

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 FC 105.6.

601.3 General. Fuel-fired appliances, devices, equipment and systems, emergency power systems, electrical systems and equipment, refrigerating systems, elevator recall, 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 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 FC 603.1.9 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 FC 606.1.1 and FC Table 606.1.1.

601.4.3 Stationary energy storage systems. Stationary energy storage systems subject to compliance with the requirements of FC 608 shall be supervised by a person holding a certificate of fitness in accordance with FC 608.7.

601.4.4 Commercial cooking systems. Commercial cooking systems subject to compliance with requirements of FC 609 shall be supervised by a person holding a certificate of fitness in accordance with FC 609.3.

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 set forth in FC 202.

APPROVED TESTING LABORATORY.

**CERTIFICATE OF QUALIFICATION.
CITYWIDE STANDARD KEY.**

COMMERCIAL COOKING APPLIANCES.

COMMERCIAL COOKING SYSTEM.

COMMERCIAL KITCHEN.

COOKING OIL.

DEDICATED USE BUILDING

DUCTLESS HOOD.

ENERGY STORAGE SYSTEM, STATIONARY.

Indoor System.

Mobile system.

Outdoor System

HOOD.

Type I.

KILOWATT HOURS (kWh).

MEGAWATT HOURS (MWh).

PROOF OF COMPLIANCE.

REFRIGERANT.

REFRIGERATING SYSTEM.

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 FC 605 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 FC 105.6.

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 FC 603.7), 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 FC 312 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 FC 604.3.1. 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 FC 606.6.1. 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 NAME ^a	OCCUPANCY TYPE ^b	APPLICATION	POUNDS OF REFRIGERANT IN SYSTEM	SYSTEM HORSEPOWER	SYSTEM DESIGN ^c	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 100 ^d	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 50, 53, 55 and 57 and the Mechanical Code.

606.11 Discharge and termination of pressure relief devices. Pressure relief devices, fusible plugs and purge systems for refrigerating systems containing 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. 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 FC 606.11.4 or a flaring system in accordance with FC 606.11.5. 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 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 in accordance with FC 606.11.4 or a flaring system in accordance with FC 606.11.5.

606.11.3 Ammonia refrigerant. Systems containing more than 6.6 pounds (3 kg) of ammonia refrigerant shall discharge vapor to the atmosphere in accordance with one of the following methods:

1. Through an approved treatment system in accordance with FC 606.11.4;
2. Through a flaring system in accordance with FC 606.11.5;
3. Through an approved ammonia diffusion system in accordance with FC 606.11.6;
4. Directly to the atmosphere, when the commissioner determines, on review of an engineering analysis prepared in accordance with FC 104.7.2, that a fire, health or environmental hazard would not result from the atmospheric discharge of ammonia; or
5. By other approved means.

Exception: Ammonia/water absorption systems containing less than 22 pounds (10 kg) of ammonia and for which the ammonia circuit is located entirely outdoors.

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 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 (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 FC 5003.3.1.

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 FC 506.2.1.

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 SYSTEMS

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 FC 105.6.

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 FC 608.4.2.
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 FC 102.5.

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 FC 608.5 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 FC 112 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 FC 608.4.2, 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 FC 608.8 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	600 ^c
Nickel, all types except sodium nickel chloride	600 ^c
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 FC 608.9.4.1.10.

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 FC 608.5.

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 FC 608.9.4.1.9. 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 FC 608.4.

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 FC 608.9.4.1.9.

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 FC 608.9.1. The design and number of control areas per floor shall be in accordance with FC 5003.8.3.3, including FC Table 5003.8.3.3, except that (subject to FC 608.9.4.1.9 and FC 608.9.4.1.10) 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 FC 608.9.4.1.9 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 FC 608.9, 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 FC 608.7 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 FC 608.9, 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 FC 608.5.
 - 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 FC 608.9.2.
- 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 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 FC 904 shall be maintained in accordance with FC 904.5 by a master fire suppression piping contractor holding a certificate of fitness in accordance with FC 901.6.3.

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 1/8-inch (3.2-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 (406 mm).

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 FC 315.7.

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 FC 112 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 FC 112 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 FC 112 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 FC 112 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/SYSTEM ^a	MINIMUM FREQUENCY OF INSPECTION	QUALIFICATIONS
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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	Every 3 months

	portions on all floors; and all emission control devices	
	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 FC 904.

609.6.1 Acceptance testing. Commercial cooking fire extinguishing systems shall be subject to an acceptance test in accordance with FC 904.3.8.

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 FC 904.5.1 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 FC 904.5.2.

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)	8½" 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)	8½" 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 1½ 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 1½ 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 2½ gallon (9 L) capacity, or two Class K portable fire extinguishers having a minimum 1½ 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 FC 107.7.

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 FC 609.4.1.1.2, 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 FC 904.5 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 FC 906. Such recordkeeping shall be made as entries on the department-issued tag affixed to each portable fire extinguisher in accordance with FC 906 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.