In Group R-2 buildings and occupancies with a cooperative or condominium form of ownership and management, the board of directors, condominium association or other party generally responsible for maintenance of common areas shall be responsible for the preparation and distribution of the fire and emergency preparedness guide, the posting and maintenance of fire and emergency preparedness notices in common areas, and the preparation and distribution to individual dwelling unit owners or proprietary lessees of fire and non-fire emergency notices for dwelling unit doors, including instructions and the means for affixing the notice. The owners or proprietary lessees of the individual units in such residential buildings or parts thereof shall be responsible for the posting and maintenance of the fire and non-fire emergency notice on their respective dwelling unit doors. Such owners and proprietary lessees shall allow representatives of the building's management access to their individual dwelling units, upon reasonable notice, for purposes of confirming such owners and proprietary lessees' compliance with this section.

SECTION FC 407 ASSEMBLY OCCUPANCIES

407.1 General. Group A occupancies and public gathering places, other than Group A occupancies operated or occupied exclusively for purposes of religious worship that have an occupant load less than two thousand, shall comply with the emergency preparedness requirements set forth in FC 401, 416 and this section. Such occupancies and places shall additionally comply with fire safety precautions required pursuant to FC403.1.

407.2 Emergency preparedness in assembly occupancies with comprehensive fire safety/emergency action plans. Group A occupancies required by FC407.2.1 to have a comprehensive fire safety and emergency action plan shall comply with the emergency preparedness requirements of this section.

407.2.1 Comprehensive fire safety/emergency action plan (Level 1). A comprehensive fire safety and emergency action plan in accordance with FC401.4 shall be prepared for a Group A building with an occupancy of five thousand or more persons, or any other building or structure that houses one or more Group A occupancies where the combined occupancy of such Group A occupancies is five thousand or more persons.

407.2.2 Fire and life safety staff. The comprehensive fire and emergency action plan required by FC407.2.1 shall designate FLS staff consisting of an FLS director and such other FLS staff as the commissioner may prescribe by rule as appropriate for such building or occupancy. FLS staff shall be provided with initial and refresher FLS staff training in accordance with FC401.4.5.2. The commissioner may prescribe by rule that there be present during regular business hours one or more members of the FLS staff who hold a certificate of fitness for place of assembly fire safety.

407.3 Emergency preparedness in assembly occupancies with fire and emergency preparedness plans. Group A buildings or occupancies and public gathering places that are required by FC407.3.1 to have a fire and emergency preparedness plan shall comply with the emergency preparedness requirements of this section.

407.3.1 Fire and emergency preparedness plan (Level 2). A fire and emergency preparedness plan in accordance with FC401.5 shall be prepared for a Group A building or occupancy or public gathering place not subject to FC407.2 that:

1. is designed to be occupied by three hundred or more persons;
2. is provided with voice communication capability;
3. has a stage or in which entertainment or other activities that are the focus of attention are regularly conducted;
4. is occupied or designed to be occupied as a ballroom, dance hall or night club; or
5. is occupied or designed to be occupied as a bar, catering hall, restaurant or similar establishment, on one or more high-rise floors, including any rooftop area.

407.3.2 Fire and emergency preparedness staff. The commissioner may prescribe by rule that in Group A buildings or occupancies and public gathering places that there be present during regular business hours one or more members of the FEP staff required pursuant to FC401.5.5 who hold a certificate of fitness for place of assembly fire safety.

407.3.3 Assembly spaces without staff. Halls or other assembly spaces that are rented or otherwise made available for events without dedicated staff, such as social halls in houses of worship and community organizations, are not required to prepare a fire and emergency preparedness plan pursuant to FC407.3.1.

407.4 Seating plan. A copy of the seating plan required for Group A occupancies by the Building Code shall be electronically submitted to the department prior to occupancy. A seating plan depicting the arrangement of seating in a place of assembly, location of aisles and such other information as may be required by rule shall be submitted [to the Department for its review and approval] in a manner prescribed by the department. A copy of the approved seating plan shall be maintained on the premises and made available for inspection by any department representative.

407.5 Limitations on standing in Group A occupancies and public gatherings. Where the Building Code, certificate of occupancy or approved seating plan allows audience members to stand at performing arts or other indoor or outdoor events at which seating is provided for the audience, standing areas shall be maintained in accordance with FC 407.5.1 through 407.5.4.

407.5.1 Standing areas to be indicated. The space to be occupied by standing audience members shall be separated from the space to be left clear for passage by a rope, tape or other thin material at a height of not less than 3 feet (914 mm) nor more than 4 feet (1219 mm) above the floor, supported by lightweight posts, all to be constructed and placed so as not to constitute an obstruction in case of panic or emergency. Such standing areas shall be clearly demarcated by durable markings on the floor indicating the boundaries of the standing area.

Exception: A single row of standees in an approved or other lawful area designated for such purpose in a performing arts theater, where the location for each such standee is durably marked in an approved manner.

407.5.2 Standing in aisles. It shall be unlawful to stand, or allow any person to stand, in or at the head of an aisle.

407.5.3 Standing in passageways. Standing is authorized in Group A occupancies and public gathering places in accordance with the following requirements.

1. 1. If the passageway is more than 6 feet (1829 mm) and less than 16 feet (4877 mm) deep, persons may stand therein, provided an unobstructed passageway of at least 6 feet (1829 mm) in depth is left open, and there are no more than four rows of persons standing.

2. 2. If the passageway is more than 16 feet (4877 mm) deep, any number of persons or rows of persons may stand therein, provided that an unobstructed passageway of at least 10 feet (3048 mm) in depth is left open.

3. In places of assembly having a passageway to the rear of the seats, 6 feet (1829 mm) or less in depth, and having in addition an outer passageway in the rear thereof, to which all aisle heads have straight and direct access, a maximum of two rows of persons may be permitted to stand in the passageway to the rear of such seats.

407.5.4 Standing in balconies. Only one row of persons shall be allowed to stand in balconies.

407.6 Announcements. In performing arts theaters or motion picture theaters, and in any other Group A occupancy in which there is a non-continuous performance or program, other than an occupancy regularly attended by the same audience, an audible announcement shall be made not more than 10 minutes prior to the start of each performance or program informing the occupants of the location of the exits to be used in the event of a fire or other emergency, provided, however, that in any theater the announcement may be projected upon a screen or other surface approved by the commissioner in a manner approved by the commissioner. Notwithstanding the foregoing, the commissioner may grant an exception from such requirement upon a determination that the occupancy has at least one exit clearly visible from every seat or standing area from which members of the audience are authorized to view the performance.

407.7 Trade shows. The owner of any Group A occupancy wherein a trade show or other similar temporary exhibition is to be conducted shall, at least one month before the date of such exhibition, submit to the department a written notice and a plan containing the following information and such other information and documentation as the commissioner may prescribe:

1. The dates, times, location, and nature of the trade show or other exhibition, and whether the event will be open to the public or restricted to the trade.
2. The design and arrangement of the trade show or other exhibition, including aisles, display booths, decorations and drapes, and equipment using any hazardous material or open flame.

SECTION FC 408
ASSISTED LIVING FACILITIES
AND SIMILAR OCCUPANCIES

408.1 General. Assisted living facilities, adult homes, community residences, congregate care facilities, enriched housing, halfway houses, intermediate care facilities, residential care facilities, social rehabilitation facilities, substance abuse rehabilitation centers and other Group I-1 buildings and occupancies in which building occupants are capable of self-preservation and capable of responding to a fire or other emergency without assistance from others shall comply with the emergency preparedness requirements set forth in FC 401, 416 and this section.

408.2 Emergency preparedness in assisted living facilities and similar occupancies with fire and emergency preparedness plans (Level 2). A fire and emergency preparedness plan in accordance with FC401.5 shall be prepared for a Group I-1 building or occupancy with more than twenty-five persons above or below street level.

408.3 Fire and emergency preparedness staff. The commissioner may prescribe by rule that in Group I-1 buildings or occupancies provided with voice communication capability there shall be present during regular business hours one or more members of the FEP staff required pursuant to FC401.5.5 who hold a certificate of fitness for emergency announcements and other fire safety duties.

408.4 Special drill requirements. In addition to the requirements of FC401.7, persons residing in Group I-1 occupancies shall:

1. participate in a full building evacuation on an annual basis.
2. if capable of participating in an evacuation or in-building relocation without assistance, be trained to provide assistance to other such residents to the extent that their physical and mental abilities permit them to do so without additional personal risk.

408.5 Fire and emergency notice. A fire and emergency notice in accordance with FC405.5 shall be posted within each dwelling unit in the building or occupancy, on or immediately adjacent to the main entrance door to the dwelling unit.

SECTION FC 409
CORRECTIONAL FACILITIES AND OTHER
SECURED FACILITIES

409.1 General. Correctional facilities, secure psychiatric hospitals and other Group I-3 buildings and occupancies (including prisons, detention centers and pre-release centers) regulated by New York State Department of Correctional Services or the New York State Education Department, shall maintain the emergency preparedness staff and conduct the drills required by the regulations of the New York State Department of Correctional Services, and otherwise comply with the requirements of such regulations.

409.2 Staffing and staff training. The following staffing and staff training shall be provided in Group I-3 buildings and occupancies:

409.2.1 Staffing. In Group I-3 occupancies, staff trained in emergency preparedness procedures shall be in the building at all times, and within three floors or 300 feet (91 440 mm) horizontal distance of the access door of each resident housing area. Keys necessary for unlocking doors installed in a means of egress shall be individually identifiable by both touch and sight. When movement of occupants from one smoke compartment to another or egress from the building is impeded by staff-controlled manual releases, the staff responsible for controlling such movement or egress must be continuously available to initiate emergency procedures within 2 minutes of an alarm.

Exception: Staff shall not be required to be located within three floors or 300 feet (91 440 mm) of areas in which all locks may be unlocked automatically in accordance with Section 408.4 of the Building Code.

409.2.2 Staff training. The staff responsible for emergency preparedness procedures in Group I-3 occupancies shall be trained in the use of portable fire extinguishers and other manual fire extinguishing equipment.

409.2.3 Notification. Provision shall be made to promptly notify emergency preparedness staff of a fire or non-fire emergency.

SECTION FC 410 EDUCATIONAL OCCUPANCIES

410.1 General. Schools, colleges, universities and other Group B and Group E educational buildings and occupancies; Group R-1 dormitories operated by or on behalf of educational institutions; and Group E day care facilities shall comply with the emergency preparedness requirements set forth in FC 401, 416 and this section.

410.2 Day care plans. Group E educational buildings and occupancies regulated by the New York City Department of Health and Mental Hygiene shall prepare and maintain a written safety plan addressing fire safety, medical emergencies and evacuation procedures, in compliance with the rules or other requirements of that agency.

410.3 Emergency preparedness in Group B educational occupancies with comprehensive fire safety/emergency action plans. Group B educational buildings and occupancies required by FC410.3.1 to have a comprehensive fire safety and emergency action plan shall comply with the emergency preparedness requirements of this section.

410.3.1 Comprehensive fire safety/emergency action plan (Level 1). A comprehensive fire safety and emergency action plan in accordance with FC401.4 shall be prepared for:

1. a high-rise Group B educational building [that is provided with voice communication capability] with staged evacuation.
2. a [Group B educational occupancy occupied or designed to be occupied by a total of more than one hundred persons on one or more high-rise floors, that is provided with voice communication capability] high-rise Group R-1 dormitory, or high-rise Group R-2 student apartment building, with staged evacuation.

410.3.2 Fire and life safety staff. The comprehensive fire and life safety plan required pursuant to FC410.3.1 shall designate an FLS director and such other FLS staff as the commissioner may prescribe by rule as appropriate for the manner in which the building or occupancy, or floors thereof, is used or staffed.

410.4 Emergency preparedness in educational occupancies and dormitories with fire and emergency preparedness plans. Educational and dormitory buildings and occupancies required by FC410.4.1 to have a fire and emergency preparedness plan shall comply with the emergency preparedness requirements of this section.

410.4.1 Fire and emergency preparedness plan (Level 2). A fire and emergency preparedness plan in accordance with FC401.5 shall be prepared for the following buildings and occupancies (other than buildings [and occupancies] subject to FC410.3):

1. a high-rise and large-area Group B educational building.
2. a low-rise and high-rise Group E educational building.
3. a Group B educational occupancy occupied or designed to be occupied by a total of more than one hundred persons on one or more high-rise floors.
4. a Group E educational occupancy occupied or designed to be occupied by a total of more than one hundred persons on one or more high-rise floors.
5. a high-rise Group R-1 dormitory, or high-rise Group R-2 student apartment building, without staged evacuation.

6. a low-rise Group R-1 dormitory building or occupancy, or low-rise Group R-2 student apartment building or occupancy, with a total of more than fifty sleeping rooms above street level, or communal sleeping facilities above street level occupied or designed to be occupied by a total of more than fifty lodgers.

410.4.2 Fire and emergency preparedness staff. The commissioner may prescribe by rule that in a Group B, E, [or] Group R-1 dormitory building or occupancy and/or Group R-2 student apartment building subject to FC410.4.1 that is provided with voice communication capability there shall be present during regular business hours one or more members of the FEP staff required pursuant to FC401.5.5 who hold a certificate of fitness for emergency announcements and other fire safety duties.

410.4.3 Fire and emergency notice. In Group R-1 dormitory buildings or occupancies subject to FC410.4.1, a fire and emergency notice in accordance with FC405.5 shall be posted within each dwelling unit in the building or occupancy, on or immediately adjacent to the main entrance door to the dwelling unit.

410.5 Emergency preparedness in dormitories without fire and emergency preparedness plans. Group R-1 dormitory buildings and occupancies, and Group R-2 buildings and occupancies, other than buildings and occupancies subject to FC410.4, shall comply with the following emergency preparedness requirements:

410.5.1 Fire and emergency preparedness guide and notices (Level 3). Fire and emergency preparedness guide and notices in accordance with FC401.6 and the rules shall be prepared, and periodically reviewed and amended, for a Group R-1 dormitory.

410.6 Special drill requirements. Fire and non-fire emergency drills shall be conducted in all educational buildings and occupancies and dormitories in accordance with FC401.7 and the rules. The frequency and timing of drills in educational occupancies shall be in accordance with the New York State Educational Law. Group E occupancies shall establish procedures for accounting for students after they have been relocated or evacuated during a drill.

SECTION FC 411 FACTORIES

411.1 General. Group F buildings and occupancies shall comply with the emergency preparedness requirements set forth in FC 401, 416 and this section, except that Group F buildings and occupancies regulated by New York State Labor Law §279 shall maintain the emergency preparedness staff and conduct the drills required by the rules of the New York City Board of Standards and Appeals, as set forth in 2 RCNY [§9-01] §3-05, and otherwise comply with the requirements of such rules, and, if located in a mixed-occupancy building, shall additionally comply with the requirements of FC416.

411.2 Emergency preparedness in factories with fire and emergency preparedness plans (Level 2). A fire and emergency preparedness plan in accordance with FC401.5 shall be prepared for a Group F building and occupancy with more than twenty-five persons above or below street level during regular business hours.

SECTION FC 412 HIGH HAZARD OCCUPANCIES

412.1 General. Group H buildings and occupancies shall comply with the emergency preparedness requirements set forth in FC 401, 416 and this section, except that such requirements shall not apply to Group H buildings and occupancies that have prepared one or more of the following plans in compliance with applicable requirements:

1. An emergency action plan in accordance with the regulations of the United States Department of Labor, as set forth in 29 CFR Section 1910.119.
2. A contingency plan and emergency procedures in accordance with the regulations of the New York State Department of Environmental Conservation, as set forth in 6 NYCRR Part 373.
3. A risk management plan in accordance with the rules of the New York City Department of Environmental Protection, as set forth in 15 RCNY §41-08.

412.2 Emergency preparedness in high-hazard buildings and occupancies with fire and emergency preparedness plans

(Level 2). A fire and emergency preparedness plan in accordance with FC401.5 shall be prepared for a Group H building and occupancy with more than twenty-five persons above or below street level during regular business hours, excluding Group H buildings and occupancies required to comply with FC412.1(1), (2) or (3).

412.3 Group H-5 occupancies. Group H-5 occupancies shall additionally comply with the requirements of Sections 412.3.1 through 412.3.4.

412.3.1 Plans and diagrams. Plans and diagrams shall be maintained in an approved location on the premises indicating the plan for each area, the amount and type of HPM stored, handled and used, locations of shutoff valves for HPM supply piping, emergency telephone locations and locations of exits.

412.3.2 Periodic review and revision. The plans and diagrams required by FC412.3.1 shall be maintained up to date and the department shall be notified of all changes in use or occupancy, and design and arrangement of the premises.

412.3.3 Emergency response team. On-site emergency response personnel shall be familiar with the HPM stored, handled or used on the premises. Responsible persons shall be designated to an on-site emergency response team. An emergency response team shall be staffed for each workshift to coordinate their emergency response activities with emergency response personnel, and shall cooperate with the department in planning emergency responses.

412.3.4 Emergency response drills. Emergency drills of the on-site emergency response team shall be conducted on a regular basis but not less than once every 3 months. Records of emergency drills conducted shall be maintained in the same manner as records of fire and non-fire emergency drills.

SECTION FC 413 HOSPITALS, NURSING HOMES AND OTHER PATIENT AND RESIDENTIAL CARE FACILITIES

413.1 General. Hospitals, nursing homes, adult homes, ambulatory care facilities, community residences, enriched housing, intermediate care facilities and other Group I-2 buildings and occupancies and ambulatory care facilities classified as Group B occupancies, caring for or housing more than three persons not capable of self-preservation and not capable of responding to a fire or other emergency without assistance from others shall comply with the emergency preparedness requirements set forth in FC 401, 416 and this section.

413.2 Emergency preparedness in patient and residential care facilities with fire and emergency preparedness plans (Level 2). A fire and emergency preparedness plan in accordance with FC401.5 shall be prepared for a hospital, nursing home[, ambulatory care facility] or other Group I-2 building or occupancy, and any ambulatory care facility.

413.3 Fire and emergency preparedness staff. The commissioner may prescribe by rule that in all Group I-2 buildings or occupancies, and Group B ambulatory care facilities, provided with voice communication capability there shall be present during regular business hours one or more members of the FEP staff required pursuant to FC401.5.5 who hold a certificate of fitness for emergency announcements and other fire safety duties.

413.4 Drills. Fire and non-fire emergency drills in Group I-2 buildings and occupancies and Group B ambulatory care facilities may be conducted in accordance with the provisions of FC 413.4.1 and 413.4.2.

413.4.1 Coded alarm signal. During drills, coded announcements may be made in lieu of an audible alarm to alert medical and other fire and emergency preparedness staff of such drill.

413.4.2 Relocation of patients. During drills, the in-building relocation of patients to safe areas or to the exterior of the building is not required.

413.5 FEP staff training. FEP staff training may be conducted throughout the entire building or occupancy or in specific areas thereof, but training shall be conducted in all areas of the building or occupancy within each 1 year period. Such training shall be conducted at least once each month for a total of not less than twelve training drills per year, as follows: at least three drills during the day shift; at least six drills during the evening shift, and at least three drills during the night shift.

SECTION FC 414
MERCANTILE OCCUPANCIES AND COVERED MALLS

414.1 General. Department stores, retail and wholesale stores and other Group M buildings and occupancies, including covered malls, shall comply with the emergency preparedness requirements set forth in FC 401, 416 and this section.

414.2 Emergency preparedness in mercantile occupancies with comprehensive fire safety/emergency action plans. Group M occupancies that are required by FC414.2.1 to have a comprehensive fire safety and emergency action plan shall comply with the emergency preparedness requirements of this section.

414.2.1 Comprehensive fire safety/emergency action plan (Level 1). A comprehensive fire safety and emergency action plan in accordance with FC401.4 shall be prepared for:

1. a high-rise Group M building.
2. a building with one or more Group M occupancies with an aggregate area of more than 300,000 square feet (27 870 m²) on high-rise floors.
3. a covered mall of more than 300,000 square feet (27 870 m²).

414.2.2 Fire and life safety staff. The comprehensive fire safety and emergency action plan required by FC414.2.1 shall designate FLS staff consisting of an FLS director and such other FLS staff as the commissioner may prescribe by rule as appropriate for such building or occupancy, including building occupants designated by lessees of tenant spaces and similar occupancies. FLS staff shall be provided with initial and refresher FLS staff training in accordance with FC401.4.5.2.

414.3 Emergency preparedness in mercantile buildings and occupancies with fire and emergency preparedness plans. Group M buildings and occupancies required by FC414.3.1 to have a fire and emergency preparedness plan shall comply with the emergency preparedness requirements of this section.

414.3.1 Fire and emergency preparedness plan (Level 2). A fire and emergency preparedness plan in accordance with FC401.5 shall be prepared for the following buildings and occupancies (other than buildings and occupancies subject to FC414.2):

1. a Group M occupancy of more than 30,000 square feet (2787 m²), in which more than twenty-five persons are employed during regular business hours.
2. a building with one or more Group M occupancies with an aggregate area of more than 30,000 square feet (2787 m²) in which more than twenty-five persons are employed during regular business hours.
3. a covered mall of more than 30,000 square feet (2787 m²).

414.3.2 Fire and emergency preparedness staff. The commissioner may prescribe by rule that in a Group M building or occupancy provided with voice communication capability, other than buildings and occupancies subject to FC414.2, there shall be present during regular business hours one or more members of the FEP staff required pursuant to FC401.5.5 who hold a certificate of fitness for emergency announcements and other fire safety duties.

414.4 Special circumstances. The commissioner shall, under circumstances prescribed by rule, modify the emergency preparedness requirements for any Group M building or covered mall where the configuration of such building or covered mall, including its pedestrian areas and means of egress, is such that the purposes of this section would be better served by requiring a different type of emergency preparedness plan or reducing the level of the emergency preparedness plan and/or staffing. The owner may request guidance from the department as to the appropriate emergency preparedness plan to be prepared for such a building or covered mall prior to preparation of the emergency preparedness plan required by this section. Such request shall be accompanied by a floor plan and other appropriate documentation of the configuration of the building or covered mall.

SECTION FC 415

WAREHOUSES AND OTHER STORAGE OCCUPANCIES

415.1 General. Warehouses and other Group S buildings shall comply with the emergency preparedness requirements set forth in FC401, FC416, and this section.

415.1.1 Emergency preparedness in buildings and occupancies with fire and emergency preparedness plans (Level 2). A fire and emergency preparedness plan in accordance with FC401.5 shall be prepared for:

1. a high-rise or large-area Group S building in which more than twenty-five persons are employed during regular business hours.
2. a non-high-rise Group S building with an aggregate of more than 20,000 square feet (1858 m2) of high-piled combustible storage.

415.1.2 Fire and emergency preparedness staff. The commissioner may prescribe by rule that in a Group S building or occupancy provided with voice communication capability there shall be present during regular business hours one or more members of the FEP staff required pursuant to FC401.5.5 who hold a certificate of fitness for emergency announcements and other fire safety duties.

SECTION FC 416 MIXED OCCUPANCY BUILDINGS

416.1 General. The owners of a mixed-occupancy building and each occupancy within such building required to have an emergency preparedness plan pursuant to this chapter shall comply with the emergency preparedness requirements of this section with respect to such building and occupancies.

416.2 Single plan. In lieu of a separate Level 1 or 2 emergency preparedness plan for each occupancy, a single emergency preparedness plan may be developed for the entire building or multiple occupancies within a single building, provided that it meets or exceeds the level of emergency preparedness required for each occupancy.

416.3 Coordination of plans. The owner preparing an emergency preparedness plan for an occupancy in a mixed-occupancy building shall consult the owner responsible for preparing the emergency preparedness plan for each other occupancy within such building with respect to evacuation and in-building relocation procedures, including use of stairwells and elevators and designation of in-building relocation areas and assembly areas.

416.4 Coordination of drills. The owner of a mixed-occupancy building and the owner of each occupancy within such a building required to conduct emergency preparedness drills pursuant to this chapter shall conduct a coordinated drill at least once every 2 years.

416.5 Communications. The owner of a mixed-occupancy building and the owner of each occupancy within such a building required to have emergency preparedness plan pursuant to this chapter shall arrange for a means of communication between their respective FLS directors, FEP coordinators and/or designated FEP staff, in the event of a fire or other emergency. Such communications may be by telephone (other than a telephone requiring a coin to operate), text message, e-mail, walkie-talkie, or other approved means.

416.6 Notification of fires and non-fire emergencies and coordination of responses. In the event of a fire or other emergency in a mixed-occupancy, notification shall be made to the other occupancies and, if necessary, the emergency preparedness staffs of the respective occupancies shall coordinate their responses to the emergency, as follows:

416.6.1 Fires. An FLS director, FEP coordinator and/or a designated emergency preparedness staff member who becomes aware of fire on the premises shall promptly notify the FLS director, FEP coordinator and/or designated staff in the other occupancies in the mixed-occupancy building. The staffs shall coordinate the evacuation, in-building relocation and/or sheltering in place of their respective building occupants, and other matters requiring coordination pursuant to their emergency preparedness plans.

416.6.2 Non-fire emergencies. An FLS director, FEP coordinator and/or a designated emergency preparedness staff member who becomes aware of a non-fire emergency shall promptly notify the FLS director, FEP coordinator and/or

designated emergency preparedness staff for any other occupancy that could be affected by such emergency, or who is situated in the building's entrance lobby and who would be first encountered by firefighters or other emergency personnel responding to the emergency.

CHAPTER 5 FIRE OPERATIONS FEATURES

SECTION FC 501 GENERAL

501.1 Scope. This chapter shall govern the design, installation, operation and maintenance of buildings, structures and premises with respect to requirements designed to ensure safe and effective firefighting operations.

501.2 Permits. Permits shall be required as set forth in FC105.6.

501.3 Reserved.

501.4 General. Buildings, structures and premises shall be designed, installed, operated and maintained in accordance with this chapter.

501.4.1 Newly-constructed buildings and structures. When fire apparatus access roads, frontage spaces, private hydrants or yard hydrants are required to be installed in connection with a newly constructed building or structure, such roads, frontage spaces and hydrants shall be installed and made serviceable prior to and during the time of construction, except that, in connection with a phased development, the provision of fire apparatus access and water supply shall be as set forth in design and installation documents approved by the department. Interim access and water supply arrangements will be considered pending completion of heavy construction that would damage the roads or piping, provided that such arrangements would not unduly impair firefighting operations. Temporary signs shall be installed at each street intersection when construction of new roadways allows passage by motor vehicles in accordance with FC505.2.

501.4.2 Lawfully existing fire department access. Fire department access to buildings, structures and premises not fronting on a public street may be continued in compliance with the provisions of FC 102.3, 102.4, and 102.5, when such fire department access was lawfully existing as of June 30, 2008 or the date of an amendment to this code relating to fire department access. The private roads providing such lawfully existing fire department access shall be deemed to constitute fire apparatus access roads pursuant to this chapter.

501.4.3 Alterations and change of occupancy. A building or structure undergoing alteration or a change of occupancy under the circumstances set forth in FC 501.4.3.1 and 501.4.3.2 shall comply with the requirements set forth in said sections.

501.4.3.1 Provision of sprinkler protection in altered buildings on substandard width public streets and fire apparatus access roads. An existing building or structure that undergoes alteration or a change in use or occupancy and which is located on a public street or fire apparatus access road that has a substandard road width as set forth in FC 503.2.10 or 503.3.2 shall install a sprinkler system throughout such building, when:

1. The cost of making alterations to the building (other than alterations made to Group R-3 occupancies) in any 12-month period exceeds 60 percent of the value of the building, as set forth in New York City Administrative Code ?27-115; or
2. By reason of alteration or otherwise, there is a change in the "main use or dominant occupancy" of the building, as determined by the New York City Department of Buildings for purposes of assigning a single occupancy classification to the building, including any change from a Group R-3 occupancy to a Group R-2 occupancy, but excluding a change in use or occupancy that is limited to restoring a building that was originally constructed as a one-family or two-family dwelling to its original one-family or two-family use and occupancy; or
3. There is an increase of more than 125 percent in the square footage of the floor area of a building (excluding attic, basement and cellar space, as those terms are defined in Section 202 of the Building Code); or

4. There is a change constituting an alteration under the Building Code (excluding rooftop equipment installations) to a building of combustible (non-fireproof) construction with a height of 35 feet (10 668 mm) or less above the grade plane, that increases the height of such building to more than 35 feet (10 668 mm) above the grade plane (with the terms "grade plane" and "building height" having the meanings set forth in Section 502.1 of the Building Code); or

5. A one-family Group R-3 occupancy is being altered to a two-family Group R-3 occupancy, except where:

5.1. the alteration involves converting a basement space to a separate dwelling unit, and the new basement dwelling unit is protected throughout by a sprinkler system; or

5.2. the alteration does not involve converting a basement space to a separate dwelling unit, and either at least two lawful accessory off-street parking spaces are provided on the premises, or sufficient space exists to park two motor vehicles on a common driveway shared exclusively with an adjoining Group R-3 occupancy.

501.4.3.2 Compliance with rooftop access requirements on altered rooftops. The rooftop of an existing building or structure that undergoes alteration shall comply with the requirements of FC504.4.

SECTION FC 502 DEFINITIONS

502.1 Definitions. The following terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings [shown herein] set forth in FC202.

CITYWIDE STANDARD KEY. [A key of special or controlled design, also known as a "2642" key, approved by the commissioner which serves to operate elevator emergency recall and emergency in-service operation service switches and other devices or locks as required by the construction codes, including the Building Code, this code or the rules.]

FIRE APPARATUS ACCESS ROAD. [A road that serves to provide access for fire apparatus from a public street to the frontage space of one or more buildings not directly fronting on a public street. A fire apparatus access road includes any road that serves such purpose whether denominated as a driveway, parking lot lane, private road or private street.]

FIRE DEPARTMENT STANDARD KEY. [A key of special or controlled design, also known as a "1620" key, for the use of department personnel and others specifically authorized by the commissioner, which serves to operate all switches, locks and other devices required to be operable by a citywide standard key.]

FIRE LANE. [A public or private road, roadway lane, parking lot lane or other surface designed to allow vehicular access, that has been specifically designated by means of signs or roadway markings as a priority thoroughfare for fire apparatus.]

FRONTAGE SPACE. [A street or an open space in front of and adjoining the main front entrance to the building and not less than 30 feet (9144 mm) in any dimension that is accessible from a public street or fire apparatus access road, provides access to the building, and serves as a staging area for firefighting and other emergency operations. It shall be designed and constructed to allow operation of department apparatus on the front side of the building and shall be maintained free of obstructions that may interfere with its use by the department.]

HIGH-RISE MEGASTRUCTURE.

KEY BOX. [A secure device with a lock operable only by a citywide standard key or other approved key.]

MULTI-FLOOR DWELLING UNIT. [A dwelling unit or other residential occupancy with living space on a floor other than the floor upon which the entrance door to such room, unit or occupancy is located, or which is accessed by means of an interior stair or passageway from an entrance door on another floor.]

PRIVATE ROAD. [A private driveway, lane or street, or other means of vehicular access to one or more buildings, structures or premises not directly fronting on a public street. A private road does not include a public street.]

PUBLIC STREET. [All streets, including mapped streets, record streets, marginal streets and restricted use streets,

established on the city map maintained pursuant to Section 198 of the New York City Charter or dedicated for general public use and accepted for such purposes by the City of New York.]

[SPEED BUMP. Any raised roadway designed to reduce the speed of traffic to 20 miles per hour (32.2 kilometers per hour) or less, including any speed hump, speed table or other raised speed reducer, commonly referred to as "speed bumps."]

TRAFFIC CALMING DEVICES.

SECTION FC 503 FIRE APPARATUS ACCESS

503.1 General. Buildings shall be accessible to department fire apparatus by way of a public street or approved fire apparatus access road. The public street or fire apparatus access road shall provide access to the frontage space of the building.

503.2 Fire apparatus access roads. Fire apparatus access roads shall be provided, designed, installed and maintained in accordance with this section.

503.2.1 Where required. Where the frontage space to a building does not directly front on a public street, a fire apparatus access road shall be provided from the public street to the frontage space of such building.

503.2.2 Design and construction. Except as otherwise provided in FC503.2.4, a fire apparatus access road shall be designed and constructed in accordance with the standards of the New York City Department of Transportation and in compliance with the following requirements:

503.2.2.1 Surface. Fire apparatus access roads shall have an all-weather driving surface constructed of asphalt, concrete or other approved permeable or impermeable material.

503.2.2.2 Load-bearing capacity. Fire apparatus access roads shall be capable of supporting the imposed load of department apparatus weighing at least 80,000 pounds (36 320 kg) and the operational load of department apparatus outrigger of 52,000 pounds (23 608 kg) over a 2 foot (610 mm) by 2 foot (610 mm) area.

503.2.2.3 Grade. The grade of the fire apparatus access road shall not exceed 10 percent unless approved by the commissioner.

503.2.2.4 Turning radius. The required turning radius of a fire apparatus access road shall be determined by the commissioner.

503.2.2.5 Bridges and elevated surfaces. Any bridge or elevated surface on a fire apparatus access road shall be designed for a live load sufficient to carry the imposed loads of fire apparatus. Signs shall be posted at both entrances to any bridge or elevated surfaces not capable of carrying such a load. Roadways or surfaces not capable of carrying such load that adjoin fire apparatus roads shall be separated by approved barriers and/or marked by approved signs.

503.2.2.6 Angles of approach. The angles of approach and departure for fire apparatus access roads shall be within the limits established by the department based on the department's fire apparatus.

503.2.3 Roadway width and vertical clearance. Fire apparatus access roads shall have an unobstructed width of not less than 34 feet (10 363 mm) excluding shoulders, except as provided in FC 503.2.3.1 through 503.2.3.4, and an unobstructed vertical clearance of not less than 14 feet (4267 mm).

503.2.3.1 Special zoning districts. In Special Hillside Preservation Districts complying with the requirements of Section 119-214 of the Zoning Resolution, or other special zoning district regulation restricting the width of streets or private roads to less than 34 feet (10 363 mm), a fire apparatus access road shall have an unobstructed width of not less than 30 feet (9144 mm), excluding shoulders.

503.2.3.2 Small residential developments. Where access is being provided to residential developments of not more than

five dwelling units, and all buildings to which the road provides access are protected throughout by a sprinkler system, a fire apparatus access road shall have an unobstructed width of not less than 30 feet (9144 mm), excluding shoulders.

503.2.3.3 Buildings set back from street. Where the main front entrance to a building is set back more than 40 feet (12 192 mm) from the curb line, a fire apparatus access road shall have the unobstructed width and comply with the other requirements set forth in FC503.2.4.

503.2.3.4 Special conditions. Where the commissioner determines that the nature and location of the building served by the fire apparatus road or other site conditions render such roadway width or vertical clearance inadequate for firefighting or other emergency response operations, the commissioner may require that the roadway width or vertical clearance be increased.

503.2.4 Buildings set back from street. Where the main front entrance to a building is set back more than 40 feet (12 192 mm) from the curb line, a fire apparatus access road with the unobstructed roadway width required by FC503.2.3 shall be provided to the frontage space of the building, except as otherwise provided in FC 503.2.4.1 through 503.2.4.3.

503.2.4.1 Group R-3 occupancies set back 100 feet or less. The fire apparatus access road to a Group R-3 building with any main front entrance located more than 40 feet (12 192 mm) but not more than 100 feet (30 480 mm) from the street line (as measured along the route of the fire apparatus access road) may be designed and constructed in compliance with the requirements of the Building Code for driveways where:

1. The driveway is designed and is used exclusively to provide access only to a single Group R-3 building, and to no other buildings; and
2. The height of the Group R-3 building does not exceed 35 feet (10 668 mm) above the grade plane (with the terms "building height" and "grade plane" having the meanings set forth in Section BC502.1 of the Building Code); and
3. The driveway provides access to the frontage space of each occupancy, except as otherwise provided in FC504.1.2; and
4. The dwelling units are equipped with interconnected smoke alarms, in accordance with Section 907.2.10 of the Building Code.

503.2.4.2 Group R-3 occupancies set back more than 100-150 feet. The fire apparatus access road to a Group R-3 building with any main front entrance located more than 100 feet (30 480 mm) but not more than 150 feet (45 720 mm) from the street line (as measured along the route of the fire apparatus access road) shall be designed and constructed with an unobstructed width of not less than 20 feet (6096 mm) in accordance with FC503.2.2 where:

1. The fire apparatus access road is designed and is used exclusively to provide access only to a single Group R-3 building, and to no other buildings; and
2. The height of the Group R-3 building does not exceed 35 feet (10 668 mm) above the grade plane (with the terms "building height" and "grade plane" having the meanings set forth in Section 502.1 of the Building Code); and
3. The fire apparatus access road provides access to the frontage space of each occupancy, except as otherwise provided in FC504.1.2; and
4. The dwelling units are equipped with interconnected smoke alarms, in accordance with Section 907.2.10 of the Building Code; and
5. The dwelling units are protected throughout by a sprinkler system; and
6. At least two off-street parking spaces for a one-family dwelling, and at least three such spaces for a two-family dwelling are provided on the premises separate from the fire apparatus access road; and
7. Parking is prohibited on the fire apparatus access road, and a "No Parking" sign conforming to the requirements of FC503.2.7.2 is conspicuously posted at the entrance to the access road.

503.2.4.3 Group R-3 occupancies set back more than 150 feet. The fire apparatus access road to a Group R-3 building with any main front entrance located more than 150 feet (45 720 mm) from the street line (as measured along the route of the fire apparatus access road) shall be designed and constructed in compliance with FC503.2.2, except as approved by the commissioner and subject to such conditions as the commissioner may require.

503.2.5 Obstruction. Fire apparatus access roads shall not be obstructed in any manner that impedes vehicular access, except for lawful parking and [speed bumps] approved traffic calming devices. The minimum widths and clearances required by FC503.2.3 shall be maintained at all times, except with prior department approval.

[Speed bumps] 503.2.5.1. Traffic calming device signage. Traffic calming devices shall be identified by approved signage or roadway markings.

503.2.6 Secondary fire apparatus access. The commissioner may require more than one fire apparatus access road to one or more buildings where fire apparatus access is impeded to or on the primary access road as a result of substandard width public streets, substandard width fire apparatus access roads, traffic patterns, traffic calming devices, railroad crossings, and other conditions that would significantly delay an emergency response.

503.2.7 Parking. Motor vehicles shall not be parked on fire apparatus access roads except in lawful parking spaces that do not obstruct fire apparatus access. Curbside street parking that is lawfully established in accordance with the Zoning Resolution, Building Code and/or other applicable laws, rules and regulations is allowed on any fire apparatus access road if such curbside street parking does not reduce the usable roadway width to less than 18 feet (5486 mm). This requirement shall not be applicable to fire apparatus access roads whose design and use for parking was lawfully existing prior to the effective date of this section. For purposes of this usable roadway width determination, the dimensions of each parking space shall not be less than established by the department, consistent with the regulations of the New York City Department of Transportation for vehicles intended to be parked in such spaces, or, in the absence of such standard, as approved by the department.

503.2.7.1 Parking regulations necessitated by roadway configuration. The commissioner may restrict parking on fire apparatus roads where the angle of approach, curvature of the road, or other roadway configuration or site conditions impede the ability of fire apparatus to make turns or otherwise navigate the fire apparatus access road. Such restrictions shall constitute an operational requirement of this code.

503.2.7.2 Signage and roadway markings. On any fire apparatus access road upon which parking is prohibited, or upon which there are both lawful curbside street parking and parking restrictions, appropriate signage and/or roadway markings shall be provided in accordance with this section.

503.2.7.2.1 Signage. Fire apparatus access roads subject to parking restrictions shall be marked with permanent NO PARKING-FIRE APPARATUS ACCESS ROAD signs complying with FC Figure 503.2.7.2.1. Signs shall have a minimum dimension of 12 inches (305 mm) wide by 18 inches (457 mm) high and have red letters on a white reflective background. Signs shall be posted on the sides of the fire apparatus access road upon which parking is prohibited.

503.2.7.2.2 Roadway markings. Where required by the commissioner, approved roadway markings that include the words NO PARKING-FIRE APPARATUS ACCESS ROAD shall be provided for fire apparatus access roads to identify them as fire apparatus access roads.

503.2.8 Gates. The design of gates across a fire apparatus access road shall be in accordance with this section.

503.2.8.1 Design requirements. Gates across a fire apparatus access road shall comply with the following requirements:

1. The gates shall not encroach upon or otherwise reduce the required or approved width of a fire apparatus access road.
2. Gates shall be of the swinging or sliding type.
3. Manually-operated gates shall be designed to allow for operation by one person.
4. Only approved locking devices shall be used.

5. Manually-operated gates shall not be locked with a padlock or chain and padlock unless the padlock and chain are capable of being cut with standard bolt cutters.

6. Automatically-operated gates shall be designed and installed in accordance with ASTM F 2200 and UL 325, as applicable, and shall have an approved means of manual operation for emergency access by firefighters and other emergency response personnel.

503.2.8.2 Use to restrict access. The commissioner may require the installation of locked gates where access to a road is to be restricted for fire apparatus use. It shall be unlawful to operate or park a motor vehicle on a fire apparatus access road restricted in this manner unless authorized by the commissioner.

503.2.9 Dead-end [turnarounds] roads. Dead-end fire apparatus access roads more than 150 feet (45 720 mm) in length, as measured from the curb line of the nearest public street which is not itself a dead-end, shall be provided with an approved [turnaround area for fire apparatus in accordance with FC Table 503.2.9. Such roads more than 150 feet (45 720 mm) but not more than 400 feet (121 920 mm) in length shall not require a turnaround if all buildings served by the road that are further than 150 feet (45 720 mm) from the curb line of the nearest public street that is not a dead-end are protected throughout by a sprinkler system, excluding buildings in which the lack of a sprinkler system is a lawfully existing condition pursuant to FC 102.3, 102.4 and 102.5.] means by which fire apparatus can turn around or otherwise exit the area in accordance with FC 503.2.9.1 or 503.2.9.2. Dead-end fire apparatus roads shall not exceed 400 feet (121 920 mm) in length unless approved by the commissioner.

503.2.9.1 Dead-end turnarounds. Dead-end fire apparatus access roads shall be provided with a turnaround, as set forth in FC Table 503.2.9.1, unless the department accepts an alternative means for fire apparatus egress, as set forth in FC503.2.9.2.

FC TABLE 503.2.9.1

REQUIREMENTS FOR DEAD-END FIRE APPARATUS ACCESS ROADS

LENGTH (feet)

WIDTH (feet) [b]a

[TURNAROUNDS] TURNAROUND REQUIRED

0-150

34

None required

> 150 and = 400[a]

34

90-foot hammerhead, or 76-foot-diameter unobstructed turnaround,

90-foot-diameter turnaround with a 15-foot-diameter island, or other approved means. [c]b

> 400

As approved

[Such roads are allowed only where approved by the commissioner] As approved by the department.

For SI: 1 foot = 304.8 mm.

a. [A turnaround shall not be required if all buildings served by the road are protected throughout by a sprinkler system.

b.]Except as otherwise provided in FC503.2.3.

[c.]b. See FC Figure 503.2.9.

503.2.9.2 Alternative dead-end solutions. Where the configuration of the site makes provision of a turnaround complying with FC503.2.9.1 impracticable, the department may allow alternative means of fire apparatus egress, including use of a building entrance driveway; garage or loading dock entrance driveway; open plaza; planted open space utilizing vehicle load-bearing permeable paving materials; parking lot lane; or other driveway or lane leading to a separate through road. Any such alternative means of fire apparatus egress shall be capable of accommodating fire apparatus operation, including load-bearing construction, grades, clearances, and, if required, provision of mountable curbs.

1. 76-Foot-Diameter Turnaround

2. 90-Foot-Diameter Turnaround with

up to 15-Foot-Diameter Island

a. 34 feet (10 363 mm) except as otherwise provided in FC503.2.3.

FC FIGURE 503.2.9 DEAD-END FIRE APPARATUS ACCESS ROAD TURNAROUND

503.2.10 Substandard width roads. Buildings on fire apparatus access roads that have an unobstructed roadway width of less than 34 feet (10 363 mm) shall be protected throughout by a sprinkler system. Buildings served by a substandard width fire apparatus access road that is a lawfully existing condition pursuant to FC 102.3, 102.4 and 102.5 shall comply with this requirement when undergoing alteration or a change of occupancy in accordance with FC501.4.3. This requirement shall not apply to any detached, unheated[,] carport, garden shed, greenhouse, private parking garage for not more than three motor vehicles, tower or other accessory building, that is:

1. Classified by the Building Code as a Group U occupancy;
2. Not occupied or designed to be occupied for residential, commercial or office purposes; and
3. Accessory to a Group R-2 or Group R-3 occupancy.

503.3 Public streets. Buildings fronting on public streets shall comply with the requirements of FC 503.3.1 and 503.3.2.

503.3.1 Dead-end turnarounds. Dead-end public streets in excess of 150 feet (45 720 mm) in length, as measured from the curb line of the nearest public street that is not a dead-end, shall be provided with an approved [turnaround area for fire apparatus that complies with the requirements of] means by which fire apparatus can turn around or otherwise exit the street, in accordance with FC503.2.9.

[Exception: A turnaround shall not be required for dead-end public streets more than 150 feet (45 720 mm) in length if all buildings on such street further than 150 feet (45 720 mm) from the curb line of the nearest street that is not a dead-end are protected throughout by a sprinkler system, excluding buildings in which the lack of a sprinkler system is a lawfully existing condition pursuant to FC 102.3, 102.4 and 102.5.]

503.3.2 Substandard width. Buildings on public streets that have an unobstructed width of less than 34 feet (10 363 mm) shall be protected throughout by a sprinkler system. Buildings on substandard width public streets that were not required prior to the effective date of this section to be protected throughout by a sprinkler system shall comply with this requirement when undergoing alteration or a change of occupancy subject to FC501.4.3. This requirement shall not apply to any Group U occupancy complying with the requirements of FC503.2.10.

503.4 Fire lanes. It shall be unlawful to park on a fire lane. Where other vehicular traffic is allowed on a fire lane, such traffic shall yield to fire apparatus or other department emergency response vehicles.

503.4.1 Signage. Fire lanes subject to parking restriction shall be marked with permanent NO PARKING-FIRE LANE signs complying with FC Figure 503.4.1, and/or approved roadway markings. Signs shall have a minimum dimension of 12 inches (305 mm) wide by 18 inches (457 mm) high and have red letters on a white reflective background. Signs shall be posted on the sides of the fire lane upon which parking is prohibited.

503.5 Outdoor parking lots. Outdoor parking lot lanes between rows of parking spaces and aisle space between motor vehicles shall comply with the requirements of the Building Code and Zoning Resolution, except that parking lot lanes that serve as the fire apparatus access road to the main front entrances of buildings situated in parking lots shall comply with the fire apparatus access requirements set forth in this code or such other roadway width requirements established by the Fire Department by rule.

SECTION FC 504 BUILDING AND ROOFTOP ACCESS

504.1 Frontage space. Buildings shall be provided with a frontage space in compliance with the requirements of this chapter and the Building Code. The term "frontage space" shall have the meaning set forth in [FC502] FC202 for purposes of this code. For purposes of the Building Code, "frontage space" shall have the meaning set forth in Section 502 thereof.

Exception: Accessory buildings or structures classified by the Building Code as a Group U occupancy.

504.1.1 Main front entrance. The main front entrance of a building is the entrance that is designed to serve as the primary means of ingress and egress to the building, and which is located on a side of the building that contains windows, emergency escape and rescue openings, outdoor building corridors or other building openings that serve to afford firefighters access to the upper floors of the building. Where a building has more than one entrance that is so designed and situated, the owner may designate one such entrance as the main front entrance of the building, provided, however, that if such entrance does not provide an appropriate location for firefighting operations, the commissioner may require that another entrance be designated the main front entrance.

504.1.2 Occupancies with separate entrances. When a building contains more than one occupancy and separate entrances are provided for individual occupancies, there shall be a main front entrance for each such occupancy, and a separate frontage space shall be provided for each main front entrance, except that a second frontage space is not required for a two-family Group R-3 occupancy if unobstructed access, 5 feet (1524 mm) in width, is provided to the rear yard and to the main front entrance of any dwelling unit from either side of the building that is not directly accessible from the public street, fire apparatus access road, or driveway. An open accessory parking area not less than 5 feet (1524 mm) in width shall be sufficient to constitute unobstructed access to the rear yard, regardless of the presence of parked vehicles in such parking area.

504.1.3 Building access. An approved access walkway leading from the fire apparatus access road or driveway to the main front entrance of each occupancy or other exterior openings shall be provided when required by the commissioner.

504.1.4 Frontage space obstructions. Obstructions, such as planters, fences and bollards, shall not be placed in the required frontage space unless they have been approved by the Commissioner of Buildings, the Commissioner of Transportation, or the commissioner, as applicable.

504.2 Maintenance of exterior doors and openings. Exterior doors and openings required by this code or the construction codes, including the Building Code, shall be maintained in a manner that affords access by firefighting personnel in accordance with the requirements of this section, FC Chapter 10, and the Building Code. Exterior doors and their function shall not be eliminated without prior approval of the Department of Buildings. Exterior doors that have been rendered nonfunctional and that retain a functional door exterior appearance shall have a sign affixed to the exterior side of the door with the words THIS DOOR BLOCKED. The sign shall consist of letters having a principal stroke of not less than 0.75 inch (19.1 mm) wide and at least 6 inches (152 mm) high on a contrasting background. Required department access doors shall not be obstructed or eliminated. Exit and exit access doors shall comply with the requirements of FC Chapter 10 and the construction codes, including the Building Code. Access doors for high-piled combustible storage shall comply with the requirements of [FC2306.6.1] FC3206.6.1.

504.3 Stairway access to roof. Stairway access to the roof shall be in accordance with FC Chapter 10 and the construction codes, including the Building Code. Such stairway shall be marked at street and floor levels with a sign indicating that the stairway continues to the roof. Where roofs are used for rooftop gardens or for other lawful purposes, stairways shall be provided as required for such occupancy classification.

504.4 Rooftop access and obstructions. The rooftops of buildings 100 feet (30 480 mm) or less in height, except rooftops with a slope exceeding 20 degrees (0.35 rad) from the horizontal, shall be designed, installed, operated and maintained in accordance with this section and in a manner that avoids or minimizes obstructions that impede firefighting operations such as vertical ventilation of heat and smoke, surveillance of rear yards and courtyards, and rooftop-aided rescues. For purposes of this section only, "rooftop" shall include rooftops of building setbacks, and "obstruction" shall mean any fixture or other item that is not readily movable by one person without the use of tools or equipment, including air conditioning systems, billboards and other signs, cellular antenna equipment, columns and girders, cooling towers, fuel oil storage tanks, generators, heating systems, planters, solar panels, ventilation system ducts, intakes and exhausts, and window cleaning equipment, but shall not include nonmetallic decking that is readily cut by standard power tools.

504.4.1 Rooftop access. Access to building rooftops shall be provided for fire operations by providing unobstructed access to the rooftop, including unobstructed passage across the building parapet, perimeter fence or other obstructions, and a safe landing. Such rooftop access shall be provided in compliance with the following required clearances:

1. For each 12 linear feet (3658 mm) of building perimeter accessible from the frontage space of the building and from any other exposure accessible to fire apparatus, a minimum clearance of 6 feet (1829 mm) in width and 6 feet (1829 mm) in depth from any obstruction shall be provided at the parapet wall or other perimeter of the rooftop.
2. Where such building perimeter is 24 linear feet (7315 mm) or greater, but less than 36 linear feet (10 973 mm), the required clearance openings shall be separated by a distance of not less than 12 linear feet (3658 mm).
3. Where such building perimeter is 36 linear feet (10 973 mm) or greater, the required clearance openings may be contiguous, provided, however, that such contiguous openings shall not exceed 12 linear feet (3658 mm) and shall be separated from other required clearance openings by a distance of not less than 12 linear feet (3658 mm).
4. Each exposure accessible by fire apparatus [may] shall be treated separately for purposes of locating clearance openings and otherwise complying with the requirements of this provision.
5. Awnings, sun control devices, solar panels or other structures affixed to an exterior building wall below the roof line shall not obstruct fire apparatus aerial ladder access to the rooftop perimeter access locations.
6. Scaffolding obstructing rooftop access locations shall be designed to provide secure landings at such locations in an approved manner.
7. The rooftop parapet or other perimeter railing or barrier shall be designed to facilitate the safe dismounting of a firefighter from an aerial ladder. Any such parapet, railing or barrier on a building constructed after the effective date of this section, or installed pursuant to a work permit issued by the Department of Buildings after such date, shall be of substantial construction capable of supporting a minimum of 350 pounds (159 kg) and shall be designed with a level surface at least 5 inches in width (127 mm) so as to allow a firefighter to safely step on it, as prescribed by the department, or other approved design. Where the height of the rooftop parapet, railing or other enclosure is more than 48 inches (1219 mm), an approved landing platform and steps or ladder shall be provided to allow a firefighter to safely dismount and descend to the rooftop. Design and installation documents shall be submitted to the department for approval.
8. To the maximum extent practicable, wind turbines or other equipment with moving components shall be installed at rooftop location where they do not impede access or encroach up rooftop access landings, clear path, or required clearances, but in no case shall fan blades or other moving component operate within 3 feet (914 mm) of the rooftop access required by this section, including the 9-foot (2743 mm) height above the parapet or other rooftop perimeter railing or barrier and rooftop access landings. The tips of the fan blades and the edges of other moving components shall bear reflective markings and identified by caution warning signs or other means, to ensure that persons on the rooftop are aware of the presence of such equipment.

504.4.2 Rooftop access signs and markings. Where required by the department, a sign, decal or approved marking shall be provided on the exterior wall of a building, at an approved location on a lower story, directly below the rooftop perimeter access landings, to identify the location of such rooftop access. The department may require such signs or markings when rooftop conditions not apparent from the street make rooftop access unsafe at locations other than the approved building perimeter access landings, or do not allow for access to the roof.

504.4.3 Rooftop access landings. At each rooftop perimeter access location, there shall be a safe landing area not less than 6 feet (1829 mm) in any dimension, and 9 feet (2743 mm) in height above the parapet or other rooftop perimeter railing or barrier. The access landing shall be connected to the clear path required by FC504.4.4. The landing shall not be obstructed by a fence, except as approved. If approved, such fence shall be provided with a standard 3-foot-wide (914 mm) gate that swings inward. Such gate may be secured by a padlock and chain capable of being cut by standard bolt cutters from either side of the gate, or secured by other approved device.

504.4.4 Rooftop clear path. A clear path of not less than 6 feet (1829 mm) horizontal width and 9 feet (2743 mm) in height shall be provided from the front of the building to the rear of the building[and]; from one side of the building to the other for

each 100 linear feet (30 480 mm) of rooftop width and depth such that the maximum distance between clear paths is 100 feet (30 480) mm. Such path shall comply with the following requirements:

1. Such clear path shall be accessible from each rooftop perimeter access landing required pursuant to FC504.4.3.
2. Such clear path shall afford reasonable access to bulkhead doors, fire escapes, access ladders, cockloft vents, skylights, scuttles, [and]shafts and rooftop stationary energy storage systems. Such access shall include, to the maximum extent practicable, 3-feet (914 mm) clearance on three sides of the skylight or scuttle. On buildings constructed after the effective date of this section, the clear path shall afford reasonable access, to the maximum extent practicable, to windowed areas on any side of the building that is not fire apparatus accessible.
3. A conduit or pipe may cross such clear path in accordance with FC504.4.7.
4. Any lawful fence obstructing such clear path shall be provided with a standard 3-foot-wide (914 mm) gate, which may be secured by padlock or chain capable of being cut by standard bolt cutters, or secured by other approved device.
5. When the main building rooftop has more than one level, a fixed ladder or other approved means shall be provided to afford access along the clear path from one roof level to the next, excluding any height differential between levels exceeding one story or 16 feet (4077 mm), and any level with a rooftop area that is less than 6 feet (1829 mm) in any dimension.
6. On an "H"-shaped building or other building whose irregular configuration renders a single clear path inadequate to provide access to each wing of the building or other rooftop area, the commissioner may require one or more additional clear paths to provide adequate access to such rooftop areas.
7. The rooftop surface serving as the clear path shall not be constructed of glass or other transparent or translucent material, nor shall it require a firefighter to walk upon any flush-mounted solar panels or other energized equipment.
8. Rooftop stationary energy storage systems shall be designed and installed in accordance with FC608 and the rules, including ensuring that the deflagration zone is not in the clear path and the exhaust system does not vent into the clear path.
9. The requirements for wind turbines and other equipment with moving components set forth in FC504.4.1(8) shall be applicable to the rooftop clear path.

504.4.5 Rooftop clear path protection. Adequate protection, in the form of a securely affixed protective railing or barrier that is at least 42 inches (1067 mm) above the roof surface in height along the clear path, shall be provided for any shaft, building perimeter or elevation adjoining the clear path or rooftop perimeter access landing (except the rooftop access landing itself).

Exception: Height differentials of 6 feet (1829 mm) or less.

504.4.6 Required rooftop clearances. A minimum clearance of 6 feet (1829 mm) in all directions shall be provided from each door opening onto a rooftop from a dwelling unit, stairway, bulkhead, or other occupied space or means of egress, as measured from the door hinge. A minimum clearance of 3 feet (914 mm) in all directions shall be provided from any fire escape or rooftop access ladder, as measured from each side of the ladder or landing.

504.4.7 Rooftop conduits and piping. To the maximum extent practicable, conduits, including cable trays, and piping, shall be installed at rooftop locations where they do not obstruct rooftop access landings, clear path or required clearances. If it is impracticable to avoid these areas, conduits and piping shall be designed and installed to facilitate access and minimize tripping hazards. Steps or ramps (or platforms with steps, ramps or ladders) shall be provided that are constructed of noncombustible material, equipped with railings, and designed to allow any conduit or piping installations that exceed 1 foot (305 mm) in height above the roof surface, or more than 24 inches (610 mm) in width, to be readily traversed. Steps, ramps, platforms and ladders shall not be placed in areas or in a manner that would obstruct any door or means of egress. All conduits and piping installations shall be color-coded with continuous, durable and weatherproof reflective or luminescent markings as follows, and for conduit and piping installed after July 1, 2014, shall be continuously labeled in an approved manner to indicate its contents:

1. High voltage wiring - Red.
2. Low voltage wiring - Orange.
3. Natural gas piping - Yellow.
4. Other compressed gas piping - Yellow, labeled at regular intervals with the type of gas.
5. Fuel oil piping - Yellow with black stripes.

504.4.8 Rooftop access underneath cantilevered or overhead buildings. Where a building is constructed directly above another building, including a building cantilevered over another building, a vertical clearance from the rooftop of the building below shall be provided for firefighting operations in accordance with the following requirements. Design and installation documents documenting compliance with this section, including the fire analysis filed with the Department of Buildings, shall be submitted for Fire Department review and approval. Such vertical clearance:

- 1 shall be at least 12 feet (3658 mm); and
2. shall be at least 9 feet (2743 mm) above the highest building feature on the rooftop when the building feature is 25 feet (7620 mm) or less from the closest exterior surface of the building constructed above; but
3. shall not apply to rooftop areas above which a noncombustible screen wall or other similar structure has been constructed for purposes of zoning compliance, provided that such structure extends below the cantilever from the side wall of the new building facing a street for a width not to exceed 8 feet (2438 mm) and a depth not to exceed 12 feet (3658 mm).

504.4.9 Group R-3 occupancies with shallow-pitched roofs. A Group R-3 occupancy that is primarily a building with a roof pitch of less than 9.5 degrees shall comply with FC504.4, notwithstanding the presence of a pitched roof element such as a mansard or a penthouse with a pitched roof. A Group R-3 occupancy with a roof pitch of 9.5 degrees or more shall comply with FC512.3, not FC504.4.

504.4.10 Rooftop telecommunications installations. Telecommunications installations on building rooftops, including cellular antenna installations, shall additionally comply with the following requirements:

1. Transmitting antennas shall be identified by affixing to the antenna, the antenna mounting, or a conspicuous location near the antenna, continuous, durable and weatherproof reflective or luminescent markings and not less than 3-inch (76-mm) lettering that reads, "TRANSMITTER." If the antenna is enclosed or screened, such marking shall be placed on the exterior of the enclosure or screening.
2. A durable sign shall be conspicuously posted near the main building electrical panel, on the side of the bulkhead or rooftop hatch, and on or near any equipment closet, roof base station or similar telecommunications antenna installation, identifying the owner of the installation, providing a 24-hour/7-day per week telephone number by which such owner can be contacted, and identifying the installation, including antennas and other powered equipment associated with the installation, by number or other unique designation.
3. Transmitting antennas and other rooftop installations subject to radiofrequency exposure limits, as set forth in the regulations of the Federal Communications Commission, shall be installed in a manner that complies with the applicable exposure limits, including those applicable to rooftop access, landing, clear path and clearance areas and other rooftop areas to which the general population has uncontrolled access. Certification of compliance, in an approved format, by a qualified person trained and knowledgeable in the measurement of Federal Communications Commission radiofrequency exposure limits shall be submitted to the department with rooftop access applications and upon request in connection with rooftop access inspections.

[504.4.9] 504.4.11 Rooftop gardens. Rooftop gardens and landscaping, including living walls, shall be designed, installed, operated and maintained in compliance with the requirements of the construction codes, including the Building Code and this section.

[504.4.9.1] 504.4.11.1 Perimeter and clear path access. Rooftop gardens and landscaping shall not obstruct any rooftop area access to which is required pursuant to this section, including rooftop perimeter access and landings, clear path and clearances.

[504.4.9.2] 504.4.11.2 Landscaped rooftops. Rooftop access landings, clear paths and other areas access to which is required pursuant to FC 504.3 and 504.4.4 may be landscaped in compliance with the following requirements:

1. The earth or other landscaping material in such areas shall be securely contained and compacted in such a manner as to ensure a stable, continuous surface with a slope not exceeding the slope of the rooftop.

2. Vegetation in such areas shall be limited to grass or other plants that do not exceed 12 inches (305 mm) in height and do not constitute a tripping hazard or pitfall.

[504.4.9.3] 504.4.11.3 Maintenance and water supply. Rooftop gardens and landscaping shall be maintained and provided with a water supply in accordance with FC318. Equipment used for the maintenance of rooftop gardens and landscaping shall be stored in accordance with FC318.

[504.4.10] 504.4.12 Rooftop solar installations. Rooftop solar installations shall be designed, installed, operated and maintained in accordance with FC512.

504.4.13 Maintenance of rooftop building features. Rooftop installations shall not obstruct the function, use or accessibility of any rooftop building features, including those listed in FC504.4.4(2). Such rooftop building features shall be maintained in good working order to facilitate firefighting operations.

504.5 Rooftop access on buildings more than 100 feet in height. To the maximum extent practicable, a clear path complying with FC504.4.4 shall be provided on all buildings more than 100 feet (30 480 mm) in height constructed after the effective date of this section from the bulkhead or other point of rooftop access to the rooftop perimeter on any side of the building that has windows.

SECTION FC 505 PREMISES IDENTIFICATION

505.1 Address numbers. Buildings and structures shall have their lawful address numbers, building numbers and/or other approved building identification placed at a location on or near a building that allows such building identification to be plainly discernible from the public street or frontage space. These numbers shall contrast with their background. Address numbers shall be Arabic numerals or alphabet letters. Numbers shall be a minimum of 4 inches (102 mm) high with a minimum stroke width of 1/2 inch (12.7 mm). Address numbers shall additionally comply with the requirements of the Building Code, New York City Housing Maintenance Code and the borough president of the borough in which such building is located.

505.1.1 Identification of buildings in developments. Buildings located within outdoor shopping malls, office parks, housing complexes or other developments shall be identified in compliance with the requirements of FC505.1. Where required by the commissioner, approved signage identifying the street address of each building in the development and, in outdoor shopping malls, each tenant space or similar occupancy, and the direction to such building or tenant space, shall be provided. Such signage shall be clearly visible at the intersection of the public street and any fire apparatus access road that provides access to buildings in the development. In any development in which one or more buildings does not have a separate street address, or in any outdoor shopping mall in which one or more tenant spaces or similar occupancies does not have a separate street address, the commissioner may require approved signage indicating the location and direction to each such building or tenant space upon a determination that such signage is necessary to enable firefighting or other emergency response personnel to expeditiously locate such buildings or tenant spaces within the development.

505.2 Street or road signs. Streets and roads within developments shall be identified with approved signs in accordance with the requirements of the New York City Department of Transportation. Temporary signs shall be installed at each street intersection when construction of new roadways allows passage by motor vehicles. Signs shall be of an approved size, weather resistant and be maintained until replaced by permanent signs.

505.3 Identification of apartment and guest rooms. The location of, and entrance to, each dwelling unit (guest room or sleeping room) in a Group R-1 building or occupancy, and each dwelling unit in a Group R-2 building or occupancy, shall be identified in accordance with this section and the rules to assist emergency response personnel responding to fires, medical emergencies and other emergencies at the premises.

505.3.1 Apartment and guest room numbers. Each dwelling unit shall be identified on the public corridor side of the door by a room number and/or letter marking or sign conspicuously and durably printed or posted on or adjacent to at least one entrance door.

505.3.2 Public entry and corridor signage. In a Group R-1 or R-2 building or occupancy with more than eight dwelling units on a floor, a sign shall be conspicuously posted in the elevator lobby or other public entry on each floor, and in the public corridor opposite each stairwell entrance, identifying by directional arrows and dwelling unit numbers and/or letters, the direction to each dwelling unit. Such signage need not be provided in the public entry or opposite any stairwell entrance in any building or on any floor where the entrances to dwelling units are located in a single direction from such entry or stairwell entrance.

505.3.3 Existing installations. Existing buildings and occupancies shall comply with the operational requirements for marking and signage set forth in FC 505.3.1 and 505.3.2 within 2 years of the effective date of this section.

505.4 Apartment, guest room and stairwell fire emergency markings. Dwelling units (apartments, guest rooms and sleeping rooms) and stairwell entrances in Group R-1 and Group R-2 buildings and occupancies shall be marked in accordance with this section and the rules to facilitate firefighting and emergency rescue operations at the premises.

505.4.1 Multi-floor dwelling units. The entrance door to a multi-floor dwelling unit in a Group R-1 or Group R-2 building or occupancy shall be identified on the door jamb on the public corridor side of the door by an approved fire emergency marking, not more than 12 inches (305 mm) from the bottom of the door, indicating the dwelling unit number and/or letter. In addition, every door of each such multi-floor dwelling unit that opens to a public corridor or other means of egress shall be identified on the public corridor side of the door by one or more upward or downward-pointing arrows indicating the direction(s) of the other floor(s) to which the multi-floor dwelling unit is connected.

505.4.2 Apartment and sleeping rooms. Except as otherwise provided in FC505.4.1, and except in buildings protected throughout by a sprinkler system, in a Group R-1 or R-2 building or occupancy with more than eight dwelling units on a floor, each dwelling unit shall be identified on the door jamb on the public corridor side of the door by an approved fire emergency marking, not more than 12 inches (305 mm) from the bottom of the door, indicating the dwelling unit number and/or letter.

505.4.3 Stairwell signage. Except in buildings protected throughout by a sprinkler system, each stairwell door in a building or occupancy subject to compliance with the requirements of FC505.4.1 or FC505.4.2 shall be identified as a stairwell door on the door jamb on the public corridor side of the door with an approved marking or sign not more than 12 inches (305 mm) from the bottom of the door, unless such stairwell entrance has been marked in compliance with Section [1026.11] 1024 of the Building Code.

505.4.4 Design and materials. The fire emergency markings for dwelling unit entrance doors shall be of photoluminescent, retroreflective or other approved material, durable, water-resistant and securely affixed and shall use Arabic numerals and/or English alphabet letters. The fire emergency marking on multi-floor dwelling units shall be a minimum of 3 inches (76 mm) high and 1 1/2 inches (38 mm) wide with a stroke width of 1/2 inch (12.7 mm) and the fire emergency markings required by FC 505.4.2 and 505.4.3 shall be in accordance with the rules. Any approved fire emergency marking may be used provided that the same type of marking is consistently used throughout the building. Photoluminescent markings and signs shall comply with the Building Code requirements for photoluminescent exit path markings.

505.4.5 Existing installations. Existing buildings and occupancies shall comply with the operational requirements for marking and signage set forth in FC505.4.1 within 2 years of the effective date of this section, and with the operational requirements for marking and signage as set forth in FC 505.4.2 and 505.4.3 within 3 years of the effective date of this section.

505.5 Covered mall exterior door signage. Each exterior door that provides access directly to a tenant space in a covered mall or to a corridor serving as an exit passageway from one or more such tenant spaces shall be provided with signage or markings identifying the business occupying such space or spaces. Such identification shall be durably and conspicuously posted or marked on or adjacent to the outdoor side of the exterior door such that the business name is readily discernible from nearby parking lot lanes.

SECTION FC 506 KEYS AND KEY ACCESS

506.1 General. This section shall govern the use and possession of keys required for firefighter service elevator operation, key boxes, gates and barriers, and other locked areas, boxes or cabinets to which the department requires access for firefighting operations.

506.2 Citywide-standard keys. Citywide-standard keys shall be used to operate firefighter service elevators, and to provide access to key boxes, gates and barriers, and other locked areas, boxes or cabinets to which the department requires access for firefighting operations, in accordance with this section. All locks required to be operable by the citywide-standard key shall also be operable by the fire department standard key. Access to a fire department standard key shall be in accordance with FC506.4.

506.2.1 Elevator keys. Firefighter service elevator key switches shall be operable by a citywide standard key.

506.2.2 Key boxes. Where access to or within a building, structure or premises is restricted because of locked doors or other building openings, or where immediate access would be needed for lifesaving or firefighting purposes in the event of a fire or other emergency, the department may require that keys be kept in a key box installed in an approved location. The owner shall ensure that the key kept in the lock box is replaced whenever a lock securing the area, box or cabinet is changed or rekeyed.

506.2.3 Gates and barriers. Wherever a gate or similar barrier obstructs fire department access or fire apparatus access to a premises, and a lock is installed on such gate or barrier, the lock shall be of an approved type and operable by a citywide standard key.

506.2.4 First responder box. The department may require that a locked box operable by a citywide standard key be provided in a designated area in a building, structure or premises to store plans, building information cards or other materials that will assist firefighting personnel responding to a fire or other emergency at the premises.

506.3 Access to citywide standard keys. It shall be unlawful to possess a citywide standard key except for persons authorized to possess such key in connection with the following purposes:

1. Owners of buildings equipped with firefighter service elevators, or their authorized representatives, including FLS directors and FEP coordinators.
2. Elevator contractors.
3. Elevator inspectors of the Department of Buildings.
4. Persons authorized to conduct testing and other maintenance or servicing of fire alarm systems.
5. Authorized department personnel.
6. New York City police officers and other approved law enforcement personnel.
7. Building owners required to have key boxes, locked boxes or locked gates or barriers pursuant to this code, or their authorized representatives.
8. Building owners with locked gates and barriers that block required fire department and fire apparatus access.
9. Building owners, impairment coordinators, and persons authorized to install or maintain in-building auxiliary radio

communication systems.

10. Locksmiths or other authorized key suppliers when in connection with their lawful business operations.

506.4 Access to fire department standard keys. It shall be unlawful to possess a fire department standard key, except for authorized department personnel and other approved persons. The right to possess and use a citywide-standard key pursuant to FC506.2 does not confer the right to possess or use a fire department standard key. Licensed locksmiths are authorized to use the fire department standard key to verify the operability by such key as required by FC506.2 of locks and devices required to be operable by a citywide-standard key, but are not authorized to provide a fire department standard key to any unauthorized person for the purpose of complying with FC506.2.

SECTION FC 507

[RESERVED] FIRE PROTECTION WATER SUPPLIES

507.1 Required water supply. For premises requiring the installation of private fire hydrant systems or yard hydrant systems, an approved water supply capable of supplying the required design capacity for fire protection shall be provided.

507.2 Type of water supply. A water supply shall consist of pressure tanks, gravity tanks, water mains or other approved fixed systems capable of providing the required design capacity.

507.2.1 Private fire service mains. Private fire service mains and appurtenances shall be installed in accordance with NFPA 24 and the requirements of the New York City Department of Environmental Protection.

507.2.2 Water tanks. Water tanks for private hydrant systems and yard hydrant systems shall be installed in accordance with NFPA 22.

507.2.3 Yard hydrant systems. Outdoor amusement parks, bulk plants or terminals, lumber yards, trailer camps, industrial parks, and similar occupancies shall be provided with a yard hydrant system installed in compliance with the requirements of the construction codes, including the Building Code, this section and FC914. Yard hydrants shall be installed such that the entire area may be reached by 250 feet (76.2 m) of hose from a yard hydrant or a street hydrant supplied from a direct connection to a city water main or other approved water supply.

507.3 Design capacity. The design capacity of the water supply shall be determined by an approved method.

507.4 Water supply test. Upon completion of the installation of a private fire hydrant system and yard hydrant system, a flow test shall be conducted to verify that the system provides the minimum design capacity required by FC507.3. Certification of the water supply test shall be submitted to the commissioner by a registered design professional.

507.5 Private fire hydrant systems. Private fire hydrant systems shall comply with the requirements of FC 507.5.1 through 507.5.6.

507.5.1 Where required. Where the front entrance of a building is more than 250 feet (76.2 m) from a hydrant on a public street, as measured by an approved route, private fire hydrants and mains shall be provided as required by the commissioner.

507.5.2 Inspection, testing and maintenance. Private fire hydrant systems shall be subject to periodic tests as required by the commissioner. Private fire hydrant systems shall be maintained in good working order at all times and shall be repaired when defective. Additions, repairs, alterations and servicing shall comply with approved standards.

507.5.2.1 Department flow tests. The department may periodically inspect and test private fire hydrant systems, at the risk of the owner, for proper operation and unobstructed flow of such hydrant system.

507.5.3 Private fire service mains and water tanks. Private fire service mains and water tanks shall be periodically inspected, tested and maintained in accordance with NFPA 25 at the following intervals:

1. Private fire hydrants (all types): Inspection annually and after each operation; flow test and maintenance annually.

2. Fire service main piping: Inspection of exposed, annually; flow test every 5 years.

3. Fire service main piping strainers: Inspection and maintenance after each use.

507.5.4 Obstructions. Posts, fences, vegetation, rubbish containers, vehicles and other items shall not be installed, planted, placed, parked or stored near fire hydrants, fire department connections or fire protection system control valves in a manner that would obscure the location of such fire hydrants, connections or valves, or that would hinder immediate access thereto by firefighting personnel.

507.5.5 Clear space around hydrants. A 3-foot (914 mm) radius clear space shall be maintained around the circumference of fire hydrants to allow unobstructed operation of the hydrant operating nut, except as otherwise required or approved.

507.5.6 Physical protection. Where fire hydrants are subject to impact by motor vehicles, posts that comply with the requirements of the New York City Department of Environmental Protection shall be installed. Notwithstanding the requirements of FC507.5.5, these posts may be installed no less than 2 feet (610 mm) from the hydrant if they do not obstruct the use of a 24-inch (610-mm) wrench on the hydrant operating nut.

SECTION FC 508

[FIRE PROTECTION WATER SUPPLIES] RESERVED

[508.1 Required water supply. For premises requiring the installation of private fire hydrant systems or yard hydrant systems, an approved water supply capable of supplying the required design capacity for fire protection shall be provided.

508.2 Type of water supply. A water supply shall consist of pressure tanks, gravity tanks, water mains or other approved fixed systems capable of providing the required design capacity.

508.2.1 Private fire service mains. Private fire service mains and appurtenances shall be installed in accordance with NFPA 24 and the requirements of the New York City Department of Environmental Protection.

508.2.2 Water tanks. Water tanks for private hydrant systems and yard hydrant systems shall be installed in accordance with NFPA 22.

508.2.3 Yard hydrant systems. Outdoor amusement parks, bulk plants or terminals, lumber yards, trailer camps, industrial parks, and similar occupancies shall be provided with a yard hydrant system installed in compliance with the requirements of the construction codes, including the Building Code, this section and FC914. Yard hydrants shall be installed such that the entire area may be reached by 250 feet (76.2 m) of hose from a yard hydrant or a street hydrant supplied from a direct connection to a city water main or other approved water supply.

508.3 Design capacity. The design capacity of the water supply shall be determined by an approved method.

508.4 Water supply test. Upon completion of the installation of a private fire hydrant system and yard hydrant system, a flow test shall be conducted to verify that the system provides the minimum design capacity required by FC508.3. Certification of the water supply test shall be submitted to the commissioner by a registered design professional.

508.5 Private fire hydrant systems. Private fire hydrant systems shall comply with the requirements of FC 508.5.1 through 508.5.6.

508.5.1 Where required. Where the front entrance of a building is more than 250 feet (76.2 m) from a hydrant on a public street, as measured by an approved route, private fire hydrants and mains shall be provided as required by the commissioner.

508.5.2 Inspection, testing and maintenance. Private fire hydrant systems shall be subject to periodic tests as required by the commissioner. Private fire hydrant systems shall be maintained in good working order at all times and shall be repaired when defective. Additions, repairs, alterations and servicing shall comply with approved standards.

508.5.2.1 Department flow tests. The department may periodically inspect and test private fire hydrant systems, at the

risk of the owner, for proper operation and unobstructed flow of such hydrant system.

508.5.3 Private fire service mains and water tanks. Private fire service mains and water tanks shall be periodically inspected, tested and maintained in accordance with NFPA 25 at the following intervals:

1. Private fire hydrants (all types): Inspection annually and after each operation; flow test and maintenance annually.
2. Fire service main piping: Inspection of exposed, annually; flow test every 5 years.
3. Fire service main piping strainers: Inspection and maintenance after each use.

508.5.4 Obstructions. Posts, fences, vegetation, rubbish containers, vehicles and other items shall not be installed, planted, placed, parked or stored near fire hydrants, fire department connections or fire protection system control valves in a manner that would obscure the location of such fire hydrants, connections or valves, or that would hinder immediate access thereto by firefighting personnel.

508.5.5 Clear space around hydrants. A 3-foot (914 mm) radius clear space shall be maintained around the circumference of fire hydrants to allow unobstructed operation of the hydrant operating nut, except as otherwise required or approved.

508.5.6 Physical protection. Where fire hydrants are subject to impact by motor vehicles, posts that comply with the requirements of the New York City Department of Environmental Protection shall be installed. Notwithstanding the requirements of FC508.5.5, these posts may be installed no less than 2 feet (610 mm) from the hydrant if they do not obstruct the use of a 24-inch (610-mm) wrench on the hydrant operating nut.]

SECTION FC 509 [RESERVED] FIRE PROTECTION AND UTILITY EQUIPMENT IDENTIFICATION AND ACCESS

509.1 Identification. Fire protection equipment shall be identified in an approved manner. Rooms containing controls for ventilation systems, sprinkler risers and valves, or other fire detection, extinguishing or control elements shall be identified for the use of the department. Approved signs required to identify fire protection equipment and equipment location, shall be constructed of durable materials, permanently installed and conspicuously posted.

509.2 Safe access. Fire protection devices, equipment and systems, including fire detection systems and fire extinguishing systems, shall be readily accessible for inspection, operation and maintenance. Combustible materials, combustible waste and other items shall not be placed or stored in a manner that would obstruct or impede access to such equipment. Sprinkler and standpipe system control valves located at a height of 7 feet (2134 mm) or more above the floor shall be provided with fixed ladders, chains and wheels, or other approved means to provide ready access.

509.3 Natural gas shutoff tools. Natural gas utilities shall provide the department with suitable tools for the operation of outdoor gas service line valves for a building or structure or other outdoor emergency shutoff device or equipment. The number of such tools required to supply the department's needs shall be determined by the commissioner.

509.4 Utility identification. Where required by the department, water, natural gas, electric or other utility service shutoff valves and disconnect switches to a building, structure, premises, device, equipment or system shall be provided with a durable and conspicuous marking that identifies the building, structure, premises, device, equipment or system such shutoff valve or disconnect switch serves.

SECTION FC 510 [FIRE PROTECTION AND UTILITY EQUIPMENT IDENTIFICATION AND ACCESS] IN-BUILDING AUXILIARY RADIO COMMUNICATION SYSTEMS

[510.1 Identification. Fire protection equipment shall be identified in an approved manner. Rooms containing controls for ventilation systems, sprinkler risers and valves, or other fire detection, extinguishing or control elements shall be identified for the use of the department. Approved signs required to identify fire protection equipment and equipment location, shall be constructed of durable materials, permanently installed and conspicuously posted.

510.2 Safe access. Fire protection devices, equipment and systems, including fire detection systems and fire extinguishing systems, shall be readily accessible for inspection, operation and maintenance. Combustible materials, combustible waste and other items shall not be placed or stored in a manner that would obstruct or impede access to such equipment. Sprinkler and standpipe system control valves located at a height of 7 feet (2134 mm) or more above the floor shall be provided with fixed ladders, chains and wheels, or other approved means to provide ready access.

510.3 Natural gas shutoff tools. Natural gas utilities shall provide the department with suitable tools for the operation of outdoor gas service line valves for a building or structure or other outdoor emergency shutoff device or equipment. The number of such tools required to supply the department's needs shall be determined by the commissioner.

510.4 Utility identification. Where required by the department, water, natural gas, electric or other utility service shutoff valves and disconnect switches to a building, structure, premises, device, equipment or system shall be provided with a durable and conspicuous marking that identifies the building, structure, premises, device, equipment or system such shutoff valve or disconnect switch serves.]

510.1 General. The design, installation, operation and maintenance of in-building auxiliary radio communication systems dedicated for fire department use, whether required by the Building Code or installed voluntarily, shall comply with this section and the rules.

510.2 Design and installation. In-building auxiliary radio communication systems for fire department use shall be designed and installed in accordance with the construction codes, including the Building Code, and the Electrical Code.

510.2.1 Installer qualifications. In-building auxiliary radio communication systems for fire department use shall be installed by a master electrician licensed by the Department of Buildings and such other qualifications as may be prescribed by rule.

510.2.2 Installation acceptance. In-building auxiliary radio communication systems for fire department use shall be tested for department acceptance in compliance with the requirements of this section and the rules.

510.2.2.1 Commissioning test. Upon completion of installation of an in-building auxiliary radio communication system for fire department use, a commissioning test shall be conducted in accordance with the rules by a person holding a Federal Communications Commission general radiotelephone operator license and such other qualifications as may be prescribed by rule.

510.2.2.2 Department acceptance test. Upon successful completion of the commissioning test, the owner shall submit to the department a detailed report of the results of the commissioning test and request a department acceptance test. The department acceptance test shall serve to demonstrate the system is functioning satisfactorily and is ready for department use. The in-building auxiliary radio communication system shall be demonstrated in the presence of a department representative by a representative of the owner. Upon satisfactory completion of the department acceptance test, the department shall issue a permit for such system.

510.3 Operation and maintenance. The operation and maintenance of in-building auxiliary radio communication systems for fire department use shall be in accordance with this section and the rules.

510.3.1 General. In-building auxiliary radio communication systems for fire department use shall be maintained in good working order.

510.3.2 Out-of-service systems. The department shall be notified immediately if an in-building auxiliary radio communication system for fire department use, or part thereof, is out of service. A tag identifying the system as out of service shall be placed on the fire command center or other approved location when the system is out of service.

SECTION FC 511

[IN-BUILDING AUXILIARY RADIO COMMUNICATION SYSTEMS] HIGH-RISE MEGASTRUCTURE FIRE OPERATIONS

[511.1 General. The design, installation, operation and maintenance of in-building auxiliary radio communication systems dedicated for fire department use, whether required by the Building Code or installed voluntarily, shall comply with this

section and the rules.

511.2 Design and installation. In-building auxiliary radio communication systems for fire department use shall be designed and installed in accordance with the construction codes, including the Building Code, and the Electrical Code.

511.2.1 Installer qualifications. In-building auxiliary radio communication systems for fire department use shall be installed by a master electrician licensed by the Department of Buildings and such other qualifications as may be prescribed by rule.

511.2.2 Installation acceptance. In-building auxiliary radio communication systems for fire department use shall be tested for department acceptance in compliance with the requirements of this section and the rules.

511.2.2.1 Commissioning test. Upon completion of installation of an in-building auxiliary radio communication system for fire department use, a commissioning test shall be conducted in accordance with Annex O of NFPA 1 by a person holding a Federal Communication Commission general radio telephone operator license and such other qualifications as may be prescribed by rule.

511.2.2.2 Department acceptance test. Upon successful completion of the commissioning test, the owner shall submit to the department a detailed report of the results of the commissioning test and request a department acceptance test. The department acceptance test shall serve to demonstrate the system is functioning satisfactorily and is ready for department use. The in-building auxiliary radio communication system shall be demonstrated in the presence of a department representative by a representative of the owner. Upon satisfactory completion of the department acceptance test, the department shall issue a permit for such system.

511.3 Operation and maintenance. The operation and maintenance of in-building auxiliary radio communication systems for fire department use shall be in accordance with this section and the rules.

511.3.1 General. In-building auxiliary radio communication systems for fire department use shall be maintained in good working order.

511.3.2 Out-of-service systems. The department shall be notified immediately if an in-building auxiliary radio communication system for fire department use, or part thereof, is out of service. A tag identifying the system as out of service shall be placed on the fire command center or other approved location when the system is out of service.]

511.1 General. High-rise megastructures shall be designed, installed, operated and maintained in accordance with this section to facilitate firefighting operations.

511.2 Supervision. A person holding a certificate of fitness for emergency announcements shall be present on the premises at all times when the building is occupied except in a high-rise megastructure required to be staffed by an FLS director. In a mixed-occupancy high-rise megastructure, each occupancy with its own voice communication capability shall be staffed with such a certificate of fitness holder or FLS director.

511.3 Building information card. A building information card complying with FC401.3.4 shall be prepared and maintained at the fire command center or other approved location in all high-rise megastructures, including apartment buildings and other Group R-2 occupancies.

511.4 Emergency preparedness. Emergency preparedness plans shall be prepared when required by FC Chapter 4, provided, however, that a fire and emergency preparedness (Level 2) plan shall be prepared for Group R-2 occupancies in a high-rise megastructure. All emergency preparedness plans in a mixed-occupancy high-rise megastructure shall be coordinated in accordance with FC416.

511.5 Fire command center. The fire alarm system control panel shall be installed in accordance with fire command center requirements, as set forth in FC907.4.

511.6 Standpipe elevation markings. The elevation above grade of each floor level shall be conspicuously marked in accordance with FC905 on or adjacent to the standpipe hose outlets on each floor of a high-rise megastructure.

511.7 Storage space for pre-positioned department equipment. Space shall be provided in a storage room, mechanical room or other approved, enclosed, secure storage location in a high-rise megastructure for the sole purpose of storing department equipment, in accordance with the following requirements:

1. A storage space shall be provided for every 150 feet (45 720 mm) in elevation more than 420 feet (128 016 mm) above the lowest level of fire apparatus access, at a location near the fire service access elevator or a stairwell.
2. Each such storage space shall be not less than 8 feet (2438 mm) in length, 8 feet (2438 mm) in width, and 8 feet (2438 mm) in height, and openable only by fire department standard key or as otherwise approved by the department. Upon reasonable notice to the department, the owner shall be afforded access to such storage spaces for inspection, building maintenance or other legitimate business purpose.
3. Each such storage space shall be protected by a sprinkler system, except as otherwise approved by the department.
4. Each storage space shall be identified by a sign or marking in accordance with the rules identifying it as a department equipment room.
5. This constitutes an operational requirement of this code; however, in a building constructed prior to the effective date of this section that lacks storage spaces in compliance with this section, suitable storage spaces (including spaces not protected by a sprinkler system) may be provided at alternative locations, as approved by the department.

511.8 Access to elevator shafts. The department, in coordination with the Department of Buildings, may adopt rules requiring additional access to elevator cabs, installation of elevator location technology, or other design, installation or operational measures designed to facilitate rescue operations in blind hoistways 36 feet (10 973 mm) or more in height in high-rise megastructures.

SECTION FC 512 ROOFTOP SOLAR PANEL INSTALLATIONS

512.1 General. The design, installation, operation and maintenance of solar panel systems, including photovoltaic and thermal systems, on the rooftops of buildings and structures, shall be in accordance with this section, the Electrical Code and the construction codes, including the Building Code, Mechanical Code and Plumbing Code.

512.2 Flat-roofed buildings and structures 100 feet or less in height. Solar panel installations shall not obstruct any rooftop area access to which is required pursuant to FC504.4, except that solar panel installations may obstruct the clear path required by FC504.4.4 as follows:

1. if the installation is provided with a hinged mechanism or other device for which a certificate of approval has been issued that enables the installation to be safely swung, slid, lifted, collapsed or otherwise moved out of the clear path, and that is designed to allow for operation by one person, without the use of a tool; or
2. on any building with a rooftop width or depth of 25 feet (7620 mm) or less, where the design of a solar panel installation necessitates coverage of all or substantially all of the rooftop across the full width or length thereof, the commissioner may authorize permanent obstructions that encroach upon and thereby reduce the clear path width within such area when necessary to accommodate the presence of [hatches; scuttles and skylights; bulkheads; attic ventilators; chimneys and plumbing vents; and heating, ventilation and air conditioning equipment or other rooftop building service equipment] building features and building service equipment that constitute permanent obstructions, including attic ventilators, bulkheads, chimneys, hatches, plumbing ventilations pipes, scuttles, skylights, and roof-mounted heating, ventilation and air conditioning equipment. Such permanent obstructions may encroach upon and, for the distance of the obstruction, reduce the clear path width up to 2 feet (610 mm). Such permanent obstructions shall not reduce the width of clear path at any point to less than 4 feet (1219 mm) and shall not encroach upon the rooftop landing areas required by FC504.4.3.

512.3 Pitched-roofed buildings and structures 100 feet or less in height. Solar panel installations shall be designed, installed, operated and maintained in accordance with this section on rooftops of buildings and structures 100 feet (30 480 mm) or less in height with a slope exceeding 20 degrees, except detached Group U buildings and structures.

512.3.1 Hip roofs. Solar panel installations shall provide a 3 foot (914 mm) wide clear access area along the ridge on

each roof slope upon which solar panels are installed.

512.3.2 Ventilation. Solar panels shall not be installed closer than 3 feet (914 mm) to the ridge line.

512.4 Photovoltaic solar panel installations. Photovoltaic solar panel installations shall be designed, installed, operated and maintained in compliance with the requirements of this section.

512.4.1 Location of photovoltaic solar panel installations on pitched roofs. Direct current conduit, wiring systems, and raceways for photovoltaic circuits installed on pitched roofs subject to the requirements of FC512.3 shall be located along hips and valleys, away from the ridge, and on outside walls, to maximize ventilation opportunities. Conduit runs between sub-arrays and to direct current combiner boxes shall be installed in a manner that minimizes the total amount of conduit on the roof by taking the shortest path from the array to the direct current combiner box, except as necessary to minimize the tripping hazard. The direct current combiner boxes shall be located such that conduit runs are minimized in the pathways between arrays.

512.4.2 Photovoltaic solar panel installation markings. Indoor and outdoor direct current conduit, enclosures, raceways, cable assemblies, junction boxes, combiner boxes, and main service and other disconnects shall have durable, retroreflective and, if outdoors, weatherproof, markings, in white capital letters with a height of not less than 3/8 inch (9.5 mm) on a red background, reading "WARNING: PHOTOVOLTAIC POWER SOURCE." Continuous installations, including conduit, raceways, enclosures and cable assemblies, shall be marked every 10 feet (3048 mm), within 1 foot (305 mm) of all turns or bends, and within 1 foot (305 mm) above and below all penetrations of roof or ceiling assemblies and all walls.

CHAPTER 6 BUILDING SERVICES AND SYSTEMS

SECTION FC 601 GENERAL

601.1 Scope. This chapter shall govern the design, installation, operation and maintenance of selected devices, equipment and systems used or designed to be used to provide building services, including battery, commercial cooking, elevator recall, emergency power, heating and refrigerating systems.

601.2 Permits. Permits shall be required as set forth in FC105.6.

601.3 General. Fuel-fired appliances, devices, equipment and systems, emergency power systems, electrical systems and equipment, refrigerating systems, elevator recall, [battery] stationary energy storage systems and commercial cooking systems shall be designed, installed, operated and maintained in accordance with this chapter.

601.4 Supervision. Fuel oil storage systems, refrigerating systems and [battery] stationary energy storage systems shall be supervised in accordance with FC 601.4.1 through 601.4.4.

601.4.1 Fuel oil storage and transfer. A stationary fuel oil storage tank, and related piping, that is installed on the lowest floor of a building and that transfers fuel oil through piping to another stationary fuel oil storage tank, or to fuel-oil burning equipment, installed above such floor, shall be under the general supervision of a certificate of fitness holder. The periodic inspection and testing of such tanks and piping pursuant to FC603.1.9 shall be conducted under the personal supervision of such certificate of fitness holder.

601.4.2 Refrigerating systems. Refrigerating systems shall be supervised by a person holding a certificate of qualification in accordance with FC606.1.1 and FC Table 606.1.1.

601.4.3 [Battery] Stationary energy storage systems. [Battery] Stationary energy storage systems subject to compliance with the requirements of FC608 shall be [under the general supervision of] supervised by a person holding a certificate of fitness in accordance with FC608.7.

601.4.4 Commercial cooking systems. Commercial cooking systems subject to compliance with requirements of FC609 shall be supervised by a person holding a certificate of fitness in accordance with FC609.3.

SECTION FC 602 DEFINITIONS

602.1 Definitions. The following terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings [shown herein] set forth in FC202.

APPROVED TESTING LABORATORY.

[BATTERY SYSTEM, STATIONARY LEAD ACID. A system which consists of three interconnected subsystems:

1. A lead-acid battery.
2. A battery charger.
3. A collection of rectifiers, inverters, converters, and associated electrical equipment as required for a particular application.

BATTERY TYPES

Lithium-ion battery. A storage battery in which an electrical current is generated by lithium ions embedded in a carbon graphite or nickel metal-oxide substrate placed in a high-viscosity carbonate mixture or gelled polymer electrolyte.

Lithium metal polymer battery. A storage battery in which an electrical current is generated by the interaction between lithiated positive active material electrically separated from metallic lithium or lithiated negative active material, and nonaqueous liquid or polymerized electrolytes.

Nickel cadmium (Ni-Cd) battery. An alkaline storage battery in which the positive active material is nickel oxide, the negative active material contains cadmium, and the electrolyte is potassium hydroxide.

Nonrecombinant battery. A storage battery in which, under conditions of normal use, hydrogen and oxygen gases created by electrolysis are vented into the air outside of the battery.

Recombinant battery. A storage battery in which, under conditions of normal use, hydrogen and oxygen gases created by electrolysis are converted into water inside the battery instead of venting into the air outside of the battery.

Stationary storage battery. A storage battery designed for use in a stationary installation, in which electrochemical cells are interconnected to supply a nominal voltage of direct current power. The nominal voltage rating of a stationary storage battery is a function of the number of cells connected in a series, and the discharge capacity is a function of the size of the cells. Stationary storage batteries are characterized by their ability to be restored to a fully charged condition by reversing the flow of the electric current after discharge.

Valve-regulated lead-acid (VRLA) battery. A lead-acid battery consisting of sealed cells furnished with a valve that opens to vent the battery whenever the internal pressure of the battery exceeds the ambient pressure by a set amount. In VRLA batteries, the liquid electrolyte in the cells is immobilized in an absorptive glass mat (AGM cells or batteries) or by the addition of a gelling agent (gel cells or gelled batteries).

Vented (flooded) lead-acid battery. A lead-acid battery consisting of cells that have electrodes immersed in liquid electrolyte. Flooded lead-acid batteries have a provision for the user to add water to the cell and are equipped with a flame-arresting vent which permits the escape of hydrogen and oxygen gas from the cell in a diffused manner such that a spark, or other ignition source, outside the cell will not ignite the gases inside the cell.]

CERTIFICATE OF QUALIFICATION. [A written statement issued by the commissioner certifying that the person to whom it is issued has passed an examination as to his or her qualifications to direct, control and supervise the operation of a refrigerating system, for which such certificate is required by this code or the rules.

CITYWIDE-STANDARD] CITYWIDE STANDARD KEY. [See FC502.1.]

COMMERCIAL COOKING APPLIANCES. [Appliances used in a commercial food service establishment for heating or cooking food and which produce grease vapors, steam, fumes, smoke or odors that are required to be removed through a local exhaust ventilation system. Such appliances shall include deep fat fryers; upright broilers; griddles; broilers; steam-jacketed kettles; hot-top ranges; under-fired broilers (charbroilers); ovens; barbecues; rotisseries; and similar appliances. For the purpose of this definition, a food service establishment shall include any building or structure used for the preparation and serving of food, other than commercial cooking appliances in carts or other mobile stands operated by street vendors.]

COMMERCIAL COOKING SYSTEM.

COMMERCIAL KITCHEN.

COOKING OIL.

DEDICATED USE BUILDING

DUCTLESS HOOD.

ENERGY STORAGE SYSTEM, STATIONARY.

Indoor System.

Mobile system.

Outdoor System

HOOD. [An air-intake device used to capture by entrapment, impingement, adhesion or similar means, grease and similar contaminants before they enter a duct system.]

Type I. [A kitchen hood for collecting and removing grease vapors and smoke.]

KILOWATT HOURS (kWh).

MEGAWATT HOURS (MWh).

PROOF OF COMPLIANCE.

REFRIGERANT. [The fluid used for heat transfer in a refrigerating system; the refrigerant absorbs heat and transfers it at a higher temperature and a higher pressure, usually with a change of state.]

REFRIGERATING SYSTEM. [A combination of interconnected refrigerant-containing parts constituting one closed refrigerant circuit in which a refrigerant is circulated for the purpose of extracting then expelling heat.]

STORAGE BATTERY.

Types of storage batteries include:

Flow Battery.

Lead-Acid battery.

Lithium-Ion battery.

Lithium Metal Polymer Battery.

Nickel-Cadmium (Ni-Cd) Battery.

Nickel Metal Hydride (NiMH) Battery.

Nonrecombinant Battery.

Recombinant Battery.

Valve-Regulated Lead-Acid (VRLA) Battery.

Vented (flooded) Lead-Acid Battery.

STORAGE BATTERY UNIT.

SECTION FC 603 FUEL-FIRED APPLIANCES AND EQUIPMENT

603.1 Installation. Nonportable fuel-fired appliances, devices, equipment and systems shall be designed, installed, operated and maintained in accordance with the construction codes, including the Fuel Gas Code and the Mechanical Code.

603.1.1 Manufacturer's instructions. In addition to the requirements of this code and other applicable laws, rules and regulations, the installation shall be made in accordance with the manufacturer's instructions. Where it becomes necessary to change, modify, or alter a manufacturer's instructions in any way, written approval shall first be obtained from the manufacturer.

603.1.2 Approval. The design, construction and installation of fuel-fired appliances, devices, equipment and systems shall be in accordance with the construction codes, including the Fuel Gas Code and the Mechanical Code.

603.1.3 Electrical wiring and equipment. Electrical wiring and equipment used in connection with oil-burning equipment shall be installed and maintained in accordance with FC605 and the Electrical Code.

603.1.4 Fuel oil. The grade of fuel oil used in a burner shall be that for which the burner is approved and as stipulated by the burner manufacturer and approved by the Department of Buildings. Oil containing gasoline shall not be used. Waste crankcase oil shall not be used, except when such waste oil is mixed with number six fuel oil in bulk or waste oil recovery plants, the resultant mixture meets the minimum specifications for number six fuel oil set forth in the Building Code, and the use of such waste oil complies with all laws, rules and regulations relating to smoke and other emissions and is approved by the Department of Environmental Protection.

603.1.5 Access. The installation shall be readily accessible for cleaning hot surfaces; removing burners; replacing motors, controls, air filters, chimney connectors, draft regulators, and other working parts; and for adjusting, cleaning and lubricating parts.

603.1.6 Testing, diagrams and instructions. After installation of the oil-burning equipment, operation and combustion performance tests shall be conducted to determine that the burner is in proper operating condition and that all accessory equipment, controls, and safety devices function properly in accordance with the requirements of the Department of Buildings and the Department of Environmental Protection.

603.1.6.1 Diagrams. Contractors installing industrial oil-burning systems shall furnish not less than two copies of diagrams showing the main oil lines and controlling valves, one copy of which shall be posted at the oil-burning equipment and another at an approved location that will be accessible in case of emergency.

603.1.6.2 Instructions. After completing the installation, the installer shall instruct the owner or operator in the proper operation of the equipment. The installer shall also furnish the owner or operator with the name and telephone number of persons to contact for technical information or assistance and routine or emergency services.

603.1.7 Clearances. Working clearances between oil-fired appliances and electrical panelboards and equipment shall be in accordance with the Electrical Code. Clearances between oil-fired equipment and oil supply tanks shall be in

accordance with the construction codes, including the Building Code and the Mechanical Code.

603.1.8 Supervision of operation. Every stationary oil-fired device, equipment or system that is not fully automatic or requires preheating of the oil shall be operated by or under the personal supervision of a person holding a certificate of fitness or a person holding a high-pressure boiler operating engineer's license issued by the Department of Buildings. In addition to providing personal supervision, such person shall be present at the device, equipment or system during startup. A stationary oil-fired device, equipment or system that is subject to annual inspection pursuant to Article 303 of Title 28 of the Administrative Code may be operated under the general supervision of a certificate of fitness holder or a high-pressure boiler operating engineer license holder.

603.1.9 Fuel oil transfer maintenance. The fuel oil storage tanks and piping systems in which fuel oil is transferred from a stationary fuel oil storage tank installed on the lowest floor of a building to another stationary fuel oil storage tank, or to fuel-oil burning equipment, installed above such floor, shall be inspected for evidence of leaks, and stationary tank float switches shall be tested to ensure that they are in good working order, on not less than a weekly basis.

603.2 Chimneys. Masonry chimneys shall be constructed in accordance with the construction codes, including the Building Code. Factory-built chimneys shall be installed in accordance with the construction codes, including the Mechanical Code. Metal chimneys shall be constructed and installed in accordance with the construction code, including the Building Code and the Mechanical Code.

603.3 Fuel oil storage systems. Fuel oil storage and piping systems shall be installed in accordance with the construction codes, including the Mechanical Code. Fuel oil storage shall be subject to the permit requirements set forth in FC105.6.

603.3.1 Portable fire extinguisher. In all occupancies other than Group R-3 occupancies, 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 (9144 mm) from the fuel oil fired equipment, except that such travel distance may be increased to a maximum of 50 feet (15 240 mm) 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.

603.4 Reserved.

603.5 Heating appliances and equipment. Heating appliances and equipment shall be listed and shall comply with the requirements of this section.

603.5.1 Protection of heating element. The heating element or combustion chamber shall have a permanent device to prevent accidental contact by persons or material.

603.5.2 Heating appliance and equipment installation. Heating appliances and equipment shall be installed in accordance with the manufacturer's instructions, the Electrical Code, and the construction codes, including the Building Code, the Mechanical Code and the Fuel Gas Code.

603.6 Chimney installation. Chimneys, smokestacks or similar devices for conveying smoke or hot gases to the outer air and the incinerators, stoves, furnaces, fireboxes or boilers to which such devices are connected, shall be maintained so as not to create a fire hazard.

603.6.1 Masonry chimneys. Masonry chimneys that, upon inspection, are found to have open mortar joints which will permit smoke or gases to be discharged into the building or structure, or which are cracked as to be dangerous, shall be repaired or relined with a listed chimney liner system installed in accordance with the manufacturer's installation instructions or a flue lining system installed in accordance with the construction codes, including the Building Code and the Mechanical Code, and appropriate for the intended class of chimney service.

603.6.2 Metal chimneys. Metal chimneys which are corroded or improperly supported shall be repaired or replaced.

603.6.3 Decorative shrouds. Decorative shrouds installed at the termination of factory-built chimneys shall be removed except where such shrouds are listed and labeled for use with the specific factory-built chimney system and are installed

in accordance with the chimney manufacturer's installation instructions.

603.6.4 Factory-built chimneys. Existing factory-built chimneys that are damaged, corroded or improperly supported shall be repaired or replaced.

603.6.5 Connectors. Existing chimney and vent connectors that are damaged, corroded or improperly supported shall be repaired or replaced.

603.6.6 Incinerator requirements. Incinerators shall be maintained and operated in accordance with FC 603.6.6.1 and 603.6.6.2.

603.6.6.1 Spark arrestor. Incinerators shall be equipped with an effective means for arresting sparks.

603.6.6.2 Time of burning. Burning shall take place only during approved hours.

603.6.7 Discontinuance. The commissioner may require the operation of an incinerator or other device connected to a chimney to be discontinued immediately upon a determination that the use of the incinerator or other device constitutes an undue fire hazard because of conditions in the surrounding environment.

603.7 Discontinuing operation of unsafe heating appliances and equipment. The commissioner may order that measures be taken to prevent the operation of any existing stove, oven, furnace, incinerator, boiler or any other heat-producing appliance, device, equipment or system found to be defective or in violation of code requirements for existing appliances, devices, equipment or systems after giving notice to this effect to any person, owner, firm or agent or operator in charge of the same. The commissioner may take measures to prevent the operation of any appliance, device, equipment or system without notice upon a determination of the existence of an immediate fire hazard or imminent peril to public safety. The defective appliance, device, equipment or system shall remain out of service until all necessary repairs or alterations have been made.

603.7.1 Unauthorized operation. It shall be a violation of this code for any person, user, firm or agent to continue the utilization of any appliance, device, equipment or system (the operation of which has been discontinued or ordered discontinued in accordance with FC603.7), unless written authority to resume operation is given by the department. Removing or breaking the means by which operation of the appliance, device, equipment or system is prevented shall be a violation of this code.

603.8 Reserved.

603.9 Gas meters. Gas meters shall be installed in accordance with FC 603.9.1 and 603.9.2.

603.9.1 Protection of outdoor aboveground installations. Aboveground gas meters, regulators and piping subject to damage shall be protected by a barrier complying with the requirements of FC312 or otherwise protected in an approved manner.

603.9.2 Gas meter identification. Where more than one gas meter is installed at a single indoor or outdoor location, each gas meter shall be identified by a durable sign or marking identifying the dwelling unit or other occupancy or area that such meter serves. Where more than 12 gas meters are installed at a single location in a non-sequential manner, each meter shall be numbered for identification in a sequential manner (starting with number 1) and a durable sign shall be posted at a conspicuous location in the form of a table listing in sequential order the apartment/room numbers served by the meter with a cross-reference to the sequential meter identification number.

SECTION FC 604 EMERGENCY POWER SYSTEMS

604.1 Installation. Emergency power systems shall be designed, installed, operated and maintained in accordance with the Electrical Code and the construction codes, including the Building Code.

604.2 Where required. Emergency power systems shall be maintained in accordance with NFPA 110, as modified by FC Appendix B, and NFPA 111, such that the system is capable of supplying service within the time specified for the type and

duration of emergency power required by the Electrical Code and the construction codes, including the Building Code.

604.3 Maintenance. Emergency power systems shall be maintained such that the system is capable of supplying service within the time specified for the type and duration of emergency power required by the Electrical Code and the construction codes, including the Building Code.

604.3.1 Schedule. Inspection, testing and other maintenance of emergency power systems shall be conducted in accordance with an approved schedule established upon completion and approval of the system installation.

604.3.2 Written record. Written records of the inspection, testing and other maintenance of emergency power systems shall include the date of service, name of the servicing technician, a summary of conditions noted and a detailed description of any conditions requiring correction and what corrective action was taken.

604.3.3 Switch maintenance. Emergency power system transfer switches shall be included in the maintenance schedule required by FC604.3.1. Transfer switches shall be maintained free from accumulated dust and dirt. Inspection shall include examination of the transfer switch contacts for evidence of deterioration. When evidence of contact deterioration is detected, the contacts shall be replaced in accordance with the transfer switch manufacturer's instructions.

604.4 Inspection and testing. Emergency power systems, including all appurtenant components, shall be periodically inspected and tested under load in accordance with NFPA 110, as modified by FC Appendix B, and NFPA 111.

Exception: Where the emergency power system is used for standby power or peak load shaving, such use shall be recorded and may substitute for scheduled testing of the emergency power system, provided that appropriate records are maintained of such use.

604.4.1 Transfer switch test. The test of the transfer switch shall consist of electrically operating the transfer switch from the normal position to the alternate position and then returning back to the normal position.

604.5 Supervision. Inspection, testing and other maintenance shall be conducted under the personal supervision of a person who possesses the required knowledge and training to conduct such maintenance, and who has at least one of the following qualifications:

1. An electrician licensed by the Department of Buildings.
2. An electrician holding a special license issued by the Department of Buildings.
3. A person holding a stationary engineer license, or high-pressure boiler operating engineer's license, issued by the Department of Buildings.
4. A person holding a certificate of qualification.
5. A person holding a certificate of fitness as an FLS director.
6. A person holding a certificate of fitness as an FEP coordinator.
7. A registered design professional.

SECTION FC 605 ELECTRICAL EQUIPMENT, WIRING AND HAZARDS

605.1 Abatement of electrical hazards. Defective devices, equipment or systems shall not be used and the hazardous conditions shall be corrected or the device, equipment or system shall be removed from the premises. Electrical wiring, devices and other equipment that is damaged or otherwise constitutes an electrical or fire hazard shall not be used, and the hazardous condition shall be corrected or the equipment removed from the premises.

605.2 Illumination. Illumination shall be provided for service equipment areas, motor control centers and electrical panelboards.

605.3 Working space and clearance. A working space of not less than 30 inches (762 mm) in width, 36 inches (914 mm) in depth and 78 inches (1981 mm) in height shall be provided in front of electrical service equipment. Where the electrical service equipment is wider than 30 inches (762 mm), the working space shall not be less than the width of the equipment. No storage of any materials shall be located within the designated working space.

Exceptions:

1. Where other dimensions are required or allowed by the Electrical Code.
2. Access openings into attics or under-floor areas which provide a minimum clear opening of 22 inches (559 mm) by 30 inches (762 mm).

605.3.1 Labeling. Doors into electrical control panel rooms shall be marked with a plainly visible and legible sign stating ELECTRICAL ROOM or similar approved wording. The disconnecting means for each service, feeder or branch circuit originating on a switchboard or panelboard shall be legibly and durably marked to indicate its purpose unless such purpose is clearly evident.

605.4 Multiplug adapters. Multiplug adaptors, such as cube adaptors, unfused plug strips or any other device not complying with the requirements of the Electrical Code shall be prohibited.

605.4.1 Power tap design. Portable power taps shall be of the polarized or grounded type, equipped with overcurrent protection, and shall be listed in accordance with UL 1363.

605.4.2 Power supply. Portable power taps shall be directly connected to a permanently installed receptacle.

605.4.3 Installation. Portable power tap cords shall not extend through walls, ceilings, floors, under doors or floor coverings, or be subject to environmental or physical damage.

605.5 Extension cords. Extension cords and flexible cords shall not be a substitute for permanent wiring. Extension cords and flexible cords shall not be affixed to buildings or structures, extended through walls, ceilings or floors, or under doors or floor coverings, nor shall such cords be subject to environmental damage or physical impact. Extension cords shall be used only with portable devices.

605.5.1 Power supply. Extension cords shall be plugged directly into an approved receptacle, power tap or multiplug adapter and, except for approved multiplug extension cords, shall serve only one portable device.

605.5.2 Ampacity. The ampacity of the extension cords shall not be less than the rated capacity of the portable appliance supplied by the cord.

605.5.3 Maintenance. Extension cords shall be maintained in good condition without splices, deterioration or damage.

605.5.4 Grounding. Extension cords shall be grounded when serving grounded portable devices.

605.6 Unapproved conditions. Open junction boxes and open-wiring splices shall be prohibited. Approved covers shall be provided for all switch and electrical outlet boxes.

605.7 Electrical devices and equipment. Electrical devices and equipment shall be listed or labeled and installed in accordance with the construction codes and the Electrical Code.

605.8 Electrical motors. Electrical motors shall be maintained free from excessive accumulations of oil, dirt, waste and debris.

605.9 Temporary wiring. Temporary wiring for electrical power and lighting installations is allowed for a period not to exceed 90 calendar days. Temporary wiring methods shall meet the applicable provisions of the Electrical Code.

Exception: Temporary wiring for electrical power and lighting installations is allowed during periods of construction,

remodeling, repair or demolition of buildings, structures, equipment or similar activities.

605.9.1 Attachment to structures. Temporary wiring attached to a building or structure shall be attached in an approved manner.

605.10 Portable electric space heaters. The use of portable electric space heaters shall be in accordance with this section.

605.10.1 Listed and labeled. Portable electric space heaters shall be listed and labeled. Portable electric space heaters shall be operated only in locations for which they are listed.

605.10.2 Power supply. Portable electric space heaters shall be plugged directly into a receptacle. Extension cords shall not be used for electrical connections for portable electric space heaters.

605.10.3 Prohibited use. It shall be unlawful to use portable electric space heaters in the following locations:

1. In any building or occupancy, where the power requirements for the portable electric space heater exceed the rating of the electrical circuit or receptacle from which the heater will draw current.
2. In any occupancy, within 3 feet (914 mm) of any combustible material.
3. In Group I-2 occupancies, except that a portable electric space heater with a heating element designed not to exceed a temperature of 212°F (100°C) may be used in nonsleeping staff and employee areas.
4. In Group R-1 college and university dormitories.
5. In any location considered to be a hazardous location in accordance with the Electrical Code, unless listed for such use.

605.11 Portable halogen floor lamps. Portable halogen floor lamps shall be designed, operated and maintained in compliance with the requirements of this section.

605.11.1 Prohibitions. It shall be unlawful to:

1. store or use portable halogen floor lamps in Group I-2 occupancies and Group R-1 college and university dormitories.
2. use portable halogen floor lamps for any purpose other than lighting.
3. store or use portable halogen floor lamps that are not designed with an approved glass or wire bulb guard or when such guard is not in place.

605.11.2 Manufacturer instructions. Portable halogen floor lamps shall be used in accordance with the manufacturer's instructions.

605.11.3 Placement. Portable halogen floor lamps shall be placed in locations where the risk of the lamp being tipped over by occupant traffic or activities, or of igniting curtains, furnishings or other combustible materials, is minimized.

605.11.4 Bulb replacement and disposal. Portable halogen floor lamp bulbs shall be replaced and discarded only when the bulb is cool to the touch.

SECTION FC 606 REFRIGERATING SYSTEMS

606.1 General. Refrigerating systems shall be designed, installed, operated and maintained in accordance with this code and the construction codes, including the Mechanical Code, and ASHRAE 15. Refrigerating systems using ammonia refrigerant shall comply with the applicable IIAR standards for system design, installation, operation and maintenance, except as modified by the Mechanical Code.

606.1.1 Supervision. It shall be unlawful to operate any refrigerating system for which a permit is required and which is a system described in FC Table 606.1.1, unless such operation is under either the personal supervision or general supervision, as set forth in FC Table 606.1.1, of a person who has obtained a certificate of qualification for refrigerating system operating engineer. For purposes of this section, personal supervision shall mean that such person is present in the building at all times while the system is in operation and that the operation of such system is under his or her personal direction and control, and general supervision shall mean that such person is responsible at all times for the safe operation of such system when such system is in operation and that such system is operated under his or her general direction and control. Persons providing general or personal supervision as required by this section shall register their work location with the department.

606.1.2 Operator inspection after repairs. After any repairs are made to a refrigerating system the operation of which requires supervision by a certificate of qualification holder, the certificate of qualification holder shall check the repairs, together with the functioning of all control devices and the positioning of all valves. Such certificate of qualification holder shall also be present when the system is restarted after repairs.

606.1.3 Operator logbook. A logbook or other form of approved recordkeeping shall be maintained for all refrigerating systems whose operation requires either personal or general supervision by a certificate of qualification holder. For systems requiring personal supervision the logbook shall, at a minimum, contain an entry for each shift the system is in operation. For systems requiring general supervision the logbook shall, at a minimum, contain an entry for each day during which the system is in operation.

606.1.3.1 Logbook entries. The logbook shall provide information relevant to the operation of the system, including any operating problems or deficiencies and required periodic tests. The signature of the certificate of qualification holder shall appear next to each entry.

606.2 Refrigerants. The use and purity of new, recovered, and reclaimed refrigerants shall be in accordance with the construction codes, including the Mechanical Code.

606.3 Refrigerant classification. Refrigerants shall be classified in accordance with the construction codes, including the Mechanical Code.

606.4 Change in refrigerant type. Any change in the type of refrigerant in a refrigerating system shall be made in accordance with the construction codes, including the Mechanical Code.

606.5 Access. Refrigerating systems having a refrigerant circuit containing more than 200 pounds (91 kg) of Group A1 or 30 pounds (14 kg) of any other group refrigerant shall be accessible to the department at all times as required by the commissioner. Refrigerating systems requiring a permit shall be accessible at all times, and shall, where practicable, be made accessible for department inspection without the use of portable ladders or other portable equipment.

606.6 Testing of equipment. Refrigerating equipment and systems having a refrigerant circuit containing more than 200 pounds (91 kg) of Group A1 or 30 pounds (14 kg) of any other group refrigerant shall be subject to periodic testing in accordance with FC606.6.1. Tests of emergency devices or systems required by this chapter shall be conducted by a person holding a certificate of qualification.

606.6.1 Periodic testing. The following emergency devices or systems shall be tested at least monthly in accordance with the manufacturer's instructions.

1. Treatment and flaring systems.
2. Valves and appurtenances necessary to the operation of emergency refrigerating system control boxes.
3. Fans and associated equipment intended to operate emergency ventilation systems.
4. Detection and alarm systems.

FC TABLE 606.1.1 REFRIGERATING SYSTEM OPERATING ENGINEER

Installation Date
Refrigerant Group Or
Namea
Occupancy Typeb

Application
Pounds Of Refrigerant In System
System Horsepower
System Designc

Supervision Required
Prior to June 1, 1957
A1
Industrial
Human comfort
More than 50
NA
Not fully automatic
Personal

A1
Industrial
Human comfort
More than 200
NA
Fully automatic
Personal

A1
Industrial
Human comfort
More than 50 up to 200
NA
Fully automatic
General

A1
All except Industrial
All
More than 50
NA
Not fully automatic
Personal

A1
All except Industrial
All
More than 200
NA
Fully automatic
Personal

A1
All except Industrial
All
More than 50 up to 200
NA

Fully automatic
General
On or after June 1, 1957
A1
Industrial
Human comfort
NA
More than 50 (or kilowatt equivalency)
NA
Personal

A1
All except Industrial
All
NA
More than 50 (or kilowatt equivalency)
NA
Personal
Regardless of when installed
A2, A3, B1, B2, B3 and carbon dioxide
All
All
More than 50
NA
Not fully automatic
Personal

A2, A3, B1, B2, B3 and carbon dioxide
All
All
More than 200
NA
Fully automatic
Personal

A1
Industrial
All except human comfort
More than 50
NA
Not fully automatic
Personal

A1
Industrial
All except human comfort
More than 200
NA
Fully automatic
Personal

A1 and carbon dioxide
Industrial
All except human comfort
More than 50 up to 200
NA
Fully automatic

General

A1
All
Human comfort
NA
Aggregate exceeds 100d
NA
Personal

- a. For purposes of this table, refrigerant R-123 shall be treated as a group A1 refrigerant, and carbon dioxide shall not be treated as a group A1 refrigerant.
- b. For purposes of this table, "industrial" occupancy refers to occupancy groups F, H and S. For installations constructed under the 1968 Building Code, "industrial" occupancy refers to occupancy groups A, B and D. For installations constructed prior to such 1968 code, "industrial" occupancy refers to that portion of a building used for manufacturing, processing, or storage of materials or products, including, among others, chemical, food, candy, and ice cream factories, ice making plants, meat packing plants, refineries, perishable food warehouses, and similar occupancies.
- c. A fully automatic refrigerating system is one whose regulating and safety devices are automatically activated once the system is in operation.
- d. This aggregate provision applies only to systems within a single building which are under the sole direct control of a single occupant, lessee or owner. Systems with a rating of 15 horsepower or less or the kilowatt equivalency thereof are excluded from the aggregate.

606.7 Emergency signs. Emergency signs shall be provided in accordance with the construction codes, including the Mechanical Code.

606.8 Refrigerant detector. Machinery rooms shall contain a refrigerant detector with an audible and visual alarm as required by the construction codes, including the Mechanical Code for the refrigerant classification.

606.9 Remote controls. Remote control of the mechanical equipment and appliances located in the machinery room and the emergency ventilation system shall be provided in accordance with the construction codes, including the Mechanical Code.

606.10 Storage, handling and use. Flammable liquids, combustible liquids, combustible materials and combustible waste, except for quantities of combustible liquids below permit amounts, spare parts, tools, and incidental materials necessary for the safe and proper operation and maintenance of the system, shall not be stored in machinery rooms for refrigerating systems. Storage, use or handling of extra refrigerant or refrigerant oils shall be as required by FC Chapters [27] 50, [30] 53, [32] 55 and [34] 57 and the Mechanical Code.

606.11 [Termination] Discharge and termination of pressure relief devices. Pressure relief devices, fusible plugs and purge systems for refrigerating systems containing [more than 6.6 pounds (3 kg) of Group A2 or B2 refrigerants, as classified in the Mechanical Code, shall be provided with an approved discharge system as required by FC 606.11.1, 606.11.2 and 606.11.3] flammable, toxic or highly toxic refrigerants or ammonia shall comply with FC 606.11.1 through 606.11.3. Discharge piping and devices connected to the discharge side of a fusible plug or rupture member shall have provisions to prevent plugging the pipe in the event of the fusible plug or rupture member functions. [The location for the relief valve discharge] Discharge from systems containing Group A3 or B3 refrigerants shall be approved by the department and the Department of Buildings.

606.11.1 Flammable refrigerants. Systems containing more than 6.6 pounds (3 kg) of flammable refrigerants having a density equal to or greater than the density of air shall discharge vapor to the atmosphere only through an approved treatment system in accordance with FC606.11.4 or a flaring system in accordance with FC606.11.5. Systems containing more than 6.6 pounds (3 kg) of flammable refrigerants having a density less than the density of air shall be allowed to discharge vapor to the atmosphere provided that the point of discharge is located outdoors and not less than [20 feet (6096 mm)] 15 feet (4572mm) above the adjoining grade level and not less than 20 feet (6096 mm) from any window, ventilation opening or exit.

606.11.2 Toxic and highly toxic refrigerants. Systems containing more than 6.6 pounds (3 kg) of toxic or highly toxic

refrigerants shall discharge vapor to the atmosphere [only through an approved treatment system] in accordance with FC606.11.4 or a flaring system in accordance with FC606.11.5.

606.11.3 Ammonia refrigerant. Systems containing more than 6.6 pounds (3 kg) of ammonia refrigerant shall discharge vapor to the atmosphere [through an approved treatment system in accordance with FC606.11.4, a flaring system in accordance with FC606.11.5, or through an approved ammonia diffusion system in accordance with FC606.11.6, or by other approved means.] in accordance with one of the following methods:

1. Through an approved treatment system in accordance with FC606.11.4;
2. Through a flaring system in accordance with FC606.11.5;
3. Through an approved ammonia diffusion system in accordance with FC606.11.6;
4. Directly to the atmosphere, when the commissioner determines, on review of an engineering analysis prepared in accordance with FC104.7.2, that a fire, health or environmental hazard would not result from the atmospheric discharge of ammonia; or
5. By other approved means.

[Exceptions:

1.] Exception: Ammonia/water absorption systems containing less than 22 pounds (10 kg) of ammonia and for which the ammonia circuit is located entirely outdoors.

[2. When the commissioner determines, on review of an engineering analysis prepared in accordance with FC104.7.2, that a fire, health or environmental hazard would not result from discharging ammonia directly to the atmosphere.]

606.11.4 Treatment systems. Treatment systems shall be designed to reduce the allowable discharge concentration of the refrigerant gas to not more than 50 percent of the IDLH at the point of exhaust. Treatment systems shall be in accordance with FC Chapter [37] 60.

606.11.5 Flaring systems. Flaring systems for incineration of flammable refrigerants shall be designed to incinerate the entire discharge. The products of refrigerant incineration shall not pose health or environmental hazards. Incineration shall be automatic upon initiation of discharge, shall be designed to prevent blowback, and shall not expose structures or materials to threat of fire. Emergency power shall have the capacity to operate for one and one-half the required time for complete incineration of refrigerant in the system.

606.11.6 Ammonia diffusion systems. Ammonia diffusion systems shall include a tank containing 1 gallon of water for each pound of ammonia ([4] 8.3 L of water for each 1 kg of ammonia) that will be released in 1 hour from the largest relief device connected to the discharge pipe. The water shall be prevented from freezing. The discharge pipe from the pressure relief device shall distribute ammonia in the bottom of the tank, but no lower than 33 feet (10 058 mm) below the maximum liquid level. The tank shall contain the volume of water and ammonia without overflowing.

606.12 Discharge location for refrigerating system machinery room ventilation. Exhaust from mechanical ventilation systems serving refrigerating machinery rooms capable of exceeding 25 percent of the LFL or 50 percent of the IDLH shall be equipped with approved treatment systems to reduce the discharge concentrations of flammable, toxic or highly toxic refrigerants to those values or lower.

606.13 Notification of refrigerant discharges. The commissioner shall be notified immediately when a discharge becomes reportable under state, federal or local regulations in accordance with [FC2703.3.1] FC5003.3.1.

606.14 Records. A written record shall be kept of refrigerant quantities brought into and removed from the premises.

606.15 Electrical equipment. Where refrigerants of Groups A2, A3, B2 and B3, as defined in the Mechanical Code, are used, refrigerating system machinery rooms shall conform to the Class I, Division 2 hazardous location classification requirements of the Electrical Code.

Exception: Ammonia machinery rooms that are provided with ventilation in accordance with Chapter 11 of the Mechanical Code.

606.16 Use of Group A3 and B3 refrigerants. Nothing contained in this section shall be construed to authorize the use of Group A3 or B3 refrigerants, as classified in the Mechanical Code, if otherwise prohibited by the construction codes, including the Mechanical Code.

SECTION FC 607 ELEVATORS IN READINESS

607.1 Phase I emergency recall operation and Phase II emergency in-car operation. Elevators intended to serve the needs of emergency personnel for firefighting or rescue purposes shall be provided with Phase I emergency recall operation and Phase II emergency in-car operation in accordance with the Building Code. Such elevators shall be operable with a citywide standard key in accordance with FC506.2.1.

607.2 Emergency signs. All required signage for elevators shall be provided in accordance with the construction codes, including the Building Code.

607.3 Elevators in readiness. Elevators in every building 75 feet (22 860 mm) or more in height shall be kept ready for immediate use by the department during all hours of the night and day including holidays and weekends. There shall be a competent building attendant available to operate such elevators, except that no attendant shall be required for buildings between 75 and 150 feet (22 860 and 45 720 mm) in height having elevators with Phase I emergency recall operation and Phase II emergency in-car operation.

607.4 Emergency elevator operation and maintenance. All elevators equipped with Phase I emergency recall operation and Phase II emergency in-car operation shall be maintained in proper working order such that the emergency elevator operations are operable at all times. All elevators with Phase I emergency recall operation shall be subjected, at least monthly, to a Phase I recall test. All elevators with Phase II emergency in-car operation shall be subjected, at least monthly, to a minimum of a one-floor operation II test.

607.5 Water protection of hoistway enclosures. Methods to prevent water from infiltrating into the hoistway enclosures of fire service access elevators and occupant evacuation elevators, as approved by the Department of Buildings, shall be maintained.

SECTION FC 608 STATIONARY ENERGY STORAGE [BATTERY] SYSTEMS

[608.1 Scope. Stationary storage battery systems having an electrolyte capacity of more than 50 gallons (189 L) for flooded lead acid, nickel cadmium (Ni-Cd) and valve-regulated lead acid (VRLA), or 1,000 pounds (454 kg) for lithium-ion and lithium metal polymer, used for facility standby power, emergency power or uninterrupted power supplies, shall comply with this section and FC Table 608.1.

FC TABLE 608.1 BATTERY REQUIREMENTS REQUIREMENT NONRECOMBINANT BATTERIES RECOMBINANT BATTERIES OTHER

Flooded Lead Acid Batteries
Flooded Nickel-Cadmium
(Ni-Cd) Batteries
Valve Regulated Lead Acid (VRLA) Batteries
Lithium-ion
Batteries
Lithium Metal Polymer

Safety caps
Venting caps
(608.2.1)
Venting caps
(608.2.1)
Self-resealing
flame-arresting caps (608.2.2)
No caps
No caps
Thermal runaway
Management
Not required
Not required
Required
(608.3)
Not required
Required
(608.3)
Spill control
Required
(608.5)
Required
(608.5)
Not required
Not required
Not required
Neutralization
Required
(608.5.1)
Required
(608.5.1)
Required
(608.5.2)
Not required
Not required
Ventilation
Required
(608.6.1; 608.6.2)
Required
(608.6.1; 608.6.2)
Required
(608.6.1; 608.6.2)
Not required
Not required
Signage
Required
(608.7)
Required
(608.7)
Required
(608.7)
Required (608.7)
Required
(608.7)
Seismic protection
Required
(608.8)

Required
(608.8)
Required
(608.8)
Required (608.8)
Required
(608.8)
Smoke detection
Required
(608.9)
Required
(608.9)
Required
(608.9)
Required (608.9)
Required
(608.9)

608.2 Safety caps. Safety caps for stationary storage battery systems shall comply with FC 608.2.1 and 608.2.2.

608.2.1 Nonrecombinant batteries. Vented lead acid, nickel-cadmium and other types of nonrecombinant batteries shall be provided with safety venting caps.

608.2.2 Recombinant batteries. VRLA batteries shall be equipped with self-resealing flame-arresting safety vents.

608.3 Thermal runaway. VRLA and lithium metal polymer battery systems shall be provided with a listed device or other approved method to preclude, detect and control thermal runaway.

608.4 Room design and construction. Stationary battery system rooms and enclosures shall be designed and constructed in accordance with the Building Code. Battery systems may be installed in the same room as the equipment to which they provide power.

608.4.1 Separate rooms. When stationary battery systems are installed in a separate equipment room accessible only to authorized personnel, the batteries may be installed on an open rack for ease of maintenance.

608.4.2 Occupied areas. Only VRLA, lithium-ion, and other types of sealed, nonventing batteries may be installed in an occupied area. Such batteries shall be housed in a noncombustible cabinet to prevent access by unauthorized personnel. Such cabinets shall be located within 10 feet (3048 mm) of the equipment to which the batteries they house provide power.

608.5 Spill control and neutralization. An approved method and materials for the control and neutralization of a spill of electrolyte shall be provided in areas containing lead-acid, nickel-cadmium or other types of batteries with free-flowing liquid electrolyte.

Exception: VRLA, lithium-ion, lithium metal polymer and other types of sealed batteries with immobilized electrolyte shall not require spill control.

608.5.1 Nonrecombinant battery neutralization. For battery systems containing lead-acid, nickel-cadmium or other types of batteries with free-flowing electrolyte, the method and materials shall be capable of neutralizing a spill of the total capacity from the largest cell or block to a pH between 5.0 and 9.0.

608.5.2 Recombinant battery neutralization. For VRLA and other types of sealed batteries with immobilized electrolyte, the method and material shall be capable of neutralizing a spill of 3 percent of the capacity of the largest VRLA cell or block in the room to a pH between 5.0 and 9.0.

Exception: Lithium-ion and lithium metal polymer batteries shall not require neutralization.

608.6 Ventilation. Ventilation of stationary storage battery systems shall comply with FC 608.6.1 and 608.6.2.

608.6.1 Room ventilation. Ventilation for flooded lead acid, flooded Ni-Cd and VRLA batteries shall be provided in accordance with the Mechanical Code and the following requirements:

1. The ventilation system shall be designed to limit the maximum concentration of hydrogen to 1 percent of the total volume of the room; or
2. Continuous ventilation shall be provided at a rate of not less than 1 cubic foot per minute per square foot (0.0051 m³/s/m²) of floor area of the room.

Exception: Ventilation is not required for lithium-ion and lithium metal polymer batteries.

608.6.2 Cabinet ventilation. When VRLA batteries are installed inside a cabinet, such cabinet shall be approved for use in occupied spaces and shall be mechanically or naturally vented by one of the following methods:

1. The cabinet ventilation shall be designed to limit the maximum concentration of hydrogen to 1 percent of the total volume of the cabinet during the worst-case event of simultaneous "boost" charging of all batteries in the cabinet; or
2. Continuous ventilation shall be provided at a rate of not less than 1 cubic foot per minute per square foot (0.0051 m³/s/m²) of floor area covered by the cabinet. The room in which the cabinet is installed shall also be ventilated as required in FC608.6.1.

608.6.3 Ventilation system monitoring. Mechanical ventilation systems where required by FC 608.6.1 and 608.6.2 shall be supervised by an approved central station or shall initiate an audible and visual signal at a constantly attended on-site location.

608.7 Signage. Signs shall be provided in accordance with FC 608.7.1 and 608.7.2.

608.7.1 Equipment room and building signage. A durable sign that reads as follows shall be posted on doors into electrical equipment rooms or buildings containing stationary battery systems: "CAUTION: This room contains energized battery systems. Battery electrolyte solutions may be corrosive."

608.7.2 Cabinet signage. Cabinets shall have a sign or marking identifying the type of battery system, the electrical rating (voltage and current) of the system, and applicable chemical and fire hazards.

608.8 Seismic protection. The battery systems shall be seismically braced in accordance with the Building Code.

608.9 Smoke detection. An approved automatic smoke detection system shall be installed in accordance with the Building Code in rooms containing stationary battery systems.

608.10 Emergency procedures. Emergency procedures detailing how to shut down the power from the battery system shall be posted on or near the battery system or kept in an approved location on the premises. The procedures shall also include a 24-hour/7-day per week telephone number by which the owner can be contacted to provide additional information to emergency responders.]

608.1 Scope. This section shall govern stationary energy storage systems, including emergency power, standby power, uninterruptible power and mobile systems.

608.2. General. Stationary energy storage systems shall be designed, installed, operated and maintained in accordance with this section, the rules, manufacturer's specifications, and, to the extent not inconsistent with this code and rules, NFPA 855, as modified by FC Appendix B.

608.3 Permits. Permits shall be required as set forth in FC105.6.

608.4 Testing and listing standards. All stationary energy storage systems shall be tested and listed by a nationally recognized testing laboratory to the standards set forth in FC 608.4.1 through 608.4.3 (or later editions of these standards

when necessary to address evolving standards applicable to a rapidly developing technology):

608.4.1 Listing standards. Stationary energy storage systems shall be listed to the following standards:

1. Underwriters Laboratories (UL) Standard 1741 (2010 edition), entitled "Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources;"
2. Underwriters Laboratories (UL) Standard 1973 (2018 edition), entitled "Batteries for Use in Light Electric Rail (LER) Applications and Stationary Applications;" and
3. Underwriters Laboratories (UL) Standard 9540 (2020 edition), entitled "Energy Storage Systems and Equipment."

Exceptions:

1. Any stationary energy storage system technology or application not subject to one or more of these listing standards shall comply with such other testing or listing standards as may be approved by the department.
2. A stationary energy storage system that received a listing under Underwriters Laboratories (UL) Standard 9540 (2016 edition) prior to the effective date of this section may be considered for a certificate of approval provided that such listing is still valid and the system was subjected to full-scale testing in accordance with FC608.4.2.
3. A stationary energy storage system approved by the department under a listing standard superseded by a later edition may continue to be operated under such listing standard and department certificate of approval, provided that the listing is still valid and except as may be required by the department in accordance with FC102.5.

608.4.2 Full-scale testing. Stationary energy storage systems shall be subjected to full-scale testing (referred to as "large-scale testing" in NFPA 855) in accordance with ANSI/Underwriters Laboratories (UL) Test Method 9540A (4th edition), entitled "Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems," or other approved test method, or its failure mode and effects documented by other approved test data.

608.4.3 Listing with installation conditions. Upon approval by the department and the Department of Buildings of a listing standard that is used to establish listings with installation conditions based upon test data, such approved listing standard shall replace the existing listing and testing standards set forth in FC 608.4.1 and 608.4.2. The approved listing standard and listings shall supersede the equipment approval process set forth in FC608.5 and, to the extent addressed in such approved listing, the required separation distances.

608.5 Equipment approval. The design of each storage battery unit, including pre-engineered and pre-packaged systems, shall be approved by the department. The manufacturer of the storage battery unit shall obtain a certificate of approval for such unit in accordance with FC112 and the rules. Application for a certificate of approval shall include the results of the full-scale testing of the storage battery unit in accordance with FC608.4.2, including a failure modes and effects analysis (FMEA) or other approved hazard mitigation analysis. The certificate of approval may set forth terms and conditions for stationary energy storage system use. Such terms and conditions may authorize below-grade installation, or indoor installation in Group R-3 occupancies, based on the hazards demonstrated by the full-scale testing data and the mitigation thereof.

608.6 Installation approval. The design of each stationary energy storage system installation shall be reviewed and approved by the department as required by FC 608.6.1 and 608.6.2.

608.6.1 Indoor systems. Department review and approval of indoor system installations is required for systems utilizing equipment not approved by the department or not in accordance with the terms and conditions of the certificate of approval, equipment listing or requirements of this code. Otherwise, indoor system installation shall be reviewed and approved by the Department of Buildings in accordance with that agency's requirements, with department review and approval of energy storage management systems and monitoring stations, smoke control and smoke purge systems, explosion mitigation, and such fire protection and hazard mitigation systems and measures as are required to be reviewed by the department under this code or the construction codes.

608.6.2 Outdoor systems. Department review and approval of outdoor system installations, including mobile and rooftop

systems, shall be in accordance with the rules.

608.7 Supervision. Stationary energy storage systems shall be operated and maintained under the supervision of a person holding the certificate of fitness required for such purpose.

608.7.1 Indoor systems. Except as may be otherwise provided in the rules, indoor systems shall be operated and maintained under the general supervision of such certificate of fitness holder, provided, however, that an FLS director, FEP coordinator, certificate of qualification holder or other responsible person with approved qualifications shall be on the premises during the regular business hours in any building with an indoor system with an aggregate rated energy capacity of one megawatt (1 MWh) or more. Such person shall be responsible for assisting emergency responders, including coordinating with such certificate of fitness holder and the remote monitoring facility in accordance with the emergency management plan.

608.7.2 Outdoor systems. Outdoor systems shall be operated and maintained under the general supervision of such certificate of fitness holder, except as may be otherwise provided in the rules.

608.7.3 Qualifications and responsibilities. A certificate of fitness holder responsible for a stationary energy storage system shall possess the following qualifications and shall have the following duties and responsibilities and such other duties and responsibilities as may be set forth in the notice of examination for such certificate:

1. Be trained and knowledgeable in the installation and operation of the stationary energy storage system, such as a person engaged in the design or installation of such systems;
2. Possess the manufacturer's installation and operating specifications for each stationary energy storage system and any associated fire protection systems;
3. Immediately report any emergency condition affecting a stationary energy storage system to the department; and
4. Provide technical assistance about the stationary energy storage system installation to the department in accordance with FC608.8 and the rules, and, in coordination with the energy storage management system monitoring facility, identify a subject matter expert who can provide technical assistance about the stationary energy storage system's design and performance in the event of an emergency condition affecting the stationary energy storage system.

608.8 Emergency management plan. The owner, manufacturer and/or installer of a stationary energy storage system shall have an emergency management plan or protocol that includes procedures for notifications, provision of technical assistance to the department, mitigation of hazardous conditions, and decommissioning or restoration to normal operation. The department may require that a representative of the stationary energy storage system manufacturer or other subject matter expert with technical knowledge of the system and its operation be available in a timely manner to provide technical assistance to the department during an emergency involving or affecting the system.

608.9 Design and installation. Stationary energy storage systems shall comply with the requirements set forth in FC 608.9.1 through 608.9.4.

Exception:

Lead acid and nickel-cadmium stationary energy storage systems with a maximum operating voltage of 50 volts alternating current or 60 volts direct current, designed and installed for the purpose of supplying emergency power, standby power or uninterruptible power to telecommunications equipment under the exclusive control of a telecommunications provider, when such systems are located outdoors or in an indoor telecommunications facility used exclusively for powering telecommunications equipment, and are in compliance with the requirements of NFPA 855, as adopted and modified by the Department of Buildings, and NFPA 76.

608.9.1 Maximum aggregate rated energy capacity. The maximum aggregate rated energy capacity of stationary energy storage systems shall be in accordance with FC 608.9.1.1 and 608.9.1.2.

608.9.1.1 Indoor systems. The aggregate rated energy capacity per control area of indoor systems shall not exceed the limitations set forth in FC Table 608.9.1.1.

FC TABLE 608.9.1.1

MAXIMUM AGGREGATE RATED ENERGY CAPACITY OF INDOOR STATIONARY ENERGY STORAGE SYSTEMS

TYPE OF STORAGE BATTERY

MAXIMUM AGGREGATE RATED ENERGY
CAPACITY (kWh) PER CONTROL AREA^{a,b}

Lead-acid, all types

600c

Nickel, all types except sodium nickel chloride

600c

Lithium-ion, all types

400

Sodium nickel chloride

400

Flow

400

Other

As prescribed by rules or approved by the department

a. Subject to the control area limitations set forth in FC Table 5003.8.3.3

b. The control areas on a floor of a dedicated use building, other than on a high-rise floor, may be combined or otherwise modified, provided that the total maximum aggregate rated energy capacity of indoor systems allowed per floor is not exceeded.

c. Except where a greater maximum aggregate rated capacity is allowed per floor by FC608.9.4.1.10.

608.9.1.2 Outdoor systems. The aggregate rated energy capacity of outdoor stationary energy storage systems (including mobile systems) shall be as approved by the department, unless the department prescribes by rule a maximum aggregate rated energy capacity for such systems.

608.9.2 Energy storage management system monitoring. All stationary energy storage systems shall be designed with an energy storage management system that transmits data regarding energy storage system status and temperature to a remote monitoring facility or other approved location. Indoor systems shall be provided with approved remote monitoring stations at the building's fire command center and/or other approved location.

608.9.3 Fire protection and hazard mitigation. Stationary energy storage systems shall be designed to address the hazards identified by full-scale testing, including protecting the stationary energy storage system and the building or enclosure that houses such system with, as applicable, fire barriers, fire alarm systems, explosion mitigation, gas detection and other emergency alarm systems, fire extinguishing systems and ventilation systems.

608.9.3.1 Indoor systems. Indoor systems shall be provided with the fire protection and hazard mitigation systems and measures required by the conditions of the system's listing and equipment approval, this section, the construction codes, the Electrical Code and the rules.

608.9.3.2 Outdoor systems. Outdoor systems shall be provided with the fire protection and hazard mitigation systems and measures required by the rules.

608.9.4 Location. Stationary energy storage systems shall be installed in accordance with the location requirements and restrictions set forth in FC 608.9.4.1 and 608.9.4.2.

608.9.4.1 Indoor systems. Indoor systems shall be installed in accordance with FC 608.9.4.1.1 through 608.9.4.1.9.

608.9.4.1.1 Below-grade locations. Indoor systems shall not be installed below grade, except when approved by the department in a dedicated use building, or as otherwise approved pursuant to FC608.5.

608.9.4.1.2 Sprinkler protection required. Indoor systems may be installed only in buildings fully protected throughout by a sprinkler system, except as otherwise provided in FC608.9.4.1.9. Control areas housing stationary energy storage

systems shall be fully protected throughout by a sprinkler system designed in accordance with NFPA 15, except as may otherwise be approved based on equipment listings and testing results pursuant to FC608.4.

608.9.4.1.3 Occupancy restrictions. Indoor systems may be installed in Group A, Group R-1, Group R-2 and Group I buildings and occupancies only when the building is of noncombustible construction, except as otherwise provided in FC608.9.4.1.9.

608.9.4.1.4 Control areas. Indoor systems shall be installed only in control areas designed, installed, operated and maintained in accordance with this section. The maximum aggregate rated energy capacity of indoor systems per control area shall be in accordance with FC608.9.1. The design and number of control areas per floor shall be in accordance with FC5003.8.3.3, including FC Table 5003.8.3.3, except that (subject to FC608.9.4.1.9 and FC608.9.4.1.10) each control area housing an indoor stationary energy storage system shall be designed and constructed as a high-hazard occupancy, and rooftop installations shall be treated as outdoor installations.

608.9.4.1.5 Smoke detection. Control areas housing stationary energy storage systems shall be protected by a fire alarm system or, if a fire alarm system is not otherwise required in the building or occupancy, by a dedicated smoke detection system.

608.9.4.1.6 Ventilation. Control areas housing stationary energy storage systems shall be equipped with ventilation systems designed for high-hazard occupancies in accordance with the construction codes. Such ventilation systems shall be adequate to exhaust any flammable or other gases generated during the normal operation and/or failure of the stationary energy storage system.

608.9.4.1.7 Spill control, neutralization, drainage and containment. Control areas housing stationary energy storage systems shall be provided with a means to control leaks and spills of liquid electrolyte and such containment and drainage systems as may be required by the construction codes and NFPA 855, as modified by FC Appendix B.

608.9.4.1.8 Emergency power. All fire protection and hazard mitigation systems required by this section shall be provided with an emergency power system in accordance with the Building Code.

608.9.4.1.9 Exceptions for certain battery systems for fire and life safety. Lead acid battery systems, and nickel-cadmium battery systems, and where approved by the certificate of approval based on their testing results, other types of energy storage systems, designed and installed solely for the purpose of supplying emergency or standby power for building fire safety and life safety systems in accordance with the construction codes and this code may be:

1. installed in buildings that are not protected throughout by a sprinkler system.
2. installed in buildings of combustible construction.
3. housed in control areas that are not constructed as high-hazard occupancies but meet such fire separation standards as may be set forth in the construction codes.

608.9.4.1.10 Exceptions for certain battery systems for business operations. The exceptions set forth in FC608.9.4.1.9 shall also be applicable to lead acid battery systems and nickel-cadmium battery systems, not exceeding a maximum aggregate rated energy capacity of 70 kWh per floor, and where approved by the certificate of approval, other types of energy storage systems, designed and installed for the purpose of supplying emergency power, standby power or uninterruptible power, for business operations, in accordance with the construction codes and this code.

608.9.4.2 Outdoor systems. Outdoor systems, including reach-in and walk-in facilities and mobile systems, shall be designed and installed in accordance with the rules. Rooftop systems with an aggregate rated energy capacity exceeding 400 kWh, other than lead acid battery systems, may be installed only on the rooftops of buildings of noncombustible construction.

608.10 Commissioning and decommissioning. Stationary energy storage systems shall be installed and activated for use (commissioned) and deactivated from use and removed from the premises (decommissioned) in accordance with this section, the rules and NFPA 855, as modified by FC Appendix B.

608.10.1 Commissioning. Stationary energy storage systems shall be installed by trained and knowledgeable persons in accordance with manufacturer's specifications. Upon completion of the installation, the certificate of fitness holder assuming responsibility for supervision of the system shall authorize it to be activated, after confirming that the energy storage system is in good working order and operating in accordance with manufacturer's specifications. Approved fire protection, smoke control and smoke purge, and hazard mitigation systems and measures installed to protect the system shall also be inspected and tested by a person holding the qualifications required by this code, the construction codes and/or the Electrical Code, and any required acceptance testing conducted, prior to activation of the system.

608.10.2 Decommissioning. The certificate of fitness holder supervising a stationary energy storage system shall be responsible for its decommissioning. The deactivation, de-energizing, dismantling and removal of the system shall be conducted by trained and knowledgeable persons in accordance with manufacturer's specifications. The owner, manufacturer, installer, hazardous materials carrier or other party responsible for removal, transportation and/or disposal of the stationary energy storage system shall ensure that the energy storage system is lawfully decommissioned, transported and disposed of in accordance with DOTn hazardous materials regulations and other applicable laws, rules and regulations.

608.10.3 Notice to department. Notice of the commissioning and decommissioning of stationary energy storage systems shall be given to the department? and the removal of a malfunctioning system coordinated with the department, in accordance with the rules.

608.11 Operation and maintenance. Stationary energy storage systems shall be operated and maintained in accordance with FC 608.11.1 through 608.11.6.

608.11.1 Remote monitoring of energy storage management system and reporting. Except for telecommunications equipment subject to the exception set forth in FC608.9, the owner of a stationary energy storage system shall arrange for data transmissions from the energy storage system's energy storage management system to be continuously monitored (on a 24/7 basis) by a remote monitoring facility staffed by trained and knowledgeable persons retained by the manufacturer or installer of the energy storage system. The remote monitoring facility shall, without delay, make all necessary notifications, as required by the rules and the emergency management plan, including notifications to the department, the certificate of fitness holder and the subject matter expert, in the event a stationary energy storage system installed in New York City exceeds or appears likely to exceed thresholds at which fire, explosion or other serious adverse consequences may result.

608.11.2 Central station monitoring of fire protection systems. All fire protection systems protecting the stationary energy storage system installation, including any fire extinguishing system, and fire and gas detection or other emergency alarm system, shall be monitored by an approved central station.

608.11.3 Signage. Stationary energy storage systems shall be identified by signs or markings in accordance with the rules. The department may require that such signs and markings provide required warnings, location of controls, emergency shut down procedures, energy storage management system monitoring facility and other emergency contact information, and other necessary information.

608.11.4 Maintenance. The owner shall ensure that stationary energy storage systems are periodically inspected, tested, serviced and otherwise maintained in accordance with manufacturer's specifications and the requirements of this section by a person trained and knowledgeable in the specific system. The department may prescribe by rule stationary energy storage system periodic inspection requirements.

608.11.5 Restoration to service after serious failure. Any stationary energy storage system that undergoes a serious failure, including one that results in a fire, release of flammable or toxic gas, and/or physical damage to system components, shall be removed from service forthwith. The stationary energy storage system shall not be restored to service until it has been evaluated and, if necessary, repaired or replaced, by a trained and qualified person, and recommissioned by the certificate of fitness holder responsible for the system.

608.11.6 Replacement components. Any replacement storage battery units or other stationary energy storage system components shall be designed for the same storage battery technology and/or chemistry and be compatible with the existing energy storage system installation. In-kind replacement of existing components (consistent with the listing for the storage battery unit or stationary energy storage system) constitutes maintenance and does not require department

review and approval. Department review and approval, and, as applicable, Department of Buildings review and approval, is required in the same manner as an application for a new stationary energy storage system installation for replacement of existing components that effect an alteration of the energy storage system, including:

1. replacement of components included in the storage battery unit listing, or that could otherwise affect the results of the full-scale testing of the battery storage unit;
2. replacement components that use different battery technologies or chemistries (including the electrolyte chemistry in a flow system); and
3. replacement components that change the storage/generating capacity or other functionality of the stationary energy storage system.

608.12 Recordkeeping. A written record of the following information shall be maintained at the premises or other approved location by the certificate of fitness holder and by the owner or operator of the stationary energy storage system, except as otherwise prescribed by the department by rule:

1. Stationary energy storage system installation and commissioning;
2. Stationary energy storage system maintenance, including all inspections, servicing and repair;
3. Stationary energy storage system decommissioning and removal;
4. Installation and maintenance of stationary energy storage system fire protection systems, including all inspection, testing, servicing and repair; and
5. Fires or other incidents involving or affecting the stationary energy storage system.

608.13 Group R-3 occupancies. Stationary energy storage systems installed in or on the premises of Group R-3 occupancies (indoor and outdoor systems) shall comply with the foregoing provisions of this section, except as follows:

1. Notwithstanding any provision of FC608.7 to the contrary, both indoor systems and outdoor systems shall be operated and maintained under the general supervision of such certificate of fitness holder.

2. In lieu of FC608.9, the following provisions shall apply to the design and installation of stationary energy storage systems in a Group R-3 dwelling and any attached or detached garage space serving such a dwelling:

2.1. No indoor system shall be installed below grade in such a dwelling or garage except when approved by the department.

2.2. No indoor system shall be installed in such a dwelling except when approved for such installation by its certificate of approval based on UL9540 listing meeting the performance-cell level test requirements of UL9540A or as otherwise approved pursuant to FC608.5.

2.3. The maximum rated energy capacity of any storage battery in an energy storage system installed in such a dwelling, attached garage or detached garage or mounted outdoors on an exterior wall thereof, shall not exceed 20 kWh, and the maximum aggregate rated energy capacity of such energy storage system shall not exceed the following amounts:

2.3.1 in any such dwelling, 20 kWh per dwelling unit, except as may be approved by the department; or

2.3.2 in any such attached garage, or when mounted outdoors on an exterior wall of such a dwelling or attached garage, 40 kWh, provided that there is an approved two-hour fire barrier separating such indoor system or wall mounted installation from the dwelling, or other approved measure based on the testing results of the energy storage systems; or

2.3.3 in any such detached garage, or mounted on an exterior wall thereof, 40 kWh.

2.4. Indoor systems installed in such a dwelling shall be protected by a one-hour fire barrier. Indoor systems shall

otherwise be located, installed and protected in such dwellings and garages in accordance with the construction codes, the Electrical Code and the rules.

2.5. Indoor systems shall be equipped with an energy storage management system in accordance with FC608.9.2.

3. Outdoor systems shall be designed and installed in accordance with the rules.

SECTION FC 609 COMMERCIAL COOKING SYSTEMS

[609.1 General. Commercial cooking systems shall be designed, installed, operated and maintained in accordance with this section.

609.2 Design and installation. Commercial cooking systems shall be designed and constructed in accordance with the construction codes, including the Building Code and the Mechanical Code, and shall comply with the requirements of this section.

609.2.1 Fire extinguishing systems. The fire extinguishing system for commercial cooking systems shall comply with the requirements of FC904.11.

609.2.2 Commercial cooking exhaust systems. Commercial cooking exhaust hoods and exhaust ducts shall comply with the requirements of this section.

609.2.2.1 Exhaust hoods. Commercial cooking exhaust hoods shall be designed, installed, operated and maintained in accordance with the construction codes, including the Building Code and the Mechanical Code. Type 1 hoods shall be operated and maintained in accordance with this section.

609.2.2.2 Exhaust ducts. Commercial cooking exhaust ducts shall be provided with cleanout openings in accordance with Chapter 5 of the Mechanical Code, to allow for cleaning and other maintenance, as required by this section.

609.2.3 Deep fat fryers. Deep fat fryers shall be designed and installed in accordance with this section.

609.2.3.1 Separation. Deep fat fryers shall be separated from any adjacent cooking equipment that uses an open flame by at least 16 inches (406 mm). In lieu of such separation distance, a 16-inch (406-mm) high by 7/8-inch (3.2-mm) thick steel baffle permanently attached to the longer of the two adjacent cooking appliances may be used. The baffle shall extend to the full depth of the cooking equipment to which it is attached.

609.2.3.2 High-limit controls. Deep fat fryers shall be equipped with an independent high-limit control in addition to the adjustable operating control (thermostat). Such high-limit control shall be designed and arranged to shut off the fuel supply, including electrical energy, when the fat temperature reaches not more than 475°F (246°C), 1 inch (25 mm) below the liquid surface.

609.2.4 Solid fuel cooking. Solid fuel cooking systems and facilities shall be designed and installed in accordance with the requirements of this section.

609.2.4.1 Cooking equipment. Cooking equipment burning solid fuel shall be installed on floors of noncombustible construction that extend 3 feet (914 mm) from the cooking equipment in all directions. Cooking equipment burning solid fuel shall not be installed within 3 feet (914 mm) horizontally of combustible surfaces or construction, or within 6 feet (1829 mm) vertically of such surfaces or construction.

609.2.4.2 Solid fuel storage. Solid fuel shall be stored in a dedicated room with walls, floor and ceiling having a minimum fire rating of one hour. The storage room floor shall be noncombustible or surfaced with noncombustible material.

609.3 Operation. Commercial cooking systems shall be operated in accordance with this section and FC609.5.

609.3.1 Unlawful operation. It shall be unlawful to operate commercial cooking equipment that generates smoke or grease-laden vapors or fumes:

1. without a permit for the operation of the commercial cooking system.
2. without a lawful fire extinguishing system.
3. without a lawful exhaust system.
4. without the required grease filters.
5. while its fire extinguishing system or exhaust system is out of service.

609.3.2 Supervision. Commercial cooking equipment shall be attended at all times while in operation.

609.3.3 Portable commercial cooking equipment markings. The designated location for portable (wheeled) commercial cooking equipment shall be outlined on the floor in a durable 1-inch (25-mm) wide yellow line markings or other approved means. Such location shall be determined in relation to the location of the fire extinguishing system nozzle protecting such portable commercial cooking equipment.

609.3.4 Ventilation system. Commercial cooking ventilation systems shall be operated and maintained in accordance with this section.

609.3.4.1 Operation during cooking. Exhaust systems shall be operated at all times while cooking equipment is in use. The ventilation system into which commercial cooking system exhaust hoods exhaust shall be operating at the required rate of air movement, and approved grease filters shall be in place when equipment under the exhaust hood is in use.

609.3.4.2 Grease extractors. When installed, grease extractors shall be operated at all times while cooking equipment is in use.

609.3.4.3 Maintenance of operational efficiency. Fixed air supply openings installed to provide make-up air for air exhausted through the exhaust system shall not be restricted by covers, dampers, or any other means that would reduce the operating efficiency of the exhaust system. Commercial cooking hoods shall not be painted.

609.3.5 Signage. A sign clearly and concisely summarizing the operation, maintenance and cleaning requirements for commercial cooking systems regulated by this code, together with a schematic drawing depicting the origin, run, and terminus of the exhaust system shall be provided in accordance with this section. Such sign shall be at least 8 1/2 inches (216 mm) by 11 inches (279 mm) in size, posted at or near the main entrance to the cooking area, and laminated or framed under a clear glass or plexiglas cover.

609.3.6 Staff training. The owner or operator of commercial cooking equipment shall train all staff in the proper procedure for the use of all components of the grease removal system, cleaning of filters, and the manual operation of the fire extinguishing system. Refresher training in the manual operation of the fire extinguishing system shall be provided at least once every 6 months.

609.4 Maintenance. Commercial cooking systems shall be maintained in accordance with this section and FC609.5.

609.4.1 Exhaust system inspection and cleaning. The entire exhaust system, including exhaust hoods, grease filters, grease extractors, ducts, exhaust fans, pollution control devices, and other appurtenances, shall be inspected and cleaned at least once every 3 months by a person holding a certificate of fitness. Surfaces shall be cleaned to bare metal. The powder residue or other foreign substance left by saponifying agents or other cleaning materials shall be removed. Flammable cleaning fluids shall not be used. Cleaning fluids shall not be applied to fusible links or other detection devices of the fire extinguishing system.

Exceptions:

1. Commercial cooking equipment utilizing solid fuel shall be inspected monthly by a trained and knowledgeable person, and cleaned by a certificate of fitness holder as necessary but not less frequently than once every 3 months.

2. Vertical portions of interior and exterior vertical ducts in excess of three stories in height shall be cleaned at least every 6 months by a person holding a certificate of fitness. Horizontal portions of such ducts, including all elbows, shall be inspected and cleaned in accordance with this section.

609.4.2 System deactivation. Unless necessary to accomplish cleaning, components of the fire extinguishing system shall not be rendered inoperable during the cleaning process. If electrical switches, detection devices, or other components of the fire extinguishing system must be deactivated during the cleaning process, such deactivation shall be performed by a licensed master fire suppression piping contractor. Immediately upon completion of the cleaning process the licensed master fire suppression piping contractor shall restore the system to proper operation. Electrical switches that may be accidentally activated during the cleaning process shall be electrically locked out during such process.

609.4.3 Grease filters. In addition to the cleaning required by FC609.4.1, grease filters shall be regularly cleaned or replaced by a trained and knowledgeable person, as necessary but at least once per month.

609.4.4 High-limit controls for deep fat fryers. All high-limit controls shall be replaced every 3 years with a new or rebuilt unit certified to operate at not more than 475°F (246°C).

609.5 Solid fuel commercial cooking systems. In addition to the other requirements of FC609, solid fuel cooking systems shall be operated and maintained in accordance with this section.

609.5.1 Cooking operations. Unless otherwise approved by the Commissioner of Buildings, the burning of solid fuel in commercial cooking equipment, such as briquettes, mesquite, hardwood, or charcoal, shall be allowed only for purposes of flavor enhancement. Solid fuel shall be ignited with a match or other approved means. Combustible or flammable liquids shall not be used. Matches shall not be stored in the immediate vicinity of cooking equipment. Solid fuel shall be added to the fire in a safe manner and only in quantities that will not create a flame higher than required. Long-handled tongs, hooks and other required devices shall be provided and used in order to safely add fuel, adjust the fuel, position and control the fire without having to reach into the fire box. The room where solid fuel is stored or used shall be protected throughout by a sprinkler system.

609.5.2 Solid fuel storage. Not more than a one-day supply may be kept in the same room as the solid fuel cooking equipment or masonry oven or in the room with the fuel loading or clean-out doors. Solid fuel shall not be stored:

1. within 3 feet (914 mm) of any portion of a solid fuel burning equipment, masonry oven or any other heating or cooking appliance.
2. within 6 feet (1829 mm) of any solid fuel loading opening or door of the solid fuel cooking equipment or masonry oven.
3. above any heating or cooking equipment, flue or vent.

609.5.3 Water supply. A water supply with a flexible hose shall be readily available to solid fuel cooking appliances and masonry ovens to cool down any fire that becomes too hot and to completely extinguish any fire before leaving the premises. The water source shall be a fixed pipe system with a hose of adequate length to reach to the combustion and cooking chambers of the appliance. The nozzle shall be equipped with a manual shutoff device, and shall be of the type to provide a fine to medium spray. A full flow or strong stream shall not be used.

609.5.4 Spent fuel. Spent fuel, ash, cinders and other fire debris shall be removed from the fire box at regular intervals, but at least once a day, and, once removed, shall not be stored indoors. Adequate long handle rakes, hoes, scrapers and shovels shall be provided for such removal. When being removed from the fire box, the spent fuel shall be wetted down and cooled with water from the required water supply. Metal containers with covers shall be provided for such spent fuel removal. Such metal containers shall be of a minimum 16 gauge construction and shall be limited in size to a capacity not exceeding 20 gallons (75.7 L), so as to facilitate easy handling by any employee assigned to the task and to enable such containers to easily pass through any door or passageway. The spent fuel shall be placed outdoors in a dumpster or heavy metal container used exclusively for this purpose and kept covered at all times. Such dumpster or container shall be kept separate from combustible construction, and stored combustible materials and combustible waste.

609.6 Portable fire extinguishers. Portable fire extinguishers shall be readily available for use in the cooking area but in any event no further than 30 feet (9144 mm) of travel distance from the commercial cooking equipment.

609.6.1 Commercial cooking. Commercial cooking equipment areas shall be provided with a Class K rated portable fire extinguisher.

609.6.2 Deep fat fryers. When a deep fat fryer is installed in a cooking area, Class K portable fire extinguishers shall be provided as follows:

1. For up to four fryers individually having a maximum cooking medium capacity of 80 pounds (36.3 kg) and a maximum surface area of 6 square feet (0.55 m²): One having a minimum 11/2 gallon (6 L) capacity.
2. For every additional group of up to four fryers, individually having a maximum cooking medium capacity of 80 pounds (36.3 kg) and a maximum surface area of 6 square feet (0.55 m²) each: One additional Class K portable fire extinguisher having a minimum 11/2 gallon (6 L) capacity.
3. For individual fryers having a maximum cooking medium capacity exceeding 80 pounds (36.3 kg) or 6 square feet (0.55 m²) in surface area: Provide Class K portable fire extinguishers in accordance with the portable fire extinguisher manufacturer's recommendations.

609.6.3 Solid fuel cooking equipment. When solid fuel cooking equipment is installed in a cooking area, Class K portable fire extinguishers shall be provided as follows:

1. For equipment with individual fireboxes of 5 cubic feet (0.14 m³) or less in volume: One having a minimum 21/2 gallon (9 L) capacity, or two having a minimum 11/2 gallon (6 L) capacity.
2. For equipment with fireboxes exceeding 5 cubic feet (0.14 m³): Provide Class K portable fire extinguishers in accordance with the portable fire extinguisher manufacturer's recommendations.

609.7 Recordkeeping. A record shall be maintained of the following commercial cooking system maintenance in accordance with FC107.7:

1. The inspection and cleaning of the exhaust system required by FC609.4.1, including the date that such inspection and cleaning was conducted, and the name and certificate of fitness number of the certificate of fitness holder or the name of the trained and knowledgeable person conducting such inspection and cleaning.
2. The replacement of deep fat fryer high-limit controls in accordance with FC609.4.4.
3. The servicing of the fire extinguishing system in accordance with FC904.11.6.]

609.1 General. Commercial cooking systems shall be designed, installed, operated and maintained in accordance with this section.

609.2 Unlawful operation. It shall be unlawful to operate a commercial cooking appliance that generates smoke or grease-laden vapors, smoke or fumes:

1. without a permit for the operation of the commercial kitchen in which the commercial cooking appliance is installed.
2. when the appliance is not an approved commercial cooking appliance.
3. when the appliance is a portable fueled device, unless otherwise authorized by the department.
4. without an approved, lawfully-installed and tested fire extinguishing system.
5. without an approved and lawfully-installed exhaust system.
6. without the required grease filters.
7. when its fire extinguishing system or exhaust system is out of service.

8. when the operation of a commercial cooking appliance is unsafe due to excessive grease accumulation on or in such appliance or in the commercial cooking exhaust system.

609.3 Supervision. Commercial cooking appliances shall be attended at all times while in operation. A person holding a certificate of fitness shall supervise commercial cooking system cleaning and fire protection.

609.3.1. Cleaning of commercial cooking exhaust system. Commercial cooking exhaust systems shall be cleaned by a company holding a company certificate and persons employed by such company who hold a certificate of fitness, except that ductless hoods may be inspected and cleaned by the owner or trained and knowledgeable employees of the owner.

609.3.1.1 Commercial cooking cleaning company. It shall be unlawful for any person engaged in the business of inspecting and cleaning commercial cooking exhaust systems as required by the provisions of this code to perform such services without a commercial cooking exhaust system servicing company certificate. Such cleaning company shall possess the vehicles, tools, equipment and supplies required to perform such services.

609.3.1.2 Certificate of fitness. All persons engaged in the cleaning of commercial cooking exhaust systems, including any individual who assists such persons, shall hold a certificate of fitness for that purpose.

609.3.2 Commercial cooking fire extinguishing system. Fire extinguishing systems protecting commercial cooking systems in accordance with FC904 shall be maintained in accordance with FC904.5 by a master fire suppression piping contractor holding a certificate of fitness in accordance with FC901.6.3.

609.4 Commercial cooking appliances. Commercial cooking appliances shall be designed and installed in accordance with FC 609.4.1 through 609.4.3.

609.4.1 Design and installation. Commercial cooking appliances requiring a fire extinguishing system shall be designed and installed in accordance with the construction codes, including the Mechanical Code and Fuel Gas Code, and the Electrical Code. Commercial cooking appliances shall not be relocated, or replaced with appliances utilizing a different power source, change in gas valve, or other change affecting the design of the commercial cooking fire extinguishing system, without prior department approval.

609.4.1.1 Deep fat fryers. Deep fat fryers shall be designed and installed in accordance with this section.

609.4.1.1.1 Separation. Deep fat fryers shall be separated from any adjacent cooking equipment that uses an open flame by:

1. A separation distance of at least 16 inches (406 mm); or
2. A 16-inch (406-mm) high by 7-inch (178-mm) thick steel baffle permanently attached to the longer of the two adjacent cooking appliances. The baffle shall extend to the full depth of the cooking equipment to which it is attached; or
3. A combination of separation distance and baffle height equal to at least 16 inches.

609.4.1.1.2 High-limit controls. Deep fat fryers shall be equipped with an independent high-limit control in addition to the adjustable operating control (thermostat). Such high-limit control shall be designed and installed to shut off the fuel supply, including electrical energy, when the temperature of the fat 1 inch (25 mm) below the liquid surface reaches a temperature of 475°F (246°C). All high-limit controls shall be replaced every 3 years with a new or rebuilt device certified by the manufacturer to activate at the designated temperature of 475°F (246°C).

609.4.1.2 Solid fuel burning appliances. Commercial cooking appliances burning solid fuel shall be installed on floors of noncombustible construction that extend 3 feet (914 mm) from the cooking equipment in all directions. Cooking equipment burning solid fuel shall not be installed within 3 feet (914 mm) horizontally of combustible surfaces or construction, or within 6 feet (1829 mm) vertically of such surfaces or construction.

609.4.2 Solid fuel commercial cooking operations. Solid fuel commercial cooking operations shall additionally comply with the requirements of FC 609.4.2.1 through 609.4.2.5. Unless otherwise approved by the Department of Buildings, the

burning of solid fuel, such as briquettes, mesquite, hardwood, or charcoal, in commercial cooking appliances shall be allowed only for purposes of flavor enhancement. The use of solid fuel for flavor enhancement shall be in accordance with NFPA 96, including the use of a listed smoker box.

609.4.2.1 Solid fuel storage. Solid fuel used for commercial cooking operations shall be stored in accordance with FC315.7.

609.4.2.2 Lighting. Solid fuel shall be ignited with a match or other approved means. Combustible or flammable liquids shall not be used. Matches shall not be stored in the immediate vicinity of cooking equipment.

609.4.2.3. Handling. Solid fuel shall be added to the fire in a safe manner and only in quantities that will not create a flame higher than required. Long-handled tongs, hooks and other required devices shall be provided and used in order to safely add fuel, adjust the fuel, position and control the fire without having to reach into the fire box.

609.4.2.4 Water supply. A water supply with a flexible hose shall be readily available to solid fuel commercial cooking appliances and masonry ovens to cool down any fire that becomes too hot and to completely extinguish any fire at the conclusion of cooking operations. The water source shall be a fixed pipe system with a hose of adequate length to reach to the combustion and cooking chambers of the appliance. The nozzle shall be equipped with a manual shutoff device, and shall be of the type to provide a fine to medium spray. A full flow or strong stream shall not be used to cool down and extinguish any cooking fire.

609.4.2.5 Spent fuel. Spent fuel, ash, cinders and other fire debris shall be removed from the fire box at regular intervals, but at least once a day, and, once removed, shall not be stored indoors. Adequate long handle rakes, hoes, scrapers and shovels shall be provided for such removal. When being removed from the fire box, the spent fuel shall be wetted down and cooled with water from the required water supply. Metal containers with covers shall be used when transporting such spent fuel removal. Such metal containers shall be of a minimum 16 gauge construction and shall be limited in size to a capacity not exceeding 20 gallons (75.7 L), so as to facilitate easy handling by any employee assigned to the task and to enable such containers to easily pass through any door or passageway. The spent fuel shall be placed outdoors in a dumpster or heavy metal container with a lid or cover used exclusively for this purpose and kept closed at all times. Such dumpster or container shall be kept separate from combustible construction, combustible materials and combustible waste.

609.4.3 Movable commercial cooking appliance markings. The designated location for movable (wheeled) commercial cooking appliances shall be outlined on the floor in durable 1-inch (25-mm) wide yellow line markings or other approved means. Such location shall be determined in relation to the location of the fire extinguishing system nozzle protecting such movable commercial cooking equipment. The owner or operator of a commercial cooking system shall ensure that each movable appliance is positioned at its designated location before commencing cooking.

609.5. Commercial cooking exhaust system. Commercial cooking exhaust systems, including the hood, grease filters, ducts, exhaust fans and emission control devices, shall be designed and installed in accordance with the construction codes, including the Mechanical Code, the Electrical Code and this code.

609.5.1 Design and installation. Commercial cooking exhaust systems shall be designed and installed in accordance with FC 609.5.1.1 through 609.5.1.5.

609.5.1.1 Exhaust hoods. Commercial cooking systems shall be equipped with a Type I hood suitable for commercial cooking appliances in accordance with Mechanical Code. Prefabricated hoods shall be of a type for which a certificate of approval has been issued in accordance with FC112 and the rules. Exhaust hoods shall not be painted and scratch protection sheeting shall be removed.

609.5.1.2 Exhaust ducts. Commercial cooking exhaust ducts shall be provided with clean out openings in accordance with Mechanical Code, to allow for cleaning and other maintenance. The department may require installation of additional access panels when the department determines, based on a report from a commercial cooking exhaust system cleaning company or other good cause, that there is inadequate access to conduct a proper cleaning of the system. The department shall give the owner notice and an opportunity to be heard prior to ordering compliance with any such determination; evaluate objections asserted on the basis on engineering considerations and impracticability; and address proposed alternatives.

609.5.1.3 Emission control devices. When required by the Air Pollution Code, commercial cooking systems shall be equipped with a precipitator or other emission control device of a type for which a certificate of approval has been issued in accordance with FC112 and the rules.

609.5.1.4 Ductless hoods. Ductless hoods shall be of a type for which a certificate of approval has been issued in accordance with FC112 and the rules.

609.5.1.5 Grease filters. Grease filters shall be of a type for which a certificate of approval has been issued in accordance with FC112 and the rules.

609.5.2 Operation. Commercial cooking exhaust systems shall be operated in accordance with FC 609.5.2.1 through 609.5.2.5.

609.5.2.1 Operation during cooking. The exhaust system shall be in operation at all times whenever a commercial cooking appliance is in use. The exhaust system shall continue to operate as designed in the event of an automatic or manual activation of the fire extinguishing system, with the exception of any emission control device designed to shut off in the event of fire.

609.5.2.2 Maintenance of airflow. The required rate of exhaust airflow for the commercial cooking exhaust system shall be maintained at all times. Fixed air supply openings installed to provide make-up air for air exhausted through the exhaust system shall not be restricted by covers, dampers, or any other means that would reduce the operating efficiency of the exhaust system. The department may require that the exhaust system be tested in accordance with the Mechanical Code if, upon inspection, the exhaust airflow appears to be insufficient to allow proper exhausting of grease vapors, steam, fumes, smoke and/or odors.

609.5.2.3 Grease filters. Approved grease filters shall be in place in the proper position at all times when cooking appliances are in use.

609.5.2.4 Grease extractors. When installed, grease extractors and other grease removal devices, equipment and systems shall be operated at all times while cooking equipment is in use.

609.5.2.5 Combustible materials. Combustible materials shall not be placed on the exhaust hood, other than the required proof of compliance.

609.5.3 Cleaning and other maintenance. The entire exhaust system, including exhaust hoods, grease filters, grease extractors, exhaust ducts, exhaust fans, emission control devices, and other exhaust system components, shall be inspected and cleaned in accordance with FC 609.5.3.1 through 609.5.3.6.

609.5.3.1 Frequency of exhaust system inspection. The entire exhaust system shall be inspected with a minimum frequency as set forth in FC Table 609.5.3.1, except as otherwise provided in the rules:

FC TABLE 609.5.3.1

COMMERCIAL COOKING EXHAUST SYSTEM INSPECTION

TYPE OF COMMERCIAL COOKING OR COOKING DEVICE/EQUIPMENT/SYSTEMa

MINIMUM FREQUENCY OF INSPECTION

QUALIFICATIONS

All commercial cooking exhaust systems, except ductless hoods

Every 3 months

Approved cleaning company

Ductless hoods

In accordance with the terms and conditions of the certificate of approval and the manufacturer's instructions but not less than once every three months

Trained/knowledgeable person

Grease filters

Daily

Trained/knowledgeable person

High-volume cooking
Weekly
Trained/knowledgeable person

Every three months
Approved cleaning company
Solid fuel cooking
Monthly
Trained/knowledgeable person
Commercial cooking appliance exhaust flue
Annually
Trained/knowledgeable person

a. Emission control devices shall be inspected in accordance with the inspection frequency for the commercial cooking system for which the device has been installed.

609.5.3.2 Cleaning of grease filters and other grease removal devices. Grease filters and other grease removal devices associated with a commercial cooking system shall be cleaned in accordance with FC 609.5.3.2.1 through 609.5.3.2.3.

609.5.3.2.1 Grease filters. Grease filters shall be inspected daily by a trained and knowledgeable person, and cleaned as necessary by such a person, but at least once a month. Additionally, grease filters shall be cleaned at the end of the workday when high-volume cooking is being conducted and/or when grease accumulation exceeds 1/8 inch (3.175 mm) as measured by a depth gauge comb or other approved device.

609.5.3.2.2 Charcoal grease filters. Charcoal filters in emission control devices shall be replaced by a person holding a certificate of fitness for emission control device cleaning, in accordance with the terms and conditions of the certificate of approval, if specified therein, or the manufacturer's instructions, but not less than once every 3 months.

609.5.3.2.3 Grease removal devices. Grease traps, grease extractors and other grease removal devices, equipment and systems shall be cleaned by a trained and knowledgeable person, as necessary, in accordance with manufacturer's instructions, but at least once a week for grease traps and at least once a month for all other types of devices.

609.5.3.3 Exhaust system cleaning. The commercial cooking exhaust system, including the hood, ducts, fans and air emission control devices, shall be cleaned by an approved cleaning company in accordance with the following requirements, except as otherwise provided in the rules:

FC TABLE 609.5.3.3
COMMERCIAL COOKING EXHAUST SYSTEM CLEANING
TYPE OF
COMMERCIAL KITCHEN
CLEANING REQUIRED
MINIMUM FREQUENCY OF CLEANING

High-volume cooking
All hoods; all exhaust ducts and fans for a distance of 3 floors above such kitchen; all exhaust duct elbows and other horizontal portions on all floors; and all emission control devices
Every 3 months

Exhaust ducts and fans on floors more than 3 floors above such kitchen
Every 3 months

All other commercial kitchens
All hoods; all exhaust ducts and fans for a distance of 3 floors above such kitchen; all exhaust duct elbows and other horizontal portions on all floors; and all emission control devices
Every 3 months

Exhaust ducts and fans on floors more than 3 floors above such kitchen
Every 6 months

All commercial kitchens
All affected areas. Such cleaning shall not replace the regularly scheduled cleaning (and the existing frequency of

cleaning shall be maintained) unless a complete cleaning of the commercial cooking system (as set forth above) is conducted

Additional cleaning when grease accumulation in the commercial cooking exhaust system exceeds 1/8 inch (3.175 mm)

609.5.3.4 Standard for cleaning. Surfaces shall be cleaned to bare metal. The powder residue or other foreign substance left by saponifying agents or other cleaning materials shall be removed. Flammable cleaning fluids shall not be used. Cleaning fluids shall not be applied to fusible links or other detection devices of the fire extinguishing system.

609.5.3.5 System deactivation. Unless necessary to accomplish cleaning, components of the fire extinguishing system shall not be rendered inoperable during the cleaning process. If electrical switches, detection devices, or other components of the fire extinguishing system must be deactivated during the cleaning process, such deactivation shall be performed by a licensed master fire suppression piping contractor. Immediately upon completion of the cleaning process the licensed master fire suppression piping contractor shall restore the system to good working order. Electrical switches that may be accidentally activated during the cleaning process shall be electrically locked out during such process.

609.5.3.6 Responsibility. The owner shall ensure that the commercial cooking exhaust system is inspected, cleaned and serviced by a commercial cooking cleaning company holding a commercial cooking exhaust system servicing company certificate as required by this section. The commercial cooking cleaning company shall be responsible for inspecting, cleaning and servicing the commercial cooking exhaust system in accordance with the standards and requirements of this section. The owner shall be responsible for the owner's cleaning of a commercial cooking system when such cleaning is authorized by this section and shall be held to the same standard as a commercial cooking cleaning company.

609.5.3.7 Proof of compliance. The approved commercial cooking cleaning company shall document its cleaning of the commercial cooking exhaust system by affixing to each exhaust hood the proof of compliance approved for such purposes, and in such other manner as may be required by the rules.

609.5.4 Exposed ducts. Commercial cooking exhaust system ducts not concealed within walls and ceilings shall be periodically inspected for defects, and defective ducts repaired or replaced to maintain their integrity. The inspection shall include the condition of the insulation, and confirm the absence of deterioration or cracking of the duct, which would allow the release of grease vapors, steam, fumes, smoke or odors.

609.6 Commercial cooking fire extinguishing systems. Commercial cooking appliances shall be protected by a commercial cooking fire extinguishing system in accordance with the Building Code and FC904.

609.6.1 Acceptance testing. Commercial cooking fire extinguishing systems shall be subject to an acceptance test in accordance with FC904.3.8.

609.6.2 Periodic inspection. A visual inspection of a commercial cooking fire extinguishing system shall be conducted at least once a month by a trained and knowledgeable person in accordance with FC904.5.1 to confirm that the system appears to be in good working order, including the following conditions:

1. The fire extinguishing system is intact and undamaged, including the extinguishing agent container, system piping, nozzles and protective nozzle caps.
2. The fire extinguishing system is charged and operational. Check the pressure gauge and/or control head (on a wet chemical system) to confirm that system is operational and the extinguishing agent has not been discharged. On other systems monitored by a fire alarm system, check the fire alarm system control panel to confirm that there are no supervisory or trouble signals.
3. The fusible links or other heat detection devices are not coated with grease.
4. Any movable commercial cooking appliances are in position under the proper fire extinguishing system nozzle, in accordance with approved floor markings, so that the nozzles are centered over the commercial cooking appliance.
5. Access to the manual activation device for the commercial cooking fire extinguishing system is not obstructed and the tamper indicator is intact.

6. The maintenance tag is in place for the commercial cooking fire extinguishing system and has not expired.

609.6.3 Inspection, testing and other maintenance by certificate of fitness holder. A master fire suppression piping contractor holding a certificate of fitness for fire extinguishing systems, who is trained and knowledgeable in the installation, operation and maintenance of the specific fire extinguishing system, shall inspect, test, service and otherwise maintain such system in accordance with FC904.5.2.

609.7 Signage. The following signage, legibly printed and laminated or framed under a clear glass or plexiglas cover, shall be posted in accordance with FC Table 609.7 at a conspicuous location near the entrance to each kitchen or other separate cooking area that is a commercial kitchen.

FC TABLE 609.7

COMMERCIAL COOKING FIRE EXTINGUISHING AND EXHAUST SYSTEM SIGNAGE

CONTENT OF SIGN

MINIMUM SIZE

LOCATION

PURPOSE

Exhaust system diagram (origin, run, and terminus of the exhaust system)

81/2" x 11"

Immediately outside of main entrance to each kitchen

Assist firefighting personnel

Location of emission control devices (type, model and exact location)

3" x 5"

Adjacent to exhaust system diagram

Assist firefighting personnel

Identification of emission control device, including, if applicable, high voltage warning in accordance with the Electrical Code

3" x 5"

On or adjacent to each emission control device

Assist firefighting personnel

Operation/maintenance (approved summary of operating and cleaning instructions)

81/2" x 11"

Immediately inside main entrance to each kitchen

Kitchen staff instructions

Instructions for fire extinguishing system manual activation

3" x 5"

Adjacent to each manual activation device

Kitchen staff instructions

Portable fire extinguisher warning sign (to activate fire extinguishing system prior to portable fire extinguisher use)

3" x 5"

Adjacent to each kitchen portable fire extinguisher

Kitchen staff instructions

609.8 Staff training. The owner or operator of a commercial cooking system shall train all staff, at time of employment, in the proper procedure for the use and cleaning of all grease removal devices, including the cleaning or replacement of grease filters, and the manual operation of the commercial cooking fire extinguishing system. Refresher training shall be provided at least once every 6 months.

609.9 Portable fire extinguishers. Each commercial kitchen shall be provided with one or more Class K portable fire extinguishers, which shall be readily available for use in the cooking area but in any event no further than 30 feet (9144 mm) of travel distance from any commercial cooking appliance.

609.9.1. Deep fat fryers. When deep fat fryers are installed in a commercial kitchen, additional Class K portable fire extinguishers shall be provided, as follows:

1. For up to four fryers individually having a maximum cooking medium capacity of 80 pounds (36.3 kg) and a maximum surface area of 6 square feet (0.56 m²): One Class K portable fire extinguisher having a minimum 11/2 gallon (6 L)

capacity.

2. For every additional group of up to four fryers, individually having a maximum cooking medium capacity of 80 pounds (36.3 kg) and a maximum surface area of 6 square feet (0.56 m²) each: One additional Class K portable fire extinguisher having a minimum 11/2 gallon (6 L) capacity.

3. For individual fryers having a maximum cooking medium capacity exceeding 80 pounds (36.3 kg) or 6 square feet (0.56 m²) in surface area: Provide Class K portable fire extinguishers in accordance with the portable fire extinguisher manufacturer's recommendations.

609.9.2 Solid fuel cooking equipment. When solid fuel cooking equipment is installed in a commercial kitchen, additional Class K portable fire extinguishers shall be provided, as follows:

1. For equipment with individual fireboxes of 5 cubic feet (0.14 m³) or less in volume: One Class K portable fire extinguisher having a minimum 21/2 gallon (9 L) capacity, or two Class K portable fire extinguishers having a minimum 11/2 gallon (6 L) capacity.

2. For equipment with fireboxes exceeding 5 cubic feet (0.14 m³): Provide Class K portable fire extinguishers in accordance with the portable fire extinguisher manufacturer's recommendations.

609.10 Recordkeeping. A record shall be maintained of the following commercial cooking system maintenance in accordance with FC107.7:

609.10.1. Commercial cooking appliances. The owner of a commercial cooking system shall maintain records of any required inspection and other maintenance of commercial cooking appliances, including the replacement of deep fat fryer high-limit controls as required by FC609.4.1.1.2, and the cleaning of cooking appliance exhaust flues.

609.10.2 Commercial cooking exhaust system. The owner of a commercial cooking system shall keep records of each required inspection and cleaning conducted by a person in the owner's employ, including the date of each required inspection and each cleaning or replacement of the grease filters, and the date of each inspection and cleaning by an approved cleaning company. Approved cleaning companies shall keep such documentation of the cleaning of the exhaust system, including conditions existing prior to and after cleaning, as may be required by the rules.

609.10.3 Commercial cooking fire extinguishing system. The date and cause of each activation of the commercial cooking fire extinguishing system, and the date of each inspection, testing and servicing of such system in accordance with FC904.5 and the rules.

609.10.4 Portable fire extinguishers. The date of each inspection and servicing of the portable fire extinguishing system as required by FC906. Such recordkeeping shall be made as entries on the department-issued tag affixed to each portable fire extinguisher in accordance with FC906 and the rules or as otherwise authorized therein.

SECTION FC 610 COMMERCIAL KITCHEN COOKING OIL STORAGE SYSTEMS

610.1 General. Storage of unused (fresh) and/or used (waste) cooking oil in an aboveground storage system in a commercial kitchen shall be in accordance with FC 610.2 through 610.4 and NFPA 30.

610.2 Storage tanks. Cooking oil tanks shall be designed and constructed so as to be capable of withstanding the heating associated with the operation of cooking oil storage systems. Cooking oil shall be stored in metallic storage tanks listed in accordance with UL 142 or UL 80, and shall be installed in accordance with the tank manufacturer's instructions. Cooking oil may be stored in nonmetallic tanks only when approved by the department.

610.3 Cooking oil storage system components. Cooking oil storage system components, including piping, connections, fittings, valves, tubing, hose, pumps and vents, may be of metallic or nonmetallic construction, and shall be designed for the working pressure and maximum operating temperature of the storage system. All electrical components shall comply with the Electrical Code. Electrical components used to heat the cooking oil shall additionally be listed to UL 499.

610.4 Tank venting. Normal and emergency venting shall be provided for cooking oil storage tanks and shall terminate outdoors.

610.4.1 Normal vents. Normal vents shall be located above the maximum normal liquid line, and shall have a minimum effective area not smaller than the largest filling or withdrawal connection.

610.4.2 Emergency vents. Emergency vents shall be located above the maximum normal liquid line, and shall be in the form of a device or devices that will relieve excessive internal pressure caused by a fire.

SECTION FC 611 AUTOMATED PARKING GARAGES

611.1 Scope. This section shall govern the design, installation, operation and maintenance of automated parking garages.

611.2 General. Automated parking garages shall be designed, installed, operated and maintained in accordance with this section and the construction codes.

611.3 Design and installation. Automated parking garages shall be designed and installed in accordance with the construction codes and the requirements of the Department of Buildings. Application shall be made to the Department of Buildings and the department for review and approval.

611.3.1 Emergency shut-down device. A manually-activated emergency shut down device shall be installed at a conspicuous, readily-accessible location at or near the main entrance to the automated parking garage, and, if required by the Department, at other approved locations suitable for firefighting operations.

611.3.2 Location of control panels. The control panels for all fire protection systems and smoke purge systems shall be installed at a conspicuous, readily-accessible location at or near the main entrance to the automated parking garage, or other approved location suitable for firefighting operations.

611.4 Operational requirements. Automated parking garages shall be operated in accordance with FC 611.4.1 through 611.4.4.

611.4.1 Notification to department. At least 2 weeks prior to occupancy or operation of the automated parking system, the owner shall give written notice of same to the department, in the manner prescribed by the department, to allow the department to inspect the installation and familiarize itself with its operation.

611.4.2 Automated parking garage information card. An information card depicting the operation of the automated parking system and setting forth other information, in the form prescribed by the department by rule, shall be prepared by the owner for all automated parking garages prior to occupancy or operation of the automated parking system.

611.4.3 Recordkeeping. A record of the maintenance of the automated parking system and associated fire protection and other safety systems shall be maintained on the premises in the office of the parking garage attendant, in a first responder box, or other approved location.

611.4.4 Emergency communications. A telephone not requiring a coin to operate or other approved means to communicate an emergency in the automated parking garage shall be provided and identified by a durable and conspicuously posted sign or markings, as follows:

1. A means to notify the department of an emergency shall be provided for public use at the facility at an approved location.
2. A means for firefighters or other department representatives to contact, on a 24/7 basis, a trained and knowledgeable person who can provide technical assistance with respect to the operation of the automated parking garage. This telephone or other approved means may be secured by key box operated by a citywide standard (2642) key.

CHAPTER 7

FIRE-RESISTANCE-RATED CONSTRUCTION

SECTION FC 701 GENERAL

701.1 Scope. This chapter shall govern the maintenance of fire-resistance-rated construction.

701.2 General. Fire-resistance-rated construction shall be maintained in accordance with this chapter.

SECTION FC 702 DEFINITIONS

702.1 Terms defined in FC Chapter 2. Terms used in this chapter[, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown in FC Chapter 2 or elsewhere in this code] and defined in FC202 shall have the meanings set forth therein.

SECTION FC 703 FIRE-RESISTANCE-RATED CONSTRUCTION

703.1 Maintenance. The required fire-resistance rating of fire-resistance-rated construction, including walls, firestops, shaft enclosures, partitions, smoke barriers, floors, fire-resistive coatings and sprayed fire-resistant materials applied to structural members and fire-resistant joint systems, shall be maintained. Such elements shall be properly repaired, restored or replaced when damaged, altered, breached or penetrated. Openings made therein for the passage of pipes, electrical conduit, wires, ducts, air transfer openings and holes made for any reason shall be protected with approved methods capable of resisting the passage of smoke and fire. Openings through fire-resistance-rated assemblies shall be protected by self-closing or automatic-closing doors of approved construction meeting the fire protection requirements for the assembly.

703.1.1 Fireblocking and draftstopping. Required fireblocking and draftstopping in combustibles concealed spaces shall be maintained to provide continuity and integrity of the construction.

703.1.2 Smoke barriers and smoke partitions. Required smoke barriers and smoke partitions shall be maintained to prevent the passage of smoke. All openings protected with approved smoke barrier doors or smoke dampers shall be maintained in accordance with NFPA 105.

703.1.3 Fire walls, fire barriers and fire partitions. Required fire walls, fire barriers and fire partitions shall be maintained to prevent the passage of fire. All openings protected with approved doors, fire dampers or smoke dampers shall be maintained in accordance with NFPA 80.

703.2 Maintenance of openings. Fire doors and fire windows shall be maintained in good working order in accordance with NFPA 80. Fire doors and smoke barrier doors shall not be blocked or obstructed or otherwise made inoperable. Fusible links shall be replaced promptly whenever fused, damaged or otherwise rendered inoperable. Fire door assemblies shall not be modified.

703.2.1 Signs. Where required by the commissioner, a sign shall be permanently displayed on or near each fire door in letters not less than 1 inch (25 mm) high to read as follows:

1. For doors designed to normally be kept open: FIRE DOOR-DO NOT BLOCK.
2. For doors designed to normally be kept closed: FIRE DOOR-KEEP CLOSED.

703.2.2 Hold-open devices and automatic door closers. Hold-open devices for fire doors and automatic door closers for self-closing fire doors, where provided, shall be inspected, tested, and otherwise maintained in accordance with FC 703.2 and 907.20. During the period that such device is out of service for repairs, the door it operates shall remain in the closed position.

703.2.3 Door operation. Swinging fire doors shall close from the full-open position and latch automatically. The door

closer shall exert enough force to close and latch the door from any partially open position.

703.3 Ceilings. The hanging of decorative material, merchandise displayed for sale or other display items from acoustical ceiling systems that are part of a fire-resistance-rated floor/ceiling or roof/ceiling assembly shall be prohibited.

703.4 Testing. Horizontal and vertical sliding and rolling fire doors shall be inspected and tested annually to confirm proper operation and full closure.

SECTION FC 704 FLOOR OPENINGS AND SHAFTS

704.1 Enclosures. Interior vertical shafts, including stairways, elevator hoistways, service and utility shafts, that connect two or more stories of a building shall be enclosed or protected as specified in the construction codes, including the Building Code. When openings are required to be protected by the construction codes, including the Building Code, openings into such shafts shall be maintained self-closing or automatic-closing by smoke detection. Existing fusible-link-type automatic door-closing devices are allowed if the fusible link rating does not exceed 135oF (57oC).

CHAPTER 8 INTERIOR FURNISHINGS, DECORATIONS AND SCENERY

SECTION FC 801 GENERAL

801.1 Scope. This chapter shall govern furnishings, decorative vegetation, decorations and scenery in buildings and structures.

801.2 General. The furnishings, decorative vegetation, decorations and scenery governed by this chapter shall be designed, stored, handled and used in accordance with this chapter.

801.3 Flame-retardant treatments. When a material or item is treated with a flame-retardant chemical to meet the requirements of this chapter for a flame-resistant material, such chemical and its method of application shall be approved. Flame-retardant treatments shall be maintained so as to retain the effectiveness of the treatment under conditions encountered in actual use.

801.4 Fire-retardant coating. When a material or item is coated with a fire-retardant coating to meet the requirements of this chapter for a flame-resistant material, such coating and its method of application shall be approved. Flame-retardant coatings shall be maintained so as to retain the effectiveness of the coating under conditions encountered in actual use.

801.5 Prohibited decorative vegetation, decorations and scenery. It shall be unlawful in Group A, E and I occupancies to store or use decorative vegetation, decorations or scenery that consists of or is coated with pyroxylin or similarly hazardous base.

801.6 Obstructions. The required width of any portion of a means of egress shall not be obstructed by any furnishing, decorative vegetation, decoration or scenery nor shall such furnishing, decorative vegetation, decoration or scenery obstruct any exit or the visibility thereof.

801.7 Supervision. Compliance with flame resistance standards shall be under the supervision of a certificate of fitness holder in accordance with FC 801.7.1 and 801.7.2.

801.7.1. Application of flame-retardant chemical. When a material or item is treated with a flame-retardant chemical to meet the requirements of this chapter for a flame-resistant material, the application of the chemical shall be conducted by or under the personal supervision of a certificate of fitness holder.

801.7.2 Certification of compliance. Certification of compliance with the requirements of this section shall be prepared by a certificate of fitness holder and made available to department representatives in accordance with the rules or upon request of any department representative, provided, however, that a manufacturer's certification, in a form acceptable to

the department, may be presented for an article that is inherently flame-resistant.

801.8 Certificate of approval. Any flame-retardant chemical used to render a material flame-resistant to meet the requirements of this chapter shall be of a type for which a certificate of approval has been issued in accordance with FC112 and the rules.

SECTION FC 802 DEFINITIONS

802.1 Definitions. The following terms shall, for the purposes of this chapter and used elsewhere in this code, have the meanings [shown herein] set forth in FC202.

CONIFER. [Any tree, plant or shrub containing pitch, including hemlock, balsam, pine and fir.]

DECORATION. [Any item that is used for acoustical, aesthetic or artistic enhancement of an interior space, including artwork, banners, curtains, draperies, decorative greens, fabrics, hangings, and streamers, but not including acoustical materials regulated by the Building Code as an interior finish.]

FIRE-RETARDANT COATING. [An approved coating that, when applied to the surface of scenery in an approved manner, imparts flame resistance and reduces flame spread.]

FLAME-RESISTANT MATERIAL. [Material that meets the flame propagation performance criteria of NFPA 701, either because it is inherently flame-resistant or because it has been subjected to a flame-retardant treatment.]

FLAME-RETARDANT TREATMENT. [An approved chemical that, when applied to a material in an approved manner, imparts flame resistance to a material.]

FLAME SPREAD. [The propagation of flame over a surface.]

FURNISHING. [Furniture or items other than structural elements, building service equipment or interior finishes that are installed or placed in a building for the human comfort or other use of the occupants.]

INTERIOR FINISH. [Construction materials that form the exposed interior surfaces of a building and that are part of or affixed to walls, fixed or folding partitions, ceilings, and other construction elements.]

NATURAL DECORATIVE GREEN. [A bough of a natural tree or part thereof.]

NATURAL TREE. [Any live tree, plant or shrub, including conifer, that is rooted in soil.]

NATURAL VEGETATION.

SCENERY. [Any or all of those devices ordinarily used on a stage in the presentation of a theatrical, artistic, musical or other similar live performance, such as back drops, side tabs, teasers, borders or scrim, rigid flats, set pieces, and all properties, except costumes.]

SECTION FC 803 UPHOLSTERED FURNITURE AND MATTRESSES

803.1 Upholstered furniture. Upholstered furniture newly introduced in Occupancy Groups I-1, I-2, I-3 and R-1 college and university dormitories after the effective date of this section shall comply with the resistance to ignition by cigarettes and maximum heat release rate requirements of this section.

803.1.1 Ignition by cigarettes. Newly-introduced upholstered furniture in Occupancy Groups I-1, I-2, I-3 and R-1 college and university dormitories shall be shown to resist ignition by cigarettes as determined by tests conducted in accordance with one of the following standards:

1. Mocked-up composites of the upholstered furniture shall have a char length not exceeding 1 1/2 inches (38 mm) when

tested in accordance with NFPA 261.

2. The components of the upholstered furniture shall meet the requirements for Class I when tested in accordance with NFPA 260.

Exception: The requirements of FC 803.1.1(1) and 803.1.1(2) shall not apply to upholstered furniture owned by the resident of a Group I-2 occupancy, provided such furniture is located in the sleeping room of the resident and such sleeping room is provided with a smoke detector in accordance with the requirements of the Building Code.

803.1.2 Heat release rate. Newly-introduced upholstered furniture in Occupancy Groups I-1, I-2, I-3 and R-1 college and university dormitories shall have limited rates of heat release when tested in accordance with [ASTM E1537 or] California Technical [Bulletin 133, as follows:

1. The peak rate of heat release for the single upholstered furniture item shall not exceed 80 kW, except upholstered furniture in rooms or spaces protected throughout by a sprinkler system.

2. The total energy released by the single upholstered furniture item during the first 10 minutes of the test shall not exceed 25 megajoules (MJ), except upholstered furniture in rooms or spaces protected throughout by a sprinkler system.

Exception: The exceptions set forth in FC 803.1.2(1) and 803.1.2(2) for upholstered furniture in rooms or spaces protected throughout by a sprinkler system shall not apply to Occupancy Group I-3] Bulletins 116 and 117.

803.1.3 Listing and labeling. Upholstered furniture shall be listed and labeled in compliance with the requirements of FC 803.1.1 and 803.1.2.

803.2 Mattresses. Mattresses newly introduced in Occupancy Groups I-1, I-2, I-3 and R-1 college and university dormitories after the effective date of this section shall comply with the resistance to ignition by cigarettes and maximum heat release rate requirements of this section.

803.2.1 Ignition by cigarettes. Newly-introduced mattresses in Occupancy Groups I-1, I-2, I-3, and R-1 college and university dormitories shall be shown to resist ignition by cigarettes as determined by tests conducted in accordance with 16 CFR Part 1632 and shall have a char length not exceeding 2 inches (51 mm).

803.2.2 Heat release rate. Newly-introduced mattresses shall have limited rates of heat release when tested in accordance with ASTM E1590 or California Technical Bulletin 129, as follows:

1. The peak rate of heat release for the single mattress shall not exceed 100 kW, except mattresses in rooms or spaces protected throughout by a sprinkler system.

2. The total energy released by the mattress during the first 10 minutes of the test shall not exceed 25 MJ, except mattresses in rooms or spaces protected throughout by a sprinkler system.

Exception: The exceptions set forth in FC 803.2.2(1) and 803.2.2(2) for mattresses in rooms or spaces protected throughout by a sprinkler system shall not apply to Occupancy Group I-3.

803.2.3 Listing and labeling. Mattresses shall be listed and labeled in compliance with the requirements of FC 803.2.1 and 803.2.2.

SECTION FC 804 DECORATIVE VEGETATION

804.1 Natural trees and cut natural trees. Natural trees and cut natural trees shall be stored, sold, displayed and maintained in accordance with FC 804.1.1 through 804.1.6.

804.1.1 Indoor display of cut natural trees. Cut natural trees may be displayed in a building, except in Group A, B, E, I, M, R-1 and R-2 occupancies and any building or structure used for a public gathering. Notwithstanding the foregoing occupancy restrictions, cut natural trees may be displayed in houses of worship and dwelling units in Group R-2

apartment house occupancies.

804.1.2 Indoor storage of cut natural trees. It shall be unlawful to store cut natural trees in any building, except in connection with a display allowed under FC804.1.1.

804.1.3 Indoor storage and display of natural trees. Natural trees, except conifers, may be stored and displayed in a building, provided they are maintained in a healthy condition and are not allowed to become dry. It shall be unlawful to store or display natural trees that are conifers in any building.

804.1.4 Support devices. Cut natural trees for display in any building shall have the trunk bottoms cut off at least 1/2 inch (12.7 mm) above the original cut and shall be placed in a support device. The support device shall be of a type that is stable, holds the tree in an upright position and meets all of the following criteria:

1. The device shall hold the tree securely and be of adequate size to avoid tipping over of the tree.
2. The device shall be capable of containing a minimum 2-day supply of water.
3. The water level, when full, shall cover the tree stem at least 2 inches (51 mm). The water level shall be maintained above the fresh cut and checked at least once daily.

804.1.5 Dryness. Natural trees and cut natural trees shall be removed from the building whenever the needles or leaves fall off readily when a tree branch is shaken or if the needles are brittle and break when bent between the thumb and index finger. Trees shall be checked daily for dryness.

804.1.6 Retail sale of cut natural trees. Merchants of cut natural trees, including Christmas trees, shall, at the time of retail sale of each such tree, attach to the tree a printed tag containing appropriate instructions for its safe and lawful display and disposal.

804.2 [Reserved.] Natural vegetation. Natural vegetation shall be maintained in a healthy condition to prevent the vegetation from becoming dry and ignitable. Natural vegetation that has become dry and readily ignitable shall be promptly removed from the premises. Natural vegetation shall be regularly pruned to prevent the vegetation from becoming overgrown and expanding beyond the space designated for it.

804.3 Open flames. Candles and other open flames shall not be used or maintained on or near decorative vegetation. Natural cut trees shall be kept a distance at least equal to the height of the tree from heat sources, including fireplaces, portable heaters and vents, and open-flame or heat-producing devices.

804.3.1 Electrical fixtures and wiring. Electrical wiring and lighting used on natural cut trees and decorative vegetation shall be listed. It shall be unlawful to use electrical wiring and lighting on metal artificial trees.

804.4 Artificial vegetation. Artificial decorative vegetation, including artificial trees, shall be [flame resistant] made of flame-resistant material in the buildings and occupancies set forth in FC805.1. Alternatively, [the] artificial decorative vegetation shall have a maximum heat release rate of 100 kW when tested in accordance with NFPA 289, using a 20 kW ignition source. [Such flame resistance or maximum heat release rate shall be certified by a testing laboratory, or by the manufacturer in an approved manner. Documentation of such certification shall be submitted to the department upon request and as required by the rules.]

804.5 Natural decorative greens. Natural decorative greens shall be stored and displayed in a building in accordance with FC 804.5.1 through 804.5.4.

804.5.1 Storage. It shall be unlawful to store natural decorative greens in any building, except merchandise for sale or displayed for sale which does not contain conifers.

804.5.2 Display. Natural decorative greens may be displayed in buildings on a temporary basis. The display of natural decorative greens in Group A, E, I, and M occupancies, in common areas of Group R-1, R-2 and B occupancies, and any building or structure used for a public gathering, except display of works of art in museums and houses of worship, shall comply with the restrictions set forth in FC804.5.3.

804.5.3 Restrictions on display. It shall be unlawful to display in any building natural decorative greens that:

1. Contain pitch, such as hemlock, balsam, pine or Spanish moss.
2. Are displayed at a location less than 3 feet (914 mm) from [stuffed] upholstered furniture, rugs, or other combustible material or contain combustible decorations.
3. Are on a combustible framework or displayed in conjunction with combustible material unless such material is flame resistant.

804.5.4 Dryness. Any natural decorative green shall be removed from a building at the first sign of deterioration or dryness. Natural decorative greens shall be checked at least daily for dryness.

SECTION FC 805 DECORATIONS AND SCENERY

805.1 Decorations. Except as otherwise specifically provided [for] in this chapter, decorations shall be made of flame-resistant material in Group A, E, I[,] and M occupancies, [and] Group R-1 college and university dormitories, common areas in Group B, R-1 and R-2 occupancies, and any building or structure used as a place of public gathering[, decorations shall be flame-resistant].

Exceptions:

1. Acoustical or other decorative materials consisting of foam plastics with a maximum heat release rate of 100 kW when tested in accordance with UL 1975.
2. Artwork in a museum or art gallery.
3. Artwork on the walls of building hallway corridors in Group B office and Group R-2 occupancies, provided that the wall area covered by such artwork does not exceed 20 percent of any wall in any occupancy not protected throughout by a sprinkler system or 50 percent of any wall in any occupancy protected throughout by a sprinkler system, and the artwork is affixed in a manner that prevents it from moving freely.
4. Artwork and educational materials in classrooms in Group E and I-4 occupancies, and on the walls of corridors in such occupancies, provided that the corridor wall area covered by such artwork and materials does not exceed 20 percent of any wall, and the artwork and materials are affixed in a manner that prevents them from moving freely.
5. Curtains, draperies, hangings and other decorative materials suspended from walls of sleeping units and dwelling units in Occupancy Group R-1 dormitories protected throughout by a sprinkler system, where the total amount of such materials does not exceed 25 percent of the aggregate area of walls.
6. Decorations displayed for sale.
7. Guest rooms in hotels and motels.
8. Decorations in houses of worship, including wood used for screening or ornamental purposes.
9. Decorations in private offices in commercial buildings.

805.1.1 Fabric partitions. In Group B and M occupancies, fabric partitions suspended from the ceiling and not supported by the floor shall be [inherently noncombustible or shall be treated to meet the flame propagation performance criteria in accordance with FC805.1.3 and NFPA 701] flame-resistant material.

805.1.2 Trim and decorative materials. The type and quantity of interior trim allowed shall be as set forth in Chapter 8 of the Building Code. The quantity of flame resistant materials used in decorations when combined with combustible trim shall not exceed 10 percent of the specific wall or ceiling area to which it is attached.

805.1.3 [Acceptance criteria and reports. Where required to be flame resistant, decorations shall meet the flame propagation performance criteria of NFPA 701. Certification of compliance shall be prepared by a certificate of fitness holder and made available to department representatives in accordance with the rules.] Reserved.

805.1.4 Motion picture screens. Motion picture screens and supporting construction shall comply with the requirements of FC306.3.

805.2 Scenery. All scenery in Group A occupancies shall be made of materials that are inherently [noncombustible] flame-resistant, have a Class A flame-spread rating, or rendered flame resistant by the application of a fire-retardant coating, except that the commissioner may authorize the use of scenery not complying with any of the above requirements where provision is made to ensure an equivalent level of fire safety. Foam plastic materials used for scenery shall [comply with the maximum heat release rate set forth in Exception 1 to FC805.1.] have a maximum heat release rate of 100 kW when tested in accordance with UL 1975, or when tested in accordance with NFPA 289 using the 20 kW ignition source.

805.3. Outdoor decorative installations. In an outdoor place of assembly, outdoor place of public gathering or other outdoor common area in a building or occupancy set forth in FC805.1, any decorative installation that is freestanding, more than 4 feet (1219 mm) in height, and under, through or around which the public or building occupants can enter or pass, shall be flame-resistant material, except as otherwise authorized by the department.

SECTION FC 806 INTERIOR FINISHES

806.1 General. The quantity and type of interior finishes shall comply with the requirements of Chapter 8 of the Building Code.

806.2 Foam plastic signs. Foam plastic signs that are not interior finishes shall have a maximum heat release rate of 150 kW when tested in accordance with UL 1975, or when tested in accordance with NFPA 289 using the 20 kW ignition source.

CHAPTER 9 FIRE PROTECTION SYSTEMS

SECTION FC 901 GENERAL

901.1 Scope. This chapter shall govern the design, installation, operation and maintenance, including inspection and testing, of fire protection devices, equipment and systems, and other fire protection measures for the control and extinguishment of fire.

901.1.1 General. Fire protection systems shall be designed, installed, operated and maintained in accordance with this chapter and the reference standards set forth in FC Table 901.6.1.

901.1.2 Emergency alarm systems. Except as otherwise provided in the construction codes, this code or the rules, emergency alarm systems shall be designed, installed, operated and maintained in the same manner as fire alarm systems.

901.2 Design and installation documents. The commissioner may require design and installation documents and calculations to be submitted for review for all fire protection systems. Design and installation documents required or regulated by this code or the rules shall be submitted for review and approval prior to installation, and shall certify that the design complies with the requirements of this code and the rules.

901.3 Permits. Permits shall be required as set forth in FC105.6.

901.4 Design and installation. Fire protection systems shall be designed and installed in accordance with FC 901.4.1 through [901.4.5] 901.4.6.

901.4.1 Required fire protection systems. Fire protection systems shall be designed and installed in accordance with the construction codes, including the Building Code, and, as applicable, this code and the rules, and the applicable referenced standards listed in this code. Required systems shall be extended or altered as necessary to maintain and continue protection whenever the building or structure is altered. Alterations to fire protection systems shall be performed in compliance with the requirements of this code, the rules, and the construction codes, as applicable. Buildings and structures shall be provided with such fire hose, portable fire extinguishers and other means of preventing and extinguishing fires as the commissioner may direct.

901.4.1.1 Fire protection systems deemed required. A fire protection system for which a design option, exception or reduction to the provisions of this code or the construction codes has been granted shall be deemed a required system.

901.4.2 Fire protection systems not required by code. Any fire protection system or portion thereof not required by this code, the rules or the construction codes, including the Building Code, may be installed to provide partial or complete protection of a building or structure, provided such system meets the requirements of this code, the rules and the construction codes, including the Building Code, as applicable. Where the design and installation of such fire protection system is governed by this code or the rules, the commissioner may modify such requirements, consistent with the interests of fire safety, upon a determination that such modification will promote public safety by encouraging the installation of such systems.

901.4.3 Additional fire protection systems. Where an existing or proposed storage, handling or use of a material or the conduct of an operation in a particular occupancy gives rise to special hazards in addition to the normal hazards of the occupancy, or where the commissioner determines that size, design and arrangement of the occupancy would unduly delay the ability of firefighting personnel to gain access to the hazard, the commissioner may require additional fire protection or other fire safety measures. Such measures may include the following: automatic fire detection systems, fire alarm systems, fire extinguishing systems, standpipe systems, or portable or fixed extinguishers. Where a certificate of occupancy limits the commissioner's authority to order the installation of such additional systems or the implementation of such additional measures, the commissioner may apply to the Board of Standards and Appeals for a modification of such certificate of occupancy, and such application shall be granted upon a showing that such additional systems or measures will reasonably mitigate the special hazard or delayed access.

901.4.4 Prohibition of deceptive equipment. It shall be unlawful to install or maintain any device that has the physical appearance of fire protection equipment but that does not perform the fire protection function, in any building, structure or premises where it may be confused with actual fire protection equipment.

901.4.5 Certificate of approval. The [following] fire protection devices, equipment and systems listed in FC112 shall be of a type for which a certificate of approval has been issued in accordance with this code, or which was approved by the Department of Buildings or the Board of Standards and Appeals prior to the effective date of this section, unless such approval by the Department of Buildings or the Board of Standards and Appeals is amended or repealed by the commissioner[:

1. Pre-engineered non-water fire extinguishing systems, including systems installed in connection with commercial cooking systems.
2. Prefabricated hoods and grease filters installed in connection with commercial cooking systems.
3. Fire department connections, standpipe system hose outlets and pressure reducing valves.
4. Fire alarm control units, and medical gas, toxic, highly toxic and flammable gas detection system control panels].

901.4.6 Connection to water supply. Sprinkler systems, and other fire extinguishing and fire protection systems, connected to a potable water supply shall be protected against backflow in accordance with the construction codes and Department of Environmental Protection requirements.

901.5 Installation acceptance testing. Fire detection and alarm systems, fire extinguishing systems, private fire hydrant systems, yard hydrant systems, standpipe systems, fire pump systems, private fire service mains and all other fire protection systems and appurtenances thereto shall be subject to acceptance tests as set forth in the installation

standards specified in this code. Where required by the construction codes, including the Building Code, this code or the rules, such tests shall be conducted, at the owner's risk, by his or her representative before a representative of the department. When an installation does not pass an acceptance test required to be witnessed by the department, the necessary corrections shall be made and the installation retested, or, when authorized by the rules, certification of such corrections by a licensed or certified professional submitted to the department.

901.5.1 Occupancy. It shall be unlawful to occupy any portion of a building or structure until [any] all required fire detection systems, fire alarm systems, standpipe systems and fire extinguishing systems have been tested and approved [.] except as follows:

1. In a new building undergoing construction, a completed floor below the level of ongoing construction may be occupied upon installation, testing and approval of the required fire protection systems on all floors up to and including the occupied floor.
2. In an existing building undergoing alteration, a completed floor may be occupied upon installation, testing and approval of the required fire protection systems for such floor in accordance with Building Code and Department of Buildings requirements.

901.5.2 Correction of non-compliant conditions. When the Department of Buildings authorizes occupancy of a building notwithstanding the existence of installation defects or other non-compliant conditions in the fire protection systems on the floors of the building in which occupancy has been authorized, any and all prior written inspection findings of such defects and other noncompliance shall, upon issuance of the occupancy authorization, constitute an enforceable violation of this code. Such violations shall be corrected within the time for correction set forth in the inspection finding, but in any event within 60 days of occupancy, unless additional time for compliance is granted by the department.

901.6 Maintenance. Fire protection systems shall be maintained in good working order at all times. Any fire protection system that is not in good working order shall be repaired or replaced as necessary to restore such system to good working order, or, where authorized by the Building Code, removed from the premises.

901.6.1 Standards. Fire protection systems shall be inspected, tested, serviced and otherwise maintained in accordance with this section, the rules and the referenced standards listed in FC Table 901.6.1. Where required by this section, such inspection, testing and maintenance shall additionally comply with the rules. Where applicable, the requirements of the reference standards listed in FC Table 901.6.1 shall be in addition to those requirements specified in the rules.

FC TABLE 901.6.1
FIRE PROTECTION SYSTEM MAINTENANCE STANDARDS
[SYSTEM
STANDARD

Portable fire extinguishers

NFPA 10

Low, medium and high expansion foam systems

NFPA 11 and NFPA 25

Carbon dioxide fire extinguishing system

NFPA 12

Halon 1301 fire extinguishing systems

NFPA 12A

Foam water sprinkler and spray systems

NFPA 16 and NFPA 25

Dry chemical fire extinguishing systems

NFPA 17

Wet chemical fire extinguishing systems

NFPA 17A

Water based fire protection systems

NFPA 25

Fire alarm systems

NFPA 72

Water mist fire extinguishing systems

NFPA 750
Clean agent fire extinguishing systems
NFPA 2001
Aerosol fire extinguishing systems
NFPA 2010]

**FIRE PROTECTION SYSTEM
REFERENCED STANDARD**

Fire alarm systems
NFPA 72
Fire extinguishing systems

Aerosol fire extinguishing systems
NFPA 2010
Clean agent fire extinguishing systems
NFPA 2001
Carbon dioxide fire extinguishing system
NFPA 12
Dry chemical fire extinguishing systems
NFPA 17
Expansion foam systems (low, medium and high)
NFPA 11 and NFPA 25
Foam water sprinkler and spray systems
NFPA 16 and NFPA 25
Halon 1301 fire extinguishing systems
NFPA 12A
Water mist fire extinguishing systems
NFPA 25
Wet chemical fire extinguishing systems
NFPA 17A
Portable fire extinguishers
NFPA 10
Water-based fire protection systems (including hydrant, fire hose, sprinkler and standpipe systems)
NFPA 25

901.6.2 Records. Records of all system inspections, tests, servicing and other maintenance required by this code, the rules or the referenced standards shall be maintained in accordance with FC107.7.

901.6.2.1 Standpipe and sprinkler systems. [In addition to those records required by NFPA 25, an approved card bearing the dates of each inspection, certificate of fitness number and signature of the certificate of fitness holder shall be posted on the premises near the main water supply control valve. A detailed inspection report relative to conditions of water supply, gravity and pressure tanks and levels therein, valves, risers, piping, sprinkler heads, hose valves, hose and nozzles, fire department connections, alarms, fire pumps, obstructions, and conditions of all other system equipment and appurtenances] A visual inspection shall be completed monthly by the certificate of fitness holder in accordance with the requirements of NFPA 25. Periodic testing and other maintenance, as required by NFPA 25, shall be conducted by a certificate of fitness holder possessing the requisite qualifications. All defects or violations shall be noted on the inspection report.

901.6.3 Supervision. [A person holding a certificate of fitness for the following fire protection systems shall personally supervise the inspection, testing, servicing and other maintenance required by this code or the rules with respect to the system supervised by such certificate of fitness holder:] The inspection, testing, servicing and other maintenance of the following fire protection systems shall be personally conducted by a certificate of fitness holder, provided, however, that when required by the construction codes or other applicable law, rule or regulation to conduct such maintenance work, such certificate of fitness holder shall hold a master fire suppression piping contractor license, master electrician license or other required license, or be under the direction and control of such license holder.

1. [Sprinkler] Fire extinguishing systems.

Exception: [Buildings classified] Sprinkler systems in Group R-3 occupancies.

2. Standpipe systems.

3. [Foam fire extinguishing systems.

4.] Fire alarm systems.

[5] 4. Private fire hydrant systems.

[6] 5. Yard hydrant systems.

901.6.3.1 Servicing of portable fire extinguishers. It shall be unlawful for any person engaged in the business of servicing portable fire extinguishers to service portable fire extinguishers without a portable fire extinguisher servicing company certificate. Any person that services portable fire extinguishers shall hold a certificate of fitness, except that a person training for such certificate of fitness may service portable fire extinguishers under the personal supervision of a certificate of fitness holder. Nothing in this section shall preclude portable fire extinguishers that are maintained on a premises for use at such premises from being serviced by the owner or occupant of the premises, or an employee of such owner or occupant, who possesses a certificate of fitness for portable fire extinguisher servicing and the tools, materials, equipment and facility necessary to perform such services.

901.6.3.2 Portable fire extinguisher sales. It shall be unlawful for any person to engage in the business of selling portable fire extinguishers door to door to owners of buildings or businesses for use on their premises without a portable fire extinguisher sales company certificate. Persons performing such services for or on behalf of licensed portable fire extinguisher sales companies shall possess a certificate of fitness for portable fire extinguisher sales.

Exception: Sale to owners of Group R-2 and R-3 occupancy buildings.

901.6.3.3 [Commercial cooking exhaust systems. It shall be unlawful for any person engaged in the business of inspecting and cleaning commercial cooking exhaust systems as required by the provisions of this code to perform such service without a commercial cooking exhaust system servicing company certificate. The inspection and cleaning of commercial cooking exhaust systems required by FC904.11 shall be performed by a person holding a certificate of fitness. Nothing in this section shall preclude commercial cooking exhaust systems from being inspected and cleaned by the owner or occupant of the premises, or an employee of such owner or occupant, who possesses a certificate of fitness for inspecting and cleaning commercial cooking exhaust systems and the tools, materials, and equipment necessary to perform such services in accordance with this section.] Reserved.

901.6.3.4 Smoke detector cleaning and testing. The cleaning and testing for smoke entry and sensitivity of smoke detectors installed in a fire alarm system shall be performed by a person holding a certificate of fitness for smoke detector maintenance. Such work shall be performed under the supervision and by employees of a person holding a smoke detector maintenance company certificate, except that such smoke detector cleaning and testing may be performed by an owner or occupant of the premises, or an employee of such owner or occupant, who possesses a certificate of fitness for smoke detector maintenance, and possesses the tools, instruments or other equipment necessary to perform such services in accordance this code and the rules. All other smoke detector maintenance shall be performed by a person possessing the requisite qualifications and experience, and any applicable license or certificate.

901.6.3.5 Central station fire alarm monitoring. It shall be unlawful for any person to operate a central station that monitors fire alarm systems and maintain transmitters in protected premises without a certificate of operation.

901.6.4 Verification of system functionality. Any fire protection system which is or may have been damaged or rendered out of service in whole or in part as result of exposure to fire or water or other cause, shall be inspected to verify that the system is in good working order. If not in good working order, the system shall be repaired or otherwise restored to good working order forthwith.

901.7 Out-of-service systems. The owner and the impairment coordinator for a standpipe system, sprinkler system or fire alarm system shall comply with the requirements of this section whenever such fire protection system is out of service.

The department may direct that, until such fire protection system has been returned to service, fire safety measures appropriate to the size, configuration, occupancy, use and hazards be implemented that are in addition to or in lieu of those required by this section.

901.7.1 Impairment coordinator. The building owner shall designate an impairment coordinator to take the actions required by this section when a standpipe system, sprinkler system or fire alarm system is out of service. In the absence of a specific designee, the owner shall be considered the impairment coordinator.

901.7.2 Fire watch. Unless otherwise directed by the department, the building shall be evacuated or a fire watch maintained in accordance with this section when a standpipe system, sprinkler system or fire alarm system is out of service. Such fire watch shall be conducted in compliance with the requirements of FC 901.7.2.1 through 901.7.2.3.

901.7.2.1 Duties and responsibilities. Persons conducting a fire watch shall:

1. continuously patrol the area affected by the out-of-service fire protection system to which such person has been assigned, keeping constant watch for fires;
2. be provided with at least one approved means for notification of the department and any FLS director, FEP coordinator or FEP staff on the premises;
3. immediately report any fire to the department and notify emergency preparedness staff on the premises;
4. be trained in the use of portable fire extinguishers and equipped with a portable fire extinguisher, or made aware of the location of readily accessible portable fire extinguishers in the area to which such person has been assigned to maintain a fire watch;
5. be responsible for extinguishing fires when they are limited in size and spread such that they can readily be extinguished using a portable fire extinguisher;
6. maintain a record of such fire watch on the premises during the fire watch and for a minimum of 48 hours after the fire watch has concluded; and
7. have no other duties.

901.7.2.2 Fire guards required. The fire watch required when a standpipe system, sprinkler system or fire alarm system is out of service shall be maintained in accordance with FC901.7.2.2.1 and this section.

Exception: The impairment coordinator or other building staff trained and knowledgeable in conducting a fire watch may conduct a fire watch in lieu of a fire guard during the initial 4 hours of a planned removal from service, or after discovery of an unplanned out-of-service condition, provided that the floor or area in which the fire protection system is out of service does not exceed 50,000 square feet (4645 m²).

901.7.2.2.1 Fire guards required. The fire watch required for an out-of-service standpipe system, sprinkler system or fire alarm system shall be maintained by one or more fire guards.

901.7.2.3 Fire watch coverage. A sufficient number of fire guards shall be provided such that each floor or area in which the fire protection system is out of service is patrolled at least once an hour. The area to be patrolled by each fire guard shall not exceed more than 50,000 square feet (4645 m²) of floor area. The area patrolled by each fire guard may be further limited by the department depending on the configuration of the premises, impediments to patrol, nature of the occupancy, fire risk, and other fire safety considerations.

901.7.3 Planned removal from service. The impairment coordinator shall be made aware in advance of any planned removal from service of a standpipe system, sprinkler system or fire alarm system, or system component, for repair, servicing, alteration, testing and other maintenance of the system or component, or to allow construction to be performed in the area protected by the system without unnecessarily activating it. The impairment coordinator shall authorize and personally supervise the placing of the fire protection system out of service. Before authorizing the placing of the fire protection out of service the impairment coordinator shall:

1. notify the certificate of fitness holder responsible for supervising the maintenance of the standpipe system, sprinkler system or fire alarm system.
2. determine the extent and expected duration of the out-of-service condition.
3. inspect the areas or buildings involved and assess the increased risks.
4. make appropriate recommendations to the owner.
5. notify the department in accordance with FC901.7.5, if required.
6. notify the responsible person designated by the owner to issue hot work authorizations in accordance with FC Chapter [26] 35.
7. notify the central station and insurance carrier.
8. notify the occupants in the affected areas if the duration of time the sprinkler system or fire alarm system will be out of service is estimated to be more than 30 minutes.
9. place a tag at each fire department connection, standpipe and sprinkler system control valve and fire command center, indicating which fire protection system, or part thereof, is out of service.
10. maintain the fire protection system in service until work is ready to begin.

901.7.4 Unplanned out-of-service condition. Any person, upon becoming aware of any condition, except a planned removal from service, rendering a standpipe system, sprinkler system or fire alarm system, or part thereof, inoperable in whole or in part, shall notify the owner and the impairment coordinator of such condition. The impairment coordinator shall take the actions set forth in FC901.7.3 and 901.7.5, and such other actions as are necessary or appropriate to protect the occupants of the building and promptly restore the system to service.

901.7.5 Notification to department. The department shall be notified that a standpipe system, sprinkler system or fire alarm system is out of service, whether by reason of a planned removal from service or an unplanned out-of-service condition, where required by FC 901.7.5.1 through 901.7.5.3.

901.7.5.1 Standpipe systems. Notification shall be made to the department whenever a standpipe system is or will be out of service for any period of time.

901.7.5.2 Sprinkler systems and fire alarm systems. Notification that a sprinkler system or fire alarm system, or any part thereof, is or will be out of service shall be made to the department under the following circumstances:

1. The sprinkler system or fire alarm system is or will be out of service on more than one floor of a building; or
2. With respect to a sprinkler system, the work or repairs cannot be completed, and the system restored to service, within 8 hours of the time the system was placed or went out of service; or
3. With respect to a fire alarm system, the work or repairs will require the fire alarm system to be out of service for 8 hours or more [than 8 hours] in any 24-hour period or 30 hours or more (consecutive or non-consecutive) in any month; or
4. One or more other fire protection systems in the area in which a fire protection system is out of service are or will also be out of service at the same time.

901.7.5.3 Reporting requirements. Notification of an out-of-service condition pursuant to this section shall be made by the impairment coordinator to the [Department] department at the applicable telephone number set forth in [FC401.2.2] FC901.10. Such notification shall include the following information:

1. The owner or impairment coordinator's name and contact information;

2. The building address;
3. The type of fire protection system that is out of service;
4. Whether the fire protection system is out of service by reason of a planned removal from service (and if so, the reason for placing it out of service) or an unplanned out-of-service condition;
5. If a planned removal from service, the date and time the fire protection system will be placed out of service, and the estimated duration the system will be out of service;
6. If an unplanned out-of-service condition, the estimated duration the system will be out of service;
7. The floors or areas in which the fire protection system is out of service;
8. Whether the other fire protection systems are in good working order; and
9. The name and certificate number of the certificate of fitness holder responsible for supervision of the fire protection system that is out of service.

901.7.6 Restoring systems to service. When an out-of-service device, equipment or system is restored to service, the impairment coordinator shall:

1. conduct necessary inspections and tests to verify that the affected systems are operational.
2. notify the department in accordance with FC901.10.
3. notify the owner, central station, insurance carrier, emergency preparedness staff, and, if previously notified, the occupants in the affected areas.
4. remove the out-of-service tags.

901.7.7 Out-of-service standpipe systems at construction sites. The owner, fire safety manager and/or impairment coordinator shall take the following actions whenever a standpipe system at a construction site is out of service:

1. Immediately notify the department in accordance with FC901.10 of any unplanned out-of-service condition, and otherwise comply with the requirements of FC901.7.4.
2. Notify the department in accordance with FC901.10 at least 24 hours prior to any planned removal of the standpipe system from service, and otherwise comply with the requirements of FC901.7.3.
3. Ensure that a fire watch is continuously maintained in compliance with the requirements of FC901.7.2 while the standpipe system is out of service.
4. Repair the standpipe system and return it to service in compliance with the requirements of FC 901.7.6 and Section 3303.8.1 of the Building Code. The construction site may continue to be occupied, and construction, demolition or alteration activities may continue, pending such repair and restoration to service, except:
 - 4.1. as otherwise provided in Section 3303.8.1 of the Building Code; and/or
 - 4.2. as otherwise directed by the commissioner upon a determination that, in the absence of an operable standpipe system, the conduct of certain construction, demolition or alteration activities would be imminently perilous to life or property; and
 - 4.3. that in no circumstance shall hot work be conducted on the construction site until such time as the standpipe system is restored to service and the standpipe alarm reactivated.

901.8 Tampering with or rendering equipment inoperable. Fire protection systems and related apparatus shall not be tampered with or rendered inoperable, except as set forth in FC107.4.

901.9 Recall of fire protection system components. A component of a fire protection system regulated by this code that is subject to a voluntary or mandatory recall under federal law shall be replaced with an approved, listed component in compliance with the referenced standards. A record of the replacement of the component shall be maintained in accordance with FC107.7.

901.10 Telephone numbers for department notification. Except as otherwise required by the rules or order of the department, when this code requires non-emergency notification to be made to the department, such notification shall be made by calling one of the following telephone numbers, depending upon the borough in which the property is located:

Bronx properties	(718) 430-0200
Brooklyn properties	(718) 965-8300
Manhattan properties	(212) 570-4300
Queens properties	(718) 476-6200
Staten Island properties	(718) 494-4296

SECTION FC 902 DEFINITIONS

902.1 Definitions. The following terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings [shown herein] set forth in FC202.

ALARM NOTIFICATION APPLIANCE. [A fire alarm system component, such as a bell, horn, speaker, light, text display or vibration device that issues an audible, tactile, and/or visual alert.]

ALARM SIGNAL. [A signal indicating an emergency requiring immediate action, such as a signal indicative of fire.]

ANNUNCIATOR. [A unit containing one or more indicator lamps, alphanumeric displays, or other equivalent means in which each indication provides status information about a circuit, condition or location.]

AUTOMATIC. [As applied to fire protection devices, any device, equipment or system that initiates system function as a result of a predetermined temperature rise, rate of temperature rise, or combustion products, without the necessity for human intervention.]

CENTRAL STATION. [A facility that receives alarm signals from a protected premises and retransmits or otherwise reports such alarm signals to the department.]

CERTIFICATE OF OPERATION. [A written statement issued by the commissioner approving the operation of a central station, for which such certificate is required by this code or the rules, or the construction codes.]

CLEAN AGENT. [Electrically nonconducting, volatile, or gaseous fire extinguishant that does not leave a residue upon evaporation.]

COMMERCIAL COOKING EXHAUST SYSTEM SERVICING COMPANY CERTIFICATE. [A certificate issued by the commissioner to a person engaged in the business of inspecting and cleaning commercial cooking equipment exhaust systems, which authorizes such person to inspect and clean commercial cooking equipment exhaust systems, for which such certificate is required by this code or the rules.]

COMMERCIAL COOKING SYSTEM. [A system consisting of commercial cooking equipment, exhaust hood, filters, exhaust duct system, fire extinguishing system and other related appurtenances designed to capture grease-laden cooking vapors.]

DOMESTIC COOKING HOOD.

DOMESTIC COOKING SYSTEM.

EMERGENCY ALARM SYSTEM. [A system to provide indication and warning of an emergency condition involving a release of hazardous materials or other hazardous material incident.]

FIRE ALARM BOX, MANUAL. [A manually operated device used to initiate an alarm signal.]

FIRE ALARM SIGNAL. [A signal initiated by a fire alarm-initiating device such as a manual fire alarm box, automatic fire detector, water-flow switch, or other device whose activation is indicative of the presence of a fire or fire signature.]

FIRE ALARM SYSTEM. [Any system, including any interconnected fire alarm sub-system, of components and circuits arranged to monitor and annunciate the status of fire alarm or supervisory signal-initiating devices.]

FIRE DETECTOR, AUTOMATIC. [A device designed to detect the presence of a fire signature and to initiate action.]

FIRE EXTINGUISHING SYSTEM. [An approved system of devices and equipment which detects a fire and discharges an approved fire extinguishing agent onto or in the area of a fire. Such term includes automatic systems and, where such systems are authorized by this code or the Building Code, manually activated systems.]

FIRE PROTECTION SYSTEM. [Approved devices, equipment and systems or combinations of systems used to detect a fire, activate an alarm, extinguish or control a fire, control or manage smoke and products of a fire or any combination thereof, including fire extinguishing systems, fire alarm systems, sprinkler systems and standpipe systems.]

FIRE PUMP.

FIRE SUPPRESSION PIPING CONTRACTOR.

IMPAIRMENT COORDINATOR. [The person responsible for ensuring that proper safety precautions are taken when a fire protection system is out of service.]

INITIATING DEVICE. [A system component that originates transmission of a change-of-state condition, such as in a smoke detector, manual fire alarm box, or supervisory switch.]

MULTIPLE-STATION ALARM DEVICE. [Two or more single-station alarm devices that can be interconnected such that actuation of one causes all integral or separate audible alarms to operate. It also can consist of one single-station alarm device having connections to other detectors or to a manual fire alarm box.]

OUT-OF-SERVICE SYSTEM. [A fire protection system that is not fully functional; or whose operation is impaired or is otherwise not in good working order.]

PLUMBER.

PORTABLE COOKING EQUIPMENT. [Commercial cooking equipment, provided with or installed with wheels.]

PORTABLE FIRE EXTINGUISHER SALES COMPANY CERTIFICATE. [A certificate issued by the commissioner to a person engaged in the business of selling portable fire extinguishers door to door to owners of buildings or business for use on their premises, which authorizes such person to engage in such business and supervise such sales.]

PORTABLE FIRE EXTINGUISHER SERVICING COMPANY CERTIFICATE. [A certificate issued by the commissioner to a person engaged in the business of servicing portable fire extinguishers, which authorizes such person to engage in such business and supervise the provision of such servicing by certificate of fitness holders.]

PRESIGNAL SYSTEM. [A fire alarm system having a feature that allows initial fire alarm signals to sound in a constantly attended central location and for which a human action is subsequently required to achieve a general alarm, or a feature that allows the control equipment to delay the general alarm by more than one minute after the start of the alarm processing.]

PROTECTED PREMISES. [A building, occupancy or structure located in the city that is equipped with a fire alarm system]

that transmits an alarm signal to the department or a central station that monitors such system for the purposes of reporting fire alarms to the department, whether or not the installation of such system on the premises is required by law.]

SINGLE-STATION SMOKE ALARM. [An assembly incorporating the detector, the control equipment, and the alarm-sounding device in one unit, operated from a power supply either in the unit or obtained at the point of installation.]

SMOKE ALARM. [A single- or multiple-station alarm responsive to smoke and not connected to a system.]

SMOKE DETECTOR. [A listed device that senses visible or invisible particles of combustion.]

SMOKE DETECTOR MAINTENANCE COMPANY CERTIFICATE. [A certificate issued by the commissioner to a person engaged in the business of performing smoke detector cleaning and testing, which authorizes such person to engage in such business and supervise the performance of such cleaning and testing by certificate of fitness holders.]

SPRINKLER SYSTEM. [A fire extinguishing system, other than a mist fire extinguishing system, that utilizes water as the extinguishing agent.]

STANDPIPE, MULTI-ZONE. [A standpipe system that is vertically subdivided as required by the construction codes, including the Building Code, into zones to limit the maximum operating pressure in the system. Each zone will have its own individual automatic water supply.]

STANDPIPE SYSTEM. [Piping installed in a building or structure that serves to transfer water from a water supply to hose connections at one or more locations in a building or structure used for firefighting purposes.]

SUPERVISORY SIGNAL. [A signal indicating the need for action in connection with the supervision of guard tours, fire extinguishing systems or equipment, fire alarm systems or the maintenance features of related systems.]

SUPERVISORY SIGNAL-INITIATING DEVICE. [An initiating device, such as a valve supervisory switch, water level indicator, or low-air pressure switch on a dry-pipe sprinkler system, that triggers a supervisory signal.]

TROUBLE SIGNAL. [A signal initiated by the fire alarm system or device indicative of a fault in a monitored circuit or component.]

UNNECESSARY ALARM. [An alarm signal transmitted by a fire alarm system which functioned as designed, but for which a department response proved unnecessary. An example of an unnecessary alarm is an alarm triggered by smoke from a lit cigarette in a non-smoking area, when the presence of such smoke does not implicate fire safety concerns.]

UNWARRANTED ALARM. [An alarm signal transmitted by a fire alarm system which failed to function as designed as a result of improper installation, improper maintenance, malfunction, or other factor. Examples of unwarranted alarms are alarms resulting from improper smoke detector placement, improper detector setting for installed location, lack of system maintenance, and control panel malfunction.]

WATER MIST SYSTEM.

SECTION FC 903

SPRINKLER SYSTEMS

903.1 General. Sprinkler systems shall comply with the requirements of this section.

903.2 Where required. Sprinkler systems shall be provided in buildings, structures, premises, or parts thereof, when required by the construction codes, including the Building Code, this code or the rules.

903.2.1 through and including **903.2.10** Reserved.

903.2.11 During construction. Sprinkler systems required during construction, alteration and demolition operations shall be provided in accordance with Chapter 33 of the Building Code and [FC1414] FC3314.

903.2.12 Reserved.

903.2.13 Other required fire extinguishing systems. In addition to the requirements of FC903.2, the provisions indicated in FC Table 903.2.13 also require the installation of a fire extinguishing system for certain buildings and areas.

FC TABLE 903.2.13

ADDITIONAL REQUIRED FIRE EXTINGUISHING SYSTEMS

SECTION

SUBJECT

314.5.1

Covered kiosks, displays, booth or concession stands

315.7.2.1

Indoor additional storage of solid fuel

317.4.3.3

Defueling area

321.4

Construction shanties and construction storage facilities and areas - fixed guideway transit and passenger rail systems

322.4

Construction shanties and construction storage facilities and areas - road tunnels, bridges and other limited access highways

501.4.3.1

Altered buildings on substandard width public streets and fire apparatus access roads

503.2.10

Buildings fronting on substandard width fire apparatus access roads

503.3.2

Buildings fronting on substandard width public streets

608.9.4

Energy storage system, stationary (NFPA 13 system, where required/allowed)

1027.6

Equipment storage in Group I-2 building hallway corridors

[1208.2] 2108.2

[Dry] Newly-established dry cleaning facilities

[1208.3] 2108.3

[Dry] Lawfully existing dry cleaning [machines] facilities

2306.8

Flammable liquid motor fuel-dispensing areas

2308.7.4

Indoor CNG compressing, storage and dispensing areas

2309.3.4.2

Hydrogen motor fuel-dispensing areas under canopies

2311.8.2

Repair garage for vehicle fueled by lighter-than-air motor fuel

[1504.3.3.1] 2404.3.3

Spray rooms and spray booths

[1504.3.3.2]

[Spray booths]

[1505.2] 2405.2

Dip-tank rooms

[1505.3.4.2] 2405.3.4

Dip tanks

[1505.4.4] 2405.4.4

Hardening and tempering tanks

2406.3.3.1

Powder coating rooms and booths

2407.3.2.1

Electrostatic spray finishing operations

2408.2.2

Spraying operations involving the use of organic peroxides and other dual-component coatings

2409.2.1

Resin application areas

[1803.10] 2703.10

HPM facilities

[1803.10.1.1] 2703.10.1.1

HPM work station exhaust

2703.10.1.2

HPM combustible tools

[1803.10.2] 2703.10.2

HPM gas cabinets and exhaust enclosures

[1803.10.3] 2703.10.3

HPM corridors

[1803.10.4] 2703.10.4

HPM exhaust

[1803.10.4.1] 2703.10.4.1

HPM noncombustible ducts

[1803.10.4.2] 2703.10.4.2

HPM combustible ducts

2903.4

Organic coating manufacturing facility

[2106.1] 3006.1

Class A and B furnaces

[2106.2] 3006.2

Class C and D furnaces

[2206.8]

[Flammable liquid motor fuel-dispensing areas]

[2208.7.4]

[Indoor CNG compressing, storage and dispensing areas]

[2209.3.4.2]

[Hydrogen motor fuel-dispensing areas under canopies]

FC Table [2306.2] 3206.2

High-piled storage fire protection

[2306.4] 3206.4

High-piled storage

3207.2

Solid-piled and shelf storage

3208.2

Rack storage

3208.5.1

Extra-high-rack combustible storage

3209.2

Automated storage

3704.5

Storage of more than 1,000 cubic feet of loose combustible fibers

3706.6

Combustible fibers, storage at waterfront structure

4003.5.1

Distilleries

[2703.8.4.1] 5003.8.4.1

Gas rooms

[2703.8.5.3] 5003.8.5.3

Exhausted enclosures

[2704.5] 5004.5

Indoor storage of hazardous materials

[2705.1.8] 5005.1.8

Indoor handling and use of hazardous materials

[2804.4.1] 5104.4.1
Aerosol warehouses
5106.3.2
Retail aerosol displays over 8 feet high
[2904.5]
[Storage of more than 1,000 cubic feet of loose combustible fibers]
5306.2.1
Medical gas rooms
5306.2.3
Medical gas cabinets
[3306.7] 5606.7
Storage of small arm ammunition, powder-actuated tool loads, black powder or smokeless propellant
5704.3.5.1
Below grade storage of combustible liquids
[3404.3.7.5.1] 5704.3.7.5.1
Flammable and combustible liquid storage rooms
[3404.3.8.4] 5704.3.8.4
Flammable and combustible liquid storage warehouses
[3405.3.7.3] 5705.3.7.3
Flammable and combustible liquid Group H-2 or H-3 areas
5706.4.10.5
Bulk plants and terminals
5706.4.10.5.1
Cargo tank loading racks
5806.3.2
Sterilization systems
[3704.1.2.2] 6004.1.2.2
Gas cabinets for highly toxic and toxic gas
[3704.1.3.1] 6004.1.3.1
Exhausted enclosures for highly toxic and toxic gas
[3704.2.2.6] 6004.2.2.6
Gas rooms for highly toxic and toxic gas
[3704.3.3] 6004.3.3
Outdoor storage for highly toxic and toxic gas
6109.9
Storage of LPG within buildings accessible to the public
6304.1.4
Solid and liquid oxidizer storage areas
6404.2.2
Outdoor storage areas of pyrophoric materials with overhead construction
[4204.1.1] 6504.1.1
Pyroxylin plastic storage cabinets and vaults
[4204.1.3] 6504.1.3
Pyroxylin plastic storage vaults
[4204.2] 6504.2
Pyroxylin plastic storage, handling and use
Building Code
Sprinkler requirements as set forth in the construction codes, including the Building Code
For SI: 1 cubic foot = 0.023 m³.

903.3 Installation requirements. Except as otherwise provided in this code, sprinkler systems shall be designed and installed in accordance with the construction codes, including the Building Code.

903.3.1 Inspector's test gauge. A pressure gauge shall be installed at or near the inspector's test connection in Group R-2 occupancies, converted dwellings, and single room occupancies to enable persons responsible for inspecting or testing the sprinkler system, including certificate of fitness holders, plumbers, master fire suppression contractors and department representatives, to visually confirm the static pressure in the system. Installation of a pressure gauge shall

constitute an operational requirement of this code.

903.4 Sprinkler system supervision and alarms. All valves controlling the water supply for sprinkler systems, pumps, tanks, water levels and temperatures, critical air pressures, and water-flow switches on all sprinkler systems shall be electrically supervised by the fire alarm system where a fire alarm system is required by Section 907 of the Building Code.

Exceptions:

1. Sprinkler systems protecting Group R-3 occupancies.
2. Reserved.
3. Sprinkler systems installed in accordance with NFPA 13R, as modified by FC Appendix B, where a common supply main is used to supply both domestic water and the sprinkler system, and a separate shutoff valve for the sprinkler system is not provided, except where the Building Code requires such sprinkler system to be supervised.
4. Jockey pump control valves that are sealed or locked in the open position.
5. Control valves to commercial kitchen hoods, paint spray booths or dip tanks that are sealed or locked in the open position.
6. Valves controlling the fuel supply to fire pump engines that are sealed or locked in the open position.
7. Trim valves to pressure switches in dry, preaction and deluge sprinkler systems that are sealed or locked in the open position.

903.5 Maintenance. Sprinkler systems shall be periodically inspected, tested, serviced and otherwise maintained in accordance with FC901.6 and the rules. Except as otherwise provided in FC 903.5.1 through 903.5.3, sprinkler systems shall be inspected and otherwise maintained as follows:

1. Sprinkler systems shall be inspected at least once a month by a person holding a certificate of fitness, employed by the owner, to ensure that all parts of the system are in perfect working order, and that the department connections, if any, are ready for immediate use by the department. A detailed record of each inspection shall be kept for examination by any representative of the department.
2. There shall be one or more employees instructed in the maintenance of sprinkler systems.
3. There shall be kept available at all times in the premises a supply of at least six extra sprinkler heads, representative of the sprinkler heads installed on the sprinkler system, to replace promptly any fused or damaged sprinklers.
4. Fire department connections shall be hydrostatically tested at least once every 5 years, in accordance with FC912.6.

903.5.1 Sprinkler systems in converted dwellings and single room occupancies. In any converted dwelling or 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 Multiple Dwelling Law, such sprinkler system shall be inspected and otherwise maintained as follows:

1. Sprinkler systems shall be inspected at least once a month by a person employed by the owner, holding a certificate of fitness issued by the department, a fire suppression contractor license issued by the Department of Buildings, or, for a sprinkler system with not more than thirty sprinkler heads, a plumber, to ensure that all parts of the system are in perfect working order, and that the department connections, if any, are ready for immediate use by the department. Such inspection shall include a check of all control valves on the system, including the main supply control valve, making certain the valves are fully open and sealed in such open position; a check of the static pressure in the sprinkler system from a pressure gauge[, if installed,] located at or near the inspector's test connection, making certain the system design pressure is being maintained; a check that all sprinkler heads are in place; and such other requirements as the commissioner may prescribe. A detailed record of each inspection shall be kept for examination by any representative of

the department.

2. There shall be one or more employees instructed in the location and status of the sprinkler system control valves.
3. There shall be kept available at all times in the premises a supply of at least six extra sprinkler heads, representative of the sprinkler heads installed at the premises, to replace promptly any fused or damaged sprinklers, except that a supply of at least three extra sprinkler heads shall be kept available for any sprinkler system installed in accordance with NFPA 13R, as modified by FC Appendix B.
4. Fire department connections shall be hydrostatically tested at least once every 5 years in accordance with FC912.6.
5. [Upon order of the commissioner, but at least once every year, a] A flow test of the sprinkler system shall be conducted at least once every year. Such test shall be conducted at the owner's risk by his or her representative, who shall be a [licensed master] plumber or licensed master fire suppression contractor. [At least one] Upon order of the commissioner, but at least once every 5 years, such flow test shall be conducted before a representative of the department [at least once every 5 years]. A report of each test, on an approved form, shall be certified by such [licensed master] plumber or licensed master fire suppression contractor and shall be kept for not less than 5 years and made available for inspection by any representative of the department.
6. The owner or managing agent of any building subject to the requirements of this section shall maintain a record of each inspection and test and a listing of all outstanding violations issued pursuant to this section. Such records and listing shall be made available for inspection by occupants of such residential buildings during regular business hours.

903.5.2 Sprinkler systems in other R-2 occupancies. Except as otherwise provided in FC903.5.1, in Group R-2 occupancies, sprinkler system shall be inspected and otherwise maintained as follows:

1. Sprinkler systems shall be inspected at least once a month by a person employed by the owner, holding a certificate of fitness issued by the department, a fire suppression contractor license issued by the Department of Buildings, or, for a sprinkler system with not more than thirty sprinkler heads, a plumber, to ensure that all parts of the system are in perfect working order, and that the department connections, if any, are ready for immediate use by the department. Such inspection shall include a check of all control valves on the system, including the main supply control valve, making certain the valves are fully open and sealed in such open position; a check of the static pressure in the sprinkler system from a pressure gauge[, if installed,] located at or near the inspector's test connection, making certain the system design pressure is being maintained; a check that all sprinkler heads are in place; and such other requirements as the commissioner may prescribe. A detailed record of each inspection shall be kept for examination by any representative of the department.
2. There shall be one or more employees instructed in the location and status of the sprinkler system control valves.
3. There shall be kept available at all times in the premises a supply of at least six extra sprinkler heads, representative of the sprinkler heads installed at the premises, to replace promptly any fused or damaged sprinklers, except that a supply of at least three extra sprinkler heads shall be kept available for any sprinkler system installed in accordance with NFPA 13R, as modified by FC Appendix B.
4. Fire department connections shall be hydrostatically tested at least once every 5 years in accordance with FC912.6.
5. [Upon order of the commissioner, but at least once every year, a flow test of the sprinkler system shall be conducted; provided, however, that where there is a pressure gauge installed at or near the inspector's test location that is checked during the required monthly inspection described in FC903.5.2(1) to make certain the system design pressure is being maintained, a] A flow test of the sprinkler system shall be conducted upon order of the commissioner, but at least once every 30 months. Such test shall be conducted at the owner's risk by his or her representative, who shall be a plumber or licensed master fire suppression contractor. [At least one] Upon order of the commissioner, but at least once every 5 years, such test shall be conducted before a representative of the department [at least once every 5 years]. A report of each test, on [a] an approved form[prepared by the department], shall be certified by such plumber or licensed master fire suppression contractor and shall be kept for not less than 5 years and made available for inspection by any representative of the department.

6. The owner or managing agent of any building subject to the requirements of this section shall maintain a record of each inspection and test and a listing of all outstanding violations issued pursuant to this section. Such records and listing shall be made available for inspection by occupants of such residential buildings during regular business hours.

903.5.3 Sprinkler systems in Group R-3 occupancies. Sprinkler systems in buildings classified in Group R-3 occupancies shall be maintained in perfect working order.

903.5.4 Sprinkler system control valve signage. A sign identifying the location of the sidewalk box housing the sprinkler system control valve shall be conspicuously posted on the exterior wall of the building directly opposite the sidewalk box. Such sign shall have red letters 1 inch (25 mm) in height on a white background and read: "Sprinkler System Shutoff Valve (indicate distance) Feet Opposite This Sign" or other approved design.

903.6 Dry pipe sprinkler system valves. In addition to the maintenance requirements set forth in FC903.5, any dry pipe valve installed in a sprinkler system shall be trip tested at least once every 5 years and whenever the system is altered. Such trip test shall be conducted at the owner's risk, with the control valve fully open and the quick-opening device, if provided, in service, by a master fire suppression contractor licensed by the Department of Buildings before a representative of the department.

SECTION FC 904 FIRE EXTINGUISHING SYSTEMS

904.1 General. Fire extinguishing systems shall be designed, installed, operated and maintained in accordance with this section, FC901[and], the terms and conditions of the listing, if applicable, the applicable referenced standards[, including performing all required inspections, testing and servicing] set forth in FC Table 904.1, and the manufacturer's instructions.

Exception: Sprinkler systems, which are governed by FC903.

FC TABLE 904.1 FIRE EXTINGUISHING SYSTEM REFERENCED STANDARDS FIRE EXTINGUISHING SYSTEM REFERENCED STANDARD

Aerosol fire extinguishing systems
NFPA 2010
Carbon dioxide fire extinguishing system
NFPA 12
Clean agent fire extinguishing systems
NFPA 2001
Dry chemical fire extinguishing systems
NFPA 17
Expansion foam systems (low, medium and high)
NFPA 11
Foam water sprinkler and spray systems
NFPA 16 and NFPA 25
Halon 1301 fire extinguishing systems
NFPA 12A
Water mist fire extinguishing systems
NFPA 750
Water Spray Fixed Systems for Fire Protection
NFPA 15
Wet chemical fire extinguishing systems
NFPA 17A

904.1.1 Fire extinguisher system design. Fire extinguishing systems may be engineered or pre-engineered. Pre-engineered systems shall be of a type for which a certificate of approval has been issued in accordance with FC 112 and 901.4.5. Except as otherwise provided in this code or other applicable law, rule, regulation or standard, fire extinguishing systems may be designed as local applications or as total flooding systems. All activation devices and other system components shall be listed and installed in accordance with the listing and the manufacturer's instructions.

904.1.2 Installation acceptance testing. [Fire] All fire extinguishing systems shall be subject to acceptance [tests as contained in the installation standards set forth in this code and the rules] test conducted at the owner's risk by his or her representative before a representative of the department. The owner's representative shall furnish the necessary equipment required to conduct the test. [When a] A discharge test [is not] may be required [by] as set forth in the applicable installation standard[, the commissioner may require such test] or as required by the department when there is evidence that the system will not provide the necessary level of protection. [Such tests shall be conducted at the owner's risk by his or her representative before a representative of the department.

904.1.2] 904.1.3 Additional safeguards. If an area is protected by a fire extinguishing system which uses an extinguishing agent that will make the protected area hazardous by its discharge or thermal decomposition, suitable safeguards shall be provided to ensure prompt evacuation, to prevent entry into such atmospheres, and to provide means for prompt rescue of any trapped personnel. Such safeguards shall include establishment of a trained brigade, equipped with and qualified in the use of self-contained breathing apparatus with 30-minute minimum supply, for prompt search of the protected area.

Exception: Self-contained breathing apparatus shall not be required for a clean agent fire extinguishing system installation if:

1. The installation is provided with an alarm system that is connected to an approved central station.
2. The protected area is provided with an approved fixed emergency forced ventilation system able to expel the extinguishing agent. Such emergency forced ventilation system shall have a capacity sufficient to effect at least twenty air changes per hour.
3. The protected area is of a size, design and/or occupied in such a manner that egress will not be impeded.
4. The protected area is not normally occupied by any individual requiring assistance in evacuation.

904.1.4 Prohibited fire extinguishing systems. It shall be unlawful to install carbon dioxide, halon and clean agent fire extinguishing systems as set forth in FC 904.1.4.1 through 904.1.4.3.

904.1.4.1 Existing carbon dioxide systems. It shall be unlawful to install or continue to maintain total flooding carbon dioxide fire extinguishing systems within normally occupied areas, including commercial kitchens. Total flooding carbon dioxide systems installed in normally occupied areas prior to July 1, 2008 were required by this code to be removed by July 1, 2013. Existing total flooding carbon dioxide fire extinguishing systems in such areas shall be removed and a replacement fire extinguishing system installed, where required, in accordance with the Building Code, this code or other applicable laws, rules and regulations.

904.1.4.2 Existing halon systems. It shall be unlawful to install a halon system in any building or occupancy. Lawfully existing halon fire extinguishing systems shall be maintained in accordance with FC904.5. If a lawfully existing system cannot be maintained under the laws, rules, regulations, standards and design and installation approvals under which it was installed, such system shall be removed and replaced with a type of fire extinguishing system complying with this code.

904.1.4.3 Clean agent systems. It shall be unlawful to install clean agent systems that are not total flooding systems. Lawfully existing clean agent fire extinguishing systems that are not total flooding systems shall be maintained in accordance with FC904.5. If a lawfully existing system cannot be maintained under the laws, rules, regulations, standards and design and installation approvals under which it was installed, such system shall be removed and replaced with a type of fire extinguishing system complying with this code.

904.2 Where required. Where this code or the rules requires the installation of a fire extinguishing system, other than a sprinkler system, the commissioner shall approve the type of fire extinguishing system to be installed. Fire extinguishing systems installed as an alternative to sprinkler systems otherwise required by this code or the construction codes, including the Building Code, shall be approved by the commissioner. Such a system may be accepted by the commissioner where the nature of the fire hazard is such that water would be ineffective or hazardous as an extinguishing agent, or the need to preserve the historic, irreplaceable or special nature of the contents of the occupancy militates

against the installation of a sprinkler system. Sprinklers shall not be omitted from any room or area merely because it is of fire-resistance-rated construction or contains electrical equipment except as allowed by Section 903 of the Building Code.

If a system using a fixed amount of extinguishing agent is authorized to be installed in lieu of a required sprinkler system or any other fire extinguishing system otherwise required by law, a connected reserve of charged agent cylinders equal to the primary supply shall be provided. The commissioner may impose additional requirements on the installation of any fire extinguishing system to be installed in lieu of any required sprinkler system. Fire extinguishing systems shall not be considered alternatives for the purposes of exceptions or reductions allowed by other requirements of this code.

904.3 Installation. Fire extinguishing systems shall be installed in accordance with this section.

904.3.1 Electrical wiring. Electrical wiring shall be in accordance with the Electrical Code.

904.3.2 [Actuation. Fire] Activation. Unless otherwise provided by this code or the rules, fire extinguishing systems shall be designed and installed to activate automatically. Automatically activating fire extinguishing systems shall additionally be provided with a manual means of [actuation] activation.

904.3.3 System interlocking. Automatic equipment interlocks with fuel shutoffs, ventilation controls, door closers, window shutters, conveyor openings, smoke and heat vents, and other features necessary for proper operation of the fire extinguishing system shall be provided as required by the construction code or other design and installation standard utilized for the hazard.

904.3.4 Alarms and warning signs. Where alarms are required to indicate the operation of fire extinguishing systems, distinctive audible, visible alarms and warning signs shall be provided to warn of pending agent discharge. Where exposure to automatic-extinguishing agents poses a hazard to persons and a delay is required to ensure the evacuation of occupants before agent discharge, a separate warning signal shall be provided to alert occupants once agent discharge has begun. Carbon dioxide fire extinguishing systems, where allowed, shall comply with the signage requirements of NFPA 12.

904.3.5 Monitoring. All indoor fire extinguishing systems, except commercial cooking, domestic cooking and spray finishing fire extinguishing systems, installed after the effective date of this section shall be monitored by an approved central station. Where a building fire alarm system is installed, all such indoor fire extinguishing systems, except domestic cooking systems, shall be monitored by such fire alarm system.

904.3.6 Flood hazard. Non-water fire extinguishing system control panels located in areas of special flood hazard or on the premises of Group I-2 occupancies that are hospitals located in shaded X-Zones (as defined in Section G201.2 of Appendix G of the Building Code) shall be located at or above the design flood elevation in accordance with Appendix G of the Building Code.

904.3.7 Additional safety measures. Additional safety measures shall be provided for the fire extinguishing systems as set forth in FC 904.3.7.1 and 904.3.7.2.

904.3.7.1 Carbon dioxide systems. Carbon dioxide systems, where allowed, shall be provided with the additional safety measures set forth in FC 904.3.7.1.1 through 904.3.7.1.8.

904.3.7.1.1 Egress precautions. All areas whose atmospheres will be made hazardous by the discharge of carbon dioxide shall be provided with:

1. Exit and exit routes that are kept clear at all times.
2. Lighting and exit directional signs in accordance with the construction codes, including the Building Code.
3. Only outward swinging, self-closing doors at exits, and panic hardware on any such doors that are secured with a locking or latching device.

904.3.7.1.2. Ventilation and other safety equipment. A carbon dioxide system shall be provided with a fixed emergency forced ventilation system able to clear the area with sufficient capacity to accomplish at least 6 air changes per hour, and

such other safety equipment as may be prescribed by the commissioner.

904.3.7.1.3 Detection, activation, alarm and control. Detection, predischARGE alarms and discharge alarms shall be provided within and outside the protected area and such other areas that are made hazardous by a carbon dioxide discharge. Such alarms shall be audible and visible.

904.3.7.1.3.1 Automatic operation. The carbon dioxide fire extinguishing system shall be activated by an automatic cross-zoned detection system in which activation of a detection device in one zone shall sound a local alarm and transmit an alarm to an approved central station, and activation of a detection device in the cross zone shall initiate the predischARGE warning signal and after a time delay, initiate the discharge of carbon dioxide. The predischARGE warning signal time delay shall be of sufficient duration to allow for evacuation from the protected area. Distinct alarms shall indicate the activation of a detector in one zone, the activation of a detector in a cross zone (predischARGE alarm) and the discharge of carbon dioxide. Such alarms shall be continued until the atmosphere has been returned to normal except that the alarm for the detector in one zone may be discontinued when the alarm for the cross-zoned detector is activated.

Exceptions:

1. A carbon dioxide fire extinguishing system activated solely by manual means may be installed with department approval upon a showing satisfactory to the department of the need for such a system.
2. A detection system that is not cross-zoned may be installed with department approval upon a showing satisfactory to the department of the need for such a detection and activation system.

904.3.7.1.3.2 Manual operation. A manual pull station shall be provided which, upon activation, transmits an alarm to an approved central station, overrides any delay other than the predischARGE delay, and causes the carbon dioxide to discharge. Activation of a carbon dioxide fire extinguishing system by means of a manual pull station shall result in a complete predischARGE delay sequence prior to system discharge.

904.3.7.1.3.3 Abort systems. Abort systems may be installed, but shall be limited to systems activated by smoke detectors. Abort controls shall be located in the protected area near the means of egress for the area, and shall be designed to cause the discharge of carbon dioxide after a time delay unless the abort control is reactivated for another cycle of delay. Abort controls shall not interfere with transmission of local alarms or central station alarms.

904.3.7.1.3.4 Power supply. Power supply to the alarm system shall be in accordance with applicable requirements of the Electrical Code and the construction codes, including the Building Code.

904.3.7.1.4 Pressure relief venting. The protected area enclosure shall be provided with suitable pressure relief venting which vents outdoors.

Exception: Such venting shall not be required when a registered design professional certifies that the walls, ceilings and floors comprising the protected space have sufficient porosity and leakage to prevent damage to the integrity of such space upon discharge of the extinguishing agent, and that the inert gas agent leakage into other non-flooded rooms and spaces will not reach dangerous concentrations.

904.3.7.2 Clean agent systems. Clean agent systems, where allowed, shall be provided with the additional safety measures set forth in FC 904.3.7.2.1 through 904.3.7.2.6.

904.3.7.2.1 System alarm and activation. Audible and visible alarms shall be installed both inside and outside the protected area to signal the activation of an automatic detection device and the operation of the fire extinguishing system. Such signals shall continue until the atmosphere has been returned to normal. Activation of a single automatic detection device shall sound a local alarm and transmit an alarm to an approved central station. Unless the alarm is cancelled by an abort system as set forth in FC904.3.7.2.3, activation of a second automatic detection device shall, within 30 seconds, initiate the discharge of clean agent. Power supply to the alarm system shall be in accordance with the Electrical Code, the construction codes, including the Building Code, and NFPA 2001, as modified by FC Appendix B.

904.3.7.2.2 Warning and instruction signs. Warning and instruction signs shall be posted at entrances to and within the protected area subject to flooding.

904.3.7.2.3 Abort systems. Abort systems may be installed only on systems activated by smoke detectors. Abort controls shall be manually operated, shall be located in the protected area, and shall cause the discharge of the clean agent after a 2-minute delay unless the abort control is reactivated for another cycle of delay. A manual pull station shall be provided which, upon activation, shall transmit an alarm to an approved central station, override the delay and cause the clean agent to discharge immediately. Abort controls shall not interfere with transmission of local alarms or central station alarms.

904.3.7.2.4 Means of egress. Where the protected area is normally occupied, provision shall be made for adequate clear routes of exit with doors opening in direction of travel. Emergency lighting shall be provided for such exits. Exit directional signs shall clearly indicate the path of egress and exits shall be clearly marked.

904.3.7.2.5 Fixed emergency forced ventilation. When the protected area is normally occupied, a fixed emergency forced ventilation system sufficient to accomplish at least six air changes per hour of the flooded protected area shall be provided unless all of the following apply:

1. The clean agent fire extinguishing system is used to extinguish a Class A fire.
2. The design concentration does not exceed the "no observable adverse effect level" for halocarbon agents, or "no effect level" for inert gas agents as defined in NFPA 2001, as modified by FC Appendix B.
3. If other than inert gas agents are used, the quantity of the thermal decomposition products formed from such agents is below the dangerous toxic load (DTL) for humans as described in Meldrum's "Toxicology of Substances in Relation to Major Hazards: Hydrogen Fluoride" (HMSO, London, 1993). Upon request, documentation of hazard assessment of thermal decomposition products formed from such agents shall be filed with the department.

904.3.7.2.6 Pressure relief venting. Clean agent fire extinguishing systems using inert gas agents shall be provided with suitable pressure relief venting for the flooded protected area that discharges outdoors.

Exception: Such venting shall not be required when a registered design professional certifies that the walls, ceilings and floors comprising the protected space have sufficient porosity and leakage to prevent damage to the integrity of such space upon discharge of the extinguishing agent, and that the inert gas agent leakage into other non-flooded rooms and spaces will not reach dangerous concentrations.

904.3.8 Commercial cooking systems. Commercial cooking fire extinguishing systems shall be installed in accordance with FC 904.3.8.1 through 904.3.8.3.

904.3.8.1 Types of systems approved for commercial cooking operations. Commercial cooking operations shall be protected by one of the following types of fire protection systems, as listed for commercial cooking operations.

1. Wet chemical fire extinguishing systems designed in accordance with NFPA 17A, as modified by FC Appendix B, and tested in accordance with UL 300.
2. Foam-water sprinkler system or foam-water spray systems designed in accordance with NFPA 16, as modified by FC Appendix B.
3. Water mist systems designed in accordance with NFPA 750, as modified by FC Appendix B.

904.3.8.1.1 Dry chemical, non-listed wet chemical and carbon dioxide systems. Dry chemical systems, wet chemical systems not listed to the UL 300 standard and carbon dioxide systems may not be used for commercial cooking operations and shall be removed and replaced with a type of fire extinguishing system complying with this code.

904.3.8.2 Manual activation device. A manual activation device for the fire extinguishing system, except foam-water systems, shall be installed at a location near a means of egress that is readily accessible from the cooking area and not less than 10 feet (3048 mm) nor more than 20 feet (6096 mm) from the commercial cooking appliances protected by the fire extinguishing system, or other approved location. The manual activation device shall be located a minimum of 42 inches (1067 mm) and a maximum of 48 inches (1219 mm) above the floor. The manual activation device shall require a

maximum force of 40 pounds (178 N) and a maximum movement of 14 inches (356 mm) to activate the fire extinguishing system. A sign or marking in accordance with FC Table 609.7 that clearly identifies the commercial cooking appliances being protected shall be posted on or adjacent to the manual activation device. The manual activation device shall be kept unobstructed at all times.

904.3.8.3 System interconnection. The activation of the fire extinguishing system shall automatically shut down the fuel and electrical power supply to the cooking equipment. The fuel and electrical supply reset shall be manual.

904.4 Installation [acceptance] inspection and testing. Fire extinguishing systems shall be inspected and tested upon completion of the installation [in accordance with this section] prior to the installation acceptance testing required by [FC904.1.1] FC904.1.2.

904.4.1 Inspection. [Prior to conducting final acceptance tests, the following items shall be inspected] The fire extinguishing system shall be inspected for the following conditions:

1. Hazard specification for consistency with design hazard.
2. Type, location and spacing of automatic- and manual- initiating devices.
3. Size, placement and position of nozzles or discharge orifices.
4. Location and identification of audible and visible alarm devices.
5. Identification of devices with proper designations.
6. Operating instructions, to ensure that the system is correctly operated during the acceptance testing.

904.4.2 Alarm testing. Notification appliances, connections to fire alarm systems, and connections to an approved central station shall be tested [in accordance with this section and FC907] to verify proper operation[.], including the following conditions:

[904.4.2.1 Audible and visible signals. The audibility and visibility of notification appliances signaling agent discharge or system operation, where required, shall be verified.

904.4.3 Monitor testing. Connections to central stations shall be tested to verify proper identification and retransmission of alarms from fire extinguishing systems.]

1. The audibility and visibility of notification appliances signaling agent discharge or system operation, where required, shall be verified.
2. Central station connections shall be tested to verify proper identification and retransmission of alarms.

[904.5 Wet chemical systems. Wet chemical fire extinguishing systems shall be installed, periodically inspected, tested and otherwise maintained in accordance with FC 901, 904.1.1 and 904.4, NFPA 17A, as modified by FC Appendix B, and their listing.

904.5.1 Maintenance. At least once a month, an inspection shall be conducted by a trained and knowledgeable person to assess whether the system is in good working order. A licensed master fire suppression piping contractor properly trained and having knowledge of the installation, operation and maintenance of the specific fire extinguishing system shall inspect, test, service and otherwise maintain such system in accordance with this section and the manufacturer's specifications and servicing manuals at least on a semiannual basis. Tests shall include a check of the detection system, alarms and releasing devices, including manual stations and other associated equipment. Extinguishing agent containers shall be weighed to verify the required amount of agent. Stored pressure-type units shall be checked for the required pressure. The cartridge of cartridge-operated units shall be weighed and replaced at intervals specified by the manufacturer.

904.5.2 Fusible link maintenance. Fixed temperature- sensing elements shall be maintained to ensure proper operation of

the system.

904.5.3 Commercial cooking installations. Wet chemical fire extinguishing systems installed to protect a commercial cooking operation shall additionally comply with the requirements of FC904.11.

904.6 Dry chemical systems. Dry chemical fire extinguishing systems shall be installed, periodically inspected, tested and otherwise maintained in accordance with FC 901, 904.1.1 and 904.4, NFPA 17, as modified by FC Appendix B, and their listing.

904.6.1 Maintenance. At least once a month, an inspection shall be conducted by a trained and knowledgeable person to assess that the system is in good working order. A licensed master fire suppression piping contractor properly trained and having knowledge of the installation, operation and maintenance of the specific fire extinguishing system shall inspect, test, service and otherwise maintain such system in accordance with this section and the manufacturer's specifications and servicing manuals at least on a semiannual basis. Tests shall include a check of the detection system, alarms and releasing devices, including manual stations and other associated equipment. Extinguishing agent containers shall be checked to verify that the system has not been discharged. Stored pressure-type units shall be checked for the required pressure. The cartridge of cartridge-operated units shall be weighed and replaced at intervals specified by the manufacturer.

904.6.2 Fusible link maintenance. Fixed temperature-sensing elements shall be maintained to ensure proper operation of the system.

904.7 Foam systems. Foam fire extinguishing systems shall be installed, periodically inspected, tested and otherwise maintained in accordance with FC 901, 904.1.1 and 904.4, NFPA 11, as modified by FC Appendix B, and NFPA 16, as modified by FC Appendix B, and their listing.

904.7.1 Maintenance. At least once a month, an inspection shall be conducted by a certificate of fitness holder to assess whether the system is in good working order. A licensed master fire suppression piping contractor properly trained and having knowledge of the installation, operation and maintenance of the specific fire extinguishing system, shall inspect, test, service and otherwise maintain such system in accordance with this section and the manufacturer's specifications and servicing manuals at least on an annual basis.

904.7.2 Commercial cooking installations. Foam fire extinguishing systems installed to protect a commercial cooking operation shall additionally comply with the requirements of FC904.11.

904.8 Carbon dioxide systems. Carbon dioxide fire extinguishing systems shall be installed, periodically inspected, tested and otherwise maintained in accordance with FC 901, 904.1.1 and 904.4, NFPA 12, as modified by FC Appendix B, and their listing. Total flooding carbon dioxide fire extinguishing systems shall not be installed to protect hazards within normally occupied areas. Existing total flooding carbon dioxide fire extinguishing systems installed to protect normally occupied areas prior to the effective date of this code may be continued in service until July 1, 2013, after which they shall be removed from service, and a replacement fire extinguishing system shall be installed, where required, in accordance with the Building Code, this code or other applicable laws, rules and regulations.

904.8.1 Maintenance. At least once a month, an inspection shall be conducted by a trained and knowledgeable person to assess whether the system is in good working order. A licensed master fire suppression piping contractor properly trained and having knowledge of the installation, operation and maintenance of the specific fire extinguishing system shall inspect, test, service and otherwise maintain such system in accordance with this section and the manufacturer's specifications and servicing manuals at least on a semiannual basis.

904.8.2 High-pressure cylinders. High-pressure cylinders shall be weighed and the date of the last hydrostatic test shall be verified at 6-month intervals. Where a container shows a loss in original content of more than 10 percent, the cylinder shall be refilled or replaced.

904.8.3 Low-pressure containers. The liquid-level gauges of low-pressure containers shall be observed at one-week intervals. Where a container shows a content loss of more than 10 percent, the container shall be refilled to maintain the minimum gas requirements.

904.8.4 System hoses. System hoses shall be examined at 12-month intervals for damage. Damaged hoses shall be replaced or tested. At five-year intervals, all hoses shall be tested.

904.8.4.1 Test procedure. Hoses shall be tested at not less than 2,500 pounds per square inch (psi) (17 238 kPa) for high-pressure systems and at not less than 900 psi (6206 kPa) for low-pressure systems.

904.8.5 Auxiliary equipment. Auxiliary and supplementary components, such as switches, door and window releases, interconnected valves, damper releases and supplementary alarms, shall be manually operated at 12-month intervals to ensure that such components are in proper operating condition.

904.8.6 Safety precautions. All areas whose atmospheres will be made hazardous by the discharge of carbon dioxide shall be provided with:

1. Exit and exit routes that are kept clear at all times.
2. Lighting and exit directional signs in accordance with the construction codes, including the Building Code.
3. Only outward swinging, self-closing doors at exits, and panic hardware on any such doors that are secured with a locking or latching device.
4. A fixed emergency forced ventilation system able to clear the area. Such emergency forced ventilation shall have sufficient capacity to accomplish at least 6 air changes per hour.
5. Such other safety equipment as may be prescribed by the commissioner.

904.8.7 Detection, activation, alarm and control. Detection, pre-discharge alarms and discharge alarms shall be provided within and outside the protected area and such other areas that are made hazardous by a carbon dioxide discharge. Such alarms shall be audible and visible.

904.8.7.1 Automatic operation. The carbon dioxide fire extinguishing system shall be activated by an automatic cross-zoned detection system in which activation of a detection device in one zone shall sound a local alarm and transmit an alarm to an approved central station, and activation of a detection device in the cross zone shall initiate the predischARGE warning signal and after a time delay, initiate the discharge of carbon dioxide. The predischARGE warning signal time delay shall be of sufficient duration to allow for evacuation from the protected area. Distinct alarms shall indicate the activation of a detector in one zone, the activation of a detector in a cross zone (predischARGE alarm) and the discharge of carbon dioxide. Such alarms shall be continued until the atmosphere has been returned to normal except that the alarm for the detector in one zone may be discontinued when the alarm for the cross-zone detector is activated.

Exceptions:

1. A carbon dioxide fire extinguishing system activated solely by manual means may be installed only if approved. Such a system may be approved upon a showing satisfactory to the commissioner of the need for such a system.
2. A detection system that is not cross-zoned may be approved upon a showing satisfactory to the commissioner of the need for such a detection and activation system.

904.8.7.2 Manual operation. A manual pull station shall be provided which, upon activation, transmits an alarm to an approved central station, overrides any delay other than the predischARGE delay, and causes the carbon dioxide to discharge. Activation of a carbon dioxide fire extinguishing system by means of a manual pull station shall result in a complete predischARGE delay sequence prior to system discharge.

904.8.7.3 Abort systems. Abort systems may be installed, but shall be limited to systems activated by smoke detectors. Abort controls shall be located in the protected area near the means of egress for the area, and shall be designed to cause the discharge of carbon dioxide after a time delay unless the abort control is reactivated for another cycle of delay. Abort controls shall not interfere with transmission of local alarms or central station alarms.

904.8.7.4 Power supply. Power supply to the alarm system shall be in accordance with applicable requirements of the

construction codes, including the Building Code and the Electrical Code.

904.8.8 Pressure relief venting. The protected area enclosure shall be provided with suitable pressure relief venting which vents outdoors.

Exception: Such venting shall not be required when a registered design professional certifies that the walls, ceilings and floors comprising the protected space have sufficient porosity and leakage to prevent damage to the integrity of such space upon discharge of the extinguishing agent, and that the inert gas agent leakage into other non-flooded rooms and spaces will not reach dangerous concentrations.

904.8.9 Commercial cooking installations. Carbon dioxide fire extinguishing systems installed to protect commercial cooking operations shall additionally comply with the requirements of FC904.11.

904.9 Halon systems. It shall be unlawful to install a halon fire extinguishing system. Existing halon fire extinguishing systems shall be periodically inspected, tested and otherwise maintained in accordance with FC 901, 904.1.1 and 904.4, NFPA 12A and their listing.

904.9.1 Maintenance. At least once a month, an inspection shall be conducted by a trained and knowledgeable person to assess whether the system is in good working order. A licensed master fire suppression piping contractor properly trained and having knowledge of the installation, operation and maintenance of the specific fire extinguishing system shall inspect, test, service and otherwise maintain such system in accordance with this section and the manufacturer's specifications and servicing manuals at least on a semiannual basis.

904.9.2 Containers. The extinguishing agent quantity and pressure of containers shall be checked at least on a semiannual basis. Where a container shows a loss in original weight of more than 5 percent or a loss in original pressure (adjusted for temperature) of more than 10 percent, the container shall be refilled or replaced. The weight and pressure of the container shall be recorded on a tag attached to the container.

904.9.3 System hoses. System hoses shall be examined at 12-month intervals for damage. Damaged hoses shall be replaced or tested. At 5-year intervals, all hoses shall be tested.

904.9.3.1 Test procedure. For Halon 1301 systems, hoses shall be tested at not less than 1,500 psi (10 343 kPa) for 600 psi (4137 kPa) charging pressure systems and not less than 900 psi (6206 kPa) for 360 psi (2482 kPa) charging pressure systems. For Halon 1211 hand-hose line systems, hoses shall be tested at 2,500 psi (17 238 kPa) for high-pressure systems and 900 psi (6206 kPa) for low-pressure systems.

904.9.4 Auxiliary equipment. Auxiliary and supplementary components, such as switches, door and window releases, interconnected valves, damper releases and supplementary alarms, shall be manually operated at 12-month intervals to ensure such components are in proper operating condition.

904.10 Clean agent systems. Clean agent fire extinguishing systems shall be installed, periodically inspected, tested and otherwise maintained in accordance with FC 901, 904.1.1 and 904.4, NFPA 2001, as modified by FC Appendix B, and their listing. The use of a clean agent fire extinguishing system shall be limited to automatic total flooding systems.

904.10.1 Maintenance. At least once a month, an inspection shall be conducted by a trained and knowledgeable person to assess whether the system is in good working order. A licensed master fire suppression piping contractor properly trained and having knowledge of the installation, operation, and maintenance of the specific fire extinguishing system shall inspect, test, service and otherwise maintain such system in accordance with this section and the manufacturer's specifications and servicing manuals at least on a semiannual basis.

904.10.2 Containers. The extinguishing agent quantity and pressure of the containers shall be checked at 6-month intervals. Where a container shows a loss in original weight of more than 5 percent or a loss in original pressure, adjusted for temperature, of more than 10 percent, the container shall be refilled or replaced. The weight and pressure of the container shall be recorded on a tag attached to the container.

904.10.3 System hoses. System hoses shall be examined at 12-month intervals for damage. Damaged hoses shall be replaced or tested. All hoses shall be tested at 5-year intervals.

904.10.4 System alarm and activation. Audible and visible alarms shall be installed both inside and outside the protected area to signal the activation of an automatic detection device and the operation of the fire extinguishing system. Such signals shall continue until the atmosphere has been returned to normal. Activation of a single automatic detection device shall sound a local alarm and transmit an alarm to an approved central station. Unless the alarm is cancelled by an abort system as set forth in FC904.10.5, activation of a second automatic detection device shall, within 30 seconds, initiate the discharge of clean agent. Power supply to the alarm system shall be in accordance with the construction codes, including the Building Code, the Electrical Code and NFPA 2001, as modified by FC Appendix B.

904.10.4.1 Warning and instruction signs. Warning and instruction signs shall be posted at entrances to and within the protected area subject to flooding.

904.10.5 Abort systems. Abort systems may be installed only on systems activated by smoke detectors. Abort controls shall be manually operated, shall be located in the protected area, and shall cause the dumping of the clean agent after a 2-minute delay unless the abort control is reactivated for another cycle of delay. A manual pull station shall be provided which, upon activation, shall transmit an alarm to an approved central station, override the delay and cause the clean agent to dump immediately. Abort controls shall not interfere with transmission of local alarms or central station alarms.

904.10.6 Means of egress. Where the protected area is normally occupied, provision shall be made for adequate clear routes of exit with doors opening in direction of travel. Emergency lighting shall be provided for such exits. Exit directional signs shall clearly indicate the path of egress.

904.10.7 Fixed emergency forced ventilation. When the protected area is normally occupied, a fixed emergency forced ventilation system sufficient to accomplish at least six air changes per hour of the flooded protected area shall be provided unless all of the following apply:

1. The clean agent fire extinguishing system is used to extinguish a Class A fire.
2. The design concentration does not exceed the "no observable adverse effect level" for halocarbon agents, or "no effect level" for inert gas agents as defined in NFPA 2001, as modified by FC Appendix B.
3. If other than inert gas agents are used, the quantity of the thermal decomposition products formed from such agents is below the dangerous toxic load (DTL) for humans as described in Meldrum's "Toxicology of Substances in Relation to Major Hazards: Hydrogen Fluoride" (HMSO, London, 1993). Upon request, documentation of hazard assessment of thermal decomposition products formed from such agents shall be filed with the department.

904.10.8 Pressure relief venting. Clean agent fire extinguishing systems using inert gas agents shall be provided with suitable pressure relief venting for the flooded protected area that discharges outdoors.

Exception: Such venting shall not be required when a registered design professional certifies that the walls, ceilings and floors comprising the protected space have sufficient porosity and leakage to prevent damage to the integrity of such space upon discharge of the extinguishing agent, and that the inert gas agent leakage into other non-flooded rooms and spaces will not reach dangerous concentrations.

904.11 Commercial cooking systems. The fire extinguishing system for commercial cooking systems shall be designed and installed, and periodically inspected, tested and otherwise maintained in accordance with the construction codes, including the Building Code, FC 901, 904.1.1 and 904.4, and this section. The fire extinguishing system for commercial cooking systems shall be of an approved type recognized for protection of commercial cooking equipment and exhaust systems of the type and arrangement protected. Preengineered wet chemical fire extinguishing systems shall be tested in accordance with UL 300 and listed and labeled for the intended application. Dry chemical fire extinguishing systems shall not be installed to protect commercial cooking equipment and exhaust systems. Other types of fire extinguishing systems shall be listed and labeled for specific use as protection for commercial cooking operations. The system shall be installed in accordance with this code, its listing and the manufacturer's installation instructions. Fire extinguishing systems of the following types shall be installed in accordance with the referenced standard indicated, as follows:

1. Carbon dioxide fire extinguishing systems, NFPA 12, as modified by FC Appendix B.

2. Foam-water sprinkler system or foam-water spray systems, NFPA 16, as modified by FC Appendix B.

3. Wet chemical fire extinguishing systems, NFPA 17A, as modified by FC Appendix B.

904.11.1 Manual system operation. A manual activation device shall be located at or near a means of egress from the cooking area and a minimum of 10 feet (3048 mm) and a maximum of 20 feet (6096 mm) from the kitchen exhaust system. The manual activation device shall be located a minimum of 42 inches (1067 mm) and a maximum of 48 inches (1219 mm) above the floor at its center. The manual activation shall require a maximum force of 40 pounds (178 N) and a maximum movement of 14 inches (356 mm) to activate the fire extinguishing system. A sign or marking on or adjacent to the manual activation device shall clearly identify the commercial cooking equipment being protected.

Exception: Sprinkler systems shall not be required to be equipped with a manual activation device.

904.11.2 System interconnection. The activation of the fire extinguishing system shall automatically shut down the fuel and electrical power supply to the cooking equipment. The fuel and electrical supply reset shall be manual.

904.11.3 Reserved.

904.11.4 Acceptance testing. Upon completion of the installation of a commercial cooking system, such system shall be tested at the owner's risk, by his or her representative, to confirm proper installation and operation of the system in compliance with the requirements of the construction codes, including the Mechanical Code, and this code. The owner's representative shall furnish the necessary equipment required to conduct the test. No permit shall be issued for the operation of a commercial cooking system until satisfactory performance of the fire extinguishing system is demonstrated, including compliance with the following requirements:

1. A performance test of the fire extinguishing system conducted before a representative of the department, in accordance with the applicable installation standard set forth in this chapter and its listing.

2. Chimneys serving masonry ovens shall be proved tight by a smoke test. A report of such test shall be prepared by the installer and made available for inspection by a representative of the department at the time the performance tests of the exhaust system and fire extinguishing system are witnessed by such department representative.

904.11.5 Staff training. At least once every 6 months the owner or operator of the premises shall review with all kitchen staff the manual operation of the fire extinguishing system.

904.11.6 Maintenance. At least once a month, an inspection shall be conducted by a trained and knowledgeable person to assess that the system is in good working order. A licensed master fire suppression piping contractor properly trained and having knowledge of the installation, operation and maintenance of the specific fire extinguishing system shall inspect, test, service and otherwise maintain such system in accordance with this section and the manufacturer's specifications and servicing manuals at least on a semiannual basis. At a minimum, the semiannual inspection, testing and servicing shall include:

1. Verification that the hazard has not changed.

2. Verification that the fire extinguishing system has not been altered.

3. Examination of all detectors, agent and gas containers, releasing devices, piping, hose assemblies, nozzles, and all auxiliary equipment.

4. Verification that the agent distribution piping is not obstructed.

5. Verification that the extinguishing agent container and/or auxiliary pressure containers have been, as applicable, inspected, retested and marked in conformance with the requirements of the United States Department of Transportation.

6. A test of the system's automatic and manual releasing devices, including any associated equipment.

7. A test of the gas and electric power source shutoff devices.

8. Preparation and submission to the owner of a written report of any system defects.

9. Upon satisfactory completion of the semiannual inspection and correction of all defects, providing the owner with an inspection, testing and service compliance tag. Such tag shall indicate the date issued, the name and license number of the licensed master fire suppression piping contractor issuing the tag, and that the system was found to be in compliance with the requirements of this section.

904.11.6.1 Fusible link and sprinkler head replacement. Fusible links and foam water sprinkler heads shall be replaced at least annually, and other protection devices shall be serviced or replaced in accordance with the manufacturer's instructions.

Exception: Frangible bulbs are not required to be replaced annually.

904.11.6.2 Recordkeeping. Records shall be maintained as set forth in FC901.6.2. Upon satisfactory completion of each semiannual inspection required by FC904.11.6, and the correction of all system defects, the master fire suppression piping contractor licensed by the Department of Buildings shall issue and post in a conspicuous location in the cooking area an inspection, testing and servicing compliance tag. A new compliance tag shall be issued and posted for each required semiannual inspection.

904.11.6.3 Signage. Instructions for manual operation of the fire extinguishing system, including a statement that the fire extinguishing system shall be manually activated prior to using a portable fire extinguisher, shall be posted, under glass or laminated, near the system's manual activation device. Information shall be clearly and concisely written, and the posting shall be at least 8 1/2 inches (216 mm) by 11 inches (279 mm) in size.

904.12 Water-mist systems. Water-mist fire extinguishing systems shall be installed, periodically inspected, tested and maintained in accordance with FC 901 and 904.4, NFPA 750, as modified by FC Appendix B, and their listing. All devices and appurtenances shall be listed and installed in conformance to the terms of the listing.

904.12.1 Maintenance. At least once a month, an inspection shall be conducted by a trained and knowledgeable person to assess whether the system is in good working order. A licensed master fire suppression piping contractor properly trained and having knowledge of the installation, operation and maintenance of the specific fire extinguishing system shall inspect, test, service and otherwise maintain such system in accordance with this section and the manufacturer's specifications and servicing manuals at least on an annual basis.

904.13 Aerosol fire extinguishing systems. Aerosol fire extinguishing systems shall be installed, periodically inspected, tested and maintained in accordance with FC 901 and 904.4, NFPA 2010, as modified by FC Appendix B, and their listing. All devices and appurtenances shall be listed and installed in conformance to the terms of the listing.

904.13.1 Maintenance. At least once a month, an inspection shall be conducted by a trained and knowledgeable person to assess whether the system is in good working order. A licensed master fire suppression piping contractor properly trained and having knowledge of the installation, operation and maintenance of the specific fire extinguishing system shall inspect, test, service and otherwise maintain such system in accordance with this section and the manufacturer's specifications and servicing manuals at least on an annual basis.]

904.5 Maintenance of fire extinguishing systems. Fire extinguishing systems shall be periodically inspected, tested and otherwise maintained in accordance with FC 901, 904.1.1 and 904.4, the applicable NFPA standard, and the system listing. Additional maintenance shall be performed as set forth in FC 904.5.1 through 904.5.13, FC Table 904.5.2, and the rules.

904.5.1 Monthly inspection. At least once a month, a visual inspection of the fire extinguishing system shall be conducted by a trained and knowledgeable person to confirm that the system appears to be in good working order, including the following conditions:

1. The fire extinguishing system is intact and undamaged, including the extinguishing agent container, system piping, nozzles and protective nozzle caps.

2. Any fusible links or other fire detection devices are clean.
3. Access to each manual activation device, if required, for the fire extinguishing system is not obstructed and any tamper indicator is intact.
4. Check the pressure gauge, control panel or control unit, as applicable, to determine whether the fire extinguishing system is operational and whether there are any supervisory or trouble signals.
5. If an automatic foam system or water mist system, check the water supply valve to confirm that it is in the locked, open position; if the system is manually operated, confirm that the water supply is in good working order.
6. The maintenance tag for the fire extinguishing system is in place and has not expired.

904.5.2. Semiannual inspection. A licensed master fire suppression piping contractor holding a certificate of fitness properly trained and having knowledge of the installation, operation and maintenance of the specific fire extinguishing system, or a person holding a certificate of fitness under the direction and control of such license holder, shall inspect, test, service and otherwise maintain such system in accordance with this section and the manufacturer's specifications and servicing manuals at least on a semiannual basis. Such semiannual inspection, testing and servicing shall include all procedures necessary to determine that the system is in good working order, including the following actions:

1. Verification that the hazard has not changed.
2. Verification that the fire extinguishing system has not been altered.
3. Examination of all detection systems, alarms, manual stations, extinguishing agent containers, releasing devices, piping, hose assemblies, nozzles, and all ancillary equipment.
4. Verification that the extinguishing agent has not been discharged.
5. Verification that the agent distribution piping is not obstructed.
6. Verification that the extinguishing agent container and/or ancillary pressure containers have been, as applicable, inspected, retested and marked in conformance with the requirements of the United States Department of Transportation.
7. A test of the system's automatic and manual releasing devices, including any associated equipment. Fixed temperature -sensing elements shall be maintained to ensure proper operation of the system.
8. A test of the gas and electric power source shut-off (interlock) devices, if applicable.
9. Preparation and submission to the owner of a written report of any system defects.
10. Upon satisfactory completion of the semiannual inspection and correction of all defects, providing the owner with an inspection, testing and service compliance tag. Such tag shall indicate the date issued, the name and license number of the licensed master fire suppression piping contractor issuing the tag and the certificate of fitness holder conducting the inspection, and that the system was found to be in compliance with the requirements of this section.

FC TABLE 904.5.2
FIRE EXTINGUISHING SYSTEM
INSPECTION, TESTING AND MAINTENANCE SCHEDULE
SYSTEM
INSPECTION
TESTING
OTHER MAINTENANCE
Aerosol fire extinguishing systems
Monthly
Annually
Carbon dioxide fire extinguishing system

Monthly
Semiannually
Annually
Clean agent fire extinguishing systems
Monthly
Semiannually
Annually
Dry chemical fire extinguishing systems
Monthly
Semiannually
Expansion foam systems (low, medium and high)
Monthly
Annually
Foam water sprinkler and spray systems
See NFPA 25
Halon 1301 fire extinguishing systems
Monthly
Semiannually
Water mist fire extinguishing systems
See NFPA 25
Wet chemical fire extinguishing systems
Monthly
Semiannually

904.5.3 Five-year retest. All fire extinguishing systems shall be retested once every five years from the date of acceptance of the system. The first retest of fire extinguishing systems lawfully existing on the effective date of this provision shall be conducted on or before the fifth anniversary of the date of acceptance after such effective date. Such test shall be conducted, and reported to the department, in the manner prescribed by rule, by a licensed master fire suppression contractor holding a certificate of fitness, properly trained and having knowledge of the installation, operation and maintenance of the specific fire extinguishing system, or a person holding a certificate of fitness under the direction and control of such license holder.

Exception: Commercial cooking and domestic cooking fire extinguishing systems.

904.6 Additional maintenance requirements. The following fire extinguishing systems shall be maintained in accordance with the additional maintenance requirements set forth in FC 904.6.1 through 904.6.10.

904.6.1 Aerosol systems. Aerosol fire extinguishing systems shall be maintained in accordance with FC 901.6.1 and 904.5.

904.6.2 Carbon dioxide systems. Carbon dioxide systems shall be maintained in accordance with FC 901.6.1, 904.5 and 904.6.2.1 through 904.6.2.4.

904.6.2.1 High-pressure containers. High-pressure containers shall be weighed and the date of the last hydrostatic test shall be verified at 6-month intervals. Where a container shows a loss in original content of more than 10 percent, the container shall be refilled or replaced.

904.6.2.2 Low-pressure containers. The liquid-level gauges of low-pressure containers shall be observed at one-week intervals. Where a container shows a content loss of more than 10 percent, the container shall be refilled to maintain the minimum gas requirements.

904.6.2.3 System hoses. System hoses shall be examined at 12-month intervals for damage. Damaged hoses shall be replaced or tested. At five-year intervals, all hoses shall be tested.

904.6.2.3.1 Test procedure. Hoses shall be tested at not less than 2,500 pounds per square inch (psi) (17 238 kPa) for high-pressure systems and at not less than 900 psi (6206 kPa) for low-pressure systems.

904.6.2.4 System components. System components, such as switches, door and window releases, interconnected valves, damper releases and supplementary alarms, shall be manually operated at 12-month intervals to ensure that such components are in proper operating condition.

904.6.3 Clean agent systems. Clean agent systems shall be maintained in accordance with FC 901.6.1, 904.5, 904.6.3.1 and 904.6.3.2.

904.6.3.1 Containers. The extinguishing agent quantity and pressure of the containers shall be checked at 6-month intervals. Where a container shows a loss in original weight of more than 5 percent or a loss in original pressure, adjusted for temperature, of more than 10 percent, the container shall be refilled or replaced. The weight and pressure of the container shall be recorded on a tag attached to the container.

904.6.3.2 System hoses. System hoses shall be examined at 12-month intervals for damage. Damaged hoses shall be replaced or tested. All hoses shall be tested at 5-year intervals.

904.6.4 Dry chemical systems. Dry chemical systems shall be maintained in accordance with FC 901.6.1, 904.5 and 904.6.4.1.

904.6.4.1. Additional maintenance requirements. Extinguishing agent containers shall be weighed to verify the required amount of agent. Stored pressure-type units shall be checked for the required pressure. The cartridge of cartridge-operated units shall be weighed and replaced at intervals specified by the manufacturer.

904.6.5 Foam systems. Foam systems shall be maintained in accordance with FC 901.6.1, 904.5 and 904.6.5.1.

904.6.5.1 Commercial cooking installations. Foam fire extinguishing systems installed to protect a commercial cooking operation shall additionally comply with the requirements of FC904.3.8.

904.6.6 Halon systems. Lawfully existing halon systems shall be maintained in accordance with FC 901.6.1, 904.5 and 904.6.6.1 through 904.6.6.3. All other halon systems shall be removed in accordance with FC904.1.4.2.

904.6.6.1 Containers. The extinguishing agent quantity and pressure of containers shall be checked at least on a semiannual basis. Where a container shows a loss in original weight of more than 5 percent or a loss in original pressure (adjusted for temperature) of more than 10 percent, the container shall be refilled or replaced. The weight and pressure of the container shall be recorded on a tag attached to the container.

904.6.6.2 System hoses. System hoses shall be examined at 12-month intervals for damage. Damaged hoses shall be replaced or tested. At 5-year intervals, all hoses shall be tested.

904.6.6.2.1 Test procedure. For Halon 1301 systems, hoses shall be tested at not less than 1,500 psi (10 343 kPa) for 600 psi (4137 kPa) charging pressure systems and not less than 900 psi (6206 kPa) for 360 psi (2482 kPa) charging pressure systems. For Halon 1211 hand-hose line systems, hoses shall be tested at 2,500 psi (17 238 kPa) for high-pressure systems and 900 psi (6206 kPa) for low-pressure systems.

904.6.6.3 System components. System components, such as switches, door and window releases, interconnected valves, damper releases and supplementary alarms, shall be manually operated at 12-month intervals to ensure such components are in proper operating condition.

904.6.7 Water mist systems. Water mist systems shall be maintained in accordance with FC 901.6.1, 904.5 and NFPA 750, as modified by FC Appendix B.

904.6.8 Wet chemical systems. Wet chemical systems shall be maintained in accordance with FC 901.6.1, 904.5 and 904.6.8.1 through 904.6.8.3.

904.6.8.1 Additional maintenance requirements. Extinguishing agent containers shall be weighed to verify the required amount of agent. Stored pressure-type units shall be checked for the required pressure. The cartridge of cartridge-operated units shall be weighed and replaced at intervals specified by the manufacturer.

904.6.8.2 Fusible link maintenance. Fixed temperature-sensing elements shall be maintained to ensure proper operation of the system.

904.6.8.3 Commercial cooking installations. Wet chemical fire extinguishing systems installed to protect a commercial cooking operation shall additionally comply with the requirements of FC904.3.8.

904.6.9 Commercial cooking systems. Commercial cooking fire extinguishing systems shall be maintained in accordance with FC 609, 901.6.1, 904.5 and 904.6.9.1.

904.6.9.1 Fusible link and sprinkler head replacement. Fusible links and foam water sprinkler heads shall be replaced at least annually, and other protection devices shall be serviced or replaced in accordance with the manufacturer's instructions.

Exception: Frangible bulbs are not required to be replaced annually.

904.6.10 Domestic cooking systems. Fire extinguishing systems installed on domestic cooking hoods in Group I-2 occupancies, or in any other occupancy, shall be installed and maintained in accordance with FC 904.6.10.1 and 904.6.10.2.

904.6.10.1 Installation. Such fire extinguishing systems shall be installed by a master fire suppression piping contractor, who shall certify to the department that the installation is in compliance with the construction codes and this code. Such certification shall be submitted to the department in the manner prescribed by the department.

904.6.10.2 Maintenance. Such fire extinguishing systems shall be maintained in accordance with FC 901.6.1 and 904.5.

SECTION FC 905 STANDPIPE SYSTEMS

905.1 General. Standpipe systems shall be provided where required by the construction codes, including the Building Code, this code or the rules. Fire hose threads used in connection with standpipe systems shall be approved by the commissioner. [The location of fire department hose connections shall be approved by the commissioner.] Standpipe systems in buildings used for high-piled combustible storage shall be in accordance with FC Chapter [23] 32.

905.1.1 Standpipe system operator. In buildings with a multi-zone standpipe system, such system shall be continuously under the personal supervision of a person holding a certificate of fitness, who shall be immediately available to assist the department in the operation of such system.

905.2 Installation standards. Standpipe systems shall be installed in accordance with the construction codes, including the Building Code.

905.3 [through and including] Standpipe elevation markings. The elevation above grade of each floor level shall be conspicuously marked on or adjacent to the standpipe hose outlet on each floor of a building or structure more than 240 feet in height. The elevation shall be indicated in feet. In lieu of markings, durable signage may be posted adjacent to the standpipe hose outlet on each floor.

905.4 Standpipe elevation chart. A chart listing the floor number (consistent with elevator operation) and corresponding elevation above grade of each floor level of the building shall be prepared for each building or structure more than 240 feet in height and kept at the fire command center or other approved location.

905.5 Fire department connections. Fire department connections serving a standpipe system shall be marked in accordance with FC912.

905.6 Reserved.

905.7 Cabinets. Cabinets containing firefighting equipment, such as standpipes, fire hose, portable fire extinguishers and water supply control valves, shall not be obstructed from use or obscured from view.

905.8 Reserved.

905.9 Valve supervision. Valves controlling water supplies shall be supervised in the open position so that a change in the normal position of the valve will generate a supervisory signal at the central station required by FC903.4. Where a fire alarm system is provided, a signal shall also be transmitted to the fire alarm system control panel.

Exceptions:

1. Valves to underground key or hub valves in roadway boxes provided by the municipality or public utility do not require supervision.
2. Valves locked in the normal position and inspected as provided in this code in buildings not equipped with a fire alarm system.

905.10 During construction. Standpipe systems required during construction, alteration and demolition operations shall be provided in accordance with Chapter 33 of the Building Code and [FC1413] FC3313.

905.11 Reserved.

905.12 Maintenance. Standpipe systems shall be maintained, including all required inspection, testing and servicing, in accordance with this section, FC901.6 and NFPA 25.

905.12.1 Standpipe hydrostatic pressure and flow tests. Upon order of the commissioner, but at least once every 5 years, the standpipe system shall be subjected to a hydrostatic pressure test and a flow test to demonstrate its suitability for department use. These tests shall be conducted in compliance with the requirements of the rules and shall be conducted at the owner's risk, by his or her representative before a representative of the department.

SECTION FC 906 PORTABLE FIRE EXTINGUISHERS

906.1 Where required. Portable fire extinguishers shall be installed in the following locations.

1. In all Group A, B, E, F, H, I, M, R-1, R-2 adult homes and enriched housing, and S occupancies.
2. Within 30 feet (9144 mm) of commercial cooking equipment.
3. In areas where flammable or combustible liquids are manufactured, stored, handled and used, including dispensing, in quantities requiring a permit pursuant to FC105.6.
4. On each floor of structures under construction, alteration or demolition, except detached Group R-3 occupancies, in accordance with [FC1415.1] FC3315.1.
5. Where required by the sections indicated in FC Table 906.1.
6. Special-hazard areas, including but not limited to laboratories, computer rooms and generator rooms, where required by the commissioner.
7. Where required by other provisions of this code or the rules.

FC TABLE 906.1
ADDITIONAL REQUIRED PORTABLE FIRE EXTINGUISHERS
SECTION
SUBJECT
303.5
Tar kettles and asphalt melters
307.4
Open fires
[307.5] 307.5.4

Portable outdoor barbecues
[308.3.1.5] 308.5.3.2
Flaming food and [beverages] beverage preparation in Group A occupancies and public gathering places
308.6.4
Alcohol fueled decorative open-flame device
309.4 and 309.7
Powered industrial trucks and storage areas
310.7.3.4
Non-tobacco hookah establishment
[315.3.4] 315.3.6
Outdoor storage of combustible material
317.5.2
Automotive salvage and wrecking facilities
603.3.1
Fuel oil-burning equipment
609.9
Commercial kitchen
[1105.2] 2005.2
Aircraft towing vehicles
[1105.3] 2005.3
Aircraft welding apparatus
[1105.4] 2005.4
Aircraft-fueling vehicles
[1105.5] 2005.5
Aircraft hydrant-fueling vehicles
[1105.6] 2005.6
Aircraft fuel-dispensing stations
[1107.7] 2007.7
Heliports and helistops
[1110.6.2] 2010.6.2
Helicopter lift operations
[1208.4] 2108.4
Dry cleaning facilities
[1415.1]
[Buildings, structures, premises and facilities under construction, alteration or demolition]
[1417.3]
[Roofing operations]
[1418.1]
[Powder-actuated tool loads at a construction site]
2305.5
Automotive liquid motor fuel-dispensing facilities
2308.7.4.2
CNG motor fuel-dispensing facilities
2310.6.4
Marine liquid motor fuel-dispensing facilities
2311.7 and 2311.8.7
Repair garages
[1504.4.10] 2404.4.10
Spraying spaces
[1504.5.5] 2404.5.5
Limited spraying areas
[1505.5.3] 2405.5.3
Dip-tank rooms and spaces
[1506.4.6] 2406.4.6
Powder coating rooms and spaces
[1510.1.2] 2410.1.2
Floor finishing operations

[1908.8] 2808.8
Storage of wood chips and other wood waste materials
[1909.5] 2809.5
Exterior lumber storage
[2003.5] 2903.5
Organic-coating areas
[2106.3] 3006.3
Industrial furnaces
[2205.5]
[Automotive liquid motor fuel-dispensing facilities]
[2208.7.4.2]
[CNG motor fuel-dispensing facilities]
[2210.6.4]
[Marine liquid motor fuel-dispensing facilities]
[2211.6]
[Repair garages]
3104.12
Tents and other membrane structures
[2306.10] 3206.10
High-piled storage
[2404.12]
[Tents and other membrane structures]
3315.1
Buildings, structures, premises and facilities under construction, alteration or demolition
3317.3
Roofing operations
[2508.2] 3408.2
Tire rebuilding/storage
[2604.2.6] 3504.2.6
Welding and other hot work
3605.2.3
Marina fire protection systems and equipment
3703.6 and 3706.6.4
Combustible fibers
4006.14
Distilleries
[2707.9.3] 5007.9.3
Transportation of flammable and combustible liquids in cargo tanks
[2903.6 and 2906.6.4]
[Combustible fibers]
5306.7
Medical gas storage
5606.8
Powder-actuated tool loads at a construction site
[3309.9.1] 5609.6.1
Special effects
[3403.2.1] 5703.2.1
Flammable and combustible liquids, general
[3404.3.3.1] 5704.3.3.1
Indoor storage of flammable and combustible liquids
[3404.3.7.5.2] 5704.3.7.5.2
Liquid storage rooms for flammable and combustible liquids
[3405.4.9] 5705.4.9
Solvent distillation units
[3406.2.7] 5706.2.7
Construction sites-flammable and combustible liquids storage
5706.2.8

Construction sites-dispensing from cargo tanks

[3406.4.10.1] 5706.4.10.1

Bulk plants and terminals for flammable and combustible liquids

[3406.8.1(20)] 5706.8.1(20)

Vapor recovery and processing equipment at bulk plants and terminals

5707.8

Fleet fueling operations

[3506.5] 5806.5

Sterilizers using flammable gas containing ethylene oxide

[3808.2] 6108.2

LPG

906.2 General requirements. Portable fire extinguishers shall be selected, installed and maintained in accordance with this section and NFPA 10.

Exceptions:

1. The travel distance to reach a portable fire extinguisher shall not apply to the spectator seating portions of Group A-5 occupancies.

2. In Group I-3, portable fire extinguishers may be provided at staff locations.

906.2.1 Maintenance. Portable fire extinguishers shall be maintained in accordance with FC901.6 and this section.

906.2.1.1 Monthly inspection. An inspection to verify that the portable fire extinguishers are readily available and in good working order shall be conducted at least once a month. The person conducting such inspections shall keep records of all portable fire extinguishers inspected, including the date the inspection was performed, the person performing the inspection, and those portable fire extinguishers found to require corrective action. Such recordkeeping shall be either kept on a tag or label securely attached to the portable fire extinguisher, on an inspection checklist maintained on file or by an approved electronic method that provides a permanent record.

Exception: An inspection to verify that the portable fire extinguishers are readily available and in good working order shall be conducted at least once every 3 years for dry-chemical or halogenated agent portable fire extinguishers that are monitored by a listed and approved electronic monitoring device complying with all of the following requirements:

1. The electronic monitoring device shall continuously confirm the proper location and charge of each portable fire extinguisher so monitored.

2. Loss of power to the electronic monitoring device or other interruption of the proper functioning of such device shall initiate a trouble signal at an approved location on the premises at which the portable fire extinguisher being monitored is installed.

3. The portable fire extinguisher being monitored shall be located indoors or in cabinets outdoors. The portable fire extinguisher being monitored shall not be in a corrosive environment.

4. The periodic inspection of the portable fire extinguisher shall include inspection and testing of the electronic monitoring device.

5. An electronic record that the electronic monitoring of the portable fire extinguisher is being maintained, and that the portable fire extinguisher is properly located and charged, shall be maintained in accordance with FC107.7.

906.2.1.2 Servicing. Annual servicing and recharging shall be [performed] conducted in accordance with NFPA 10 by [a person or] an approved portable fire extinguisher servicing company and a technician meeting the requirements of FC901.6.3.1. [Records of servicing and recharging of portable fire extinguishers shall be provided and maintained in accordance with NFPA 10. The required tag or label for servicing shall also include the following information:

1. The name and certificate of fitness number of the person who serviced the portable fire extinguisher.

2. The month and year the portable fire extinguisher was serviced.

3. The name, street address and telephone number of the portable fire extinguisher servicing company, if any, servicing the portable fire extinguisher.]

906.2.1.3 Hydrostatic testing. Periodic hydrostatic testing of portable fire extinguishers shall be done in accordance with NFPA 10.

906.2.1.4 Proof of compliance. A portable fire extinguisher servicing company holding a company certificate shall document its servicing of a portable fire extinguisher by affixing to the portable fire extinguisher the proof of compliance approved for such purposes and in such other manner as may be required by the rules.

906.3 Size and distribution. The size and distribution of portable fire extinguishers shall be in accordance with FC 906.3.1 through 906.3.4.

906.3.1 Class A fire hazards. The minimum size, number and placement of portable fire extinguishers in occupancies in which there is a Class A fire hazard risk (ordinary combustible materials) shall be in accordance with FC Table 906.3.1.

906.3.1.1 Sprinklered areas. In buildings classified as Group A-3 occupancy houses of worship and Group B occupancy office buildings that are protected throughout by a sprinkler system, the maximum floor area per unit of A required by FC Table 906.3.1 may be doubled.

906.3.2 Class B fire hazards. The minimum size, number and placement of portable fire extinguishers in occupancies in which there is a Class B fire hazard risk (flammable or combustible liquids with depths of less than or equal to 0.25-inch (6.35 mm)) shall be in accordance with FC Table 906.3.2. The minimum size, number and placement of portable fire extinguishers in occupancies in which there is a Class B fire hazard risk (flammable or combustible liquids with depths greater than 0.25-inch (6.35 mm)) shall be in accordance with NFPA 10.

906.3.3 Class C fire hazards. The minimum size, number and placement of portable fire extinguishers in which there is a Class C fire hazard risk (energized electrical equipment) shall be in accordance with NFPA 10.

906.3.4 Class D fire hazards. The minimum size, number and placement of portable fire extinguishers in occupancies in which there is a Class D fire hazard risk (combustible metals) shall be in accordance with NFPA 10.

FC TABLE 906.3.1
PORTABLE FIRE EXTINGUISHERS FOR CLASS A FIRE HAZARDS

LIGHT (Low) HAZARD OCCUPANCYd
ORDINARY (Moderate)
HAZARD OCCUPANCYd
EXTRA (High) HAZARD OCCUPANCYd
Minimum Rated Single
Extinguisher
2-Ac
2-A
4-Aa
Maximum Floor Area Per
Unit of A
3,000 square feet
1,500 square feet
1,000 square feet
Maximum Travel Distance
to Extinguisher
75 feet
75 feet
75 feet

For SI: 1 foot = 304.8 mm, 1 square foot = 0.0929 m², 1 gallon = 3.785 L.

- a. Two 21/2-gallon water-type extinguishers shall be deemed the equivalent of one 4-A rated extinguisher.
- b. Reserved.
- c. Two water-type extinguishers each with a 1-A rating shall be deemed the equivalent of one 2-A rated extinguisher for Light (Low) Hazard Occupancies.
- d. For the purposes of FC Table 906.3.1, the terms "Light (Low) Hazard", "Ordinary (Moderate) Hazard" and "Extra (High) Hazard" shall be as defined in NFPA 10.
- e. In occupancies classified as Groups A-3, B, or E which are protected throughout by a sprinkler system, the maximum floor area per unit of A may be doubled.

FC TABLE 906.3.2
FLAMMABLE OR COMBUSTIBLE LIQUIDS WITH DEPTHS OF LESS THAN OR EQUAL TO 0.25-INCH^a
TYPE OF HAZARD
BASIC MINIMUM PORTABLE FIRE EXTINGUISHER RATING
MAXIMUM TRAVEL DISTANCE TO
PORTABLE FIRE EXTINGUISHERS (feet)

Light (Low)

5-B

10-B

30

50

Ordinary (Moderate)

10-B

20-B

30

50

Extra (High)

40-B

80-B

30

50

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

- a. For requirements on water-soluble flammable liquids and alternative sizing criteria, see NFPA 10.

906.4 Cooking grease fires. Portable fire extinguishers provided for the protection of cooking grease fires shall be of an approved type compatible with the fire extinguishing system agent and in accordance with [FC609.6] FC609.9.

906.5 Conspicuous location. Portable fire extinguishers shall be located in conspicuous locations where they will be readily accessible and immediately available for use. These locations shall be along normal paths of travel, unless the commissioner determines that the hazard posed indicates the need for placement away from normal paths of travel.

Exceptions:

1. Portable fire extinguishers subject to theft, malicious use or damage may be located in locations approved by the commissioner.
2. In rooming houses and single room occupancies, as defined in the New York State Multiple Dwelling Law, with over 15 sleeping rooms, a 2-A rated portable fire extinguisher may be kept in the apartment of the manager or the building superintendent.

906.6 Unobstructed and unobscured. Portable fire extinguishers shall not be obstructed or obscured from view. In rooms or areas in which visual obstruction cannot be completely avoided, signs or other markings shall be provided to indicate the locations of portable fire extinguishers.

906.7 Hangers and brackets. Hand-held portable fire extinguishers, not housed in cabinets, shall be installed on the hangers or brackets supplied. Hangers or brackets shall be securely anchored to the mounting surface in accordance with the manufacturer's installation instructions.

906.8 Cabinets. Cabinets used to house portable fire extinguishers shall be readily identifiable and shall not be locked.

Exceptions:

1. Portable fire extinguishers subject to theft, malicious use or damage, if provided with an approved means of ready access.
2. Portable fire extinguishers in Group I-3 occupancies and in mental health areas in Group I-2 occupancies may be locked or located in staff locations, provided the staff of the institution has ready access to the cabinet or other storage location.

906.9 Extinguisher installation. The installation of portable fire extinguishers shall be in accordance with FC 906.9.1 through 906.9.3.

906.9.1 Extinguishers weighing 40 pounds or less. Portable fire extinguishers having a gross weight not exceeding 40 pounds (18 kg) shall be installed so that the top of the extinguisher is not more than 5 feet (1524 mm) above the floor.

906.9.2 Extinguishers weighing more than 40 pounds. Hand-held portable fire extinguishers having a gross weight exceeding 40 pounds (18 kg) shall be installed so that the top of the extinguisher is not more than 3.5 feet (1067 mm) above the floor.

906.9.3 Floor clearance. The clearance between the floor and the bottom of installed hand-held portable fire extinguishers shall not be less than 4 inches (102 mm).

906.10 Wheeled units. Wheeled portable fire extinguishers shall be kept in a designated location that is readily accessible.

SECTION FC 907 FIRE ALARM AND DETECTION SYSTEMS

907.1 General. This section governs the design, installation, operation and maintenance of fire alarm systems and their components.

[907.1.1 Design and installation documents. Design and installation documents for fire alarm systems shall be submitted to the department for review and approval prior to system installation. Design and installation documents shall include such design and installation details as may be required by the construction codes, including the Building Code.]

907.2 Where required. An approved manual, automatic, or manual and automatic fire alarm system shall be provided where required by the construction codes, including the Building Code or this code.

907.3 Design and installation. An approved manual, automatic, or manual and automatic fire [detection] alarm system shall be installed in accordance with the construction codes, including the Building Code, the Electrical Code and NFPA 72, as modified by FC Appendix B.

907.3.1 Design and installation documents. Design and installation documents for fire alarm systems shall be submitted to the department for review and approval prior to system installation. Design and installation documents shall include such design and installation details as may be required by the construction codes, including the Building Code, and this code.

907.3.2 Fire alarm system control panel. Fire alarm system control panels shall be of a type for which a certificate of approval has been issued in accordance with FC112 and the rules. Fire alarm control panels shall be installed at an approved location and, when applicable, in accordance with FC904.3.6. Fire alarm system control panel design and operation for mass notification purposes shall require department approval.

907.3.3 Fire extinguishing systems. Fire extinguishing systems shall be connected to the building fire alarm system whenever a fire alarm system is required or is otherwise installed.

907.3.4 Manual fire alarm box protective covers. The department may require the installation of manual fire alarm box protective covers to prevent malicious false alarms or provide the manual fire alarm box with protection from physical damage.

[907.3] 907.4 Fire command center. Where required by this code or the construction codes, including the Building Code, a fire command center shall be provided for a building, structure or premises.

[907.3.1 Location. The location and layout of the fire command center shall be approved by the department. A plan identifying the proposed location and layout of the fire command center, including the location, model and certificate of approval number of the fire alarm system control panel, shall be submitted to the department for approval prior to installation.

907.3.2 Fire alarm system control panel. The fire alarm system control panel shall be of a type for which a certificate of approval has been issued, and shall be installed in accordance with the Building Code.

907.3.3 Maintenance. The fire alarm system control panel shall be maintained in accordance with NFPA 72, as modified by FC Appendix B.

907.4 Manual fire alarm boxes. Manual fire alarm boxes shall be installed in accordance with the construction codes, including the Building Code.

907.4.1 through and including 907.4.4 Reserved.

907.4.5 Protective covers. The commissioner may require the installation of manual fire alarm box protective covers to prevent malicious false alarms or provide the manual fire alarm box with protection from physical damage. The protective cover shall comply with the requirements of the construction codes, including the Building Code.]

907.4.1 Location. A plan identifying the proposed location and layout of the fire command center, including the location of the fire alarm system control panel, shall be submitted to the department for approval prior to installation. The location and layout of the fire command center shall be approved by the department in accordance with the following requirements and such other design, installation, operational and maintenance requirements as it may prescribe:

1. The primary fire command center, as required by Sections 403 and 911 of the Building Code, shall be installed in the building lobby at the main front entrance, mounted in the front desk, on the wall behind the front desk, on a wall in the lobby that provides a clear view of the elevators and lobby, or other approved location.

2. The secondary fire command center, when required by Appendix G to the Building Code or voluntarily installed, shall be installed at a location above the flood elevation in close proximity to the building lobby at the main front entrance, on the second floor near the elevators and/or stairwells, or other approved location.

3. The fire command center shall not be installed in a room.

4. The fire command center fire alarm control unit display shall not be mounted more than 6 feet (1829 mm) above the finish floor.

5. A durable sign reading "Fire Command Center" in 2-inch red letters on a white background shall be conspicuously posted at the fire command center.

907.4.2 Fire command center printer. Buildings with a fire command center shall be equipped with a printer or other approved device connected to the fire alarm system control panel to facilitate review by firefighting personnel of the incident history associated with an alarm activation.

907.4.3 Required documentation and other items for firefighting operations. Access keys for building rooms and areas and any other items that will assist firefighting or other emergency response operations shall be kept at the fire command center, together with the following documentation when required by the code or the rules:

1. Building information card.
2. Emergency preparedness plan.
3. Floor plans.
4. Non-sequential floor numbering chart.
5. Safety data sheets.
6. Standpipe elevation chart.

907.5 through and including 907.7 Reserved.

907.8 Presignal system. Where a presignal system is installed, personal supervision shall be provided at an approved location, in order that the alarm signal can be activated in the event of fire or other emergency.

907.9 through and including 907.12 Reserved.

907.13 Access. Access shall be provided to each detector for periodic inspection, testing and other maintenance.

907.14 [Fire extinguishing systems. Fire extinguishing systems shall be connected to the building fire alarm system where a fire alarm system is required or is otherwise installed.] Reserved.

907.15 Monitoring. Where required by this code, the rules or by the construction codes, including the Building Code, such monitoring by a central station shall be performed in compliance with the requirements of the rules.

Exception: Central station monitoring is not required for:

1. Single- and multiple-station smoke alarms required by Section 907.2.10 of the Building Code.
2. Smoke detectors in Group I-3 occupancies.
3. Sprinkler systems in Group R-3 occupancies.

907.15.1 Discontinuance or other change of service. Notification shall be made to the department in accordance with the rules upon discontinuance, change of service provider or other change in service of central station monitoring.

907.16 Automatic telephone-dialing devices. Automatic telephone-dialing devices used to transmit an emergency alarm shall not be connected to any department telephone number unless approved by the commissioner.

907.17 Acceptance testing. Upon completion of the installation of a fire alarm system, including alarm notification appliances and circuits, alarm-initiating devices and circuits, supervisory-signal initiating devices and circuits, signaling line circuits, and primary and secondary power supplies, such system shall be tested [at the owner's risk, by his or her representative, before a representative of the department, to confirm its proper installation and operation of the system in compliance with the requirements of the Building Code and this code] in accordance with FC901.5.

907.18 Record of completion. A record of completion in accordance with NFPA 72, as modified by FC Appendix B, this code and the rules, verifying that the system has been installed in accordance with the approved design and installation documents and specifications shall be provided by the installing contractor.

907.19 Instructions. Inspection, testing, operation and maintenance instructions, as built design and installation documents and equipment specifications shall be provided on site at an approved location.

907.20 Inspection, testing and other maintenance. Fire alarm and fire alarm detection systems shall be operated and maintained in accordance with this code, FC901, the rules and NFPA 72, as modified by FC Appendix B.

907.20.1 Reserved.

907.20.2 Testing. Testing shall be performed in accordance with the schedules in NFPA 72, as modified by FC Appendix B, or more frequently where required by the commissioner.

Exception: Devices or equipment that are inaccessible for safety considerations shall be tested during scheduled shutdowns where approved by the commissioner, but not less than every 18 months.

907.20.3 Detector sensitivity. Detector sensitivity shall be checked in compliance with the manufacturer's instructions and NFPA 72, as modified by FC Appendix B, and the rules. Detectors which are connected to a fire alarm system that automatically transmit signals to the department or to a central station shall, as applicable, also be checked in compliance with the rules.

907.20.4 Method. To verify that each smoke detector is within its listed and marked sensitivity range, it shall be tested using one of the following methods or types of equipment, and detectors found to have a sensitivity outside the listed and marked sensitivity range shall be cleaned and recalibrated or replaced:

1. A calibrated test method;
2. The manufacturer's calibrated sensitivity test instrument;
3. Listed control equipment arranged for the purpose;
4. A smoke detector/control unit arrangement whereby the detector causes a signal at the control unit where its sensitivity is outside its acceptable sensitivity range; or
5. Another calibrated sensitivity test method acceptable to the commissioner.

Exceptions:

1. Detectors listed as field adjustable shall be allowed to be either adjusted within the listed and marked sensitivity range and cleaned and recalibrated or they shall be replaced.
2. This requirement shall not apply to single-station smoke alarms.

907.20.4.1 Testing device. Smoke detector sensitivity shall not be tested or measured using a device that administers an unmeasured concentration of smoke or other aerosol into the detector.

907.20.5 Maintenance. The owner shall maintain all types of fire alarm and [life safety] detection systems in good working order at all times. Service personnel shall possess the qualifications set forth in NFPA 72, as modified by FC Appendix B, and the rules, for inspecting, testing, servicing and otherwise maintaining such systems. When required by the rules, a smoke detector maintenance log book and an alarm log book shall be maintained.

907.20.5.1 Five-year retest. All fire alarm and other detection systems shall be retested once every five years from the date of acceptance of the system. The first retest of fire alarm and other detection systems lawfully existing on the effective date of this provision shall be conducted on or before the fifth anniversary of the date of acceptance after such effective date. Such test shall be conducted, and reported to the department, in the manner prescribed by rule, by a person holding a certificate of fitness for professional certification of fire alarm and emergency alarm installations and testing, as set forth in FC104.2.1(1) and the rules, or a fire alarm system installer with NICET-Level II certification licensed by or registered with the State of New York and holding a certificate of fitness in accordance with the rules.

907.20.6 Smoke detector maintenance. The owner of any premises, or part thereof, monitored by a fire alarm system or sub-system thereof, whether required or not required by this code, which automatically transmits signals to the department or to a central station, shall be responsible for preventing unnecessary and unwarranted alarms as set forth in rules. Cleaning and testing of smoke detectors shall be performed as set forth in the rules.

907.20.7 Hold-open devices. The fire alarm system connections for hold-open devices installed on fire doors pursuant to

the Building Code, including hold-open devices provided for vertical exit enclosure doors pursuant to the exception to Section BC 708.7 of the Building Code, shall be inspected, tested and otherwise maintained in accordance with FC 703.2 and 907.20 and NFPA 72. Hold-open devices and automatic door closers provided for such vertical exit enclosure doors shall be inspected and tested annually to ensure the proper functioning of:

1. the manual control on the fire alarm system control panel, or the fire command center where a fire command center is required, that transmits a signal to release the hold-open devices;
2. the fire alarm system output programming, which automatically transmits a signal to release the hold-open devices upon activation of an automatic alarm initiating device or manual elevator recall;
3. the circuitry for each hold-open device, which upon receipt of a manual or automatic signal, releases the door; and
4. each automatic door closer, which, upon release of the door by the hold-open device, mechanically moves the door to its fully closed position.

SECTION FC 908 EMERGENCY ALARM SYSTEMS

[908.1 Group H occupancies. Emergency alarms for the detection and notification of an emergency condition in Group H occupancies shall be provided as required in FC Chapter 27.

908.2 Group H-5 occupancy. Emergency alarms for notification of an emergency condition in an HPM facility shall be provided as required in FC1803.12. A continuous gas detection system shall be provided for HPM gases in accordance with FC1803.13.

908.3 Highly toxic and toxic materials. Where required by FC3704.2.2.10, a gas detection system shall be provided for indoor storage and use of highly toxic and toxic compressed gases.

908.4 Ozone gas-generator rooms. A gas detection system shall be provided in ozone gas-generator rooms in accordance with FC3705.3.2.

908.5 Repair garages. A flammable-gas detection system shall be provided in repair garages for vehicles fueled by non-odorized gases in accordance with FC2211.7.2.

908.6 Refrigerating systems. Refrigerating system machinery rooms shall be provided with a refrigerant detector in accordance with FC606.8 and the Mechanical Code.

908.7 Carbon monoxide. Carbon monoxide alarms and carbon monoxide detectors shall be installed where required by the construction codes, including the Building Code and, where applicable, the requirements of the New York City Department of Housing Preservation and Development.

908.8 Medical gas systems. Medical gas systems shall comply with the requirements of FC3006.4 and the construction codes, including the Building Code.

908.9 Flammable gas. Flammable gas detection systems shall be as set forth in the construction codes, including the Building Code, this code or the rules.

908.9.1 Flammable gas distribution piping. Areas within buildings and structures containing flammable gas distribution piping operating at levels above 15 pounds per square inch (psig)(103.4 kPa) shall be provided with an approved flammable gas detection-alarm system.

908.10 Maintenance. Emergency alarm and detection systems governed by this section shall be inspected, tested, serviced and otherwise maintained in accordance with the manufacturer's specifications. Those approved for connection to a fire alarm system or which will transmit an alarm to a central station shall additionally comply with the requirements of NFPA 72, as modified by FC Appendix B, and the rules governing the operation and maintenance of such systems.

908.10.1 Carbon monoxide. Carbon monoxide detectors shall be inspected, tested, serviced and otherwise maintained in compliance with the requirements of the construction codes, including the Building Code, and, where applicable, the requirements of the New York City Department of Housing Preservation and Development. Those connected to a fire alarm system or which will transmit an alarm to a central station shall additionally comply with the requirements of FC901.6, NFPA 72, as modified by FC Appendix B, NFPA 720 and the rules governing the operation and maintenance of such systems.]

908.1 General. Emergency alarm systems required by the construction codes, this code or the rules for the detection and notification of a release of a hazardous material or other hazardous materials incident, or other physical or health hazard, including systems designed to detect flammable, toxic, asphyxiant and other gases, shall be designed, installed, operated and maintained in compliance with the construction codes, the Electrical Code, the code requirements referenced in FC Table 908.1, this section and the manufacturer's instructions.

FC TABLE 908.1

REQUIRED EMERGENCY ALARMS

HAZARD

OCCUPANCY/USEa

SECTION

Carbon dioxide

Occupancies with a carbon dioxide beverage dispensing system

5307

Carbon monoxide

Residential occupancies; other occupancies with carbon monoxide-producing equipment

Building Code BC915

Flammable alcohol vapors

Distilleries

4003

Gaseous hydrogen

Hydrogen fuel gas rooms

5808

Hazardous materials

High-hazard occupancies (Group H)

5004 and 5005

Hazardous production materials

Semiconductor production facilities (Group H-5)

2703

Lighter-than-air motor fuels

Motor fuel-dispensing facilities; repair garages for vehicles fueled by lighter-than-air motor fuels

2308, 2309 and 2311

Medical gases

Hospitals, nursing homes and hyperbaric facilities with a medical gas system

5306

Natural gas and other flammable gases (except lighter-than-air motor fuels)

Mechanical rooms, microturbine rooms and power plants with flammable gas distribution piping operating above 15 psig; residential occupancies

5810;

Building Code BC908

Ozone gas

Ozone gas-generator rooms

6005

Refrigerants

Mechanical rooms with a refrigerating system

606

Toxic/highly toxic materials

Group H-3 occupancies

6004

a. Typical occupancy/use. Other occupancies/uses as approved.

908.2 Plan approval. Design and installation documents for emergency alarm systems shall be submitted for department review and approval when required by FC105.4 and the rules.

908.3 Signage. Signs shall be posted in a conspicuous location near the emergency alarm system control panel and each alarm notification device to inform building occupants in the affected area of the meaning of the alarm activation and the appropriate response.

908.4 Central station monitoring. Emergency alarm systems required to transmit an alarm signal to a central station shall transmit such signal through the central station-monitored fire alarm system for the building or occupancy, or through an approved central station-monitored control panel. Such central station connections shall be maintained in compliance with the requirements of NFPA 72, as modified by FC Appendix B, and the rules.

908.5 Periodic inspection and testing. Sensors and other mechanical and electrical components of emergency alarm systems shall be tested by a trained and knowledgeable person on not less than an annual basis to ensure that they are in good working order, and a record kept of such testing.

908.5.1 Five-year retest. All emergency alarm systems and other detection systems shall be retested once every five years from the date of acceptance of the system. The first retest of emergency alarm systems lawfully existing on the effective date of this provision shall be conducted on or before the fifth anniversary of the date of acceptance after such effective date. Such test shall be conducted, and reported to the department, in the manner prescribed by rule, by a person holding a certificate of fitness for professional certification of fire alarm and emergency alarm installations and testing, as set forth in FC104.2.1(1) and the rules, or a fire alarm system installer with NICET-Level II certification licensed by or registered with the State of New York and holding a certificate of fitness in accordance with the rules.

SECTION FC 909 SMOKE CONTROL SYSTEMS

909.1 Smoke control systems. Smoke control systems, including stairwell pressurization, shall be provided as required by the construction codes, including the Building Code, and shall be designed, installed and tested as required by such codes.

909.1.1 Smoke control system maintenance. Smoke control systems shall be maintained in good working order. Periodic testing, inspection and other maintenance shall be performed in accordance with the manufacturer's instructions and FC 909.1.1.1 through 909.1.1.3.

909.1.1.1 Schedule. A written maintenance program, including periodic inspection and testing, shall be established and implemented immediately upon installation of the smoke control system.

909.1.1.2 Recordkeeping. A logbook or other approved form of recordkeeping documenting each inspection and test shall include the date of the maintenance, identification of servicing personnel, description of any operating defects or deficiencies, notifications made, corrective action taken, including parts replaced, and/or other information prescribed by the department by rule.

909.1.1.3 Testing. Operational testing of the smoke control system shall include all components of the system, including initiating devices, fans, dampers, controls, doors and windows. Dedicated smoke control systems shall be tested semiannually. Nondedicated smoke control systems shall be tested annually. All systems shall be tested under both normal power and emergency power.

909.2 Post-fire smoke purge systems. Post-fire smoke purge systems shall be provided as required by the construction codes, including the Building Code, and shall be designed, installed and tested as required by such codes.

909.2.1 Post-fire smoke purge system maintenance. Post-fire smoke purge systems shall be maintained in good working order. A record of inspections and tests shall be maintained in accordance with FC107.7.

SECTION FC 910 SMOKE AND HEAT VENTS

910.1 General. Smoke and heat vents or, where approved by the Commissioner of Buildings, mechanical smoke exhaust systems, and draft curtains shall be installed when required by the construction codes, including the Building Code, this code or the rules, and shall be designed and installed in accordance with the construction codes, including the Building Code.

910.2 Maintenance. Automatically and manually operated heat vents and engineered mechanical smoke exhaust systems shall be inspected periodically and an operational test of each shall be conducted at least once every 12 months. A record of each inspection and test shall be maintained as required by FC 107.7 and 901.6.2.

Exception: Gravity operated drop out vents need only be inspected.

SECTION FC 911 EXPLOSION CONTROL

911.1 General. Explosion control shall be provided in the following locations:

1. Where a structure, room or space is occupied for purposes involving explosion hazards as set forth in FC Table 911.1.
2. Where quantities of hazardous materials specified in FC Table 911.1 exceed the maximum allowable quantities set forth in FC Table [2703.1.1(1)] 5003.1.1(1).

Such areas shall be provided with explosion (deflagration) venting, explosion (deflagration) prevention systems, or barricades in accordance with this section and NFPA 69 or NFPA 495, as applicable. Deflagration venting shall not be utilized as a means to protect buildings from detonation hazards.

FC TABLE 911.1 EXPLOSION CONTROL REQUIREMENTS MATERIAL CLASS EXPLOSION CONTROL METHODS

Barricade
Construction
Explosion (deflagration) venting
or explosion (deflagration)
prevention systems
Hazard Category
Combustible dustsa
-
Not required
Required
Cryogenic fluids
Flammable
Not required
Required
Explosives
Division 1.1
Division 1.2
Division 1.3
Division 1.4
Division 1.5
Division 1.6
Required
Required
Not required

Not required
Required
Required
Not required
Not required
Required
Required
Not required
Not required
Flammable gas
Gaseous
Liquefied
Not required
Not required
Required
Required
Flammable liquids
IAb
IBc
Not required
Not required
Required
Required
Organic peroxidese
Unclassified Detonable
I
Required
Required
Not permitted
Not permitted
Oxidizer liquids and solids|1010|Required
Not permitted
Pyrophoric materiale
Detonable
Required
Not permitted
Pyrophoric gasese
Nondetonable
Not required
Required
Unstable (reactive)e|1010|3 detonable
3 nondetonable
Required
Required
Not required
Not permitted
Not permitted
Required
Water-reactive liquids and solidse
3 detonable
3 nondetonable
2 detonable
2 nondetonable
Required
Not required
Required
Not required

Not permitted

Required

Not permitted

Required

Special Uses

Energy Storage System

-

Required

Required

Grain processing

-

Not required

Required

Where explosion hazards existd

Detonation

Deflagration

Required

Not required

Not permitted

Required

a. Combustible dusts that are generated during manufacturing or processing. See definition of Combustible Dust in FC Chapter 2.

b. Storage or use.

c. In open use or dispensing.

d. Rooms containing dispensing and use of hazardous materials when an explosive environment can occur because of the characteristics or nature of the hazardous materials or as a result of the dispensing or use process.

e. Unclassified detonable organic peroxides (see FC Chapter [39] 62), detonable pyrophoric materials (see FC Chapter [41] 64), detonable unstable (reactive) materials (see FC Chapter [43] 66) and detonable water-reactive materials (see FC Chapter [44] 67) are considered as explosives for purposes of storage.

911.2 Required deflagration venting. Areas that are required to be provided with deflagration venting shall comply with the following requirements:

1. Walls, ceilings and roofs exposing surrounding areas shall be designed to resist a minimum internal pressure of 100 pounds per square foot (psf) (4788 Pa). The minimum internal design pressure shall not be less than five times the maximum internal relief pressure specified in FC911.2(5).

2. Deflagration venting shall be provided only in exterior walls and roofs.

Exception: Where sufficient exterior wall and roof venting cannot be provided because of inadequate exterior wall or roof area, deflagration venting shall be allowed by specially designed shafts vented to the exterior of the building.

3. Deflagration venting shall be designed to prevent unacceptable structural damage. Where relieving a deflagration, vent closures shall not produce projectiles of sufficient velocity and mass to cause life threatening injuries to the occupants or other persons on the property or adjacent public streets.

4. The aggregate clear area of vents and venting devices shall be governed by the pressure resistance of the construction assemblies specified in FC911.2(1) and the maximum internal pressure allowed by FC911.2(5).

5. Vents shall be designed to withstand loads in accordance with the construction codes, including the Building Code. Vents shall consist of any one or any combination of the following to relieve at a maximum internal pressure of 20 pounds per square foot (958 Pa), but not less than the loads required by the construction codes, including the Building Code:

5.1. Exterior walls designed to release outward.

5.2. Hatch covers.

5.3. Outward swinging doors.

5.4. Roofs designed to uplift.

5.5. Venting devices listed for the purpose.

6. Vents designed to release from the exterior walls or roofs of the building when venting a deflagration shall discharge directly outdoors where an unoccupied space not less than 50 feet (15 240 mm) in width is provided between the exterior walls of the building and the property line.

Exception: Vents complying with the requirements of FC911.2(7).

7. Vents designed to remain attached to the building when venting a deflagration shall be so located that the discharge opening shall not be less than 10 feet (3048 mm) vertically from window openings and exits in the building and 20 feet (6096 mm) horizontally from exits in the building, from window openings and exits in adjacent buildings on the same property, and from the property line.

8. Vent lines shall discharge outdoors.

911.3 Explosion prevention systems. Explosion prevention systems shall be of an approved type and installed in accordance with this code and NFPA 69. Where the building or structure or part thereof is provided with a fire alarm system, explosion prevention system alarms shall be transmitted to the fire alarm system control panel and to an approved central station.

911.4 Barricades. Barricades shall be designed and installed in accordance with NFPA 495.

SECTION FC 912

FIRE DEPARTMENT CONNECTIONS

912.1 Installation. Fire department connections shall be installed in accordance with the construction codes, including the Building Code.

912.2 Location. The location of fire department connections shall be in accordance with the Building Code.

912.2.1 Visible location. Fire department connections shall be located on the street side of buildings, fully visible and recognizable from the street or nearest point of fire department apparatus access, or as otherwise approved by the commissioner.

912.2.2 Distance from hydrant. Fire department connections shall be located at a distance from the nearest fire hydrant as required by the Building Code.

912.3 Access. Immediate access to fire department connections shall be maintained at all times, without obstruction by fences, posts, bushes, trees, rubbish containers, vehicles, walls or other objects.

Exception: Access to fire department connections may be obstructed by a fence, provided that such fence has an approved access gate complying with the design, installation, operation and maintenance requirements of FC912, including signage complying with FC912.4, and a means of emergency operation.

912.3.1 Locking fire department connection caps. The commissioner may require locking caps on fire department connections for sprinkler and standpipe systems.

912.3.2 Clear space around connections. A working space of not less than 36 inches (914 mm) in width, 36 inches (914 mm) in depth and 78 inches (1981 mm) in height shall be provided and maintained in front of and around wall-mounted and free-standing fire department connections, except as otherwise required or approved.

912.3.3 Physical protection. Where fire department connections are subject to impact by a motor vehicle whose normal operation brings it into proximity with such connections, such as when fire department connections are located curbside

or adjacent to loading or parking areas, vehicle impact protection shall be provided in accordance with FC312.

912.4 [Marking. Wall hydrants and fire pump test headers located on the exterior of buildings shall be conspicuously marked to indicate their function.] Signs and markings. Fire department connections shall be marked [as follows:

1. Fire department connections serving a standpipe system shall be provided with caps painted red, and shall have the word "STANDPIPE" in letters 1 inch (25 mm) high and 1/8 inch (3.2 mm) deep cast in the body or on a non-ferrous metal plate secured to the connections or mounted on the wall in a visible location, except that caps of fire department connections used for combination standpipe and sprinkler systems shall be painted yellow and the words shall read: "COMBINATION STANDPIPE AND SPRINKLER SYSTEMS."
2. Fire department connections serving a sprinkler system protecting an entire building or structure shall be provided with caps painted green and shall have the word "SPRINKLER" in letters 1 inch (25 mm) high and 1/8 inch (3.2 mm) deep cast in the body or on a non-ferrous metal plate secured to the connections or mounted on the wall in a visible location, except that caps of fire department connections used for combination standpipe and sprinkler systems shall be painted yellow and the words shall read: "COMBINATION STANDPIPE AND SPRINKLER SYSTEMS."
3. Fire department connections serving a non-automatic sprinkler system shall have the entire connection painted silver.
4. Fire department connections serving a sprinkler system protecting only a portion of a building or structure shall have durable metal signs securely fastened to, or above, the connection indicating the portion of the building or structure protected.] in accordance with FC 912.4.1 and 912.4.2.

912.4.1 Identification of fire department connections. Fire department connections serving:

1. only a standpipe system shall be provided with caps painted red and identified by markings and signage that reads "STANDPIPE";
2. only an automatic sprinkler system shall be provided with caps painted green and identified by markings or signage that reads "SPRINKLER," provided, however, that if the automatic sprinkler system only serves a portion of the building, a sign shall additionally identify the portion of the building protected;
3. only a non-automatic (manually activated) sprinkler system shall be provided with caps painted silver and identified by markings or signage that reads "SPRINKLER", provided, however, that if the non-automatic sprinkler system only serves a portion of the building, a sign shall additionally identify the portion of the building protected;
4. combination standpipe and sprinkler systems shall be provided with caps painted yellow and identified by markings or signage that reads "COMBINATION STANDPIPE AND SPRINKLER SYSTEMS";
5. in addition to the foregoing, a standpipe, sprinkler or combination system in a building other than the building upon which the fire department connection is mounted shall be provided with a sign identifying the address of the other building served by the fire department connection; and
6. in addition to the foregoing, a standpipe, sprinkler or combination system serving more than one zone in a single building shall be provided with a sign identifying each zone served by the fire department connection. Such sign shall specify the maximum height (in feet) above grade of each zone and any other necessary identifying information.

912.4.2 Design of signs and markings. Cap markings on fire department connections shall be deep cast in the body of the cap in letters 1 inch (25 mm) high and 1/8 inch (3.2 mm) deep. Alternatively, fire department connections may be identified by a durable non-ferrous metal plate secured to the connections or conspicuously mounted on the wall.

912.5 [Backflow protection. The potable water supply to all sprinkler systems and standpipe systems shall be protected against backflow as required by the construction codes, including the Plumbing Code, and the requirements of the Department of Environmental Protection.] Reserved.

912.6 Maintenance. Sprinkler system and standpipe system fire department connections shall be periodically inspected, tested, serviced and otherwise maintained in accordance with FC901.6 and NFPA 25. Upon order of the commissioner,

but at least once every 5 years, such fire department connections shall be subjected to a hydrostatic pressure test to demonstrate their suitability for department use. The test shall be conducted in accordance with the rules and at the owner's risk, by his or her representative before a representative of the department.

SECTION FC 913 FIRE PUMPS

913.1 General. Where provided, fire pumps shall be installed in accordance with this section, the construction codes, including the Building Code, and NFPA 20.

913.2 Protection against interruption of service. The fire pump, driver, and controller shall be protected in accordance with NFPA 20 against possible interruption of service through damage caused by explosion, fire, flood, earthquake, rodents, insects, windstorm, freezing, vandalism and other adverse conditions.

913.3 Temperature of pump room. Suitable means shall be provided for maintaining the temperature of a pump room or pump house, where required, above 40°F (5°C).

913.3.1 Engine manufacturer's recommendation. Temperature of the pump room, pump house or area where engines are installed shall never be less than the minimum recommended by the engine manufacturer. The engine manufacturer's recommendations for oil heaters shall be followed.

913.4 Valve supervision. Where provided, the fire pump suction, discharge and bypass valves, and the isolation valves on the backflow prevention device or assembly shall be supervised open by a fire alarm system and monitored by an approved central station.

913.4.1 Test outlet valve supervision. Fire pump test outlet valves shall be supervised in the closed position.

913.5 Operation and maintenance. Fire pumps shall be operated and maintained in compliance with the requirements of this section, FC901.6 and NFPA 25, including all required inspection, testing and servicing.

913.5.1 Acceptance test. Acceptance testing shall be done in accordance with FC901.5 and NFPA 20. Acceptance tests shall be conducted at the owner's risk by his or her representative before a representative of the department.

913.5.2 Generator sets. Engine generator sets supplying emergency power to fire pump assemblies shall be periodically tested in accordance with FC604 and the Electrical Code.

913.5.3 Transfer switches. Automatic transfer switches shall be periodically tested in accordance with FC604 and the Electrical Code.

913.5.4 Pump room environmental conditions. Tests of pump room environmental conditions, including heating, ventilation and illumination shall be made to ensure proper manual or automatic operation of the associated equipment.

913.6 Fire pump supervision. The following fire pump operations shall be electrically supervised by the fire alarm system in accordance with the Electrical Code and NFPA 20; and monitored by a central station in accordance with this code and the rules:

1. Pump running.
2. Pump power failed.
3. Pump phase reversal.

SECTION FC 914 YARD HYDRANT SYSTEMS

914.1 General. Yard hydrant systems shall be installed where required by the construction codes, including the Building Code, this code, including [FC508.2.3] FC507.2.3, or the rules.

914.2 Operation and maintenance. Yard hydrant systems shall be operated and maintained in accordance with FC901.6 and NFPA 25.

914.3 Supervision. At all times when the area served by the yard hydrant system is in use, the system shall be under the personal supervision of a certificate of fitness holder, who shall be available to assist the department in the operation of such system.

CHAPTER 10 MEANS OF EGRESS

SECTION FC 1001 GENERAL

1001.1 Scope. This chapter shall govern the maintenance of means of egress from all buildings, structures and premises in all occupancy classifications.

1001.2 General. Buildings, structures and premises, or parts thereof, shall be provided with a means of egress system as required by the construction codes, including the Building Code. The maintenance of means of egress from all buildings, structures and premises and all occupancies shall be in accordance with this chapter.

SECTION FC 1002 DEFINITIONS

1002.1 Definitions. The following terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings [shown herein] set forth in FC202.

EMERGENCY ESCAPE AND RESCUE OPENING. [An operable window, door or other similar device that provides for a means of escape and access for rescue in the event of an emergency.]

EXIT. [That portion of a means of egress system which is separated from other interior spaces of a building or structure by fire-resistance-rated construction and opening protectives as required to provide a protected path of egress travel between the exit access and the exit discharge. Exits include vertical exits, exterior exit doors at the level of exit discharge, vertical exit enclosures, exit passageways, exterior exit stairs, exterior exit ramps and horizontal exits, but do not include access stairways, aisles, exit access doors opening to corridors or corridors. This term shall include the locations on a premises at which egress may be had from an enclosed outdoor space.]

EXIT ACCESS. [That portion of a means of egress system that leads from any occupied portion of a building, structure or premises to an exit.]

EXIT DISCHARGE. [That portion of a means of egress system between the termination of an exit and a public way.]

EXIT DISCHARGE, LEVEL OF. [The story at the point at which an exit terminates and an exit discharge begins.]

MEANS OF EGRESS. [A continuous and unobstructed path of vertical and horizontal egress travel from any occupied portion of a building, structure or premises to a public way. A means of egress consists of three separate and distinct parts: the exit access, the exit and the exit discharge.]

SECTIONS FC 1003 THROUGH AND INCLUDING SECTION FC 1024 RESERVED

SECTION FC 1025 EMERGENCY ESCAPE AND RESCUE

1025.1 General. Emergency escape and rescue openings as required by the Building Code shall be provided in Group R occupancies.

1025.2 Reserved.

1025.3 Reserved.

1025.4 Operational constraints. Emergency escape and rescue openings and windows or other openings onto fire escapes, as that term is defined in the New York State Multiple Dwelling Law, shall be operational from the inside of the room without the use of keys or tools. Bars, grilles, grates or similar devices are allowed to be placed over emergency escape and rescue openings and windows or other openings onto fire escapes, provided the minimum net clear opening size complies with the requirements of the construction codes, including the Building Code and the New York State Multiple Dwelling Law, and such devices are releasable or removable from inside of the room without the use of a key, tool or force greater than that which is required for normal operation of the escape and rescue opening, window or other opening.

1025.5 Certificate of approval. Bars, grilles, grates or similar devices placed over emergency escape and rescue openings, and windows or other openings onto fire escapes, shall be of a type for which a certificate of approval has been issued in accordance with this code and the rules.

SECTION FC 1026 RESERVED

SECTION FC 1027 MAINTENANCE OF THE MEANS OF EGRESS

1027.1 General. The means of egress for buildings, structures or premises, or parts thereof, shall be maintained in accordance with the construction codes, including the Building Code and this section.

1027.2 Prohibition. It shall be unlawful to obstruct or impede access to any required means of egress, including any exit, exit access or exit discharge.

1027.3 Unobstructed and unimpeded egress required. All required means of egress, including each exit, exit access and exit discharge, shall be continuously maintained free from obstructions and impediments to immediate use in the event of fire or other emergency. An exit or exit passageway shall not be used for any purpose inconsistent with its use as a means of egress, including storage of combustible or noncombustible materials, except as authorized by law, rule or regulation.

1027.3.1 Door hardware. Door hardware and other devices and physical components of the means of egress shall be maintained in good working order at all times.

1027.3.2 Security devices. Security devices affecting means of egress shall be subject to the approval of the Commissioner of Buildings in consultation with the [commissioner] department.

1027.3.3 Snow and ice. All required means of egress shall be maintained free from the accumulation of snow and ice.

1027.3.4 Overcrowding. Premises shall not be caused, allowed or maintained in such a manner as to become overcrowded, such that the number of persons present on the premises and/or their location thereon obstructs or impedes access to any means of egress.

1027.3.5 Furnishings and decorations. Furnishings, decorations or other objects shall not be placed so as to obstruct exits, access thereto, egress therefrom, or visibility thereof. Furnishings and decorations shall not be placed in building hallway corridors or elevator lobbies except as authorized by FC1027.4 or other provision of this code. Hangings and draperies shall not be placed over exit doors or otherwise be located to conceal or obstruct an exit except as authorized by the commissioner. Mirrors shall not be placed on exit doors. Mirrors shall not be placed in or adjacent to any exit in such a manner as to confuse the direction of exit.

1027.3.6 Corridor storage. It shall be unlawful to store combustible materials or combustible waste in corridors except as authorized by FC1027.4 or other provision of this code or by the commissioner by rule.

1027.3.7 Fire escapes. Access to fire escapes shall be maintained in accordance with [FC1027.6] FC1027.7.

1027.3.8 Security grilles. When the installation of security grilles is allowed by the Building Code, such grilles shall be secured in the full-open position during the period of occupancy, except when the Building Code provides otherwise.

1027.4 Residential building hallway corridor and elevator lobby furnishings, decorations and storage. This section governs the placement of furnishings and decorations, and storage of combustible materials in building hallway corridors (excluding hallways within dwelling units) and in elevator lobbies above the street level, in Group R-2 buildings and occupancies. The department may by rule prohibit any type of building hallway corridor or elevator lobby furnishing, decoration or storage allowed by this section, or by order direct removal from a particular premises of any such furnishing, decoration or stored item, upon a determination that the size, materials or location of such furnishing, decoration or stored item presents an undue fire hazard.

1027.4.1 Incidental furnishings. A building hallway corridor or elevator lobby may be furnished with a console table, console bench, mirror, and umbrella stand, provided that the minimum required egress width is maintained. All such furnishings must be incidental to hallway use in that the purpose of such furnishings is primarily decorative and/or for the convenience of persons passing through the hallways. Incidental furnishings shall not include furniture used to hold or store clothing or other combustible items, or storage in the hallway of furniture, such as beds and dining room tables, whose primary purpose is not decorative or for the temporary accommodation of passersby.

1027.4.2 Draperies, area rugs and decorative greens. Draperies, area rugs and decorative greens shall be installed and maintained in building hallway corridors in compliance with the requirements of FC Chapter 8, including the requirement that they be inherently noncombustible or flameproofed by an approved method, and the prohibition against the display in building hallway corridors of Christmas trees and other conifers, and wreathes made of conifers.

1027.4.3 Artwork. The walls of building hallway corridors may be decorated with combustible artwork, including artworks made of paper, canvas, wood or fabric, when in compliance with the requirements of FC805.1.

1027.4.4 Carpeting. Carpeting and other interior finishes shall comply with the requirements of Chapter 8 of the Building Code.

1027.4.5 Personal property. Bicycles, baby strollers, clothing and other items of personal property, excluding those set forth in FC 1027.4.1 through 1027.4.4, shall not be stored in building hallway corridors, except as may be authorized or allowed by the department.

1027.4.6 Rubbish. Household rubbish, including trash cans, shall not be stored in building hallway corridors. All such items shall be stored in compactor rooms or other lawful storage areas.

1027.5 Educational and day care building hallway corridor and elevator lobby decorations and storage. Artwork and other decorations shall be displayed and maintained in the corridors and lobbies of Group E and I-4 occupancies in accordance with FC Chapter 8. Clothing and personal effects shall not be stored in corridors and lobbies of such occupancies, unless stored in metal lockers or in corridors protected throughout by a sprinkler system and the minimum required egress width is maintained.

1027.6 Group I-2 building hallway corridors. This section governs the placement of equipment for patient care use in Group I-2 building hallway corridors designed for patient bed movement, with a minimum corridor width of 96 inches (2438 mm). The following equipment, up to a maximum of one item of equipment per patient sleeping room or patient care room per smoke compartment, may be placed and kept in such corridors for patient use where all the following conditions are met:

1. The entire corridor shall be protected throughout by a sprinkler system.
2. The equipment does not reduce the effective clear width for egress to less than 5 feet (1524 mm) and such width is clearly indicated by approved floor markings.

3. The equipment is low hazard, wheeled and designed to be used for the following purposes:

- 3.1. Computer and other patient recordkeeping stations;
- 3.2. Equipment and carts for medical emergencies and infection control;
- 3.3. Other equipment and carts while in active use in providing patient care; and
- 3.4. Stretchers, wheelchairs and other patient lift and transportation equipment.

4. Where feasible, all large equipment, including patient lifts, stretchers and medical emergency and infection control carts, shall be kept on one side of the corridor.

[1027.6] 1027.7 Fire escapes. Fire escapes, and access thereto, shall be maintained in a safe and operational condition, and continuously maintained free from obstructions and impediments to immediate use in the event of fire or other emergency.

[1027.6.1] 1027.7.1 Maintenance. All fire escape components shall be painted or otherwise protected from deterioration and all moving parts shall be maintained in good working order.

[1027.6.2] 1027.7.2 Window gates. Bars, grilles, grates or similar devices placed over windows or other openings onto fire escapes shall be maintained in good working order.

[1027.6.3] 1027.7.3 Air conditioners. An air conditioner shall not be installed in a window providing access to a fire escape unless such fire escape may be accessed from another window in the same room that is unobstructed and of the size required for such purpose by the Building Code, New York State Multiple Dwelling Law, or other applicable law, rule or regulation. Air conditioners installed in windows adjoining fire escapes shall not obstruct the path of egress on the fire escape.

[1027.6.4] 1027.7.4 Fire escape ladders. The operation of a fire escape ladder, including a drop ladder that is lowered vertically to the ground, or a counterbalanced stair ladder which swings to the ground, shall not be obstructed by awnings, stationary furniture, portable fueled space heaters, parked cars, or other obstructions. Where construction work is being performed at a location adjoining a fire escape, provision shall be made for safe egress from the fire escape ladder.

[1027.7] 1027.8 Nonexit door identification. Any door that is not an exit or otherwise part of the means of egress from a building, structure or premises, but which, by reason of its proximity or similar construction, can be confused with an exit door or other door that is part of the means of egress, shall be identified with an approved sign that reads "Not An Exit" and identifies the room into which the nonexit door provides access.

1027.9 Emergency Lighting. Emergency lighting for means of egress shall be maintained in accordance with FC107 and periodically inspected and tested in accordance with FC 1027.9.1 and 1027.9.2.

1027.9.1 Activation test. Emergency lighting equipment shall be tested by a trained and knowledgeable person for a duration of not less than 30 seconds. The test shall be conducted manually at least once a month, unless the equipment is designed with an automated self-testing and self-diagnostic feature. When the equipment is tested by such an automated feature, a visual inspection of the emergency lighting equipment shall be conducted at least once a month to check the display for a supervisory or trouble signal, or for any other indication that the equipment is not in good working order.

1027.9.2 Power test. Battery-powered emergency lighting equipment shall be tested by a qualified person in accordance with FC604.5 by operating the equipment on battery power for not less than 90 minutes. The test shall be conducted at least once a year.

CHAPTERS 11 THROUGH 19
RESERVED

CHAPTER 20
AVIATION FACILITIES AND OPERATIONS

SECTION FC [1101] 2001
GENERAL

[1101.1] 2001.1 Scope. This chapter shall govern the design, installation, operation and maintenance of aviation facilities, including aircraft landing sites, airports, heliports, helistops, helicopter landings, seaplane bases and helicopter lift operations.

[1101.2] 2001.2 Regulations not covered. Except as otherwise provided in this chapter or any other federal, state or local law, rule or regulation, aviation facilities and related operations shall be operated or conducted in accordance with nationally recognized standards.

[1101.3] 2001.3 General. Aircraft landing sites, airports, heliports, helistops and seaplane bases shall be designed, installed, operated and maintained in accordance with this chapter. Aviation operations, including helicopter landings, helicopter lift operations and hot air balloon operations, shall be conducted in accordance with this chapter.

[1101.4] 2001.4 Permits. Permits shall be obtained for aircraft fueling vehicles, helicopter landing operations, helicopter lift operations and hot air balloon operations, as set forth in FC105.6.

SECTION FC [1102] 2002
DEFINITIONS

[1102.1] 2002.1 Definitions. The following terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings [shown herein] set forth in FC202.

AIRCRAFT LANDING SITE. [An area of land or water or a structural surface that is designed or used for the landing or takeoff of aircraft, other than helicopters, and any appurtenant areas, but which is not designed or used for fueling, defueling, maintenance, repairs or storage of such aircraft.]

AIRCRAFT OPERATION AREA. [Any area used or intended for use for the parking, taxiing, takeoff, landing or other aviation-related operations.]

AIRPORT. [An area of land or structural surface that is designed or used for the landing and takeoff of aircraft with an overall length greater than 39 feet (11 887 mm) and an overall exterior fuselage width greater than 6.6 feet (2012 mm), and any appurtenant areas that are designed or used for aviation facilities and operations.]

AVIATION FACILITY. [Any premises upon which an aircraft landing site, airport, heliport, helistop, seaplane base or other aviation-related operation is located or conducted.]

DISCHARGE AREA. [Any portion of a premises or other location to which an external load is to be delivered by helicopter.]

EXTERNAL LOAD. [Cargo transported by, but not within, the helicopter.]

HELICOPTER LIFT OPERATION. [The movement of an external load with the use of a helicopter.]

HELIPORT. [An area of land or water or a structural surface that is designed or used for the landing and takeoff of helicopters, and any appurtenant areas which are designed or used for heliport facilities and operations.]

HELISTOP. [An area of land or water or a structural surface that is designed or used for the landing or takeoff of helicopters, but which is not designed or used for fueling, defueling, maintenance, repairs or storage of helicopters, including any staging or other appurtenant areas.]

HOT AIR BALLOON OPERATION. [The filling of balloons with hot air for purposes of display or flight.]

HYDRANT-FUELING VEHICLE. [A type of aircraft fueling vehicle that is equipped to transfer fuel between a fuel hydrant and an aircraft.]

SEAPLANE BASE. [An area of water that is used for the landing or takeoff of airplanes, and any appurtenant areas of land or water designed or used for fueling, defueling, maintenance, repair or storage of seaplanes.]

STAGING AREA. [Any portion of a premises or other location from where an external load is to be lifted by helicopter.]

SECTION FC [1103] 2003 GENERAL PRECAUTIONS

[1103.1] 2003.1 Sources of ignition. It shall be unlawful to use or maintain an open flame, flame-producing device or other source of ignition in an aircraft hangar or other location within 50 feet (15 240 mm) of an aircraft-fueling or defueling operation.

[1103.2] 2003.2 Smoking. It shall be unlawful to smoke in an aircraft hangar or other location used for aircraft fueling or defueling, cleaning, paint removal or painting operations. "No Smoking" signs shall be provided in accordance with FC310.

[1103.3] 2003.3 Maintenance. The aircraft operation area and related areas shall be kept free from combustible waste at all times.

[1103.4] 2003.4 Fire apparatus access roads. Fire apparatus access roads shall be provided and maintained in accordance with FC Chapter 5 and the construction codes, including the Building Code. Fire apparatus access roads and aircraft parking positions shall be designed in a manner so as to preclude the possibility of fire vehicles traveling under any portion of a parked aircraft.

[1103.5] 2003.5 Dispensing of flammable and combustible liquids. Flammable and combustible liquids shall be dispensed and otherwise stored, handled and used in accordance with this chapter and FC Chapter [34] 57. Automotive liquid motor fuel-dispensing facilities shall be designed, installed, operated and maintained in accordance with FC Chapter [22] 23.

[1103.6] 2003.6 Combustible material storage. Combustible materials stored in aircraft hangars shall be stored in approved locations and containers.

[1103.7] 2003.7 Hazardous material storage. Hazardous materials shall be stored in accordance with FC Chapter [27] 50.

SECTION FC [1104] 2004 AIRCRAFT MAINTENANCE

[1104.1] 2004.1 Transferring flammable and combustible liquids. Flammable and combustible liquids shall not be dispensed into or removed from a container, tank, vehicle or aircraft, except in approved locations.

[1104.2] 2004.2 Application of flammable and combustible liquid finishes. The application of flammable or Class II combustible liquid finishes shall be conducted in an approved location, using methods and procedures in accordance with FC Chapter [15] 24.

[1104.3] 2004.3 Cleaning parts. Class IA flammable liquids shall not be used to clean aircraft, aircraft parts or aircraft engines. Cleaning with other flammable and combustible liquids shall be in accordance with [FC3405.3.6] FC5705.3.6.

[1104.4] 2004.4 Spills. The following actions shall be taken in response to spills of flammable and combustible liquids and other hazardous materials, in addition to the procedures set forth in [FC1106.11] FC2006.11.

[1104.4.1] 2004.4.1 Cessation of work. Activities in the affected area not related to the mitigation of the spill shall cease until the spilled material has been removed or the hazard has been mitigated.

[1104.4.2] 2004.4.2 Vehicle movement. Aircraft or other vehicles shall not be moved through the spill area until the spilled material has been removed or the hazard has been mitigated.

[1104.4.3] 2004.4.3 Mitigation. Spills shall be reported, documented and mitigated in accordance with this chapter and [FC2703.3] FC5003.3, and any other applicable law, rule or regulation.

[1104.5] 2004.5 Running engines. Aircraft engines shall not be operated in aircraft hangars, except in approved engine test areas.

[1104.6] 2004.6 Open flame. Repair of aircraft requiring the use of open flames, spark-producing devices or the heating of parts above 500°F (260°C) shall only be performed outdoors or in an area complying with the requirements of the construction codes, including the requirements of the Building Code for a Group F-1 occupancy.

SECTION FC [1105] 2005 PORTABLE FIRE EXTINGUISHERS

[1105.1] 2005.1 General. Portable fire extinguishers suitable for flammable or combustible liquid and electrical-type fires shall be provided as set forth in FC [1105.2] 2005.2 through [1105.7] 2005.7, and 906. Portable fire extinguishers required by this section shall be inspected and maintained in accordance with FC906.

[1105.2] 2005.2 Towing vehicles. Vehicles used for towing aircraft shall be equipped with a minimum of one listed portable fire extinguisher complying with the requirements of FC906 and having a minimum rating of 20-B:C.

[1105.3] 2005.3 Welding apparatus. Welding apparatus shall be equipped with a minimum of one listed portable fire extinguisher complying with the requirements of FC906 and having a minimum rating of 2-A:20-B:C.

[1105.4] 2005.4 Aircraft-fueling vehicles. Aircraft-fueling vehicles shall be equipped with a minimum of two listed portable fire extinguishers complying with the requirements of FC906, each having a minimum rating of 20-B:C. A portable fire extinguisher shall be readily accessible from either side of the vehicle.

[1105.5] 2005.5 Hydrant-fueling vehicles. Hydrant-fueling vehicles shall be equipped with a minimum of one listed portable fire extinguisher complying with the requirements of FC906, and having a minimum rating of 20-B:C.

[1105.6] 2005.6 Fuel-dispensing stations. Portable fire extinguishers shall be provided as follows:

1. Where the open-hose discharge capacity of the fueling system is not more than 200 gallons per minute (13 L/s), a minimum of two listed portable fire extinguishers complying with the requirements of FC906 and having a minimum rating of 20-B:C shall be provided.

2. Where the open-hose discharge capacity of the fueling system is more than 200 gallons per minute (13 L/s) but not more than 350 gallons per minute (22 L/s), a minimum of one listed wheeled portable fire extinguisher complying with the requirements of FC906 and having a minimum rating of 80-B:C, and a minimum agent capacity of 125 pounds (57 kg), shall be provided.

3. Where the open-hose discharge capacity of the fueling system is more than 350 gallons per minute (22 L/s), a minimum of two listed wheeled portable fire extinguishers complying with the requirements of FC906 and having a minimum rating of 80-B:C each, and a minimum agent capacity of 125 pounds (57 kg) of each, shall be provided.

[1105.6.1] 2005.6.1 Location of portable fire extinguishers. Portable fire extinguishers at aircraft fuel-dispensing stations shall be located such that pumps or dispensers are not more than 75 feet (22 860 mm) from one such extinguisher.

[1105.7] 2005.7 Fire extinguisher access. Portable fire extinguishers required by this chapter shall be accessible at all times. Where necessary, provisions shall be made to clear accumulations of snow, ice and other forms of weather-related obstructions.

[1105.7.1] 2005.7.1 Cabinets. Cabinets and enclosed compartments used to house portable fire extinguishers shall be clearly marked with the words "FIRE EXTINGUISHER" in letters at least 2 inches (51 mm) high. Cabinets and

compartments shall be readily accessible at all times.

SECTION FC [1106] 2006
AIRCRAFT AND MOTOR VEHICLE FUELING

[1106.1] 2006.1 Motor vehicle fuel-dispensing facilities. Motor vehicle fuel-dispensing facilities at aviation facilities shall be designed, installed, operated and maintained in accordance with FC Chapter [22] 23.

[1106.2] 2006.2 Aircraft-fueling systems. Aircraft-fueling systems shall be designed and constructed in accordance with NFPA 407.

Exception: Aircraft fueling systems may be designed and constructed as a full service automotive liquid motor vehicle fuel-dispensing facility in accordance with FC Chapter [22] 23, subject to such conditions as the commissioner may require.

[1106.3] 2006.3 Design of aircraft-fueling vehicles. Aircraft-fueling vehicles shall be designed in accordance with [FC1106] FC2006 and NFPA 407.

[1106.3.1] 2006.3.1 Transfer apparatus. Aircraft-fueling vehicles shall be equipped and maintained with an approved transfer apparatus.

[1106.3.1.1] 2006.3.1.1 Internal combustion type. Where such transfer apparatus is operated by an individual unit of the internal-combustion-motor type, such power unit shall be located as remotely as practicable from pumps, piping, meters, air eliminators, water separators, hose reels, and similar equipment, and shall be housed in a separate compartment from any of the aforementioned items. The fuel tank in connection therewith shall be suitably designed and installed, and the maximum fuel capacity shall not exceed 5 gallons (19 L) where the tank is installed on the engine. The exhaust pipe, muffler and tail pipe shall be shielded.

[1106.3.1.2] 2006.3.1.2 Gear operated. Where operated by gears or chains, the gears, chains, shafts, bearings, housing and all parts thereof shall be of an approved design and shall be installed and maintained in an approved manner.

[1106.3.1.3] 2006.3.1.3 Vibration isolation. Flexible connections for the purpose of eliminating vibration are allowed if the material used therein is designed, installed, operated and maintained in an approved manner, provided such connections do not exceed 24 inches (610 mm) in length.

[1106.3.2] 2006.3.2 Pumps. Pumps of a positive-displacement type shall be provided with a bypass relief valve set at a pressure of not more than 35 percent in excess of the normal working pressure of such unit. Such units shall be equipped and maintained with a pressure gauge on the discharge side of the pump.

[1106.3.3] 2006.3.3 Dispensing hoses and nozzles. Hoses shall be designed for the transferring of hydrocarbon liquids and shall not be any longer than necessary to provide efficient fuel transfer operations. Hoses shall be equipped with an approved shutoff nozzle. Fuel-transfer nozzles shall be self-closing and designed to be actuated by hand pressure only. Notches and other devices shall not be used for holding a nozzle valve handle in the open position. Nozzles shall be equipped with a bonding cable complete with proper attachment for aircraft to be serviced.

[1106.3.4] 2006.3.4 Protection of electrical equipment. Electric wiring, switches, lights and other sources of ignition, when located in a compartment housing piping, pumps, air eliminators, water separators, hose reels or similar equipment, shall be enclosed in a vapor-tight housing. Electrical motors located in such a compartment shall be of a type approved for use as specified in the Electrical Code.

[1106.3.5] 2006.3.5 Venting of equipment compartments. Compartments housing piping, pumps, air eliminators, water separators, hose reels and similar equipment shall be adequately ventilated at floor level or within the floor itself.

[1106.3.6] 2006.3.6 Accessory equipment. Ladders, hose reels and similar accessory equipment used for aircraft-fueling operations shall be of an approved type, as follows:

1. Ladders constructed of noncombustible material are allowed to be used with or attached to aircraft-fueling vehicles, provided the manner of attachment or use of such ladders is approved and does not constitute an additional fire or

accident hazard in the operation of such fueling vehicles.

2. Hose reels used in connection with fueling vehicles shall be constructed of noncombustible materials and shall be provided with a packing gland or other device which will preclude fuel leakage between reels and fuel manifolds.

[1106.3.7] 2006.3.7 Electrical bonding provisions. Transfer apparatus shall be metallicity interconnected with tanks, chassis, axles and springs of aircraft-fueling vehicles.

[1106.3.7.1] 2006.3.7.1 Bonding cables. Aircraft-fueling vehicles shall be provided and maintained with a substantial heavy-duty electrical cable of sufficient length to be bonded to the aircraft to be serviced. Such cable shall be metallicity connected to the transfer apparatus or chassis of the aircraft-fueling vehicle on one end and shall be provided with a suitable metal clamp on the other end, to be fixed to the aircraft.

[1106.3.7.2] 2006.3.7.2 Bonding cable protection. The bonding cable shall be bare or have a transparent protective sleeve and be stored on a reel or in a compartment provided for no other purpose. It shall be carried in such a manner that it will not be subjected to sharp kinks or accidental breakage under conditions of general use.

[1106.3.8] 2006.3.8 Smoking. It shall be unlawful to smoke in aircraft-fueling vehicles. Signs to this effect shall be conspicuously posted in the driver's compartment of all fueling vehicles.

[1106.3.9] 2006.3.9 Smoking equipment. Smoking equipment such as cigarette lighters and ash trays shall not be provided in aircraft-fueling vehicles.

[1106.4] 2006.4 Operation, maintenance and use of aircraft-fueling vehicles. The operation, maintenance and use of aircraft-fueling vehicles shall be in accordance with FC [1106.4.1] 2006.4.1 through [1106.4.5] 2006.4.5 and other applicable provisions of this chapter.

[1106.4.1] 2006.4.1 Proper maintenance. Aircraft-fueling vehicles and all related equipment shall be properly maintained and kept in good repair. Oil, grease, fuel and other flammable or combustible waste shall not be allowed to accumulate. Maintenance and servicing of such equipment shall be accomplished in approved areas.

[1106.4.2] 2006.4.2 Vehicle integrity. Tanks, pipes, hoses, valves and other fueling equipment shall be maintained leak free at all times.

[1106.4.3] 2006.4.3 Removal from service. Aircraft-fueling vehicles and related equipment which are in violation of FC [1106.4.1] 2006.4.1 or [1106.4.2] 2006.4.2 shall be immediately defueled, removed from service and properly repaired or disposed of.

[1106.4.4] 2006.4.4 Identification of operator. Aircraft-fueling vehicles that are operated by a person, firm or corporation other than the permittee or the permittee's authorized employee shall be provided with a legible sign visible from outside the vehicle showing the name of the person, firm or corporation operating such unit.

[1106.4.5] 2006.4.5 Training. Aircraft-fueling vehicles shall be attended and operated by competent personnel familiar with the safety hazards of each type of fuel used at the facility.

[1106.5] 2006.5 Fueling and defueling. Aircraft-fueling and defueling operations shall be conducted in accordance with FC [1106.5.1] 2006.5.1 through [1106.5.4] 2006.5.4.

[1106.5.1] 2006.5.1 Positioning of aircraft-fueling vehicles. Aircraft-fueling vehicles shall not be parked or otherwise allowed to stop or stand in a position where such vehicle would obstruct egress from an aircraft, including emergency exits. Aircraft-fueling vehicles shall not be parked or otherwise allowed to stop or stand under any portion of an aircraft.

Exception: Aircraft-fueling vehicles shall be allowed to be located under aircraft wings during underwing fueling of turbine-engine powered aircraft.

[1106.5.1.1] 2006.5.1.1 Fueling vehicle egress. A clear path shall be maintained for aircraft-fueling vehicles to allow ready access to and egress from the fueling area.

[1106.5.1.2] 2006.5.1.2 Aircraft vent openings. A clear space of at least 10 feet (3048 mm) shall be maintained between aircraft fuel-system vent openings and an aircraft-fueling vehicle.

[1106.5.1.3] 2006.5.1.3 Parking. Prior to leaving the cab, the operator of an aircraft-fueling vehicle shall set the parking brake. At least two chock blocks not less than 5 inches by 5 inches by 12 inches (127 mm by 127 mm by 305 mm) in size and dished to fit the contour of the tires shall be utilized and positioned in such a manner so as to preclude movement of the vehicle in any direction.

[1106.5.2] 2006.5.2 Electrical bonding. Aircraft-fueling vehicles shall be electrically bonded to the aircraft being fueled or defueled. Bonding connections shall be made prior to making fueling connections and shall not be disconnected until the fuel-transfer operations are completed and the fueling connections have been removed. Where a hydrant service vehicle or cart is used for fueling, the hydrant coupler shall be connected to the hydrant system prior to bonding the fueling equipment to the aircraft.

[1106.5.2.1] 2006.5.2.1 Conductive hose. In addition to the bonding cable required by [FC1106.5.2] FC2006.5.2, conductive hose shall be used for all fueling operations.

[1106.5.2.2] 2006.5.2.2 Bonding conductors on transfer nozzles. Transfer nozzles shall be equipped with approved bonding conductors which shall be clipped or otherwise positively engaged with the bonding attachment provided on the aircraft adjacent to the fuel tank cap prior to removal of the cap.

Exception: In the case of overwing fueling where no appropriate bonding attachment adjacent to the fuel fill port has been provided on the aircraft, the fueling operator shall touch the fuel tank cap with the nozzle spout prior to removal of the cap. The nozzle shall be kept in contact with the fill port until fueling is completed.

[1106.5.2.3] 2006.5.2.3 Funnels. It shall be unlawful to use funnels in aircraft-fueling operations.

[1106.5.3] 2006.5.3 Training. All personnel engaged in fuel storage and aircraft-fueling operations shall receive appropriate hazard and fire safety training relating to such storage and fueling operation, including training in the use of fire extinguishing equipment. The owner or operator of the aviation facilities shall maintain on the premises a record of all such training in accordance with FC107.7.

[1106.5.4] 2006.5.4 Transfer personnel. During fuel-transfer operations, a qualified person shall be in control of each transfer nozzle and another qualified person shall be in immediate control of the fuel-pumping equipment to shut off or otherwise control the flow of fuel from the time fueling operations are begun until they are completed.

Exceptions:

1. For underwing refueling, the person stationed at the point of fuel intake is not required.
2. For overwing refueling, the person stationed at the fuel pumping equipment shall not be required when the person at the fuel dispensing device is within 75 feet (22 800 mm) of the emergency shutoff device, is not on the wing of the aircraft and has a clear and unencumbered path to the fuel pumping equipment; and, the fuel dispensing line does not exceed 50 feet (15 240 mm) in length.

[1106.5.4.1] 2006.5.4.1 Monitoring during fueling. The fueling operator shall monitor the panel of the fueling equipment and the aircraft control panel during pressure fueling or shall monitor the fill port during overwing fueling.

[1106.6] 2006.6 Emergency fuel shutoff. Emergency fuel shutoff controls and procedures shall comply with the requirements of FC [1106.6.1] 2006.6.1 through [1106.6.4] 2006.6.4.

[1106.6.1] 2006.6.1 Accessibility. Emergency fuel shutoff controls shall be readily accessible at all times when the fueling system is being operated.

[1106.6.2] 2006.6.2 Notification of the department. The owner or operator of the aviation facility shall establish a procedure by which the department will be notified in the event of an emergency involving the activation of an emergency

fuel shutoff control.

[1106.6.3] 2006.6.3 Determining cause. Prior to reestablishment of normal fuel flow, the cause of emergency fuel shutoff conditions shall be determined and corrected.

[1106.6.4] 2006.6.4 Testing. Emergency fuel shutoff devices shall be operationally tested at intervals not exceeding 3 months. The fueling-system operator shall maintain suitable records of these tests.

[1106.7] 2006.7 Protection of hoses. Before an aircraft-fueling vehicle is moved, fuel transfer hoses shall be properly placed on the approved reel or in the compartment provided, or stored on the top decking of the fueling vehicle if proper height rail is provided for security and protection of such equipment. Fuel-transfer hose shall not be looped or draped over any part of the fueling vehicle, except as herein provided. Fuel-transfer hose shall not be dragged when a fueling vehicle is moved from one fueling position to another.

[1106.8] 2006.8 Loading and unloading of aircraft-fueling vehicles. Aircraft-fueling vehicles shall be loaded only at an approved loading rack, except that aircraft-fueling vehicles may be loaded from the fuel tanks of an aircraft during defueling operations. Such loading racks shall be in accordance with FC Chapter [34] 57.

[1106.8.1] 2006.8.1 Unloading of aircraft-fueling vehicles. The fuel cargo of such vehicles shall be unloaded only by approved transfer apparatus into the fuel tanks of aircraft, approved underground storage tanks or approved aboveground storage tanks.

[1106.9] 2006.9 Passengers. Passenger traffic is not allowed during the time that fuel transfer operations are in progress.

[1106.10] 2006.10 Sources of ignition. It shall be unlawful to smoke, or light or maintain an open flame, within 50 feet (15 240 mm) of any location where fuel is being transferred. Electrical and motor-driven devices shall not be connected to or disconnected from an aircraft at any time fueling operations are in progress on such aircraft.

[1106.11] 2006.11 Fuel spill prevention and procedures. Fuel spill prevention and the procedures for handling spills shall comply with the requirements of FC [1106.11.1] 2006.11.1 through [1106.11.7] 2006.11.7.

[1106.11.1] 2006.11.1 Fueling equipment maintenance. Aircraft fueling equipment shall be maintained and kept free from leaks. Fueling equipment that malfunctions or leaks shall be immediately defueled, removed from service and properly repaired or disposed of.

[1106.11.2] 2006.11.2 Transporting fuel nozzles. Fuel nozzles shall be carried utilizing appropriate handles. Dragging fuel nozzles along the ground is prohibited.

[1106.11.3] 2006.11.3 Drum fueling. Fueling from drums or other containers is prohibited.

[1106.11.4] 2006.11.4 Fuel spill procedures. The owner or operator of the aviation facility shall establish comprehensive procedures to implement in the event of a fuel spill, which shall include the following actions:

1. Upon observation of a fuel spill, the aircraft-fueling operator shall immediately stop the delivery of fuel by releasing hand pressure from the fuel flow-control valve.
2. Failure of the fuel control valve to stop the continued spillage of fuel shall be cause for the activation of the appropriate emergency fuel shutoff device.
3. A supervisor shall respond to the fuel spill area immediately.

[1106.11.5] 2006.11.5 Notification of the department. The department shall be notified of any fuel spill which is considered a hazard to people or property or which meets one or more of the following criteria:

1. Any dimension of the spill is greater than 10 feet (3048 mm).
2. The spill area is greater than 50 square feet (4.65 m2).

3. The release of fuel is continuing.

[1106.11.6] 2006.11.6 Investigation required. An investigation shall be conducted by the owner or operator of the aviation facility into the cause of all spills requiring notification of the department, the response thereto by the persons in charge of the aircraft fueling operation and other aviation facility personnel. Should it be determined that corrective measures are necessary to prevent future incidents of the same nature, such measures shall be implemented in a timely manner.

[1106.11.7] 2006.11.7 Multiple fuel delivery vehicles. Simultaneous delivery of fuel from more than one aircraft-fueling vehicle to a single aircraft-fueling manifold is prohibited unless proper backflow prevention devices are installed to prevent fuel flow into the aircraft-fueling vehicles.

[1106.12] 2006.12 Aircraft engines and heaters. Aircraft onboard engines and combustion heaters shall be shut down prior to commencing fueling operations and shall remain off until the fueling operation is completed.

Exception: In an emergency, a single jet engine is allowed to be operated with the onboard engine running during fueling operations where all of the following conditions are met:

1. The emergency shall have resulted from an onboard failure of the aircraft's auxiliary power unit.
2. Restoration of auxiliary power to the aircraft by ground support services is not available.
3. The engine to be operated is either at the rear of the aircraft or on the opposite side of the aircraft from the fueling operations.
4. The emergency operation is in accordance with a written procedure approved by the commissioner.

[1106.13] 2006.13 Vehicle and equipment restrictions. During aircraft-fueling operations, only aircraft-fueling vehicles or other equipment actively involved in the fueling operation are allowed within 50 feet (15 240 mm) of the aircraft being fueled. Other aircraft-fueling vehicles or equipment are prohibited in this area until the fueling operation is complete.

Exception: Aircraft-fueling operations utilizing single-point refueling with a sealed, mechanically locked fuel line connection and the fuel is not a flammable liquid.

[1106.13.1] 2006.13.1 Overwing fueling. Vehicles or equipment shall not be allowed beneath the trailing edge of the wing when aircraft fueling takes place over the wing and the aircraft fuel-system vents are located on the upper surface of the wing.

[1106.14] 2006.14 Electrical equipment. Electrical equipment, including but not limited to, battery chargers, ground or auxiliary power units, fans, compressors or tools, shall not be operated, nor shall they be connected or disconnected from their power source, during fueling operations.

[1106.14.1] 2006.14.1 Other equipment. Electrical or other spark-producing equipment shall not be used within 10 feet (3048 mm) of fueling equipment, aircraft fill or vent points, or spill areas unless such equipment is intrinsically safe and approved for use in an explosive atmosphere.

[1106.15] 2006.15 Reserved.

[1106.16] 2006.16 Lightning. The commissioner may require the owner or operator of an aviation facility to establish criteria for the suspension and resumption of aircraft-fueling operations and other written procedures to implement in the event of lightning flashes at or near the aviation facility.

[1106.17] 2006.17 Fuel-transfer locations. It shall be unlawful to conduct aircraft-fueling operations indoors.

Exception: In aircraft hangars designed in accordance with the Building Code for Group F-1 occupancies, aircraft fuel-transfer operations are allowed where:

1. Such operation is necessary to accomplish aircraft fuel-system maintenance operations. Such operations shall be performed in accordance with nationally recognized standards; or

2. The fuel being used has a flash point greater than 100°F (37.8°C).

[1106.17.1] 2006.17.1 Position of aircraft. Aircraft being fueled shall be positioned such that any fuel system vents and other fuel tank openings are a minimum of:

1. Twenty-five feet (7620 mm) from buildings or structures other than jet bridges; and

2. Fifty feet (15 240 mm) from air intake vents for boiler, heater or incinerator rooms.

[1106.17.2] 2006.17.2 Fire equipment access. Access for fire service equipment to aircraft shall be maintained during aircraft-fueling operations.

[1106.18] 2006.18 Defueling operations. The requirements for aircraft-fueling operations contained in this section shall also apply to aircraft-defueling operations. Additional procedures shall be established by the owner or operator of the aviation facility to prevent overfilling of the cargo tank or other vehicle used in the defueling operation.

[1106.19] 2006.19 Maintenance of aircraft-fueling hose. Aircraft-fueling hoses shall be maintained in accordance with FC [1106.19.1] 2006.19.1 through [1106.19.4] 2006.19.4.

[1106.19.1] 2006.19.1 Inspections. Hoses used to fuel or defuel aircraft shall be inspected periodically to ensure their serviceability and suitability for continued service.

[1106.19.1.1] 2006.19.1.1 Daily inspection. Hoses shall be inspected daily. This inspection shall include a complete visual scan of the exterior for evidence of damage, blistering or leakage. Each coupling shall be inspected for evidence of leaks, slippage or misalignment.

[1106.19.1.2] 2006.19.1.2 Monthly inspection. A more thorough inspection, including pressure testing, shall be performed on each hose on a monthly basis. This inspection shall include examination of the fuel delivery inlet screen for rubber particles, which may indicate deterioration of the hose lining.

[1106.19.2] 2006.19.2 Damaged hose. Hose that has been damaged shall be immediately removed from service.

[1106.19.3] 2006.19.3 Repairing hose. Hoses are allowed to be repaired by removing the damaged portion and recoupling the undamaged end. When recoupling hoses, only couplings designed and approved for the size and type of hose in question shall be used. Hoses repaired in this manner shall be visually inspected and hydrostatically tested prior to being placed back in service.

[1106.19.4] 2006.19.4 New hose. New hose shall be visually inspected prior to being placed into service.

[1106.20] 2006.20 Aircraft-fueling vehicles parking. Unattended aircraft-fueling vehicles shall be parked in areas that provide for both the unencumbered dispersal of vehicles in the event of an emergency and the control of leakage such that adjacent buildings and storm drains are not contaminated by leaking fuel.

[1106.20.1] 2006.20.1 Parking area design. Parking areas for aircraft-fueling vehicles shall be designed and utilized such that a clearance of 10 feet (3048 mm) is maintained between each parked vehicle for department access. In addition, a minimum clearance of 50 feet (15 240 mm) shall be maintained between aircraft-fueling vehicles and parked aircraft and structures other than those used for the maintenance of aircraft-fueling vehicles. Aircraft-fueling vehicles shall not be stored indoors.

[1106.21] 2006.21 Radar equipment. Aircraft-fueling operations shall be prohibited while the weather-mapping radar of that aircraft is operating. Aircraft-fueling or other operations in which flammable liquids, vapors or mists may be present shall not be conducted within 300 feet (91 440 mm) of an operating aircraft surveillance radar. Aircraft-fueling operations shall not be conducted within 300 feet (91 440 mm) of airport flight traffic surveillance radar equipment. Aircraft-fueling or other operations in which flammable liquids, vapors or mists may be present shall not be conducted within 100 feet (30

480 mm) of airport ground traffic surveillance radar equipment.

[1106.21.1] 2006.21.1 Direction of radar beams. The beam from ground radar equipment shall not be directed toward fuel storage or loading racks.

Exceptions:

1. Fuel storage and loading racks in excess of 300 feet (91 440mm) from airport flight traffic surveillance equipment.
2. Fuel storage and loading racks in excess of 100 feet (30 480 mm) from airport ground traffic surveillance equipment.

SECTION FC [1107] 2007 HELISTOPS AND HELIPORTS

[1107.1] 2007.1 General. Helistops and heliports shall be maintained in accordance with this section. Helistops and heliports on buildings or structures shall be constructed in accordance with the construction codes, including the Building Code.

[1107.2] 2007.2 Clearances. The touchdown area shall be surrounded on all sides by a clear area having minimum average width at roof level of 15 feet (4572 mm) but no width less than 5 feet (1524 mm). The clear area shall be maintained.

[1107.3] 2007.3 Flammable and Class II combustible liquid spillage. Landing areas on buildings or structures shall be maintained so as to confine flammable or Class II combustible liquid spillage to the landing area itself, and provisions shall be made to drain such spillage away from exits or stairways serving the helicopter landing area or from a structure housing such exit or stairway.

[1107.4] 2007.4 Exits. Exits and stairways shall be maintained in accordance with the construction codes, including the Building Code.

[1107.5] 2007.5 Standpipe systems. Where a building with a rooftop helistop or heliport is equipped with a standpipe system, the system shall be extended to the roof level on which the helistop or heliport is located. All portions of the helistop and heliport area shall be within 150 feet (45 720 mm) of a standpipe system outlet connection.

[1107.6] 2007.6 Foam protection. Foam fire-protection capabilities shall be provided for rooftop heliports as required by the construction codes, including the Building Code. Such systems shall be designed, installed, operated and maintained in accordance with FC Chapter 9.

[1107.6.1] 2007.6.1 Initial foam fire extinguishing system test. Upon installation, a foam fire extinguishing system shall be tested in accordance with FC Chapter 9. The test shall be conducted at the owner's risk by his or her representative before a representative of the department.

[1107.6.2] 2007.6.2 Periodic foam fire extinguishing system test. The foam fire extinguishing system shall be inspected, tested and maintained in accordance with FC Chapter 9. Additionally, the foam fire extinguishing system shall be tested at least once every 2 years, as required in [FC3406.4.10.7] FC5706.4.10.7.

[1107.7] 2007.7 Portable fire extinguishers. A minimum of one portable fire extinguisher having a minimum 80-B:C rating shall be provided for each permanent takeoff and landing area and for the aircraft parking areas. Installation, inspection and maintenance of these portable fire extinguishers shall be in accordance with FC906.

[1107.8] 2007.8 Federal approval. Before operating helicopters from helistops and heliports, approval shall be obtained from the Federal Aviation Administration and any other federal, state or city authority having jurisdiction.

SECTION FC [1108] 2008 SEAPLANE BASE OPERATIONS

[1108.1] 2008.1 General. Seaplane bases shall be operated in accordance with the requirements of FC [1101] 2001

through [1106] 2006, as applicable. Notwithstanding any provision of this code to the contrary, a waterfront liquid motor fuel dispensing facility used for the fueling of seaplanes shall be deemed to constitute a marine liquid motor fuel dispensing facility.

SECTION FC [1109] 2009 HELICOPTER LANDING OPERATIONS

[1109.1] 2009.1 General. Helicopter landing operations, at other than an approved heliport or helistop, shall be conducted in accordance with this section.

[1109.2] 2009.2 Permit application. The owner or operator of the helicopter conducting the helicopter landing operation shall make a permit application to the department at least 20 calendar days prior to the proposed landing. The permit applications shall be on such form and include such information and documentation as the commissioner may require, including the following:

1. A site map of the area in which the helicopter landing operation is proposed to be conducted.
2. Proof of a liability and casualty insurance policy in an amount to be determined by the commissioner but not less than two million dollars. Such insurance policy shall cover the permit holder and the permit holder's employees, agents and contractors for any loss, damage or injury to persons or property by reason of the conduct of the helicopter landing operation, or the failure to comply with any requirement of this chapter or the rules, or the terms and conditions of the permit.
3. A copy of the pilot's license issued by the Federal Aviation Administration.
4. A copy of the aircraft's airworthiness certificate issued by the Federal Aviation Administration.
5. An affidavit of the property owner authorizing the helicopter landing operation on their property.

[1109.3] 2009.3 Required clearances. The location at which the helicopter landing operations are to be conducted is subject to the approval of the department. The commissioner may specify the open space clearances to be provided.

SECTION FC [1110] 2010 HELICOPTER LIFT OPERATIONS

[1110.1] 2010.1 General. Helicopter lift operations shall be conducted in accordance with this section.

[1110.1.1] 2010.1.1 Department of Buildings approval. Helicopter lift operations shall not be conducted except when the Commissioner of Buildings has authorized such operation.

[1110.2] 2010.2 Permit application. The owner or operator of the helicopter used to conduct the lift operation shall make application to the department for a permit at least 20 calendar days prior to the proposed lift operation. The permit application shall be on such form and include such information and documentation as the commissioner may require, including the following:

1. A site map of the area in which the lifting operation is proposed to be conducted.
2. Proof of a liability and casualty insurance policy in an amount to be determined by the commissioner but not less than five million dollars. Such insurance policy shall cover the permit holder and the permit holder's employees, agents and contractors from any loss, damage or injury to persons or property by reason of the conduct of the lift operation, or the failure to comply with any requirement of this chapter or the rules, or the terms and conditions of the permit.
3. A copy of the pilot's license issued by the Federal Aviation Administration.
4. A copy of the aircraft's airworthiness certificate issued by the Federal Aviation Administration.
5. An affidavit of the property owner authorizing the helicopter lift operation on their property.

[1110.3] 2010.3 Helicopter fueling. It shall be unlawful to fuel helicopters in the staging or discharge area.

[1110.3.1] 2010.3.1 Portable fuel tanks. Portable fuel tanks or drums within or on the exterior of the helicopter are prohibited. Auxiliary fuel storage tanks may be used provided they are an integral part of the aircraft's fuel system and of a type meeting the requirements of the Federal Aviation Administration.

[1110.4] 2010.4 Smoking. It shall be unlawful to smoke within 100 feet (30 480 mm) of a fuel storage area or fueling operation. It shall be unlawful to smoke within 100 feet (30 480 mm) of the helicopter staging area or discharge area while lift operations are being conducted.

[1110.5] 2010.5 Staging and discharge areas. The location of the staging and discharge areas, and their distance from any buildings or other impediments to flight, shall be subject to the approval of the commissioner, and shall be arranged and operated as set forth in FC [1110.5.1] 2010.5.1 and [1110.5.2] 2010.5.2.

[1110.5.1] 2010.5.1 Emergency access. Entrances to and exits from any premises or other location wherein lifting operations are being conducted shall be safeguarded in accordance with applicable laws, rules and regulations, but shall not be obstructed in a manner that prevents access or egress in the event of an emergency.

[1110.5.2] 2010.5.2 Restricted locations. Bulk plants or terminals or other premises where hazardous operations or occupancies are maintained shall not be used as a staging area or discharge area unless approved by the commissioner.

[1110.6] 2010.6 Fire protection. An adequate supply of water shall be provided at the location where lifting operations are conducted. When the discharge area or other area of the lifting operation requires the use of a fire pump or other auxiliary equipment to augment the water supply, such equipment shall be under the personal supervision of a certificate of fitness holder.

[1110.6.1] 2010.6.1 Foam protection. An air foam nozzle, pick-up tube and a minimum of 5 gallons (19 L) of foam, suitable for the fuel hazard presented, shall be available on site.

[1110.6.2] 2010.6.2 Portable fire extinguishers. Both the staging area and discharge area shall be provided with a minimum of two portable fire extinguishers each having a minimum 80-B:C rating.

[1110.6.3] 2010.6.3 Department monitoring. Lift operations allowed pursuant to this section may be monitored by representatives of the department to ensure compliance with the requirements of this chapter and the rules. Such representatives shall be allowed within the perimeter of the lift operation for such purpose.

[1110.7] 2010.7 Communication. Radio and/or other two-way wireless communication shall be maintained between the helicopter pilot and the ground at all times during the lift operation. The department representatives monitoring the lifting operation shall be provided with the ability to monitor such communications.

[1110.8] 2010.8 Discontinuance. Department representatives may temporarily suspend or cancel any lifting operation if, in their judgment, conditions exist that endanger public safety.

SECTION FC [1111] 2011 HOT AIR BALLOON OPERATIONS

[1111.1] 2011.1 General. Hot air balloon operations shall be conducted in accordance with this section.

[1111.1.1] 2011.1.1 Storage, handling and use of flammable gas. The storage, handling and use of LPG or other flammable gas for hot air balloon operations shall additionally be conducted in accordance with FC Chapters [35] 58 and [38] 61, as applicable, and the rules.

[1111.2] 2011.2 Permit application. The owner or operator of the hot air balloon, or in the case of an event involving multiple owners or operators of hot air balloons, the sponsor of such event, shall make application to the department for a permit at least 20 calendar days prior to any anticipated or scheduled operation. Permit applications shall be on such form and include such information and documentation as the commissioner may require, including the following:

1. A site map of the area in which the hot air balloon operation is proposed to be conducted.
2. Proof of a liability and casualty insurance policy in an amount to be determined by the commissioner but not less than two million dollars. Such insurance policy shall cover the permit holder and the permit holder's employees, agents and contractors from any loss, damage or injury to persons or property by reason of the conduct of the lifting operation, or the failure to comply with any requirement of this chapter or the rules, or the terms and conditions of the permit.
3. A copy of the pilot's license issued by the Federal Aviation Administration.
4. A copy of the aircraft's airworthiness certificate issued by the Federal Aviation Administration.
5. An affidavit of the property owner authorizing the hot air balloon operation on their property.
6. All information and documentation required for issuance of a permit for LPG storage, handling and use in connection with the hot air balloon operation pursuant to FC Chapter [38] 61 and the rules.

[1111.3] 2011.3 Required clearances. The location at which hot air balloon operations are to be conducted are subject to the approval of the department, provided, however, that a balloon shall not be secured or filled unless there is at least 150 feet (45 720 mm) of open space in all directions when measured from the center of the balloon.

[1111.4] 2011.4 Securing of balloons. Balloons shall have at least a three-point tie down to substantially immovable objects.

[1111.5] 2011.5 Weather conditions. Hot air balloon operations shall be conducted only under weather conditions conducive to such operation and in no circumstance when prevailing winds exceed 15 miles (24.135 km) per hour.

[1111.6] 2011.6 Discontinuance. Department representatives may temporarily suspend or cancel any hot air balloon operation if, in their judgment, conditions exist that endanger public safety.

CHAPTER 21 DRY CLEANING

SECTION FC [1201] 2101 GENERAL

[1201.1] 2101.1 Scope. This chapter shall govern the design, installation, operation and maintenance of dry cleaning facilities.

[1201.2] 2101.2 Permits. Permits shall be required as set forth in FC105.6.

[1201.3] 2101.3 General. Dry cleaning facilities shall be designed, installed, operated and maintained in accordance with this chapter.

[1201.4] 2101.4 Supervision. Dry cleaning facilities using Class II or III solvents in dry cleaning systems shall be under the general supervision of a certificate of fitness holder. Such certificate of fitness holder shall be an employee of the dry cleaning facility. The certificate of fitness holder shall monitor the equipment and facilities, ensure that the equipment and facilities are operated and maintained in accordance with this section, and instruct all employees who use or supervise the use of equipment in the proper operation and maintenance of such equipment.

Exception: Dry cleaning facilities may be operated under the general supervision of a person who is not an employee of the dry cleaning facility, provided that such person:

1. Holds a certificate of fitness.
2. Is an authorized representative of the manufacturer of the dry cleaning equipment, and provides the owner of the dry

cleaning facility with appropriate proof of such authority.

3. Instructs all employees of the dry cleaning facility who use or supervise the use of the equipment in the proper operation and maintenance of the equipment.

4. Personally conducts a monthly inspection of the equipment and facility to ensure that they are being operated and maintained in accordance with this section.

5. Records each monthly inspection in a logbook maintained on the premises by the owner of the dry cleaning facility, by making the following entries: the date of the inspection, the name, address, and certificate of fitness number and expiration date of the person conducting the inspection and the certification that the equipment and facility are being [operating] operated and maintained in accordance with this section.

[1201.4.1] 2101.4.1 Proof of qualification. Photocopies of the certificates of fitness of all persons responsible for the supervision of a dry cleaning facility, and of the proof that such person is an authorized representative of the manufacturer, where applicable, shall be maintained on the premises and made available for inspection by any representative of the department.

SECTION FC [1202] 2102 DEFINITIONS

[1202.1] 2102.1 Definitions. The following terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings [shown herein] set forth in FC202.

DRY CLEANING. [The process of removing dirt and stains or otherwise cleaning apparel, textiles, rugs and other items with nonaqueous liquid solvents.]

DRY CLEANING FACILITY. [A facility in which dry cleaning and associated operations are conducted, including the office, receiving area and storage rooms.]

DRY CLEANING ROOM. [An occupiable space within a building used for dry cleaning, the installation, storage and/or use of dry cleaning equipment and/or the storage of dry cleaning solvents.]

DRY CLEANING SYSTEM. [Equipment used to perform dry cleaning, including immersion or agitation in solvent of the items to be cleaned, and the extraction of solvent from such items.]

SECTION FC [1203] 2103 CLASSIFICATIONS

[1203.1] 2103.1 Dry cleaning solvent classifications. Dry cleaning solvents shall be classified according to their flash points as follows:

1. Class I solvents are flammable liquids having a flash point below 100°F (38°C).
2. Class II solvents are combustible liquids having a flash point at or above 100°F (38°C) and below 140°F (60°C).
3. Class IIIA solvents are combustible liquids having a flash point at or above 140°F (60°C) and below 200°F (93°C).
4. Class IIIB solvents are combustible liquids having a flash point at or above 200°F (93°C).
5. Class IV solvents are liquids that are neither flammable nor combustible.

[1203.2] 2103.2 Classification of dry cleaning systems and facilities. Dry cleaning systems shall be classified based on the use of solvents as follows:

1. Type I-systems using Class I solvents.

2. Type II-systems using Class II solvents.
3. Type III-A-systems using Class IIIA solvents.
4. Type III-B-systems using Class IIIB solvents.
5. Type IV-systems using Class IV solvents in which dry cleaning is not conducted by the public.
6. Type V-systems using Class IV solvents in which dry cleaning is conducted by the public.

[1203.2.1] 2103.2.1 Multiple solvents. Dry cleaning facilities using more than one class of dry cleaning system shall be classified based on the numerically lowest type of system.

[1203.2.2] 2103.2.2 Spotting and pretreating operations. Spotting and pretreating operations conducted in accordance with [FC1206] FC2106 shall not affect the classification of the dry cleaning system or facility.

[1203.3] 2103.3 Design. Dry cleaning facilities shall be designed and constructed in accordance with the construction codes, including the Building Code, and located in accordance with the Zoning Resolution, including Sections 32-15(A) and 32-25(D).

SECTION FC [1204] 2104 GENERAL REQUIREMENTS

[1204.1] 2104.1 Prohibited dry cleaning systems. It shall be unlawful to install, operate or maintain a Type I dry cleaning system.

[1204.1.1] 2104.1.1 Allowed use of Class I solvents. Class I solvents stored, handled and used in the amounts authorized by [FC1206] FC2106 are allowed in dry cleaning facilities.

[1204.2] 2104.2 Building services and systems. Building services and systems shall be designed, installed, operated and maintained in accordance with this section, FC Chapter 6 and the construction codes, including the Building Code.

[1204.2.1] 2104.2.1 Ventilation. Ventilation shall be provided in accordance with the construction codes, including Chapter 5 of the Mechanical Code, and United States Department of Labor regulations, as set forth in 29 CFR Section 1910.1000, as applicable.

[1204.2.2] 2104.2.2 Heating. In Type II dry cleaning facilities, heating shall be by indirect means using steam or hot water.

[1204.2.3] 2104.2.3 Electrical wiring and equipment. Electrical wiring and equipment in dry cleaning rooms or other portions of the facility exposed to flammable vapors shall be installed in accordance with the Electrical Code.

[1204.2.4] 2104.2.4 Bonding and grounding. Storage tanks, treatment tanks, filters, pumps, piping, ducts, dry cleaning units, stills, tumblers, drying cabinets and other dry cleaning equipment, where not inherently electrically conductive, shall be bonded together and grounded. Isolated equipment shall be grounded.

[1204.2.5] 2104.2.5 Smoking prohibited. It shall be unlawful to smoke in a dry cleaning facility. "NO SMOKING" signs in compliance with the requirements of FC310 shall be conspicuously posted.

SECTION FC [1205] 2105 OPERATING AND MAINTENANCE REQUIREMENTS

[1205.1] 2105.1 General. Dry cleaning systems shall be operated and maintained in compliance with the requirements of this section, the manufacturer's specifications and the construction codes, including the Building Code.

[1205.1.1] 2105.1.1 Written instructions. The manufacturer's manuals for the installation, operation and maintenance of the equipment shall be maintained on the premises and made available for inspection by any representative of the department.

[1205.1.1.1] 2105.1.1.1 Type II, III-A, III-B and IV systems. Type II, III-A, III-B and IV dry cleaning systems shall be operated in accordance with the instructions provided by the manufacturer. The owner shall ensure that all persons operating dry cleaning equipment comply with such instructions.

[1205.1.1.2] 2105.1.1.2 Type V systems. Operating instructions for customer use of Type V dry cleaning systems shall be conspicuously posted in a location near the dry cleaning equipment. A telephone number shall be provided for emergency assistance.

[1205.1.2] 2105.1.2 Equipment identification. The manufacturer shall permanently affix to dry cleaning equipment nameplates indicating the class of solvent for which each piece of equipment is designed. The name of the dry cleaning solvent approved for use in dry cleaning equipment shall be clearly and conspicuously marked or posted at the fill connection of the equipment.

[1205.1.3] 2105.1.3 Prohibited operations. It shall be unlawful to dry clean by immersion and agitation in open systems.

[1205.1.4] 2105.1.4 Prohibited use of solvent. Only solvents of a type listed for a particular piece of equipment shall be used in such equipment.

[1205.1.5] 2105.1.5 Equipment maintenance and housekeeping. Proper operating practices and maintenance shall be observed in order to prevent the leakage of solvent or the accumulation of lint. The handling of waste generated by dry cleaning operations and the maintenance of facilities shall comply with the requirements of this section.

[1205.1.5.1] 2105.1.5.1 Floors. Class I and II liquids as defined in [FC3402] FC202 shall not be used for cleaning floors.

[1205.1.5.2] 2105.1.5.2 Filters. Filter residue and other waste containing solvent shall be stored in covered metal containers and disposed of lawfully.

[1205.1.5.3] 2105.1.5.3 Lint. Lint and other waste shall be removed from traps daily, deposited in approved waste cans and disposed of lawfully. Lint traps shall remain in place while the dry cleaning equipment is in operation.

[1205.1.5.4] 2105.1.5.4 Customer areas. In Type V dry cleaning systems, customer areas shall be kept free of rubbish and other combustible waste.

[1205.2] 2105.2 Type II systems. Type II dry cleaning systems shall be operated in accordance with the following additional requirements.

[1205.2.1] 2105.2.1 Inspection of items. Items to be dry cleaned shall be searched thoroughly, and foreign materials, including matches and metallic substances, shall be removed.

[1205.2.2] 2105.2.2 Transfer. In removing dry cleaned items from the washer, provision shall be made to minimize the dripping of solvent onto the floor. Where items are transferred from a washer to a drain tub, a nonferrous metal drip apron shall be placed so that the apron rests on the drain tub and the cylinder of the washer.

[1205.2.3] 2105.2.3 Ventilation. A mechanical ventilation system shall be installed in dry cleaning rooms and in drying rooms in accordance with the construction codes, including the Mechanical Code. The ventilation system shall operate automatically when the dry cleaning equipment is in operation and shall have manual controls at an approved location.

[1205.3] 2105.3 Type III, IV and V systems. Type III, IV and V dry cleaning systems shall be provided with an automatically activated exhaust ventilation system as required and in accordance with the construction codes, including the Mechanical Code.

[1205.4] 2105.4 Periodic inspection and testing. All dry cleaning equipment using Class II or III solvents shall be inspected and tested on at least an annual basis. The owner of the dry cleaning facility shall remove from service any equipment that is found to be defective, and shall promptly repair such equipment or remove it from the premises. Such equipment shall not be returned to service until it has been inspected and tested. All such inspection and testing shall be performed by a person holding a certificate of fitness.

[1205.4.1] 2105.4.1 Inspection reports. The individual performing the inspection and testing of equipment shall prepare a written report identifying any defects in the condition and operation of the equipment and/or certifying that the equipment can be safely operated in accordance with this chapter. A certification that all equipment in service is in proper working order in accordance with this chapter shall be maintained on the premises for 3 years and made available for inspection by any representative of the department.

[1205.5] 2105.5 Filling and emptying. The filling and emptying of dry cleaning equipment with Class II or III solvents shall be performed by a certificate of fitness holder. Each filling and emptying of dry cleaning equipment with a Class II or III solvent shall be recorded in a logbook. Such records shall include the date of the filling or emptying, the type and amount of dry cleaning solvent, the equipment filled or emptied, and the name and certificate number of the certificate of fitness holder who performed the filling or emptying.

SECTION FC [1206] 2106 SPOTTING AND PRETREATING

[1206.1] 2106.1 General. The storage, handling and use of dry cleaning solvents for spotting and pretreating operations in any dry cleaning facility shall comply with the requirements of this section, based on the classification of the solvent.

[1206.2] 2106.2 Class I solvents. The maximum quantity of Class I solvents allowed at any dry cleaning facility shall be 1 gallon (4 L). Class I solvents shall be stored in approved metal containers or safety cans of not more than 2 quarts (2 L) capacity.

[1206.3] 2106.3 Class II and III solvents. Spotting and pretreating, including scouring and brushing, shall be conducted with Class II or III solvents. The maximum quantity of Class II or III solvents allowed at any work station shall be 1 gallon (4 L). In an occupancy other than a Group H-2 occupancy, the aggregate quantities of solvents shall not exceed the maximum allowable quantity per control area for use-open systems.

[1206.3.1] 2106.3.1 Spotting tables. Scouring, brushing or spotting tables on which items are soaked in solvent shall have a liquid-tight top with a curb on all sides not less than 1 inch (25 mm) high. The top of the table shall be pitched to ensure thorough draining to a 1 1/2-inch (38-mm) drain connected to an approved container.

[1206.3.2] 2106.3.2 Special handling. Items that may be damaged from being washed in the washing equipment may be manually cleaned in scrubbing tubs. Scrubbing tubs shall comply with the following requirements:

1. Only Class II or III liquids shall be used.
2. The total amount of solvent used in such tubs shall not exceed 3 gallons (11 L).
3. Scrubbing tubs shall be secured to the floor.
4. Scrubbing tubs shall be provided with permanent 1 1/2-inch (38-mm) drains. Such drains shall be provided with a trap and shall be connected to an approved container.

[1206.3.3] 2106.3.3 Ventilation. Scrubbing tubs, scouring, brushing or spotting operations shall be located such that solvent vapors are captured and exhausted by the ventilating system.

[1206.3.4] 2106.3.4 Bonding and grounding. Metal scouring, brushing and spotting tables and scrubbing tubs shall be permanently and effectively bonded and grounded.

[1206.4] 2106.4 Reserved.

[1206.5] 2106.5 Prohibited spotting and pretreating operation. It shall be unlawful to store, handle or use any Class I, Class II or Class III solvent for spotting or pretreating operations in any Type V dry cleaning facility or in connection with the use of any Type V dry cleaning system.

SECTION FC [1207] 2107

DRY CLEANING SYSTEMS

[1207.1] 2107.1 General equipment requirements. Dry cleaning systems, including dry cleaning units, washing equipment, stills, drying cabinets, tumblers, and their appurtenances, including pumps, piping, valves, filters and solvent coolers, shall be designed, installed, operated and maintained in accordance with NFPA 32, the manufacturer's specifications, and the construction codes, including the Building Code.

[1207.2] 2107.2 Type II systems. Type II dry cleaning and solvent tank storage rooms shall not be located below grade or above the lowest floor level of the building and shall comply with the requirements of FC [1207.2.1] 2107.2.1 through [1207.2.3] 2107.2.3.

Exception: Solvent storage tanks installed underground, in vaults or in special enclosures in accordance with FC Chapter [34] 57.

[1207.2.1] 2107.2.1 Firefighting access. Type II dry cleaning facilities shall be located so that access is provided and maintained from at least one side for firefighting and fire control purposes in accordance with FC503 and the construction codes, including the Building Code.

[1207.2.2] 2107.2.2 Means of egress. Type II dry cleaning rooms shall have not less than two means of egress through doors located at opposite ends of the room, at least one of which shall lead directly to the outdoors.

[1207.2.3] 2107.2.3 Spill control and secondary containment. Curbs, drains, or other provisions for spill control and secondary containment shall be provided in accordance with [FC2704.2] FC5004.2 to collect solvent leakage and fire protection water and direct it to a safe location.

[1207.3] 2107.3 Solvent storage tanks. Solvent storage tanks for Class II, IIIA and IIIB liquids shall conform to the requirements of FC Chapter [34] 57 and be located underground, or outdoors, aboveground.

Exception: Indoor storage tanks in compliance with the requirements of NFPA 32 and FC Chapter [34] 57.

SECTION FC [1208] 2108 FIRE PROTECTION

[1208.1] 2108.1 General. Where required by this section, fire protection devices, equipment and systems shall be designed, installed, operated and maintained in accordance with FC Chapter 9 and the construction codes, including the Building Code.

[1208.2] Sprinkler system. Dry cleaning facilities containing Type II, Type III-A or Type III-B dry cleaning systems shall be protected throughout by a sprinkler system.

1208.3 Fire extinguishing systems. Type II dry cleaning systems in Type II dry cleaning facilities shall be protected by a fire extinguishing system.]

2108.2 Fire extinguishing systems in newly-established dry cleaning facilities. Dry cleaning facilities established after the effective date of FC2108.2 shall be protected throughout by a sprinkler system, provided, however, that a heretofore lawfully-existing dry cleaning establishment in a newly-established facility may comply with the requirements of FC2108.3 if the newly-established facility does not constitute a change in the use or occupancy of the premises, as determined by the Department of Buildings. The sprinkler system shall be designed and installed in accordance with the Building Code.

2108.2.1 Type II dry cleaning facilities. Type II dry cleaning facilities shall be protected throughout by a sprinkler system. Type II dry cleaning units, washer-extractors and drying tumblers in such facilities shall additionally be protected by an approved automatic non-sprinkler fire extinguishing system installed and maintained in accordance with FC904.

2108.3 Fire extinguishing systems in lawfully existing dry cleaning facilities. Type III dry cleaning facilities lawfully existing as of the effective date of this provision (FC2108.3) shall be subject to the design and installation requirements set forth in FC 2108.3.1 through 2108.3.3, as applicable.

2108.3.1 Fully-sprinklered facilities. A Type III dry cleaning facility protected throughout by a sprinkler system designed and installed in accordance with the Building Code shall maintain such existing fire protection system and is not subject to the dry cleaning system design requirements of FC2108.3.3.

2108.3.2 Partially-sprinklered facilities. A Type III dry cleaning facility in which the dry cleaning system is protected by one or more sprinkler heads shall maintain such existing fire protection system and is not subject to the dry cleaning system design requirements of FC2108.3.3. Any Type III dry cleaning equipment newly-introduced after the effective date of this provision shall comply with the requirements of FC2108.3.3(2). The aggregate quantity of Type III dry cleaning solvent stored, handled and used in the dry cleaning facility, including the solvent used in the dry cleaning system, shall not exceed 330 gallons (1249 L).

2108.3.3 Unprotected facilities. A lawfully existing Type III dry cleaning facility that is not in compliance with FC 2108.3.1 or 2108.3.2 shall, upon alteration on or after the effective date of this provision (FC2108.3), be subject to the following requirements:

1. Two or more sprinkler heads designed and installed in accordance with the Building Code shall protect the dry cleaning system; and
2. The dry cleaning system shall be designed and listed to accomplish one or more of the following criteria:
 - 2.1. Prevent oxygen concentrations from reaching 8 percent or more by volume; and/or
 - 2.2. Keep the temperature of the solvent at least 30°F (16.7°C) below the flash point; and/or
 - 2.3. Maintain the solvent vapor concentration at a level lower than 25 percent of the lower explosive limit (LEL); and/or
 - 2.4. Utilize equipment approved for use in Class I, Division 2 hazardous locations in accordance with the Electrical Code; and/or
 - 2.5. Utilize an integrated dry chemical, clean agent or water mist automatic fire-extinguishing system designed in accordance with Chapter 9; and
3. The occupancy housing the dry cleaning establishment shall be in compliance with the Building Code and Mechanical Code. If not required and/or constructed with a 2-hour fire separation, the dry cleaning equipment shall be protected by a 1-hour fire rated enclosure provided with mechanical ventilation in accordance with the Mechanical Code.
4. The aggregate quantity of Type III-A dry cleaning solvent stored, handled and used in the dry cleaning facility, including the solvent used in the dry cleaning system, shall not exceed 330 gallons (1249 L).
5. The aggregate quantity of Type III-B dry cleaning solvent stored, handled and used in the dry cleaning facility, including the solvent used in the dry cleaning system, shall not exceed 660 gallons (2498 L).

[1208.4] 2108.4 Portable fire extinguishers. Portable fire extinguishers shall be provided and maintained in accordance with this section and FC906. A minimum of two 2-A:10-B:C rated portable fire extinguishers shall be provided near the doors inside dry cleaning rooms containing Type II, Type III-A and Type III-B dry cleaning systems.

CHAPTER 22 COMBUSTIBLE DUST-PRODUCING OPERATIONS

SECTION FC [1301] 2201 GENERAL

[1301.1] 2201.1 Scope. This chapter shall govern combustible dust-producing operations, and the equipment and processes utilized in connection with such operations in order to minimize and mitigate dust explosion hazards.

[1301.2] 2201.2 Permits. Permits shall be required as set forth in FC105.6.

[1301.3] 2201.3 General. Combustible dust-producing operations, including manufacturing, processing and handling operations, shall be conducted in accordance with this chapter. All devices, equipment, systems and processes utilized in connection with such operations shall be designed, installed, operated and maintained in accordance with this chapter.

2201.3.1 Powder coating operations. Powder coating shall additionally comply with the requirements of FC Chapter 24.

2201.3.2 Woodworking facilities. Operations that produce deflagrable wood dust shall additionally comply with the requirements of FC Chapter 28.

2201.3.3 Special effect. Special effects utilizing combustible dust shall additionally comply with the requirements of FC Chapter 56.

SECTION FC [1302] 2202 DEFINITIONS

[1302.1 Definition] 2202.1 Definitions. The following terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings [shown herein] set forth in FC202.

COMBUSTIBLE DUST. [Finely divided solid material that is 420 microns or less in diameter, will pass through a U.S. standard No. 40 sieve and, when dispersed in air in sufficient concentrations, can be ignited by a flame, spark or other source of ignition.]

DEFLAGRABLE WOOD DUST.

SECTION FC [1303] 2203 PRECAUTIONS

[1303.1] 2203.1 Sources of ignition. It shall be unlawful to smoke, or use heating or other devices employing an open flame or spark-producing equipment, in areas where combustible dust is generated, processed or otherwise stored, handled or used.

[1303.2] 2203.2 Housekeeping. Accumulation of combustible dust shall be kept to a minimum indoors. Accumulated combustible dust shall be collected by vacuum cleaning or other means that will not place combustible dust into suspension in air. Forced air or similar methods shall not be used to remove dust from surfaces. When a normally inaccessible area such as a duct or cockloft is made accessible for purposes of an alteration, repair or other reason, any accumulation of combustible dust shall be removed from such area.

SECTION FC [1304] 2204 [EXPLOSION PROTECTION] ADDITIONAL REQUIREMENTS

[1304.1 Standards. Measures shall be] 2204.1 Explosion protection standards. An approved dust collection system shall be installed and/or other measures taken to [prevent and control dust explosions wherever] collect and otherwise manage combustible dust generated by combustible dust-producing operations [are conducted. Such measures shall comply with the applicable operation and maintenance requirements of the codes and standards listed in FC Table 1304.1] in order to prevent or mitigate combustible dust explosions. Facilities in which combustible dust-producing operations are to be conducted shall be designed, installed, operated and maintained in accordance with the industry or product-specific standards set forth in FC Table 2204.1.

FC TABLE [1304.1] 2204.1 EXPLOSION PROTECTION STANDARDS STANDARD

SUBJECT

NFPA 61

Prevention of Fires and Dust Explosions in Agricultural and Food Processing Facilities

NFPA 69

Explosion Prevention Systems

NFPA 85
Boiler and Combustion Systems Hazards Code
NFPA 120
Fire Prevention and Control in Coal Mines
NFPA 484
Combustible Metals
NFPA 652
Fundamentals of Combustible Dust
NFPA 654
Prevention of Fires and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids
NFPA 655
Prevention of Sulfur Fires and Explosions
NFPA 664
Prevention of Fires and Explosions in Wood Processing and Woodworking Facilities
Electrical Code
Electrical Installations

2204.2 Dust hazard analysis. A dust hazard analysis shall be conducted in accordance with NFPA 652 upon commencement of combustible dust-producing operations for any operation generating visible atmospheric dust and/or dust accumulations at locations other than the point of dust generation, to determine whether:

1. the equipment designed and installed to collect combustible dust and other mitigation measures is effective in achieving its design objectives and is preventing fugitive dust; or
2. the operation is generating an amount of combustible dust as to require the installation of combustible dust collection equipment and other mitigation measures.

CHAPTER 23 MOTOR FUEL-DISPENSING FACILITIES AND REPAIR GARAGES

SECTION FC [2201] 2301 GENERAL

[2201.1] 2301.1 Scope. This chapter shall govern the design, installation, operation and maintenance of fleet motor fuel-dispensing facilities, full-service motor fuel-dispensing facilities, self-service motor fuel-dispensing facilities, and repair garages.

[2201.2] 2301.2 Permits. Permits shall be required as set forth in FC105.6.

[2201.3] 2301.3 Design and installation documents. Design and installation documents shall be submitted to the department for review and approval in accordance with FC105.4 prior to the installation, alteration, repair or construction of fleet motor fuel-dispensing facilities, full-service motor fuel-dispensing facilities, [and] self-service motor fuel-dispensing facilities [in accordance with FC105.4], and repair garages for vehicles fueled by lighter-than-air motor fuels. Design and installation documents shall include the location of all storage tanks, dispensers, compressors, piping, fire protection systems and emergency shutdown devices.

[2201.3.1] 2301.3.1 Compliance with other codes. The installation or alteration of a liquid motor fuel storage and dispensing system regulated by this chapter shall not be approved by the department unless the design and installation documents demonstrate that the proposed work complies with the regulations of the United States Environmental Protection Agency, as set forth in 40 CFR Part 280, and the regulations of the New York State Department of Environmental Conservation, as set forth in 6 NYCRR [Parts 612,] Part 613 [and 614,] as applicable.

[2201.4] 2301.4 General. All fleet motor fuel-dispensing facilities, full-service motor fuel-dispensing facilities, self-service motor fuel-dispensing facilities and repair garages shall be designed, installed, operated and maintained in accordance with this chapter, FC Chapter [34] 57 and the construction codes, including the Building Code, the Fuel Gas Code and the

Mechanical Code, and, as applicable, NFPA 30A.

[2201.5] 2301.5 Electrical. Electrical wiring and equipment shall be suitable for the locations in which they are installed and shall comply with the requirements of FC605, NFPA 30A and the Electrical Code, as applicable. Upon request, proof of compliance with the Electrical Code shall be filed with the department.

[2201.6] 2301.6 Heat-producing appliances. Heat-producing appliances shall be suitable for the locations in which they are installed and shall comply with the requirements of the construction codes, including the Building Code, the Mechanical Code and the Fuel Gas Code, and NFPA 2 and 30A, as applicable.

[2201.7] 2301.7 Supervision of dispensing operations. The dispensing of motor fuel at fleet motor fuel-dispensing facilities, full-service motor fuel-dispensing facilities and self-service motor fuel-dispensing facilities shall be conducted by or under the personal supervision of a certified attendant, who shall be responsible for ensuring that dispensing operations are conducted and the facility is maintained in accordance with this chapter and the rules.

[2201.8] 2301.8 Supervision of defueling operations. The defueling of liquid motor fuel from the fuel tank of a motor vehicle shall be conducted by or under the personal supervision of a person holding a certificate of fitness.

[2201.9] 2301.9 Certificate of license. Persons who install, alter, test or repair any automotive or marine liquid motor fuel storage and dispensing systems, including liquid motor fuel storage and dispensing systems at a bulk plant or terminal, shall hold a certificate of license or shall be employed by and perform such duties under the general supervision of a person holding such certificate.

[2201.10] 2301.10 Records of inspections and testing. Records of all inspections and testing required by this chapter shall be kept in a bound log book or other approved recordkeeping, maintained on the premises for a minimum of 4 years, except that records of the required 5 year tests as set forth in FC [2206.9.4] 2306.9.4, [2206.9.6] 2306.9.6 and [2208.7.4.1] 2308.7.4.1 shall be maintained on the premises for a minimum of 6 years.

[2201.11] 2301.11 Prohibition. It shall be unlawful to operate as a self-service motor fuel-dispensing facility any motor fuel-dispensing facility or a motor fuel dispenser installed and approved as a fleet or full-service motor fuel-dispensing facility or dispenser.

SECTION FC [2202] 2302 DEFINITIONS

[2202.1] 2302.1 Definitions. The following terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings [shown herein] set forth in FC202.

ALCOHOL-BLENDED MOTOR FUEL. [Gasoline blended with ethanol or other alcohol with an alcohol concentration greater than 15 percent by volume.]

BIODIESEL.

CERTIFIED ATTENDANT. [A person holding a certificate of fitness for the supervision of a full-service motor fuel-dispensing facility or self-service motor fuel-dispensing facility.]

CNG. [Compressed natural gas.]

DISPENSING DEVICE, OVERHEAD TYPE. [A dispensing device mounted above a dispensing area, typically within a canopy structure, and characterized by the use of an overhead hose reel.]

FLAMMABLE LIQUID MOTOR FUEL. [Gasoline or other flammable liquids used as fuel in the operation of motor vehicles, motorcycles, watercraft and aircraft.]

FLEET MOTOR FUEL-DISPENSING FACILITY. [A motor fuel-dispensing facility wherein motor fuel is stored and/or dispensed into the fuel tank of a motor vehicle, motorcycle, marine vessel or watercraft owned or operated by or on behalf of the owner of the facility, and where such dispensing operations are conducted by persons employed by or on

behalf of the owner of the facility. There are four approved types of fleet motor fuel-dispensing facilities:

Fleet automotive hydrogen motor fuel-dispensing facility (motor vehicles)
Fleet automotive liquid motor fuel-dispensing facility (motor vehicles and motorcycles)
Fleet CNG motor fuel-dispensing facility (motor vehicles, marine vessels and watercraft)
Fleet marine liquid motor fuel-dispensing facility (marine vessel and watercraft)]

FULL-SERVICE MOTOR FUEL-DISPENSING FACILITY. [A motor fuel-dispensing facility wherein motor fuel is dispensed into the fuel tank of motor vehicles, motorcycles, marine vessels or watercraft by a certified attendant or, when under the personal supervision of a certified attendant, by persons employed by or on behalf of the owner of the facility. There are four approved types of full-service motor fuel-dispensing facilities:

Full-service automotive hydrogen motor fuel-dispensing facility (motor vehicles)
Full-service automotive liquid motor fuel-dispensing facility (motor vehicles and motorcycles)
Full-service CNG motor fuel-dispensing facility (motor vehicles, marine vessels and watercraft)
Full-service marine liquid motor fuel-dispensing facility (marine vessel and watercraft)]

LIQUEFIED NATURAL GAS (LNG). [A fluid in the liquid state composed predominantly of methane and which may contain minor quantities of ethane, propane, nitrogen or other components normally found in natural gas.]

LIQUID MOTOR FUEL. [Gasoline, diesel fuel or other flammable or combustible liquids used as fuel in the operation of motor vehicles, motorcycles, marine vessels and watercraft.]

LIQUID MOTOR FUEL STORAGE AND DISPENSING SYSTEM. [A liquid motor fuel storage tank and all motor fuel storage and dispensing equipment associated with such tank, including the tank, piping, valves, fill connection catchment basins, vent lines, pumps, dispensing devices and any other ancillary equipment.]

MOTOR VEHICLE. [A vehicle or other conveyance having more than two running wheels and using liquid motor fuel or flammable gas as fuel for generating motive power, except such vehicles as have a storage tank with a maximum capacity for less than 2 gallons (7.6 L) of liquid motor fuel or flammable gas that generates energy that is equivalent to the energy generated by 2 gallons (7.6 L) of gasoline.]

REPAIR GARAGE. [A building, structure or portion thereof used for servicing or repairing motor vehicles or motorcycles.]

SELF-SERVICE MOTOR FUEL-DISPENSING FACILITY. [A motor fuel-dispensing facility wherein motor fuel is dispensed by customers of the facility from a motor fuel storage and dispensing system into the fuel tank of motor vehicles or motorcycles. There are two approved types of self-service motor fuel-dispensing facilities:

Self-service automotive liquid motor fuel-dispensing facility (motor vehicles and motorcycles)
Self-service CNG motor fuel-dispensing facility (motor vehicles)]

SECTION FC [2203] 2303

LOCATION OF LIQUID MOTOR FUEL DISPENSING DEVICES

[2203.1] 2303.1 Location of dispensing devices. Dispensing devices for liquid motor fuel storage and dispensing systems shall be located as set forth in FC [2203.1.1] 2303.1.1 and [2203.1.2] 2303.1.2.

[2203.1.1] 2303.1.1 Outdoor dispensing devices. When installed outdoors, dispensing devices shall be located as follows:

1. Ten feet (3048 mm) or more from lot lines and building or structure openings.
2. Ten feet (3048 mm) or more from buildings or structures having combustible exterior wall surfaces or buildings or structures having noncombustible exterior wall surfaces that are not part of a 1-hour fire-resistance-rated assembly or buildings or structures having combustible overhangs.

Exception: Canopies constructed in accordance with the construction codes, including the Building Code, providing weather protection for the motor fuel dispensers.

3. Such that all portions of the vehicle being fueled will be on the premises of the motor fuel-dispensing facility.
4. Such that the nozzle, when the hose is fully extended, will not reach within 5 feet (1524 mm) of building or structure openings.
5. Twenty feet (6096 mm) or more from fixed sources of ignition.
6. Twenty-five feet (7620 mm) or more from the nearest subway grating, entrance or exit.

[2203.1.2] 2303.1.2 Indoor dispensing devices. When installed indoors, the dispensing area shall be located at street level, with no dispenser located more than 50 feet (15 240 mm) from an exit or entrance to the building or structure used by motor vehicles.

SECTION FC [2204] 2304 DISPENSING OF LIQUID MOTOR FUEL

[2204.1] 2304.1 General. The dispensing of liquid motor fuels at motor fuel-dispensing facilities, and the design, installation, operation and maintenance of liquid motor fuel storage and dispensing systems and facilities shall be in accordance with this section.

[2204.1.1] 2304.1.1 Prohibition. It shall be unlawful to dispense motor fuel into a vehicle while:

1. smoking;
2. using or maintaining an open flame;
3. the engine of the vehicle being fueled is not shut down;
4. using any object to override, bypass or otherwise render the fuel dispensing nozzle's manual hold-open design feature inoperable.

[2204.1.2] 2304.1.2 Emergency fuel shutoff. An approved, clearly identified and readily accessible emergency fuel shutoff switch shall be provided at an approved location to immediately shut down the transfer of fuel to the fuel dispensers in the event of a fuel spill or other emergency and activate an alarm audible in the dispensing area and any control booth. Such audible device may be the same device used to indicate activation of the fire extinguishing system installed to protect the fuel dispensers. An emergency fuel shutoff switch for outdoor fuel dispensers shall be located within 100 feet (30 480 mm) of, but not less than 20 feet (6096 mm) from, the fuel dispensers. For indoor fuel dispensers, the emergency fuel shutoff switch shall be installed at an approved location. An approved sign shall be posted on or immediately adjacent to the emergency fuel shutoff switch, which reads: EMERGENCY FUEL SHUTOFF. Such emergency fuel shutoff switches shall be of a type that must be reset manually.

[2204.1.3] 2304.1.3 Lighting. Dispensing areas shall be well lighted whenever dispensing is being conducted.

[2204.1.4] 2304.1.4 Dispensing area signage. Durable signs shall be conspicuously posted in dispensing areas in motor fuel-dispensing facilities in compliance with the requirements of FC [2204.1.4.1] 2304.1.4.1 through [2204.1.4.4] 2304.1.4.4.

[2204.1.4.1] 2304.1.4.1 Operating instructions. A sign setting forth dispenser operating instructions shall be posted on every dispenser. Such sign shall also indicate the location of the emergency fuel shutoff switches required by [FC2204.1.2] FC2304.1.2.

[2204.1.4.2] 2304.1.4.2 Fuel dispensing warning sign. A warning sign that reads as follows shall be posted on or immediately adjacent to each dispenser:

1. No smoking.

2. Shut off engine.
3. Before fueling, discharge any static electricity by touching a metal surface. Repeat before removing nozzle.
4. If a fire starts, do not remove nozzle-leave the area immediately.
5. It is unlawful and dangerous to dispense fuel into unapproved containers or to fill portable containers in or on a motor vehicle.
6. It is unlawful for anyone other than the certified attendant to fill portable containers.

[2204.1.4.3] 2304.1.4.3 Alcohol-blended motor fuel notice. A sign or marking indicating the type and concentration of alcohol in the motor fuel being dispensed shall be posted on or affixed to each dispenser dispensing alcohol-blended motor fuel.

[2204.1.4.4] 2304.1.4.4 Emergency procedures. A sign setting forth emergency procedures that reads as follows shall be posted in the dispensing area, or other location designated in this section:

IN CASE OF FIRE OR SPILL:

USE THE EMERGENCY FUEL SHUTOFF SWITCH
TO STOP THE FLOW OF FUEL

(for flammable fuel dispensers)
ACTIVATE THE FIRE EXTINGUISHING SYSTEM
PROTECTING THE DISPENSING AREA.
(SWITCH LOCATION):
(indicate location)

DIRECT VEHICLE OCCUPANTS TO EXIT VEHICLES
AND LEAVE AREA IMMEDIATELY

NOTIFY THE FIRE DEPARTMENT (CALL 911)
(FACILITY ADDRESS)
(indicate address, with cross-street reference).

KEEP ALL PERSONS AWAY FROM THE AREA.

[2204.1.5] 2304.1.5 Emergency telephone. A telephone not requiring a coin to operate or another approved, clearly identified means to notify the department, shall be provided at the facility in an approved location.

[2204.1.6] 2304.1.6 Dispensing on piers, docks or wharves. Flammable liquid motor fuel shall not be dispensed into the fuel tanks of motor vehicles imported by ship to this country while on any pier, dock or wharf.

[2204.1.7] 2304.1.7 Dispensing into portable containers. The dispensing of liquid motor fuel into portable containers shall comply with the requirements of FC [2204.1.7.1] 2304.1.7.1 through [2204.1.7.5] 2304.1.7.5.

[2204.1.7.1] 2304.1.7.1 Approved containers required. Liquid motor fuel shall not be dispensed into a portable container unless such container is of approved material and construction, and has a tight closure with screwed or spring-loaded cover so designed that the contents can be dispensed without spilling. Liquids shall not be dispensed into portable tanks or cargo tanks.

[2204.1.7.2] 2304.1.7.2 Container capacity. Liquid motor fuel shall be dispensed into approved containers with an individual capacity not greater than 21/2 gallons (9.5 L).

[2204.1.7.3] 2304.1.7.3 Nozzle operation. When liquid motor fuel is being dispensed into a portable container the fuel dispensing nozzle shall be manually held open during the dispensing operation, whether or not the nozzle is provided

with a latch-open device.

[2204.1.7.4] 2304.1.7.4 Location of containers being filled. Portable containers shall not be filled while located inside the trunk, passenger compartment or truck bed of a motor vehicle or upon a marine vessel or watercraft.

[2204.1.7.5] 2304.1.7.5 Certified attendant. Only a certified attendant shall dispense liquid motor fuel into portable containers.

[2204.1.8] 2304.1.8 Dispensing from portable containers. No motor vehicle, motorcycle, marine vessel or watercraft shall be fueled from a portable container while indoors.

[2204.1.9] 2304.1.9 Vegetation. Weeds, grass, vines, brush or other vegetation shall not be maintained within 10 feet (3048 mm) of any aboveground tank, tank fill connection or dispensing area.

[2204.1.10] 2304.1.10 Combustible waste. Rubbish and other combustible waste shall not be stored within 10 feet (3048 mm) of any aboveground tank, tank fill connection or dispensing area, except in the dispensing area when in an approved waste container with a capacity not exceeding 40 gallons (0.15 m3).

[2204.2] 2304.2 Self-service motor fuel-dispensing facilities. Self-service motor fuel-dispensing facilities shall be designed, installed, operated and maintained in compliance with the requirements of FC [2204.2.1] 2304.2.1 through [2204.2.5] 2304.2.5.

[2204.2.1] 2304.2.1 Duties of certified attendant. The certified attendant's primary function shall be to supervise, observe and monitor the dispensing of fuel. The certified attendant shall prevent the dispensing of fuel into portable containers unless the dispensing is in compliance with the requirements of [FC2204.1.7] FC2304.1.7. The certified attendant shall control sources of ignition, take immediate action upon an accidental spill or release, be ready to use a portable fire extinguisher, and activate the fixed fire extinguishing system. Nothing in this section shall be construed to prohibit a certified attendant from engaging in other activities so long as such activities do not interfere with the certified attendant's ability to supervise, observe and monitor the dispensing of fuel and other requirements of this chapter.

[2204.2.2] 2304.2.2 Self-service dispensers. Approved self-service devices, equipment and systems such as, but not limited to, card-operated and remote-preset types, are allowed at liquid motor fuel-dispensing facilities. The certified attendant shall set the dispensing devices in the "off" position when not in use if such dispensing device can be activated without the certified attendant's knowledge.

[2204.2.3] 2304.2.3 Monitoring of dispensing. A control booth shall be located on the premises of every self-service automotive liquid motor fuel-dispensing facility. The control booth shall be an interior or exterior enclosure to which the public has no access. The certified attendant shall be present within the control booth while dispensing operations are conducted. The control booth shall be designed and located so that the certified attendant stationed therein shall have a full, unobstructed clear view of dispensing operations, except that mirrors and/or an approved closed-circuit television installation may be provided to afford the certified attendant a clear view of dispensing operations when the view from the control booth is partially or temporarily obstructed. For purposes of this section, the "clear" view provided by a closed-circuit television installation shall mean that the image on the monitor shall be of such brightness and resolution as to allow ready identification of individuals and easy observation of activities at all times of day. Two properly labeled manual switches, one that activates the fire extinguishing system, and one that electrically disconnects the liquid motor fuel-dispensing pumps, shall be located adjacent to each other within the control booth. A console that controls the self-service liquid motor fuel dispensers shall be provided within the control booth and within 5 feet (1524 mm) of the manual switches.

[2204.2.4] 2304.2.4 Communications. A two-way voice communication system shall be installed to provide contact between the control booth and each dispensing island.

[2204.2.5] 2304.2.5 Signage. The signage required by [FC2204.1.4] FC2304.1.4 shall be posted in the dispensing area of a self-service motor fuel-dispensing facility, except that the emergency procedures sign required by [FC2204.1.4.4] FC2304.1.4.4 shall be posted in the control booth.

[2204.3] 2304.3 Fleet motor fuel-dispensing facilities. Fleet motor fuel-dispensing facilities shall be designed, installed,

operated and maintained in compliance with the requirements of FC [2204.3.1] 2304.3.1 through [2204.3.3] 2304.3.3.

[2204.3.1] 2304.3.1 Inspection of dispensing area. The certified attendant responsible for supervision of the dispensing of liquid motor fuel at fleet motor fuel-dispensing facility shall inspect the dispensing area on a periodic basis in accordance with the rules to ensure that the facility is being maintained in accordance with this chapter and the rules. The certified attendant shall notify the owner and make any other notifications required by this code if there is any evidence that the facility is not in good working order. A record of such inspections and notifications shall be maintained at the premises in accordance with FC107.7.

[2204.3.2] 2304.3.2 Duties of fleet personnel. Employees or other persons working for the owner of a fleet motor fuel-dispensing facility whose duties involve the dispensing of motor fuel shall be trained and knowledgeable in such dispensing in compliance with the requirements of this code and the rules.

[2204.3.3] 2304.3.3 Quantity limits. Dispensing equipment used at fleet automotive liquid motor fuel-dispensing facilities shall comply with one of the following:

1. Dispensing devices shall be programmed or set to limit uninterrupted liquid motor fuel delivery to not more than 25 gallons (95 L) and require a manual action to resume delivery.

2. For other than flammable liquid motor fuel, the amount of liquid motor fuel being dispensed shall be limited in quantity by a preprogrammed card as approved.

[2204.4] 2304.4 Full-service motor fuel-dispensing facilities. Full-service motor fuel-dispensing facilities shall be operated in compliance with the requirements of [FC2204.4.1] FC2304.4.1.

[2204.4.1] 2304.4.1 Duties of certified attendant. The certified attendant at a full-service motor fuel-dispensing facility shall personally supervise the dispensing of motor fuel into vehicles by facility personnel. The certified attendant shall conduct a visual inspection of the dispensing area on a daily basis to monitor the condition of such installation. The certificate of fitness holder shall notify the owner and make any other notifications required by this code if there is any evidence that the installation is not in good working order. A record of such inspections and notifications shall be maintained at the premises in accordance with FC107.7.

SECTION FC [2205] 2305 OPERATION AND MAINTENANCE OF LIQUID MOTOR FUEL-DISPENSING FACILITIES

[2205.1] 2305.1 Tank filling operations for liquid motor fuel. Delivery operations to tanks for liquid motor fuel shall comply with the requirements of FC [2205.1.1] 2305.1.1 through [2205.1.3] 2305.1.3 and the applicable requirements of FC Chapter [34] 57.

[2205.1.1] 2305.1.1 Delivery vehicle location. Where liquid delivery to a motor fuel storage tank is accomplished by positive-pressure operation, cargo tanks making delivery shall be positioned a minimum of 25 feet (7620 mm) from tanks receiving flammable liquids and 15 feet (4572 mm) from tanks receiving combustible liquids. During delivery, a cargo tank shall not obstruct a public street, private road, block motorists' view of roadways or impede the movement of vehicles or pedestrians.

[2205.1.2] 2305.1.2 Tank capacity calculation. The driver, operator or attendant of a cargo tank shall, before making delivery to a tank, determine the unfilled, available capacity of such tank by an approved tank level-indicating device or method. A measuring stick shall not be used to measure the contents of the tank through the fill connection line, except where there is a direct fill connection.

[2205.1.3] 2305.1.3 Tank connections. Delivery of liquid motor fuel shall be made by means of approved liquid- and vapor-tight connections between the delivery hose and tank fill pipe. Where tanks are equipped with any type of vapor recovery system, all connections required for the safe and proper functioning of the particular vapor recovery process shall be made. Such connections shall be made liquid- and vapor-tight and remain connected throughout the delivery process. Vapors shall not be discharged at grade level during delivery.

[2205.2] 2305.2 Equipment maintenance. Liquid motor storage and dispensing systems shall be maintained in good working order at all times in accordance with FC [2205.2.1] 2305.2.1 through [2205.2.3] 2305.2.3.

[2205.2.1] 2305.2.1 Dispensing devices. Where maintenance to dispensing devices becomes necessary and such maintenance could allow the accidental release or ignition of liquid, the following precautions shall be taken:

1. Only persons with a certificate of license and knowledgeable in performing the required maintenance shall perform the work.
2. Electrical power to the dispensing device and pump serving the dispenser shall be shut off at the main electrical disconnect panel before maintenance begins.
3. The emergency dispenser shutoff valve shall be closed before maintenance begins.
4. Vehicular traffic and unauthorized persons shall be prevented from coming within 12 feet (3658 mm) of the dispensing device before and during maintenance.

[2205.2.2] 2305.2.2 Dispenser emergency shutoff valves. Dispenser emergency shutoff valves required by [FC2206.7.4] FC2306.7.4 shall be checked not less than once per year by manually tripping the hold-open linkage.

[2205.2.3] 2305.2.3 Leak detection system. The leak detection system required by [FC2206.7.7] FC2306.7.7 shall be inspected monthly for proper operation and tested at least annually in accordance with the manufacturer's specifications to ensure that it is in good working order.

[2205.3] 2305.3 Use of alcohol-blended motor fuel in existing liquid motor fuel storage and dispensing systems. Department approval shall be obtained prior to using a liquid motor fuel storage and dispensing system for alcohol-blended motor fuel when such system has previously been used to store and dispense another type of motor fuel. If approved, such system may be used alternatively for the various approved fuel types.

[2205.4] 2305.4 Signage. Durable signs shall be conspicuously posted at motor fuel-dispensing facilities in accordance with this section.

[2205.4.1] 2305.4.1 Tank overfill warning sign. A warning sign shall be posted on or immediately adjacent to tank overfill alarm panel that reads: "CAUTION: WHEN ALARM ACTIVATES, TANK IS FILLED TO CAPACITY. DO NOT OVERFILL."

[2205.5] 2305.5 Portable fire extinguishers. Approved portable fire extinguishers complying with the requirements of FC906 with a minimum rating of 40-B:C shall be provided and located such that an extinguisher is not less than 20 feet (6096 mm) but not more than 75 feet (22 860 mm) from pumps, dispensers or storage tank fill connections.

SECTION FC [2206] 2306 DESIGN AND INSTALLATION REQUIREMENTS FOR LIQUID MOTOR FUEL-DISPENSING FACILITIES

[2206.1] 2306.1 General. Liquid motor fuel storage and dispensing systems shall be designed and installed in accordance with FC Chapter [34] 57 except as otherwise specified in this chapter, including the requirements of this section.

[2206.2] 2306.2 Method of storage. Approved methods of storage for liquid motor fuel at motor fuel-dispensing facilities shall be in accordance with FC [2206.2.1] 2306.2.1 through [2206.2.4] 2306.2.4.

[2206.2.1] 2306.2.1 Underground tanks. The installation of underground tanks for the storage of liquid motor fuel shall comply with the requirements of FC Chapter [34] 57 except as otherwise specified in this chapter.

[2206.2.1.1] 2306.2.1.1 Inventory control for underground tanks. Accurate daily inventory records shall be maintained and reconciled for underground liquid motor fuel storage tanks for indication of possible leakage from tanks and piping. Inventory reconciliation shall be in accordance with the regulations of the New York State Department of Environmental Conservation as set forth in 6 NYCRR Part 613. The records shall be maintained in accordance with FC107.7. Records shall include daily reconciliation between sales, use, receipts and inventory on hand. Where there is more than one

system consisting of tanks serving separate pumps or dispensers for a product, the reconciliation shall be maintained separately for each tank system. A consistent or accidental loss of product shall be immediately reported to the commissioner.

[2206.2.1.2] 2306.2.1.2 Listing and approval. Underground liquid motor fuel storage tanks shall be listed and approved.

[2206.2.1.3] 2306.2.1.3 Tank design and construction. Underground liquid motor fuel storage tanks shall be designed and constructed in accordance with the following:

1. Tanks shall be completely double-walled and constructed of steel, fiberglass-reinforced plastic or a combination of both materials. The secondary tank shall be capable of containing any leakage from the primary tank.
2. Tanks shall be designed and constructed to withstand one and one-half times the maximum operating loads and stresses, regardless of the amount of liquid motor fuel contained in the tank. Such capabilities shall be established by buoyancy calculations and load and stress analyses.
3. Tanks shall be designed and constructed to withstand a pressure of 15 pounds per square inch gauge (psig)(103.4 kPa) or one and one-half times the maximum anticipated static head pressure, whichever is greater, for the primary tank and 5 pounds per square inch gauge (psig)(34.5 kPa) for the secondary tank.
4. The capacity of each individual tank shall not exceed 12,000 gallons (45 420 L) of liquid motor fuel.

[2206.2.1.4] 2306.2.1.4 Tank connections. Tank connections shall be designed and located so as to:

1. Minimize the maneuvering necessary to position a cargo tank to make the delivery.
2. Minimize any obstructions of a public right of way or motorists' view of roadways, or any impediment to the movement of motor vehicles or pedestrians, during delivery.
3. Provide connections by means of approved liquid- and vapor-tight connections.
4. Comply with the requirements of [FC2205.1.3] FC2305.1.3.

[2206.2.1.5] 2306.2.1.5 Liquid level-indicating devices. Tanks shall be provided with an approved liquid level-indicating device. The quantity of fuel in the tank as indicated on the liquid level-indicating device shall be accessible to the delivery operator. Liquid level-indicating devices shall be designed, constructed and installed to be vapor- and liquid-tight.

[2206.2.1.6] 2306.2.1.6 Tank overfill alarm. Tanks shall be provided with an approved overfill alarm designed to activate a local audible and visual alarm in an area supervised by the cargo tank delivery operator. Such alarms shall activate when the quantity of fuel in the tank exceeds a designated level, which shall not be more than 95 percent of capacity.

[2206.2.2] 2306.2.2 Prohibited aboveground storage. The storage of motor fuel in aboveground tanks shall be prohibited as set forth in FC [2206.2.2.1] 2306.2.2.1, [2206.2.2.2] 2306.2.2.2 and [2206.2.2.3] 2306.2.2.3.

[2206.2.2.1] 2306.2.2.1 Storage of flammable liquid motor fuel. It shall be unlawful to store flammable liquid motor fuel in aboveground tanks.

[2206.2.2.2] 2306.2.2.2 Storage of combustible liquid motor fuel. It shall be unlawful to store combustible liquid motor fuel in aboveground tanks, except outdoors at a fleet motor fuel-dispensing facility complying with the requirements of this chapter.

[2206.2.2.3] 2306.2.2.3 Indoor storage. It shall be unlawful to store liquid motor fuel in aboveground tanks indoors.

[2206.2.3] 2306.2.3 Aboveground tanks located outdoors, at grade. Outdoor storage of combustible liquid motor fuel in aboveground tanks at a fleet motor fuel-dispensing facility shall comply with the requirements set forth in FC [2206.2.3.1] 2306.2.3.1 through [2206.2.3.6] 2306.2.3.6.

[2206.2.3.1] 2306.2.3.1 Tank design and construction. Only protected aboveground tanks shall be used.

[2206.2.3.2] 2306.2.3.2 Tank capacity. The capacity of each tank shall not exceed [4,000 gallons (15 140 L)] 10,000 gallons (37 850 L). Not more than a total of [4,000 gallons (15 140 L)] 10,000 gallons (37 850 L) of liquid motor fuel shall be stored aboveground at any facility. The total storage capacity at a facility in both aboveground and underground tanks shall not exceed 40,000 gallons (15 140 L) of liquid motor fuel. Each tank shall have a separate fill line and a separate vent line that are separate from the fill and vent lines of other tanks.

Exception: When approved, individual tanks may exceed [4,000 gallons (15 140 L)] 10,000 gallons (37 850 L) but shall not exceed 12,000 gallons (45 420 L).

[2206.2.3.3] 2306.2.3.3 Tank base support. Tanks shall be placed on an approved base slab. The surface of such base slab shall be a minimum of 6 inches (152 mm) above the level of the surrounding area to permit visual inspection. Tanks shall be adequately supported and anchored to the base slab to withstand uplifting by surface water and flooding.

[2206.2.3.4] 2306.2.3.4 Tank connections. Tank connections shall be designed and located in accordance with [FC2206.2.1.4] FC2306.2.1.4.

[2206.2.3.5] 2306.2.3.5 Liquid level-indicating devices. Tanks shall be provided with an approved liquid level-indicating device in accordance with [FC2206.2.1.5] FC2306.2.1.5.

[2206.2.3.6] 2306.2.3.6 Tank overfill alarm. Tanks shall be provided with an approved overfill alarm in accordance with [FC2206.2.1.6] FC2306.2.1.6.

[2206.2.4] 2306.2.4 Location requirements for aboveground tanks at fleet motor fuel-dispensing facilities. Tanks shall be located in accordance with FC Table [2206.2.4] 2306.2.4 and as follows:

1. A minimum of 25 feet (7620 mm) from a subway grating, entrance or exit.
2. At a location that will not obstruct or interfere with any means of egress or department access.
3. Tanks shall not be installed under electrical transmission lines, bridges, or public highways.

FC TABLE [2206.2.4] 2306.2.4
MINIMUM SEPARATION REQUIREMENTS FOR ABOVEGROUND TANKS AT FLEET MOTOR FUEL-DISPENSING FACILITIES
CLASS OF LIQUID
AND TANK TYPE
INDIVIDUAL TANK
CAPACITY
(gallons)
MINIMUM
DISTANCE FROM
NEAREST
BUILDING
(feet)
MINIMUM
DISTANCE FROM
LOT LINE (feet)
MINIMUM
DISTANCE FROM
PUBLIC STREET OR PRIVATE ROAD
(feet)
MINIMUM
DISTANCE
BETWEEN TANKS
(feet)

Liquid motor fuel tanks

4000

Greater than 4000

15

25

15

25

15

15

[1010][1010]For SI: 1 foot = 304.8 mm, 1 gallon = 3.785 L.

[2206.3] 2306.3 Security. Aboveground tanks for the storage of liquid motor fuel shall be safeguarded in an approved manner from public access or unauthorized entry.

[2206.4] 2306.4 Physical protection. Posts complying with the requirements of FC312 or other approved means shall be provided to protect aboveground tanks against impact by a motor vehicle unless the tank is listed as a protected aboveground tank with vehicle impact protection.

[2206.5] 2306.5 Secondary containment. Aboveground tanks shall be provided with diking in accordance with FC Chapter [34] 57. Diking is not required for listed secondary containment tanks. The secondary containment systems shall be monitored either visually or automatically. Enclosed secondary containment systems shall be provided with emergency venting in accordance with [FC2206.6.2.5] FC2306.6.2.5.

[2206.6] 2306.6 Piping, valves, fittings and ancillary equipment for use with liquid motor fuel. The design, fabrication, assembly, testing and inspection of piping, valves, fittings and ancillary equipment for use with liquid motor fuel shall be in accordance with FC Chapter [34] 57 except as otherwise specified in FC [2206.6.1] 2306.6.1 through [2206.6.3] 2306.6.3, and FC [2206.9] 2306.9 and [2206.10] 2306.10.

[2206.6.1] 2306.6.1 Protection from damage. Piping shall be located such that it is protected from physical damage and designed to accommodate settlement, vibration, expansion or contraction.

[2206.6.2] 2306.6.2 Piping, valves, fittings and ancillary equipment for aboveground tanks. Piping, valves, fittings and ancillary equipment for aboveground tanks shall comply with the requirements of FC [2206.6.2.1] 2306.6.2.1 through [2206.6.2.11] 2306.6.2.11.

[2206.6.2.1] 2306.6.2.1 Tank openings. Tank openings for aboveground tanks shall be through the top only. There shall be no openings except those necessary to inspect, fill, empty and vent the tank.

[2206.6.2.2] 2306.6.2.2 Fill-pipe connections. The fill-pipe for aboveground tanks shall be provided with a means for making a direct connection to the cargo tank's fuel-delivery hose so that liquid motor fuel is not exposed to the open air during the filling operation. Operator safety equipment for the filling operation shall be provided in accordance with OSHA regulations. Where any portion of the fill-pipe exterior to the tank extends below the level of the top of the tank, a check valve, a dry break coupling and a quick closing valve shall be installed at the fill connection. Tank fill connections from a remote location are prohibited.

[2206.6.2.3] 2306.6.2.3 Overfill protection. Overfill protection shall be provided for aboveground storage tanks. Overfill prevention devices shall be designed to withstand the pressure generated by the cargo tank discharge pump and shall automatically shut off the flow into the tank when the tank is not more than 95 percent full.

[2206.6.2.4] 2306.6.2.4 Siphon prevention. An approved antisiphon method shall be provided in the piping system to prevent flow of liquid motor fuel by siphon action.

[2206.6.2.5] 2306.6.2.5 Emergency relief venting. Aboveground storage tanks, tank compartments and enclosed secondary containment spaces shall be provided with emergency relief venting in accordance with FC Chapter [34] 57.

[2206.6.2.6] 2306.6.2.6 Spill containers. Aboveground tank spill containers having a capacity of not less than 5 gallons (19 L) shall be provided for each fill connection. Spill containers shall be noncombustible and shall be fixed to the tank and equipped with a manual drain valve that drains into the primary tank.

[2206.6.2.7] 2306.6.2.7 Piping material construction. Piping shall be of a minimum Schedule 40 steel construction.

[2206.6.2.8] 2306.6.2.8 Compatibility. Piping, fittings, components and joint compounds shall be mutually compatible, and compatible with diesel fuel and other commonly-used combustible liquid motor fuels, including the additives commonly used in such combustible motor fuels. Joint compounds shall be listed and approved.

[2206.6.2.9] 2306.6.2.9 Pressure relief devices. Where liquid motor fuel may become trapped between shutoff valves and/or check valves, affected piping sections shall be provided with pressure-relief devices that will discharge the pressure generated by thermal expansion back into the tank.

[2206.6.2.10] 2306.6.2.10 Vent piping. Each tank shall be provided with a separate unobstructed vent line, without any trap or device that causes excessive back pressure, and shall be maintained unobstructed at all times.

[2206.6.2.11] 2306.6.2.11 Vent termination. Vent outlets shall discharge outdoors and upward. The discharge point shall be no less than 15 feet (4572 mm) above the adjacent ground level and no less than 10 feet (3048 mm) from the nearest building opening.

[2206.6.3] 2306.6.3 Piping, valves, fittings and ancillary equipment for underground tanks. Piping, valves, fittings and ancillary equipment for underground tanks shall comply with the requirements of FC Chapter [34] 57 and NFPA 30A, except as otherwise provided in FC [2206.6.3.1] 2306.6.3.1, [2206.6.3.2] 2306.6.3.2 and [2206.10] 2306.10.

[2206.6.3.1] 2306.6.3.1 Piping design and construction. Piping, including vent piping, shall be of a minimum Schedule 40 steel construction. Approved nonmetallic piping, such as fiberglass-reinforced plastic or other equivalent corrosion-resistant material, may be installed underground.

[2206.6.3.2] 2306.6.3.2 Underground tank piping. Piping shall be installed underground, except for the vertical riser of the vent.

[2206.6.3.3] 2306.6.3.3 Compatibility. Piping, fittings, components and joint compounds shall be mutually compatible, and compatible with gasoline, diesel fuel, methanol and other commonly-used liquid motor fuels, including the additives commonly used in such liquid motor fuels. Joint compounds shall be listed and approved.

[2206.7] 2306.7 Fuel-dispensing systems for liquid motor fuel. The design and installation of liquid motor fuel-dispensing systems shall be in accordance with FC [2206.7.1] 2306.7.1 through [2206.7.9.2.4] 2306.7.9.2.4. Alcohol-blended motor fuel-dispensing systems shall additionally comply with [FC2206.7.10] FC2306.7.10.

[2206.7.1] 2306.7.1 Listed equipment. Electrical equipment, dispensers, hose, nozzles and submersible or subsurface pumps used in liquid motor fuel storage and dispensing systems shall be listed and approved.

[2206.7.2] 2306.7.2 Fixed pumps required. Liquid motor fuel shall be transferred only from the top of the tank by means of fixed pumps designed and equipped to allow control of the flow and prevent leakage or accidental discharge.

[2206.7.2.1] 2306.7.2.1 Aboveground tank dispenser. Only one vehicle may be fueled at a time. Fuel dispensing from a location remote from the tank may be allowed when approved by the commissioner.

[2206.7.2.2] 2306.7.2.2 Pump sumps. Pump sumps shall be compatible with the liquid motor fuel, liquid-tight, and accessible for inspection. Prefabricated pump sumps shall be approved.

[2206.7.3] 2306.7.3 Mounting of dispensers. Dispensing devices, except those installed on top of a protected aboveground tank that qualifies as vehicle-impact resistant, shall be protected against physical damage by mounting on a concrete island 6 inches (152 mm) or more in height, or shall otherwise be suitably protected in accordance with FC312. Dispensing devices shall be installed and securely fastened to their mounting surface in accordance with the dispenser manufacturer's instructions. Dispensing devices installed indoors shall be located in an approved position not in a direct line with vehicular traffic.

[2206.7.3.1] 2306.7.3.1 Protection of floor openings in indoor facilities. Openings in floors beneath liquid motor fuel-dispensing facilities located indoors shall be sealed.

[2206.7.3.2] 2306.7.3.2 Dispenser pans. An approved dispenser pan that is compatible with the liquid motor fuel shall be installed beneath a dispenser. The dispenser pan shall be liquid-tight, accessible for inspection, no larger than necessary, and installed solely for the purpose of collecting any liquid motor fuel leaking from the dispenser. The dispenser pan shall not be used to collect liquid motor fuel discharged from defective piping. The dispenser pan shall be backfilled up to not less than 6 inches (152 mm) above any nonmetallic piping and shall not interfere with the operation of any safety device.

[2206.7.4] 2306.7.4 Dispenser emergency valve. An approved automatic emergency shutoff valve designed to close in the event of a fire or impact shall be properly installed in the liquid supply line at the base of each dispenser supplied by a remote pump. The valve shall be installed so that the shear groove is flush with or within 1/2 inch (12.7 mm) of the top of the concrete dispenser island and there is clearance provided for maintenance purposes around the valve body and operating parts. The valve shall be installed at the liquid supply line inlet of each overhead-type dispenser. Where installed, a vapor return line located inside the dispenser housing shall have a shear section or approved flexible connector for the liquid supply line emergency shutoff valve to function. Emergency shutoff valves shall be installed and maintained in accordance with the manufacturer's instructions, tested at the time of initial installation and tested at least yearly thereafter in accordance with [FC2205.2.2] FC2305.2.2.

[2206.7.5] 2306.7.5 Dispenser hose. Dispenser hoses shall be a maximum of 18 feet (5486 mm) in length unless otherwise approved. Dispenser hoses shall be listed and approved. When not in use, hoses shall be reeled, racked or otherwise protected from damage. The length of the dispensing hose shall be such that at least 1 inch (25 mm) clearance between the hose and the ground is maintained when the nozzle is rested on its bracket. Dispensing hoses installed at aviation facilities, marine liquid motor fuel-dispensing facilities, and fleet liquid motor fuel-dispensing facilities shall be of an approved length.

[2206.7.5.1] 2306.7.5.1 Breakaway devices. Dispenser hoses shall be equipped with a listed emergency breakaway device designed to retain liquid on both sides of a breakaway point. Such devices shall be installed and maintained in accordance with the manufacturer's instructions. Where hoses are attached to hose-retrieving mechanisms, the emergency breakaway device shall be located between the hose nozzle and the point of attachment of the hose-retrieval mechanism to the hose.

[2206.7.6] 2306.7.6 Fuel delivery nozzles. A listed automatic-closing-type hose nozzle valve without a latch-open device shall be provided for dispensers used for dispensing liquid motor fuel, except that a nozzle valve with a latch-open device may be installed and used at the following automotive liquid motor fuel-dispensing facilities:

1. Full-service automotive liquid motor fuel-dispensing facilities.
2. Fleet automotive liquid motor fuel-dispensing facilities.
3. Dispensing of diesel fuel at self-service automotive liquid motor fuel-dispensing facilities.

[2206.7.6.1] 2306.7.6.1 Special requirements for nozzles. Where dispensing of liquid motor fuel is performed, a listed automatic-closing-type hose nozzle valve shall be used that incorporates all of the following features:

1. When the flow of product is normally controlled by devices or equipment other than the hose nozzle valve, the hose nozzle valve shall not be capable of being opened unless the delivery hose is pressurized. If pressure to the hose is lost, the nozzle shall close automatically.

Exception: Vapor recovery nozzles incorporating insertion interlock devices designed to achieve shutoff on disconnect from the vehicle fill pipe.

2. The hose nozzle shall be designed such that the nozzle is retained in the fill pipe during the filling operation.

3. The system shall include listed equipment with a feature that causes or requires the closing of the hose nozzle valve before the product flow can be resumed or before the hose nozzle valve can be replaced in its normal position in the dispenser.

[2206.7.6.2] 2306.7.6.2 Control device. A control device shall be provided that will allow a liquid motor fuel pump to operate only when the dispensing nozzle is removed from its bracket on the dispenser and the switch on the dispenser is manually activated. The flow of liquid motor fuel shall automatically stop when the switch is deactivated or the nozzle returned to its bracket.

[2206.7.7] 2306.7.7 Leak detection. Underground liquid motor fuel storage and dispensing systems shall be provided with a leak detection system in accordance with the following:

1. The leak detection system shall provide continuous monitoring of the tank's interstitial space.

2. The leak detection system shall provide continuous monitoring of liquid motor fuel pump sumps. Activation of the leak detection system shall cause shutdown of the liquid motor fuel pumps.

3. The leak detection system shall provide continuous monitoring of dispenser pans. Activation of the leak detection system shall cause shutdown of the affected dispenser or liquid motor fuel pump supplying such dispenser.

4. Primary discharge piping shall be provided with an automatic line leak detector. Activation of such leak detector shall cause shutdown of the liquid motor fuel pump or significantly restrict the product flow.

5. The leak detection system shall have an alarm panel in a supervised location on the premises; trigger both an audible and visible local alarm; be capable of producing hardcopy printouts of all tests and/or leak notification reports; operate on low voltage; and be intrinsically safe for a liquid motor fuel environment.

6. Leak detection systems shall be listed and approved.

[2206.7.8] 2306.7.8 Gravity and pressure dispensing. Liquid motor fuel shall not be dispensed by gravity from tanks, drums, barrels or similar containers. Liquid motor fuel shall not be dispensed by a device operating through pressure within a storage tank, drum or container.

[2206.7.9] 2306.7.9 Vapor-recovery and vapor-processing systems. [Vapor-recovery] Stage I vapor-recovery and vapor-processing systems, when required by the New York State Department of Environmental Conservation, shall be installed in accordance with [FC2206.7.9] FC2306.7.9 and the regulations of the New York State Department of Environmental Conservation, and shall be approved.

[2206.7.9.1] 2306.7.9.1 Vapor-balance systems. Vapor-balance systems shall comply with the requirements of FC [2206.7.9.1.1] 2306.7.9.1.1 through [2206.7.9.1.5] 2306.7.9.1.5.

[2206.7.9.1.1] 2306.7.9.1.1 Dispensing devices. Dispensing devices incorporating provisions for vapor recovery shall be listed and labeled. When existing listed or labeled dispensing devices are modified for vapor recovery, such modifications shall be listed by report by a nationally recognized testing laboratory. The listing by report shall contain a description of the component parts used in the modification and the recommended method of installation on specific dispensers. Such report shall be made available for inspection by any department representative. Means shall be provided to shut down fuel dispensing in the event the vapor return line becomes blocked.

[2206.7.9.1.2] 2306.7.9.1.2 Vapor-return line closeoff. An approved method shall be provided to close off the vapor return line from dispensers when the product is not being dispensed.

[2206.7.9.1.3] 2306.7.9.1.3 Piping. Piping in vapor-balance systems shall be in accordance with FC [3403.6] 5703.6 and

[3404.2] 5704.2. Nonmetallic piping shall be installed in accordance with the manufacturer's installation instructions. Vapor return piping shall be installed in a manner that drains back to the tank, without sags or traps in which liquid can become trapped. If necessary, because of grade, condensate tanks are allowed in vapor return piping. Condensate tanks shall be designed and installed so that they can be drained without opening.

2306.7.9.1.3.1 Removal of piping. The owner shall be responsible for notifying the department, in writing, upon decommissioning of the piping in vapor-balance system. Such notification shall include the location of the facility and the name, address and telephone number of the contractor who performed the removal.

[2206.7.9.1.4] 2306.7.9.1.4 Flexible joints and shear joints. Flexible joints shall be installed in accordance with [FC3403.6.9] FC5703.6.9. An approved shear joint shall be rigidly mounted and connected by a union in the vapor return piping at the base of each dispensing device. The shear joint shall be mounted flush with the top of the surface on which the dispenser is mounted.

[2206.7.9.1.5] 2306.7.9.1.5 Testing. Vapor return lines and vent piping shall be tested in accordance with [FC2206.9] FC2306.9.

[2206.7.9.2] 2306.7.9.2 Vapor-processing systems. Vapor-processing systems shall comply with the requirements of FC [2206.7.9.2.1] 2306.7.9.2.1 through [2206.7.9.2.4] 2306.7.9.2.4.

[2206.7.9.2.1] 2306.7.9.2.1 Equipment. Equipment in vapor-processing systems, including hose nozzle valves, vapor pumps, flame arresters, fire checks or systems for prevention of flame propagation, controls and vapor-processing equipment, shall be individually listed for the intended use in a specified manner. Vapor-processing systems that introduce air into the underground piping or storage tanks shall be provided with equipment for prevention of flame propagation that has been tested and listed as suitable for the intended use.

[2206.7.9.2.2] 2306.7.9.2.2 Location. Vapor-processing equipment shall be located at or above grade. Sources of ignition shall be located not less than 50 feet (15 240 mm) from fuel-transfer areas and not less than 18 inches (457 mm) above tank fill openings and tops of dispenser islands. Vapor-processing units shall be located not less than 10 feet (3048 mm) from the nearest building or structure or lot line.

Exception: Where the required distances to buildings or structures, lot lines or fuel-transfer areas cannot be obtained, means shall be provided to protect equipment against fire exposure. Acceptable means shall include:

1. Approved protective enclosures, which extend at least 18 inches (457 mm) above the equipment, constructed of fire-resistant or noncombustible materials; and
2. Fire protection using an approved water-spray system.

[2206.7.9.2.2.1] 2306.7.9.2.2.1 Location and safeguards. Vapor-processing equipment shall be located a minimum of 20 feet (6096 mm) from dispensing devices. Processing equipment shall be protected against physical damage by guardrails, curbs, protective enclosures or fencing. Where approved protective enclosures are used, approved means shall be provided to ventilate the volume within the enclosure to prevent pocketing of flammable vapors. Where a downslope exists toward the location of the vapor-processing unit from a fuel-transfer area, the commissioner may require additional separation by distance and height.

[2206.7.9.2.3] 2306.7.9.2.3 Installation. Vapor-processing units shall be securely mounted on concrete, masonry or structural steel supports on concrete or other noncombustible foundations. Vapor-recovery and vapor-processing equipment is allowed to be installed on roofs when approved.

[2206.7.9.2.4] 2306.7.9.2.4 Piping. Piping in a mechanical-assist system shall be in accordance with [FC3403.6] FC5703.6.

[2206.7.10] 2306.7.10 Alcohol-blended motor fuel-dispensing equipment. Dispensers, hoses, nozzles, breakaway fittings, swivels, flexible connectors, dispenser emergency shutoff valves, vapor recovery systems and pumps used in alcohol-blended motor fuel storage and dispensing systems shall be compatible with such fuels and shall be listed or approved for such purpose.

[2206.8] 2306.8 Fire extinguishing system for dispensing area. Where flammable liquid motor fuel is dispensed at an automotive liquid motor fuel-dispensing facility, the dispensing area shall be provided with a dry chemical fire extinguishing system designed and installed in accordance with FC904.6, and the following requirements:

1. The fire extinguishing system shall be designed to provide overhead protection of the dispenser area encompassed by a circle formed by the fully extended hose and nozzle on each fuel dispenser and both ends of the dispenser island.
2. The extinguishing agent containers shall be equipped with indicators to show whether the system is fully charged. Indicators shall be positioned to be easily read from grade.
3. The installation, alteration, testing and repair of the fire extinguishing system, including any maintenance or modification of the system, shall be performed by a person possessing a master fire suppression piping contractor license issued by the Department of Buildings and trained and knowledgeable in the installation, operation and maintenance of the specific fire extinguishing system.
4. Dispensers shall not be operated when the fire extinguishing system has discharged or is inoperative, except as authorized in writing by the department. The motor fuel-dispensing facility certified attendant shall immediately notify the department of system discharge or inoperability.
5. Fire extinguishing systems shall be inspected and tested in accordance with [FC2206.9] FC2306.9.
6. Fire extinguishing systems at fleet automotive liquid motor fuel-dispensing facilities shall be monitored by an approved central station company.

[2206.9] 2306.9 Inspection and testing. Inspection and testing required by FC [2206.9.1] 2306.9.1 through [2206.9.7] 2306.9.7 shall be conducted at the owner's risk by his or her representative before a representative of the department.

[2206.9.1] 2306.9.1 Initial tank test. Underground and aboveground tanks shall be tested hydrostatically at 15 pounds per square inch (psig)(103.4 kPa), or one and one-half times the maximum anticipated static head pressure, whichever is greater, for the inner tank, and pneumatically or hydrostatically at 5 pounds per square inch (psig)(34.5 kPa) for the annular space (secondary containment tank). When a pneumatic test is allowed, an inert gas shall be used; however, air may be used if the tank or piping system does not contain any liquid motor fuel or combustible vapor. Test pressure shall be maintained for a sufficient time to complete visual inspection, but not less than 1 hour. A tank shall be deemed to have passed the test if it shows no evidence of leakage or permanent deformation.

[2206.9.2] 2306.9.2 Initial piping test. Prior to backfill, primary piping shall be tested hydrostatically to one and one-half times the maximum anticipated operating pressure, but not less than 15 pounds per square inch (psig)(103.4 kPa). After backfill and installation of the top slab, discharge piping shall be tested hydrostatically at one and one-half times the maximum anticipated pressure, but not less than 50 pounds per square inch (psig)(345 kPa). Secondary containment piping (annular space) shall be tested pneumatically at 5 pounds per square inch (psig)(34.5 kPa) utilizing an inert gas; however, air may be used if the tank system or piping system does not contain any liquid motor fuel or combustible vapor. Hydrostatic test pressure shall be maintained for sufficient time to complete visual inspection but not less than 1 hour. The test shall show that there is no evidence of leakage. Test pressure for aboveground tank piping shall be at one and one-half times the maximum anticipated operating pressure but not less than 100 pounds per square inch (psig)(690 kPa).

[2206.9.3] 2306.9.3 Leak detection functionality test. Leak detection systems shall be inspected and tested at the time of installation in accordance with the rules. Leak detection systems monitoring liquid motor fuel storage systems shall be tested at least once every 2 years by a person holding a certificate of license. Such test shall confirm that all leak detection equipment and associated alarms are in good working order.

[2206.9.4] 2306.9.4 Fire extinguishing system test. A performance test of the fire extinguishing system shall be performed at the time of installation in accordance with the approved design and installation documents, and such procedures as may be prescribed by the commissioner. Fire extinguishing systems shall be tested at least once every 5 years. The test shall be in accordance with procedures prescribed by the commissioner.

[2206.9.5] 2306.9.5 Emergency tank and piping system test. The commissioner may require that a tank and piping

system be precision tested or pressure tested in accordance with this section to determine the condition of the tank or piping. Storage systems that may contain liquid motor fuel or combustible vapor shall not be tested pneumatically.

[2206.9.6] 2306.9.6 Periodic tank and piping test. Any existing underground single-walled liquid motor fuel storage [tanks] tank previously approved by the department or any existing underground [tanks] tank that is not provided with a leak detection system meeting the requirements of [FC2206.7.7] FC2306.7.7 shall be precision tested at least once every 5 years.

[2206.9.7] 2306.9.7 Pouring concrete and backfilling. The pouring of concrete for the base and top slab, the backfilling of tank and piping, and the construction of the top slab support shall be witnessed by a representative of the department at time of installation.

[2206.10] 2306.10 Installation of underground tank and piping systems. The installation of tank and piping systems shall be in accordance with FC Chapter [34] 57, except as otherwise specified in this section.

1. Tanks shall be located so that the forces from building foundations and support loads are not transmitted to the tanks. The distance from any part of a tank to the nearest wall of any basement, pit, cellar or any property line shall not be less than 3 feet (914 mm). Tanks shall not be placed less than 20 feet (6096 mm) from a subway wall.

2. Tanks shall be installed so that the highest point of the tank is not less than 2 feet (609.6 mm) below the level of the lowest cellar floor of any building within a radius of 10 feet (3048 mm) from the tank. No tank shall be located under a sidewalk or beyond the property line of the liquid motor fuel-dispensing facility.

3. Tanks shall be placed on a 12-inch (305-mm) thick base slab approved by the Department of Buildings, or installed in such other manner as may be approved by the Commissioner of Buildings, and secured against flotation. The system used for anchoring the tank shall not damage the tank or its coating.

4. Tanks shall be placed on a bed of approved backfill material in accordance with manufacturer's specifications. The backfill material shall evenly and completely support the bottom quadrant of the tank. The backfill material shall be carefully placed along the bottom, under the sides and under the end caps or heads of the tank, by shoveling and tamping. Backfilling shall then be completed in 12-inch (305-mm) lifts placed uniformly around the tank. Provision shall be made, consistent with site conditions, to prevent the migration of backfill.

5. Tanks shall be covered with a reinforced concrete slab not less than 8 inches (203 mm) thick, which shall extend not less than 12 inches (305 mm) beyond the horizontal outlines of the tank. The support of the top slab shall be of a design approved by the Department of Buildings.

6. Fill, suction and discharge piping shall be encased in 4 inches (102 mm) of concrete or covered by a minimum of 18 inches (457 mm) of manufacturer-approved backfill, or covered by 4 inches (102 mm) of manufacturer-approved backfill and an 8-inch (203-mm) reinforced concrete slab.

7. Not more than 40,000 gallons (151 400 L) of liquid motor fuel shall be stored at any facility, including liquid motor fuel stored in aboveground tanks.

8. Tanks containing identical products may be wet-manifolded provided that the total aggregate capacity of such tanks does not exceed 12,000 gallons (45 420 L) of liquid motor fuel, and each tank is provided with its own submersible pump.

9. Tank connections shall be designed and located so as to:

9.1. Minimize the maneuvering necessary to position a cargo tank to make the delivery.

9.2. Minimize obstructing a public right of way or motorists' view of roadways, or impeding the movement of motor vehicles or pedestrians, during deliveries.

9.3. Provide connections by means of approved liquid- and vapor-tight connections.

10. Tanks installed underground indoors shall be provided with an approved liquid level-indicating device. Liquid level-

indicating devices shall be designed and constructed to prevent the escape of liquid or vapor and shall be approved.

11. Test wells shall be prohibited in tanks located underground indoors. Unused tank openings shall be permanently sealed at the tank to prevent removal of plugs or covers.

12. Secondary containment piping shall be required on all nonmetallic product-carrying pipes except direct fill lines, suction lines or siphon lines containing only one check valve located at the highest point of the line.

13. Underground piping shall have a slope of not less than $\frac{1}{4}$ inch per foot (10.4 mm per meter) pitched toward the tank and shall be installed so as to facilitate initial and periodic testing.

14. Flexible joints shall be installed in accordance with [FC3403.6.9] FC5703.6.9.

15. Each underground motor fuel storage tank shall be provided with a separate unobstructed vent line without any trap or device that causes excessive back pressure.

16. Vent piping shall be installed not less than 12 inches (305 mm) below the finished surface measured from the point where the piping rises vertically and shall slope toward the tank.

17. Vent outlets shall discharge outdoors and upward. The discharge point shall be no less than 15 feet (4572 mm) above the adjacent ground level and no less than 10 feet (3048 mm) from the nearest building opening.

18. An approved overfill prevention device shall be provided to prevent overfilling. When installed in diesel fuel tanks, such overfill prevention device shall be designed to withstand the pressure generated by the cargo tank discharge pump and shall automatically shut off the flow into the tank when the tank is not more than 95 percent full.

19. Each tank shall be provided with one fill connection only, unless approved. Each tank fill connection shall be provided with a catchment basin with a capacity of at least 15 gallons (56.8 L). The contents of the catchment basin shall be automatically drained into the tank without overfilling the tank after the transfer from the cargo tank is completed provided, however, that if the Stage II vapor recovery system approved for the tank does not allow for the installation of an automatic drain, a manual drain may be installed.

20. Where the discharging piping leak detector required by [FC2206.7.7(4)] FC2306.7.7(4) does not cause shutdown of the liquid motor fuel pump, secondary containment piping shall be provided.

[2206.11] 2306.11 Spill control. Provision shall be made to prevent liquids spilled during dispensing operations from flowing into buildings, by grading driveways, raising doorsills or other approved means.

SECTION FC [2207 RESERVED] 2307 DESIGN AND INSTALLATION REQUIREMENTS FOR BIODIESEL MOTOR FUEL

2307.1 General. Biodiesel motor fuel shall be stored and dispensed in motor fuel storage and dispensing systems designed and installed in accordance with this section.

2307.2 Biofuel content. The amount of biofuel content in biodiesel motor fuel shall not exceed 20 percent, except as authorized by the department.

2307.3 Aboveground storage. Biodiesel motor fuel may be stored and dispensed in protected aboveground tanks in accordance with FC2306.2.3.1.

2307.4 Design and installation. The design of motor fuel storage and dispensing systems used for biodiesel motor fuel shall be in accordance with FC Chapter 23.

2307.5 Change of tank contents. Any motor fuel storage and dispensing system that is to be used for biodiesel, which was previously used for other types of motor fuel, shall comply with the requirements of FC5704.2.1.

SECTION FC [2208] 2308
COMPRESSED NATURAL GAS MOTOR FUEL-DISPENSING FACILITIES

[2208.1] 2308.1 General. CNG motor fuel-dispensing facilities shall be designed, installed, operated and maintained in accordance with NFPA 52 except as otherwise specified in this section and [FC2201] FC2301.

[2208.1.1] 2308.1.1 Prohibitions. It shall be unlawful to:

1. Operate a self-service marine CNG motor fuel-dispensing facility.
2. Fill a portable container, other than permanently mounted fuel containers on CNG-powered vehicles, except outdoors at a utility-operated facility.

[2208.1.2] 2308.1.2 Supervision of dispensing operations. The dispensing of CNG at CNG motor fuel-dispensing facilities shall be supervised by a certified attendant as set forth in [FC2201.7] FC2301.7.

[2208.1.3] 2308.1.3 Maintenance. Maintenance of CNG motor fuel-dispensing systems shall be conducted under the personal supervision of a person holding a CNG fueling facility maintenance certificate of fitness.

[2208.1.4] 2308.1.4 Lighting. Dispensing areas shall be well lighted whenever dispensing is being conducted.

[2208.1.5] 2308.1.5 Dispensing area signage. Durable signs shall be conspicuously posted in dispensing areas in CNG motor fuel-dispensing facilities in compliance with the requirements of FC [2208.1.5.1] 2308.1.5.1 through [2208.1.5.3] 2308.1.5.3.

[2208.1.5.1] 2308.1.5.1 Operating instructions. A sign setting forth dispenser operating instructions shall be posted on every dispenser. Such sign shall also indicate the location of the emergency shutdown switches required by [FC2208.7] FC2308.7.

[2208.1.5.2] 2308.1.5.2 CNG dispensing warning sign. A warning sign that reads as follows shall be posted on or immediately adjacent to each dispenser:

1. No smoking.
2. Shut off engine.

[2208.1.5.3] 2308.1.5.3 Emergency procedures. A sign setting forth emergency procedures that reads as follows shall be posted in the dispensing area, or other location designated in this section:

IN CASE OF FIRE, LEAK OR EMERGENCY:

ACTIVATE EMERGENCY CNG SHUTDOWN

DIRECT VEHICLE OCCUPANTS TO EXIT VEHICLES
AND LEAVE AREA IMMEDIATELY

KEEP ALL PERSONS AWAY FROM THE AREA.

NOTIFY THE FIRE DEPARTMENT (CALL 911)

(FACILITY ADDRESS)

(indicate address, with cross-street reference).

[2208.1.6] 2308.1.6 Emergency telephone. A telephone not requiring a coin to operate or another approved, clearly identified means to notify the department, shall be provided at the facility in an approved location.

[2208.1.7] 2308.1.7 Electrical equipment. Electrical wiring and equipment shall be suitable for the location in which they

are installed and shall be in accordance with FC605, NFPA 52 and the Electrical Code.

[2208.1.8] 2308.1.8 Audible and visible alarms. All audible and visible alarms required by this section shall actuate at a supervised location on the premises that assures immediate response.

[2208.1.9] 2308.1.9 Smoking and open flames. It shall be unlawful to smoke or use or maintain an open flame in any area where CNG motor fuel is compressed, stored or dispensed.

Exception: Welding, cutting or similar hot work may be conducted for emergency repair, alteration or installation work, providing that all necessary safety precautions are taken, and all required department permits and authorization from the holder of a certificate of fitness for CNG station maintenance have been obtained.

[2208.1.10] 2308.1.10 Records of incidents. Records shall be kept of all incidents including fire, leak, device, equipment or system failure, out-of-service fire protection, alarm, or safety system, and of all equipment maintenance. Such records shall be kept in a bound log book or other recordkeeping approved by the department, maintained on the premises for a minimum of 4 years.

[2208.1.11] 2308.1.11 Self-service CNG motor fuel-dispensing facilities. Self-service CNG motor fuel-dispensing facilities shall be designed, installed, operated and maintained in compliance with the requirements of FC [2208.1.11.1] 2308.1.11.1 through [2208.1.11.5] 2308.1.11.5.

[2208.1.11.1] 2308.1.11.1 Duties of certified attendant. The certified attendant's primary function shall be to supervise, observe and monitor the dispensing of CNG. The certified attendant shall prevent the dispensing of CNG into portable containers, control sources of ignition, take immediate action upon a fire, leak or other emergency and be ready to use a portable fire extinguisher. Nothing in this section shall be construed to prohibit a certified attendant from engaging in activities directly related to the sale of CNG motor fuel, such as the collection of money or processing of credit cards.

[2208.1.11.2] 2308.1.11.2 Self-service dispensers. Approved self-service devices, equipment and systems such as, but not limited to, card-operated and remote-preset types, are allowed at CNG motor fuel-dispensing facilities. The certified attendant shall set the dispensing devices in the "off" position when not in use if such dispensing device can be activated without the certified attendant's knowledge.

[2208.1.11.3] 2308.1.11.3 Monitoring of dispensing. A control booth shall be located on the premises of every self-service CNG motor fuel-dispensing facility. The control booth shall be an interior or exterior enclosure to which the public has no access. The certified attendant shall be present within the control booth while dispensing operations are conducted. The control booth shall be designed and located so that the certified attendant stationed therein shall have a full, unobstructed clear view of dispensing operations, except that mirrors and/or an approved closed-circuit television installation may be provided to afford the certified attendant a clear view of dispensing operations when the view from the control booth is partially or temporarily obstructed. For purposes of this section, the "clear" view provided by a closed-circuit television installation shall mean that the image on the monitor shall be of such brightness and resolution as to allow ready identification of individuals and easy observation of activities at all times of day. Audible and visible alarms required by this section shall actuate within the control booth. A properly labeled manual switch that activates the emergency shut down device shall be located within the control booth. A console that controls the self-service CNG motor fuel dispensers shall be provided within the control booth and within 5 feet (1524 mm) of the emergency shutdown device manual switch.

[2208.1.11.4] 2308.1.11.4 Two-way voice communication. A two-way voice communication system shall be installed to provide contact between the control booth and each dispensing island.

[2208.1.11.5] 2308.1.11.5 Signage. The signage required by [FC2208.1.5] FC2308.1.5 shall be posted in the dispensing area of a self-service motor fuel-dispensing facility, except that the emergency procedures sign required by [FC2208.1.5.3] FC2308.1.5.3 shall be posted in the control booth.

[2208.1.12] 2308.1.12 Fleet CNG motor fuel-dispensing facilities. Fleet CNG motor fuel-dispensing facilities shall be designed, installed, operated and maintained in compliance with the requirements of FC [2208.1.12.1] 2308.1.12.1 through [2208.1.12.3] 2308.1.12.3.

[2208.1.12.1] 2308.1.12.1 Inspection of dispensing areas. The certified attendant responsible for supervision of the

dispensing of CNG at a fleet motor fuel-dispensing facility shall inspect the dispensing area on a periodic basis in accordance with the rules to ensure that the facility is being maintained in accordance with this chapter and the rules. The certified attendant shall notify the owner and make any other notifications required by this code if there is any evidence that the facility is not in good working order. A record of such inspections and notifications shall be maintained at the premises in accordance with FC107.7.

[2208.1.12.2] 2308.1.12.2 Duties of fleet personnel. Employees or other persons working for the owner of a fleet CNG fuel-dispensing facility whose duties involve the dispensing of CNG shall be trained and knowledgeable in such dispensing in compliance with the requirements of this code and the rules.

[2208.1.12.3] 2308.1.12.3 Quantity limits. Dispensing equipment used at fleet CNG motor fuel-dispensing facilities shall be programmed or set to limit uninterrupted CNG delivery to an approved amount and require a manual action to resume delivery.

[2208.1.13] 2308.1.13 Full-service CNG motor fuel-dispensing facilities. Full-service CNG motor fuel-dispensing facilities shall be operated and maintained in compliance with the requirements of [FC2208.1.13.1] FC2308.1.13.1.

[2208.1.13.1] 2308.1.13.1 Duties of certified attendant. The certified attendant at a full-service CNG motor fuel-dispensing facility shall personally supervise the dispensing of motor fuel into vehicles by facility personnel. The certified attendant shall conduct a visual inspection of the dispensing area on a daily basis to monitor the condition of such installation. The certificate of fitness holder shall notify the owner and make any other notifications required by this code if there is any evidence that the installation is not in good working order. A record of such inspections and notifications shall be maintained at the premises in accordance with FC107.7.

[2208.2] 2308.2 Design, installation and testing requirements. Devices, equipment and systems used for the compression, storage and dispensing of CNG shall be designed, approved, listed and/or tested in accordance with FC [2208.2.1] 2308.2.1 through [2208.2.7] 2308.2.7.

[2208.2.1] 2308.2.1 Approved equipment. Containers, vessels, compressors, pressure regulators, pressure relief valves and other pressure relief devices and piping used for CNG shall be approved.

[2208.2.2] 2308.2.2 Listed equipment. Hoses, hose connections, dispensers, gas detection systems and electrical equipment used for CNG shall be listed. Vehicle-fueling connections shall be listed and labeled.

[2208.2.3] 2308.2.3 Vehicle fueling hose. Vehicle fueling hose shall be compatible with CNG and shall withstand a pressure of at least four times the service pressure. Hoses shall be of retractable design and shall be protected against physical damage. Hoses shall be tested for leaks with a noncorrosive solution or equivalent leak detection method at least annually by a certified attendant and shall be replaced if damaged. Records of required inspections and testing shall be kept in a bound log book or other approved recordkeeping, maintained on the premises for a minimum of 4 years.

[2208.2.4] 2308.2.4 Initial container testing. Prior to placing containers and pressure vessels in CNG service, evidence of container and pressure vessel pressure tests shall be submitted to the department demonstrating compliance with the requirements of NFPA 52.

[2208.2.5] 2308.2.5 Gas piping. All CNG system gas piping shall be tested by a qualified person in accordance with NFPA 52 at the owner's risk and before a representative of the department prior to placing the system in service. Required tests shall begin at the downstream side of the remote manual shutdown valve.

[2208.2.6] 2308.2.6 Filters and dryers. Filters and dryers used at CNG motor fuel-dispensing facilities shall be rated for the service and pressure intended and shall be tested in accordance with the gas piping test requirements set forth in [FC2208.2.5] FC2308.2.5.

[2208.2.7] 2308.2.7 Safety devices. Upon installation, all automatic safety devices intended to cause equipment shutdown shall be tested at the owner's risk by his or her representative before a representative of the department.

[2208.3] 2308.3 Location of dispensing operations and equipment. CNG motor fuel-dispensing facilities shall be located at a site operated by a natural gas utility, or other approved location.

[2208.3.1] 2308.3.1 Location on property. In addition to the requirements of [FC2203.1] FC2303.1 and NFPA 52, compression, storage and dispensing devices, equipment and systems shall be installed as follows:

1. Aboveground, and not beneath power lines.
2. At least 10 feet (3048 mm) from the nearest building, lot line, public street, private road, sidewalk, or source of ignition.

Exception: Dispensing equipment need not be separated from canopies that are constructed in accordance with the construction codes, including the Building Code, and which provide weather protection for the dispensing equipment.

3. At least 25 feet (7620 mm) from the nearest rail of any railroad track and 50 feet (15 240 mm) or more from the nearest rail of any railroad main track or any railroad or transit line where power for train propulsion is provided by an outside electrical source such as third rail or overhead catenary.

4. At least 50 feet (15 240 mm) from the vertical plane below the nearest overhead wire of a trolley bus line.

[2208.3.2] 2308.3.2 Rooftop operations. Rooftop dispensing shall be in accordance with FC [2208.3.2.1] 2308.3.2.1 through [2208.3.2.3] 2308.3.2.3.

[2208.3.2.1] 2308.3.2.1 Roof construction. The roof of the building or structure shall be of noncombustible construction.

[2208.3.2.2] 2308.3.2.2 Compressor and discharge piping. The compressor shall be located on the roof and the discharge piping shall not enter the building or structure.

[2208.3.2.3] 2308.3.2.3 Height. The building or structure shall be 75 feet (22 860 mm) or less in height.

[2208.4] 2308.4 Reserved.

[2208.5] 2308.5 Pressure regulators. Pressure regulators shall be designed and installed or protected so that their operation will not be affected by the elements (freezing rain, sleet, snow or ice), mud or debris. The protection is allowed to be an integral part of the regulator.

[2208.6] 2308.6 Manual valves. Gas supply piping to equipment shall be provided with a remote, readily accessible manual shutoff valve of the fast-closing, quarter-turn type. Manual valves shall be located so as to minimize the risk of physical damage and minimize being rendered inoperable as a result of freezing.

[2208.6.1] 2308.6.1 Location. Manual valves shall be located within the boundary of the facility and as follows:

1. Not less than 25 feet (7620 mm) from the compressor for compressors rated for 300 standard cubic feet per minute (8.5 m³/min) or less.
2. Not less than 75 feet (22 860 mm) from the compressor for compressors rated for greater than 300 standard cubic feet per minute (8.5 m³/min).

[2208.7] 2308.7 Emergency shutdown switches. An approved, clearly identified and readily accessible emergency shutdown switch shall be provided at an approved location. The switch, upon activation, shall automatically and immediately shut off the power supply to the compressor and close valves between the gas supply and the compressor and between the storage tanks and the dispensers. Such emergency shutdown switches for outdoor CNG dispensers shall be located within 75 feet (22 860 mm) of, but not less than 25 feet (7620 mm) from, the fuel dispensers. For interior fuel-dispensing operations, such emergency shutdown switches shall be installed at an approved location. An additional automatic emergency shutdown switch shall be provided in the compressor area for both indoor and outdoor compressors. An approved sign shall be posted on or immediately adjacent to such switches and shall read: EMERGENCY CNG SHUTOFF. Such emergency shutdown switch shall be of a type that is manually resettable.

[2208.7.1] 2308.7.1 Compressor shutdown devices. Each compressor shall be equipped with an automatic shutdown device that will shut down the compressor in the event of low suction pressure, high suction pressure, high motor

temperature, high discharge pressure or high discharge temperature.

[2208.7.2] 2308.7.2 Gas detection system. Indoor compressing, storage and dispensing areas shall be provided with a combustible gas detection alarm system meeting the standards of the construction codes, including the Building Code. Such system shall activate a local audible and visible alarm at 20 percent of the LEL and automatically shut off gas supply at 50 percent of the LEL, with simultaneous transmission of an alarm to the department by an approved central station company. The automatic shutoff valve shall be located upstream from the confined high-pressure piping and shall be installed underground or otherwise protected from exposure to fire in an approved manner.

[2208.7.3] 2308.7.3 Heat detection system. Indoor compressing, storage and dispensing areas shall be provided with a closed-circuit heat detection system utilizing approved heat detection devices and equipment designed to automatically activate a local audible and visible alarm with simultaneous transmission to an approved central station, activate a fire extinguishing system over the area or enclosure, and shut off the gas supply to the compressor and dispenser. The automatic shutoff valve shall be installed underground or be otherwise protected from exposure to fire in an approved manner.

[2208.7.3.1] 2308.7.3.1 Outdoor heat detection system. Outdoor compressing, storage and dispensing shall be provided with a closed-circuit heat detection system designed utilizing approved heat detection devices and equipment designed to automatically activate a local audible and visible alarm and shut off the gas supply to the compressor and dispenser. The automatic shutoff valve shall be installed underground or otherwise protected from exposure to fire in an approved manner.

[2208.7.3.2] 2308.7.3.2. Outdoor storage exceeding 35,000 SCF [(991.2 m³)] (991.1 m³). For outdoor CNG storage exceeding 35,000 SCF [(991.2 m³)] (991.1 m³) located within 25 feet (7620 mm) of a building or structure, activation of the heat detection system shall simultaneously transmit an alarm to an approved central station.

[2208.7.4] 2308.7.4 Fire extinguishing systems and appliances. Indoor compressing, storage and dispensing areas shall be protected throughout by a fire extinguishing system.

[2208.7.4.1] 2308.7.4.1 Fire extinguishing system periodic testing. A performance test of the non-water fire extinguishing system and the dispensing facility emergency shutdown system shall be conducted at least once every 5 years. The test shall be conducted at the owner's risk by his or her representative before a representative of the department.

[2208.7.4.2] 2308.7.4.2 Portable fire extinguishers. Portable fire extinguishers shall be provided adjacent to the CNG motor fuel-dispensing facility in the number and size specified by NFPA 52 and FC906.

[2208.8] 2308.8 Discharge of CNG from motor vehicle fuel storage containers. The discharge of CNG from motor vehicle fuel containers for the purposes of maintenance, container certification, calibration of dispensers or other activities shall be in accordance with FC [2208.8.1] 2308.8.1 through [2208.8.1.2] 2308.8.1.2.

[2208.8.1] 2308.8.1 Methods of discharge. The discharge of CNG from motor vehicle fuel containers shall be accomplished through a closed transfer system in accordance with [FC2208.8.1.1] FC2308.8.1.1 or an approved method of atmospheric venting in accordance with [FC2208.8.1.2] FC2308.8.1.2.

[2208.8.1.1] 2308.8.1.1 Closed transfer system. Documentation of the procedure for discharging the container shall be provided to the commissioner for approval. The procedure shall include the actions the operator will take in the event of a low-pressure or high-pressure natural gas release during the discharging activity. A schematic design document illustrating the arrangement of piping, regulators and equipment settings, and their relation to the location of the compressor, storage vessels and emergency shutdown devices, shall be provided to the commissioner for approval.

[2208.8.1.2] 2308.8.1.2 Atmospheric venting. Atmospheric venting of CNG shall comply with the requirements of FC [2208.8.1.2.1] 2308.8.1.2.1 through [2208.8.1.2.6] 2308.8.1.2.6.

[2208.8.1.2.1] 2308.8.1.2.1 Plans and specifications. A schematic design document illustrating the location of the vessel support, piping, the method of grounding and bonding, and other requirements specified herein or requested by the department shall be provided to the commissioner for approval.

[2208.8.1.2.2] 2308.8.1.2.2 Container stability. A method of rigidly supporting the container during the venting of CNG shall be provided. The selected method shall provide not less than two points of support and shall prevent the horizontal and lateral movement of the container. The system shall be designed to prevent the movement of the container based on the highest gas-release velocity through valve orifices at the container's rated pressure and volume. The structure or appurtenance shall be constructed of noncombustible materials.

[2208.8.1.2.3] 2308.8.1.2.3 Separation. The structure or appurtenance used for stabilizing the container shall be separated from other equipment or features as set forth in FC Table [2208.8.1.2.3] 2308.8.1.2.3.

FC TABLE [2208.8.1.2.3] 2308.8.1.2.3
SEPARATION DISTANCE FOR ATMOSPHERIC VENTING OF CNG
EQUIPMENT OR FEATURE
MINIMUM SEPARATION (feet)

Buildings

25

Building openings

25

Lot lines

15

Public street or private roads

15

Vehicles

25

CNG compressor and storage containers

25

CNG dispensers

25

For SI: 1 foot = 304.8 mm.

[2208.8.1.2.4] 2308.8.1.2.4 Grounding and bonding. The structure or appurtenance used for supporting the container shall be grounded in accordance with the Electrical Code. The container valve shall be bonded prior to the commencement of venting operations.

[2208.8.1.2.5] 2308.8.1.2.5 Vent tube. A vent tube that will divert the gas flow to the atmosphere shall be installed on the container prior to commencement of the venting and purging operation. The vent tube shall be constructed of pipe or tubing materials approved for use with CNG in accordance with FC Chapter [30] 53. The vent tube shall be capable of dispersing the gas a minimum of 10 feet (3048 mm) above grade level. The vent tube shall not be provided with a rain cap or other feature that would limit or obstruct the gas flow. At the connection fitting of the vent tube and the CNG container, a listed bi-directional detonation flame arrester shall be provided.

[2208.8.1.2.6] 2308.8.1.2.6 Signage. Approved "No Smoking" signs complying with the requirements of FC310 shall be conspicuously posted within 10 feet (3048 mm) of the container support structure or appurtenance. Approved CONTAINER SHALL BE BONDED signs shall be posted on the container support structure or appurtenance.

[2208.9] 2308.9 Residential and other vehicle fueling appliance facilities. The compressing and dispensing of CNG by a vehicle fueling appliance shall be in accordance with FC [2208.9.1] 2308.9.1 through [2208.9.4] 2308.9.4.

[2208.9.1] 2308.9.1 Residential fueling appliance facilities. The compressing and dispensing of CNG at a residential fueling appliance facility shall be in accordance with NFPA 52 and this chapter, except that such facilities shall be exempt from the requirements of [FC2208.3.1(2)] FC2308.3.1(2) with regard to the distance to the nearest building, and FC [2208.7] 2308.7 through [2208.7.4] 2308.7.4.

[2208.9.2] 2308.9.2 Nonresidential fueling appliance facilities. The compressing and dispensing of CNG at a nonresidential fueling appliance facility shall be in accordance with NFPA 52 and this chapter, except that such facilities shall be exempt from [FC2208.3.1(2)] FC2308.3.1(2) with regard to the distance to the nearest building, and FC [2208.7] 2308.7 through [2208.7.4] 2308.7.4.

[2208.9.3] 2308.9.3 Prohibitions. It shall be unlawful to:

1. Fill or store any containers, other than permanently mounted fuel containers on CNG-powered vehicles.
2. Compress and dispense CNG indoors.

[2208.9.4] 2308.9.4 Supervision. The operation of a vehicle fueling appliance facility shall be under the personal supervision of a certified attendant.

[2208.10] 2308.10 Mobile CNG motor fuel compression, storage and dispensing. A mobile CNG motor fuel compression, storage and/or dispensing system may be used to fuel vehicle-mounted containers as approved by the commissioner and subject to such conditions as the commissioner may prescribe consistent with public safety.

SECTION FC [2209] 2309 HYDROGEN MOTOR FUEL-DISPENSING AND GENERATING FACILITIES

[2209.1] 2309.1 General. Hydrogen motor fuel-dispensing and generating facilities shall be designed, installed, operated and maintained in accordance with this section and FC Chapters [30] 53, [32] 55 and [35] 58, as applicable.

[2209.1.1] 2309.1.1 Prohibition. It shall be unlawful to:

1. Maintain or operate a self-service hydrogen motor fuel-dispensing facility.
2. Maintain or operate a marine hydrogen motor fuel-dispensing facility.
3. Fill a container with hydrogen, other than containers permanently mounted on a powered industrial truck or a hydrogen-powered motor vehicle and used for motive power as set forth in [FC3501.5(1)] FC5801.5(1).
4. Generate, compress, store or dispense hydrogen indoors, except for gaseous hydrogen in hydrogen fuel gas rooms in accordance with FC5808.

[2209.1.2] 2309.1.2 Supervision. The dispensing of hydrogen at hydrogen motor fuel-dispensing facilities shall be conducted by or under the personal supervision of a certified attendant in accordance with [FC2201.7] FC2301.7.

[2209.1.2.1] 2309.1.2.1 Inspection of dispensing area. The certified attendant at a hydrogen motor fuel-dispensing facility responsible for supervision of the dispensing of hydrogen shall inspect the dispensing area on a daily basis to ensure that the facility is being maintained in accordance with this chapter and the rules. The certified attendant shall notify the owner and make any other notifications required by this code if there is any evidence that the facility is not in good working order. A record of such inspections and notifications shall be maintained at the premises in accordance with FC107.7.

[2209.1.2.2] 2309.1.2.2 Duties of fleet personnel. Employees or other persons working for the owner of a fleet hydrogen motor fuel-dispensing facility whose duties involve the dispensing of hydrogen shall be trained and knowledgeable in such dispensing in compliance with the requirements of this code and the rules.

[2209.1.3] 2309.1.3 Maintenance. Maintenance of hydrogen motor fuel-dispensing facilities shall be conducted under the personal supervision of a person holding a hydrogen fueling-facility maintenance certificate of fitness.

[2209.1.4] 2309.1.4 Lighting. Dispensing areas shall be well lighted whenever dispensing is conducted.

[2209.1.5] 2309.1.5 Dispensing area signage. Durable signs shall be conspicuously posted in dispensing areas in hydrogen motor fuel-dispensing facilities in compliance with the requirements of FC [2209.1.5.1] 2309.1.5.1 through [2209.1.5.4] 2309.1.5.4.

[2209.1.5.1] 2309.1.5.1 Operating instructions. A sign setting forth dispenser operating instructions shall be posted on every dispenser. Such sign shall also indicate the location of the emergency shutdown valves and emergency shutdown controls required by FC [2209.7.3] 2309.7.3 and [2209.7.4] 2309.7.4.

[2209.1.5.2] 2309.1.5.2 Hydrogen dispensing warning sign. A warning sign that reads as follows shall be posted on or immediately adjacent to each dispenser:

1. No smoking.
2. Shut off engine.

[2209.1.5.3] 2309.1.5.3 Emergency procedures. A sign setting forth emergency procedures that reads as follows shall be posted in the dispensing area, or other location designated in this section:

IN CASE OF FIRE, LEAK OR EMERGENCY:

ACTIVATE EMERGENCY SHUTDOWN

DIRECT VEHICLE OCCUPANTS TO EXIT VEHICLES
AND LEAVE AREA IMMEDIATELY

KEEP ALL PERSONS AWAY FROM THE AREA

NOTIFY THE FIRE DEPARTMENT (CALL 911)

(FACILITY ADDRESS)

(indicate address, with cross-street reference).

[2209.1.5.4] 2309.1.5.4 Canopy top hydrogen storage. An approved sign having 2-inch (51-mm) block letters shall be conspicuously posted at approved locations on the exterior of any canopy structure when gaseous hydrogen compression and storage equipment is located on top of such canopy reading "CANOPY TOP HYDROGEN STORAGE."

[2209.1.6] 2309.1.6 Emergency telephone. A telephone not requiring a coin to operate or another approved, clearly identified means to notify the department, shall be provided on the site in an approved location.

[2209.2] 2309.2 Equipment. Equipment used for the generation, compression, storage or dispensing of hydrogen shall be designed for hydrogen motor fuel in accordance with this section.

[2209.2.1] 2309.2.1 Approved equipment. Containers and tanks; pressure relief devices, including pressure valves, hydrogen vaporizers, pressure regulators, and piping used for gaseous hydrogen systems shall be designed and constructed in accordance with FC Chapters [30] 53, [32] 55 and [35] 58.

[2209.2.2] 2309.2.2 Listed or approved equipment. Hoses, hose connections, compressors, hydrogen generators, dispensers, detection systems and electrical equipment used for hydrogen shall be listed or approved for use with hydrogen. Hydrogen motor fueling connections shall be listed and labeled or approved for use with hydrogen.

[2209.2.3] 2309.2.3 Electrical equipment. Electrical wiring and equipment shall be suitable for the location in which they are installed and shall be in accordance with the Electrical Code.

[2209.3] 2309.3 Location. In addition to the requirements of [FC2203.1] FC2303.1, generation, compression, storage and dispensing equipment shall be located in accordance with this section.

[2209.3.1] 2309.3.1 Outdoors. Generation, compression, storage or dispensing equipment shall be allowed outdoors only in accordance with FC Chapter [35] 58 and NFPA 2.

[2209.3.2] 2309.3.2 Gaseous hydrogen storage. Storage of gaseous hydrogen shall be in accordance with FC Chapters [30] 53 and [35] 58 and NFPA 2.

[2209.3.3] 2309.3.3 Liquefied hydrogen storage. Storage of liquefied hydrogen shall be in accordance with FC Chapters [32] 55 and [35] 58 and NFPA 2.

[2209.3.4] 2309.3.4 Canopy tops. Gaseous hydrogen compression and storage equipment located on top of motor fuel-dispensing facility canopies shall be in accordance with FC Chapters [30] 53 and [35] 58, the Fuel Gas Code and this section.

[2209.3.4.1] 2309.3.4.1 Construction. Canopies shall be constructed in accordance with the motor fuel-dispensing facility canopy requirements of Chapter 4 of the Building Code and the following:

1. The canopy shall meet or exceed Type I construction requirements.
2. Operations located under canopies shall be limited to fueling only.
3. The canopy shall be constructed in a manner that prevents the accumulation of hydrogen gas.

[2209.3.4.2] 2309.3.4.2 Fire extinguishing systems. Fuel-dispensing areas under canopies shall be protected throughout by a sprinkler system. The design of the sprinkler system shall not be less than that required for Extra Hazard Group 2 occupancies. Operation of the sprinkler system shall activate the emergency functions of this section.

[2209.3.4.3] 2309.3.4.3 Emergency discharge. Operation of the sprinkler system shall activate an automatic emergency discharge system, which will discharge the hydrogen gas from the equipment on the canopy top through the vent pipe system.

[2209.3.4.4] 2309.3.4.4 Emergency shutdown control. Operation of the sprinkler system shall activate the emergency shutdown control required by [FC2209.7.4] FC2309.7.4.

[2209.4] 2309.4 Canopies. Dispensing equipment need not be separated from canopies of Type I or II construction that are constructed in a manner that prevents the accumulation of hydrogen gas and in accordance with Chapter 4 of the Building Code.

[2209.5] 2309.5 Weather protection. Generation, compression, storage or dispensing equipment shall be allowed under weather protection in accordance with the requirements of Chapter 4 of the Building Code and [FC2704.13] FC5004.13. The weather protection shall be constructed in a manner that prevents the accumulation of hydrogen gas.

[2209.6] 2309.6 Overpressure protection. Dispensing systems shall be equipped with an overpressure protection device set at 140 percent of the service pressure of the fueling nozzle it supplies.

[2209.7] 2309.7 Safety precautions. Safety precautions at hydrogen motor fuel-dispensing and generating facilities shall be in accordance with this section.

[2209.7.1] 2309.7.1 Protection from vehicles. Guard posts or other approved means shall be provided to protect hydrogen storage systems and use areas subject to vehicular damage in accordance with FC312.

[2209.7.2] 2309.7.2 Vehicle fueling pad. The motor vehicle shall be fueled on noncoated concrete or other approved paving material having a resistance not exceeding 1 megohm as determined by the methodology specified in EN 1081.

[2209.7.3] 2309.7.3 Emergency shutoff valves. A manual emergency shutoff valve shall be provided at a clearly visible, accessible and approved location, to shut down the flow of gas from the hydrogen supply to the piping system.

[2209.7.4] 2309.7.4 Emergency shutdown controls. In addition to the manual emergency shutoff valve required by [FC2209.7.3] FC2309.7.3, a remotely located, manually activated emergency shutdown control shall be provided. An emergency shutdown control shall be located within 75 feet (22 860 mm) of, but not less than 25 feet (7620 mm) from, dispensers and hydrogen generators.

[2209.7.5] 2309.7.5 System requirements. Activation of the emergency shutdown control shall automatically shut down the power supply to all hydrogen storage, compression and dispensing equipment; shut off natural gas or other fuel supply to the hydrogen generator; and close valves between the main supply and the compressor and between the storage containers and dispensing equipment.

2309.8 Defueling procedure. The defueling, purging or other discharge of gaseous hydrogen from hydrogen motor fuel supply systems, including tanks and piping, shall be conducted in accordance with FC Chapters 53 and 58 and NFPA 2. Documentation setting forth the procedure for discharging the storage container shall be submitted to the department for review in connection with the approval of the hydrogen motor fuel storage and dispensing system installation. The written procedure shall address the actions the operator shall take in the event of a low-pressure or high-pressure hydrogen release during gaseous hydrogen discharge.

Exception: Discharges limited to the fuel supply piping from the fuel storage tank to the engine compartment on a motor vehicle or powered industrial truck.

SECTION FC [2210] 2310

MARINE LIQUID MOTOR FUEL-DISPENSING FACILITIES

[2210.1] 2310.1 General. The construction of marine liquid motor fuel-dispensing facilities shall be in accordance with the construction codes, including the Building Code, and NFPA 30A. The installation, inspection, testing, maintenance and operation of a liquid motor fuel storage and dispensing system at marine liquid motor fuel-dispensing facilities shall be in accordance with this chapter governing automotive liquid motor fuel-dispensing facilities, except that full-service marine liquid motor fuel-dispensing facilities do not require a fire extinguishing system for the dispensing area.

[2210.1.1] 2310.1.1 Prohibited facility. It shall be unlawful to operate a self-service marine liquid motor fuel-dispensing facility.

[2210.2] 2310.2 Storage and handling. The storage and handling of liquid motor fuel at marine liquid motor fuel-dispensing facilities shall be in accordance with FC [2210.2.1] 2310.2.1 through [2210.2.3] 2310.2.3.

[2210.2.1] 2310.2.1 Class I, II or IIIA liquid storage. Class I, II or IIIA liquids stored indoors used for marine liquid motor fuel-dispensing facilities shall be stored in approved containers. Storage of Class I liquids shall not exceed 10 gallons (38 L).

[2210.2.2] 2310.2.2 Dispensing from portable containers. No marine vessel or watercraft shall be fueled from a portable container while indoors.

[2210.2.3] 2310.2.3 Heating equipment. Heating equipment installed in liquid motor fuel storage or dispensing areas shall comply with the requirements of [FC2201.6] FC2301.6.

[2210.3] 2310.3 Dispensing. The dispensing of liquid motor fuel at marine liquid motor fuel-dispensing facilities shall comply with the requirements of FC [2210.3.1] 2310.3.1 through [2210.3.4] 2310.3.4.

[2210.3.1] 2310.3.1 General. Unless another use has been approved, piers, docks or wharves at marine liquid motor fuel-dispensing facilities shall be used exclusively for the dispensing or transfer of liquid motor fuel to or from marine vessel, watercraft, except that transfer of essential ship stores is allowed.

[2210.3.1.1] 2310.3.1.1 Flexible metallic piping. Where there is a need to provide flexibility in piping to allow for motion of a pier or dock, flexible metallic piping of an approved length and design may be installed and used in compliance with NFPA 30A. All flexible metallic piping or other flexible hose connections authorized by this section shall be inspected for proper operation at least once a year by a certificate of license holder. A record of such inspection shall be kept in a bound log book or other approved form of recordkeeping, and maintained on the premises for a minimum of 4 years.

[2210.3.2] 2310.3.2 Supervision. The dispensing of liquid motor fuel at marine liquid motor fuel-dispensing facilities shall be conducted by or under the personal supervision of a certified attendant as set forth in [FC2201.7] FC2301.7.

[2210.3.3] 2310.3.3 Hoses and nozzles. Dispensing of liquid motor fuel into the fuel tanks of marine vessels and watercraft shall be by means of an approved-type hose equipped with a listed automatic-closing nozzle without a latch-open device. Hoses used for dispensing or transferring liquid motor fuel, when not in use, shall be reeled, racked or otherwise protected from mechanical damage.

[2210.3.4] 2310.3.4 Portable containers. Liquid motor fuel dispensing into portable containers shall be performed in accordance with [FC2204.1.7] FC2304.1.7, except that portable containers that are approved and used as the fuel tank for marine vessels or watercraft may be of a capacity not greater than 51/2 gallons (20.8 L).

[2210.4] 2310.4 Fueling of marine vehicles at other than approved marine liquid motor fuel-dispensing facilities. It shall be unlawful to fuel floating marine vessels and watercraft with liquid motor fuel at other than a marine liquid motor fuel-dispensing facility, except fueling of marine vessels and watercraft performed by off-shore fueling vessels approved by the United States Coast Guard.

[2210.5] 2310.5 Fire prevention. Marine liquid motor fuel-dispensing facilities shall comply with the requirements of FC [2210.5.1] 2310.5.1 through [2210.5.7] 2310.5.7.

[2210.5.1] 2310.5.1 Housekeeping. Marine motor fuel-dispensing facilities shall be maintained in a neat and orderly manner. Accumulations of rubbish or waste oils in excessive amounts are prohibited. Rubbish and other combustible waste shall be regularly removed from the premises and disposed of lawfully.

[2210.5.2] 2310.5.2 Spills. Spills of liquid motor fuel near or in the water shall be reported immediately to the department and other governmental agencies requiring such reporting.

[2210.5.3] 2310.5.3 Rubbish containers. Metal containers with tight-fitting or self-closing metal lids shall be provided for the temporary storage of rubbish or other combustible waste.

[2210.5.4] 2310.5.4 Marine vessel and watercraft mooring. When marine vessels and watercraft are being fueled at a fuel dock, no other marine vessel or watercraft shall be made fast to the marine vessel or watercraft being fueled or to the fuel dock. The dispensing hose shall not cross one marine vessel or watercraft to reach another.

[2210.5.5] 2310.5.5 Sources of ignition. Any activity or operation involving the use of open flames, arc- or spark-producing devices shall not be performed at marine motor fuel-dispensing facilities or within 50 feet (15 240 mm) of the dispensing facilities, including piers, docks or wharves, except where approved by the commissioner. Dispensing shall not be conducted at such pier, dock or wharf during the course of such emergency repairs.

[2210.5.5.1] 2310.5.5.1 Smoking. It shall be unlawful to smoke, use or maintain an open flame within 50 feet (15 240 mm) of fueling operations. "No Smoking" signs complying with the requirements of FC310 shall be conspicuously posted throughout the premises. Such signs shall have letters of not less than 4 inches (102 mm) in height with a background of contrasting color.

[2210.5.6] 2310.5.6 Preparation of tanks for fueling. Marine vessel and watercraft owners and operators shall not offer their marine vessel or watercraft for fueling unless the tanks being filled are properly vented to dissipate fumes to the outdoors.

[2210.5.7] 2310.5.7 Warning signs. Warning signs shall be prominently displayed at the face of each pier, dock or wharf at such elevation as to be clearly visible from the decks of marine vessels and watercraft being fueled. Such signs shall have letters not less than 3 inches (76 mm) in height on a background of contrasting color bearing the following or approved equivalent wording:

WARNING
NO SMOKING-STOP ENGINE WHILE
FUELING, SHUT OFF ELECTRICITY.
DO NOT START ENGINE UNTIL AFTER
BELOW DECK SPACES ARE VENTILATED.

[2210.6] 2310.6 Fire protection. Marine liquid motor fuel-dispensing facilities shall comply with the requirements of FC [2210.6.1] 2310.6.1 through [2210.6.4] 2310.6.4, and the construction codes, including the Building Code.

[2210.6.1] 2310.6.1 Standpipe hose stations. Fire hose, when required, shall be provided and enclosed within a cabinet, and hose stations shall be labeled: FIRE HOSE-EMERGENCY USE ONLY.

[2210.6.2] 2310.6.2 Obstruction of fire protection equipment. Materials shall not be placed or stored on a pier, dock or wharf in such a manner as to obstruct access to firefighting equipment or piping system control valves.

[2210.6.3] 2310.6.3 Access. Where the pier, dock or wharf is accessible to vehicular traffic, an unobstructed roadway to the shore end of the pier, dock or wharf shall be maintained for access by fire apparatus.

[2210.6.4] 2310.6.4 Portable fire extinguishers. One portable fire extinguisher in accordance with FC906 having a minimum rating of 40-B:C shall be provided on the pier, dock or wharf within 25 feet (7620 mm) of the head of the gangway to the pier, dock or wharf. If the certified attendant's office is within 25 feet (7620 mm) of the gangway or is on the pier, dock or wharf, the fire extinguisher may be provided therein.

SECTION FC [2211] 2311 REPAIR GARAGES

[2211.1] 2311.1 General. Repair garages shall comply with the requirements of this section and the construction codes, including the Building Code. Repair garages for vehicles that use more than one type of fuel shall comply with the applicable requirements of this section for each type of fuel used. Where a repair garage also includes a motor fuel-dispensing facility, the fuel-dispensing operation shall comply with the requirements of this chapter for motor fuel-dispensing facilities.

[2211.1.1] 2311.1.1 Supervision of defueling operations. The defueling of liquid motor fuel from the fuel tank of a motor vehicle shall be [conducted by or under the personal supervision of a person holding a certificate of fitness] supervised in accordance with FC2301.8.

2311.1.2 Supervision of repair garages for vehicles fueled by lighter-than-air motor fuels. The defueling of motor fuel from the fuel tank of a motor vehicle fueled by lighter-than-air motor fuel, and the refueling of such vehicles, shall be conducted by or under the personal supervision of a person holding a certificate of fitness.

[2211.2] 2311.2 Storage and use of flammable and combustible liquids. The storage and use of flammable and combustible liquids in repair garages shall comply with the requirements of FC Chapter [34] 57 and FC [2211.2.1] 2311.2.1 through [2211.2.4] 2311.2.4.

[2211.2.1] 2311.2.1 Cleaning of parts. Cleaning of parts shall be conducted in listed and approved parts-cleaning machines in accordance with FC Chapter [34] 57.

[2211.2.2] 2311.2.2 Waste oil, motor oil and other Class IIIB liquids. Waste oil, motor oil and other Class IIIB liquids, including crankcase drainings shall be stored in approved tanks or containers, which are allowed to be stored and dispensed from inside repair garages.

[2211.2.2.1] 2311.2.2.1 Tanks storing waste oil. For tanks of a capacity of 500 gallons (1893 L) or less, the fill connection may be located indoors provided that discharge of vapor from the fill port is prevented from entering the building or structure during and after filling. An automatic spring-loaded vertical check valve in the fill line or other device designed to prevent vapors from escaping shall be provided. The fill line shall be capped immediately after filling.

[2211.2.3] 2311.2.3 [Drainage] Draining and disposal of liquids and oil-soaked waste. Garage floor drains, where provided, shall drain to approved oil separators or traps discharging to a sewer in accordance with the construction codes, including the Plumbing Code. Contents of oil separators, traps and floor drainage systems shall be collected at sufficiently frequent intervals and removed from the premises to prevent oil from being carried into the sewers. Crankcase drainings and liquids shall not be dumped into sewers, streams or on the ground, but shall be stored in approved tanks or containers in accordance with FC Chapter [34] 57 until removed from the premises. Self-closing metal cans shall be used for oily waste.

2311.2.3.1 Draining of liquid motor fuel tanks. Portable equipment used for defueling and refueling shall be listed and labeled and shall have fuel storage tanks not exceeding 65 gallons (246 L). Stationary systems for defueling and refueling, shall be approved by the department.

[2211.2.4] 2311.2.4 Spray finishing. Spray finishing with flammable or combustible liquids shall comply with the

requirements of FC Chapter [15] 24.

[2211.3] 2311.3 Sources of ignition. Sources of ignition shall not be located within 18 inches (457 mm) of the floor and shall comply with the requirements of FC Chapters 3 and [26] 35.

[2211.3.1] 2311.3.1 Equipment. Appliances and equipment installed in a repair garage shall comply with the requirements of the construction codes, including the Building Code, the Mechanical Code and the Electrical Code.

[2211.3.2] 2311.3.2 Smoking. Smoking is prohibited in repair garages.

[2211.4] 2311.4 Below grade areas. Pits and other work areas below grade in repair garages shall comply with the requirements of FC [2211.4.1] 2311.4.1 through [2211.4.3] 2311.4.3.

[2211.4.1] 2311.4.1 Construction. Pits and other work areas below grade shall be constructed in accordance with the construction codes, including the Building Code.

[2211.4.2] 2311.4.2 Means of egress. Pits and other work areas below grade shall be provided with means of egress in accordance with the Building Code.

[2211.4.3] 2311.4.3 Ventilation. Where Class I liquids are stored or used within a building having a basement or pit wherein flammable vapors could accumulate, the basement or pit shall be provided with mechanical ventilation in accordance with the construction codes, including the Mechanical Code, at a minimum rate of 1.5 cubic feet per minute per square foot (0.008 m³/s/m²) to prevent the accumulation of flammable vapors.

[2211.5 Preparation of vehicles for repair. For vehicles powered by gaseous fuels, the fuel shutoff valves shall be closed prior to repairing any portion of the vehicle fuel system. Vehicles powered by gaseous fuels in which the fuel system has been damaged shall be inspected and evaluated for fuel system integrity prior to being brought into the repair garage. The inspection shall include testing of the entire fuel delivery system for leakage.

2211.5.1 Drainage of liquid motor fuel tanks. Portable equipment used for defueling and refueling shall be listed and labeled and shall have fuel storage tanks not exceeding 65 gallons (246 L). Systems for defueling and refueling, other than by use of portable equipment, shall be approved.]

2311.5 Reserved.

2311.6 Reserved.

[2211.6] 2311.7 Portable fire extinguishers. Portable fire extinguishers shall be provided in accordance with FC906.

[2211.7] 2311.8 Repair garages for vehicles fueled by lighter-than-air motor fuels. [Repair garages] The repair garage, or the room, booth or area thereof, for the conversion and/or repair of vehicles which use CNG, liquefied natural gas (LNG), hydrogen or other lighter-than-air motor fuels shall be designed, installed, operated and maintained in accordance with FC [2211.7.1 and 2211.7.2, and, as applicable, FC2211] 2311.8.1 through 2311.8.8.

[Exception:] Exceptions:

1. Repair garages where work is conducted only on vehicles that have been defueled and their systems purged with nitrogen gas, and which will not be re-fueled in the repair garage. Documentation of such purging shall be maintained on the premises and signage conspicuously posted that no lighter-than-air gas fueling shall be conducted in the repair garage.
2. Repair garages where work is not performed on the fuel system and is limited to exchange of parts and maintenance requiring no open flame or welding on the CNG-, LNG-, hydrogen- or other lighter-than-air-fueled motor vehicle.
3. Repair garages for hydrogen-fueled vehicles where work is not performed on the hydrogen storage tank and is limited to the exchange of parts and maintenance requiring no open flame or welding on the hydrogen-fueled vehicle. During the work, the entire hydrogen fuel system shall contain less than 200 cubic feet (5.6 m³) of hydrogen.

4. Repair garages for natural-gas-fueled vehicles where work is not being performed on the fuel storage tank, and is limited to the exchange of parts and maintenance requiring no open flame or welding on the natural-gas-fueled vehicle. During the work, the natural gas in the vehicle fuel tank shall contain a pressure of not more than 250 psi at 70°F (1724 kPa at 21°C).

2311.8.1 Construction requirements. Any room or booth in a repair garage that is used for motor vehicle repair shall be constructed in accordance with the Building Code and FC 2311.8.1.1 and 2311.8.1.2.

2311.8.1.1 Motor vehicle repair spaces. When motor vehicle repairs are performed in an unenclosed interior space, noncombustible spray curtains shall be provided to restrict the spread of flammable gases.

2311.8.1.2 Below grade areas. Motor vehicle repair rooms, booths and spaces shall not be constructed in below grade areas.

2311.8.2 Fire protection. Motor vehicle repair booths or spaces installed in a room or area shall be protected by a sprinkler system as set forth in the Building Code.

[2211.7.1 Ventilation] 2311.8.3 Exhaust ventilation system. Repair garages used for the repair of vehicles fueled by CNG, LNG or [hydrogen-fueled vehicles] other lighter-than-air motor fuels other than hydrogen shall be provided with an approved mechanical ventilation system[. The mechanical ventilation system shall be] designed in accordance with this section and the construction codes, including the Mechanical Code. Repair garages used for the repair of hydrogen-fueled vehicles shall be provided with an approved exhaust ventilation system in accordance with the construction codes, including the Mechanical Code, and Chapter 6 of NFPA 2.

2311.8.3.1 Design. For indoor locations, air supply inlets and exhaust outlets for mechanical ventilation shall be arranged to provide uniformly distributed air movement with inlets uniformly arranged on walls near floor level and outlets at the high point of the room in walls or the roof. Failure of the ventilation system shall cause the fueling system to shut down. The exhaust ventilation rate shall be not less than 1 cubic foot per minute (0.03 m³/minute) per 12 cubic feet (34 m³) of room volume.

2311.8.3.2 Operation. The mechanical exhaust ventilation system shall operate continuously.

Exceptions:

1. Mechanical exhaust ventilation systems that are interlocked with a gas detection system designed in accordance with FC2311.8.4.

2. Mechanical exhaust ventilation systems in repair garages that are used only for repair of vehicles fueled by liquid fuels or odorized gases, such as CNG, where the ventilation system is electrically interlocked with the lighting circuit.

[2211.7.2] 2311.8.4 Gas detection system. Repair garages used for repair of vehicles fueled by CNG, LNG or hydrogen shall be provided with [an approved flammable] a gas detection system [meeting the requirements of the construction codes, including the Building Code] in accordance with FC 908 and 2311.8.4.1 through 2311.8.4.3.

2311.8.4.1 System design. The gas detection system shall be designed to detect leakage of nonodorized gaseous fuel. Where lubrication or chassis service pits are provided in garages used for repairing nonodorized LNG-fueled vehicles, gas sensors shall be provided in such pits.

2311.8.4.2 System activation. Activation of the gas detection system alarm shall initiate the following actions:

1. Activation of local audible and visual alarms in approved locations.
2. Deactivation of heating systems located in the repair garage.
3. Activation of the mechanical exhaust ventilation system, where the ventilation system is interlocked with gas detection.

2311.8.4.3 System failure. Failure of the gas detection system shall automatically deactivate the heating system, activate the mechanical exhaust ventilation system where the system is interlocked with the gas detection system, and transmit a supervisory signal to the control panel and a central station.

2311.8.5 Electrical requirements. Areas within 18 inches (450 mm) of a ceiling within a motor vehicle repair room or motor vehicle repair booth shall be designed and installed in accordance with the requirements for Class I, Division 2 classified locations, as set forth in the Electrical Code.

Exceptions:

1. Motor vehicle repair rooms with exhaust ventilation of not less than 1 cfm per square foot (0.03 m³/minute/m²) of floor area, with suction taken from a point within 18 inches (450 mm) of the highest point in the ceiling in repair garages for vehicles that use CNG, liquefied natural gas (LNG) or other lighter-than-air motor fuels.

2. Motor vehicle repair rooms used for the repair of hydrogen-fueled vehicles that have an approved exhaust ventilation system in accordance with the Mechanical Code and NFPA 2.

2311.8.6 Preparation of vehicles for repair. For vehicles powered by gaseous fuels, the fuel shutoff valves shall be closed prior to repairing any portion of the vehicle fuel system. Where the fuel system of a vehicle powered by a gaseous fuel has been damaged, the entire fuel system of the vehicle shall be inspected and evaluated for integrity prior to being brought into the repair garage.

2311.8.7 Other requirements. Repair garages for vehicles fueled by lighter-than-air motor fuels shall comply with the requirements of FC 2311.1.2, 2311.3 and 2311.7 with respect to supervision, sources of ignition and portable fire extinguishers.

[2211.8] 2311.8.8 Defueling [of hydrogen from motor vehicle fuel storage containers. Discharge or defueling of hydrogen from motor vehicle fuel storage containers for the purpose of maintenance, container certification or other purposes shall be performed in accordance with FC2211.8.1.]equipment required at vehicle maintenance and repair facilities. Repair garages that repair or replace hydrogen fuel systems on hydrogen-fueled vehicles shall have equipment to defuel hydrogen fuel storage tanks. Where work must be performed on a vehicle's fuel storage tank for the purpose of maintenance, repair or cylinder certification, defueling and purging shall be conducted in accordance with FC 2309.8 and NFPA 2.

[2211.8.1 Methods of discharge. The discharge of hydrogen from motor vehicle fuel storage containers shall be accomplished through a closed transfer system in accordance with FC2211.8.1.1 or an approved method of atmospheric venting in accordance with FC2211.8.1.2.

2211.8.1.1 Closed transfer system. A documented procedure that explains the logic sequence for discharging the storage container shall be provided to the commissioner for review and approval. The procedure shall include the actions the operator is required to take in the event of a low-pressure or high-pressure hydrogen release during discharging activity. Schematic design documents shall be provided illustrating the arrangement of piping, regulators and equipment settings. The design and installation documents shall illustrate the piping and regulator arrangement and shall be shown in spatial relation to the location of the compressor, storage vessels and emergency shutdown devices.

2211.8.1.2 Atmospheric venting of hydrogen from motor vehicle fuel storage containers. When atmospheric venting is used for the discharge of hydrogen from motor vehicle fuel storage containers, such venting shall be performed in accordance with FC 2211.8.1.2.1 through 2211.8.1.2.4.

2211.8.1.2.1 Defueling equipment required at vehicle maintenance and repair facilities. All facilities for repairing hydrogen systems on hydrogen-fueled vehicles shall have equipment to defuel vehicle storage containers. Equipment used for defueling shall be listed and labeled for the intended use.

2211.8.1.2.1.1 Manufacturer's equipment required. Equipment supplied by the vehicle manufacturer shall be used to connect the vehicle storage containers to be defueled to the vent pipe system.

2211.8.1.2.1.2 Vent pipe maximum diameter. Defueling vent pipes shall have a maximum inside diameter of 1 inch (25

mm) and be installed in an approved manner.

2211.8.1.2.1.3 Maximum flow rate. The maximum rate of hydrogen flow through the vent pipe system shall not exceed 1,000 SCF/min (28.3 m³/min) and shall be controlled by means of the manufacturer's equipment, at low pressure and without adjustment.

2211.8.1.2.1.4 Isolated use. The vent pipe used for defueling shall not be connected to a venting system used for another purpose.

2211.8.1.2.2 Design and installation documents. Design and installation documents shall be provided illustrating the defueling system to be utilized. Plan details shall be of sufficient detail and clarity to allow for evaluation of the piping and control systems to be utilized and include the method of support for containers to be used as part of a closed transfer system, the method of grounding and bonding, and other requirements set forth in this section.

2211.8.1.2.3 Stability of containers. A method of rigidly supporting containers used during defueling of hydrogen shall be provided. The method shall provide not less than two points of support and shall be designed to resist lateral movement of the receiving container. The system shall be designed to resist movement of the receiver based on the highest gas-release velocity through valve orifices at the receiver's rated service pressure and volume. Supporting structures or appurtenances used to support containers shall be constructed of noncombustible materials in accordance with the construction codes, including the Building Code.

2211.8.1.2.4 Grounding and bonding. Containers and piping systems used for defueling shall be bonded and grounded. Structures or appurtenances used for supporting the containers shall be grounded in accordance with the Electrical Code. The valve of the vehicle storage container shall be bonded with the defueling system prior to the commencement of discharge or defueling operations.

2211.8.2 Repair of hydrogen piping. Piping systems containing hydrogen shall not be opened to the atmosphere for repair without first purging the piping with an inert gas to achieve 1 percent hydrogen or less by volume. Defueling operations and exiting purge flow shall be vented in accordance with FC2211.8.1.2.

2211.8.3 Purging. Each individual component of a hydrogen defueling system shall have a label affixed as well as a description in the installation and owner's manuals describing the procedure for purging air from the system during startup, regular maintenance and for purging hydrogen from the system prior to disassembly (to admit air). For the interconnecting piping between the individual manufactured components, the pressure rating must be at least twenty times the absolute pressure present in the piping when any hydrogen meets any air.

2211.8.3.1 System purge required. After installation, repair or maintenance, the hydrogen piping system shall be purged of air in accordance with the manufacturer's specifications.]

CHAPTER 24 FLAMMABLE FINISHES

SECTION FC [1501] 2401 GENERAL

[1501.1] 2401.1 Scope. This chapter shall govern the following operations, and the design, installation, operation and maintenance of any building, structure or premises wherein such operations are conducted:

1. The application of flammable finishes to articles or materials by means of spray apparatus.
2. The application of flammable finishes by dipping or immersing articles or materials into the contents of tanks, vats or containers of flammable or combustible liquids for coating, finishing, treatment and similar processes.
3. The application of flammable finishes utilizing powder spray guns, electrostatic powder spray guns, fluidized beds or electrostatic fluidized beds to apply combustible powders.

4. Floor finishing operations.

5. The application of flammable finishes consisting of dual-component coatings or Class I or II liquids when applied by brush or roller in quantities exceeding 1 gallon (4 L).

[1501.2] 2401.2 Permits. Permits shall be required as set forth in FC105.6.

[1501.3] 2401.3 General. Flammable finishing operations governed by this chapter shall be conducted in accordance with this chapter. The buildings and premises in which such flammable finishing operations are conducted shall be designed, installed, operated and maintained in accordance with this chapter.

[1501.4] 2401.4 Supervision. The following finishing operations shall be conducted by or under the personal supervision of a certificate of fitness holder:

1. Spray-finishing and dipping operations.

2. Floor finishing operations requiring a permit.

[1501.5] 2401.5 Certificate of approval. Pre-manufactured spray rooms and pre-manufactured spray booths that circulate heated air shall be of a type for which a certificate of approval has been issued in accordance with this code, or which was previously approved by the Department of Buildings or the Board of Standards and Appeals, unless such approval is amended or repealed by the commissioner.

SECTION FC [1502] 2402 DEFINITIONS

[1502.1] 2402.1 Definitions. The following terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings [shown herein] set forth in FC202.

DETEARING. [A process for rapidly removing excess wet coating material from a dipped or coated object or material by passing it through an electrostatic field.]

DIP TANK. [A tank, vat or other container of flammable or combustible liquid in which articles or materials are immersed for the purpose of coating, finishing, treating and similar processes.]

ELECTROSTATIC FLUIDIZED BED. [A container holding powder coating material that is aerated from below so as to form an air-supported expanded cloud of such material which is electrically charged with a charge opposite to the charge of the object to be coated. Such object is transported through the container immediately above the charged and aerated materials in order to be coated.]

FLAMMABLE FINISHES. [Material coatings in which the material being applied is a flammable liquid, combustible liquid, combustible powder or flammable or combustible gel coating.]

FLAMMABLE VAPOR AREA. [The interior of any room, booth or area, including spray rooms, spray booths, exhaust ducts and drying rooms, or other areas in which, as a result of flammable finishing operations, the concentration of flammable constituents (vapor, gas, fume, mist or dust) in air exceeds 25 percent of their lower flammable limit (LFL).]

FLOOR FINISHING OPERATION. [Any activity involving the surfacing or finishing of a floor, including but not limited to cleaning, stripping, sealing, painting, varnishing, lacquering, staining and waxing.]

FLUIDIZED BED. [A container holding powder coating material that is aerated from below so as to form an air-supported expanded cloud of such material through which the preheated object to be coated is immersed and transported.]

LIMITED-SPRAYING SPACE. [An area in which spraying operations for touch-up or spot painting of a surface area of 9 square feet (0.84m²) or less per workpiece are conducted.]

RESIN APPLICATION AREA. [An area where reinforced plastics are used to manufacture products by hand lay-up or

spray-fabrication methods.]

ROLL COATING. [The process of coating, spreading and impregnating fabrics, paper or other materials as they are passed directly through a tank or trough containing flammable or combustible liquids, or over the surface of a roller revolving partially submerged in a flammable or combustible liquid.]

SPRAY BOOTH. [A mechanically ventilated appliance of varying dimensions and construction provided to enclose or accommodate a spraying operation and to confine and limit the escape of spray vapor and residue and to exhaust it safely.]

SPRAY ROOM. [A room designed to accommodate spraying operations constructed in accordance with the Building Code. The room enclosure shall be at least 2-hour fire-resistant rated.]

SPRAYING SPACE. [The interior of a spray room, spray booth, exhaust duct, or other area in which, as a result of flammable finishing operations, surfaces are exposed to flammable vapors or mists or combustible dust, and are susceptible to accumulation of flammable or combustible residues or deposits.]

SECTION FC [1503] 2403 PROTECTION OF OPERATIONS

[1503.1] 2403.1 General. Operations covered by this chapter shall be protected as required by this section and the Electrical Code.

[1503.2] 2403.2 Sources of ignition. Protection against sources of ignition shall be provided in accordance with FC [1503.2.1] 2403.2.1 through [1503.2.8] 2403.2.8.

[1503.2.1] 2403.2.1 Electrical wiring and equipment. Electrical wiring and equipment shall comply with the requirements of this chapter and the Electrical Code.

[1503.2.1.1] 2403.2.1.1 Flammable vapor areas. Electrical wiring and equipment in flammable vapor areas shall be of an explosion-proof type approved for use in such hazardous locations. Such areas shall be considered to be Class I, Division 1 or Class II, Division 1 hazardous locations in accordance with the Electrical Code.

[1503.2.1.2] 2403.2.1.2 Areas subject to deposits of residues. Electrical equipment in flammable vapor areas and drying operations which are subject to splashing or dripping of liquids shall be specifically approved for locations containing deposits of readily ignitable residue and explosive vapors.

Exceptions:

1. Wiring in rigid conduit and threaded boxes or fittings not containing taps, splices or terminal connections.
2. Electrostatic equipment complying with the requirements of [FC1507] FC2407.

[1503.2.1.2.1] 2403.2.1.2.1 Resin application areas. In resin application areas, electrical wiring and equipment that is subject to deposits of combustible residues shall be listed for such exposure and shall be installed as required for hazardous (classified) locations. Electrical wiring and equipment not subject to deposits of combustible residues shall be installed as required for ordinary hazard locations.

[1503.2.1.3] 2403.2.1.3 Areas adjacent to spray booths. Electrical wiring and equipment located outside of, but within 5 feet (1524 mm) horizontally and 3 feet (914 mm) vertically of openings in a spray booth or a spray room shall be approved for Class I, Division 2 or Class II, Division 2 hazardous locations, whichever is applicable.

[1503.2.1.4] 2403.2.1.4 Areas subject to overspray deposits. Electrical equipment in flammable vapor areas located such that deposits of combustible residues could readily accumulate thereon shall be specifically approved for locations containing deposits of readily ignitable residue and explosive vapors in accordance with the Electrical Code.

Exceptions:

1. Wiring in rigid conduit and threaded boxes or fittings not containing taps, splices or terminal connections.

2. Equipment complying with the requirements of FC [1504] 2404 and [1507] 2407 and FC Chapter [21] 30.

[1503.2.2] 2403.2.2 Open flames and sparks. Open flames and spark-producing devices shall not be located in flammable vapor areas and shall not be located within 20 feet (6096 mm) of such areas unless separated by a permanent partition.

Exception: Drying and baking apparatus complying with the requirements of [FC1504.3.4.2] FC2404.3.4.2.

[1503.2.3] 2403.2.3 Hot surfaces. Heated surfaces having a temperature sufficient to ignite vapors shall not be located in flammable vapor areas. Space-heating appliances, steam pipes or hot surfaces in flammable vapor areas shall be located such that they are not subject to accumulation of deposits of combustible residues.

Exception: Drying apparatus complying with the requirements of [FC1504.3.4.2] FC2404.3.4.2.

[1503.2.4] 2403.2.4 Equipment enclosures. Equipment or apparatus that is capable of producing sparks or particles of hot metal that would fall into a flammable vapor area shall be totally enclosed.

[1503.2.5] 2403.2.5 Grounding. Metal parts of spray booths, exhaust ducts and piping systems conveying Class I or II liquids shall be electrically grounded in accordance with the Electrical Code. Metallic parts located in resin application areas, including but not limited to exhaust ducts, ventilation fans, spray application equipment, workpieces and piping, shall be electrically grounded.

[1503.2.6] 2403.2.6 Smoking prohibited. It shall be unlawful to smoke in flammable vapor areas and hazardous material storage rooms associated with flammable finishing operations. "No Smoking" signs complying with the requirements of FC310 shall be conspicuously posted in such areas.

[1503.2.7] 2403.2.7 Hot work warning signs. Welding, cutting and other hot work operations shall not be conducted in or adjacent to flammable vapor areas. Durable signs bearing the following warning shall be conspicuously posted in the vicinity of flammable vapor areas and flammable finishing material storage rooms:

NO WELDING
THE USE OF WELDING OR CUTTING
EQUIPMENT IN OR NEAR THIS AREA
IS DANGEROUS BECAUSE OF FIRE
AND EXPLOSION HAZARDS.

[1503.2.8] 2403.2.8 Powered industrial trucks. Powered industrial trucks used in electrically classified areas shall be listed for such use.

[1503.3] 2403.3 Storage, handling and use of flammable and combustible liquids. Flammable and combustible liquids shall be stored, handled and used in accordance with this section and FC Chapter [34] 57.

[1503.3.1] 2403.3.1 Use. Containers supplying spray nozzles shall be of a closed type or provided with metal covers which are kept closed. Containers not resting on floors shall be on noncombustible supports or suspended by wire cables. Containers supplying spray nozzles by gravity flow shall not exceed 10 gallons (37.9 L) in capacity.

[1503.3.2] 2403.3.2 Valves. Containers and piping to which a hose or flexible connection is attached shall be provided with a shutoff valve at the connection. Such valves shall be kept shut when hoses are not in use.

[1503.3.3] 2403.3.3 Pumped liquid supplies. Where flammable or combustible liquids are supplied to spray nozzles by positive displacement pumps, pump discharge lines shall be provided with an approved relief valve discharging to pump suction or a safe detached location.

[1503.3.4] 2403.3.4 Liquid transfer. Where a flammable liquid is transferred from one portable container to another, a

bond shall be provided between the two containers. At least one container shall be grounded. Piping systems for Class I and Class II liquids shall be permanently grounded.

[1503.3.5] 2403.3.5 Class I liquids as solvents. Class I liquids used as solvents shall be used in spray gun and equipment cleaning machines which have been listed and approved for the purpose or shall be used in spray booths or spray rooms in accordance with FC [1503.3.5.1] 2403.3.5.1 and [1503.3.5.2] 2403.3.5.2.

[1503.3.5.1] 2403.3.5.1 Listed devices. Cleaning machines for spray guns and equipment shall not be located in areas open to the public and shall be separated from ignition sources in accordance with their listings or by a distance of 3 feet (914 mm), whichever is greater. The quantity of solvent used in a machine shall not exceed the design capacity of the machine.

[1503.3.5.2] 2403.3.5.2 Within spray booths and spray rooms. Mechanical ventilation equipment shall be operated when solvents are used for cleaning spray nozzles and auxiliary equipment and for a period of time thereafter to allow for the exhaust of the vapors within spray booths and spray rooms.

[1503.3.6] 2403.3.6 Class II and Class III liquids. Solvents used outside of spray booths, spray rooms or listed and approved spray gun and equipment cleaning machines shall be restricted to Class II and Class III liquids.

[1503.4] 2403.4 Operations and maintenance. Flammable vapor areas, exhaust fan blades and exhaust ducts shall be kept free from the accumulation of deposits of combustible residues. Where excessive residue accumulates in such areas, spraying operations shall be discontinued until the accumulation is removed from such areas and properly disposed of.

[1503.4.1] 2403.4.1 Tools. Scrapers, spuds and other tools used for cleaning purposes shall be constructed of non-sparking materials.

[1503.4.2] 2403.4.2 Residue. Residue removed during cleaning and debris contaminated with residue shall be immediately removed from the premises and disposed of lawfully.

[1503.4.3] 2403.4.3 Waste cans. Approved metal waste cans equipped with self-closing lids shall be provided wherever rags or waste are impregnated with finishing material. Such rags and waste shall be deposited therein immediately after being utilized. The contents of waste cans shall be properly disposed of at the end of each work shift and at least once daily.

[1503.4.4] 2403.4.4 Solvent recycling. Solvent distillation equipment used to recycle and clean dirty solvents shall comply with the requirements of [FC3405.4] FC5705.4.

SECTION FC [1504] 2404 SPRAY FINISHING

[1504.1] 2404.1 General. Spraying operations involving the use of flammable or combustible liquids in continuous or intermittent processes shall be conducted in accordance with this section and FC [1503] 2403 and [1507] 2407, as applicable.

[1504.2] 2404.2 Location. Except in Group A, E, I and R occupancies, spraying operations shall be conducted in a spray room or a spray booth complying with the applicable requirements of FC [1504.3] 2404.3, unless the extent of such operations allows them to be conducted in a limited-spraying space in accordance with [FC1504.5] FC2404.5. In Group A, E, I and R occupancies, spray-finishing operations shall be conducted in a spray room in compliance with the applicable requirements of [FC1504.3] FC2404.3.

Exceptions:

1. Approved automobile undercoating spray operations and spray-on automotive lining operations, utilizing liquids having a flashpoint above 140°F (60°C), when conducted in areas with approved natural or mechanical ventilation.
2. The application of resin in the manufacturing of reinforced plastics in accordance with [FC1509] FC2409.

[1504.2.1] 2404.2.1 Below grade areas. Spray rooms and spray booths shall not be located in basements, cellars or other areas below grade.

[1504.3] 2404.3 Design and installation. Spray rooms and spray booths shall be designed and installed in compliance with the requirements of FC [1504.3.1] 2404.3.1 through [1504.3.7] 2404.3.7, as applicable.

[1504.3.1] 2404.3.1 Construction of spray rooms. Spray rooms shall be designed and installed in compliance with the requirements of the Building Code and Mechanical Code, including vertical and horizontal separation from other spaces. Spray rooms shall additionally comply with the requirements of this section.

[1504.3.2] 2404.3.2 Construction of spray booths. Spray booths shall be designed and installed in compliance with the requirements of the Building Code and Mechanical Code, NFPA 33 and this section.

[1504.3.2.1] 2404.3.2.1 Materials. Spray booths shall be constructed of approved noncombustible materials. Aluminum shall not be used. Where walls or ceiling assemblies are constructed of sheet metal, single-skin assemblies shall be no thinner than 0.0478 inch (18 [gage] gauge) (1.2 mm) and each sheet of double-skin assemblies shall be no thinner than 0.0359 inch (20 [gage] gauge) (0.9 mm). Structural sections of spray booths may be sealed with latex-based or similar caulks and sealants. The interior surfaces of spray booths shall be smooth and shall be constructed so as to permit the free passage of exhaust air from all parts of the interior and to facilitate washing and cleaning, and shall be designed to confine residues within the booth.

[1504.3.2.2] 2404.3.2.2 Clear space. Spray booths shall be installed so that all parts of the booth are readily accessible for cleaning and other maintenance. A clear space of not less than 3 feet (914 mm) shall be maintained on all sides of the spray booth.

Exception. A clear space of less than 3 feet (914 mm) may be maintained from an interior partition, wall or floor/ceiling assembly with a fire-resistance-rating of not less than 1 hour, or an exterior wall or roof assembly of a noncombustible wall or roof.

[1504.3.2.3] 2404.3.2.3 Size. The aggregate area of spray booths in a building shall not exceed the lesser of 10 percent of the area of any floor of the building or the floor area allowed for a Group H-2 occupancy by the Building Code, as set forth in Table 503 of the Building Code, excluding any area increases allowed by Section 506 of the Building Code. The area of an individual spray booth in a building shall not exceed the lesser of the aggregate size limit or 1,500 square feet (139 m²).

Exception: A single spray booth not exceeding 500 square feet (46 m²) is allowed irrespective of the results of the required calculations.

[1504.3.2.4] 2404.3.2.4 Waterwash spray booths. Waterwash spray booths shall be of an approved design so as to prevent excessive accumulation of deposits in ducts and residue at duct outlets. Such booths shall be arranged so that air and overspray are drawn through a continuously flowing water curtain before being exhausted outdoors.

[1504.3.2.5] 2404.3.2.5 Means of egress. Means of egress doors from pre-manufactured spray booths shall not be less than 30 inches (762 mm) in width by 80 inches (2032 mm) in height.

[1504.3.3] 2404.3.3 Fire protection. Spray rooms and spray booths shall be protected by a fire extinguishing system. [in compliance with the requirements of this section.

1504.3.3.1 Spray rooms. Spray rooms shall be protected throughout by a sprinkler system. Such sprinkler system shall also protect exhaust plenums, exhaust ducts and both sides of dry filters when such filters are used.

1504.3.3.2 Spray booths. Spray booths shall be protected throughout by a fire extinguishing system.] Such fire extinguishing system shall also protect exhaust plenums, exhaust ducts and both sides of dry filters when such filters are used.

[1504.3.3.3] 2404.3.3.1 Automated spraying operations. The fire extinguishing system for each spray room or spray booth

designed for automatic spraying operations shall be equipped with an interlock in accordance with [FC1504.3.5(7)] FC2404.3.5(7) and with a manual shutdown device. Such manual shutdown device shall be located within the path of emergency egress from such spray room or spray booth, shall be readily accessible to personnel supervising the spraying operation, and when activated, shall initiate the same functions as the automatic interlock.

[1504.3.4] 2404.3.4 Drying operations. Spray rooms and spray booths shall not be used for drying operations that could cause an increase in the surface temperature of the spray room or spray booth, unless such operations are conducted in compliance with the requirements of FC [1504.3.4.1] 2404.3.4.1, [1504.3.4.2] 2404.3.4.2 and [1504.3.5] 2404.3.5.

[1504.3.4.1] 2404.3.4.1 Spraying procedure. The spraying procedure shall use low-volume spray application.

[1504.3.4.2] 2404.3.4.2 Drying and baking apparatus. Fixed drying and baking apparatus shall comply with the requirements of this chapter and the applicable provisions of FC Chapter [21] 30. When recirculation ventilation is provided in accordance with [FC1504.3.7.1] FC2404.3.7.1, the heating system shall not be within the recirculation air path.

[1504.3.5] 2404.3.5 Interlocks. The spraying apparatus, drying apparatus and ventilating system for the spray room or spray booth shall be equipped with interlocks designed to automatically:

1. prevent operation of spraying apparatus while drying operations are in progress.
2. prevent the operation of the drying apparatus until the spray room or spray booth has been purged of vapors for a period of at least 3 minutes.
3. shut down the drying apparatus in the event that the ventilation system fails to operate within the spray room or spray booth during the drying process.
4. shut down the drying apparatus if the air temperature within the spray room or spray booth exceeds 200oF (93oC).
5. prevent the spraying operation unless the ventilation system is in operation.
6. shut down the spraying operation in a spray booth equipped with a filter roll when the filter roll fails to automatically advance when the air velocity falls below the minimum design level.
7. shut down the spraying operation, drying operation and workpiece conveyors into and out of the flammable vapor area, and notify the building fire alarm system, upon activation of the fire extinguishing systems protecting an automated spraying operation.

[1504.3.6] 2404.3.6 Illumination. Only fixed luminaires protected by a glass panel shall be utilized as a source of illumination in spray rooms and spray booths. Such luminaires and glass panels shall comply with the requirements of FC [1504.3.6.1] 2404.3.6.1 through [1504.3.6.3] 2404.3.6.3, as applicable.

[1504.3.6.1] 2404.3.6.1 Glass panels. Panels for light fixtures or for observation shall be of heat-treated glass, wired glass or hammered-wire glass, and shall be sealed to confine vapor, gas, fume, mists or dust to the flammable vapor area. Panels for luminaires shall be separated from the luminaire to prevent the surface temperature of the panel from exceeding 200oF (93oC).

[1504.3.6.2] 2404.3.6.2 Exterior luminaires. Luminaires approved for use in ordinary hazard locations may be used when the luminaire is attached to an exterior wall or ceiling of a spray room or spray booth, but is separated and protected from the flammable vapor area by a vapor-tight glass panel. Such luminaires shall be serviced exclusively from outside the flammable vapor area.

[1504.3.6.3] 2404.3.6.3 Integral luminaires. Luminaires approved for use in hazardous locations shall be used when the luminaire is an integral part of the walls or ceiling of a spray room or spray booth. Such luminaires shall be listed for use in Class I, Division 2 or Class II, Division 2 locations, as applicable. Such luminaires may be serviced from inside the flammable vapor area.

[1504.3.7] 2404.3.7 Ventilation. Mechanical ventilation of flammable vapor areas shall be provided in accordance with Chapter 5 of the Mechanical Code and this section.

[1504.3.7.1] 2404.3.7.1 Recirculation. Air exhausted from spraying operations shall not be recirculated, except as authorized by the Mechanical Code.

[1504.3.7.2] 2404.3.7.2 Prohibition. Makeup air and flammable vapor area exhaust systems shall not be interlocked with the fire alarm system. The ventilation system shall remain in operation upon activation of the building fire alarm system.

Exception: Where the type of fire extinguishing system used requires that ventilation be discontinued, makeup air and exhaust systems shall shut down and dampers shall close.

[1504.3.7.3] 2404.3.7.3 Filters. Spray rooms and spray booths shall be provided with exhaust filters. Air intake filters are not required, but if part of a spray room or spray booth wall or ceiling assembly shall be listed as Class I or Class II in accordance with UL 900.

[1504.3.7.3.1] 2404.3.7.3.1 Supports. Supports and holders for filters shall be constructed of noncombustible materials.

[1504.3.7.3.2] 2404.3.7.3.2 Attachment. Overspray collection filters shall be readily removable and accessible for cleaning or replacement.

[1504.3.7.3.3] 2404.3.7.3.3 Monitoring air velocity. One or more devices shall be provided to monitor the air velocity of the air being exhausted from a spray room or spray booth and to provide an indication, alarm or system shutdown if the required velocity is not being maintained. The device monitoring the air flow shall visually display the pressure of the exhausted air, activate an alarm and/or shut down the spraying operation.

[1504.4] 2404.4 Operation and maintenance. Facilities in which spraying operations and drying operations are conducted shall be operated and maintained in compliance with the requirements of this section.

[1504.4.1] 2404.4.1 Spraying of incompatible materials. Spray rooms and spray booths shall not be utilized for spraying operations utilizing alternating incompatible materials, unless all deposits of one material are removed from the room or booth and exhaust ducts, and dry filters replaced, prior to spraying with the incompatible material.

[1504.4.2] 2404.4.2 Filter disposal. Discarded exhaust filters shall be immediately removed from the spray room or spray booth and disposed of in accordance with FC304.3.1.

[1504.4.3] 2404.4.3 Sprinkler head protection. Sprinkler heads installed in spraying spaces shall be protected in an approved manner from accumulation of residue from spraying operations. Sprinkler heads shall be inspected at least once per week and cleaned as needed. Bags used as a protective covering shall be of 0.003-inch-thick (0.076-mm-thick) polyethylene or cellophane or shall be of thin paper. Sprinkler heads contaminated by overspray particles shall be replaced with new sprinkler heads.

[1504.4.4] 2404.4.4 Floor protection. Combustible floor construction in spraying spaces shall be covered by an approved, noncombustible, nonsparking material, except that combustible coverings, such as thin paper or plastic and strippable coatings, may be utilized over the noncombustible, nonsparking floor covering material on combustible floors, and on noncombustible floors, to facilitate cleaning operations in spraying spaces.

[1504.4.5] 2404.4.5 Portable electric lamps. Portable electric lamps shall not be stored or used in the flammable vapor area.

Exception: Portable electric lamps of a type approved for hazardous locations may be used to provide additional lighting for cleaning or maintenance in such areas.

[1504.4.6] 2404.4.6 Portable infrared apparatus. Portable electrical equipment located within 18 inches (457 mm) of floor level shall be approved for Class I, Division 2, hazardous locations. Metallic parts of drying apparatus shall be electrically bonded and grounded. During spraying operations, portable drying apparatus and electrical connections and wiring thereto shall not be located within spray booths, spray rooms or other spraying space.

[1504.4.7] 2404.4.7 Continuous ventilation. Mechanical ventilation shall be kept in operation at all times while spraying operations are being conducted and for a sufficient time thereafter to allow vapors from drying coated articles and finishing material residue to be exhausted.

[1504.4.8] 2404.4.8 Obstruction of exhaust ventilation. Articles being sprayed shall be positioned in a manner that does not obstruct collection of overspray.

[1504.4.9] 2404.4.9 Hazardous and combustible material storage. The clear space around spray booths pursuant to [FC1504.3.2.2] FC2404.3.2.2 shall be kept free of hazardous material and combustible material storage.

[1504.4.10] 2404.4.10 Portable fire extinguishers. Spraying spaces shall be provided with portable fire extinguishers for an extra (high) hazard occupancy in accordance with FC906.

[1504.5] 2404.5 Limited-spraying spaces. Spray finishing operations may be conducted in a limited-spraying space when the spraying operations are limited in size and frequency and are conducted in a properly ventilated and electrically wired space in compliance with the requirements of FC [1504.5.1] 2404.5.1 through [1504.5.5] 2404.5.5.

[1504.5.1] 2404.5.1 Job size. The surface area of any workpiece to be sprayed shall not exceed 9 square feet (0.84 m²).

[1504.5.2] 2404.5.2 Frequency. Spraying operations shall not be of a continuous nature and shall be incidental to the operation of the facility.

[1504.5.3] 2404.5.3 Ventilation. Positive mechanical ventilation shall be provided in accordance with Chapter 5 of the Mechanical Code. Such system shall meet the requirements of the Mechanical Code for flammable vapor areas. Explosion venting is not required.

[1504.5.4] 2404.5.4 Electrical wiring. Electrical wiring within 10 feet (3048 mm) of the floor and 20 feet (6096 mm) horizontally of the limited-spraying space shall be designed for Class I, Division 2 locations in accordance with the Electrical Code.

[1504.5.5] 2404.5.5 Portable fire extinguisher. Limited-spraying space shall be provided with a portable fire extinguisher in accordance with [FC1504.4.10] FC2404.4.10.

SECTION FC [1505] 2405 DIP-TANK OPERATIONS

[1505.1] 2405.1 General. Dip-tank operations shall be conducted in accordance with this section and [FC1503] FC2403.

[1505.2] 2405.2 Location. In Group A, I and R occupancies, dip-tank operations shall be conducted in a room designed for that purpose, protected throughout by a sprinkler system, and separated vertically and horizontally from other areas by construction having a fire resistance rating of not less than 2 hours, in accordance with the construction codes, including the Building Code.

[1505.3] 2405.3 Design and installation. Dip tanks shall be designed and installed in compliance with the requirements of FC [1505.3.1] 2405.3.1 through [1505.3.6] 2405.3.6.

[1505.3.1] 2405.3.1 Construction. Except as otherwise provided in [FC1505.4] FC2405.4 with respect to hardening and tempering tanks, dip tanks shall be constructed in accordance with this section, and NFPA 34. Dip tanks, including drain boards, shall be constructed of noncombustible material and their supports shall be sturdily constructed of metal, reinforced concrete or masonry.

[1505.3.1.1] 2405.3.1.1 Overflow. Dip tanks greater than 150 gallons (568 L) in capacity or 10 square feet (0.93 m²) in liquid surface area shall be equipped with a trapped overflow pipe leading to an approved outdoor location. The bottom of the overflow connection shall not be less than 6 inches (152 mm) below the top of the tank.

[1505.3.1.2] 2405.3.1.2 Bottom drains. Dip tanks greater than 500 gallons (1893 L) in liquid capacity shall be equipped

with bottom drains that are arranged to automatically and manually drain the tank quickly in the event of a fire unless the viscosity of the liquid at normal atmospheric temperature makes this impractical. Manual operation shall be from a safe, accessible location. Where gravity flow is not practicable, automatic pumps shall be provided. Such drains shall be provided with traps and shall discharge to a closed, vented salvage tank or other approved location.

Exception: Dip tanks containing Class IIIB combustible liquids where the liquids are not heated above room temperature, and the process area is protected throughout by a sprinkler system.

[1505.3.2] 2405.3.2 Dipping liquid temperature control. Protection against the accumulation of vapors, self-ignition and excessively high temperatures shall be provided for dip tanks in which dipping liquids are heated directly or heated by the surfaces of the object being dipped.

[1505.3.3] 2405.3.3 Dip tank covers. Dip tank covers, if provided, shall be capable of manual operation and shall be automatic-closing by approved automatic-closing devices designed to operate in the event of fire. Dip tank covers shall be kept closed when tanks are not in use.

[1505.3.3.1] 2405.3.3.1 Materials. Dip tank covers shall be constructed of noncombustible material or be of a tin-clad type designed in the same manner as fire doors.

[1505.3.3.2] 2405.3.3.2 Supports. Chain or wire rope shall be utilized for cover supports or operating mechanisms.

[1505.3.4] 2405.3.4 Fire protection. Dip-tank operations shall be protected in compliance with the requirements of FC [1505.3.4.1] 2405.3.4.1 and [1505.3.4.2] 2405.3.4.2.

[1505.3.4.1] 2405.3.4.1 Fire extinguishing equipment. A fire extinguishing system shall be provided for the following dip tanks unless such dip tanks are provided with a dip tank cover in accordance with [FC1505.3.3] FC2405.3.3:

1. Dip tanks less than 150 gallons (568 L) in capacity or 10 square feet (0.93 m²) in liquid surface area.
2. Dip tanks containing a liquid with a flash point below 110°F (43°C), used in such manner that the liquid temperature could equal or be greater than its flash point from artificial or natural causes, and having both a capacity of more than 10 gallons (37.9 L) and a liquid surface area exceeding 4 square feet (0.37 m²).

[1505.3.4.2] 2405.3.4.2 Fire extinguishing system. Dip tanks with a capacity of 150 gallons (568 L) or more, or a liquid surface area of 10 square feet (0.93 m²) or more shall be protected by a fire extinguishing system. Such fire extinguishing system shall be designed in accordance with NFPA 34.

[1505.3.5] 2405.3.5 Interlocks. Dip tanks utilizing a conveyor system shall be arranged such that in the event of fire, the conveyor system shall automatically cease motion and the required tank bottom drains shall open.

[1505.3.6] 2405.3.6 Ventilation. Mechanical ventilation of flammable vapor areas shall be provided in accordance with Chapter 5 of the Mechanical Code.

[1505.4] 2405.4 Hardening and tempering tanks. Hardening and tempering tanks shall be designed and installed in compliance with the requirements of FC [1505.4.1] 2405.4.1 through [1505.4.5] 2405.4.5. Except as provided therein, hardening and tempering tanks shall not be subject to the requirements for dip tanks set forth in [FC1505] FC2405.

[1505.4.1] 2405.4.1 Construction. Hardening and tempering tanks shall be constructed in accordance with FC [1505.3.1] 2405.3.1, [1505.3.1.1] 2405.3.1.1, [1505.3.1.2] 2405.3.1.2, [1505.3.2] 2405.3.2 and [1505.3.5] 2405.3.5.

[1505.4.2] 2405.4.2 Location. Hardening and tempering tanks located in a room containing an industrial furnace shall be positioned to minimize the ignition risk from such furnace, and such tanks shall not be located on a combustible floor.

[1505.4.3] 2405.4.3 Hoods. Hardening and tempering tanks shall be provided with a noncombustible hood and vent or other approved ventilation system that terminates outdoors. Such exhaust hood and vent shall serve to provide a path for heat and flames in the event of a fire in the tank. Such vent ducts shall be designed as flues, and clearances shall be maintained from combustible materials to minimize their ignition risk.

[1505.4.4] 2405.4.4 Fire extinguishing system. Hardening and tempering tanks with a capacity exceeding 500 gallons (1893 L) or a liquid surface area exceeding 25 square feet (2.3 m²) shall be protected by a fire extinguishing system.

[1505.4.5] 2405.4.5 High temperature alarm. Hardening and tempering tanks shall be equipped with a high-temperature limit switch arranged to sound an alarm when the temperature of the quenching medium reaches 50oF (10oC) below its flash point.

[1505.5] 2405.5 Operation and maintenance. Facilities in which dipping operations are conducted shall be operated and maintained in compliance with the requirements of this section.

[1505.5.1] 2405.5.1 Sources of ignition. Protection against sources of ignition shall be provided in accordance with [FC1503.2] FC2403.2.

[1505.5.2] 2405.5.2 Use of compressed air. Compressed air shall not be used to fill the tank or agitate tank contents.

[1505.5.3] 2405.5.3 Portable fire extinguishers. Dip tank rooms and areas shall be provided with portable fire extinguishers complying with the requirements of FC906 and rated for flammable and combustible liquid fires in extra (high) hazard environments.

[1505.6] 2405.6 Flow-coating operations. Flow-coating operations shall be conducted in compliance with the design, installation, operation and maintenance requirements for dip tanks. For such purposes, the sump and any areas on which paint flows shall be considered to be the area of a dip tank. Finishing products shall be supplied by a gravity tank not exceeding 10 gallons (37.9 L) in capacity or by direct low-pressure pumps arranged to shut down automatically in case of fire by means of approved heat-activated devices.

[1505.7] 2405.7 Roll-coating operations. Roll-coating operations shall comply with the requirements of [FC1505.6] FC2405.6. In roll-coating operations utilizing flammable or combustible liquids, sparks from static electricity shall be prevented by electrically bonding and grounding all metallic rotating and other parts of machinery and equipment and by the installation of static collectors or by maintaining a conductive atmosphere such as a high relative humidity.

SECTION FC [1506] 2406 POWDER COATING

[1506.1] 2406.1 General. Operations using finely ground particles of protective finishing material applied in dry powder form by fluidized bed, electrostatic fluidized bed, powder spray guns or electrostatic powder spray guns shall be conducted in accordance with this section. When stationary electrostatic equipment is utilized, such operations shall additionally be conducted in accordance with [FC1507] FC2407.

[1506.2] 2406.2 Location. Powder coating operations shall be conducted in spray rooms or spray booths located in accordance with [FC1504] FC2404.

[1506.3] 2406.3 Design and installation. Powder coating operations shall be conducted in powder coating rooms and powder coating booths designed and installed in compliance with the requirements of this section.

[1506.3.1] 2406.3.1 Construction of powder coating rooms. Powder coating rooms shall be constructed of noncombustible materials.

[1506.3.2] 2406.3.2 Construction of powder coating booths. Powder coating booths shall be constructed in accordance with [FC1504.3.2] FC2404.3.2, except that booth assemblies listed for such purpose and constructed in accordance with such listing may be constructed of materials other than as required by [FC1504.3.2.1] FC2404.3.2.1.

[1506.3.3] 2406.3.3 Fire protection. Powder coating rooms and booths shall be protected by fire protection systems in accordance with this section.

[1506.3.3.1] 2406.3.3.1 Fire extinguishing system. Powder coating rooms and booths shall be protected throughout by a fire extinguishing system.

[1506.3.3.2] 2406.3.3.2 Flame detection system. Automated powder coating application equipment shall be protected by an approved, supervised flame detection device capable of detecting the presence of flame within 1/2 second, that shall, upon activation, automatically initiate the following actions:

1. Shut down electrical power and compressed air supply to the powder coating operation, including the conveyor, ventilation, application, transfer and powder collection systems.
2. Close segregation dampers in associated ductwork to interrupt airflows from application equipment to powder collectors.
3. Activate a local alarm audible within the powder coating room or booth and surrounding area.

[1506.3.4] 2406.3.4 Drying, curing and fusion equipment. Drying, curing and fusion equipment shall comply with the requirements of FC Chapter [21] 30.

[1506.3.5] 2406.3.5 Ventilation. Exhaust ventilation and powder recovery systems shall be provided in accordance with Chapter 5 of the Mechanical Code.

[1506.4] 2406.4 Operation and maintenance. Facilities in which powder coating operations are conducted shall be operated and maintained in compliance with the requirements of this section.

[1506.4.1] 2406.4.1 Housekeeping. Powder coating areas, including horizontal surfaces such as ledges, beams, pipes, hoods, booths and floors, shall be kept free from the accumulation of powder coating dusts.

[1506.4.2] 2406.4.2 Cleaning. Surfaces shall be cleaned in such a manner as to avoid scattering dust or creating a dust cloud. Vacuum cleaning equipment shall be of a type approved for use in a hazardous location.

[1506.4.3] 2406.4.3 Spark-producing metals. Magnetic separators, filter-type separators, or other approved means shall be installed or used to prevent iron or other spark-producing metals from being introduced into the powders or the powder-coating operation.

[1506.4.4] 2406.4.4 Preheating parts. The temperature of the parts heated prior to coating shall not exceed the ignition temperature of the powder to be used.

[1506.4.5] 2406.4.5 Sources of ignition. Protection against sources of ignition shall be provided in accordance with [FC1503.2] FC2403.2. Static bonding and grounding or other appropriate precautions shall be taken to minimize the possibility of ignition by static electrical sparks generated by powder transport, application and recovery systems.

[1506.4.6] 2406.4.6 Portable fire extinguishers. Powder coating rooms and booths shall be provided with portable fire extinguishers complying with the requirements of FC906 and rated for flammable and combustible liquid fires in extra (high) hazard environments.

SECTION FC [1507] 2407 ELECTROSTATIC SPRAY-FINISHING EQUIPMENT

[1507.1] 2407.1 General. Electrostatic spray-finishing equipment used in connection with paint-spraying and paint-deteering operations shall be of an approved type, and shall be designed, installed, operated and maintained in accordance with this section.

[1507.2] 2407.2 Location and clear space. A space of at least twice the maximum potential sparking distance shall be maintained between the workpiece being painted or deteered and any electrodes, electrostatic atomizing heads or conductors.

Exception: Such distance is not required to be maintained between workpieces and portable electrostatic spray-finishing equipment listed for use in Class I, Division 1 locations.

[1507.3] 2407.3 Design and installation. Electrostatic spray-finishing equipment used in connection with paint-spraying and paint-detearing operations shall be designed and installed in compliance with the requirements of this section.

[1507.3.1] 2407.3.1 Construction. Electrodes and electrostatic atomizing heads shall be of approved construction, rigidly braced or otherwise supported to prevent movement and insulated from grounding by nonporous and noncombustible insulators.

Exception: Such bracing and insulation is not required to be provided for portable electrostatic spray-finishing equipment listed for use in Class I, Division 1 locations.

[1507.3.1.1] 2407.3.1.1 Separation. Electrostatic spray-finishing equipment shall be separated from other areas and operations by means of booths, fencing, railings or other barriers. Fencing, railings or other barriers shall be of conductive material, adequately grounded, and shall be placed not less than 5 feet (1524 mm) from the electrostatic spray-finishing equipment.

Exception: Such barrier and separation distance is not required to be provided for portable electrostatic spray-finishing equipment listed for use in Class I, Division 1 locations.

[1507.3.2] 2407.3.2 Fire protection. Electrostatic spray finishing operations shall be protected by fire protection systems in compliance with the requirements of this section.

[1507.3.2.1] 2407.3.2.1 Fire extinguishing system. Spraying areas shall be protected throughout by a fire extinguishing system complying with FC Chapter 9.

[1507.3.2.2] 2407.3.2.2 Flame detection system. Automated liquid electrostatic spray-finishing operation areas shall be protected by the installation of an approved, supervised flame detection system capable of detecting the presence of flame within 1/2 second, which shall, upon activation, automatically initiate the following actions:

1. Shut down electrical power to the electrostatic spray-finishing equipment, including the coating material delivery system and the conveyors into and out of the flammable vapor area, and terminating all spray-finishing operations.
2. Activate a local alarm in the spraying area, and the building fire alarm system if such a system is provided.

[1507.3.3] 2407.3.3 Interlocks. Electrostatic spray-finishing equipment shall be provided with emergency shut down devices and interlocks in compliance with the requirements of this section.

[1507.3.3.1] 2407.3.3.1 Emergency shutdown. Electrostatic spray-finishing equipment shall be equipped with automatic controls operating without time delay to disconnect the power supply to the high-voltage transformer and signal the operator under any of the following conditions:

1. Stoppage of ventilating fans or failure of ventilating equipment from any cause.
2. Stoppage of the conveyor carrying articles past the high-voltage grid.
3. Occurrence of a ground fault or an imminent ground fault at any point of the high-voltage system.
4. Reduction of clearance below that required in [FC1507.2] FC2407.2.

[1507.3.3.2] 2407.3.3.2 Ventilation interlock. Electrostatic spray-finishing equipment utilizing hand-held sprayers shall be interlocked with the ventilation system for the spraying area so that the equipment cannot be operated unless the ventilating system is in operation.

[1507.3.4] 2407.3.4 Ventilation. Mechanical ventilation in the flammable vapor area shall be provided in accordance with Chapter 5 of the Mechanical Code.

[1507.4] 2407.4 Operation and maintenance. Facilities in which electrostatic spray-finishing operations are conducted shall be operated and maintained in compliance with the requirements of this section and FC [1503.3] 2403.3 and

[1503.4] 2403.4, and FC [1507.4.1] 2407.4.1 through [1507.4.3] 2407.4.3.

[1507.4.1] 2407.4.1 Cleaning. Insulators shall be kept clean and dry. Drip plates and screens upon which paint is deposited shall be removable and shall be regularly removed and cleaned. Grounding connections for the electrostatic spray-finishing equipment shall be regularly cleaned so as to prevent overspray.

[1507.4.2] 2407.4.2 Signage. Durable signs that provide the following cautions and information shall be conspicuously posted:

1. Designate the process zone as dangerous with respect to fire and accident.
2. Restrict access to qualified personnel only.
3. Indicate the grounding requirements for all electrically conductive objects in the flammable vapor area, including persons working in that area.
4. Indicates the maximum potential sparking distance as set forth in [FC1507.2] FC2407.2.

[1507.4.3] 2407.4.3 Sources of ignition. Transformers, power packs, control apparatus and all other electrical components of the electrostatic spray-finishing equipment, except high-voltage grids and electrostatic atomizing heads and connections, shall be located outside of the flammable vapor area or shall comply with the requirements of [FC1503.2] FC2403.2.

SECTION FC [1508] 2408 ORGANIC PEROXIDES AND DUAL-COMPONENT COATINGS

[1508.1] 2408.1 General. Spraying operations involving the use of organic peroxides and other dual-component coatings shall be conducted in accordance with this section and [FC1503] FC2403.

[1508.2] 2408.2 Design and construction. Spraying operations involving the use of organic peroxides and other dual-component coatings shall be conducted in a facility designed and installed in accordance with this section.

[1508.2.1] 2408.2.1 Construction. Spraying operations shall be conducted in spray booths complying with the requirements of [FC1504.3.2] FC2404.3.2.

[1508.2.2] 2408.2.2 Fire extinguishing systems. Spray booths shall be protected throughout by a sprinkler system.

[1508.2.3] 2408.2.3 Equipment. Spray guns and related equipment shall be of a type manufactured for such use.

[1508.2.4] 2408.2.4 Pressure tanks. Separate pressure vessels and inserts shall be used for the application of the resin and the organic peroxide, and shall not be interchanged. Organic peroxide pressure tank inserts shall be constructed of stainless steel or polyethylene.

[1508.3] 2408.3 Operation and maintenance. Facilities in which spraying operations involving the use of organic peroxides and other dual-component coatings are conducted shall be operated and maintained in compliance with the requirements of this section and FC [1503.3] 2403.3 and [1503.4] 2403.4, and FC [1508.3.1] 2408.3.1 through [1508.3.8] 2408.3.8.

[1508.3.1] 2408.3.1 Contamination prevention. Organic peroxide initiators shall not be contaminated with foreign substances.

[1508.3.2] 2408.3.2 Spilled material. Spilled organic peroxides shall be promptly removed so there are no residues. Spilled material absorbed by using a noncombustible absorbent shall be promptly removed from the premises and disposed of lawfully.

[1508.3.3] 2408.3.3 Residue control. Materials shall not be contaminated by dusts and overspray residues resulting from the sanding or spraying of finishing materials containing organic peroxides.

[1508.3.4] 2408.3.4 Handling. Handling of organic peroxides shall be conducted in a manner that avoids shock and friction that produces decomposition and violent reaction hazards.

[1508.3.5] 2408.3.5 Mixing. Organic peroxides shall not be mixed directly with accelerators or promoters.

[1508.3.6] 2408.3.6 Personnel qualifications. Personnel working with organic peroxides and dual-component coatings shall be specifically trained to work with these materials.

[1508.3.7] 2408.3.7 Storage. The storage of organic peroxides shall be in accordance with FC Chapter [39] 62.

[1508.3.8] 2408.3.8 Sources of ignition. Only nonsparking tools shall be used in areas where organic peroxides are stored, mixed or applied.

SECTION FC [1509] 2409 INDOOR MANUFACTURING OF REINFORCED PLASTICS

[1509.1] 2409.1 General. Indoor manufacturing processes involving spray or hand application of reinforced plastics and using more than 5 gallons (19 L) of resin in a 24-hour period shall be conducted in accordance with this section and [FC1508] FC2408.

[1509.2] 2409.2 Design and installation. Indoor manufacturing processes involving spray or hand application of reinforced plastics shall be conducted in a facility designed and installed in compliance with the requirements of this section.

[1509.2.1] 2409.2.1 Fire protection. Resin application areas shall be protected throughout by a sprinkler system. The sprinkler system design shall not be less than that required for Ordinary Hazard, Group 2, with a minimum design area of 3,000 square feet (279 m²). Where the materials or storage arrangements are required by other regulations to be provided with a higher level of sprinkler system protection, the higher level of sprinkler system protection shall be provided.

[1509.2.2] 2409.2.2 Ventilation. Mechanical ventilation shall be provided in resin application areas in accordance with Chapter 5 of the Mechanical Code. The ventilation rate shall be adequate to maintain the concentration of flammable vapors in the resin application area at or below 25 percent of the lower flammable limit (LFL).

Exception: Mechanical ventilation is not required for buildings that are unenclosed for at least 75 percent of the perimeter.

[1509.2.2.1] 2409.2.2.1 Local ventilation. Local ventilation shall additionally be provided inside of workpieces where personnel will be under or inside of the workpiece.

[1509.2.3] 2409.2.3 Sources of ignition. Sources of ignition in resin application areas shall comply with the requirements of [FC1503.2] FC2403.2.

[1509.3] 2409.3 Operation and maintenance. Facilities in which indoor manufacturing processes involving spray or hand application of reinforced plastics are conducted shall be operated and maintained in compliance with the requirements of this section and FC [1503.3] 2403.3 and [1503.4] 2403.4.

[1509.3.1] 2409.3.1 Handling of excess catalyzed resin. A noncombustible, open-top container shall be provided for disposal of excess catalyzed resin. Excess catalyzed resin shall be drained into the container while still in the liquid state. Enough water shall be provided in the container to maintain a minimum 2-inch (51-mm) water layer over contained resin.

[1509.3.2] 2409.3.2 Control of overchop. In areas where chopper guns are used, exposed wall and floor surfaces shall be covered with paper, polyethylene film or other approved material to allow for removal of overchop. Overchop shall be allowed to cure for not less than 4 hours prior to removal of the wall and floor coverings. Used coverings shall be placed in a noncombustible container and removed from the premises.

[1509.3.3] 2409.3.3 Storage and use of hazardous materials. Storage and use of organic peroxides shall be in accordance with [FC1508] FC2408 and FC Chapter [39] 62. Storage and use of flammable and combustible liquids shall

be in accordance with FC Chapter [34] 57. Storage and use of unstable (reactive) materials shall be in accordance with FC Chapter [43] 66.

SECTION FC [1510] 2410
FLOOR FINISHING OPERATIONS

[1510.1] 2410.1 Scope. All floor finishing operations using Class I or Class II liquids shall be conducted in accordance with FC [1510.1.1] 2410.1.1 and [1510.1.2] 2410.1.2. Floor finishing operations exceeding 168 square feet (15.6 m²) and using Class I or Class II liquids shall additionally be conducted in accordance with FC [1510.2] 2410.2 through [1510.5] 2410.5.

[1510.1.1] 2410.1.1 Prohibitions. It shall be unlawful to:

1. Use flammable floor finishing products with a flash point below 80°F (27°C) indoors.
2. Smoke, use or maintain open flames, including torches, in rooms or other indoor areas in which floor finishing products are being stored and/or in which floor finishing operations are being conducted.
3. Conduct floor finishing operations in rooms or other indoor areas occupied by anyone other than the individuals engaged in such operations.

[1510.1.2] 2410.1.2 General requirements. All floor finishing operations shall comply with the following requirements:

1. Floor finishing operations shall be conducted in accordance with the manufacturer's instructions for the storage, handling and use of floor finishing products.
2. Flammable or combustible liquids or mixtures, other than floor finishing products, stored, handled or used in connection with floor finishing operations shall be stored, handled or used in accordance with FC Chapter [34] 57.
3. Floor finishing product containers shall be closed when not in use.
4. Empty containers of floor finishing products and all other floor finishing product waste and residue shall be removed from the premises not less than once a day.
5. Gas burners, pilot lights, electrical devices, electronic devices and other sources of ignition in flammable vapor areas shall be shut off prior to commencing work.
6. At least one portable fire extinguisher with a minimum rating of 20-B shall be readily accessible during floor finishing operations. The travel distance to such extinguisher shall not exceed 30 feet (9144 mm).
7. Quantities of floor finishing products at a site shall not exceed the amount necessary for that day's operations. In no circumstance shall such quantity exceed 20 gallons (76 L).

[1510.2] 2410.2 Occupancy of premises during operations. Floor finishing operations shall not be conducted in occupied rooms or other areas. If occupants are allowed to return to the premises in which the floor finishing operations were conducted before the surfaces have dried, fire safety precautions shall be maintained and the occupants shall be given written instructions in regard thereto. Floor finishing operations shall not be conducted in a Group A or Group M occupancy while the premises is open to the public.

[1510.3] 2410.3 Sources of ignition. No electrical equipment or device that is a potential source of ignition of floor finishing product vapors, including switches and outlets, shall be operated during floor finishing operations. Precautions shall be taken prior to commencing work to prevent inadvertent operation of such equipment or devices, such as shutting down electrical power, unplugging equipment and taping over switches and outlets.

[1510.4] 2410.4 Mechanical system operation. Heating, ventilation and air-conditioning systems shall not be operated during floor finishing operations and for the period of time thereafter until the surfaces have dried.

[1510.5] 2410.5 Ventilation. To prevent the accumulation of flammable vapors, mechanical ventilation at a minimum rate of 1 cubic foot per minute per square foot (0.00508 m³/s/m²) of the area being surfaced or finished shall be provided. Such ventilation shall be by approved temporary or portable means. Vapors shall be exhausted outdoors. Such ventilation equipment shall be kept in operation while the floor finishing operations are being conducted and for a period of time thereafter to allow for the exhaust of the vapors.

[1510.6] 2410.6 Retail sale. Floor finishing products with a flash point below 80°F (27°C) shall be provided with a conspicuous and durable tag bearing the words, "WARNING: INDOOR USE OF THIS PRODUCT IS PROHIBITED IN NEW YORK CITY." A sign shall be conspicuously posted in the area in which the floor finishing product is displayed, warning that the product is prohibited for indoor use in New York City.

CHAPTER 25 FRUIT AND CROP RIPENING

SECTION FC [1601] 2501 GENERAL

[1601.1] 2501.1 Scope. This chapter shall govern the design, installation, operation and maintenance of facilities in which ethylene gas is used, other than in self-contained equipment, to promote the ripening of fruits, vegetables and other crops.

Exception: Mixtures of ethylene and one or more inert gases in concentrations which prevent the gas from reaching greater than 25 percent of the lower explosive limit (LEL) when released to the atmosphere.

[1601.2] 2501.2 Permits. Permits shall be required as set forth in FC105.6.

[1601.3] 2501.3 Ethylene generators. Approved ethylene generators shall be operated and maintained in accordance with [FC1606] FC2506.

[1601.4] 2501.4 General. Facilities using ethylene gas to promote the ripening of fruits, vegetables and other crops shall be designed, installed, operated and maintained in accordance with this chapter.

SECTION FC [1602] 2502 DEFINITIONS

[1602.1] 2502.1 Terms defined in FC Chapter 2. Terms used in this chapter[, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown in FC Chapter 2 or elsewhere in this code] and defined in FC202 shall have the meanings set forth therein.

SECTION FC [1603] 2503 ETHYLENE GAS

[1603.1] 2503.1 Location. Ethylene gas shall be discharged only into approved rooms or enclosures designed and constructed for this purpose.

[1603.2] 2503.2 Dispensing. Valves controlling discharge of ethylene shall provide positive and fail-closed control of flow and shall be set to limit the concentration of gas in air below 1,000 parts per million (ppm).

SECTION FC [1604] 2504 SOURCES OF IGNITION

[1604.1] 2504.1 Ignition prevention. Sources of ignition shall be controlled or protected in accordance with this section and FC Chapter 3.

[1604.2] 2504.2 Electrical wiring and equipment. Electrical wiring and equipment, including luminaires, shall be approved for use in Class I, Division 2, Group C hazardous (classified) locations.

[1604.3] 2504.3 Static electricity. Devices, equipment and systems, including containers and piping, used to dispense ethylene, shall be bonded and grounded to prevent the discharge of static sparks or arcs.

[1604.4] 2504.4 Lighting. Lighting shall be by approved electric lamps or luminaires only.

[1604.5] 2504.5 Heating. Heating shall be by indirect means utilizing low-pressure steam, hot water, or warm air.

Exception: Electric or fuel-fired heaters approved for use in hazardous (classified) locations which are installed and operated in accordance with the Electrical Code, the Mechanical Code or the Fuel Gas Code.

SECTION FC [1605] 2505 COMBUSTIBLE WASTE

[1605.1] 2505.1 Housekeeping. Empty boxes, cartons, pallets and other combustible waste shall be removed from ripening rooms or enclosures and properly disposed of at the end of each work shift, but at least once a day.

SECTION FC [1606] 2506 ETHYLENE GENERATORS

[1606.1] 2506.1 Ethylene generators. Ethylene generators shall be listed and labeled by an approved testing laboratory and used only in approved rooms in accordance with the ethylene generator manufacturer's instructions. The listing evaluation shall include documentation that the concentration of ethylene gas does not exceed 25 percent of the lower explosive limit (LEL).

[1606.2] 2506.2 Ethylene generator rooms. Ethylene generators shall be used in rooms having a volume of not less than the minimum room size provided for in the manufacturer's specifications and testing laboratory listing, but in no case less than 1,000 cubic feet (28 m³). Rooms shall have air circulation to ensure even distribution of ethylene gas and shall be free from sparks, open flames or other ignition sources.

SECTION FC [1607] 2507 WARNING SIGNS

[1607.1] 2507.1 Required warning sign. Approved warning signs identifying the hazard and indicating the danger involved and necessary precautions shall be posted on all doors and entrances to the premises in accordance with FC Chapter [27] 50.

CHAPTER 26 FUMIGATION AND INSECTICIDAL FOGGING

SECTION FC [1701] 2601 GENERAL

[1701.1] 2601.1 Scope. This chapter shall govern fumigation and insecticidal fogging operations within buildings and structures.

[1701.2] 2601.2 Permits. Permits shall be required as set forth in FC105.6.

[1701.3] 2601.3 General. Fumigation and insecticidal fogging operations within buildings and structures shall be conducted in accordance with this chapter.

[1701.4] 2601.4 Supervision. Fumigation and insecticidal fogging operations shall be supervised in accordance with FC [1701.4.1] 2601.4.1 and [1701.4.2] 2601.4.2.

[1701.4.1] 2601.4.1 Fumigation and insecticidal fogging operation company certificate. Persons engaged in the business of fumigation and insecticidal fogging operations shall obtain a fumigation and insecticidal fogging operation company

certificate.

[1701.4.2] 2601.4.2 Fumigation and insecticidal fogging operations. Fumigation and insecticidal fogging operations requiring a permit or a company certificate shall be conducted by or under the personal supervision of a person holding a certificate of fitness.

[1701.5] 2601.5 Compliance with other provisions of law. Fumigation and insecticidal fogging operations shall comply with all applicable federal, state and city laws, rules and regulations.

[1701.6] 2601.6 Prohibitions. It shall be unlawful to:

1. Use insecticidal fogging liquids with a flash point below 100oF (38oC).
2. Use carbon disulfide and hydrogen cyanide for fumigation unless conducted on a premises used solely for agriculture.

SECTION FC [1702] 2602 DEFINITIONS

[1702.1] 2602.1 Definitions. The following terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings [shown herein] set forth in FC202.

FUMIGANT. [A substance which by itself or in combination with any other substance emits or liberates a gas, fume or vapor utilized for the destruction or control of insects, rats or other vermin or fungi, germs or similar conditions, as distinguished from insecticides and disinfectants which are essentially effective in the solid or liquid phases. Examples are methyl bromide, ethylene dibromide, hydrogen cyanide, carbon disulfide and sulfuryl fluoride.]

FUMIGATION. [The utilization within an enclosed space of a fumigant in concentrations that are hazardous or acutely toxic to humans.]

FUMIGATION AND INSECTICIDAL FOGGING OPERATION COMPANY CERTIFICATE. [A certificate issued by the commissioner to a person engaged in the business of fumigation and insecticidal fogging operations, which authorizes an owner or principal of such business to conduct such fumigation and insecticidal fogging operations, for which such certificate is required by this code or the rules.]

INSECTICIDAL FOGGING. [The utilization of insecticidal liquids passed through fog-generating units where, by pressure and turbulence, and with or without addition of heat, such liquids are transformed and discharged in the form of fog or mist blown into an area to be treated.]

SECTION FC [1703] 2603 FIRE SAFETY REQUIREMENTS

[1703.1] 2603.1 General. Fumigation and insecticidal fogging operations in buildings and structures shall be conducted in compliance with the fire protection and safety requirements of FC [1703.2] 2603.2 through [1703.5] 2603.5.

[1703.2] 2603.2 Sources of ignition. Open flames and similar sources of ignition shall be removed from the space in which fumigation or insecticidal fogging operations are being conducted. Heating, where needed, shall be of an approved type.

[1703.2.1] 2603.2.1 Electricity. Electricity in any part of the building or structure where operation of switches or electrical devices, equipment and systems could serve as a source of ignition during and for a reasonable time after any fumigation or insecticidal fogging operation shall be shut off.

Exception: Circulating fans that have been specifically designed for utilization in hazardous atmospheres and installed in accordance with the Electrical Code.

[1703.2.2] 2603.2.2 Electronic devices. Electronic devices, including portable equipment and cellular phones, shall be shut off. Telephone lines shall be disconnected from telephones.

[1703.3] 2603.3 Notification. The department shall be notified in writing at least 48 hours before the building or structure is to be closed in connection with the utilization of any toxic or flammable fumigant. Notification shall give the location of the enclosed space to be fumigated or fogged, the occupancy, the fumigants or insecticides to be utilized, the person or persons responsible for the operation, and the date and time at which the operation will begin. Written notice of any fumigation or insecticidal fogging operation shall be given to all affected occupants of the building, structure or portion thereof in which such operations are to be conducted, with sufficient advance notice to allow all such spaces to be vacated in an orderly manner. Such notice shall inform the occupants as to the purposes and anticipated duration of the fumigation operations.

[1703.3.1] 2603.3.1 Warning signs. Approved warning signs indicating the danger, type of chemical involved and necessary precautions shall be posted on all doors and entrances to the premises and upon all gangplanks and ladders from the deck, pier or land to the marine vessel or watercraft. Such notices shall be printed in red ink on a white background. Letters in the headlines shall be at least 2 inches (51 mm) in height and shall state the date and time of the operation, the name and address of the person conducting the fumigation or insecticidal fogging, the name of the operator in charge, and a warning stating that the occupied premises shall be vacated at least 1 hour before the operation begins and shall not be reentered until the danger signs have been removed by the proper authorities. Advance notice shall be given to all occupants of the building or structure where fumigation and insecticidal fogging operations are to be conducted to warn of the hazards of such operation.

[1703.3.2] 2603.3.2 Reserved.

[1703.3.3] 2603.3.3 Watchperson. During the period fumigation is in progress, except when fumigation is conducted in a gas-tight vault or tank, one or more watchpersons shall be provided at each entrance to the space being fumigated to prevent entry into such space until the fumigation is completed and the premises is properly ventilated and safe for occupancy.

[1703.4] 2603.4 Wrapping of buildings. Paper and other similar combustible materials that do not meet the flame propagation performance criteria of NFPA 701 shall not be used to wrap or cover a building in excess of that required for the sealing of cracks, casements and similar openings.

[1703.5] 2603.5 Ventilation and cleanup. At the end of the exposure period, fumigators shall safely and properly ventilate the premises and contents; properly dispose of fumigant containers, residues, debris and other waste materials; and clear obstructions from gas-fired appliance vents.

CHAPTER 27 SEMICONDUCTOR FABRICATION FACILITIES

SECTION FC [1801] 2701 GENERAL

[1801.1] 2701.1 Scope. This chapter shall govern the design, installation, operation and maintenance of semiconductor fabrication facilities and comparable research and development facilities classified as Group H-5 occupancies, and the storage, handling and use of hazardous materials therein.

[1801.2] 2701.2 Application. The requirements set forth in this chapter are requirements specific only to Group H-5 and shall be applied as exceptions or additions to applicable requirements set forth elsewhere in this code.

[1801.3] 2701.3 Multiple hazards. Where a material poses multiple hazards, all hazards shall be addressed in accordance with [FC2701.1] FC5001.1.

[1801.4] 2701.4 General. Semiconductor fabrication facilities and comparable research and development facilities classified as Group H-5 occupancies shall be designed, installed, operated and maintained in accordance with this chapter. Such facilities and hazardous materials shall additionally comply with the requirements of the construction codes, including the Building Code.

[1801.5] 2701.5 Permits. Permits shall be required as set forth in FC105.6.

SECTION FC [1802] 2702 DEFINITIONS

[1802.1] 2702.1 Definitions. The following terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings [shown herein] set forth in FC202.

CONTINUOUS GAS DETECTION SYSTEM. [A gas detection system where the analytical instrument is maintained in continuous operation and sampling is performed without interruption on a cyclical basis at intervals not to exceed 30 minutes.]

EMERGENCY CONTROL STATION. [An approved location on the premises of a semiconductor fabrication facility staffed by trained personnel that monitor the operation of equipment and systems including alert and alarm signals.]

FABRICATION AREA. [An area within a semiconductor fabrication facility in which processes using hazardous production materials are conducted.]

HAZARDOUS PRODUCTION MATERIAL (HPM). [A solid, liquid or gas associated with semiconductor manufacturing that has a degree-of-hazard rating in health, flammability or instability of Class 3 or 4 as defined in NFPA 704 and which is used directly in research, laboratory or production processes which have, as their end product, materials that are not hazardous.]

HPM FLAMMABLE LIQUID. [An HPM liquid that is defined as either a Class I flammable liquid or a Class II or Class IIIA combustible liquid.]

HPM ROOM. [A room used in conjunction with or serving a Group H-5 occupancy, where HPM is stored or used and which is classified as a Group H-2, H-3 or H-4 occupancy.]

PASS-THROUGH. [An enclosure installed in a wall with a door on each side that allows chemicals, HPM, equipment, and parts to be transferred from one side of the wall to the other.]

SEMICONDUCTOR FABRICATION FACILITY. [A building or structure, or part thereof, in which electrical circuits or devices, commonly known as semiconductors, are manufactured on solid crystalline substances having electrical conductivity greater than insulators but less than conductors.]

SERVICE CORRIDOR. [A fully enclosed passage, other than one designated as a required means of egress, through which HPM can be moved during handling.]

TOOL. [A device, storage container, workstation, or process machine used in a fabrication area.]

WORKSTATION. [A defined space within a fabrication area in which a specific function, laboratory procedure or research activity relating to semiconductor manufacture is conducted. A workstation may include equipment using HPM, hazardous materials storage cabinets, flammable liquid storage cabinets or gas cabinets, ventilation equipment, fire protection devices, detection devices and electrical devices.]

SECTION FC [1803] 2703 GENERAL SAFETY PROVISIONS

[1803.1] 2703.1 Emergency control station. An emergency control station shall be maintained in accordance with FC [1803.1.1] 2703.1.1 through [1803.1.3] 2703.1.3.

[1803.1.1] 2703.1.1 Location. The emergency control station shall be located on the premises at an approved location outside of the fabrication area.

[1803.1.2] 2703.1.2 Staffing. Trained personnel shall continuously staff the emergency control station.

[1803.1.3] 2703.1.3 Signals. The emergency control station shall monitor signals from emergency equipment and alarm and detection systems, including the following systems, whether required by this code or the construction codes or voluntarily installed:

1. Sprinkler system alarm and monitoring systems.

2. Manual fire alarm systems.

3. Emergency alarm systems.

4. Continuous-gas detection systems.

5. Smoke detection systems.

6. Emergency power systems.

7. Automatic detection and alarm systems for pyrophoric liquids and Class 3 water-reactive liquids required by [FC1805.2.3.4] FC2705.2.3.4.

8. Exhaust ventilation flow alarm devices for pyrophoric liquids and Class 3 water-reactive liquids cabinet exhaust ventilation systems required by [FC1805.2.3.4] FC2705.2.3.4.

[1803.2] 2703.2 Devices, equipment and systems. Devices, equipment and systems including, containers, piping, tubing, valves and fittings shall comply with the requirements of this section, [FC2703.2] FC5003.2, and other applicable provisions of this code, and the construction codes, including the Building Code and the Mechanical Code.

[1803.2.1] 2703.2.1 Additional regulations for HPM supply piping and tubing. The requirements set forth in [FC2703.2.2.2] FC5003.2.2.2 shall apply to supply piping and tubing for HPM gases and liquids. Supply piping and tubing for HPM gases and liquids having a health-hazard ranking of 3 or 4 shall be welded throughout, except for connections located within a ventilated enclosure if the material is a gas, or an approved method of drainage or containment is provided for connections if the material is a liquid.

[1803.3] 2703.3 Design and installation requirements. Semiconductor fabrication facilities shall be designed and installed in accordance with FC [1803.3.1] 2703.3.1 through [1803.3.9] 2703.3.9.

[1803.3.1] 2703.3.1 Fabrication areas. Design, installation and location of fabrication areas shall comply with the requirements of the construction codes, including the Building Code.

[1803.3.2] 2703.3.2 Pass-throughs in exit access corridors. Pass-throughs in exit access corridors shall be constructed in accordance with the construction codes, including the Building Code.

[1803.3.3] 2703.3.3 Liquid storage rooms. Liquid storage rooms shall comply with the requirements of FC Chapter [34] 57 and the construction codes, including the Building Code.

[1803.3.4] 2703.3.4 HPM rooms. HPM rooms shall comply with the requirements of the construction codes, including the Building Code.

[1803.3.5] 2703.3.5 Gas cabinets. Gas cabinets shall comply with the requirements of [FC2703.8.6] FC5003.8.6.

[1803.3.6] 2703.3.6 Exhausted enclosures. Exhausted enclosures shall comply with the requirements of [FC2703.8.5] FC5003.8.5.

[1803.3.7] 2703.3.7 Gas rooms. Gas rooms shall comply with the requirements of [FC2703.8.4] FC5003.8.4.

[1803.3.8] 2703.3.8 Service corridors. Service corridors shall comply with the requirements of [FC1805.3.3] FC2705.3.3 and the Building Code.

[1803.3.9] 2703.3.9 Cabinets containing pyrophoric liquids or water-reactive Class 3 liquids. Cabinets in fabrication areas containing pyrophoric liquids or Class 3 water-reactive liquids in containers or in amounts greater than 1/2 gallon (2 L) shall comply with [FC1805.2.3.4] FC2705.2.3.4.

[1803.4] 2703.4 Emergency plan. An emergency preparedness plan shall be prepared in accordance with FC Chapter 4.

[1803.5] 2703.5 Maintenance of devices, equipment, systems and processes. Maintenance of devices, equipment, systems and processes shall comply with the requirements of [FC2703.2.6] FC5003.2.6.

[1803.6] 2703.6 Reserved.

[1803.7] 2703.7 Electrical wiring and equipment. Electrical wiring and equipment in HPM facilities shall comply with the requirements of FC [1803.7.1] 2703.7.1 through [1803.7.3] 2703.7.3.

[1803.7.1] 2703.7.1 Fabrication areas. Electrical wiring and equipment in fabrication areas shall comply with the requirements of the Building Code and Electrical Code.

[1803.7.2] 2703.7.2 Workstations. Electrical equipment and devices within 5 feet (1524 mm) of workstations in which flammable or pyrophoric gases or flammable liquids are used shall comply with the requirements of the Electrical Code for Class I, Division 2 hazardous locations. Workstations shall not be energized without adequate exhaust ventilation in accordance with [FC1803.14] FC2703.14.

Exception: Class I, Division 2 hazardous electrical equipment is not required when the air removal from the workstation or dilution will prevent the accumulation of flammable vapors and fumes on a continuous basis.

[1803.7.3] 2703.7.3 Hazardous production material (HPM) rooms, gas rooms and liquid storage rooms. Electrical wiring and equipment in HPM rooms, gas rooms and liquid storage rooms shall comply with the requirements of the Electrical Code.

[1803.8] 2703.8 Reserved.

[1803.9] 2703.9 Reserved.

[1803.10] 2703.10 Sprinkler system. A sprinkler system shall be provided in accordance with FC [1803.10.1] 2703.10.1 through [1803.10.5] 2703.10.5, FC Chapter 9 and the Building Code.

[1803.10.1] 2703.10.1 Workstations and tools. The design of the sprinkler system in the area shall take into consideration the spray pattern and the effect on the equipment.

[1803.10.1.1] 2703.10.1.1 Combustible workstations. A sprinkler head shall be installed within each branch exhaust connection or individual plenums of workstations of combustible construction. The sprinkler head in the exhaust connection or plenum shall be located not more than 2 feet (610 mm) from the point of the duct connection or the connection to the plenum. When necessary to prevent corrosion, the sprinkler head and connecting piping in the duct shall be coated with approved or listed corrosion-resistant materials. The sprinkler head shall be accessible for periodic inspection in accordance with FC Chapter 9.

Exceptions:

1. Alternative fire extinguishing systems shall be allowed where approved. Activation of such systems shall deactivate the related processing equipment.
2. Process equipment that operates at temperatures exceeding 932°F (500°C) and has automatic shutdown capabilities that will interrupt HPM flow for hazardous materials.
3. Exhaust ducts 10 inches (254 mm) or less in diameter from flammable gas storage cabinets that are part of a workstation.

4. Ducts listed or approved for use without internal sprinkler protection.

[1803.10.1.2] 2703.10.1.2 Combustible tools. Where the horizontal surface of a combustible tool is obstructed from ceiling sprinkler discharge, sprinkler protection that covers the horizontal surface of the tool shall be provided.

Exceptions:

1. A gaseous fire extinguishing local surface application system shall be allowed as an alternative to sprinklers when approved. Gaseous fire extinguishing systems shall be actuated by infrared (IR) or ultraviolet/infrared (UVIR) optical detectors.

2. Tools constructed of materials that are listed as Class 1 or Class 2 in accordance with UL 2360 or approved for use without internal fire extinguishing system protection.

[1803.10.2] 2703.10.2 Gas cabinets and exhausted enclosures. A sprinkler system shall be provided in gas cabinets and exhausted enclosures containing HPM compressed gases.

Exception: Gas cabinets located in a HPM room other than those cabinets containing pyrophoric gases.

[1803.10.3] 2703.10.3 Pass-throughs in exit access corridors. Pass-throughs in exit access corridors shall be protected throughout by a sprinkler system.

[1803.10.4] 2703.10.4 Exhaust ducts for HPM. A sprinkler system shall be provided in exhaust ducts conveying gases, vapors, fumes, mists or dusts generated from HPM in accordance with this section and the Mechanical Code and the Building Code.

[1803.10.4.1] 2703.10.4.1 Metallic and noncombustible nonmetallic exhaust ducts. A sprinkler system shall be provided in metallic and noncombustible nonmetallic exhaust ducts when the following conditions apply:

1. The largest cross-sectional diameter is equal to or greater than 10 inches (254 mm).
2. The ducts are within the building.
3. The ducts are conveying flammable gases, vapors or fumes.

[1803.10.4.2] 2703.10.4.2 Combustible nonmetallic exhaust ducts. A sprinkler system shall be provided in combustible nonmetallic exhaust ducts when the largest cross-sectional diameter of the duct is equal to or greater than 10 inches (254 mm).

Exceptions:

1. Ducts listed or approved for applications without sprinkler system protection.
2. Ducts not more than 12 feet (3658 mm) in length installed below ceiling level.

[1803.10.4.3] 2703.10.4.3 Exhaust connections and plenums of combustible workstations. Fire extinguishing system protection for exhaust connections and plenums of combustible workstations shall comply with the requirements of [FC1803.10.1.1] FC2703.10.1.1.

[1803.10.4.4] 2703.10.4.4 Exhaust duct sprinkler system requirements. Sprinkler systems installed in exhaust duct systems shall be hydraulically designed to provide 1/2 gallon per minute (gpm) (1.9 L/min) over an area derived by multiplying the distance between the sprinklers in a horizontal duct by the width of the duct. Minimum discharge shall be 20 gpm (76 L/min) per sprinkler from the five hydraulically most remote sprinklers.

[1803.10.4.4.1] 2703.10.4.4.1 Sprinkler head locations. Sprinkler heads shall be installed at 12-foot (3658 mm) intervals in horizontal ducts and at changes in direction. In vertical runs, sprinkler heads shall be installed at the top and at alternate floor levels.

[1803.10.4.4.2] 2703.10.4.4.2 Control valve. A separate indicating control valve shall be provided for sprinkler heads installed in exhaust ducts.

[1803.10.4.4.3] 2703.10.4.4.3 Drainage. Drainage shall be provided to remove sprinkler water discharged in exhaust ducts.

[1803.10.4.4.4] 2703.10.4.4.4 Corrosive atmospheres. Where corrosive atmospheres exist, exhaust duct sprinkler heads and pipe fittings shall be manufactured of corrosion-resistant materials or coated with approved materials.

[1803.10.4.4.5] 2703.10.4.4.5 Maintenance and inspection. Sprinkler heads in exhaust ducts shall be accessible for inspection and maintenance and shall be inspected and maintained on not less than an annual basis.

[1803.10.5] 2703.10.5 Sprinkler alarms and supervision. Sprinkler systems shall be electrically supervised and provided with alarms in accordance with the construction codes, including the Building Code. Sprinkler system alarm and supervisory signals shall be transmitted to the emergency control station.

[1803.11] 2703.11 Manual fire alarm system. A manual fire alarm system shall be installed throughout buildings containing a Group H-5 occupancy. Activation of the alarm system shall initiate a local alarm and transmit a signal to the emergency control station. Manual fire alarm systems shall be designed and installed in accordance with the construction codes, including the Building Code.

[1803.12] 2703.12 Emergency alarm system. Emergency alarm systems shall be provided in accordance with this section, [FC2704.9] FC5004.9 and [FC2705.4.4] FC5005.4.4. The maximum allowable quantity per control area provisions of [FC2704.1] FC5004.1 shall not apply to emergency alarm systems required for HPM.

[1803.12.1] 2703.12.1 Where required. Emergency alarm systems shall be provided in the areas indicated in FC [1803.12.1.1] 2703.12.1.1 through [1803.12.1.3] 2703.12.1.3.

[1803.12.1.1] 2703.12.1.1 Service corridors. An approved emergency alarm system shall be provided in service corridors, with at least one alarm device in the service corridor.

[1803.12.1.2] 2703.12.1.2 Exit access corridors and exit enclosures. Emergency alarms for exit access corridors and exit enclosures shall comply with the requirements of [FC2703.10.4] FC5005.4.4.

[1803.12.1.3] 2703.12.1.3 Liquid storage rooms, HPM rooms and gas rooms. Emergency alarms for liquid storage rooms, HPM rooms and gas rooms shall comply with the requirements of [FC2704.9] FC5004.9.

[1803.12.2] 2703.12.2 Alarm-initiating devices. An approved emergency telephone system, local alarm manual pull stations, or other approved alarm-initiating devices are allowed to be used as emergency alarm-initiating devices.

[1803.12.3] 2703.12.3 Alarm signals. Activation of the emergency alarm system shall sound a local alarm and transmit a signal to the emergency control station.

[1803.13] 2703.13 Continuous gas detection systems. A continuous gas detection system shall be provided for HPM gases when the physiological warning properties of the gas are at a higher level than the accepted permissible exposure limit (PEL) for the gas and for flammable gases in accordance with the construction codes, including the Building Code.

[1803.14] 2703.14 Exhaust ventilation systems for HPM. Exhaust ventilation systems and materials for exhaust ducts utilized for the exhaust of HPM shall comply with the requirements of this section, other applicable provisions of this code, the construction codes, including the Building Code and the Mechanical Code.

[1803.14.1] 2703.14.1 Where required. Exhaust ventilation systems shall be provided in the following locations in accordance with this section and the construction codes, including the Building Code:

1. Fabrication areas: Exhaust ventilation for fabrication areas shall comply with the requirements of the construction codes, including the Building Code. Additional manual control switches shall be provided as may be required by the

commissioner.

2. Workstations: A ventilation system shall be provided to capture and exhaust fumes and vapors at workstations.

3. Liquid storage rooms: Exhaust ventilation for liquid storage rooms shall comply with the requirements of [FC2704.3.1] FC5004.3.1 and the construction codes, including the Building Code and Mechanical Code.

4. HPM rooms: Exhaust ventilation for HPM rooms shall comply with the requirements of [FC2704.3.1] FC5004.3.1 and the construction codes, including the Building Code and the Mechanical Code.

5. Gas cabinets: Exhaust ventilation for gas cabinets shall comply with the requirements of [FC2703.8.6.2] FC5003.8.6.2. The gas cabinet ventilation system is allowed to connect to a workstation ventilation system. Exhaust ventilation for gas cabinets containing highly toxic or toxic gases shall additionally comply with the requirements of FC Chapter [37] 60.

6. Exhausted enclosures: Exhaust ventilation for exhausted enclosures shall comply with the requirements of [FC2703.8.5.2] FC5003.8.5.2. Exhaust ventilation for exhausted enclosures containing highly toxic or toxic gases shall additionally comply with the requirements of FC Chapter [37] 60.

7. Gas rooms: Exhaust ventilation for gas rooms shall comply with the requirements of [FC2703.8.4.2] FC5003.8.4.2. Exhaust ventilation for gas rooms containing highly toxic or toxic gases shall additionally comply with the requirements of FC Chapter [37] 60.

8. Cabinets containing pyrophoric liquids or Class 3 water-reactive liquids: Exhaust ventilation for cabinets in fabrication areas containing pyrophoric liquids or Class 3 water-reactive liquids shall be as required in [FC1805.2.3.4] FC2705.2.3.4.

[1803.14.2] 2703.14.2 Penetrations. Exhaust ducts penetrating fire barrier assemblies shall be contained in a shaft of equivalent fire-resistance-rated construction. Exhaust ducts shall not penetrate fire walls. Fire dampers shall not be installed in exhaust ducts.

[1803.14.3] 2703.14.3 Treatment systems. Treatment systems for highly toxic and toxic gases shall comply with the requirements of FC Chapter [37] 60.

[1803.15] 2703.15 Emergency power system. An emergency power system shall be provided in Group H-5 occupancies where required by the construction codes, including the Building Code. The emergency power system shall be designed to supply power automatically to required electrical systems when the normal supply system is interrupted.

[1803.15.1] 2703.15.1 Required electrical systems. Emergency power shall be provided for electrically operated equipment and connected control circuits as required by Chapter 4 of the Building Code or this code.

2703.16 Sub-atmospheric pressure gas systems. Sub-atmospheric pressure gas systems (SAGS) shall be designed, installed, operated and maintained in accordance with NFPA 318.

SECTION FC [1804] 2704 STORAGE

[1804.1] 2704.1 General. Hazardous materials shall be stored in semiconductor fabrication facilities in accordance with this section and the provisions of other applicable chapters of this code.

[1804.2] 2704.2 Fabrication areas. Hazardous materials shall be stored in accordance with FC [1804.2.1] 2704.2.1 through [1804.2.2.1] 2704.2.2.1.

[1804.2.1] 2704.2.1 Location of HPM storage in fabrication areas. Storage of HPM in fabrication areas shall be within approved or listed storage cabinets, gas cabinets or within a workstation as follows:

1. Flammable and combustible liquid storage cabinets shall comply with the requirements of FC Chapter [34] 57.

2. Hazardous materials storage cabinets shall comply with the requirements of [FC2703.8.7] FC5003.8.7.

3. Gas cabinets shall comply with the requirements of [FC2703.8.6] FC5003.8.6. Gas cabinets for highly toxic or toxic gases shall additionally comply with the requirements of [FC3704.1.2] FC6004.1.2.

4. Exhausted enclosures shall comply with [FC2703.8.5] FC5003.8.5. Exhausted enclosures for highly toxic or toxic gases shall also comply with [FC3704.1.3] FC6004.1.3.

5. Workstations shall comply with the requirements of [FC1805.2.3] FC2705.2.3.

[1804.2.2] 2704.2.2 Maximum aggregate quantities in fabrication areas. The aggregate quantities of hazardous materials stored, handled and used in a single fabrication area shall be limited as specified in this section.

Exception: Fabrication areas containing quantities of hazardous materials not exceeding the maximum allowable quantities per control area established by FC [2703.1.1] 5003.1.1, [3404.3.4] 5704.3.4 and [3404.3.5] 5704.3.5.

FC TABLE [1804.2.2.1] 2704.2.2.1

QUANTITY LIMITS FOR HAZARDOUS MATERIALS IN A SINGLE FABRICATION AREA IN GROUP H-5a

HAZARD CATEGORY

SOLIDS

(pounds/square foot)

LIQUIDS

(gallons/square foot)

GAS

(SCF/square foot)

PHYSICAL-HAZARD MATERIALS

Combustible dust

Note b

Not Applicable

Not Applicable

Combustible fiber

Loose

Baled

Note b

Notes b, c

Not Applicable

Not Applicable

Combustible liquid

Class II

Class IIIA

Class IIIB

Combination Class I, II and IIIA

Not Applicable

0.01

0.02

Not Limited

0.04

Not Applicable

Cryogenic gas

Flammable

Oxidizing

Not Applicable

Not Applicable

Note d

1.25

Explosives

Note b

Note b

Note b

Flammable gas

Gaseous

Liquefied

Not Applicable

Not Applicable

Note d

Note d

Flammable liquid

Class IA

Class IB

Class IC

Combination Class IA, IB and IC

Combination Class I, II and IIIA

Not

Applicable

0.0025

0.025

0.025

0.025

0.04

Not Applicable

Flammable solid

0.001

Not Applicable

Not Applicable

Organic peroxide

Unclassified detonable

Class I

Class II

Class III

Class IV

Class V

Note b

Note b

0.025

0.1

Not Limited

Not Limited

Not Applicable

Not Applicable

Oxidizing gas

Gaseous

Liquefied

Combination of Gaseous and Liquefied

Not Applicable

Not Applicable

1.25

1.25

1.25
Oxidizer
Class 4
Class 3
Class 2
Class 1
Combination oxidizer Class 1, 2, 3

Note b
0.003
0.003
0.003
0.003

Note b
0.03
0.03
0.03
0.03
Not
Applicable
Pyrophoric
Note b
0.00125
Notes d
and e
Unstable reactive
Class 4
Class 3
Class 2
Class 1

Note b
0.025
0.1
Not Limited

Note b
0.0025
0.01
Not Limited

Note b
Note b
Note b
Not Limited
Water reactive
Class 3
Class 2
Class 1

Note b
0.25
Not Limited

0.00125
0.025

Not Limited

Not

Applicable

HEALTH-HAZARD MATERIALS

Corrosives

Not Limited

Not Limited

Not Limited

Highly toxics

Not Limited

Not Limited

Note d

Toxics

Not Limited

Not Limited

Note d

For SI: 1 pound per square foot = 4.882 kg/m², 1 gallon per square foot = 0.025 L/m², 1 cubic foot = 0.02832 m³.

a. Hazardous materials within piping shall not be included in the calculated quantities.

b. Quantity of hazardous materials in a single fabrication area shall not exceed the maximum allowable quantities per control area in FC Tables [2703.1.1(1)] 5003.1.1(1) and [2703.1.1(2)] 5003.1.1(2).

c. Densely packed baled cotton that complies with the packing requirements of ISO 8115 shall not be included in this material class.

d. The aggregate quantity of flammable, pyrophoric, toxic and highly toxic gases shall not exceed 9,000 SCF.

e. The aggregate quantity of pyrophoric gases in the building shall not exceed the amounts set forth in FC Table [2703.8.2] 5003.8.2.

[1804.2.2.1] 2704.2.2.1 Storage and use in fabrication areas. The maximum quantities of hazardous materials stored in a single fabrication area shall not exceed the quantities set forth in FC Table [1804.2.2.1] 2704.2.2.1.

[1804.3] 2704.3 Indoor storage outside of fabrication areas. The indoor storage of hazardous materials outside of fabrication areas shall be in accordance with FC [1804.3.1] 2704.3.1 through [1804.3.3] 2704.3.3.

[1804.3.1] 2704.3.1 HPM storage. The indoor storage of HPM in quantities greater than those listed in FC [2703.1.1] 5003.1.1 and [3404.3.4] 5704.3.4 shall be in a room complying with the requirements of the construction codes, including the Building Code, and this code for a liquid storage room, HPM room or gas room as appropriate for the materials stored.

[1804.3.2] 2704.3.2 Other hazardous materials storage. The indoor storage of other hazardous materials shall comply with the requirements of FC [2701] 5001, [2703] 5003 and [2704] 5004 and other applicable provisions of this code.

[1804.3.3] 2704.3.3 Separation of incompatible hazardous materials. Incompatible hazardous materials in storage shall be separated from each other in accordance with [FC2703.9.8] FC5003.9.8.

[1804.4] 2704.4 Exit access corridors and exit enclosures. Hazardous materials shall not be stored in exit access corridors or exit access enclosures.

SECTION FC [1805] 2705

HANDLING AND USE

[1805.1] 2705.1 General. Hazardous materials shall be handled and used in accordance with this section, [FC1803] FC2703 and other applicable provisions of this code.

[1805.2] 2705.2 Fabrication areas. The use of hazardous materials in fabrication areas shall be in accordance with FC [1805.2.1] 2705.2.1 through [1805.2.3.4] 2705.2.3.4.

[1805.2.1] 2705.2.1 Location of HPM in use in fabrication areas. Hazardous production materials in use in fabrication areas shall be within approved or listed gas cabinets, exhausted enclosures or within a workstation, in accordance with

FC Chapter [27] 50.

[1805.2.2] 2705.2.2 Maximum aggregate quantities in fabrication areas. The aggregate quantities of hazardous materials in a single fabrication area shall comply with the requirements of [FC1804.2.2] FC2704.2.2, and FC Table [1804.2.2.1] 2704.2.2.1. The quantity of HPM in use at a workstation shall not exceed the quantities listed in FC Table [1805.2.2] 2705.2.2.

FC TABLE [1805.2.2] 2705.2.2

MAXIMUM QUANTITIES OF HPM AT A WORKSTATIONd

HPM CLASSIFICATION

STATE

MAXIMUM QUANTITY

Flammable, highly toxic,
pyrophoric and toxic combined

Gas

Combined aggregate volume of all containers at a workstation shall not exceed an internal container volume of 39.6 gallons or 5.29 cubic feet

Flammable

Liquid

Solid

15 gallonsa, b

5 poundsa, b

Corrosive

Gas

Liquid

Solid

Combined aggregate volume of all containers at a workstation shall not exceed an internal container volume of 39.6 gallons or 5.29 cubic feet

Use-Open System: 25 gallonsb

Use-Closed System: 150 gallonsb, e

20 poundsa, b

Highly toxic

Liquid

Solid

15 gallonsa

5 poundsa

Oxidizer

Gas

Liquid

Solid

Combined aggregate volume of all containers at a workstation shall not exceed an internal container volume of 39.6 gallons or 5.29 cubic feet

Use-open system: 12 gallonsb

Use-closed system: 60 gallonsb

20 poundsa, b

Pyrophoric

Liquid

Solid

1/2 gallonc, f

See FC Table [1804.2.2.1] 2704.2.2.1

Toxic
Liquid

Solid

Use-open system: 15 gallons^b

Use-closed system: 60 gallons^b

5 pounds^{a, b}

Unstable reactive Class 3

Liquid

Solid

1/2 gallon^{a, b}

5 pounds^{a, b}

Water-reactive Class 3

Liquid

Solid

1/2 gallon^{c, f}

See FC Table [1804.2.2.1] 2704.2.2.1

For SI: 1 pound = 0.454 kg, 1 gallon = 3.785 L.

a. Maximum allowable quantities may be increased 100 percent for closed systems operations. When Note b applies, the quantities increased may be as set forth in both notes.

b. Quantities may be increased 100 percent when workstations are internally protected throughout by a fire extinguishing system complying with the requirements of FC Chapter 9. When Note a applies, the quantities increased may be as set forth in both notes. When Note e applies, the maximum increase authorized by both Notes b and e shall not exceed 100 percent.

c. Allowed only in workstations that are internally protected throughout by a fire extinguishing system compatible with the reactivity of materials in use at the workstation.

d. The quantity limits apply only to materials classified as HPM.

e. Quantities may be increased 100 percent for nonflammable, noncombustible corrosive liquids when the materials of construction for workstations are listed or approved for use without internal fire extinguishing system protection. When Note b applies, the maximum increase authorized by both Notes b and e shall not exceed 100 percent.

f. A maximum quantity of 5.3 gallons shall be allowed at a workstation when in accordance with [FC1805.2.3.4] FC2705.2.3.4.

[1805.2.3] 2705.2.3 Workstations. Workstations in fabrication areas shall be in accordance with FC [1805.2.3.1] 2705.2.3.1 through [1805.2.3.4] 2705.2.3.4.

[1805.2.3.1] 2705.2.3.1 Construction. Workstations in fabrication areas shall be constructed of materials compatible with the materials stored and used at the workstation. The portion of the workstation that serves as a cabinet for HPM gases and flammable liquids shall be noncombustible and, if of metal, shall not be less than 0.0478-inch (1.2-mm) (18 gauge) steel.

[1805.2.3.2] 2705.2.3.2 Protection of vessels. Vessels containing hazardous materials located in or connected to a workstation shall be protected as follows:

1. HPM: Vessels containing HPM shall be protected from physical damage and shall not project from the workstation.

2. Hazardous cryogenic fluids, gases and liquids: Hazardous cryogenic fluids, gases and liquid vessels located within a workstation shall be protected from seismic forces in an approved manner in accordance with the construction codes, including the Building Code.

3. Compressed gases: Protection for compressed gases shall additionally comply with the requirements of [FC3003.3] FC5303.3.

4. Cryogenic fluids: Protection for cryogenic fluid vessels shall additionally comply with [FC3203.5] FC5503.5.

[1805.2.3.3] 2705.2.3.3 Drainage and containment for HPM liquids. Each workstation utilizing HPM liquids shall be

provided with all of the following:

1. Drainage piping systems connected to a compatible system for disposition of such liquids.
2. The work surface provided with a slope or other means for directing spilled materials to the containment or drainage system.
3. An approved means of containing or directing spilled or leaked liquids to the drainage system.

[1805.2.3.4] 2705.2.3.4 Pyrophoric liquids and Class 3 water-reactive liquids. Pyrophoric liquids and Class 3 water-reactive liquids in containers of greater than 1/2-gallon (2-L) but not more than 5.3-gallon (20-L) capacity shall be allowed at workstations when located inside cabinets and the following conditions are met:

1. Maximum amount per cabinet: The maximum amount per cabinet shall be limited to 5.3 gallons (20 L).
 2. Cabinet construction: Cabinets shall be constructed in accordance with the following:
 - 2.1. Cabinets shall be constructed of not less than 0.097-inch (2.5-mm) (12 gauge) steel.
 - 2.2. Cabinets shall be allowed to have self-closing limited access ports or noncombustible windows that provide access to equipment controls.
 - 2.3. Cabinets shall be provided with self- or manual-closing doors. Manual-closing doors shall be equipped with a door switch that will initiate local audible and visual alarms when the door is in the open position.
 3. Cabinet exhaust ventilation system: An exhaust ventilation system shall be provided for cabinets and shall comply with the following:
 - 3.1. The system shall be designed to operate at a negative pressure in relation to the surrounding area.
 - 3.2. The system shall be equipped with a pressure monitor and a flow switch alarm monitored at the on-site emergency control station.
 4. Cabinet spill containment: Spill containment shall be provided in each cabinet, with the spill containment capable of holding the contents of the aggregate amount of liquids in containers in each cabinet.
 5. Valves: Valves in supply piping between the product containers in the cabinet and the workstation served by the containers shall fail in the closed position upon power failure, loss of exhaust ventilation and upon actuation of the fire control system.
 6. Fire detection system: Each cabinet shall be equipped with an automatic fire detection system complying with the following conditions:
 - 6.1. Automatic detection system: UV/IR, high-sensitivity smoke detection (HSSD) or other approved detection systems shall be provided inside each cabinet.
 - 6.2. Automatic shutoff: Activation of the detection system shall automatically close the shutoff valves at the source on the liquid supply.
 - 6.3. Alarms and signals: Activation of the detection system shall initiate a local alarm within the fabrication area and transmit a signal to the emergency control station. The alarms and signals shall be both visual and audible.
- [1805.2.4] 2705.2.4 Exit access corridors and exit enclosures. Hazardous materials shall not be used in exit access corridors or exit access enclosures.

[1805.2.5] 2705.2.5 Service corridors. Hazardous materials shall not be used in service corridors.

[1805.3] 2705.3 Handling. The handling of hazardous materials shall comply with the requirements of this section and other applicable provisions of this code.

[1805.3.1] 2705.3.1 Exit corridors access and exit enclosures. Exit access corridors and exit enclosures shall not contain HPM except as allowed for exit access corridors by the construction codes, including the Building Code.

[1805.3.2] 2705.3.2 Reserved.

[1805.3.3] 2705.3.3 Service corridors. A service corridor shall be provided where it is necessary to move HPM during handling from a liquid storage room, HPM room, gas room or from the outdoors to the perimeter wall of a fabrication area. Service corridors shall be designed and constructed in accordance with the construction codes, including the Building Code.

[1805.3.4] 2705.3.4 Carts and hand trucks. Carts and hand trucks used to move HPM during handling in exit access corridors and exit enclosures shall comply with the requirements of [FC2703.10.3] FC5003.10.3.

[1805.3.4.1] 2705.3.4.1 Identification. Carts and hand trucks shall be marked to indicate the contents.

CHAPTER 28 LUMBER YARDS AND WOOD WASTE MATERIALS

SECTION FC [1901] 2801 GENERAL

[1901.1] 2801.1 Scope. This chapter shall govern the manufacture, storage and handling of lumber, wood products and wood waste material.

[1901.2] 2801.2 Permit. Permits shall be required as set forth in FC105.6.

[1901.3] 2801.3 General. Lumber and wood waste materials shall be stored and handled in accordance with this chapter. Facilities used for such purposes shall be designed, installed, operated and maintained in accordance with this chapter.

[1901.4] 2801.4 Manufacturing prohibited. The manufacture of lumber, including plywood and other manufactured wood sheets, from trees and other natural wood materials, is prohibited, except as approved by the commissioner.

SECTION FC [1902] 2802 DEFINITIONS

[1902.1] 2802.1 Terms defined in FC Chapter 2. Terms used in this chapter[for the purposes of this chapter and as used elsewhere in this code, have the meanings shown in FC Chapter 2 or elsewhere in this code] and defined in FC202 shall have the meanings set forth therein.

SECTION FC [1903] 2803 GENERAL REQUIREMENTS

[1903.1] 2803.1 Open yards. Open yards required by the construction codes, including the Building Code, shall be maintained around buildings and other structures in which lumber and wood waste are stored and handled.

[1903.2 Reserved.] 2803.2 Dust control. Indoor installations that generate combustible dust shall be provided with explosion protection and other combustible dust mitigation measures in accordance with FC Chapter 22 and the construction codes.

[1903.3 Reserved.] 2803.3 Housekeeping. Lumber yards, woodworking facilities and other locations at which lumber is cut or otherwise processed and/or wood waste materials generated, shall be cleaned at the end of each workday, to collect and remove from the premises sawdust and other waste materials.

[1903.4] 2803.4 Reserved.

[1903.5] 2803.5 Control of ignition sources. [Sources of ignition shall be controlled or protected] Protection shall be provided from ignition sources in accordance with FC Chapter 3 and FC [1903.5.1 and 1903.5.3] 2803.5.1 through 2803.5.3.

[1903.5.1] 2803.5.1 Hot work. Hot work shall comply with the requirements of FC Chapter [26] 35.

[1903.5.2 Reserved.] 2803.5.2 Static electricity. Static electricity shall be prevented from accumulating on equipment and systems subject to static electricity buildup by permanent grounding and bonding wires or other approved means.

[1903.5.3] 2803.5.3 Smoking. It shall be unlawful to smoke in a lumber yard [or wood waste material facility], woodworking facility or other facility in which wood or wood waste materials are manufactured, stored or handled.

SECTION FC [1904] 2804
THROUGH AND INCLUDING
SECTION [1907] 2807
RESERVED

SECTION FC [1908] 2808
OUTDOOR STORAGE OF WOOD CHIPS AND OTHER WOOD WASTE MATERIALS

[1908.1] 2808.1 General. Wood chips and other wood waste materials shall be stored and handled in accordance with this section.

[1908.2] 2808.2 Storage areas. Storage areas shall be level and on solid ground or other all-weather surface. Storage areas shall be thoroughly cleaned before transferring wood products to the area.

[1908.3] 2808.3 Size of piles. Piles shall not exceed 25 feet (7620 mm) in height, 150 feet (45 720 mm) in width and 250 feet (76 200 mm) in length.

Exception: The commissioner may authorize increased pile sizes provided that adequate fire safety is ensured by installing additional fire protection in accordance with FC Chapter 9 and the construction codes, including the Building Code. The increase shall be based upon the capabilities of the system installed.

[1908.4] 2808.4 Pile separation. Piles shall be separated from adjacent piles by approved fire apparatus access roads.

[1908.5] 2808.5 Combustible waste. The storage of wood chips or other wood waste materials, the accumulation and handling of combustible materials, the control of vegetation and the disposal of combustible waste shall comply with the requirements of FC Chapter 3.

[1908.6] 2808.6 Pile protection. Piles of wood chips or other wood waste materials shall be monitored by an approved means to measure internal temperatures within the piles. Internal pile temperatures shall be measured and recorded weekly.

[1908.7] 2808.7 Reserved.

[1908.8] 2808.8 Fire protection. The commissioner may require that a yard hydrant system and/or monitor nozzles connected to a fixed water supply be installed upon the premises where the facility arrangement, pile arrangement, pile heights, number of piles or total volume of piles would hamper the effectiveness of hose streams to control or extinguish a fire. Portable fire extinguishers in compliance with the requirements of FC906 and with a minimum rating of 4-A:60-B:C shall be readily available throughout the premises.

[1908.9] 2808.9 Material-handling equipment. Approved material-handling equipment shall be available for moving wood chips and other wood waste materials during firefighting operations.

SECTION FC [1909] 2809

OUTDOOR STORAGE OF FINISHED LUMBER PRODUCTS

[1909.1] 2809.1 General. Finished lumber products shall be stored in accordance with this section.

[1909.2] 2809.2 Size of piles. Outdoor lumber storage shall be arranged to form stable piles with a maximum height of 20 feet (6096 mm). Piles shall not exceed 150,000 cubic feet (4248 m³) in volume.

[1909.3] 2809.3 Fire apparatus access roads. Fire apparatus access roads in accordance with FC503 and the construction codes, including the Building Code, shall be located so that a maximum grid system unit of 50 feet by 150 feet (15 240 mm by 45 720 mm) is established.

[1909.4] 2809.4 Security. Permanent outdoor lumber storage areas shall be surrounded with an approved fence. [Fences shall be a minimum of 6 feet (1829 mm) in height.]

[1909.5] 2809.5 Fire protection. The commissioner may require that the yard hydrant system specified in [FC508.2.3] FC507.2.3 to include monitor nozzles connected to the fixed water supply where the facility arrangement, pile arrangement, pile heights, number of piles or total volume of piles would hamper the effectiveness of hose streams to control or extinguish a fire. Portable fire extinguishers shall be provided in accordance with FC906 for extra-high hazards and located so that the travel distance to the nearest portable fire extinguisher does not exceed

75 feet (22 860 mm).

CHAPTER 29

MANUFACTURE OF ORGANIC COATINGS

SECTION FC [2001] 2901

GENERAL

[2001.1] 2901.1 Scope. This chapter shall govern facilities and processes where flammable and combustible liquids are used for the manufacture of organic coatings, other than facilities and processes using nonflammable coatings and operations applying coating materials.

[2001.2] 2901.2 Permits. Permits shall be required as set forth in FC105.6.

[2001.3] 2901.3 Maintenance. Service equipment within a building, structure or premises shall be maintained in accordance with this code and NFPA 35.

[2001.4] 2901.4 General. Organic coating manufacturing facilities and processes shall be designed, installed, operated and maintained in accordance with this chapter.

[2001.5] 2901.5 Prohibited organic coatings. It shall be unlawful to use nitrocellulose in the manufacture of an organic coating.

SECTION FC [2002] 2902

DEFINITIONS

[2002.1] 2902.1 Definition. The following term shall, for the purposes of this chapter and as used elsewhere in this code, have the meaning [shown herein] set forth in FC202.

ORGANIC COATING. [A liquid mixture of binders such as alkyd, acrylic or oil, and flammable and combustible liquids, such as hydrocarbon, ester, ketone or alcohol, which, when spread in a thin film, convert to a durable protective and decorative finish.]

SECTION FC [2003] 2903

GENERAL PRECAUTIONS

[2003.1] 2903.1 Building design. Manufacturing of organic coatings shall be conducted only in buildings or structures that do not have pits, basements or other areas below grade.

[2003.2] 2903.2 Location. Organic coating manufacturing operations and operations incidental to or connected with organic coating manufacturing shall not be located in buildings having other occupancies.

[2003.2.1] 2903.2.1 Location restrictions. It shall be unlawful to manufacture organic coatings in any building that is located within 50 feet (15 240 mm) of a building occupied as a multiple dwelling, school, hospital, theater, or other place of assembly.

[2003.3] 2903.3 Firefighting access. Organic coating manufacturing operations shall be accessible from at least one side for the purpose of fire control. Approved aisles shall be maintained for the unobstructed movement of personnel and fire suppression equipment.

[2003.4] 2903.4 Fire protection systems. It shall be unlawful to manufacture an organic coating in any building unless the building is protected throughout by a fire extinguishing system. Fire protection systems shall be designed, installed, operated and maintained, including performing all required tests and inspections, in accordance with FC Chapter 9 and the Building Code.

[2003.5] 2903.5 Portable fire extinguishers. A minimum of one portable fire extinguisher complying with the requirements of FC906 for extra hazard shall be provided in organic coating areas.

[2003.6] 2903.6 Open flames. Open flames and open-flame devices are prohibited in areas where flammable vapor-air mixtures exist.

[2003.7] 2903.7 Smoking. It shall be unlawful to smoke in any organic coating manufacturing facility.

[2003.8] 2903.8 Power equipment. Power-operated equipment and industrial trucks shall be of a type approved for the location.

[2003.9] 2903.9 Tank maintenance. The cleaning of tanks that have contained flammable or combustible liquids shall be performed under the supervision of a person trained in and knowledgeable about the fire and explosion potential.

[2003.9.1] 2903.9.1 Repairs. Where necessary to make repairs involving hot work, the work shall be conducted in accordance with FC Chapter [26] 35.

[2003.9.2] 2903.9.2 Reserved.

[2003.10] 2903.10 Drainage. Drainage shall be provided to direct flammable and combustible liquid leakage and fire protection water to an approved location away from the building, any other structure, storage area or adjoining premises.

[2003.11] 2903.11 Alarm system. An approved fire alarm system shall be provided in accordance with the construction codes, including the Building Code.

SECTION FC [2004] 2904 ELECTRICAL EQUIPMENT AND PROTECTION

[2004.1] 2904.1 Wiring and equipment. Electrical wiring and equipment shall be designed, installed, operated and maintained in accordance with this chapter and the Electrical Code.

[2004.2] 2904.2 Hazardous locations. Where Class I liquids are exposed to the air, the facility, including all equipment and the ventilation system, shall be designed in a manner that limits Class I, Division 1, locations to the following:

1. Piping trenches.
2. Within the equipment.

3. The immediate vicinity of pumps or equipment locations, such as dispensing stations, open centrifuges, plate and frame filters, opened vacuum filters, change cans and the surfaces of open equipment. The immediate vicinity shall include a zone extending from the vapor liberation point 5 feet (1524 mm) horizontally in all directions and vertically from the floor to a level 3 feet (914 mm) above the highest point of vapor liberation.

[2004.2.1] 2904.2.1 Other locations. Locations within the confines of the manufacturing room where Class I liquids are handled shall be Class I, Division 2, except locations indicated in [FC2004.2] FC2904.2.

[2004.2.2] 2904.2.2 Ordinary equipment. Ordinary electrical equipment, including switchgear, is prohibited except where installed in a room maintained under positive pressure with respect to the hazardous area. The air or other media utilized for pressurization shall be obtained from a source that will not cause any amount or type of flammable vapor to be introduced into the room.

[2004.3] 2904.3 Bonding. In any area of the facility in which an ignitable mixture may be present in the atmosphere, equipment, including, but not limited to, tanks, machinery and piping, shall be bonded and connected to a ground.

[2004.3.1] 2904.3.1 Piping. Electrically isolated sections of metallic piping or equipment shall be grounded or bonded to the other grounded portions of the system.

[2004.3.2] 2904.3.2 Vehicles. Cargo tanks loaded or unloaded through open connections shall be grounded and bonded to the receiving system.

[2004.3.3] 2904.3.3 Containers. Where a flammable mixture is transferred from one portable container to another, a bond shall be provided between the two containers, and one shall be grounded.

[2004.4] 2904.4 Ground. Metal framing of buildings shall be grounded with resistance of not more than 5 ohms.

SECTION FC [2005] 2905 PROCESS STRUCTURES

[2005.1] 2905.1 Design. Process structures shall be designed and constructed in accordance with the construction codes, including the Building Code.

[2005.2] 2905.2 Fire apparatus access. Fire apparatus access complying with the requirements of FC503 shall be provided for the purpose of fire control to at least one side of organic coating manufacturing operations.

[2005.3] 2905.3 Drainage. Drainage facilities shall be provided in accordance with [FC2003.10] FC2903.10 where topographical conditions are such that flammable and combustible liquids are capable of flowing from the organic coating manufacturing operation so as to constitute a fire hazard to other premises.

[2005.4] 2905.4 Explosion control. Explosion control shall be provided in areas subject to potential deflagration hazards as set forth in NFPA 35. Explosion control shall be provided in accordance with FC911.

[2005.5] 2905.5 Ventilation. Buildings in which Class I liquids are processed or handled shall be ventilated at a rate of not less than 1 cubic foot per minute per square foot (0.00508 m³/s/m²) of solid floor area. Ventilation shall be accomplished by exhaust fans that take suction at floor levels and discharge to a safe location outdoors. Noncontaminated intake air shall be introduced in such a manner that all portions of solid floor areas are provided with continuous uniformly distributed air movement.

[2005.6] 2905.6 Heating. Heating provided in hazardous areas shall be by indirect means. Ignition sources such as open flames or electrical heating elements, except as provided for in [FC2004] FC2904, are prohibited within the building.

SECTION FC [2006] 2906 PROCESS MILLS AND KETTLES

[2006.1] 2906.1 Mills. Mills, operating with close clearances, which process flammable and heat-sensitive materials shall be located in a detached building or in a noncombustible structure without other occupancies. The amount of flammable

material brought into the area shall not be more than the amount required for a batch.

[2006.2] 2906.2 Mixers. Mixers shall be of the enclosed type or, where of the open type, shall be provided with properly fitted covers. Where flow is by gravity, a shutoff valve shall be installed as close as practical to the mixer, and a control valve shall be provided near the end of the fill pipe.

[2006.3] 2906.3 Open kettles. Open kettles shall be located in outdoor areas provided with a protective roof; in a separate structure of noncombustible construction; or separated from other areas by a noncombustible wall having a fire-resistance rating of at least 2 hours.

[2006.4] 2906.4 Closed kettles. Contact-heated kettles containing solvents shall be equipped with safety devices that, in case of a fire, will turn off the process heat, turn on the cooling medium and inject inert gas into the kettle.

[2006.4.1] 2906.4.1 Vaporizer location. The vaporizer section of heat-transfer systems that heat closed kettles containing solvents shall be remotely located.

[2006.5] 2906.5 Kettle controls. The kettle and thin-down tank shall be instrumented, controlled and interlocked so that any failure of the controls will not result in an unsafe condition. The kettle shall be provided with a pressure-rupture disc in addition to the primary vent. The vent piping from the rupture disc shall be of minimum length and shall discharge to an approved location. The thin-down tank shall be adequately vented. Thinning operations shall be provided with a vapor removal system capable of ensuring a safe atmosphere.

SECTION FC [2007] 2907 PROCESS PIPING

[2007.1] 2907.1 Design. All piping, valves and fittings shall be designed for the working pressures and structural stresses to which the piping, valves and fittings will be subjected, and shall be of steel or other material approved for the service intended.

[2007.2] 2907.2 Valves and fittings. Valves shall be of an indicating type. Terminal valves on remote pumping systems shall be of the dead-man type, shutting off both the pump and the flow of solvent. Valves and fittings shall not be constructed of cast iron.

[2007.3] 2907.3 Support. Piping systems shall be supported and protected against physical damage. Piping shall be pitched to avoid unintentional trapping of liquids, or approved drains shall be provided.

[2007.4] 2907.4 Connectors. Approved flexible connectors shall be installed where vibration exists or frequent movement is necessary. Hoses at dispensing stations shall be of an approved type.

[2007.5] 2907.5 Tests. Before being placed in service, all piping shall be free of leaks when tested for a minimum of 30 minutes at not less than one and one-half times the working pressure or a minimum of 5 pounds per square inch gauge (psig) (35 kPa) at the highest point in the system.

SECTION FC [2008] 2908 RAW MATERIALS IN PROCESS AREAS

[2008.1] 2908.1 Reserved.

[2008.2] 2908.2 Organic peroxides. Organic peroxides brought into the process area shall be in the original shipping container. When in the process area, the organic peroxide shall not be placed in locations exposed to ignition sources, heat, mechanical shocks or flammable liquids, except that organic peroxide may be exposed to flammable liquid during raw material processing.

SECTION FC [2009] 2909 RAW MATERIALS AND FINISHED PRODUCTS

[2009.1] 2909.1 General. The storage, handling and use of flammable and combustible liquids in process areas shall be

in accordance with FC Chapter [34] 57. The storage, handling and use of organic peroxides shall be in accordance with FC Chapter [39] 62 and the storage, handling and use of oxidizers shall be in accordance with FC Chapter [40] 63.

[2009.2] 2909.2 Tank storage. Tanks for the storage of flammable and combustible liquids shall be installed in accordance with FC Chapter [34] 57. Process equipment storing or using flammable or combustible liquids and storage in quantities necessary for maintaining the operation is allowed in the process area.

[2009.3] 2909.3 Loading and unloading. Tank car and cargo tank loading and unloading stations for Class I liquids shall be separated from the process area, other facility structures, the nearest lot line, public street or private road by a minimum distance in accordance with FC Chapter [34] 57.

[2009.3.1] 2909.3.1 Loading. Loading and unloading structures and platforms for flammable and combustible liquids shall be designed and installed in accordance with FC Chapter [34] 57.

[2009.3.2] 2909.3.2 Safety. Tank cars and cargo tanks for flammable and combustible liquids shall be loaded and unloaded in accordance with FC Chapter [34] 57.

[2009.4] 2909.4 Reserved.

[2009.5] 2909.5 Organic peroxide storage. The storage of organic peroxides shall be in accordance with FC Chapter [39] 62.

[2009.5.1] 2909.5.1 Size. The size of the package containing organic peroxide shall be selected so that, as nearly as practical, full packages are utilized at one time. Spilled peroxide shall be promptly removed and disposed of lawfully.

[2009.6] 2909.6 Finished products. Finished products that are flammable or combustible liquids shall be stored outdoors, in a separate building, or in a room separate from the process area, in accordance with the construction codes, including the Building Code. The storage of finished products shall be in tanks or closed containers in accordance with FC Chapter [34] 57.

CHAPTER 30 INDUSTRIAL FURNACES

SECTION FC [2101] 3001 GENERAL

[2101.1] 3001.1 Scope. This chapter shall govern the design, installation, operation and maintenance of industrial furnaces used for commercial and industrial processing of materials.

[2101.2] 3001.2 Permits. Permits shall be required as set forth in FC105.6.

[2101.3] 3001.3 General. Industrial furnaces shall be designed, installed, operated and maintained in accordance with this chapter, NFPA 86, and the construction codes, including the Fuel Gas Code and the Mechanical Code.

SECTION FC [2102] 3002 DEFINITIONS

[2102.1] 3002.1 Definitions. The following words shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings [shown herein] set forth in FC202.

FURNACE. [A compartment, receptacle, enclosed chamber or structure that is capable of being heated to a high temperature in order to heat the contents thereof. Furnaces may be heated by internal or external sources, including gas burners, oil burners, electrical elements, infrared lamps, induction heaters and steam radiation systems, regardless of whether denominated as an oven or furnace. Furnaces shall be classified as follows:]

CLASS A. [A furnace that has heat utilization equipment operating at or near atmospheric pressure and that presents a

potential explosion or fire hazard if flammable volatiles or combustible materials are processed or heated in the furnace. Such flammable volatiles or combustible materials include those originating from paints, powders, inks, and adhesives from finishing processes, such as dipped, coated, sprayed and impregnated materials; the substrate material; wood, paper and plastic pallets, spacers or packaging materials; or polymerization or other molecular rearrangements.]

CLASS B. [A furnace that has heat utilization equipment operating at approximately atmospheric pressure wherein there are no flammable volatiles or combustible materials being heated.]

CLASS C. [A furnace with any type of heating system and a special atmosphere supply system that is potentially hazardous due to a flammable or other special atmosphere being used for treatment of material in process, including integral quench furnaces and molten salt bath furnaces.]

CLASS D. [A furnace with any type of heating system that operates at temperatures from above ambient to over 5,000°F (2760°C) and at pressures normally below atmospheric, including special processing atmosphere furnaces.]

SECTION FC [2103] 3003 LOCATION

[2103.1] 3003.1 Ventilation. Enclosed rooms, basements or other areas below grade containing industrial furnaces shall be provided with combustion air in accordance with the construction codes, including the Mechanical Code and the Fuel Gas Code, and with ventilation in accordance with the Mechanical Code.

[2103.2] 3003.2 Location. Industrial furnaces and heaters shall be located such that in the event of fire or explosion resulting from overheating or from the escape of fuel gas or fuel oil, damage to the building and injury to persons is minimized.

[2103.3] 3003.3 Ignition source. Industrial furnaces shall be located so as not to pose an ignition hazard to flammable vapors or mists or combustible dusts that may be present as a result of a manufacturing operation or other lawful use and occupancy of the building.

[2103.4] 3003.4 Temperatures. Roofs and floors of furnaces shall be insulated and ventilated to prevent temperatures at combustible ceilings and floors from exceeding 160°F (71°C).

SECTION FC [2104] 3004 FUEL PIPING

[2104.1] 3004.1 Fuel-gas piping. Fuel-gas piping serving industrial furnaces shall be designed and installed in accordance with the Fuel Gas Code. Piping for other fuel sources shall comply with the requirements of this section.

[2104.2] 3004.2 Shutoff valves. Each industrial furnace shall be provided with an approved manual fuel shutoff valve in accordance with the construction codes, including the Mechanical Code and the Fuel Gas Code.

[2104.2.1] 3004.2.1 Fuel supply lines. Valves for fuel supply lines shall be located within 6 feet (1829 mm) of the appliance served.

Exception: When approved and the valve is located in the same general area as the appliance served.

[2104.3] 3004.3 Valve position. The design of manual fuel shutoff valves shall incorporate a permanent feature that visually indicates the open or closed position of the valve. Manual fuel shutoff valves shall not be equipped with removable handles or wrenches unless the handle or wrench can only be installed parallel with the fuel line when the valve is in the open position.

SECTION FC [2105] 3005 INTERLOCKS

[2105.1] 3005.1 Shut down. Interlocks shall be provided for Class A furnaces so that conveyors or sources of flammable or combustible materials shall shut down if either the exhaust or recirculation air supply fails.

SECTION FC [2106] 3006
FIRE PROTECTION

[2106.1] 3006.1 Required protection. Class A and B furnaces that contain, or are utilized for the processing of, combustible materials shall be protected throughout by a fire extinguishing system complying with the requirements of FC Chapter 9.

[2106.2] 3006.2 Fixed fire extinguishing systems. A fixed fire extinguishing system shall be provided for Class C or D furnaces to protect against such hazards as overheating, spillage of molten salts or metals, quench tanks, ignition of hydraulic oil and escape of fuel.

[2106.3] 3006.3 Portable fire extinguishers. Portable fire extinguishers complying with the requirements of FC906 shall be provided not closer than 15 feet (4572 mm) or a maximum of 50 feet (15 240 mm) from each furnace or in accordance with NFPA 10.

SECTION FC [2107] 3007
OPERATION AND MAINTENANCE

[2107.1] 3007.1 Furnace operation and maintenance instructions. The furnace manufacturer's complete installation, inspection, testing, operation and maintenance instructions shall be available on the premises to those individuals responsible for the operation, maintenance and supervision of the furnace.

[2107.2] 3007.2 Furnace nameplate. The following data for Class A furnaces shall be furnished on the manufacturer's nameplate:

1. The solvent used.
2. The number of gallons (liters) used per batch or per hour of solvent entering the furnace.
3. The required purge time.
4. The oven operating temperature.
5. The exhaust blower rating for the number of gallons (liters) of solvent per hour or batch at the maximum operating temperature, or with regard to low-oxygen furnaces, the maximum allowable oxygen concentration.

[2107.3] 3007.3 Training. The operation and maintenance of furnaces shall be performed by a person knowledgeable and trained in the operation and maintenance of such furnaces.

[2107.4] 3007.4 Equipment maintenance. Equipment shall be maintained in accordance with the manufacturer's instructions.

CHAPTER 31
TENTS AND OTHER MEMBRANE STRUCTURES

SECTION FC [2401] 3101
GENERAL

[2401.1] 3101.1 Scope. This chapter shall govern membrane structures.

[2401.2] 3101.2 Permits. Permits shall be required as set forth in FC105.6.

SECTION FC [2402] 3102
DEFINITIONS

[2402.1] 3102.1 Definitions. The following terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings [shown herein] set forth in FC202.

AIR-INFLATED STRUCTURE. [A structure whose structural elements are inflated and maintained by elevated air pressure and are not occupiable spaces.]

AIR-SUPPORTED STRUCTURE. [A structure, the shape of which is attained and maintained by elevated air pressure, and the occupancy of which is within the area of elevated pressure.]

MEMBRANE STRUCTURE. [An air-inflated, air-supported, cable or frame-covered structure or tent, as defined in Chapter 31 of the Building Code.]

TENT. [A nonpressurized membrane structure of a fabric weather barrier supported by poles and guys in which the fabric weather barrier does not impart stability to the structure. Tents need not be fully enclosed on the sides.]

SECTION FC [2403] 3103 RESERVED

SECTION FC [2404] 3104 TENTS AND OTHER MEMBRANE STRUCTURES

[2404.1] 3104.1 General. All membrane structures shall be designed, installed, operated and maintained in accordance with this section and the construction codes, including the Building Code.

[2404.2] 3104.2 Flame-resistant treatment. The owner or agent shall file with the commissioner a certificate issued by an approved testing laboratory, certifying that the tent materials and their appurtenances, sidewalls, drops and tarpaulins, floor coverings, bunting, combustible decorative materials and effects, including sawdust when used on floors or passageways, are composed of flame-resistant material meeting the flame propagation performance criteria of NFPA 701 or shall be treated with a flame retardant in an approved manner and meet the flame propagation performance criteria of NFPA 701, and that such flame resistance is effective for the period specified by the permit.

[2404.2.1] 3104.2.1 Certification. An affidavit or affirmation shall be submitted to the commissioner and a copy retained on the premises on which the tent is located. The affidavit shall attest to the information required in FC Chapter 8 and the rules.

[2404.2.2] 3104.2.2 Label. Membrane structures shall have a label permanently affixed to them identifying the type and quality of the fabric or other material.

[2404.3] 3104.3 Location and access. Membrane structures shall be placed and afforded access for firefighting apparatus in accordance with this section.

[2404.3.1] 3104.3.1 Access. Fire apparatus access roads shall be provided in accordance with FC503 and the Building Code.

[2404.3.2] 3104.3.2 Location. Membrane structures shall not be located within 20 feet (6096 mm) of parked vehicles or internal combustion engines. For the purpose of determining required distances, support ropes and guy wires shall be considered as part of the membrane structure.

[2404.3.3] 3104.3.3 Fire break. An unobstructed fire break not less than 12 feet (3658 mm) wide and free from guy ropes or other obstructions shall be maintained on all sides of all membrane structures unless otherwise approved by the commissioner.

[2404.4] 3104.4 Means of egress. Means of egress for membrane structures shall be in accordance with this section and the construction codes, including the Building Code.

[2404.4.1] 3104.4.1 Seating arrangements. Seating in membrane structures shall be in accordance with the construction codes, including the Building Code.

[2404.4.2] 3104.4.2 Exit openings from tents. Exit openings from tents shall remain open unless covered by a flame-resistant curtain. The curtain shall comply with the following requirements:

1. Curtains shall be free sliding on a metal support. The support shall be a minimum of 80 inches (2032 mm) above the floor level at the exit. The curtains shall be so arranged that, when open, no part of the curtain obstructs the exit.
2. Curtains shall be of a color, or colors, that contrasts with the color of the tent.
3. Curtains shall be flame resistant in accordance with FC Chapter 8.

[2404.4.2.1] 3104.4.2.1 Door operation in air-supported structures. During high winds exceeding 50 miles per hour (80 kph) or in snow conditions, the use of doors in air-supported structures shall be controlled to avoid excessive air loss. Doors shall not be left open.

[2404.4.3] 3104.4.3 Aisle arrangement and maintenance. The arrangement of aisles shall be subject to the approval of the commissioner and shall be maintained clear at all times.

[2404.4.4] 3104.4.4 Maintenance of means of egress. The required width of exits, aisles and passageways to a public street shall be maintained at all times. Guy wires, guy ropes and other support members shall not cross a means of egress at a height of less than 8 feet (2438 mm). The surface of means of egress shall be maintained in an approved manner.

[2404.5] 3104.5 Combustible materials. Hay, straw, shavings or similar combustible materials shall not be located within any membrane structure containing an assembly occupancy, except the materials necessary for the daily feeding and care of animals. Sawdust and shavings utilized for a public performance or exhibit shall not be prohibited provided the sawdust and shavings are kept damp. Combustible materials shall not be allowed under stands or seats at any time.

[2404.6] 3104.6 Smoking. Smoking shall not be allowed in membrane structures. "No Smoking" signs complying with the requirements of FC310 shall be conspicuously posted.

[2404.7] 3104.7 Open or exposed flame. Open flame or other devices emitting flame, fire or heat or any flammable or combustible liquids, gas, charcoal or other cooking device or any other unapproved devices shall not be allowed inside or located within 20 feet (6096 mm) of a membrane structure while open to the public unless an open-flame permit has been issued.

[2404.8] 3104.8 Fireworks and special effects. Any fireworks or special effects displays in or near any membrane structure shall be conducted in accordance with FC Chapter [33] 56.

[2404.9] 3104.9 Spot lighting. Spot or effect lighting shall only be by electricity, and all combustible construction located within 6 feet (1829 mm) of such equipment shall be protected with approved noncombustible insulation not less than 9.25 inches (235 mm) thick.

[2404.10] 3104.10 Safety film. Motion pictures shall not be displayed in membrane structures unless the motion picture film is safety film.

[2404.11] 3104.11 Clearance. There shall be a minimum clearance of at least 3 feet (914 mm) between the surface of a membrane structure and all contents therein.

[2404.12] 3104.12 Portable fire extinguishers. Portable fire extinguishers shall be provided as required by FC906.

[2404.13] 3104.13 Fire protection equipment. Fire hose lines, water supplies and other auxiliary fire equipment shall be maintained at the site in such numbers and sizes as required by the commissioner.

[2404.14] 3104.14 Occupant load. The occupant load allowed in a membrane structure, shall be determined in accordance with the construction codes, including the Building Code.

[2404.15] 3104.15 Heating and cooking equipment. Heating and cooking equipment shall be in accordance with this section.

[2404.15.1] 3104.15.1 Installation. Heating or cooking equipment, tanks, piping, hoses, fittings, valves, tubing and other related components shall be installed as set forth in the construction codes, including the Mechanical Code and the Fuel Gas Code.

[2404.15.2] 3104.15.2 Venting. Gas, liquid and solid fuel-burning equipment designed to be vented shall be vented to the outdoors in accordance with the construction codes, including the Mechanical Code and the Fuel Gas Code. Such vents shall be equipped with approved spark arresters when required. Where vents or flues are used, all portions of the membrane structure shall be not less than 12 inches (305 mm) from the flue or vent.

[2404.15.3] 3104.15.3 Location. Cooking and heating equipment shall not be located within 10 feet (3048 mm) of exits or combustible materials.

[2404.15.4] 3104.15.4 Operations. Operations such as warming of foods, cooking demonstrations and similar operations that use solid flammables shall be approved by the commissioner.

[2404.15.5] 3104.15.5 Cooking. Membrane structures in which cooking is performed shall be separated from other membrane structures by a minimum of 20 feet (6096 mm).

[2404.15.6] 3104.15.6 Outdoor cooking. Outdoor cooking that produces sparks or grease-laden vapors shall not be performed within 20 feet (6096 mm) from a membrane structure.

[2404.15.7] 3104.15.7 Electrical heating and cooking equipment. Electrical cooking and heating equipment shall comply with the requirements of the Electrical Code.

[2404.16] 3104.16 LPG. The storage, handling and use of LPG and LPG equipment shall be in accordance with this section and FC Chapter [38] 61.

[2404.16.1] 3104.16.1 General. Stationary LPG installations, including tanks, piping, hoses, fittings, valves, tubing and other related components shall be approved and in accordance with FC Chapter [38] 61.

[2404.16.2] 3104.16.2 Location of containers. LPG containers shall be located outside the membrane structure. Pressure relief valves shall be pointed away from the membrane structure.

[2404.16.2.1] 3104.16.2.1 Containers. Portable LPG containers shall have a minimum separation between the container and structure of not less than 10 feet (3048 mm).

[2404.16.3] 3104.16.3 Protection from movement. Portable LPG containers, piping, valves and fittings which are being used to fuel LPG-fueled devices, equipment or systems inside a membrane structure shall be located outside the membrane structure and shall be secured from movement or other hazard.

[2404.17] 3104.17 Flammable and combustible liquids. The storage of flammable and combustible liquids and the use of flammable-liquid-fueled equipment shall be in accordance with this section.

[2404.17.1] 3104.17.1 Use. Flammable-liquid-fueled equipment shall not be used in membrane structures.

[2404.17.2] 3104.17.2 Flammable and combustible liquid storage. Flammable and combustible liquids shall be stored outside the membrane structure in an approved manner not less than 50 feet (15 240 mm) from the membrane structure. Storage shall be in accordance with FC Chapter [34] 57.

[2404.17.3] 3104.17.3 Refueling. Refueling shall be performed at an approved location not less than 20 feet (6096 mm) from membrane structures.

[2404.18] 3104.18 Display of liquid- and gas-fueled motor vehicles. Liquid- and gas-fueled vehicles and equipment may be displayed within a membrane structure in accordance with this section and FC Chapter 3.

[2404.18.1] 3104.18.1 Batteries. Batteries shall be disconnected in an appropriate manner.

[2404.18.2] 3104.18.2 Fuel systems. Vehicles or equipment shall not be fueled or defueled within the membrane structure.

[2404.18.2.1] 3104.18.2.1 Quantity limit. Fuel in the fuel tank shall not exceed 1 gallon (3.8 L).

[2404.18.2.2] 3104.18.2.2 Inspection. Fuel systems shall be inspected for leaks.

[2404.18.2.3] 3104.18.2.3 Closure. Fuel tank openings shall be locked and sealed to prevent the escape of vapors.

[2404.18.3] 3104.18.3 Location. The location of vehicles or equipment shall not obstruct means of egress.

[2404.18.4] 3104.18.4 Display of CNG/LPG vehicles. When a compressed natural gas (CNG) or liquefied petroleum gas (LPG) powered vehicle is parked inside a membrane structure, all of the following conditions shall be met:

1. The quarter-turn shutoff valve or other shutoff valve on the outlet of the CNG or LPG container shall be closed and the engine shall be operated until it stops. Valves shall remain closed while the vehicle is indoors.

2. The hot lead of the battery shall be disconnected.

3. Dual-fuel vehicles equipped to operate on gasoline and CNG or LPG shall comply with the requirements of this section and FC [2404.18] 3104.18 through [2404.18.3] 3104.18.3 for gasoline-powered vehicles.

[2404.18.5] 3104.18.5 Competitions and demonstrations. Liquid and gas-fueled vehicles and equipment used for competition or demonstration within a membrane structure shall comply with the requirements of [FC2404.18.5.1] 3104.18.5.1.

[2404.18.5.1] 3104.18.5.1 Fuel storage and dispensing. Fuel for vehicles or equipment shall be stored and dispensed in an approved location outside of the membrane structure in accordance with FC [2404.17.2] 3104.17.2 and [2404.17.3] 3104.17.3, and FC Chapter [22] 23.

[2404.19] 3104.19 Separation of generators. Generators and other internal combustion power sources shall be separated from membrane structures by a minimum of 20 feet (6096 mm) and shall be isolated from contact with the public by fencing, enclosure or other approved means.

[2404.20] 3104.20 Fire guards. When the interest of public safety so requires, the commissioner may order the owner of any membrane structure in which a performance, exhibition, display, contest or other activity is to be conducted to provide one or more fire guards or other qualified persons to remain on duty during the times such places are open to the public, or when such activity is being conducted. Persons conducting such fire watch shall have duties and responsibilities set forth in FC901.7.2.1 with respect to the areas being monitored in connection with such membrane structure, and shall assist in the evacuation of the occupants from the structure in the event of a fire or other emergency.

[2404.21] 3104.21 Vegetation removal. Vegetation shall be removed from the area occupied by a membrane structure, and from areas within 30 feet (9144 mm) of such structures.

[2404.22] 3104.22 Combustible waste and storage of combustible material. The floor surface inside membrane structures and the grounds within 30 feet (9144 mm) of the membrane structure shall be kept free of combustible waste and storage of combustible materials.

CHAPTER 32 HIGH-PILED COMBUSTIBLE STORAGE

SECTION FC [2301] 3201 GENERAL

[2301.1] 3201.1 Scope. This chapter shall govern high-piled combustible storage, and the design, installation, operation and maintenance of any building, structure or premises used for such purpose.

[2301.2] 3201.2 Permits. Permits shall be required as set forth in FC105.6.

[2301.3] 3201.3 Permit application. Applications for permits for high-piled combustible storage shall include design and installation documents that contain the following information, and such other information and documentation as the commissioner may prescribe:

1. Floor plan of the building showing locations and dimensions of high-piled storage areas.
2. Usable storage height for each storage area.
3. Number of tiers within each rack, if applicable.
4. Commodity clearance between top of storage and the sprinkler deflector for each storage arrangement.
5. Aisle dimensions between each storage array.
6. Maximum pile volume for each storage array.
7. Location and classification of commodities in accordance with [FC2303] FC3203.
8. Location of commodities that are banded or encapsulated.
9. Location of required fire department access doors.
10. Type of fire extinguishing and fire detection systems.
11. Location of valves controlling the water supply of ceiling and in-rack sprinklers.
12. Type, location and specifications of smoke removal and curtain board systems.
13. Dimension and location of transverse and longitudinal flue spaces.
14. Such other information, regarding design features, commodities, storage arrangement and fire protection features within the high-piled storage area, as may be required by the commissioner to ensure compliance with the requirements of this chapter.

[2301.3.1] 3201.3.1 Records. A copy of the permit application documents shall be maintained on the premises and made available for inspection by any department representative.

[2301.4] 3201.4 Egress plan. Where the area of the high-piled combustible storage requires a permit, the owner shall prepare and familiarize employees with an egress plan that indicates the location and width of aisles, exits, exit access doors, exit signs, height of storage and location of hazardous materials. Such plan shall be maintained in an approved location and shall be made available for inspection by any representative of the department.

Exception. Any high-piled combustible storage facility or area required to have an emergency preparedness plan pursuant to FC Chapter 4.

[2301.5] 3201.5 General. All buildings, structures and premises that contain high-piled combustible storage shall be designed, installed, operated and maintained in accordance with this chapter. In addition to the requirements of this chapter, the following material-specific requirements shall apply:

1. Aerosols shall be in accordance with FC Chapter [28] 51.

2. Flammable and combustible liquids shall be in accordance with FC Chapter [34] 57.
3. Hazardous materials shall be in accordance with FC Chapter [27] 50.
4. Storage of combustible paper records shall be in accordance with NFPA 13, as modified by FC Appendix B.
5. Storage of combustible fibers shall be in accordance with FC Chapter [29] 37.
6. Storage of miscellaneous combustible material shall be in accordance with FC Chapter 3.

SECTION FC [2302] 3202

DEFINITIONS

[2302.1] 3202.1 Definitions. The following terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings [shown herein] set forth in FC202.

ARRAY. [Each separate storage configuration, taking into consideration the type of packaging, flue spaces, height of storage and compactness of storage.]

ARRAY, CLOSED. [A storage configuration having a 6-inch (152-mm) or smaller width vertical flue space that restricts air movement through the stored commodity.]

AUTOMATED RACK STORAGE. [A method of stocking racks and retrieving stored products or pallets of products from racks, whereby the movement of products and pallets of products is controlled by computer or other automated means.]

BIN BOX. [A five-sided container with the open side facing an aisle. Bin boxes are self-supporting or supported by a structure designed so that little or no horizontal or vertical space exists around the boxes.]

COMMODITY. [Items in high-piled combustible storage, including products and product packaging.]

DRAFT CURTAIN. [A structure arranged to limit the spread of smoke and heat along the underside of the ceiling or roof.]

EARLY SUPPRESSION FAST-RESPONSE (ESFR) SPRINKLER. [A sprinkler listed for early suppression fast-response performance.]

ENCAPSULATION.

EXPANDED PLASTIC. [A foam or cellular plastic material having a reduced density based on the presence of numerous small cavities or cells dispersed throughout the material.]

EXTRA-HIGH-RACK COMBUSTIBLE STORAGE. [Storage on racks of Class I, II, III or IV commodities that exceed 40 feet (12 192 mm) in height and storage on racks of high-hazard commodities that exceed 30 feet (9144 mm) in height.]

FLUE SPACE, LONGITUDINAL.

FLUE SPACE, TRANSVERSE.

HIGH-PILED COMBUSTIBLE STORAGE. [Storage of combustible materials in closely packed piles or combustible materials on pallets, in racks or on shelves where the top of storage is greater than 12 feet (3658 mm) in height. High-piled combustible storage also includes certain high-hazard commodities, such as rubber tires, Group A plastics, flammable liquids, idle pallets and similar commodities, where the top of storage is greater than 6 feet (1829 mm) in height.]

HIGH-PILED STORAGE AREA. [An area within a building, structure or premises that is designed or used for high-piled combustible storage.]

[LONGITUDINAL FLUE SPACE. The flue space between rows of storage perpendicular to the direction of loading.]

MANUAL STOCKING METHODS. [Stocking methods utilizing ladders or other nonmechanical equipment to move stock.]

MECHANICAL STOCKING METHODS. [Stocking methods utilizing motorized vehicles or hydraulic jacks to move stock.]

RACK STORAGE. [Any storage system, except shelf storage.]

SHELF STORAGE. [Storage on shelves less than 30 inches (762 mm) deep with the distance between shelves not exceeding 3 feet (914 mm) vertically.]

SOLID SHELVING. [Shelving that is solid, slatted or of other construction located in racks and that obstructs sprinkler discharge down into the racks.]

[TRANSVERSE FLUE SPACE. The space between rows of storage parallel to the direction of loading.]

SECTION FC [2303] 3203

COMMODITY CLASSIFICATION

[2303.1] 3203.1 Classification of commodities. Commodities shall be classified as Class I, II, III, IV or high hazard in accordance with this section. Materials listed within each commodity classification are assumed to be unmodified for improved combustibility characteristics. Use of flame-retarding modifiers or the physical form of the material could change the classification. [See FC2303.7 for classification of] Group A, B and C [plastics] plastic commodities are classified in FC3203.7 and plastic shelving and pallets are addressed in FC3208.2.1.

[2303.2] 3203.2 Class I commodities. Class I commodities are essentially noncombustible products on wooden [or nonexpanded polyethylene solid deck] pallets, in ordinary corrugated cartons with or without single-thickness dividers, or in ordinary paper wrappings with or without pallets. Class I commodities are allowed to contain a limited amount of Group A plastics in accordance with [FC2303.7.4] FC3203.7.4. Examples of Class I commodities include the following:

- Alcoholic beverages not more than 20-percent alcohol
- Cement in bags
- Ceramics
- Dairy products in nonwax-coated containers (excluding bottles)
- Dry insecticides
- Electrical appliances, noncombustible
- Foods in noncombustible containers
- Fresh fruits and vegetables in nonplastic trays or containers
- Frozen foods
- Glass
- Glycol in metal cans
- Gypsum board
- Inert materials, bagged
- Insulation, noncombustible
- Liquids, noncombustible, in plastic containers having less than a 5-gallon (19 L) capacity
- Metal products, noncombustible

[2303.3] 3203.3 Class II commodities. Class II commodities are Class I products in slatted wooden crates, solid wooden boxes, multiple-thickness paperboard cartons or equivalent combustible packaging material with or without pallets. Class II commodities are allowed to contain a limited amount of Group A plastics in accordance with [FC2303.7.4] FC3203.7.4. Examples of Class II commodities include the following:

- Alcoholic beverages not more than 20-percent alcohol, in combustible containers
- Foods in combustible containers
- Incandescent or fluorescent light bulbs in cartons
- Thinly coated fine wire on reels or in cartons

[2303.4] 3203.4 Class III commodities. Class III commodities are commodities of wood, paper, natural fiber cloth, or

Group C plastics or products thereof, with or without pallets. Products are allowed to contain limited amounts of Group A or B plastics, such as metal bicycles with plastic handles, pedals, seats and tires. Group A plastics shall be limited in accordance with [FC2303.7.4] FC2303.7.4. Examples of Class III commodities include the following:

Aerosol, Level 1 (see FC Chapter [28] 51)
Combustible fiberboard
Cork, baled
Feed, bagged
Fertilizers, bagged
Food in plastic containers
Furniture: wood, natural fiber, upholstered, nonplastic, wood or metal with plastic-padded and covered arm rests
Glycol in combustible containers not more than 25 percent
Liquids, noncombustible, in plastic containers having a capacity of more than 5 gallons (19 L)
Lubricating or hydraulic fluid in metal cans
Lumber
Mattresses, excluding foam rubber and foam plastics
Paints, oil base, in metal cans
Paper, waste, baled
Paper and pulp, horizontal storage, or vertical storage that is banded or protected with approved wrap
Paper in cardboard boxes
Pillows, excluding foam rubber and foam plastics
Plastic-coated paper food containers
Plywood
Rags, baled
Rugs, without foam backing
Sugar, bagged
Wood, baled
Wood doors, frames and cabinets
Yarns of natural fiber and viscose

[2303.5] 3203.5 Class IV commodities. Class IV commodities are Class I, II or III products containing Group A plastics in ordinary corrugated cartons and Class I, II and III products, with Group A plastic packaging, with or without pallets. Group B plastics and free-flowing Group A plastics are also included in this class. The total amount of nonfree-flowing Group A plastics shall be in accordance with [FC2303.7.4] FC2303.7.4. Examples of Class IV commodities include the following:

Aerosol, Level 2 (see FC Chapter [28] 51)
Alcoholic beverages, more than 20-percent but less than 80-percent alcohol, in cans or bottles in cartons[.]
Clothing, synthetic or nonviscose
Combustible metal products (solid)
Furniture, plastic upholstered
Furniture, wood or metal with plastic covering and padding
Glycol in combustible containers (more than 25 percent and less than 50 percent)
Linoleum products
Paints, oil base in combustible containers
Pharmaceutical, alcoholic elixirs, tonics, etc.
Rugs, foam back
Shingles, asphalt
Thread or yarn, synthetic or nonviscose

[2303.6] 3203.6 High-hazard commodities. High-hazard commodities are high-hazard products presenting special fire hazards beyond those of Class I, II, III or IV. Group A plastics not otherwise classified are included in this class. Examples of high-hazard commodities include the following:

Aerosol, Level 3 (see FC Chapter [28] 51)
Alcoholic beverages, more than 80-percent alcohol, in bottles or cartons
Commodities of any class in plastic containers in carousel storage
Flammable solids (except solid combustible metals)

Glycol in combustible containers (50 percent or more)
Lacquers, which dry by solvent evaporation, in metal cans or cartons
Lubricating or hydraulic fluid in plastic containers
Mattresses, foam rubber or foam plastics
Pallets and flats which are idle combustible
Paper, asphalt, rolled, horizontal storage
Paper, asphalt, rolled, vertical storage
Paper and pulp, rolled, in vertical storage which is unbanded or not protected with an approved wrap
Pillows, foam rubber and foam plastics
Pyroxylin
Rubber tires
Vegetable oil and butter in plastic containers

[2303.7] 3203.7 Classification of plastics. Plastics shall be designated as Group A, B or C in accordance with this section.

[2303.7.1] 3203.7.1 Group A plastics. Group A plastics are plastic materials having a heat of combustion that is much higher than that of ordinary combustibles, and a burning rate higher than that of Group B plastics. Examples of Group A plastics include the following:

ABS (acrylonitrile-butadiene-styrene copolymer)
Acetal (polyformaldehyde)
Acrylic (polymethyl methacrylate)
Butyl rubber
EPDM (ethylene propylene rubber)
FRP (fiberglass-reinforced polyester)
Natural rubber (expanded)
Nitrile rubber (acrylonitrile butadiene rubber)
PET or PETE (polyethylene terephthalate)
Polybutadiene
Polycarbonate
Polyester elastomer
Polyethylene
Polypropylene
Polystyrene (expanded and unexpanded)
Polyurethane (expanded and unexpanded)
PVC (polyvinyl chloride more than 15 percent plasticized, e.g., coated fabric unsupported film)
SAN (styrene acrylonitrile)
SBR (styrene butadiene rubber)

[2303.7.2] 3203.7.2 Group B plastics. Group B plastics are plastic materials having a heat of combustion and a burning rate higher than that of ordinary combustibles, but not as high as those of Group A plastics. Examples of Group B plastics include the following:

Cellulosics (cellulose acetate, cellulose acetate butyrate, ethyl cellulose)
Chloroprene rubber
Fluoroplastics (ECTFE, ethylene-chlorotrifluoroethylene copolymer; ETFE, ethylene-tetrafluoroethylene copolymer; FEP, fluorinated ethylene-propylene copolymer)
Natural rubber (nonexpanded)
Nylon (Nylon 6, Nylon 6/6)
PVC (polyvinyl chloride more than 5-percent, but not more than 15-percent plasticized)
Silicone rubber

[2303.7.3] 3203.7.3 Group C plastics. Group C plastics are plastic materials having a heat of combustion and a burning rate similar to those of ordinary combustibles. Examples of Group C plastics include the following:

Fluoroplastics (PCTFE, polychlorotrifluoroethylene; PTFE, polytetrafluoroethylene)
Melamine (melamine formaldehyde)

Phenol

PVC (polyvinyl chloride, rigid or plasticized less than 5 percent, e.g., pipe, pipe fittings)

PVDC (polyvinylidene chloride)

PVDF (polyvinylidene fluoride)

PVF (polyvinyl fluoride)

Urea (urea formaldehyde)

[2303.7.4] 3203.7.4 Limited quantities of Group A plastics in mixed commodities. FC Figure [2303.7.4] 3203.7.4 shall be used to determine the quantity of Group A plastics allowed to be stored in a package or carton or on a pallet without increasing the commodity classification.

FC FIGURE 3203.7.4 MIXED COMMODITIESa, b

- a. This figure is intended to determine the commodity classification of a mixed commodity in a package, carton or on a pallet where plastics are involved.
- b. The following is an example of how to apply the figure: A package containing a Class III commodity has 12-percent Group A expanded plastic by volume. The weight of the unexpanded Group A plastic is 10 percent. This commodity is classified as a Class IV commodity. If the weight of the unexpanded plastic is increased to 14 percent, the classification changes to a high-hazard commodity.
- c. Percent by volume =
- d. Percent by weight =

SECTION FC [2304] 3204 DESIGNATION OF HIGH-PILED STORAGE AREAS

[2304.1] 3204.1 General. High-piled storage areas, and portions of high-piled storage areas for storage of a commodity class different from adjacent areas, shall be designed and specifically designated to contain Class I, Class II, Class III, Class IV or high-hazard commodities. The designation of a high-piled combustible storage area, or portion thereof intended for storage of a different commodity class, shall be based on the highest hazard commodity class stored except as provided in [FC2304.2] FC3204.2.

[2304.2] 3204.2 Designation based on engineering analysis. The designation of a high-piled combustible storage area, or portion thereof, is allowed to be based on a lower hazard class than that of the highest class of commodity stored when a limited quantity of the higher hazard commodity has been demonstrated by engineering analysis to be adequately protected by the sprinkler system provided. The engineering analysis shall consider the ability of the sprinkler system to deliver the higher density required by the higher hazard commodity. The higher density shall be based on the actual storage height of the pile or rack and the minimum allowable design area for sprinkler operation as set forth in the density/area figures provided in NFPA 13, as modified by FC Appendix B. The contiguous area occupied by the higher hazard commodity shall not exceed 120 square feet (11 m²), and additional areas of higher hazard commodity shall be separated from other such areas by 25 feet (7620 mm) or more. The sprinkler system shall be capable of delivering the higher density over a minimum area of 900 square feet (84 m²) for wet pipe systems and 1,200 square feet (111 m²) for dry pipe systems. The shape of the design area shall be in accordance with the construction codes, including the Building Code.

SECTION FC [2305] 3205 HOUSEKEEPING AND MAINTENANCE

[2305.1] 3205.1 Rack structures. The structural integrity of racks shall be maintained.

[2305.2] 3205.2 Ignition sources. Clearance from ignition sources shall be provided in accordance with FC305.

[2305.3] 3205.3 Smoking. Smoking is prohibited in high-piled storage areas. "No Smoking" signs complying with the

requirements of FC310 shall be conspicuously posted in such areas.

[2305.4] 3205.4 Aisle maintenance. When restocking is not being conducted, aisles shall be kept clear of stored or waste material. Fire department access doors, aisles and exit doors shall not be obstructed. During restocking operations using manual stocking methods, a minimum unobstructed aisle width of 24 inches (610 mm) shall be maintained in 48-inch (1219-mm) or smaller aisles, and a minimum unobstructed aisle width of one-half of the required aisle width shall be maintained in aisles greater than 48 inches (1219 mm). During mechanical stocking operations, a minimum unobstructed aisle width of 44 inches (1118 mm) shall be maintained in accordance with [FC2306.9] FC3206.9.

[2305.5] 3205.5 Pile dimension and height limitations. Pile dimensions and height limitations shall comply with the requirements of [FC2307.3] FC3207.3.

[2305.6] 3205.6 Arrays. Arrays shall comply with the requirements of [FC2307.4] FC3207.4.

[2305.7] 3205.7 Flue spaces. Flue spaces shall comply with the requirements of [FC2308.3] FC3208.3.

SECTION FC [2306] 3206

GENERAL FIRE PROTECTION AND LIFE SAFETY FEATURES

[2306.1] 3206.1 General. Fire protection and life safety features for high-piled storage areas shall be in accordance with this section.

[2306.2] 3206.2 Extent and type of protection. Where required by FC Table [2306.2] 3206.2, fire detection systems, smoke and heat removal, draft curtains and sprinkler design densities shall extend the lesser of 15 feet (4572 mm) beyond the high-piled storage area or to a permanent partition. Where portions of high-piled storage areas have different fire protection requirements because of commodity, method of storage or storage height, the fire protection features required by FC Table [2306.2] 3206.2 within this area shall be based on the most restrictive design requirements.

[2306.3] 3206.3 Separation of high-piled storage areas. High-piled storage areas shall be separated from other portions of the building where required by FC [2306.3.1] 3206.3.1 through [2306.3.2.2] 3206.3.2.2.

[2306.3.1] 3206.3.1 Separation from other uses. Mixed occupancies shall be separated in accordance with the construction codes, including the Building Code.

[2306.3.2] 3206.3.2 Multiple high-piled storage areas. Multiple high-piled storage areas shall be designed and installed in accordance with FC [2306.3.2.1] 3206.3.2.1 or [2306.3.2.2] 3206.3.2.2.

[2306.3.2.1] 3206.3.2.1 Aggregate area. The aggregate of all high-piled storage areas within a building shall be used for application of FC Table [2306.2] 3206.2 unless such areas are separated from each other by 1-hour fire-resistance-rated fire barrier walls constructed in accordance with the construction codes, including the Building Code. Openings in such walls shall be protected by opening protective assemblies having a 1-hour fire protection rating.

[2306.3.2.2] 3206.3.2.2 Multiclass high-piled storage areas. High-piled storage areas classified as Class I through Class IV not separated from high-piled storage areas classified as high hazard shall utilize the aggregate of all high-piled storage areas as high hazard for purposes of application of FC Table [2306.2] 3206.2. To be considered as separated, 1-hour fire-resistance-rated fire barrier walls shall be constructed in accordance with the construction codes, including the Building Code. Openings in such walls shall be protected by opening protective assemblies having a 1-hour fire protection rating.

Exception: As provided for in [FC2304.2] FC3204.2. [

FIGURE 2303.7.4

MIXED COMMODITIESa, b

a. This figure is intended to determine the commodity classification of a mixed commodity in a package, carton or on a pallet where plastics are involved.

b. The following is an example of how to apply the figure: A package containing a Class III commodity has 12-percent Group A expanded plastic by volume. The weight of the unexpanded Group A plastic is 10 percent. This commodity is classified as a Class IV commodity. If the weight of the unexpanded plastic is increased to 14 percent, the classification changes to a high-hazard commodity.

c. Percent by volume =

d. Percent by weight =]

FC TABLE [2306.2] 3206.2

GENERAL FIRE PROTECTION AND LIFE SAFETY REQUIREMENTS

COMMODITY CLASS

SIZE OF HIGH-PILED STORAGE AREA^a

(square feet)

(see FC [2306.2] 3206.2 and [2306.4] 3206.4)

ALL STORAGE AREAS

(See FC [2306] 3206, [2307] 3207 and [2308] 3208)^b

SOLID-PILED STORAGE, SHELF

STORAGE AND PALLETIZED STORAGE

(see [FC2307.3] FC3207.3)

Automatic

fire-extinguish

ing system

(see [FC2306.4] FC3206.4)

Fire

detection

system

(see

[FC2306.5] FC3206.5)

Building

Access

(see

[FC2306.6] FC3206.6)

Smoke and

heat removal

(see

[FC2306.7] FC3206.7)

Draft

curtains

(see

[FC2306.7] FC3206.7)

Maximum pile

dimension^c

(feet)

Maximum

permissible

storage

height^d

(feet)

Maximum

pile volume

(cubic feet)

I-IV

0-500

Not

Requireda
Not
Required
Not
Requirede
Not
Required
Not
Required
Not
Required
Not
Required
Not
Required

501-2,500
Not
Requireda
Yesi
Not
Requirede
Not
Required
Not
Required
100
40
100,000

2,501-12,000
Public accessible
Yes
Not
Required
Not
Requirede
Not
Required
Not
Required
100
40
400,000

2,501-12,000
Nonpublic accessible
(Option 1)
Yes
Not
Required
Not
Requirede
Not
Required
Not
Required

100
40
400,000

2,501-12,000
Nonpublic accessible
(Option 2)
Not
Requireda
Yes
Yes
Yesj
Yesj
100
30f
200,000

12,001-20,000
Yes
Not
Required
Yes
Yesj
Not
Required
100
40
400,000

20,001-500,000
Yes
Not
Required
Yes
Yesj
Not
Required
100
40
400,000

Greater than
500,000g
Yes
Not
Required
Yes
Yesj
Not
Required
100
40
400,000
High
hazard
0-500
Not

Requireda
Not
Required
Not
Requirede
Not
Required
Not
Required
50
Not
Required
Not
Required

501-2,500
Public accessible
Yes
Not
Required
Not
Requirede
Not
Required
Not
Required
50
30
75,000

501-2,500
Nonpublic accessible
(Option 1)
Yes
Not
Required
Not
Requirede
Not
Required
Not
Required
50
30
75,000

501-2,500
Nonpublic accessible
(Option 2)
Not
Requireda
Yes
Yes
Yesj
Yesj
50
20

50,000

2,501-300,000

Yes

Not

Required

Yes

Yesj

Not

Required

50

30

75,000

300,001-500,000g, h

Yes

Not

Required

Yes

Yesj

Not

Required

50

30

75,000

For SI: 1 foot = 304.8 mm, 1 cubic foot = 0.02832 m³, 1 square foot = 0.0929 m².

a. When sprinkler systems are required for reasons other than those in FC Chapter [23] 32, the portion of the sprinkler system protecting the high-piled storage area shall be designed and installed in accordance with FC [2307] 3207 and [2308] 3208.

b. For aisles, see [FC2306.9] FC3206.9.

c. Piles shall be separated by aisles complying with the requirements of [FC2306.9] FC3206.9.

d. For storage in excess of the height indicated, special fire protection shall be provided in accordance with Note g when required by the commissioner. See also FC Chapters [28] 51 and [34] 57 for special limitations for aerosols and flammable and combustible liquids.

e. FC503 shall apply for fire apparatus access.

f. For storage exceeding 30 feet in height, Option 1 shall be used.

g. Special fire protection provisions including fire protection of exposed steel columns; increased sprinkler density; additional in-rack sprinklers, without associated reductions in ceiling sprinkler density; or additional fire department hose connections shall be provided when required by the commissioner.

h. High-piled storage areas shall not exceed 500,000 square feet. A 2-hour fire wall constructed in accordance with the construction codes, including the Building Code shall be used to divide high-piled storage exceeding 500,000 square feet in area.

i. Not required when a fire extinguishing system is designed and installed to protect the high-piled storage area in accordance with FC [2307] 3207 and [2308] 3208.

j. Not required when storage areas are protected throughout by early suppression fast response (ESFR) sprinkler systems installed in accordance with NFPA 13, as modified by FC Appendix B.

[2306.4] 3206.4 Sprinkler systems. Sprinkler systems shall be provided in accordance with FC [2307] 3207, [2308] 3208 and [2309] 3209.

[2306.5] 3206.5 Fire detection. Where fire detection is required by FC Table [2306.2] 3206.2, an approved automatic fire detection system shall be installed throughout the high-piled storage area. The system shall be monitored and be in accordance with FC907.

[2306.6] 3206.6 Building access. Where building access is required by FC Table [2306.2] 3206.2, fire apparatus access roads in accordance with FC503 shall be provided within

150 feet (45 720 mm) of all portions of the exterior walls of buildings used for high-piled storage.

Exception: Where fire apparatus access roads cannot be installed because of topography, railways, waterways, non-negotiable grades or other similar conditions, the commissioner may require additional fire protection.

[2306.6.1] 3206.6.1 Access doors. Where building access is required by FC Table [2306.2] 3206.2, fire department access doors shall be provided in accordance with this section. Access doors shall be accessible without the use of a ladder.

[2306.6.1.1] 3206.6.1.1 Number of doors required. A minimum of one access door shall be provided in each 100 lineal feet (30 480 mm), or fraction thereof, of the exterior walls which face required fire apparatus access roads. The required access doors shall be distributed such that the lineal distance between adjacent access doors does not exceed 100 feet (30 480 mm).

[2306.6.1.2] 3206.6.1.2 Door size and type. Access doors shall not be less than 3 feet (914 mm) in width and 6 feet 8 inches (2032 mm) in height. Roll-up doors shall not be used unless approved.

[2306.6.1.3] 3206.6.1.3 Locking devices. Only approved locking devices shall be used.

[2306.7] 3206.7 Smoke and heat removal. Where smoke and heat removal are required by FC Table [2306.2] 3206.2, smoke and heat vents shall be provided in accordance with the construction codes, including the Building Code. Where draft curtains are required by FC Table [2306.2] 3206.2, they shall be provided in accordance with the construction codes, including the Building Code.

[2306.8] 3206.8 Fire department hose connections. Where exit passageways are required by the construction codes, including the Building Code for egress, a Class I standpipe system shall be provided in accordance with the construction codes, including the Building Code.

[2306.9] 3206.9 Aisles. Aisles providing access to exits and fire department access doors shall be provided in high-piled storage areas exceeding 500 square feet (46 m²), in accordance with FC [2306.9.1] 3206.9.1 through [2306.9.3] 3206.9.3. Aisles separating storage piles or racks shall comply with the requirements of NFPA 13, as modified by FC Appendix B. Aisles shall also comply with the requirements of the construction codes, including the Building Code.

Exception: Where aisles are precluded by rack storage systems, alternate methods of access and protection are allowed when approved.

[2306.9.1] 3206.9.1 Width. Aisle width shall be in accordance with FC [2306.9.1.1] 3206.9.1.1 and [2306.9.1.2] 3206.9.1.2.

Exceptions:

1. Aisles crossing rack structures or storage piles, which are used only for employee access between aisles shall be a minimum of 24 inches (610 mm) wide.

2. Aisles separating shelves classified as shelf storage shall be a minimum of 30 inches (762 mm) wide.

[2306.9.1.1] 3206.9.1.1 Sprinklered buildings. Aisles in buildings protected throughout by a sprinkler system shall be a minimum of 44 inches (1118 mm) wide. Aisles shall be a minimum of 96 inches (2438 mm) wide in high-piled storage areas that exceed 2,500 square feet (232 m²) in area, and that are accessible to the public and designated to contain high-hazard commodities.

Exception: Aisles in high-piled storage areas exceeding 2,500 square feet (232 m²) in area, that are accessible to the public and designated to contain high-hazard commodities, and that are protected throughout by a sprinkler system designed for multiple-row racks of high-hazard commodities, shall be a minimum of 44 inches (1118 mm) wide.

Aisles shall be a minimum of 96 inches (2438 mm) wide in areas accessible to the public where mechanical stocking methods are used.

[2306.9.1.2] 3206.9.1.2 Nonsprinklered buildings. Aisles in buildings not protected throughout by a sprinkler system shall be a minimum of 96 inches (2438 mm) wide.

[2306.9.2] 3206.9.2 Clear height. The required aisle width shall extend from floor to ceiling. Rack structural supports and catwalks are allowed to cross aisles at a minimum height of 6 feet 8 inches (2032 mm) above the finished floor level, provided that such supports do not interfere with fire department hose stream trajectory.

[2306.9.3] 3206.9.3 Dead ends. Dead-end aisles shall be in accordance with the construction codes, including the Building Code.

[2306.10] 3206.10 Portable fire extinguishers. Portable fire extinguishers shall be provided in accordance with FC906.

SECTION FC [2307] 3207 SOLID-PILED AND SHELF STORAGE

[2307.1] 3207.1 General. Shelf storage and storage in solid piles, solid piles on pallets and bin box storage in bin boxes not exceeding 5 feet (1524 mm) in any dimension, shall be designed and maintained in accordance with [FC2306] FC3206 and this section.

[2307.2] 3207.2 Fire protection. Where sprinkler systems are required for solid-piled and shelf storage pursuant to FC Table [2306.2] 3206.2, a sprinkler system shall be provided in any area containing such storage that is enclosed in 1-hour fire-rated walls in accordance with the Building Code, or, if such storage is not enclosed within such fire-rated walls, throughout the building. Openings in such walls shall be protected by opening protective assemblies having 1-hour fire protection ratings. The design and installation of the sprinkler system and other applicable fire protection shall be in accordance with this code, the construction codes, including the Building Code, and NFPA 13, as modified by FC Appendix B.

[2307.2.1] 3207.2.1 Shelf storage. Shelf storage greater than 12 feet (3658 mm) but less than 15 feet (4572 mm) in height shall be in accordance with the fire protection requirements set forth in NFPA 13, as modified by FC Appendix B. Shelf storage 15 feet (4572 mm) or more in height shall be protected in an approved manner with special fire protection, such as in-rack sprinklers.

[2307.3] 3207.3 Pile dimension and height limitations. Pile dimensions, the maximum permissible storage height and pile volume shall be in accordance with FC Table [2306.2] 3206.2.

[2307.4] 3207.4 Array. Where a sprinkler system design utilizes protection based on a closed array, array clearances shall be provided and maintained as specified by the standard used.

SECTION FC [2308] 3208 RACK STORAGE

[2308.1] 3208.1 General. Rack storage shall be designed and maintained in accordance with [FC2306] FC3206 and this section. Bin boxes exceeding 5 feet (1524 mm) in any dimension shall be regulated as rack storage.

[2308.2] 3208.2 Fire protection. Where a sprinkler system is required for rack storage pursuant to FC Table [2306.2] 3206.2, a sprinkler system shall be provided in any area containing such storage that is enclosed in 1-hour fire-rated walls in accordance with the Building Code, or, if such storage is not enclosed within such fire-rated walls, throughout the building. Openings in such walls shall be protected by opening protective assemblies having 1-hour fire protection ratings. The design and installation of the sprinkler system and other applicable fire protection shall be in accordance with this code, the construction codes, including the Building Code, and NFPA 13, as modified by FC Appendix B.

[2308.2.1] 3208.2.1 Plastic pallets and shelves. Storage on plastic pallets or plastic shelves shall be protected by approved specially-engineered fire protection systems, except that plastic pallets listed and labeled in accordance with UL 2335 or FM 4996 shall be treated as wood pallets for determining required sprinkler protection.

[2308.2.2] 3208.2.2 Racks with solid shelving. Racks with solid shelving having an area greater than 32 square feet (3

m2), measured between approved flue spaces at all four edges of the shelf, shall be in accordance with this section.

Exceptions:

1. Racks with mesh, grated, slatted or similar shelves having uniform openings not more than 6 inches (152 mm) apart, comprising at least 50 percent of overall shelf area, and with approved flue spaces, are allowed to be treated as racks without solid shelves.

2. Racks used for the storage of combustible paper records, with solid shelving, shall be in accordance with NFPA 13, as modified by FC Appendix B.

[2308.2.2.1] 3208.2.2.1 Fire protection. Fire protection for racks with solid shelving shall be in accordance with NFPA 13, as modified by FC Appendix B.

FC TABLE [2308.3] 3208.3
REQUIRED FLUE SPACES FOR RACK STORAGE
RACK
CONFIGURATION
SPRINKLER
PROTECTION
SPRINKLER AT THE CEILING WITH OR WITHOUT
MINIMUM IN-RACK SPRINKLERS
IN-RACK
SPRINKLERS AT
EVERY TIER
NONSPRINKLERED

=?25 feet
??25 feet
Any height
Any height

Storage height
Option 1
Option 2

Single-row rack
Transverse
flue space
Sizeb
3 inches
Not Applicable
3 inches
Not Required
Not Required

Vertically aligned
Not Required
Not Applicable
Yes
Not Applicable
Not Required

Longitudinal flue space

Not Required

Not Applicable

Not Required

Not Required

Not Required

Double-row rack

Transverse

flue space

Size^b

6 inches^a

3 inches

3 inches

Not Required

Not Required

Vertically aligned

Not Required

Not Required

Yes

Not Applicable

Not Required

Longitudinal flue space

Not Required

6 inches

6 inches

Not Required

Not Required

Multi-row rack

Transverse

flue space

Size^b

6 inches

Not Applicable

6 inches

Not Required

Not Required

Vertically aligned

Not Required

Not Applicable

Yes

Not Applicable

Not Required

Longitudinal flue space

Not Required

Not Applicable

Not Required

Not Required

Not Required

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

a. Three-inch transverse flue spaces shall be provided at least every 10 feet where ESFR sprinkler protection is provided.

b. Random variations are allowed, provided that the configuration does not obstruct water penetration.

[2308.3] 3208.3 Flue spaces. Flue spaces shall be provided in accordance with FC Table [2308.3] 3208.3. Required flue spaces shall be maintained. When the flue spaces are not being maintained, the department may require the installation of approved devices to protect the flue spaces by preventing the placement or storage of obstructing materials in such spaces. Such protective devices shall not be removed or modified without department approval.

[2308.4] 3208.4 Column protection. Steel building columns shall be protected in accordance with NFPA 13, as modified by FC Appendix B.

[2308.5] 3208.5 Extra-high-rack storage systems. Approval of the commissioner shall be obtained prior to installing extra-high-rack combustible storage.

[2308.5.1] 3208.5.1 Fire protection. Buildings with extra-high-rack combustible storage shall be protected with a specially engineered sprinkler system. Extra-high-rack combustible storage shall be provided with additional special fire protection, such as separation from other buildings and additional built-in fire protection features and fire department access, when required by the commissioner.

SECTION FC [2309] 3209 AUTOMATED STORAGE

[2309.1] 3209.1 General. Automated storage shall be designed and maintained in accordance with this section.

[2309.2] 3209.2 Sprinkler systems. Where a sprinkler system is required by FC Table [2306.2] 3206.2, a sprinkler system shall be installed throughout the building. The design and installation of such system shall be in accordance with this code and the construction codes, including the Building Code.

[2309.3] 3209.3 Carousel storage. High-piled storage areas having greater than 500 square feet (46 m²) of carousel storage shall be provided with automatic shutdown in accordance with one of the following:

1. An automatic smoke detection system installed in accordance with the construction codes, including the Building Code, with coverage extending 15 feet ([4575] 4572 mm) in all directions beyond unenclosed carousel storage systems and which sounds a local alarm at the operator's station and stops the carousel storage system upon the activation of a single detector.

2. An automatic smoke detection system installed in accordance with the construction codes, including the Building Code and within enclosed carousel storage systems, that sounds a local alarm at the operator's station and stops the carousel storage system upon the activation of a single detector.

3. A single dead-man-type control switch that allows the operation of the carousel storage system only when the operator is present. The switch shall be in the same room as the carousel storage system and located to allow for observation of the carousel system.

[2309.4] 3209.4 Automated rack storage. High-piled storage areas with automated rack storage shall be provided with a manually activated emergency shutdown switch for use by firefighters and other emergency response personnel. The switch shall be clearly marked and shall be located at the fire command center. In buildings without a fire command center, such switch shall be located in a conspicuous, readily accessible location near the entrance to the building, occupancy or area containing the automated rack storage, or other approved location.

SECTION FC [2310] 3210 RECORD STORAGE

[2310.1] 3210.1 General. Records storage facilities used for the rack or shelf storage of combustible paper records greater than 12 feet (3658 mm) in height shall be designed, installed, operated and maintained in accordance with FC [2306] 3206 and [2308] 3208 and NFPA 13, as modified by FC Appendix B. Palletized storage of records shall be designed, installed, operated and maintained in accordance with [FC2307] FC3207.

CHAPTER 33
FIRE SAFETY DURING CONSTRUCTION, ALTERATION AND DEMOLITION

SECTION FC [1401] 3301
GENERAL

[1401.1] 3301.1 Scope. This chapter shall govern fire safety measures during the construction, alteration, or demolition of buildings, structures, premises and facilities.

[1401.2] 3301.2 General. Buildings, structures, premises and facilities undergoing construction, alteration or demolition shall comply with the fire safety measures set forth in this chapter, and shall additionally comply with the requirements of NFPA 241 as to measures not specifically addressed herein.

[1401.3] 3301.3 Permits. Permits shall be required as set forth in FC105.6.

[1401.4] 3301.4 Prohibitions. It shall be unlawful at a construction site to store, handle or use portable fueled space heating devices or equipment[.].

[1. For purposes of human comfort or any other purpose other than construction-related curing and drying.

2. Utilizing a flammable liquid as a fuel.] Exception: Portable space heating devices may be used for construction-related curing and drying in accordance with FC3303.

SECTION FC [1402] 3302
DEFINITIONS

[1402.1] 3302.1 Definitions. The following term shall, for the purposes of this chapter and as used elsewhere in this code, have the meaning [shown herein] set forth in FC202.

CONSTRUCTION SITE. [Any location at which a building, structure, premises or facility is undergoing construction, alteration or demolition.]

SECTION FC [1403] 3303
PORTABLE FUELED SPACE HEATERS

[1403.1] 3303.1 Design. Portable fueled space heaters shall be designed, listed and labeled in accordance with the construction codes, including the Mechanical Code and the Fuel Gas Code, this code, and standards promulgated by the commissioner by rule, as applicable. Portable fueled space heaters shall be installed, operated and maintained in accordance with this chapter, the terms of the listing, and manufacturer's specifications.

[1403.2] 3303.2 Portable oil-fueled heaters. Portable oil-fueled space heaters may be stored, handled and used at construction sites for construction-related curing and drying purposes during the heating season beginning on October 15 and ending on May 30 of the following year, and at such other times of year as may be authorized by permit. Such heaters shall be stored, handled and used in accordance with this code and the rules.

[1403.3] 3303.3 Portable gas-fueled heaters. Portable gas-fueled space heaters utilizing liquefied petroleum gas (LPG), compressed natural gas (CNG) and piped natural gas may be stored, handled and used at construction sites for construction-related curing and drying purposes during the heating season beginning on October 15 and ending on May 30 of the following year, and at such other times of year as may be authorized by permit. Such heaters shall be stored, handled and used in accordance with this code and the rules.

[1403.4] 3303.4 Refueling. Refueling operations shall be conducted in accordance with [FC3405] FC5705. Portable fueled space heaters shall be shut down and cool to the touch before refueling.

[1403.5] 3303.5 Installation. Clearance to combustibles from portable fueled space heaters shall be maintained in accordance with the manufacturer's specifications. When in operation, portable fueled space heaters shall be fixed in place and protected from overturning, movement or damage in accordance with the manufacturer's specifications.

[1403.5.1] 3303.5.1 Protection of heating element. The heating element or combustion chamber shall have a permanent device to prevent accidental contact by persons or material.

[1403.6] 3303.6 Supervision. The handling and use of portable fueled space heaters shall be under the personal supervision of a person holding a certificate of fitness. The storage of portable fueled space heaters, and the fuel therefore, shall be under the general supervision of a certificate of fitness holder.

SECTION FC [1404] 3304 PRECAUTIONS AGAINST FIRE

[1404.1] 3304.1 Smoking prohibited. Smoking is prohibited at all construction sites.

[1404.1.1] 3304.1.1 Areas affected. At construction sites required by the Building Code to be enclosed with a fence, including buildings under construction or demolition, smoking shall be prohibited within the area enclosed by such fence, including in construction trailers and other indoor or outdoor areas. At construction sites not required by the Building Code to be enclosed with a fence, including existing buildings undergoing interior alterations, smoking shall be prohibited in those areas of the building in which work is to be conducted under the work permit issued by the Department of Buildings.

[1404.1.2] 3304.1.2 Signage. "No Smoking" signs complying with FC310 shall be conspicuously posted at construction sites at the following locations[and such other locations as are necessary to provide notice to a person entering upon or working at the site of the prohibition against smoking]:

1. at construction sites required by the Building Code to be enclosed with a fence, on all sliding and swinging gate openings, and any other openings allowing for access to the site by persons or vehicles;
2. at the entrances to any building or structure under construction or demolition;
3. on each floor at stairway, elevator and hoistway access points of any building undergoing alteration, construction or demolition; [and]
4. at any indoor or outdoor areas on the construction site at which persons congregate[.]; and
5. at such other locations as are necessary to provide notice to a person entering upon or working at the site of the prohibition against smoking.

[1404.2] 3304.2 Waste disposal. Combustible waste, including rubbish and construction and demolition material, shall not be allowed to accumulate within buildings and shall be removed from a building at least once a day. Accumulations of combustible waste not stored in containers in accordance with FC304.3 and in a manner that obstructs movement on the floor, or containing flammable or combustible liquid residues, shall be removed from a building at the end of each work shift. Combustible waste, including rubbish and construction and demolition material, shall be removed from the premises or stored in noncombustible containers.

[1404.3] 3304.3 Open fires. It shall be unlawful to ignite or maintain an open fire at a construction site, except for the use of coke-fueled salamanders in accordance with FC 307.1 and 307.6, and the rules.

[1404.4] 3304.4 Spontaneous ignition. Materials susceptible to spontaneous ignition, such as oily rags, shall be stored in a container listed for such use.

[1404.5] 3304.5 Fire watch. The commissioner may require, at a demolition site, and at other construction sites that are unusually hazardous in nature, that a fire watch be maintained by fire guards. The fire guards conducting such fire watch shall have the duties and responsibilities set forth in FC901.7.2.1.

[1404.6] 3304.6 Cutting and welding. Operations involving the use of cutting and welding shall be performed in accordance with FC Chapter [26] 35.

[1404.7] 3304.7 Electrical. Temporary wiring for electrical power and lighting installations at construction sites shall

comply with the requirements of the Electrical Code.

[1404.8] 3304.8 Fire-resistance-rated construction. Fire walls, fire barriers, and spray-on fire protection of structural members required by the Building Code for the completed building, shall be given construction priority. Required fire doors, with automatic closing devices, shall be installed on openings as soon as practicable. Required fire walls, fire barriers and fire doors shall be left in place in buildings undergoing alteration or demolition until construction operations necessitate their removal.

SECTION FC [1405] 3305 FLAMMABLE AND COMBUSTIBLE LIQUIDS

[1405.1] 3305.1 Storage, handling and use of flammable and combustible liquids. Storage, handling and use of flammable and combustible liquids shall be in accordance with FC [3406.2] 5706.2 and such other provisions of FC Chapter [34] 57 as may be applicable to the specific construction site material or operation.

[1405.2] 3305.2 Ventilation. Adequate ventilation shall be provided for operations involving the application of materials containing flammable solvents.

[1405.3] 3305.3 Housekeeping. Flammable and combustible liquid storage areas shall be maintained clear of vegetation and combustible waste. Such storage areas shall not be used for the storage of combustible materials.

[1405.4] 3305.4 Precautions against fire. Sources of ignition and smoking shall be prohibited in flammable and combustible liquid storage areas. "No Smoking" signs in compliance with the requirements of FC310 shall be conspicuously posted.

[1405.5] 3305.5 Handling at point of final use. Class I and II liquids shall be stored in approved safety containers.

[1405.6] 3305.6 Leakage and spills. Leaking containers shall be immediately repaired or taken out of service. Spills shall be cleaned up immediately and all liquid and waste material disposed of lawfully.

SECTION FC [1406] 3306 FLAMMABLE GASES AND OXYGEN

[1406.1] 3306.1 Flammable gases. The storage, handling and use of flammable gases shall comply with the requirements of FC Chapters [26] 35, [35] 58, and [38] 61, as applicable.

3306.1.1 Cleaning and purging of flammable gas piping systems. The cleaning and purging of flammable gas piping systems, including the cleaning and purging of such systems prior to placing them in service or removing them from service, shall be conducted in accordance with NFPA 56.

Exceptions:

1. Compressed gas piping systems subject to the requirements of Chapter 53, other than fuel gas piping systems.
2. Piping systems regulated by the Fuel Gas Code.
3. LPG systems subject to the requirements of Chapter 61.

3306.1.1.1 Prohibition. It shall be unlawful to use a flammable gas to remove debris from or otherwise clean piping open to the atmosphere.

[1406.2] 3306.2 Oxygen. The storage, handling and use of oxygen shall comply with the requirements of FC [1406.2.1] 3306.2.1 through [1406.2.3] 3306.2.3, and FC Chapters [26] 35 and [30] 53, as applicable.

[1406.2.1] 3306.2.1 Portable liquid oxygen containers. The storage, handling and use of portable liquid oxygen containers shall be in accordance with FC [1406.2.1.1] 3306.2.1.1 through [1406.2.1.9] 3306.2.1.9.

[1406.2.1.1] 3306.2.1.1 Design and installation documents. A sketch showing the following information shall be submitted

to the department for approval in connection with an application for a permit for oxygen storage:

1. Number and size of containers.
2. Enclosure, manifold and service piping construction.
3. Location of risers and outlets.
4. Location of all equipment and devices including vaporizers, valves and safety relief devices.

[1406.2.1.2] 3306.2.1.2 Indoor storage restrictions. Not more than one liquid oxygen container having a maximum water capacity of 6.2 cubic feet (0.176 m³) may be stored indoors. Such container shall be connected for use with a flammable gas. Storage in excess of one liquid oxygen container shall be located outdoors.

[1406.2.1.3] 3306.2.1.3 Ventilation. The room used for the storage, handling and use of a liquid oxygen container shall be equipped with ventilation direct to the outdoors, and shall not contain any combustible material or flammable gas.

[1406.2.1.4] 3306.2.1.4 Manifolds and vaporizers. Manifolds and vaporizers shall be constructed of materials suitable for oxygen service at a pressure of 250 psig (1724 kPa). Such manifolds and vaporizers shall have a minimum bursting pressure of 1,000 psig (6895 kPa) and shall be protected with safety relief devices which will relieve at or below 500 psig (3448 kPa).

[1406.2.1.4.1] 3306.2.1.4.1 Test. The assembled vaporizer and manifold shall be pressure tested at 500 psig (3448 kPa) with an oil-free and nonflammable material as the testing medium.

[1406.2.1.5] 3306.2.1.5 Service piping from the oxygen manifold. Service piping from the oxygen manifold shall be copper tubing, stainless steel, wrought iron or steel, and shall run vertically outdoors to the floor or floors being serviced, where outlets may be provided for hose connections to approved torches. The service piping shall be properly secured, protected from damage from mechanical injury and properly labeled. Any connection between service piping and the manifold shall be made using not more than 5 feet (1524 mm) of hose capable of withstanding pressure up to at least 1,000 psig (6895 kPa).

[1406.2.1.5.1] 3306.2.1.5.1 Service pressure. Service piping shall be suitable for 250 psig (1724 kPa) service unless an intervening pressure regulator is provided at the manifold, and shall withstand a test of two times the maximum operating pressure, using an oil-free and nonflammable material as the testing medium.

[1406.2.1.6] 3306.2.1.6 Hose and connectors. Hose and connectors capable of withstanding pressure up to at least 1,000 psig (6895 kPa) and of a design suitable for oxygen service at a pressure of 250 psig (1724 kPa) shall be used to connect the outlets on the service piping to the blowpipes. Hose shall be rejected for use if it shows excessive wear, loose connections, leaks or burns; hose subjected to a flash back in use shall be tested to twice the service pressure, but not less than 200 psig (1379 kPa), before being returned to service.

[1406.2.1.7] 3306.2.1.7 Signs. Signs shall be posted in the vicinity of liquid oxygen container storage and use, reading: DANGER-LIQUID OXYGEN-NO SMOKING-NO OPEN FLAMES.

[1406.2.1.8] 3306.2.1.8 Operating instructions. Legible operating instructions shall be posted near any liquid oxygen manifold.

[1406.2.1.9] 3306.2.1.9 Affidavit. An affidavit shall be provided by the installer and/or contractor to certify that the vaporizer, valves, piping, hose and safety devices are of an approved type, that they meet the specifications for bursting test and design service pressure, and that they have been satisfactorily tested in accordance with this section.

[1406.2.2] 3306.2.2 Oxygen trailers. The storage and use of oxygen trailers shall be in accordance with FC [1406.2.2.1] 3306.2.2.1 through [1406.2.2.5] 3306.2.2.5.

[1406.2.2.1] 3306.2.2.1 Design, construction, testing and maintenance. Oxygen trailer containers shall be designed, constructed, tested and maintained in accordance with the United States Department of Transportation specifications and

regulations.

[1406.2.2.2] 3306.2.2.2 Instructions. Legible operating instructions shall be posted in the trailer and on or near any oxygen manifold used indoors.

[1406.2.2.3] 3306.2.2.3 License plates. Oxygen trailers shall at all times have affixed to them a motor vehicle license plate as issued in accordance with New York State or other applicable motor vehicle license plate laws, rules or regulations.

[1406.2.2.4] 3306.2.2.4 Notification. The owner or operator of an oxygen trailer shall notify the department, in writing, of the delivery of the trailer to a construction site, at least 48 hours in advance of such delivery. Such notification shall include:

1. Contractor's name, address and telephone number.
2. Location of the construction site.
3. Quantity and frequency of oxygen delivery to the construction site.
4. Expected duration of oxygen storage and use at the construction site.

[1406.2.2.5] 3306.2.2.5 Oxygen trailers having a capacity exceeding 20,000 SCF (566 m3). The distance between oxygen trailers having a total aggregate capacity exceeding 20,000 SCF (566 m3) and exposures shall be in accordance with NFPA 55.

[1406.2.3] 3306.2.3 Supervision. The handling and use of portable liquid oxygen containers and oxygen trailers shall be under the personal supervision of a certificate of fitness holder. The storage of liquid oxygen containers and oxygen trailers shall be under the general supervision of a certificate of fitness holder.

[1406.3] 3306.3 Discontinued torch operations. When [oxygen and acetylene torch operations are] hot work equipment is not in use, including when [such] torch operations are discontinued for the workday, the oxygen and [acetylene] flammable gas containers shall be removed from the work area and moved to an approved storage area or removed from the premises.

Exception: Brief interruptions in work of not more than 2 hours, including lunch breaks and coffee breaks.

[1406.3.1] 3306.3.1 Torch operation container floor storage. Oxygen and [acetylene] flammable gas containers used for torch operations may be stored on the floors on which the torch work is being conducted only in an unoccupied building and only in an approved storage area. Oxygen or [acetylene] flammable gas containers, other than those necessary for the day's torch operations, shall be considered as reserve storage, and shall not be stored on such floors.

[1406.3.1.1] 3306.3.1.1 Storage location. Oxygen and [acetylene] flammable gas storage areas on the floors on which the torch work is being conducted shall comply with the distance to exposure requirements of [FC3504.1.3] FC5804.1.3.

[1406.3.1.2] 3306.3.1.2 Maximum storage quantities. The maximum quantity of acetylene containers stored on any floor shall not exceed 3,500 SCF ([99.12] 99.11 m3).

[1406.3.1.3] 3306.3.1.3 Storage cabinet. Oxygen and [acetylene] flammable gas containers shall be located within a compressed gas storage cabinet designed and secured to prevent unauthorized entry. The storage cabinet shall be conspicuously marked with a hazard identification sign as set forth in [FC2703.5] FC5003.5.

[1406.4] 3306.4 Reserve oxygen and [acetylene] flammable gas containers. The storage of reserve oxygen and [acetylene] flammable gas containers at a construction site shall comply with the requirements of FC [1406.4.1] 3306.4.1 through [1406.4.4] 3306.4.4, and [FC1406.5] FC3306.5.

[1406.4.1] 3306.4.1 Storage location. Oxygen and [acetylene] flammable gas container storage areas shall comply with the distance to exposure requirements of [FC3504.2.1] FC5804.2.1.

[1406.4.2] 3306.4.2 Storage cabinet. Oxygen and [acetylene] flammable gas containers shall be located within a compressed gas storage cabinet designed and secured to prevent unauthorized entry. The storage cabinet shall be conspicuously marked with a hazard identification sign as set forth in [FC2703.5] FC5003.5.

[1406.4.3] 3306.4.3 Indoor acetylene storage. Indoor reserve storage of acetylene containers shall be allowed only when outdoor storage is unavailable on the premises, the building is unoccupied, the containers are stored on the ground floor of the building, and the total quantities stored do not exceed 3,500 SCF ([99.12] 99.11 m³).

[1406.4.4] 3306.4.4 Outdoor acetylene storage. Outdoor reserve acetylene container storage areas shall not exceed 3,500 SCF ([99.12] 99.11 m³). More than one outdoor storage area may be authorized on the premises provided the distance from each outdoor storage area to each exposure identified in FC Chapter [35] 58 complies with the requirements of FC Chapter [35] 58.

[1406.5] 3306.5 Maximum aggregate indoor acetylene storage quantities. The aggregate of the indoor storage of acetylene authorized by FC [1406.3.1.2] 3306.3.1.2 and [1406.4.3] 3306.4.3 shall not exceed 15,000 SCF (424.8 m³).

SECTION FC [1407] 3307 EXPLOSIVE MATERIALS

[1407.1] 3307.1 Storage and handling. Explosive materials shall be stored, handled and used in accordance with [FC1418] FC3318 and FC Chapter [33] 56.

[1407.2] 3307.2 Blasting operations. Blasting operations shall be conducted in accordance with FC Chapter [33] 56.

[1407.3] 3307.3 Demolition using explosives. Fire hoses and nozzles for use by demolition personnel, connected to an approved water supply under pressure, shall be provided and maintained at the demolition site whenever explosives are used for demolition. Such fire hoses, nozzles and water supply shall be available prior to explosives arriving at the site. Such fire hoses and nozzles shall be capable of a continuous flow of 180 gallons (681 L) per minute with a minimum reach of 35 feet (10 668 mm) from the nozzle and be capable of being brought to bear anywhere on the construction site. Hose shall be pressure tested to withstand at least 600 pounds per square inch gauge (psig)(2413 kPa).

SECTION FC [1408] 3308 CONSTRUCTION SITE FIRE SAFETY MANAGER

[1408.1] 3308.1 Fire safety manager. Where a site safety manager or site safety coordinator is required by the Building Code, the owner shall designate a person to be the fire safety manager for the construction site. Such person shall hold a certificate of fitness as a construction site fire safety manager. The fire safety manager may be the site safety manager or site safety coordinator required by the Building Code, except that a separate fire safety manager shall be designated for a building under construction when such building reaches a height of twenty stories or more than 250 feet (76 200 mm), has a lot coverage of 200,000 square feet (1860 m²) or greater, or as otherwise prescribed by rule. For purposes of this section, below grade stories shall be used to determine number of stories and building height.

Exception: Construction sites at which an existing building is undergoing alteration, the alteration work is limited to the facade, and no hot work is being performed.

[1408.1.1] 3308.1.1 Fire safety manager duties. The fire safety manager shall be responsible for ensuring compliance with the requirements of this code, including this chapter, and the rules. The fire safety manager shall conduct an inspection of the construction site and all fire safety measures on at least a daily basis, and maintain a record of same in a bound log book or other approved system of recordkeeping. Where fire watch service is provided, the fire safety manager shall be responsible for the general supervision of the fire guards.

[1408.2] 3308.2 Pre-fire plans. The fire safety manager shall develop and maintain at the construction site an approved pre-fire plan, and make it available for examination by any representative of the department. The department shall be notified of any changes in site conditions materially affecting the procedures set forth in such plan.

[1408.3] 3308.3 Training. The fire safety manager shall ensure that construction site personnel are acquainted with the operation of portable fire extinguishers and other fire protection equipment on the construction site.

[1408.4] 3308.4 Fire protection devices. The fire safety manager shall ensure that all fire protection equipment and systems are readily available and periodically inspected and tested, and maintained in accordance with this code, the rules and the Building Code.

[1408.5] 3308.5 Hot work operations. The fire safety manager shall be responsible for supervising the issuance of authorizations for hot work operations in accordance with FC Chapter [26] 35.

[1408.6] 3308.6 Impairment of fire protection systems. The fire safety manager or impairment coordinator shall comply with the requirements of FC901 in the event of impairment of any fire protection system.

[1408.7] 3308.7 Temporary covering of fire protection devices. Coverings placed on or over fire protection devices to protect them from damage during construction processes shall comply with the requirements of FC Chapter 9 and shall be immediately removed upon the completion of the construction processes in the room or area in which the devices are installed.

SECTION FC [1409] 3309 FIRE ALARM REPORTING

[1409.1] 3309.1 Emergency telephone. A telephone not requiring a coin to operate, or another approved, clearly identified means to notify the department, shall be provided on site in an approved location. The street address of the construction site and the emergency telephone number of the fire department shall be posted adjacent to the telephone or other approved device.

SECTION FC [1410] 3310 ACCESS FOR FIREFIGHTING

[1410.1] 3310.1 Required access. Approved vehicle access for fire apparatus shall be provided to all construction sites. Vehicle access shall be provided to within 100 feet (30 480 mm) of temporary or permanent fire department connections. Vehicle access shall be provided by either temporary or permanent roads, capable of supporting vehicle loading under all weather conditions. Vehicle access shall be maintained until permanent fire apparatus access roads are available.

[1410.2] 3310.2 Key boxes. Key boxes shall be provided as required by FC Chapter 5 and the Building Code.

SECTION FC [1411] 3311 MEANS OF EGRESS AND ELEVATORS

[1411.1] 3311.1 Stairways. Stairways at construction sites shall be provided, maintained, and made available for department use in accordance with the construction codes, including the Building Code. Stairways providing egress from the building or structure under construction or alteration, and other components of the means of egress, shall be given construction priority.

[1411.2] 3311.2 Maintenance. Required means of egress shall be maintained during construction, alteration and demolition in accordance with this code and the Building Code.

[1411.3] 3311.3 Elevators. Elevators at construction sites shall be provided, maintained, and made available for department use in accordance with the construction codes, including the Building Code.

SECTION FC [1412] 3312 WATER SUPPLY FOR FIRE PROTECTION

[1412.1] 3312.1 Water supply. An approved water supply for fire protection, either temporary or permanent, shall be made available prior to hazardous materials or combustible material arriving at the site. Any water source intended for firefighting operations, including standpipe outlets, street hydrants and yard hydrants, shall not be used for construction, alteration or demolition purposes, unless approved.

SECTION FC [1413] 3313

STANDPIPES

[1413.1] 3313.1 Standpipe systems. Standpipe systems for use at construction sites shall be provided, maintained, and made available for department use in accordance with this code, and the construction codes, including the Building Code.

[1413.2] 3313.2 Demolition operations. Where a building or structure with an existing standpipe system is being demolished, such system shall be maintained for the use of the department in accordance with the construction codes, including the Building Code.

SECTION FC [1414] 3314 SPRINKLER SYSTEM

[1414.1] 3314.1 Sprinkler systems. Sprinkler systems for use at construction sites shall be provided, maintained, and made available for department use, in accordance with this code, and the construction codes, including the Building Code.

[1414.2] 3314.2 Completion before occupancy. In buildings or structures where a sprinkler system is required by this code or the construction codes, including the Building Code, it shall be unlawful to occupy any portion of a building or structure until the sprinkler system installation has been tested and approved.

[1414.3] 3314.3 Operation of valves. Sprinkler control valves shall be operated only by authorized personnel. Such operation shall be under the general supervision of the fire safety manager where one is required pursuant to [FC1408] FC3308. When the sprinkler system valves are being regularly closed and opened to facilitate connection of newly completed or disconnected segments, the sprinkler control valves shall be inspected at the end of each work day to ascertain that the system is in good working order.

SECTION FC [1415] 3315 PORTABLE FIRE EXTINGUISHERS

[1415.1] 3315.1 Where required. Buildings or structures under construction, alteration or demolition shall be provided with not less than one approved portable fire extinguisher in accordance with FC906 and sized for not less than ordinary hazard as follows:

1. At each stairway on all floor levels where combustible materials are being stored or combustible waste is being generated.
2. At the entrance of each storage and construction shed.
3. Additional portable fire extinguishers shall be provided where flammable and combustible liquids are stored, handled and used.
4. Cranes fueled by liquid motor fuel or flammable gas shall be provided with a portable fire extinguisher with a minimum 10-B:C rating located either in the crane's cab or in its immediate vicinity.

SECTION FC [1416] 3316 INTERNAL-COMBUSTION-POWERED EQUIPMENT

[1416.1] 3316.1 Conditions of use. Internal-combustion-powered construction equipment shall be used in accordance with the following requirements:

1. Equipment shall be located so that exhausts do not discharge against combustible material.
2. Exhausts shall be piped to the outdoors.
3. Equipment shall not be refueled while in operation.

4. Fuel for equipment shall be stored in an approved area[, and shall be moved in approved containers not to exceed 5 gallons (19 L)].

5. Fuel for equipment shall be handled and used in approved containers with a capacity not greater than 5 gallons (19 L).

SECTION FC [1417] 3317

SAFEGUARDING ROOFING OPERATIONS

[1417.1] 3317.1 General. Roofing operations utilizing heat-producing systems or other ignition sources shall be performed by a competent person. Roofing operations involving hot work shall comply with the requirements of FC Chapters [26] 35, [35] 58, and [38] 61, as applicable.

[1417.2] 3317.2 Tar kettles. Tar kettles shall be handled and used in accordance with FC303.

[1417.3] 3317.3 Portable fire extinguishers for roofing operations. Portable fire extinguishers shall be provided in accordance with FC906. There shall be not less than one multi-purpose portable fire extinguisher with a minimum 3-A 40-B:C rating on the roof being covered or repaired.

[1417.4] 3317.4 Prohibited operations. It shall be unlawful to install any roofing material using a torch on a roof of combustible construction, or otherwise engage in roofing operations on roofs of combustible construction using hot work equipment.

SECTION FC [1418] 3318

POWDER-ACTUATED TOOL LOADS

[1418.1] 3318.1 Storage, handling and use. Small arms ammunition shall be stored, handled and used for powder-actuated tool loads at a construction site[, as follows:] in accordance with FC5606.8.

[1. The main store of powder-actuated tool loads shall be kept in an approved locked metal box.

2. The powder-actuated tool load storage box shall be kept away from heat and shall not be stored in the same storage area or storage facility containing compressed gases or flammable liquids.

3. The storage area or storage facility in which the locked metal powder-actuated tool load box is stored shall bear a permanent sign bearing the words "DANGER-AMMUNITION" in 2-inch (51-mm) white letters on a red background.

4. Powder-actuated tools shall not be used in an explosive atmosphere.

5. The certificate of fitness holder shall establish a safe zone behind a work area in which powder-actuated tools are to be used by evacuating the area or placing a barrier constructed of 1/2 inch (12.7 mm) steel plate.

6. At least one portable fire extinguisher having a minimum 2-A rating shall be provided in the area where powder-actuated tool loads are stored.

7. Storage of powder-actuated tool loads shall comply with the requirements of NFPA 495. Storage shall be limited to not more than seven hundred fifty thousand powder-actuated tool loads per premises unless larger quantities are authorized by the department.

1418.1.1] 3318.1.1 Supervision. Powder-actuated tools shall be used only by a certificate of fitness holder. Powder-actuated tools shall be handled only by a certificate of fitness holder. Storage of powder-actual tools shall be under the general supervision of a certificate of fitness holder.

SECTION FC [1419] 3319

FIRST RESPONDER BOX

[1419.1] 3319.1 First responder box. [The department may require that a] An approved lock box shall be provided [at a construction site] for first responder use [that contains keys as set forth in FC506.2.2.]. Such box shall contain all keys

required to obtain access to the construction site and operate the hoist; the pre-fire plan[,]; permits[,]; logbooks; and such other documents required by this code or the rules to be maintained on the premises. Such box shall be in an approved location and[, if locked,] shall be openable by use of a citywide standard key.

CHAPTER 34 TIRE REBUILDING AND TIRE STORAGE

SECTION FC [2501] 3401 GENERAL

[2501.1] 3401.1 Scope. This chapter shall govern the design, operation and maintenance of tire rebuilding plants, tire storage and tire byproduct facilities.

[2501.2] 3401.2 Permits. Permits shall be required as set forth in FC105.6.

[2501.3] 3401.3 General. Tire rebuilding plants, tire storage and tire byproduct facilities shall be designed, operated and maintained in accordance with this chapter, NFPA 13, as modified by FC Appendix B, and if applicable, FC Chapter [23] 32.

SECTION FC [2502] 3402 DEFINITIONS

[2502.1] 3402.1 Terms defined in FC Chapter 2. Terms used in this chapter and defined in [FC Chapter 2] FC202 shall have the meanings [defined] set forth therein.

SECTION FC [2503] 3403 TIRE REBUILDING

[2503.1] 3403.1 Construction. Tire rebuilding plants shall comply with the requirements of the construction codes, including the Building Code.

[2503.2] 3403.2 Location. Buffing operations shall be conducted in a room separated from the remainder of the building housing the tire rebuilding or tire recapping operations by a 1-hour fire barrier.

Exception: Buffing operations are not required to be separated where the following requirements are complied with:

1. Buffing operations are protected throughout by a continuous water-spray fire protection system directed at the point of cutting action.
2. Buffing machines are connected to particle-collecting systems providing a minimum air movement of 1,500 cubic feet per minute (cfm) (0.71m³/s) in volume and 4,500 feet per minute (fpm) (23 m/s) in-line velocity.
3. The collecting system shall discharge the rubber particles to an approved outdoor noncombustible or noncombustible container, which is emptied at frequent intervals to prevent overflow.

[2503.3] 3403.3 Cleaning. The buffing area shall be cleaned and combustible waste regularly removed and disposed of to prevent the accumulation of rubber particles.

[2503.4] 3403.4 Spray rooms and booths. Spray rooms or spray booths wherein flammable or combustible solvents are applied shall comply with the requirements of FC Chapter [15] 24.

SECTION FC [2504] 3404 PRECAUTIONS AGAINST FIRE

[2504.1] 3404.1 Open fires and flames prohibited. It shall be unlawful in a tire storage yard to ignite or maintain an open fire or open flame.

[2504.2] 3404.2 Hot work prohibited. It shall be unlawful in a tire storage yard to conduct hot work operations.

[2504.3] 3404.3 Smoking prohibited. It shall be unlawful in a tire storage yard to smoke.

[2504.4] 3404.4 Power lines. Tire storage piles shall not be located beneath electrical power lines having a voltage in excess of 750 volts or near lines supplying power to fire emergency systems where a fire in such storage piles would damage such lines.

[2504.5] 3404.5 Reserved.

[2504.6] 3404.6 Emergency telephone. A telephone not requiring a coin to operate, or another approved, clearly identified means to notify the department, shall be provided at the facility in an approved location. A sign shall be conspicuously posted at or near the telephone indicating that all fires shall be immediately reported to the department, and setting forth the facility's address with cross-street reference and the fire department telephone number.

SECTION FC [2505] 3405 OUTDOOR STORAGE

[2505.1] 3405.1 Individual piles. Tire storage shall be restricted to individual piles not exceeding 5,000 square feet (464.5 m²) of continuous area. Piles shall not exceed 50,000 cubic feet (1416 m³) in volume or 10 feet (3048 mm) in height.

[2505.2] 3405.2 Separation of piles. Individual tire storage piles shall be separated from other piles by a clear space of at least 40 feet (12 192 mm).

[2505.3] 3405.3 Distance between piles of other stored products. Tire storage piles shall be separated by a clear space of at least 40 feet (12 192 mm) from piles of other stored product.

[2505.4] 3405.4 Distance from lot lines and buildings. Tire storage piles shall be located at least 50 feet (15 240 mm) from lot lines and buildings unless the commissioner approves a lesser separation distance of tire storage piles in accordance with the criteria set forth in NFPA 13.

[2505.5] 3405.5 Fire breaks. Storage yards shall be maintained free from combustible grass and weeds for a distance of 40 feet (12 192 mm) from the stored tires; and for a distance of 100 feet (30 480 mm) from the stored tires to brush and forested areas.

[2505.6] 3405.6 Volume more than 150,000 cubic feet. Where the bulk volume of stored material is more than 150,000 cubic feet (4248 m³), fire breaks shall be provided around the perimeter of each group of storage piles in accordance with the following:

1. Individual storage piles shall be arranged so that there are not more than 16 individual storage piles per group.
2. Fire breaks shall at least be 75 feet (22 860 mm) wide.

[2505.7] 3405.7 Location. Outdoor tire storage shall not be located under bridges, elevated trestles, elevated roadways or elevated railroads.

SECTION FC [2506] 3406 FIRE DEPARTMENT ACCESS

[2506.1] 3406.1 Required access. New and existing tire storage yards shall be provided with fire apparatus access roads in accordance with FC503 and this section.

[2506.2] 3406.2 Location. Fire apparatus access roads shall be located within all pile clearances identified in [FC2505.4] FC3405.4 and within all fire breaks required in FC [2505.5] 3405.5 and [2505.6] 3405.6. Access roadways shall be within 150 feet (45 720 mm) of any point in the storage yard where storage piles are located, at least 20 feet (6096 mm) from any storage pile.

SECTION FC [2507] 3407
FENCING

[2507.1] 3407.1 Where required. Where the bulk volume of stored material is more than 20,000 cubic feet (566 m³), a firmly anchored fence or other approved method of security that controls unauthorized access to the storage yard shall surround the storage yard.

[2507.2] 3407.2 Construction. The fence shall be constructed of approved materials and shall be at least 6 feet (1829 mm) high and provided with gates at least 20 feet (6096 mm) wide. Where gates are constructed, they shall comply with the vertical clearance requirements of [FC503.6] FC503.

[2507.3] 3407.3 Security. All gates to the storage yard shall be locked when the storage yard is not staffed.

SECTION FC [2508] 3408
FIRE PROTECTION

[2508.1] 3408.1 Water supply. A public or private fire protection water supply shall be provided in accordance with [FC508] FC507. The water supply shall be arranged such that any part of the storage yard can be reached by using not more than 300 feet (91 m) of hose.

[2508.2] 3408.2 Portable fire extinguishers. Buildings or structures shall be provided with portable fire extinguishers in accordance with FC906. Fuel-fired vehicles operating in the storage yard shall be equipped with a minimum 2-A:20-B:C rated portable fire extinguisher.

SECTION FC [2509] 3409
INDOOR STORAGE ARRANGEMENT

[2509.1] 3409.1 Pile dimensions. Where tires are stored on-tread, the dimension of the pile in the direction of the wheel hole shall not be more than 50 feet (15 240 mm). Tires stored adjacent to or along one wall shall not extend more than 25 feet (7620 mm) from that wall. Other piles shall not be more than 50 feet (15 240 mm) in width.

CHAPTER 35
WELDING AND OTHER HOT WORK

SECTION FC [2601] 3501
GENERAL

[2601.1] 3501.1 Scope. This chapter shall govern welding, cutting and other torch and hot work operations and equipment.

[2601.2] 3501.2 Permits. Permits shall be required as set forth in FC105.6.

[2601.3] 3501.3 Approved locations. Hot work shall be conducted only in the areas set forth in this section or approved by the commissioner.

[2601.3.1] 3501.3.1 Authorized areas. Hot work may be conducted in the following areas:

1. Areas designed for hot work operations.
2. Areas authorized for that purpose by the responsible person at the premises when precautions have been taken in compliance with the requirements of this chapter.

[2601.3.2] 3501.3.2 Restricted areas. Hot work shall not be conducted in the following areas unless approval has been obtained from the commissioner:

1. Areas where the sprinkler system is impaired.
2. Areas where there exists the potential of an explosive atmosphere, such as locations where flammable gases, liquids or vapors are present.
3. Areas with readily ignitable materials, such as storage of large quantities of bulk sulfur, baled paper, cotton, lint, dust or loose combustible materials.
4. On board marine vessels or watercraft at dock under construction or repair.

[2601.4] 3501.4 Containers. Compressed gas containers shall be designed, installed, operated and maintained in accordance with this chapter and FC Chapter [30] 53.

[2601.5] 3501.5 Design and installation of oxygen-fuel gas systems. An oxygen-fuel gas system shall be designed and installed in accordance with NFPA 51.

[2601.5.1] 3501.5.1 Oxygen at construction sites. The storage and use of oxygen at a construction site shall additionally comply with the requirements of FC Chapter [14] 33.

[2601.6] 3501.6 Torches. Torches and tips that utilize a flammable gas for hot work operations shall be listed.

[2601.7] 3501.7 Certificate of approval. Devices used to increase the pressure of piped natural gas in accordance with [FC2609.8] FC3509.8 shall be of a type for which a certificate of approval has been issued.

SECTION FC [2602] 3502 DEFINITIONS

[2602.1] 3502.1 Definitions. The following terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings [shown herein] set forth in FC202.

COMBUSTIBLE GAS DETECTOR.

HOT TAPPING.

HOT WORK. [Cutting, welding, thermit welding, brazing, soldering, grinding, thermal spraying, thawing pipe, cadwelding, installation of torch-applied roof systems or any other similar operation or activity.]

HOT WORK AREA. [The area exposed to sparks, hot slag, radiant heat, or convective heat as a result of hot work.]

HOT WORK EQUIPMENT. [Electric or gas welding or cutting equipment used for hot work.]

HOT WORK PROGRAM. [A program, implemented by a responsible person designated by the owner of a building or structure in or on which hot work is being performed, to oversee and issue authorizations for such hot work for the purpose of preventing fire and fire spread.]

HOT WORK PROGRAM AUTHORIZATIONS. [Authorizations issued by the responsible person under a hot work program allowing welding or other hot work to be performed at the premises.]

RESPONSIBLE PERSON. [A person trained in the fire safety hazards associated with hot work and in the necessary and appropriate measures to minimize those hazards, who is designated by the owner of a premises to authorize the performance of hot work at the premises.]

TORCH-APPLIED ROOF SYSTEM. [Bituminous roofing systems using membranes that are adhered by heating with a torch and melting asphalt back coating instead of mopping hot asphalt for adhesion.]

SECTION FC [2603] 3503 GENERAL REQUIREMENTS

[2603.1] 3503.1 General. Hot work operations, including temporary and fixed hot work areas, shall be conducted in accordance with this chapter.

[2603.1.1] 3503.1.1 Torch operations using LPG. The use of LPG for torch operations shall additionally comply with the requirements of FC Chapter [38] 61.

[2603.1.2] 3503.1.2 Torch operations using CNG. The use of CNG for torch operations shall additionally comply with the requirements of FC Chapter [35] 58.

[2603.2] 3503.2 Hot work program. Whenever hot work is performed in any building or structure, on a building roof or on a building setback, the owner shall ensure that such work is performed in accordance with this chapter and shall designate a responsible person to ensure compliance.

[2603.2.1] 3503.2.1 Hot work program responsible person. The responsible person shall ensure that a permit has been obtained from the department when one is required, and ensure that the hot work is performed in compliance with the terms and conditions of the permit. The responsible person shall inspect the hot work site prior to issuing a hot work program authorization and periodically monitor the work as it is being performed to ensure there are no fire safety hazards.

[2603.2.2] 3503.2.2 Responsible person supervision. Hot work operations shall be conducted under the general supervision of the responsible person.

[2603.3] 3503.3 Hot work program authorization. A hot work program authorization bearing the signature of the responsible person shall be obtained for any project conducted on a premises involving hot work operations by the person in charge of such hot work operations. Hot work authorizations, issued by the responsible person, shall be available for inspection by any representative of the department during the performance of the work and for 48 hours after the work is complete.

[2603.4] 3503.4 Qualifications of operators. An authorization for hot work operations shall not be issued unless the individuals conducting such operations are capable of performing such operations safely. Demonstration of a working knowledge of the provisions of this chapter shall constitute acceptable evidence of compliance with this requirement.

[2603.4.1] 3503.4.1 Torch operations [using oxygen and flammable gases]. [Torch operations] Any torch operation, including torch operations using [oxygen and] a flammable gas, with or without oxygen, and any torch operation for torch-applied roofing systems, shall be [performed] personally conducted by a certificate of fitness holder.

[Exception:] Exceptions:

1. Torch operations using oxygen and piped natural gas for manufacturing jewelry or in a dental laboratory may be [performed] conducted under the personal supervision of a certificate of fitness holder, who shall be responsible to regulate the pressure and flow of oxygen and natural gas to each torch.

2. Torch operation fueled by a LPG container with a capacity of 16.4 ounces (0.465 kg) or less, except at a construction site.

3. Arc welding authorized by the Department of Buildings.

[2603.4.2] 3503.4.2 Use of portable fire extinguishers. All persons conducting hot work operations shall be trained in the use of portable fire extinguishers, and shall be capable of extinguishing fires when they are limited in size and spread such that they can readily be extinguished using a portable fire extinguisher.

[2603.5] 3503.5 Records. The responsible person for the hot work area shall maintain ["prework check] "pre-hot work check" reports in accordance with [FC2604.3.1] FC3504.3.1.

[2603.6] 3503.6 Signage. Visible hazard identification signs shall be provided where required by FC Chapter [27] 50. Where the hot work area is accessible to persons other than the operator of the hot work equipment, signs shall be

posted in a conspicuous location to warn others before they enter the hot work area. Such signs shall read as follows:

CAUTION
HOT WORK IN PROGRESS
STAY CLEAR.

SECTION FC [2604] 3504
FIRE SAFETY REQUIREMENTS

[2604.1] 3504.1 Protection of combustibles. Combustible material and combustible waste shall be protected during hot work operations in accordance with FC [2604.1.1] 3504.1.1 through [2604.1.9] 3504.1.9.

[2604.1.1] 3504.1.1 Separation from combustibles. Hot work operations involving cutting or welding shall be conducted at least 35 feet (10 668 mm) from combustible materials and combustible waste or shall be provided with appropriate shielding to prevent sparks, slag or heat from igniting exposed combustibles. All other hot work operations shall be conducted at least 25 feet (7620 mm) from combustible materials and combustible waste or shall be provided with appropriate shielding to prevent sparks, slag or heat from igniting exposed combustibles.

[2604.1.2] 3504.1.2 Openings. Openings or cracks in walls, floors, ducts or shafts within 35 feet (10 668 mm) of the hot work area shall be tightly covered to prevent the passage of sparks to adjacent combustible areas, or shielded by metal fire-resistant guards, or provided with curtains to prevent passage of sparks or slag.

[2604.1.3] 3504.1.3 Housekeeping. Combustible waste shall not be allowed to accumulate on floors and other surfaces within the hot work area. Hot work areas shall be regularly cleaned and combustible waste removed and disposed of lawfully.

[2604.1.4] 3504.1.4 Conveyor systems. Conveyor systems that are capable of carrying sparks to distant combustibles shall be shielded or shut down.

[2604.1.5] 3504.1.5 Partitions. Partitions segregating hot work areas from other areas of the building shall be of noncombustible construction. In fixed hot work areas, the partitions shall be securely connected to the floor such that no gap exists between the floor and the partition. Partitions shall prevent the passage of sparks, slag, and heat from the hot work area.

[2604.1.5.1] 3504.1.5.1 Motor-fuel dispensing facilities. The use of a torch within a repair garage located on a property upon which a motor-fuel dispensing facility is situated shall be conducted within a fire-rated enclosure. All doors of such enclosure shall be fireproof and self-closing.

[2604.1.5.2] 3504.1.5.2 Repair garages. In a repair garage with a capacity for more than one vehicle, hot work shall be conducted within a fire-rated enclosure in compliance with [FC2604.1.5.1] FC3504.1.5.1 or behind a noncombustible screen that is positioned and of sufficient size to prevent the passage of sparks, slag and heat from the hot work area.

[2604.1.6] 3504.1.6 Floors. Areas designed for hot work operations shall have floors with noncombustible surfaces.

[2604.1.7] 3504.1.7 Precautions in hot work. [Hot] Except as otherwise provided in FC3510.4, hot work shall not be performed on a container or equipment that contains or has contained a flammable solid, flammable or combustible liquid or flammable gas until the container or equipment has been thoroughly cleaned, inerted or purged[; except that "hot tapping" shall be allowed at bulk plants and terminals on tanks and piping when such work is conducted by competent personnel]. Hot work on flammable and combustible liquid storage tanks shall be conducted in accordance with FC3510. Hot work involving [cutting, welding or heating of] any flammable solid in any form shall be conducted only with the approval of the [commissioner] department.

[2604.1.8] 3504.1.8 Sprinkler protection. Sprinkler system protection shall not be shut off or impaired while hot work is performed unless approved by the commissioner. Where hot work is performed close to sprinklers, noncombustible barriers or damp cloth guards shall shield the individual sprinkler heads and shall be removed when the work is completed. If the work extends over several days, the shields shall be removed at the end of each workday.

[2604.1.9] 3504.1.9 Fire detection systems. Approved precautionary measures shall be taken to avoid accidental operation of automatic fire detection systems.

[2604.2] 3504.2 Fire watch. A fire watch shall be maintained and fire guards provided in accordance with FC [2604.2.1] 3504.2.1 through [2604.2.7.1] 3504.2.7.1.

[2604.2.1] 3504.2.1 When required. A fire watch shall be maintained during hot work operations. The fire watch shall continue for a minimum of 30 minutes after the conclusion of the work. The commissioner, or the responsible person implementing a hot work program, may extend the duration of the fire watch based on the hazards or work being performed.

[2604.2.2] 3504.2.2 Location. The fire watch shall observe the entire hot work area. Hot work conducted in areas with vertical or horizontal fire exposures that are not observable by a single individual shall have additional personnel assigned to ensure that exposed areas are monitored, including compliance with [FC2604.2.7.1] FC3504.2.7.1.

[2604.2.3] 3504.2.3 Duties. Persons conducting a fire watch shall have the duties and responsibilities set forth in FC901.7.2.1 with respect to the areas being monitored in connection with hot work operations.

[2604.2.4] 3504.2.4 Reserved.

[2604.2.5] 3504.2.5 Fire hoses. Where hose lines are required, they shall be connected, charged and ready for operation.

[2604.2.6] 3504.2.6 Portable fire extinguishers. A minimum of one portable fire extinguisher complying with the requirements of FC906 and with a minimum 2-A:20-B:C rating shall be provided and readily accessible within a 30 feet (9144 mm) travel distance of the location where hot work is performed and where the fire guards are positioned.

[2604.2.7] 3504.2.7 Fire guards for torch operations. The fire watch for torch operations conducted at the following locations shall be conducted by fire guards:

1. Construction sites.
2. On any rooftop, or in connection with any torch-applied roofing system operation.
3. In any building or structure, when the torch operation is conducted by a person holding a citywide permit for torch operations.

[2604.2.7.1] 3504.2.7.1 Construction sites and torch-applied roofing systems. A fire watch shall be maintained for each torch operation at a construction site and torch-applied roofing system operations in compliance with the requirements of FC [2604.2.7.1.1] 3504.2.7.1.1 and [2604.2.7.1.2] 3504.2.7.1.2.

[2604.2.7.1.1] 3504.2.7.1.1 Fire watch coverage. A fire guard shall be provided for each torch in operation, except that a single fire guard may be designated to conduct a fire watch for more than one torch operation on the same floor or level if each torch operation is not more than 50 feet (15 240 mm) from the fire guard, as measured by the actual path of travel, and the field of view of such fire guard encompasses all of the horizontal fire exposures of such torch operations.

[2604.2.7.1.2] 3504.2.7.1.2 Fire watch on floors below. In addition to the fire guard required by [FC2604.2.7.1.1] FC3504.2.7.1.1, if the torch operation is being conducted at or near the edge of an unenclosed floor of a building, or near a floor opening, or other location where sparks and slag may travel to one or more lower floors or levels, a fire guard shall conduct a fire watch on each lower floor or level containing combustible surfaces or materials within 35 feet (10 668 mm) of the area of such floor or level that potentially would be exposed to such sparks or slag. Prior to commencement of the torch operation, the fire safety manager or responsible person shall inspect the lower floors or levels and take all necessary and appropriate precautions to protect any combustible surfaces and materials that potentially would be exposed to sparks and slag from the torch operation. A certification to that effect shall be made on the hot work authorization.

[Exception:] Exceptions:

1. A fire watch is not required on the floors or levels below a torch operation on a construction site when:
 - 1.1. the torch operation is not being conducted at or near the edge of an unenclosed floor of a building;
 - 1.2. the floor upon which the torch operation is being conducted is of noncombustible construction;
 - 1.3. there are no floor or exterior building openings within 35 feet (10 668 mm) of the torch operation; and
 - 1.4. prior to commencement of the torch operation, the fire safety manager or responsible person conducts an inspection and takes the precautions required pursuant to [FC2604.2.7.1.2] FC3504.2.7.1.2.

2. Notwithstanding the foregoing exception, if sparks or slag generated by the torch operation are observed to extend beyond 35 feet (10 668mm), thereby potentially exposing lower floors or levels, the torch operation shall be immediately discontinued, and the floors or levels below shall be inspected for any fire condition. If there is any potential exposure to combustible surfaces or materials on the floors below from such sparks and slag, noncombustible barriers shall be provided and any other necessary or appropriate precautions shall be taken. If such barriers and precautions fail to block the passage of sparks and slag, a fire watch shall be established on the floors or levels below.

[2604.3] 3504.3 Area reviews. Before hot work is authorized and at least once per day while the authorization is in effect, the hot work area shall be inspected by the responsible person to ensure that it is a fire safe area.

[2604.3.1] 3504.3.1 Pre-hot work check. A pre-hot work check shall be conducted by the responsible person prior to work to ensure that all equipment is safe and hazards are recognized and protected. A report of the check shall be kept at the work site during the work and for a minimum of 48 hours after work is completed, and made available for inspection by any representative of the department. The pre-hot work check shall be conducted at least once per day and shall verify the following:

1. The hot work equipment is in good working order.
2. The hot work area is clear of combustibles and flammable solids or that such materials present in the area are protected in accordance with [FC2604.1.1] FC3504.1.1.
3. Exposed construction is of noncombustible materials or, if combustible, is protected.
4. Openings are protected.
5. Hot work area floors are clear of combustible waste accumulation.
6. Reserved.
7. Fire watch personnel, where required, are assigned.
8. Approved actions have been taken to prevent accidental activation of fire extinguishing systems and detection equipment in accordance with FC [2604.1.8] 3504.1.8 and [2604.1.9] 3504.1.9.
9. Portable fire extinguishers and fire hoses (where provided) are operable and available.
10. All persons performing hot work possess certificates of fitness, where such certificates are required.
11. All persons performing hot work requiring a permit possess a site-specific permit or citywide permit, authorizing such work.

SECTION FC [2605] 3505 GAS WELDING AND CUTTING

[2605.1] 3505.1 General. Devices or attachments mixing air or oxygen with flammable gases prior to consumption, except at the burner or in a standard torch or blow pipe, shall not be allowed unless approved.

[2605.2] 3505.2 Container storage, handling and use. Storage, handling and use of compressed gas containers shall be in accordance with this section and FC Chapter [30] 53.

[2605.2.1] 3505.2.1 Containers connected for use. A single container of oxygen and a single container of flammable gas may be installed on a cart without the separation of containers required by [FC3504.1.3] FC5804.1.3 provided that the containers are connected to regulators, equipped with apparatus designed for cutting, welding or other hot work operation, and are otherwise ready for use, and are stored, handled and used in compliance with the following requirements:

1. Carts shall be designed and used in accordance with [FC2703.10.3] FC5003.10.3.
2. Container valves shall have a fixed hand wheel, or other approved means by which the flow of gas may be immediately shut down during hot work operations.
3. Container valves shall be closed at the end of each workday and whenever work is discontinued or the cart moved.
4. Container valve outlet connections shall conform to the requirements of CGA V-1.
5. Separation of the cart from the hot work operation shall be maintained in accordance with [FC2605.5] FC3505.5, or fire-resistant shields shall be provided.
6. A separation distance of 20 feet (6096 mm) shall be maintained between such carts.

[2605.3] 3505.3 Precautions. Oxygen containers and oxygen container valves, regulators, hose and other apparatus and fittings shall be kept free of oil or grease. Oxygen containers, apparatus and fittings shall not be handled with oily hands, oily gloves, or greasy tools or equipment.

[2605.4] 3505.4 Acetylene gas. Acetylene gas shall not be piped except in approved container manifolds and container manifold connections, or piped or utilized at a pressure exceeding 15 pounds per square inch gauge (psig) (103 kPa). Acetylene gas stored in containers shall be dissolved in a suitable solvent. Acetylene gas shall not be brought in contact with unalloyed copper, except in a torch.

[2605.5] 3505.5 Remote locations. Oxygen and fuel gas containers shall be located at a distance from the hot work area sufficient to protect such containers from heat, sparks, slag, or misdirection of the torch flame.

[2605.6] 3505.6 Container shutoff. The torch valve shall be closed and the gas supply to the torch completely shut off when hot work operations are discontinued for a period of 1 hour or more.

[2605.6.1] 3505.6.1 Emergency shutoff. Oxygen and fuel gas container valves shall be accessible to the torch operator or fire guard for immediate shutoff of the gas supply in the event of an emergency.

[2605.7] 3505.7 Prohibited operations. It shall be unlawful to conduct the following hot work operations:

1. Welding or cutting operations supported by or resting on compressed gas containers.
2. Torch-applied roof system operations on roofs constructed of combustible materials.
3. Use of an acetylene generator for hot work operations.

[2605.8] 3505.8 Tests. It shall be unlawful to test piping equipment or systems for leaks using a flame. Tests for suspected leaks in piping equipment and systems shall be made using soapy water.

SECTION FC [2606] 3506 ELECTRIC ARC HOT WORK

[2606.1] 3506.1 General. The frame or case of electric hot work machines, except internal-combustion-engine-driven

machines, shall be grounded. Ground connections shall be mechanically strong and electrically adequate for the required current.

[2606.2] 3506.2 Return circuits. Welding current return circuits from the work to the machine shall have proper electrical contact at joints. The electrical contact shall be periodically inspected.

[2606.3] 3506.3 Disconnecting. Electrodes shall be removed from the holders when electric arc welding or cutting is discontinued for any period of 1 hour or more. The holders shall be located to prevent accidental contact and the machines shall be disconnected from the power source.

[2606.4] 3506.4 Emergency disconnect. A switch or circuit breaker shall be provided so that fixed electric welders and control equipment can be disconnected from the supply circuit. The disconnect shall be installed in accordance with the Electrical Code.

[2606.5] 3506.5 Damaged cable. Damaged cable shall be removed from service until properly repaired or replaced.

SECTION FC [2607] 3507
RESERVED

SECTION FC [2608] 3508
RESERVED

SECTION FC [2609] 3509
PIPING MANIFOLDS AND HOSE SYSTEMS FOR FUEL GASES AND OXYGEN

[2609.1] 3509.1 General. The use of piping manifolds, protective equipment and hose systems in oxygen-fuel gas systems, including natural gas supplied from a utility for use in an oxygen-fuel gas system, shall be designed, installed, operated and maintained in accordance with [FC2609] FC3509, FC Chapter [30] 53 and NFPA 51.

[2609.2] 3509.2 Protection. Piping shall be protected against physical damage.

[2609.3] 3509.3 Signage. Signage shall be provided for piping and hose systems as follows:

1. Aboveground piping systems shall be marked in accordance with ASME A13.1.
2. Station outlets shall be marked to indicate their intended usage.
3. Signs shall be posted, indicating clearly the location and identity of section shutoff valves.

[2609.4] 3509.4 Manifolding of containers. Oxygen manifolds shall be located at least 20 feet (6096 mm) away from combustible waste and combustible material, including oil and grease, and gas containers containing flammable gases, unless the gas containers are separated from each other by a fire partition.

[2609.5] 3509.5 Identification of manifolds. Signs shall be posted for oxygen manifolds with service pressures not exceeding 250 psig (1379 kPa). Such signs shall read as follows:

LOW-PRESSURE MANIFOLD
DO NOT CONNECT HIGH-PRESSURE CONTAINERS
MAXIMUM PRESSURE 250 PSIG

[2609.6] 3509.6 Clamps. Hose connections shall be clamped or otherwise securely fastened.

[2609.7] 3509.7 Inspection. Hoses shall be inspected frequently for leaks, burns, wear, loose connections or other defects.

[2609.8] 3509.8 Piped natural gas precautions. When piped natural gas is used with oxygen in any hot work operation, a listed protective device that serves as a combination flashback arrester and backflow check valve shall be provided at an

approved location on both the natural gas and oxygen supply lines so as to ensure the safe operation of all devices, equipment and systems, including the utility gas meter. Where pressure of the piped natural gas supply is insufficient to ensure such safe operation, approved equipment shall be provided between the gas meter and the fuel-consuming appliance that increases such pressure to the level required for such safe operation. Notwithstanding any section of this code to the contrary, such flashback arresters and check valves, pressure-increasing equipment, shall be installed as components of both new and existing installations. Installations involving the use of piped natural gas with oxygen in any hot work operation shall additionally comply with the rules.

SECTION FC 3510

HOT WORK ON FLAMMABLE AND COMBUSTIBLE LIQUID STORAGE TANKS

3510.1 General. Hot work performed on the interior or exterior of tanks that hold or have held flammable or combustible liquids, when approved, shall be conducted in accordance with this section and NFPA 326.

3510.2 Department approval. Approval shall be obtained from the department prior to conducting hot work on a tank that holds or has held flammable or combustible liquids. The application shall justify the need to conduct such hot work and identify the potential hazards and methods of controlling such hazards.

3510.3 Hazard prevention. A pre-hot work check shall be performed in accordance with FC3504.3.1. A fire watch shall be maintained with a combustible gas detector, to continuously monitor the work area and any other affected areas.

3510.4 Hot tapping. Hot tapping may be conducted at bulk plants and terminals on tanks and piping only when approved by the department. Such work shall be conducted by persons with approved qualifications.

CHAPTER 36

MARINAS

SECTION FC 3601

GENERAL

3601.1 Scope. This section shall govern the design, installation, operation and maintenance of marinas mooring or storing more than five marine vessels or watercraft 65 feet (19 812 mm) or less in length.

3601.2 General. Marinas shall be designed, installed, operated and maintained in accordance with the requirements of NFPA 303 and this section.

SECTION FC 3602

DEFINITIONS

3602.1 Definitions. The following terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings set forth in FC202.

FLOAT.

MARINA.

PIER.

VESSEL.

WHARF.

SECTION FC 3603

GENERAL PRECAUTIONS

3603.1 Fire safety precautions. Marinas shall comply with the fire safety precautions set forth in NFPA 303 and this

section.

3603.2 Combustible waste. Marinas shall be kept free of accumulations of combustible waste in accordance with FC304. Rubbish and other combustible waste shall not be allowed to accumulate beneath marina structures, piers or wharves.

3603.3 Sources of ignition. Open flames and open-flame devices shall not be used within 3 feet (914 mm) of combustible material. Open flames, open-flame devices and other sources of ignition shall not be stored or used in the areas in which smoking is prohibited pursuant to FC3603.3.1. Portable electric lights approved for use in a hazardous location shall be used where flammable vapors may be present, and shall be equipped with safety devices designed to prevent physical damage to the bulbs.

3603.3.1 Smoking. It shall be unlawful to smoke in the following areas of a marina, and any other areas as the commissioner may prescribe by rule:

1. Where fuels are stored or dispensed.
2. Where flammable or combustible liquids are stored, handled or used.
3. Battery storage and battery charging areas.
4. Covered or enclosed boat storage areas.

3603.4 Lumber and other combustible material storage. Lumber and other combustible materials shall be stored in accordance with FC Chapter 28, at a location separate from the area in which marine vessel construction or repair, marine vessel or watercraft fueling, or other work involving the handling or use of flammable or combustible liquids or open flames is conducted.

SECTION FC 3604 MARINA OPERATIONS

3604.1 General. Marinas shall be operated in accordance with NFPA 303 and this section.

3604.2 Storage. Marine vessels and watercraft shall be stored in accordance with Chapter 7 of NFPA 303 and this section.

3604.2.1 Clearances. No vessel or watercraft shall be stored closer than 3 feet (914 mm) to any lot line, or closer than 3 feet (914 mm) horizontally from another vessel, unless access for firefighting operations is provided in another approved manner.

3604.2.2 Combustible waste and cargo. All combustible waste and cargo shall be removed from vessels and watercraft in storage.

3604.2.3 Batteries and fuel. Where practicable, batteries and all fuel shall be removed from the vessel. Where removal of batteries is impracticable, precautions during charging of batteries shall be taken in accordance with FC3603. Where removal of fuel is impracticable, all tank stop valves shall be closed and the tank inspected to ensure that there are no leaks. Adequate ventilation shall be provided for hull and bilge areas.

3604.2.4 Covers. Shrink-wrapped plastic or other material used to cover vessels in storage shall be flame-resistant in accordance with FC Chapter 8 and the rules.

3604.3 Hot work operations. Hot work operations and other use of open flames shall comply with the requirements of FC Chapter 35 and this section. All flammable liquid, combustible liquid or flammable gas, except the fuel in stationary storage tanks of vessels, shall be removed from the vessel before any hot work is performed on the vessel. In addition, before hot work is performed 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 vessel's stationary fuel tank or fuel piping, both the tank and the piping shall first be emptied and purged. All areas of the vessel, including the bilge, shall be ventilated to eliminate any flammable and combustible vapors before any hot work is commenced.

3604.4 Engine test stand fuel supply. Engine test stands shall be supplied by a fuel storage system complying with the requirements of FC Chapter 57. The fuel tank supplying the engine test stand shall be installed outdoors, and the fuel tank and piping located a safe distance from engine exhaust. The fuel piping shall be of steel construction and provided with an automatic shutoff valve designed to shut off the fuel supply in the event of a fire.

3604.5 Flammable and combustible liquids and flammable gases. The storage, handling and use of flammable and combustible liquids and flammable gases shall be in accordance with FC Chapters 57, 58 and 61 and this section.

3604.5.1 Marine liquid fuel dispensing. Marine liquid motor fuel-dispensing facilities shall be designed, installed, operated and maintained in accordance with FC Chapter 23.

3604.5.2 Use for cleaning. Use of flammable and combustible liquids for cleaning purposes shall be in accordance with FC5705.3.6.1.

3604.5.3 Storage arrangements. Except when displayed for sale in sealed containers, flammable and combustible liquids shall be stored in liquid storage cabinets, liquid storage rooms or in approved underground storage systems. Such installations shall comply with the requirements of FC Chapters 23 and 57.

3604.5.4 Quantity limitations when stored for sale. Flammable and combustible liquids displayed for sale in sealed containers shall comply with the requirements of FC Chapters 23 and 57, as applicable, except in no case shall the quantities displayed exceed 200 gallons (757 L).

3604.5.5 Flammable gases. LPG on vessels used for residential purposes shall be stored, handled and used in compliance with the requirements of FC Chapter 61 and the rules. CNG on vessels used for residential purposes shall be stored, handled and used in compliance with the requirements of FC Chapter 58 and the rules.

SECTION FC 3605 FIRE PROTECTION, EQUIPMENT AND ACCESS

3605.1 General. Marinas requiring fire protection and fire department access shall comply with this section. Marine liquid motor fuel-dispensing facilities shall additionally comply with FC2310.

3605.2 Fire protection systems and equipment. Marinas shall be equipped with fire protection systems and equipment in accordance with this section.

3605.2.1 Standpipes. If the furthest point of any pier or float exceeds 250 feet (76 200 mm) from a fire apparatus-accessible location, the pier or float shall be equipped throughout with a standpipe system in accordance with NFPA 303. Systems shall be provided with hose connections located such that no point on the marina pier or float system exceeds 150 feet (45 720 mm) from a standpipe hose connection. Such system shall have a design capacity of 250 gallons per minute (946 L/min) and shall be provided with one or more fire department connections at an approved location, and when required by the commissioner, to an approved water supply. Standpipe hose connection locations shall be clearly identified by a flag or other approved means designed to be readily visible from the pier accessing the float system.

3605.2.2 Yard hydrant system. Fire apparatus-accessible locations as required by FC3605.3.1 shall be within 250 feet (76 200 mm) of a fire hydrant or other approved water supply, and shall be situated such that a hose stream from 250 feet (76 200 mm) of hose line stretched from such location will reach all portions of the premises.

3605.2.3 Portable fire extinguishers. One non-freezing type portable fire extinguisher of the ordinary (moderate) hazard type shall be provided at each required standpipe hose connection. Where there is no standpipe connection, one non-freezing type portable fire extinguisher with at least a 2-A rating shall be provided for every 2,500 square feet (232 m²), or part thereof. Additional portable fire extinguishers, suitable for the hazards involved, shall be provided and maintained in accordance with FC906.

3605.3 Fire department access. Fire apparatus access shall be provided as set forth in Chapters 4 and 7 of NFPA 303, and FC 3605.3.1 through 3605.3.5.

3605.3.1 Access road. A road capable of supporting a department firefighting apparatus, with a width of not less than 20 feet (6096 mm) or a width as required by FC503, where applicable, shall be provided from a public street to one or more fire apparatus-accessible locations on the premises.

3605.3.2 Aisles. Any outdoor area of the marina shall be accessible by fire apparatus on all four sides, with a distance between the fire apparatus-accessible aisles of not more than 75 feet (22 860 mm). Such access aisles shall be kept unobstructed.

3605.3.3 Parking. Motor vehicles shall not be parked on fire apparatus access roads or aisles, unless approved.

3605.3.4 Slip identification. Slips and other mooring spaces shall be individually identified by a number and/or letter, which shall be conspicuously marked or posted. The direction to each slip and mooring space shall be conspicuously marked or posted at the base of each pier, finger pier, float and finger float.

3605.3.5 Fire department staging areas. Staging areas for fire department access and firefighting operations shall be provided on all floats. An area at least 4 feet wide by 10 feet long (1219 mm by 3048 mm), exclusive of walkways, with a curb or barrier having a minimum height of 4 inches (102 mm) shall be provided and maintained unobstructed at each standpipe hose connection for this purpose. Each staging area shall be identified by a durable sign reading "FIRE DEPARTMENT STAGING AREA-KEEP CLEAR."

3605.4 Emergency communications and preparedness. Emergency communications and emergency preparedness shall be in accordance with FC 3605.4.1 and 3605.4.2.

3605.4.1 Communications. The marina shall be provided with a public address system or other approved means of notifying occupants of a fire on the premises. A telephone not requiring a coin to operate or another approved, clearly identified means to notify the department, shall be provided on the premises in an approved location.

3605.4.2 Emergency preparedness. Marina owners shall designate 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 on the premises in a conspicuous approved location.

CHAPTER 37 COMBUSTIBLE FIBERS

SECTION FC [2901] 3701 GENERAL

[2901.1] 3701.1 Scope. This chapter shall govern the storage and handling of combustible fibers.

[2901.2] 3701.2 General. Combustible fibers shall be stored and handled in accordance with this chapter.

[2901.3] 3701.3 Permits. Permits shall be required as set forth in FC105.6.

[2901.4] 3701.4 Approved facility or location. Combustible fibers in quantities requiring a permit shall be stored in an approved facility or other approved location.

[2901.5] 3701.5 Prohibition. It shall be unlawful to store combustible fibers in a quantity that covers more than two-thirds of the floor area of any floor or in a quantity that is to a height greater than two-thirds of the distance from the floor to the ceiling.

SECTION FC [2902] 3702 DEFINITIONS

[2902.1] 3702.1 [Definition] Definitions. The following [term] terms shall, for the purposes of this chapter and as used elsewhere in this code, have the [meaning shown herein] meanings set forth in FC202.

BALED COTTON. [A natural seed fiber wrapped in and secured with industry-accepted materials, typically consisting of burlap, woven polypropylene, polyethylene or cotton or sheet polyethylene, secured with wire or bands. The term baled cotton includes lint removed from the cottonseed (linters) and residual materials from the ginning process (motes).]

BALED COTTON, DENSELY PACKED. [Baled cotton with a packing density of at least 22 pounds per cubic foot (360 kg/m³). A bale of densely-packed baled cotton typically measures 55 inches (1397 mm) in length, 21 inches (533 mm) in width, and 27.6 to 35.4 inches (701 to 899 mm) in height.]

COMBUSTIBLE FIBERS. [Readily ignitable and free-burning materials in a fibrous or shredded form, such as cocoa fiber, cotton, excelsior, hay, hemp, henequen, istle, jute, kapok, oakum, sisal, Spanish moss, straw, tow, wastepaper, or other natural or synthetic fibers that possess similar qualities, but excluding densely packed baled cotton.]

SEED COTTON. [Cotton in its raw, unprocessed (unginned) form, an agricultural commodity consisting of cotton fiber (lint) attached to the seed of the cotton plant.]

SECTION FC [2903] 3703 GENERAL REQUIREMENTS

[2903.1] 3703.1 Combustible waste. Ashes, rubbish or other combustible waste shall not be placed in wooden or other combustible containers and shall be removed daily from the facility.

[2903.2] 3703.2 Vegetation. Grass, vines, weeds, brush or other combustible vegetation shall not be allowed to accumulate within 15 feet (4570 mm) of any combustible fiber storage location.

[2903.3] 3703.3 Clearances. A minimum clearance of 3 feet (914 mm) shall be maintained between sprinkler heads and the top of piles.

[2903.4] 3703.4 Agricultural products. Hay, straw, seed cotton or similar agricultural products shall not be stored in an area adjoining any combustible fiber storage location unless a clear horizontal distance equal to the height of a pile is maintained between such agricultural products and such storage location. Storage shall be limited to stacks of 100 tons (91 metric tons) each. Stacks shall be separated by a minimum of 20 feet (6096 mm) of clear space.

[2903.5] 3703.5 Dust collection. Where located within a building, devices, equipment and systems that generate or emit combustible fibers shall be provided with an approved dust-collecting and exhaust system. Such system shall comply with the requirements of FC Chapter [13] 22 and the construction codes, including the Mechanical Code.

[2903.6] 3703.6 Portable fire extinguishers. Portable fire extinguishers shall be provided in accordance with FC906 governing extra-hazard occupancy protection, as set forth in FC Table 906.3.1.

SECTION FC [2904] 3704 LOOSE FIBER STORAGE

[2904.1] 3704.1 Reserved.

[2904.2] 3704.2 Storage of 100 cubic feet or less. Loose combustible fibers in quantities of not more than 100 cubic feet (3 m³) located in a building or structure shall be stored in a metal or metal-lined bin equipped with a self-closing cover.

[2904.3] 3704.3 Storage of more than 100 cubic feet to 500 cubic feet. Loose combustible fibers in quantities exceeding 100 cubic feet (3 m³) but not exceeding 500 cubic feet (14 m³) shall be stored in rooms enclosed with 1-hour fire-resistance-rated fire barriers, with openings protected by an approved opening protective assembly having a fire protection rating of 3/4-hour, constructed in accordance with the construction codes, including the Building Code.

[2904.4] 3704.4 Storage of more than 500 cubic feet to 1,000 cubic feet. Loose combustible fibers in quantities exceeding 500 cubic feet (14 m³) but not exceeding 1,000 cubic feet (28 m³) shall be stored in rooms enclosed with 2-hour fire-resistance-rated fire barriers, with openings protected by an approved opening protective assembly having a fire protection rating of 1 1/2-hours, and constructed in accordance with the construction codes, including the Building Code.

[2904.5] 3704.5 Storage of more than 1,000 cubic feet to 2,500 cubic feet. Loose combustible fibers in quantities exceeding 1,000 cubic feet (28 m³) but not exceeding 2,500 cubic feet (70 m³) shall be stored in rooms enclosed with 2-hour fire-resistance-rated fire barriers, with openings protected by an approved opening protective assembly having a fire protection rating of 1 1/2-hours, and constructed in accordance with the construction codes, including the Building Code. The storage room shall be protected throughout by a sprinkler system.

[2904.6] 3704.6 Storage of more than 2,500 cubic feet; detached storage structure. Loose combustible fibers in quantities exceeding 2,500 cubic feet (70 m³) but not exceeding 10,000 cubic feet (280 m³) shall be stored in a detached structure suitably located, with openings protected against entrance of sparks. The structure shall not be occupied for any other purpose. Loose combustible fibers in quantities exceeding 10,000 cubic feet (280 m³) may be stored only with the approval of the commissioner.

[2904.7] 3704.7 Separation from hazardous materials. No hazardous material shall be stored in any room or detached structure containing loose combustible fibers.

SECTION FC [2905] 3705 BALED STORAGE

[2905.1] 3705.1 Bale size and separation. Baled combustible fibers shall be limited to single blocks or piles not more than 25,000 cubic feet (700 m³) in volume, not including aisles or clearances. Blocks or piles of baled fiber shall be separated from adjacent storage by aisles not less than 5 feet (1524 mm) wide, or by flash-fire barriers constructed of continuous sheets of noncombustible material extending from the floor to a minimum height of 1 foot (305 mm) above the highest point of the piles and projecting not less than 1 foot (305 mm) beyond the sides of the piles.

[2905.2] 3705.2 Special baling conditions. Sisal and other fibers in bales bound with combustible tie ropes, jute and other fibers that swell when wet, shall be stored to allow for expansion in any direction without affecting building walls, ceilings or columns. A minimum clearance of 3 feet (914 mm) shall be required between walls and sides of piles, except that where the storage compartment is not more than 30 feet (9144 mm) wide, the minimum clearance at side walls shall be 1 foot (305 mm), provided that a center aisle not less than 5 feet (1524 mm) wide is maintained.

SECTION FC [2906] 3706 STORAGE OF COMBUSTIBLE FIBERS ON WATERFRONT STRUCTURES

[2906.1] 3706.1 Scope. This section shall govern the storage and handling of combustible fibers on waterfront structures, including piers, wharfs and bulkheads except when combustible fibers are stored and handled exclusively in sealed metal shipping containers.

[2906.2] 3706.2 General. Combustible fiber shall be stored and handled on waterfront structures in accordance with this section.

[2906.3] 3706.3 Prohibitions. It shall be unlawful to:

1. Unload and store loose combustible fibers on a waterfront structure.
2. Conduct hot work operations on a waterfront structure where combustible fibers are in storage or being handled.

[2906.4] 3706.4 Supervision of standpipe and sprinkler systems. A person holding a certificate of fitness for a standpipe system and a certificate of fitness for sprinkler system maintenance shall inspect the standpipe and sprinkler systems not more than 24 hours prior to the delivery of the combustible fibers. Combustible fibers shall not be unloaded if the standpipe or sprinkler system is out of service. While combustible fibers are present on the waterfront structure, the certificate of fitness holder shall inspect the standpipe and sprinkler systems, and portable fire extinguishers at least once each day. A record of all inspections shall be maintained on the premises and made available for inspection by any representative of the department.

[2906.5] 3706.5 Notification. Before combustible fibers are unloaded to a waterfront structure from any marine vessel, watercraft or motor vehicle, advance notice of at least 48 hours shall be given to the department by the owner of the

waterfront structure.

[2906.6] 3706.6 Fire protection. Waterfront structures where combustible fibers are stored or handled shall be provided with fire protection in accordance with FC [2906.6.1] 3706.6.1 through [2906.6.4] 3706.6.4.

[2906.6.1] 3706.6.1 Superstructure. The superstructure of the waterfront structure shall be protected throughout by a sprinkler system.

[2906.6.2] 3706.6.2 Substructure. The substructure of the waterfront structure shall be protected by one of the following methods:

1. Fire stops at intervals of 150 feet (45 720 mm); and

1.1. A sprinkler system arranged for discharge of water to the entire substructure area; or

1.2. Protected openings through decking for revolving nozzles or other water discharge equipment, so arranged as to permit water discharge onto the entire substructure area. Such openings shall be a minimum of 6 1/2 inches (165 mm) in diameter and spaced at 25 feet (7620 mm) intervals longitudinally and transversely. No cargo shall be stored on deck openings adjacent to the substructure fire stops and those in the main and fire hose aisles.

2. A system of water spray nozzles arranged to permit water discharge onto the entire substructure area and installed in accordance with the Building Code.

3. A system of trenches across the waterfront structure every 100 feet (30 480 mm). Such trenches shall not exceed 12 inches (305 mm) in width, shall be of substantial construction that conforms to the rest of the waterfront structure, shall extend to within 5 feet (1524 mm) of the sides of the waterfront structure, and shall have openings protected in sections not to exceed 25 feet (7620 mm) for access or removal in the event of fire. No cargo shall be placed directly above these openings, and durable signs shall be conspicuously posted on the waterfront structure to indicate the location of these openings.

4. A system of deck openings and under-deck sprinkler protection approved by the commissioner. Openings shall be spaced at 25 feet (7620 mm) intervals longitudinally and transversely. No cargo shall be placed directly above these openings, and durable signs shall be conspicuously posted on the waterfront structure to indicate the location of these openings.

[2906.6.3] 3706.6.3 LPG or gasoline-fueled equipment. Any LPG or gasoline-fueled devices, equipment or systems used to handle combustible fibers, or operated in the immediate area of combustible fiber storage or handling, shall be equipped with exhaust spark arresters and carburetor traps.

[2906.6.4] 3706.6.4 Portable fire extinguishers. The combustible fiber storage area shall be provided with portable fire extinguishers in accordance with FC906 governing extra-high hazards (Class A fires).

[2906.7] 3706.7 Storage and handling. Bales of combustible fibers facing aisles shall be covered on top and sides with tarpaulins or other suitable covering. Whenever possible, the combustible fibers shall be stacked on one side of the waterfront structure only, preferably at the water end of waterfront structure. Combustible fibers shall be tiered no higher than 12 feet (3658 mm) and a clearance of not less than 18 inches (457 mm) between the sprinkler head and the upper level of the top tier shall be maintained. An aisle space of not less than 5 feet (1524 mm) extending to the side of the waterfront structure shall be provided at right angles to the main aisle at intervals not exceeding 75 feet (22 860 mm) in the combustible fiber storage area.

[2906.8] 3706.8 Operation and maintenance. Waterfront structures upon which combustible fibers are stored or handled shall be operated and maintained in compliance with the requirements of FC [2906.8.1] 3706.8.1 through [2906.8.3] 3706.8.3.

[2906.8.1] 3706.8.1 Fire guard. A fire guard shall be required and positioned approximately every 200 feet (60 960 mm) throughout the length of the combustible fiber storage area. Persons conducting a fire watch shall have the duties and responsibilities set forth in FC901.7.2.1 with respect to the areas being monitored in connection with combustible fiber

storage, and shall be familiar with the location of fire alarm manual pull stations, and standpipe system hose and hose connections in the area.

[2906.8.2] 3706.8.2 Access. Access to combustible fibers and the aisles between the stored combustible fibers shall be restricted to personnel handling the combustible fibers, fire guards and representatives of the department.

[2906.8.3] 3706.8.3 Loading and unloading. When loading and unloading combustible fibers, two persons shall be assigned to each loading or unloading operation to stand by with the standpipe hose. These persons shall be instructed as to the location and use of the standpipe system valves and hoses.

CHAPTERS 38 AND 39 RESERVED

CHAPTER 40 DISTILLERIES

SECTION FC 4001 GENERAL

4001.1 Scope. This chapter governs the design, installation, operation and maintenance of distilleries, including the manufacturing, storage, handling and use of distilled spirits in such facilities. Storage of distilled spirits in a warehouse or a liquid storage warehouse that is not a distillery is governed by FC5704.3. Any occupancy with ancillary distillery operations is a distillery regulated by this section.

Exceptions:

1. Storage of distilled spirits in a warehouse, liquid storage warehouse or other storage facility that is not a distillery is governed by FC5704.3.
2. Bottling and related processing of distilled spirits, including blending, filtering, and other handling of distilled spirits, but excluding distilling, in a warehouse, liquid storage warehouse or other storage facility that is not a distillery, shall be conducted in accordance with FC5705 or as otherwise provided in the rules.

4001.2 Permits. Permits shall be required as set forth in FC105.6.

4001.3 General. The design, installation, operation and maintenance of distilleries, including the manufacturing, storage, handling and use of distilled spirits, shall be in accordance with this chapter. Nothing contained in this chapter shall authorize operations or facilities in contravention of Federal, State and City laws, rules and regulations governing distilled spirits, including the regulations of the Tax and Trade Bureau of the United States Treasury Department and the New York State Liquor Authority.

4001.3.1 Special approval for distilleries with widely-separated operations. The department, in its discretion, may approve alternative design, installation, operational and maintenance standards, including alcohol storage in excess of 20,000 gallons (75 700 L), on a case-by-case-basis, for any distillery housed in a detached building exclusively occupied for such purpose, which, by reason of its size (floor area and ceiling height) is able to mitigate the hazards associated with the distilling process by maintaining substantial separation between its stills and other distillery equipment and between its distilled spirits processing area and other distillery operations. The department may apply distilled spirits industry design standards for such distilleries, in whole or in part, in light of the distillery's design, construction and location.

4001.3.2 Special approval for distilleries based on performance standards. The department, in its discretion, may approve alternative design, installation, operation and maintenance requirements, including distilled spirits industry design standards, where the applicant demonstrates that the design of the still, alcohol storage and handling equipment, grain handling equipment and/or other equipment mitigate the hazards associated with distillery operations.

4001.3.3 Special approval for existing distilleries. The department, in its discretion, may approve by rule and/or individual

modification alternative design and installation requirements for distilleries existing prior to the effective date of this section.

4001.4 Acceptance testing. Prior to commencement of distillery operations:

1. The still and all piping associated with alcohol processing equipment shall be inspected and tested by, or in the presence of, a certificate of fitness holder at the time of installation to ensure that the equipment is in good working order; and
2. Electrical wiring, equipment and installations shall be installed in accordance with the construction codes, including the Building Code and the Electrical Code.

4001.5 Prohibitions. It shall be unlawful to:

1. Store more than 20,000 gallons (75 700 L) of alcohol in any distillery, except as may be authorized by the department pursuant to FC4001.3.1
2. Conduct distilling, alcohol processing or bottling above the second floor of any building, or in any basement, cellar or other below grade location, except as authorized by the department.
3. Establish or operate a distillery in any building housing a Group E, R-2 or I occupancy, or in which Group A occupancy is the dominant occupancy, except as authorized by the department.

4001.6 Supervision. Distilleries and distillery operations shall be under the supervision of a certificate of fitness holder, as follows:

1. Still operation, and periodic testing of stills, shall be personally conducted by a certificate of fitness holder.
2. Distillery equipment other than stills shall be operated under the personal supervision of a certificate of fitness holder.
3. All other distillery operations, including the storage of raw alcohol and distilled spirits, shall be under the general supervision of a certificate of fitness holder.
4. The installation, alteration, repair or servicing of stills and other distillery equipment shall be conducted under the personal supervision of a still installation certificate of fitness holder or other person with approved qualifications.

4001.7 Other alcohol products. Manufacturing, storage, handling and use in a distillery of alcohol products that are not raw alcohol or distilled spirits shall comply with the requirements of FC4007.

4001.8 Very low flammability. Any distillery that exclusively manufactures, stores, handles and uses beverage alcohol that is a Class I liquid with an alcohol content by volume of 20 percent or less (including raw alcohol, process alcohol and finished products) may apply to the Department to be exempted from design and installation requirements of this chapter.

4001.9 Combustible dust. Any distillery that generates combustible dust shall comply with the requirements for combustible dust-producing operations set forth in FC Chapter 22 and this chapter.

4001.10 Emergency response plan. Each distillery shall prepare and maintain an emergency response plan to address fires; spills, vapor releases and other accidental discharges; and distillery equipment alarms. Distilleries may utilize emergency plans developed in compliance with OSHA or New York State Department of Labor regulations, provided that they address all matters required by this chapter. The certificate of fitness holder shall train all distillery staff to implement such emergency response plan, including appropriate mitigating and reporting actions necessitated by fire, leak or spill.

SECTION FC 4002 DEFINITIONS

4002.1 Definitions. The following terms shall, for the purposes of this chapter and used elsewhere in this code, have the meanings set forth in FC202.

ALCOHOL STORAGE AREA.

BEVERAGE ALCOHOL.

Distilled Spirits.

Finished Goods.

Process Alcohol.

Raw Alcohol.

CHEMICAL STORAGE BUILDING.

DISTILLED SPIRITS PROCESSING AREA.

DISTILLERY.

Small Distillery.

Medium Distillery.

Large Distillery.

DISTILLERY EQUIPMENT.

Alcohol Process Tank.

Closed Alcohol Process Tank.

Open Alcohol Process Tank.

Alcohol Storage Equipment.

Barrel.

Intermediate Bulk Container.

Alcohol Storage Tank.

Still.

DISTILLERY OPERATIONS.

Alcohol Processing.

Bottling.

Distilling.

DISTILLERY SERVING AREA.

DISTILLERY WASTE PRODUCTS.

SECTION FC 4003
DESIGN AND INSTALLATION REQUIREMENTS

FOR DISTILLERY FACILITIES

4003.1 General. The building housing a distillery shall be designed and installed in accordance with this section. Design and installation documents shall be submitted for department review and approval.

4003.2 Occupancy type. Distilleries shall be housed in buildings and occupancies with the following occupancy classifications:

1. A small distillery shall be located in a building or space designed as an F-1 factory occupancy as set forth in FC4003.4.1. Such factory occupancy may be located in a mixed-occupancy building, except as otherwise provided in FC4001.5(3).
2. A medium distillery shall be located in a high-hazard occupancy, as set forth in FC4003.4.1, in a building in which Group F occupancy is the dominant occupancy
3. A large distillery shall be located in a separate building or in a detached building, which is classified as a high-hazard occupancy.

4003.3 Maximum still capacity and maximum allowable quantity. Maximum still capacities shall be based upon distillery size, as set forth in FC Table 4003.3. The maximum allowable quantity of alcohol, of any type, shall not exceed the amounts set forth in FC Table 4003.3 and FC4003.3.1 through 4003.3.3, except as authorized by the department.

FC TABLE 4003.3

MAXIMUM STILL CAPACITIES AND MAXIMUM ALLOWABLE QUANTITIES

Distillery Size

Maximum Individual Still Capacity

Aggregate

Maximum Still Capacity

Maximum Allowable Quantity per Control Area a

Aggregate Maximum Allowable Quantity^b

Additional Storage Allowance per Control Area for Beverage Alcohol and Precursors =20% ABV^c

Maximum Aggregate Allowable Quantity of Beverage Alcohol and Precursors

=20% ABV^d

Small distillery

125 gallons (473 L)

250 gallons (946 L)

750 gallons (2839 L)

1,500 gallons (5678 L)

750 gallons

(2839 L)

1,500 gallons

(5678 L)

Medium distillery

750 gallons (2839 L)

1,500 gallons (5678 L)

2,000 gallons (7570 L)

6,000 gallons (22 710 L)

4,000 gallons

(15 140 L)

8,000 gallons

(30 280 L)

Large distillery

2,000 gallons (7570 L)

8,000 gallons (30 280 L)

4,000 gallons (15 140 L)

20,000 gallons (75 700 L)

8,000 gallons

(30 280 L)
16,000 gallons
(60 560 L)

- a. The maximum allowable quantity per control area comprises all raw alcohol and distilled spirits stored on the premises, excluding the amounts of finished goods allowed by FC4005.2.5.
- b. The aggregate maximum allowable quantity comprises all raw alcohol and distilled spirits stored on the premises, excluding the amounts of finished goods allowed by FC4005.2.5. These amounts are reduced in a combined fire area pursuant to FC4003.4.2 to 1,000 gallons (small distillery); 2,000 gallons (medium distillery); and 4,000 gallons (large distillery).
- c. Additional allowance per control area applies to beverage alcohol and flammable beverage alcohol precursors, up to a maximum of 20% alcohol content by volume (ABV), clearly labelled as such in accordance with Federal or other applicable regulations.
- d. Maximum aggregate allowable quantity stored on the premises of beverage alcohol and flammable beverage alcohol precursors, up to a maximum 20% alcohol content by volume (ABV), clearly labelled as such in accordance with Federal or other applicable regulations. These amounts are reduced in a combined fire area pursuant to FC4003.4.2 to 1,000 gallons (small distillery); 4,000 gallons (medium distillery); and 8,000 gallons (large distillery).

4003.3.1 Small distillery. The maximum allowable quantity in a small distillery shall be 750 gallons (2839 L) per control area. An additional 750 gallons (2839 L) of beverage alcohol and flammable beverage alcohol precursors, with an alcohol content by volume of 20 percent or less, may be stored, handled or used per control area.

4003.3.2 Medium distillery. The maximum allowable quantity in a medium distillery shall be 2,000 gallons (7570 L) per control area. An additional 4,000 gallons (15 140 L) of beverage alcohol and flammable beverage alcohol precursors, with an alcohol content by volume of 20 percent or less, may be stored, handled or used per control area.

4003.3.3 Large distillery. The maximum allowable quantity in a large distillery shall be 4,000 gallons (15 140 L) per control area. An additional 8,000 gallons (30 280 L) of beverage alcohol and flammable beverage alcohol precursors, with an alcohol content by volume of 20 percent or less, may be stored, handled or used per control area.

4003.4 Fire separations. Except as otherwise provided in FC 4003.4.1 and 4003.4.2, a minimum of 1-hour fire barriers or horizontal assemblies, or both, constructed in accordance with the Building Code, including self-closing doors, shall be installed to separate the following distillery operations from each other:

1. Distilled spirits processing areas.
2. Alcohol storage areas, except barrel storage.
3. Barrel storage areas.
4. Distillery serving area.
5. General business operations area and/or finished goods storage in excess of 250 gallons (946 L).
6. Other alcohol production areas.

4003.4.1 Factory and high-hazard areas. The distilled spirits processing areas, alcohol storage areas and barrel storage areas shall be constructed, in small distilleries, with the fire barriers and horizontal assemblies required for a factory occupancy, and, in medium distilleries, with the fire barriers and horizontal assemblies required for a high-hazard occupancy.

4003.4.2 Combined fire areas. The distilled spirits processing areas, alcohol storage areas, barrel storage areas and other alcohol production areas may be located in a single fire area subject to the following requirements:

1. The total quantity of alcohol stored, handled or used in the fire area is limited as follows: 1,000 gallons (3785 L) in a small distillery; 2,000 gallons (7570 L) in a medium distillery; 4,000 gallons (15 140 L) in a large distillery, and a maximum allowable quantity of twice that amount for beverage alcohol and flammable beverage alcohol precursors, with an alcohol content by volume of 20 percent or less, for medium and large distilleries, and, in a small distillery, a maximum quantity of

1000 gallons (3785 L).

2. Barrel storage shall be in accordance with FC4005.3. The barrel storage area shall be separated by a wall, bollards or other approved separation designed to minimize the risk from rolling barrels.

3. The entire fire area shall be provided with emergency alarm detection and exhaust ventilation systems in accordance with FC4003.5.3 and 4003.7.

4. The entire fire area shall be provided with electrical wiring and equipment in accordance with FC4003.8.

5. Grain mashing and fermenting may be conducted in such combined fire area. All grain conveyance shall be in enclosed containers or systems. A combustible dust collection system shall be provided for any unenclosed grain handling. No grain milling shall be conducted in such combined fire area.

6. Additional quantities of alcohol shall be stored in a listed and approved chemical storage building within the space, at an approved location, or in a separate fire area.

4003.5 Fire protection systems. Fire protection systems shall be provided in accordance with FC 4003.5.1 through 4003.5.3.

4003.5.1 Sprinkler system. Distilleries shall be protected throughout by a sprinkler system designed in accordance with the Building Code. The sprinkler system in a small distillery shall be designed to be of an extra hazard type. The sprinkler system in a medium or large distillery shall be designed for a high-hazard occupancy. Sprinkler systems for high-piled barrel storage shall comply with the sprinkler requirements for such storage systems in accordance with FC3206.4. Sprinkler systems for distilleries producing combustible dust shall comply with the sprinkler requirements of NFPA 652.

4003.5.2 Fire alarm system. Distilleries shall be provided with a manual and automatic fire alarm system. If the fire alarm system is part of a building system that provides protection to other occupancies, a separate sprinkler water flow device shall be provided for the distillery occupancy, except in a small distillery equipped with a smoke detection system. Such fire alarm system shall activate alarm notification devices throughout the distillery and be monitored by a central station.

4003.5.3 Emergency alarm system. Distilleries shall be provided with a gas detection system designed to detect flammable vapors in accordance with FC908 in the distilled spirits processing area and alcohol storage areas, and in any area of the distillery in which flammable vapors in more than de minimis quantities may be released or accumulate. Such emergency alarm system shall activate alarm notification devices throughout the distillery.

4003.6 Explosion control. Medium and large distilleries shall be provided with explosion control designed in accordance with FC911 to mitigate the impact of an explosion.

4003.7 Exhaust ventilation. Exhaust ventilation shall be provided in accordance with Section 502.8 of the Mechanical Code in the distilled spirits processing area and alcohol storage areas, and in any area of the distillery in which flammable vapors in more than de minimis quantities may be released or accumulate.

4003.8 Electrical wiring and equipment. Electrical wiring and equipment shall be installed in accordance with the Electrical Code. Class 1, Division 1 electrical wiring and equipment shall be provided in the distilled spirits processing areas and alcohol storage areas, except that where a closed system as defined in FC202 is being utilized in a distilled spirits processing area or alcohol storage area, electrical wiring and equipment shall be provided as follows:

1. Class 1, Division 1 and Class I, Division 2 electrical wiring and equipment in accordance with FC Table 5703.1.1 (for indoor equipment where flammable vapor/air mixtures could exist under normal operations); and

2. Class 1, Division 1 electrical wiring and equipment in pits and behind containment barriers where flammable vapor cannot dissipate horizontally; and

3. Class 2, Division 1 electrical wiring and equipment in any other area where combustible dust may be present.

4003.8.1 Lighting. Distilled spirits processing areas, excluding barrel storage areas, shall be well lighted to facilitate safe

operation of distillery equipment and visibility of signage.

4003.9 Mechanical equipment. All stationary and portable electrically-powered and/or heat-producing devices, equipment and systems, including space heating and cooling systems; mechanical refrigerating systems; and conveyers, installed or used in a distilled spirits processing area or alcohol storage area shall be suitable for a classified location in accordance with the Electrical Code, the Mechanical Code and NFPA 30, as applicable, except where all alcohol handling is in a closed system or where an explosion mitigation analysis indicates that the equipment is outside of the classified area. No mechanical equipment with burners, or using other flames or exposed electrical elements, shall be installed or used in distilled spirits processing areas and alcohol storage areas. Air-driven power tools shall be used whenever practicable instead of electrical tools; when electrical tools must be used, no distilling, alcohol processing or bottling operations shall be conducted and the control area shall be clear of any flammable vapors.

4003.10 Environmental control. Stills shall be operated within the ambient temperature range recommended by the still manufacturer and in accordance with distilled spirits industry standards.

4003.11 Emergency power. Gas detection systems and any exhaust ventilation system designed to maintain flammable vapor concentration below the lower explosive limit shall be provided with an emergency power system in accordance with the Building Code.

4003.12 Spill control. Drainage or containment systems to restrict and control spills, including noncombustible and liquid-tight floors, shall be provided in distilled spirits processing areas and alcohol storage areas in accordance with FC5004.2. A hose suitable for a classified environment connected to a water supply shall be provided to facilitate dilution of any spills.

4003.13 Storage areas. Storage areas shall be designed and installed in accordance with FC4005.

4003.14 Impact protection. Distillery equipment used to manufacture, store, handle or use beverage alcohol, including storage tanks, shall be protected from accidental impact from powered industrial trucks and other mechanical handling equipment in accordance with NFPA 505 and distilled spirits industry standards.

4003.15 Lightning protection. Medium and large distilleries that occupy a separate building shall be provided with lightning protection in accordance with the Electrical Code and NFPA 780.

SECTION FC 4004 DESIGN AND INSTALLATION REQUIREMENTS FOR DISTILLERY EQUIPMENT

4004.1 General. Distillery equipment shall be designed and installed in accordance with this section and distilled spirits industry standards.

4004.2 Listed or labeled. Distillery equipment used to manufacture, store, handle or use beverage alcohol shall be listed or labeled for the intended use, if listing and labeling exists for such equipment. The department may accept international or other approved certifications for components which are not listed and labeled by a nationally recognized testing laboratory.

4004.3 Electrical wiring and equipment. Distillery equipment used to manufacture, store, handle or use beverage alcohol shall be bonded and grounded to protect against electrical discharge in accordance with the Electrical Code.

4004.4 Piping systems. Piping systems for conveying Class I liquids, including piping, tubing, valves, pumps, and fittings shall be designed, installed and maintained in accordance with FC5703.6 and ASME B31.3, except that acceptance testing shall be conducted in accordance with FC4001.4.

4004.5 Stills. Stills shall be designed and installed in accordance with FC 4004.5.1 through 4004.5.4.

4004.5.1 Certificate of approval. Stills shall be of a type for which a certificate of approval has been issued in accordance with FC112 and the rules. On an interim basis, the department may grant a site-specific approval of a still for which a manufacturer has not obtained a certificate of approval upon a satisfactory showing by the permit applicant as to the still

manufacturer's design and installation specifications and operational and maintenance requirements.

4004.5.2 Installation. Stills shall be stationary, by securing them in an approved manner.

4004.5.3 Heat source. Heating shall be by indirect means, using steam, hot water or other approved method. Mechanical equipment with burners, or using other flames or exposed electrical elements, shall not be installed. An emergency shutoff switch for the heat source shall be provided at the entrance to the processing area.

4004.5.4 Ingredients. All liquid and solid ingredients shall be suitable for use in the still for which a certificate of approval is sought.

4004.6 Tanks and containers. Alcohol handled and used during distilling and alcohol processing shall be stored in alcohol process tanks in accordance with FC4005.

4004.7 Barrels. Barrels and barrel storage shall be designed in accordance with FC4005.3 and distilled spirits industry standards.

4004.8 Powered industrial trucks and other mechanical handling equipment. Powered industrial trucks shall be stored and used in accordance NFPA 505 and distilled spirits industry standards. Other mechanical handling equipment shall be stored and used in accordance with distilled spirits industry standards.

SECTION FC 4005 STORAGE OF ALCOHOL IN DISTILLERIES

4005.1 Alcohol storage tanks and containers. In a distillery, raw alcohol and distilled spirits shall be stored in tanks and containers designed and installed in accordance with FC Chapter 32 and NFPA 30, as applicable, except as otherwise provided in Sections 4005.1.1 through 4005.1.5.

4005.1.1 Aboveground storage. Notwithstanding the provisions of FC 5701.7(3) and 5704.1.1, in a distillery raw alcohol, distilled spirits and other alcohol that is a Class II or III liquid, shall be stored in an aboveground storage tank or aboveground intermediate bulk container.

4005.1.2 Tank and container construction. All tanks and containers in which alcohol is stored and handled, except barrel storage, shall be constructed of stainless steel and designed in accordance with FC 5704, 5705.2 and 5705.3. Raw alcohol delivered to a distillery in a plastic intermediate bulk container shall be expeditiously (but not later than the end of the workday) transferred into a stainless steel storage tank or stainless steel intermediate bulk container in accordance with FC4005.

4005.1.3 Tank and container installation. All tanks and containers in the distilled spirits processing area and all tanks and containers which transfer their contents by piping or which are otherwise part of a stationary installation, shall be securely affixed to the floor, to prevent movement.

4005.1.4 Portable tanks and containers. Portable tanks and containers not required to be affixed to the ground shall be placed in a location and manner in which they will remain stable. Portable tanks and portable containers shall not be stacked unless such tanks and containers are designed and listed for that purpose, and, if so, shall not be stacked more than two tiers or 12 feet (3658 mm) above the floor. Powered industrial trucks or other suitable devices, equipment or systems shall be used to lift and lower the portable tanks and portable containers.

4005.1.5 Open tanks and containers. Any open alcohol process tank or alcohol storage equipment shall have a vapor-tight lid or other similar form of closure. Such lid or closure shall be kept closed at all times when the tank or container contains alcohol or alcohol residues, except as necessary during handling and processing operations.

4005.1.6 Separation and aisles. Separation and aisles between storage tanks and containers shall be in accordance with FC5704.3.7.2.2.

4005.2 Distillery storage locations. In a distillery, raw alcohol and distilled spirits shall be stored in the locations specified in Sections 4005.2.1 through 4005.2.6, except as otherwise provided in FC4003.4.2.

4005.2.1 Storage of raw alcohol. Raw alcohol shall be stored in an alcohol storage area. Raw alcohol shall not be stored in distilled spirits processing areas, but shall be transferred from the alcohol storage area to the still.

4005.2.2 Storage of process alcohol. Process alcohol shall be stored in the distilled spirits processing area in alcohol process tanks, except for alcohol temporarily stored in portable containers during processing, and barrel storage. Process alcohol undergoing aging in barrels shall be stored in a separate fire area as set forth in FC4003.4.

4005.2.3 Storage of distilled spirits ready for bottling. Distilled spirits ready for bottling or other packaging as finished goods shall be stored in distilled spirits process area in alcohol process tanks or alcohol storage area.

4005.2.4 Distillery waste products. Any methanol, stillage or other residue that is susceptible to spontaneous ignition or otherwise presents an imminent hazard shall be stored in an alcohol storage area or other approved location. Any other distillery waste product, such as materials contaminated with alcohol, shall be stored in a noncombustible container in the business operations area and disposed of in accordance with FC304.

4005.2.5 Finished goods. Finished goods may be stored in the general business operations area, distillery serving area, alcohol storage room and barrel storage room. Finished goods shall not be counted toward the maximum allowable quantity of alcohol allowed in that fire area.

4005.3 Barrel storage. Alcohol shall be stored in barrels in accordance with FC 4005.3.1 through 4005.3.2.

4005.3.1 Barrel storage. Barrels shall be stored on the floor, in a secure rack of substantial construction in accordance with distilled spirits industry standards, or on pallets (with barrels stored on their flat ends). Barrel storage shall be limited such that the top of the stored barrels shall not exceed a height of 12 feet (3658 mm) above the floor, except as may be otherwise approved by the department based on the location and manner of such high-piled storage and a determination that barrel handling (including the dropping of a barrel or pallet of barrels) does not present an undue hazard to other distillery operations. Barrels stored above floor level shall be on approved shelves or racks designed and/or listed for such purpose. Barrel storage more than 6 feet (1829 mm) above the floor shall be in compliance with Building Code requirements, the high-piled combustible storage requirements of FC Chapter 32, and distilled spirits industry standards.

4005.3.2 Used barrels. Barrels previously filled with distilled spirits shall be handled and stored as if full unless cleaned and purged of vapors in accordance with distilled spirits industry standards.

SECTION FC 4006 OPERATIONAL AND MAINTENANCE REQUIREMENTS FOR DISTILLERIES

4006.1 General. Distilleries shall be operated and maintained in accordance with this section and distilled spirits industry standards.

4006.2 Operation of distillery serving area in distilleries. Tasting rooms or other distillery serving areas may be housed or operated in a distillery provided that such tasting rooms and distillery serving areas are protected by a fire separation in accordance with FC4003.4. Any commercial kitchen shall be operated in a fire area separated from distilled spirits processing areas and alcohol storage areas in accordance with the Building Code.

4006.3 Business operations area. To the maximum extent practicable, the distilled spirits processing areas and alcohol processing areas in a distillery shall be used solely for distilling and alcohol processing. All other business operations, storage of other business equipment, deliveries (including deliveries of raw alcohol and other raw materials) and shipments (including shipment of finished goods), shall be conducted in a separate business operations area. Whenever practicable, deliveries of raw alcohol and other raw materials shall not be made through the distillery serving area or other area accessible to the public, or shall be made when those areas are closed to the public.

4006.4 Alcohol handling. All transfers of alcohol into and between distillery equipment shall be in accordance with FC5705.2.4, or other approved means.

4006.5 Barrel filling and emptying. Barrel filling and emptying, including the blending of distilled spirits from barrel storage,

shall be conducted in the alcohol processing area or bottling area, except as otherwise provided in FC4003.4.2.

4006.6 Staffing of facility. A certificate of fitness holder shall be present on the premises at all times when distilling and alcohol processing is being conducted, shall personally conduct any distilling, and shall tend to the still at all times when in operation in accordance with distilled spirits industry standards. The certificate of fitness holder shall also be present on the premises during the transfer of raw alcohol from a shipping container into distillery equipment. At least one other trained and knowledgeable person shall be present on the premises when the quantity of alcohol undergoing distillation or alcohol processing exceeds 5 gallons (19 L).

4006.7 Spill mitigation and reporting. Leaks, spills or other uncontrolled discharges of raw alcohol or distilled spirits shall be mitigated and reported in accordance with FC 4006.7.1, 4006.7.2, and 5003.3.

4006.7.1 Spill mitigation. Spills of raw alcohol or distilled spirits shall be contained and, if practicable, promptly diluted by water. Spills shall be mitigated using a spill kit suitable for flammable alcohol and the flammable or combustible waste disposed of in accordance with applicable laws, rules and regulations. Floor drains shall only be used for collection and/or disposal of spills when approved by the department. The distillery's spill mitigation and reporting procedures shall be set forth in the distillery's emergency response plan.

4006.7.2 Cessation of distillery operations. In the event of a leak, spill or uncontrolled discharge, distillery operations unrelated to the mitigation of the release shall immediately cease. Distillery operations shall resume only when the hazard has been mitigated and the spilled material has been removed.

4006.8 Combustible materials. Packaging materials and other combustible materials shall not be stored in the distilled spirits processing area or barrel storage areas except as needed for immediate use. Additional (bulk) storage of such materials shall be located in the business operations area of the distillery. Idle pallets of wood and other combustible materials shall be stored in the business operations area of the distillery in accordance with FC Chapter 32.

4006.9 Distillery waste products. Any methanol, stillage or other distillery waste product shall be collected and disposed of in accordance with FC304. Such waste shall be removed from the distilled spirits processing areas and alcohol processing areas immediately upon completion of the distilling or alcohol processing operation from which it was generated, and stored in accordance with FC4005.2.4.

4006.10 Public access and tours. Persons not conducting necessary distillery operations shall not be allowed in the distilled spirits processing areas and alcohol storage areas during distilling or alcohol processing operations, except distillery tours may be conducted in designated locations within such areas, as authorized by the department, and supervised by a certificate of fitness holder. Non-distillery staff shall be restricted to the distillery serving area and general business operations area.

4006.11 Maintenance of equipment. All distillery equipment shall be periodically inspected, tested and otherwise maintained in accordance with the original equipment manufacturer's instructions, distilled spirits industry standards, and all applicable laws, rules and regulations. The original equipment manufacturer's manuals for the installation, operation and maintenance of all distillery equipment shall be maintained on the premises and made available for inspection by any representative of the department.

4006.12 Sources of ignition. Safety precautions shall be taken to prevent ignition of flammable liquids or vapors from any potential ignition source, including any heat, friction or electrical current generated in connection with cleaning, maintenance and repair work.

4006.12.1 Smoking. It shall be unlawful to smoke in a distillery. "No Smoking" signs shall be posted in accordance with FC310.

4006.12.2 Open flames. Open flames, including barrel charring operations, are prohibited in the distilled spirits processing area and other alcohol production areas, except as authorized by the department.

4006.12.3 Environmental control. The ambient room temperature and other environmental factors in the distilled spirits processing area and storage areas shall be kept within limits suitable for safe distilling and alcohol processing operations and alcohol storage, as applicable.

4006.13 Signage and markings. NFPA 704 signage shall be posted at the entrance to the distilled spirits processing areas, and storage and barrel storage areas, in accordance with FC5003.5. The piping shall be marked in accordance with FC5703.5.

4006.14 Portable fire extinguishers. Portable fire extinguishers shall be provided in accordance with FC906.

4006.15 Safety data sheets. Safety data sheets shall be maintained on the premises in accordance with FC5003.4.

SECTION FC 4007

OTHER ALCOHOL PRODUCTION

4007.1 Scope. This section governs the materials and processes used to produce alcohol for distilling, including grain storage, handling and milling, mashing and fermenting, and any byproducts generated from those processes.

4007.2 General. All materials and processes governed by this section shall be designed, installed, operated and maintained in accordance with this section and distilled spirits industry standards.

4007.3 Grain storage, handling and milling. Distilleries shall be designed, installed operated and maintained to safely store, handle and use any grain or other raw material used in milling, mashing and fermenting operations that generates combustible dust, as defined in FC2202.1. A hazard analysis shall be conducted based on the quantity and processing of the grain or other combustible dust-producing raw material in accordance with NFPA 652. The distillery shall be designed and/or equipped as required by NFPA 652 based on the type and amount of combustible dust that could be generated, including the following safety measures, as applicable:

1. Except as otherwise provided in FC4003.2(1), the storage, handling and milling of grain or other combustible dust-producing raw material shall be conducted in a space that is constructed as a high hazard occupancy in accordance with the Building Code; and/or
2. Except as otherwise provided in FC4003.4.2, the storage, handling and milling of grain or other combustible dust-producing raw material shall be conducted in a space separated by fire separations from the distilled spirits processing areas and alcohol processing areas and alcohol storage areas; and/or
3. A mechanical ventilation system shall be provided to prevent the concentration of combustible dust from reaching explosive levels in accordance with FC Table 2204.1; and/or
4. Specialized dust collection systems and devices shall be provided to reduce the amount of atmospheric combustible dust; and/or
5. Grain or other combustible dust-producing raw material shall be stored in suitable containers; and/or
6. Limitations shall be established on the quantity of grain or other combustible-dust producing raw material that can be stored, handled and milled at the distillery at one time.

4007.4 Design of facility. The space used for grain storage, handling and milling, mashing and fermenting, and/or related operations shall meet the requirements of FC 4007.4.1 through 4007.4.3.

4007.4.1 Separation from distilled spirits and alcohol processing areas. Such space shall be separated by fire separations from the distilled spirits processing areas and alcohol processing areas and alcohol storage areas, or shall meet the requirements for such areas as set forth in FC4003.

4007.4.2 Fire protection systems. Such space shall be equipped with fire protection systems in accordance with FC4003.5, notwithstanding the provision of fire separation pursuant to FC4007.4.1.

4007.4.3 Mechanical equipment. No mechanical equipment with burners or using other flames or exposed electrical elements, may be installed or used, notwithstanding the provision of fire separation pursuant to FC4007.4.1.

4007.5 Other alcohol production waste. Any byproduct or residue generated by grain storage, handling and milling, mashing and fermenting and/or related operations, including combustible liquids, combustible waste and carbon dioxide, shall be handled or mitigated in a manner appropriate for the level of hazard that it presents. Where the carbon dioxide generated by other alcohol production may exceed United States Occupational Safety and Health Administration safety limits, an oxygen sensor or other approved or listed device shall be installed.

CHAPTERS 41 THROUGH 49 RESERVED

CHAPTER 50 HAZARDOUS MATERIALS-GENERAL PROVISIONS

SECTION FC [2701] 5001 GENERAL

[2701.1] 5001.1 Scope. This chapter shall govern the storage, handling, use and transportation of hazardous materials. Hazardous material storage, handling and use shall additionally comply with the requirements of the New York State Department of Environmental Conservation regulations, as set forth in 6 NYCRR Parts [595] 596 through [614] 613.

Exceptions:

1. The storage, handling and use in retail or wholesale [sales] mercantile occupancies of alcoholic beverages, medicines, foodstuffs, cosmetics, and consumer products containing not more than 50 percent by volume of water-miscible liquids and with the remainder of the solutions not being flammable, when packaged in individual containers not exceeding 1.3 gallons (5 L) in volume.
2. Storage, handling and use of hazardous materials for agricultural purposes as a pesticide, fertilizer or similar application, when approved for such use by the regulatory agency having jurisdiction and when such storage, handling and use is in accordance with the manufacturer's instructions.
3. Reserved.
4. Reserved.
5. Refrigerating systems when designed, installed, operated and maintained in accordance with the Mechanical Code and FC606.
6. Stationary energy storage [battery] systems when designed, installed, operated and maintained in accordance with FC608 and the rules.
7. The storage, handling and use, including storage for sale, of fireworks, in accordance with FC Chapter [33] 56.
8. The storage, handling and use of corrosives in Group M occupancies, including storage for sale, of personal and household products, when in the manufacturer's original consumer packaging.
9. The storage of [distilled spirits and] wines in wooden barrels and casks.
10. The manufacturing, storage, handling and use of distilled spirits in distilleries in accordance with FC Chapter 40.
11. The use of [wall-mounted] dispensers containing alcohol-based hand rubs classified as Class I or Class II liquids, when stored, handled and used in accordance with [FC3405.5] FC5705.5.

[2701.1.1] 5001.1.1 Relationship with other chapters. This chapter shall apply to all hazardous materials, including those materials regulated elsewhere in this code, except that when specific requirements inconsistent with the provisions of this chapter are set forth elsewhere in this code, those specific requirements shall apply to the extent that they are

inconsistent. Where a material is in multiple hazard categories, compliance with each hazard category shall be required. Where a material is both a physical hazard and a health hazard, compliance with the requirements for each hazard category shall be required.

[2701.2] 5001.2 Material classification. Hazardous materials shall be classified by physical hazard, health hazard and/or other hazards associated with the properties of the material, or if the hazardous material is a mixture, with the hazards associated with the mixture as a whole. The commissioner may determine the appropriate hazard classification of a hazardous material, or may accept the classification set forth in nationally recognized standards, [material] safety data sheets, or other approved standard or method.

[2701.2.1] 5001.2.1 Reserved.

[2701.2.2 Reserved.] 5001.2.2 Hazard categories. Hazardous materials shall be classified according to hazard categories. The categories include materials regulated by this chapter and materials regulated elsewhere in this code.

[2701.2.2.1] 5001.2.2.1 Physical hazards. The material categories listed in this section are classified primarily as physical hazards.

1. Explosives and blasting agents.
2. Combustible liquids.
3. Flammable solids, liquid and gases.
4. Organic peroxide solids or liquids.
5. Oxidizing solids or liquids.
6. Oxidizing gases.
7. Pyrophoric solids or liquids.
8. Unstable (reactive) solids, liquids or gases.
9. Water-reactive solids and liquids.
10. Cryogenic fluids.

[2701.2.2.2] 5001.2.2.2 Health hazards. The material categories listed in this section are classified primarily as health hazards.

1. Highly toxic and toxic materials.
2. Corrosive materials.

[2701.3] 5001.3 Reserved.

[2701.4] 5001.4 Retail and wholesale storage and display. For retail and wholesale storage and display of nonflammable solid and nonflammable or noncombustible liquid hazardous materials in Group M occupancies and storage in Group S occupancies, see [FC2703.11] FC5003.11.

[2701.5] 5001.5 Permits. Permits shall be required as set forth in FC105.6.

[2701.5.1] 5001.5.1 Hazardous Materials Management Plan. The commissioner may require an application for a permit to include a Hazardous Materials Management Plan (HMMP). Such plan shall be drawn approximately to scale. The HMMP shall contain the following:

1. Access to each area where hazardous materials are stored, handled or used.
2. Location of emergency equipment.
3. Location where liaison required by [FC2703.9.1.1] FC5003.9.1.1 will meet emergency responders.
4. Facility evacuation meeting point locations.
5. The predominant use and/or occupancy of areas within the building where hazardous materials are not stored or used.
6. Location of all aboveground and underground hazardous material storage tanks and their appurtenances including, but not limited to, sumps, vaults, below-grade treatment systems and piping.
7. The hazard classes of hazardous materials stored or used in each area.
8. Locations of all control areas and Group H occupancies.
9. Locations of exits.
10. Such other information and documentation as the commissioner may prescribe.

[2701.5.2] 5001.5.2 Hazardous materials reporting. The storage of hazardous materials shall be reported as required by the New York State General Municipal Law Section 209-u. The commissioner may require an application for a permit pursuant to this code to include a copy of the current filing pursuant to such New York State General Municipal Law for the facility or premises for which a permit is sought. The commissioner may also require an application for a permit to include a Hazardous Materials Inventory Statement (HMIS), such as a statement prepared for purposes of the Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III, Tier II Report, or other approved statement. The HMIS shall include the following information:

1. Product name.
2. Chemical composition.
3. Chemical Abstract Service (CAS) number.
4. Location where stored or used.
5. Container size.
6. Hazard classification.
7. Quantity in storage.
8. Quantity in use-closed systems.
9. Quantity in use-open systems.

[2701.6] 5001.6 Facility closure. Facilities shall be placed permanently out of service in accordance with FC [2701.6.2] 5001.6.2 and [2701.6.3] 5001.6.3 and, as applicable, with the New York State Department of Environmental Conservation regulations as set forth in 6 NYCRR Sections 598.10 and [613.9] 613.

[2701.6.1] 5001.6.1 Reserved.

[2701.6.2] 5001.6.2 Permanently out-of-service facilities. Facilities that are not operated for a period of more than 1 year or for which a permit has lapsed for more than 1 year shall be deemed to be permanently out of service and shall be closed in an approved manner.

[2701.6.3] 5001.6.3 Facility closure plan. The commissioner may require permittees to apply for approval to permanently close a facility that manufactures, stores, handles or uses hazardous materials. Such application shall be submitted at least 30 calendar days prior to the planned closure of the facility. Such plan and/or such other requirements as the commissioner may prescribe shall demonstrate that hazardous materials that are manufactured, stored, handled or used in the facility will be lawfully disposed of in a manner that eliminates the need for further maintenance and any threat to public health and safety.

SECTION FC [2702] 5002 DEFINITIONS

[2702.1] 5002.1 Definitions. The following terms shall, for the purposes of this chapter, FC Chapters [28] 51 through [44] 67, and as used elsewhere in this code, have the meanings [shown herein] set forth in FC202.

BOILING POINT. [The temperature at which the vapor pressure of a liquid equals the atmospheric pressure of 14.7 pounds per square inch (psia) (101 kPa) or 760 mm of mercury. Where a boiling point is unavailable for the material in question, or for mixtures which do not have a constant boiling point, for the purposes of this classification, the 20-percent evaporated point of a distillation performed in accordance with ASTM D 86 shall be used as the boiling point of the liquid.]

CARGO TANK. [A vehicle other than a railroad tank car, marine vessel, or watercraft with a tank mounted thereon or built as an integral part thereof, used for the transportation of flammable or combustible liquids, LPG or other hazardous materials, including self-propelled vehicles and full trailers and semi-trailers, with or without motive power, and carrying part or all of the load.]

CEILING LIMIT. [The maximum concentration of an airborne contaminant to which one may be exposed shall be as established by the regulations of the United States Department of Labor, as set forth in 29 CFR Part 1910.1000, or if not listed therein, the ceiling Recommended Exposure Limit (REL-C) concentrations published by the U.S. National Institute for Occupational Safety and Health (NIOSH), the Threshold Limit Value - Ceiling (TLV-C) concentrations published by the American Conference of Governmental Industrial Hygienists (ACGIH), the ceiling Workplace Environmental Exposure Level (WEEL-Ceiling) Guides published by the American Industrial Hygiene Association (AIHA), or other approved standard.]

CHEMICAL. [An element, chemical compound or mixture of elements or compounds or both.]

CHEMICAL NAME. [The scientific designation of a chemical in accordance with the nomenclature system developed by the International Union of Pure and Applied Chemistry, the Chemical Abstracts Service rules of nomenclature, or a name that will clearly identify a chemical for the purpose of conducting an evaluation.]

CLOSED CONTAINER. [A container sealed by means of a lid or other device capable of preventing the escape of liquid, vapor or dusts in the ordinary course of storage, handling or use.]

CONTAINER. [For solid and liquid hazardous materials, a vessel of 60 gallons (227 L) or less in capacity used for storage or transportation. For compressed gases, a cylinder, pressure vessel or tank designed for pressures greater than one atmosphere at 68°F (20°C). Pipes, piping systems, engines and engine fuel tanks associated with solid or liquid hazardous materials or compressed gases, shall not be deemed to be containers if in active use.]

CONTROL AREA. [Spaces within a building wherein quantities of hazardous materials not exceeding the maximum allowable quantities per control area are stored, handled or used, including any dispensing.]

DEFLAGRATION. [An exothermic reaction, such as the extremely rapid oxidation of a flammable dust or vapor in air, in which the reaction progresses through the unburned material at a rate less than the velocity of sound. A deflagration can have an explosive effect.]

DESIGN PRESSURE. [The maximum gauge pressure that a pressure vessel, device, component or system is designed to withstand safely under the temperature and conditions of use.]

DETACHED BUILDING. [A separate single-story building, without a basement or crawl space, used for the storage, handling or use of hazardous materials and located an approved distance from other buildings or structures.]

DISPENSING. [The pouring or transferring by other means of any material from a container, tank or similar vessel, which would release dusts, fumes, mists, vapors or gases to the atmosphere, unless such release is prevented by a device, equipment or system designed for that purpose.]

EXCESS FLOW CONTROL. [A fail-safe system or other approved device, equipment or system designed to shut off flow caused by a rupture in a pressurized piping system.]

EXHAUSTED ENCLOSURE. [A device, typically consisting of a hood equipped with a fan that serves to capture and exhaust fumes, mist, vapors and gases generated at a workstation or other local environment. An exhausted enclosure does not include a room provided with general ventilation.]

EXPLOSION. [An effect produced by the sudden violent expansion of gases, whether or not accompanied by a shock wave or disruption, of enclosing materials, including the effects of the following sources of explosion:

1. Chemical changes such as rapid oxidation, deflagration or detonation, decomposition of molecules and runaway polymerization (usually detonations).
2. Physical changes such as pressure tank ruptures.
3. Atomic changes (nuclear fission or fusion).]

FLAMMABLE VAPORS OR FUMES. [The concentration of flammable constituents in air that exceeds 25 percent of their lower flammable limit (LFL).]

GAS CABINET. [A fully enclosed, noncombustible enclosure used to provide an isolated environment for compressed gas containers in storage or use, including any doors and access ports for exchanging containers and accessing pressure-regulating controls.]

GAS ROOM. [A separately ventilated, fully enclosed room in which only compressed gases and associated equipment and supplies are stored or used.]

HANDLING. [The movement of a material in its container, the removal of the material from its container, or any other action or process that may affect the material, other than its storage or use.]

HAZARDOUS MATERIALS. [Those chemicals or substances that are physical hazards or health hazards as defined and classified in this chapter, whether the materials are in usable or waste condition.]

HEALTH HAZARD. [A classification of a chemical for which there is statistically significant evidence that acute or chronic health effects are capable of occurring in exposed persons. The term "health hazard" includes chemicals that are toxic, highly toxic and corrosive.]

IMMEDIATELY DANGEROUS TO LIFE AND HEALTH (IDLH). [The concentration of air-borne contaminants that poses a threat of death, immediate or delayed permanent adverse health effects, or effects that could prevent escape from such an environment, as established by the National Institute of Occupational Safety and Health (NIOSH) based on both toxicity and flammability. It generally is expressed in parts per million by volume (ppm v/v) or milligrams per cubic meter (mg/m³). If adequate data do not exist for precise establishment of IDLH concentrations, an independent certified industrial hygienist, industrial toxicologist, appropriate regulatory agency or other source approved by the commissioner shall make such determination.]

INCOMPATIBLE MATERIALS. [Materials that, if mixed or combined, could explode, generate heat, gases or other byproducts, or react in a way hazardous to life or property.]

LABORATORY CHEMICAL. [A material with a health, flammability and/or instability hazard ranking of 2, 3 or 4 as defined in NFPA 704.]

LABORATORY UNIT. [An enclosed space of a minimum one-hour fire-rated construction, designed or used as a non-

production laboratory. Laboratory units may include one or more separate laboratory work areas, and accessory storage rooms or spaces within or contiguous with the laboratory unit, such as offices and lavatories.]

LIQUID. [A material having a melting point that is equal to or less than 68°F (20°C) and a boiling point that is greater than 68°F (20°C) at 14.7 psia (101 kPa). When not otherwise identified, the term "liquid" includes both flammable and combustible liquids.]

LOWER EXPLOSIVE LIMIT (LEL). [See "Lower flammable limit."]

LOWER FLAMMABLE LIMIT (LFL). [The minimum concentration of vapor in air at which propagation of flame will occur in the presence of an ignition source. The LFL is sometimes referred to as LEL or lower explosive limit.]

[MATERIAL SAFETY DATA SHEET (MSDS). A document prepared in accordance with the regulations of the United States Department of Labor, as set forth in 29 CFR Part 1910.1200 or a federally approved state OSHA plan which sets forth information concerning a hazardous material.]

MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA. [The maximum amount of a hazardous material allowed to be stored or used within an indoor or an outdoor control area.]

NON-PRODUCTION LABORATORY. [A building or portion thereof wherein chemicals or gases are stored, handled or used on a non-production basis for testing, research, experimental, instructional or educational purposes.]

NORMAL TEMPERATURE AND PRESSURE (NTP). [A temperature of 70°F (21°C) and a pressure of 1 atmosphere (14.7 psia (101 kPa)).]

OUTDOOR CONTROL AREA. [An outdoor area that contains hazardous materials in amounts not exceeding the maximum allowable quantities of FC Table 2703.1.1(3) or 2703.1.1(4).]

PERMISSIBLE EXPOSURE LIMIT (PEL). [The maximum allowed 8-hour time-weighted-average concentration of an airborne contaminant as established by the regulations of the United States Department of Labor, as set forth in 29 CFR Part 1910.1000, the Recommended Exposure Limit (REL) concentrations published by the U.S. National Institute for Occupational Safety and Health (NIOSH), the Threshold Limit Value-Time Weighted Average (TLV-TWA) concentrations published by the American Conference of Governmental Industrial Hygienists (ACGIH), the Workplace Environmental Exposure Level (WEEL) Guides published by the American Industrial Hygiene Association (AIHA), or other approved standard.]

PESTICIDE. [A substance or mixture of substances, including fungicides, but excluding any product defined as a drug in the Federal Food, Drug and Cosmetic Act, intended for the purpose of preventing, repelling or killing pests or pest infestations, or for use as a plant regulator, defoliant or desiccant.]

PRESSURE VESSEL. [A closed vessel designed to operate at pressures above 15 psig (103 kPa).]

SAFETY CAN. [An approved container with a capacity of not more than 5-gallons (19 L) and equipped with a spring-closing lid and spout cover designed to relieve internal pressure when exposed to fire.]

SAFETY DATA SHEET (SDS).

SECONDARY CONTAINMENT. [A device, equipment or system designed to contain liquid or solid, that is external to and separate from the primary containment device, equipment or system.]

SOLID. [A material that has a melting point and decomposes or sublimates at a temperature greater than 68°F (20°C).]

STANDARD CUBIC FEET (SCF). [Cubic feet of gas at normal temperature and pressure (NTP).]

SYSTEM. [An assembly of devices, equipment, containers, appurtenances, pumps, compressors and connecting piping that is designed to perform a complex and/or complete function.]

TANK, ATMOSPHERIC. [A storage tank designed to operate at pressures from atmospheric through 1.0 pound per square inch gauge (760 mm Hg through 812 mm Hg) measured at the top of the tank.]

TANK, PORTABLE. [A container of more than 60-gallon (227 L) capacity, and designed to be loaded into or on or temporarily attached to a transport vehicle, marine vessel, or watercraft and equipped with skids, mountings or accessories to facilitate handling of the tank by mechanical means. It does not include any cargo tank or tank car.]

TANK, STATIONARY. [A container having not less than 1,000-pound (454 kg) water capacity, designed primarily for stationary installations, and not intended to be moved in the course of normal use.]

VAPOR PRESSURE. [The pressure exerted by a volatile fluid, as determined in accordance with ASTM D 323.]

SECTION FC [2703] 5003 GENERAL REQUIREMENTS

[2703.1] 5003.1 General. Hazardous materials shall be manufactured, stored, handled, used and transported in accordance with this chapter.

[2703.1.1] 5003.1.1 Maximum allowable quantity per control area. The maximum allowable quantity per control area shall be as specified in FC Tables [2703.1.1(1)] 5003.1.1(1) through [2703.1.1(4)] 5003.1.1(4), and for retail and wholesale storage and display in Group M occupancies, and Group S storage, as specified in [FC2703.11] FC5003.11.

Exceptions: The maximum allowable quantity per control area requirements set forth in FC Tables [2703.1.1(1)] 5003.1.1(1) through [2703.1.1(4)] 5003.1.1(4) shall not apply to:

1. A construction site in an unoccupied building prior to issuance of a certificate of occupancy or temporary certificate of occupancy for such building. Maximum allowable quantity per control area requirements shall apply to a construction site in an occupied or partially occupied building, except as may be otherwise authorized by the department in writing.
2. Liquid or gaseous fuel in fuel tanks on motor vehicles.
3. Gaseous fuels in piping systems and fixed appliances regulated by the Fuel Gas Code.
4. Liquid fuels in piping systems and fixed appliances regulated by the Mechanical Code.

[2703.1.2] 5003.1.2 Conversion. A conversion factor of 10 pounds per gallon (1.2 kg/L) shall be used to ascertain the weight per gallon of liquid when such weight is not provided or otherwise available to the commissioner.

[2703.1.3] 5003.1.3 Quantities not exceeding the maximum allowable quantity per control area. The storage, handling and use of hazardous materials in quantities not exceeding the maximum allowable quantity per control area indicated in FC Tables [2703.1.1(1)] 5003.1.1(1) through [2703.1.1(4)] 5003.1.1(4) shall be in accordance with FC [2701] 5001 and [2703] 5003.

[2703.1.4] 5003.1.4 Quantities exceeding the maximum allowable quantity per control area. The storage, handling and use of hazardous materials in quantities exceeding the maximum allowable quantity per control area indicated in FC Tables [2703.1.1(1)] 5003.1.1(1) through [2703.1.1(4)] 5003.1.1(4) shall be in accordance with this chapter and, in a high-hazard occupancy, the requirements of the Building Code.

[2703.1.5] 5003.1.5 Additional specific requirements. The storage, handling and use of hazardous materials shall additionally comply with the specific requirements of FC Chapters [28] 51 through [44] 67, as applicable.

FC TABLE [2703.1.1(1)] 5003.1.1(1)
MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA OF HAZARDOUS MATERIALS POSING A PHYSICAL
HAZARDa, j, m, n[, q]
MATERIAL
CLASS

GROUP WHEN THE MAXIMUM ALLOWABLE QUANTITY IS EXCEEDED[q] t
STORAGEb
USE-CLOSED SYSTEMSb
USE-OPEN SYSTEMSb

Solid
[Pounds] pounds
(cubic feet)
Liquid
[Gallons] gallons (pounds)
Gas
SCF
Solid
[Pounds] pounds
(cubic feet)
Liquid
gallons (pounds)
Gas
SCF
Solid
[Pounds] pounds
(cubic feet)
Liquid
gallons (pounds)
[Combustible
Liquidc, i, r]

[II]
[IIIA]
[IIIB]
[H-2 or H-3]
[H-2 or H-3]
[Not Applicable]
[Not
Applicable]
[120d, e]
[330d, e]
[13,200e, f]
[Not
Applicable]
[Not
Applicable]
[120d]
[330d]
[13,200f]
[Not
Applicable]
[Not
Applicable]
[30d]
[80d]
[3,300f]
Combustible dust
Not
Applicable

H-2
See Note q
Not
Applicable
Not
Applicable
See Note q
Not
Applicable
Not
Applicable
See Note q
Not
Applicable
Combustible fiberq
Loose
Baled[s] o
H-3
(100)
(1,000)
Not
Applicable
Not
Applicable
(100)
(1,000)
Not
Applicable
Not
Applicable
(20)
(200)
Not
Applicable
Combustible
liquidc, i, r
II
IIIA
IIIB
H-2 or H-3
H-2 or H-3
Not Applicable
Not
Applicable
120d, e
330d, e
13,200e, f
Not
Applicable
Not
Applicable
120d
330d
13,200f
Not
Applicable
Not

Applicable
30d
80d
3,300f
Cryogenics [Flammable] flammable
Not
Applicable
H-2
Not
Applicable
45d
Not
Applicable
Not
Applicable
45d
Not
Applicable
Not
Applicable
10d
Cryogenics inert
Not
Applicable
Not
Applicable
Not
Applicable
Not
Applicable
Not
Limited
Not
Applicable
Not
Applicable
Not
Limited
Not
Applicable
Not
Applicable
Cryogenics
[Oxidizing] oxidizing
Not
Applicable
H-3
Not
Applicable
45d
Not
Applicable
Not
Applicable
45d
Not
Applicable

Not
Applicable
10d
Explosives
Division 1.1
Division 1.2
Division 1.3
Division 1.4
Division 1.4G
Division 1.5
Division 1.6
H-1
H-1
H-1 or H-2
H-3
H-3
H-1
H-1
[1e, g] 0
1e, g
5e, g
50e, g
125[d,]e, l
1e, g
1[d,]e, g
[(1)e, g] 0
(1)e, g
(5)e, g
(50)e, g
Not Applicable
(1)e, g
Not Applicable
Not
Applicable
[0.25g] 0
0.25g
1g
50g
Not Applicable
0.25g
Not Applicable
[(0.25)g] 0
(0.25)g
(1)g
(50)g
Not Applicable
(0.25)g
Not Applicable
Not
Applicable
[0.25g] 0
0.25g
1g
Not Applicable
Not Applicable
0.25g
Not Applicable

[(0.25)g] 0
(0.25)g
(1)g
Not Applicable
Not Applicable
(0.25)g
Not Applicable
Flammable gas
Gaseous
Liquefied
H-2
Not
Applicable
Not Applicable
(150)d, e
1,000d, e
Not Applicable
Not
Applicable
Not Applicable
(150)d, e
1,000d, e
Not Applicable
Not
Applicable
Not
Applicable
Flammable liquidsc, [k] r
IA[o] s

IB and IC
H-2
or
H-3
Not
Applicable
30d, e

120d, e
Not
Applicable
Not
Applicable
30d

120d
Not
Applicable
Not
Applicable
10d

30d
[Combination]
Flammable liquid, combination
(IA[o] s, IB, IC)
Not

Applicable

H-2

or

H-3

Not

Applicable

120d, e, h

Not

Applicable

Not

Applicable

120d, h

Not

Applicable

Not

Applicable

30d, h

Flammable solid

[Pigs, ingots, billets, heavy castings]

[Light castings, light metallic products]

[Scraps, shavings, powders, dusts]

[All others]

Not

Applicable

H-3

[1,000d, e]

125d, e

[1d, e]

[125d, e]

Not

Applicable

Not

Applicable

[1,000d]

125d

[1d]

[125d]

Not

Applicable

Not

Applicable

[1,000d]

25d

[1d]

[25d]

Not
Applicable
Inert [Gas]gas

[Cryogenic Inert]
Gaseous
Liquefied
[Not Applicable]
Not Applicable
Not Applicable
[Not Applicable]
Not Applicable
Not Applicable
[Not Applicable]
Not Applicable
Not Applicable
[Not Applicable]
Not Limited
Not Limited
[Not Limited]
Not Applicable
Not Applicable
[Not Applicable]
Not Applicable
Not Applicable
[Not Applicable]
Not Limited
Not Limited
[Not Limited]
Not Applicable
Not Applicable
[Not Applicable]
Not Applicable
Not Applicable
[Not Applicable]
Organic peroxidep
Unclassified Detonable
I
II
III
IV
V

H-1
H-2
H-3
H-3
Not Applicable
Not Applicable

1e, g
5d, e
50d, e
125d, e
Not Limited
Not Limited

(1)e, g
(5)d, e
(50)d, e
(125)d, e
Not Limited
Not Limited
Not
Applicable

0.25g
1d
50d
125d
Not Limited
Not Limited

(0.25)g
(1)d
(50)d
(125)d
Not Limited
Not Limited
Not
Applicable

0.25g
1d
10d
25d
Not Limited
Not Limited

(0.25)g
(1)d
(10)d
(25)d
Not Limited
Not Limited
Oxidizer|1010|3k|101010|H-1
H-2
H-3
H-3
1g
10d, e
250d, e
4,000e,f
(1)e, g
(10)d, e
(250)d, e
(4,000)e,f
Not
Applicable
0.25g
2d
250d
4,000f
(0.25)g

(2)d
(250)d
(4,000)f
Not
Applicable
0.25g
2d
50d
1,000f
(0.25)g
(2)d
(50)d
(1,000)f
Oxidizing gasu
Gaseous
Liquefied
H-3
Not
Applicable
Not Applicable
(150)d, e
1,500d, e
Not Applicable
Not
Applicable
Not Applicable
(150)d, e
1,500d, e
Not Applicable
Not
Applicable
Not
Applicable
Pyrophoric materialp detonable
Not Applicable
H-1
1e, g
(1)e, g
10e, g
0.25g
(0.25)g
2e, g|10