CHAPTER 11
AVIATION FACILITIES AND OPERATIONS

SECTION FC 1101
GENERAL

1101.1 Scope. This chapter shall govern the design, installation, operation and maintenance of aviation facilities, including aircraft landing sites, airports, heliports, helistops, helicopter landings, seaplane bases and helicopter lift operations.

1101.2 Regulations not covered. Except as otherwise provided in this chapter or any other federal, state or local law, rule or regulation, aviation facilities and related operations shall be operated or conducted in accordance with nationally recognized standards.

1101.3 General. Aircraft landing sites, airports, heliports, helistops and seaplane bases shall be designed, installed, operated and maintained in accordance with this chapter. Aviation operations, including helicopter landings, helicopter lift operations and hot air balloon operations, shall be conducted in accordance with this chapter.

1101.4 Permits. Permits shall be obtained for aircraft fueling vehicles, helicopter landing operations, helicopter lift operations and hot air balloon operations, as set forth in FC105.6.

SECTION FC 1102
DEFINITIONS

1102.1 Definitions. The following terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

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

AIRCRAFT OPERATION AREA. Any area used or intended for use for the parking, taxiing, takeoff, landing or other aviation-related operations.

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

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

DISCHARGE AREA. Any portion of a premises or other location to which an external load is to be delivered by helicopter.

EXTERNAL LOAD. Cargo transported by, but not within, the helicopter.

HELICOPTER LIFT OPERATION. The movement of an external load with the use of a helicopter.

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

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

HOT AIR BALLOON OPERATION. The filling of balloons with hot air for purposes of display or flight.

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

SEAPLANE BASE. An area of water that is used for the landing or takeoff of airplanes, and any appurtenant areas of land or water designed or used for fueling, defueling, maintenance, repair or storage of seaplanes.

STAGING AREA. Any portion of a premises or other location from where an external load is to be lifted by helicopter.

SECTION FC 1103
GENERAL PRECAUTIONS

1103.1 Sources of ignition. It shall be unlawful to use or maintain an open flame, flame-producing device or other source of ignition in an aircraft hangar or other location within 50 feet (15 240 mm) of an aircraft-fueling or defueling operation.

1103.2 Smoking. It shall be unlawful to smoke in an aircraft hangar or other location used for aircraft fueling or defueling, cleaning, paint removal or painting operations. “No Smoking” signs shall be provided in accordance with FC310.

1103.3 Maintenance. The aircraft operation area and related areas shall be kept free from combustible waste at all times.

1103.4 Fire apparatus access roads. Fire apparatus access roads shall be provided and maintained in accordance with FC Chapter 5 and the construction codes, including the Building Code. Fire apparatus access roads and aircraft parking positions shall be designed in a manner so as to preclude the possibility of fire vehicles traveling under any portion of a parked aircraft.

1103.5 Dispensing of flammable and combustible liquids. Flammable and combustible liquids shall be dispensed and otherwise stored, handled and used in accordance with this chapter and

FC Chapter 34. Automotive liquid motor fuel-dispensing facilities shall be designed, installed, operated and maintained in accordance with FC Chapter 22.

1103.6 Combustible material storage. Combustible materials stored in aircraft hangars shall be stored in approved locations and containers.

1103.7 Hazardous material storage. Hazardous materials shall be stored in accordance with FC Chapter 27.

SECTION FC 1104
AIRCRAFT MAINTENANCE

1104.1 Transferring flammable and combustible liquids. Flammable and combustible liquids shall not be dispensed into or removed from a container, tank, vehicle or aircraft, except in approved locations.

1104.2 Application of flammable and combustible liquid finishes. The application of flammable or Class II combustible liquid finishes shall be conducted in an approved location, using methods and procedures in accordance with FC Chapter 15.

1104.3 Cleaning parts. Class IA flammable liquids shall not be used to clean aircraft, aircraft parts or aircraft engines. Cleaning with other flammable and combustible liquids shall be in accordance with FC3405.3.6.

1104.4 Spills. The following actions shall be taken in response to spills of flammable and combustible liquids and other hazardous materials, in addition to the procedures set forth in FC1106.11.

1104.4.1 Cessation of work. Activities in the affected area not related to the mitigation of the spill shall cease until the spilled material has been removed or the hazard has been mitigated.

1104.4.2 Vehicle movement. Aircraft or other vehicles shall not be moved through the spill area until the spilled material has been removed or the hazard has been mitigated.

1104.4.3 Mitigation. Spills shall be reported, documented and mitigated in accordance with this chapter and FC2703.3, and any other applicable law, rule or regulation.

1104.5 Running engines. Aircraft engines shall not be operated in aircraft hangars, except in approved engine test areas.

1104.6 Open flame. Repair of aircraft requiring the use of open flames, spark-producing devices or the heating of parts above 500°F (260°C) shall only be performed outdoors or in an area complying with the requirements of the construction codes, including the requirements of the Building Code for a Group F-1 occupancy.

SECTION FC 1105

PORTABLE FIRE EXTINGUISHERS

1105.1 General. Portable fire extinguishers suitable for flammable or combustible liquid and electrical-type fires shall be provided as set forth in FC 1105.2 through 1105.7, and 906. Portable fire extinguishers required by this section shall be inspected and maintained in accordance with FC906.

1105.2 Towing vehicles. Vehicles used for towing aircraft shall be equipped with a minimum of one listed portable fire extinguisher complying with the requirements of FC906 and having a minimum rating of 20-B:C.

1105.3 Welding apparatus. Welding apparatus shall be equipped with a minimum of one listed portable fire extinguisher complying with the requirements of FC906 and having a minimum rating of 2-A:20-B:C.

1105.4 Aircraft-fueling vehicles. Aircraft-fueling vehicles shall be equipped with a minimum of two listed portable fire extinguishers complying with the requirements of FC906, each having a minimum rating of 20-B:C. A portable fire extinguisher shall be readily accessible from either side of the vehicle.

1105.5 Hydrant-fueling vehicles. Hydrant-fueling vehicles shall be equipped with a minimum of one listed portable fire extinguisher complying with the requirements of FC906, and having a minimum rating of 20-B:C.

1105.6 Fuel-dispensing stations. Portable fire extinguishers shall be provided as follows:

1. Where the open-hose discharge capacity of the fueling system is not more than 200 gallons per minute (13 L/s), a minimum of two listed portable fire extinguishers complying with the requirements of FC906 and having a minimum rating of 20-B:C shall be provided.

2. Where the open-hose discharge capacity of the fueling system is more than 200 gallons per minute (13 L/s) but not more than 350 gallons per minute (22 L/s), a minimum of one listed wheeled portable fire extinguisher complying with the requirements of FC906 and having a minimum rating of 80-B:C, and a minimum agent capacity of 125 pounds (57 kg), shall be provided.

3. Where the open-hose discharge capacity of the fueling system is more than 350 gallons per minute (22 L/s), a minimum of two listed wheeled portable fire extinguishers complying with the requirements of FC906 and having a minimum rating of 80-B:C each, and a minimum agent capacity of 125 pounds (57 kg) of each, shall be provided.

1105.6.1 Location of portable fire extinguishers. Portable fire extinguishers at aircraft fuel-dispensing stations shall be located such that pumps or dispensers are not more than 75 feet (22 860 mm) from one such extinguisher.

1105.7 Fire extinguisher access. Portable fire extinguishers required by this chapter shall be accessible at all times. Where necessary, provisions shall be made to clear accumulations of snow, ice and other forms of weather-related obstructions.

1105.7.1 Cabinets. Cabinets and enclosed compartments used to house portable fire extinguishers shall be clearly marked with the words "FIRE EXTINGUISHER" in letters at least 2 inches (51 mm) high. Cabinets and compartments shall be readily accessible at all times.

SECTION FC 1106
AIRCRAFT AND MOTOR VEHICLE FUELING

1106.1 Motor vehicle fuel-dispensing facilities. Motor vehicle fuel-dispensing facilities at aviation facilities shall be designed, installed, operated and maintained in accordance with FC Chapter 22.

1106.2 Aircraft-fueling systems. Aircraft-fueling systems shall be designed and constructed in accordance with NFPA 407.

Exception: Aircraft fueling systems may be designed and constructed as a full service automotive liquid motor vehicle fuel-dispensing facility in accordance with FC Chapter 22, subject to such conditions as the commissioner may require.

1106.3 Design of aircraft-fueling vehicles. Aircraft-fueling vehicles shall be designed in accordance with FC1106 and NFPA 407.

1106.3.1 Transfer apparatus. Aircraft-fueling vehicles shall be equipped and maintained with an approved transfer apparatus.

1106.3.1.1 Internal combustion type. Where such transfer apparatus is operated by an individual unit of the internal-combustion-motor type, such power unit shall be located as remotely as practicable from pumps, piping, meters, air eliminators, water separators, hose reels, and similar equipment, and shall be housed in a separate compartment from any of the aforementioned items. The fuel tank in connection therewith shall be suitably designed and installed, and the maximum fuel capacity shall not exceed 5 gallons (19 L) where the tank is installed on the engine. The exhaust pipe, muffler and tail pipe shall be shielded.

1106.3.1.2 Gear operated. Where operated by gears or chains, the gears, chains, shafts, bearings, housing and all parts thereof shall be of an approved design and shall be installed and maintained in an approved manner.

1106.3.1.3 Vibration isolation. Flexible connections for the purpose of eliminating vibration are allowed if the material used therein is designed, installed, operated and maintained in an approved manner, provided such connections do not exceed 24 inches (610 mm) in length.

1106.3.2 Pumps. Pumps of a positive-displacement type shall be provided with a bypass relief valve set at a pressure of not more than 35 percent in excess of the normal working pressure of such unit. Such units shall be equipped and maintained with a pressure gauge on the discharge side of the pump.

1106.3.3 Dispensing hoses and nozzles. Hoses shall be designed for the transferring of hydrocarbon liquids and shall not be any longer than necessary to provide efficient fuel transfer operations. Hoses shall be equipped with an approved shutoff nozzle. Fuel-transfer nozzles shall be self-closing and designed to be actuated by hand pressure only. Notches and other devices shall not be used for holding a nozzle valve handle in the open position. Nozzles shall be equipped with a bonding cable complete with proper attachment for aircraft to be serviced.

1106.3.4 Protection of electrical equipment. Electric wiring, switches, lights and other sources of ignition, when located in a compartment housing piping, pumps, air eliminators, water separators, hose reels or similar equipment, shall be enclosed in a vapor-tight housing. Electrical motors located in such a compartment shall be of a type approved for use as specified in the Electrical Code.

1106.3.5 Venting of equipment compartments. Compartments housing piping, pumps, air eliminators, water separators, hose reels and similar equipment shall be adequately ventilated at floor level or within the floor itself.

1106.3.6 Accessory equipment. Ladders, hose reels and similar accessory equipment used for aircraft-fueling operations shall be of an approved type, as follows:

1. Ladders constructed of noncombustible material are allowed to be used with or attached to aircraft-fueling vehicles, provided the manner of attachment or use of such ladders is approved and does not constitute an additional fire or accident hazard in the operation of such fueling vehicles.

2. Hose reels used in connection with fueling vehicles shall be constructed of noncombustible materials and shall be provided with a packing gland or other device which will preclude fuel leakage between reels and fuel manifolds.

1106.3.7 Electrical bonding provisions. Transfer apparatus shall be metallically interconnected with tanks, chassis, axles and springs of aircraft-fueling vehicles.

1106.3.7.1 Bonding cables. Aircraft-fueling vehicles shall be provided and maintained with a substantial heavy-duty electrical cable of sufficient length to be bonded to the aircraft to be serviced. Such cable shall be metallically connected to the transfer apparatus or chassis of the aircraft-fueling vehicle on one end and shall be provided with a suitable metal clamp on the other end, to be fixed to the aircraft.

1106.3.7.2 Bonding cable protection. The bonding cable shall be bare or have a transparent protective sleeve and be stored on a reel or in a compartment provided for no

other purpose. It shall be carried in such a manner that it will not be subjected to sharp kinks or accidental breakage under conditions of general use.

1106.3.8 Smoking. It shall be unlawful to smoke in aircraft-fueling vehicles. Signs to this effect shall be conspicuously posted in the driver's compartment of all fueling vehicles.

1106.3.9 Smoking equipment. Smoking equipment such as cigarette lighters and ash trays shall not be provided in aircraft-fueling vehicles.

1106.4 Operation, maintenance and use of aircraft-fueling vehicles. The operation, maintenance and use of aircraft-fueling vehicles shall be in accordance with FC 1106.4.1 through 1106.4.5 and other applicable provisions of this chapter.

1106.4.1 Proper maintenance. Aircraft-fueling vehicles and all related equipment shall be properly maintained and kept in good repair. Oil, grease, fuel and other flammable or combustible waste shall not be allowed to accumulate. Maintenance and servicing of such equipment shall be accomplished in approved areas.

1106.4.2 Vehicle integrity. Tanks, pipes, hoses, valves and other fueling equipment shall be maintained leak free at all times.

1106.4.3 Removal from service. Aircraft-fueling vehicles and related equipment which are in violation of FC 1106.4.1 or 1106.4.2 shall be immediately defueled, removed from service and properly repaired or disposed of.

1106.4.4 Identification of operator. Aircraft-fueling vehicles that are operated by a person, firm or corporation other than the permittee or the permittee's authorized employee shall be provided with a legible sign visible from outside the vehicle showing the name of the person, firm or corporation operating such unit.

1106.4.5 Training. Aircraft-fueling vehicles shall be attended and operated by competent personnel familiar with the safety hazards of each type of fuel used at the facility.

1106.5 Fueling and defueling. Aircraft-fueling and defueling operations shall be conducted in accordance with FC 1106.5.1 through 1106.5.4.

1106.5.1 Positioning of aircraft-fueling vehicles. Aircraft-fueling vehicles shall not be parked or otherwise allowed to stop or stand in a position where such vehicle would obstruct egress from an aircraft, including emergency exits. Aircraft-fueling vehicles shall not be parked or otherwise allowed to stop or stand under any portion of an aircraft.

Exception: Aircraft-fueling vehicles shall be allowed to be located under aircraft wings during underwing fueling of turbine-engine powered aircraft.

1106.5.1.1 Fueling vehicle egress. A clear path shall be maintained for aircraft-fueling vehicles to allow ready access to and egress from the fueling area.

1106.5.1.2 Aircraft vent openings. A clear space of at least 10 feet (3048 mm) shall be maintained between aircraft fuel-system vent openings and an aircraft-fueling vehicle.

1106.5.1.3 Parking. Prior to leaving the cab, the operator of an aircraft-fueling vehicle shall set the parking brake. At least two chock blocks not less than 5 inches by 5 inches by 12 inches (127 mm by 127 mm by 305 mm) in size and dished to fit the contour of the tires shall be utilized and positioned in such a manner so as to preclude movement of the vehicle in any direction.

1106.5.2 Electrical bonding. Aircraft-fueling vehicles shall be electrically bonded to the aircraft being fueled or defueled. Bonding connections shall be made prior to making fueling connections and shall not be disconnected until the fuel-transfer operations are completed and the fueling connections have been removed. Where a hydrant service vehicle or cart is used for fueling, the hydrant coupler shall be connected to the hydrant system prior to bonding the fueling equipment to the aircraft.

1106.5.2.1 Conductive hose. In addition to the bonding cable required by FC1106.5.2, conductive hose shall be used for all fueling operations.

1106.5.2.2 Bonding conductors on transfer nozzles. Transfer nozzles shall be equipped with approved bonding conductors which shall be clipped or otherwise positively engaged with the bonding attachment provided on the aircraft adjacent to the fuel tank cap prior to removal of the cap.

Exception: In the case of overwing fueling where no appropriate bonding attachment adjacent to the fuel fill port has been provided on the aircraft, the fueling operator shall touch the fuel tank cap with the nozzle spout prior to removal of the cap. The nozzle shall be kept in contact with the fill port until fueling is completed.

1106.5.2.3 Funnels. It shall be unlawful to use funnels in aircraft-fueling operations.

1106.5.3 Training. All personnel engaged in fuel storage and aircraft-fueling operations shall receive appropriate hazard and fire safety training relating to such storage and fueling operation, including training in the use of fire extinguishing equipment. The owner or operator of the aviation facilities shall maintain on the premises a record of all such training in accordance with FC107.7.

1106.5.4 Transfer personnel. During fuel-transfer operations, a qualified person shall be in control of each transfer nozzle and another qualified person shall be in immediate control of the fuel-pumping equipment to shut off or otherwise control the flow of fuel from the time fueling operations are begun until they are completed.

Exceptions:

1. For underwing refueling, the person stationed at the point of fuel intake is not required.

2. For overwing refueling, the person stationed at the fuel pumping equipment shall not be required when the person at the fuel dispensing device is within 75 feet (22 800 mm) of the emergency shutoff device, is not on the wing of the aircraft and has a clear and unencumbered path to the fuel pumping equipment; and, the fuel dispensing line does not exceed 50 feet (15 240 mm) in length.

1106.5.4.1 Monitoring during fueling. The fueling operator shall monitor the panel of the fueling equipment and the aircraft control panel during pressure fueling or shall monitor the fill port during overwing fueling.

1106.6 Emergency fuel shutoff. Emergency fuel shutoff controls and procedures shall comply with the requirements of FC 1106.6.1 through 1106.6.4.

1106.6.1 Accessibility. Emergency fuel shutoff controls shall be readily accessible at all times when the fueling system is being operated.

1106.6.2 Notification of the department. The owner or operator of the aviation facility shall establish a procedure by which the department will be notified in the event of an emergency involving the activation of an emergency fuel shutoff control.

1106.6.3 Determining cause. Prior to reestablishment of normal fuel flow, the cause of emergency fuel shutoff conditions shall be determined and corrected.

1106.6.4 Testing. Emergency fuel shutoff devices shall be operationally tested at intervals not exceeding 3 months. The fueling-system operator shall maintain suitable records of these tests.

1106.7 Protection of hoses. Before an aircraft-fueling vehicle is moved, fuel transfer hoses shall be properly placed on the approved reel or in the compartment provided, or stored on the top decking of the fueling vehicle if proper height rail is provided for security and protection of such equipment. Fuel-transfer hose shall not be looped or draped over any part of the fueling vehicle, except as herein provided. Fuel-transfer hose shall not be dragged when a fueling vehicle is moved from one fueling position to another.

1106.8 Loading and unloading of aircraft-fueling vehicles. Aircraft-fueling vehicles shall be loaded only at an approved loading rack, except that aircraft-fueling vehicles may be loaded from the fuel tanks of an aircraft during defueling operations. Such loading racks shall be in accordance with FC Chapter 34.

1106.8.1 Unloading of aircraft-fueling vehicles. The fuel cargo of such vehicles shall be unloaded only by approved transfer apparatus into the fuel tanks of aircraft, approved underground storage tanks or approved aboveground storage tanks.

1106.9 Passengers. Passenger traffic is not allowed during the time that fuel transfer operations are in progress.

1106.10 Sources of ignition. It shall be unlawful to smoke, or light or maintain an open flame, within 50 feet (15 240 mm) of any location where fuel is being transferred. Electrical and motor-driven devices shall not be connected to or disconnected from an aircraft at any time fueling operations are in progress on such aircraft.

1106.11 Fuel spill prevention and procedures. Fuel spill prevention and the procedures for handling spills shall comply with the requirements of FC 1106.11.1 through 1106.11.7.

1106.11.1 Fueling equipment maintenance. Aircraft fueling equipment shall be maintained and kept free from leaks. Fueling equipment that malfunctions or leaks shall be immediately defueled, removed from service and properly repaired or disposed of.

1106.11.2 Transporting fuel nozzles. Fuel nozzles shall be carried utilizing appropriate handles. Dragging fuel nozzles along the ground is prohibited.

1106.11.3 Drum fueling. Fueling from drums or other containers is prohibited.

1106.11.4 Fuel spill procedures. The owner or operator of the aviation facility shall establish comprehensive procedures to implement in the event of a fuel spill, which shall include the following actions:

1. Upon observation of a fuel spill, the aircraft-fueling operator shall immediately stop the delivery of fuel by releasing hand pressure from the fuel flow-control valve.

2. Failure of the fuel control valve to stop the continued spillage of fuel shall be cause for the activation of the appropriate emergency fuel shutoff device.

3. A supervisor shall respond to the fuel spill area immediately.

1106.11.5 Notification of the department. The department shall be notified of any fuel spill which is considered a hazard to people or property or which meets one or more of the following criteria:

1. Any dimension of the spill is greater than 10 feet (3048 mm).

2. The spill area is greater than 50 square feet (4.65 m^2).

3. The release of fuel is continuing.

1106.11.6 Investigation required. An investigation shall be conducted by the owner or operator of the aviation facility into the cause of all spills requiring notification of the department, the response thereto by the persons in charge of the aircraft fueling operation and other aviation facility personnel. Should it be determined that corrective measures are necessary to prevent future incidents of the same nature, such measures shall be implemented in a timely manner.

1106.11.7 Multiple fuel delivery vehicles. Simultaneous delivery of fuel from more than one aircraft-fueling vehicle to a single aircraft-fueling manifold is prohibited unless proper backflow prevention devices are installed to prevent fuel flow into the aircraft-fueling vehicles.

1106.12 Aircraft engines and heaters. Aircraft onboard engines and combustion heaters shall be shut down prior to commencing fueling operations and shall remain off until the fueling operation is completed.

Exception: In an emergency, a single jet engine is allowed to be operated with the onboard engine running during fueling operations where all of the following conditions are met:

1. The emergency shall have resulted from an onboard failure of the aircraft's auxiliary power unit.

2. Restoration of auxiliary power to the aircraft by ground support services is not available.

3. The engine to be operated is either at the rear of the aircraft or on the opposite side of the aircraft from the fueling operations.

4. The emergency operation is in accordance with a written procedure approved by the commissioner.

1106.13 Vehicle and equipment restrictions. During aircraft-fueling operations, only aircraft-fueling vehicles or other equipment actively involved in the fueling operation are allowed within 50 feet (15 240 mm) of the aircraft being fueled. Other aircraft-fueling vehicles or equipment are prohibited in this area until the fueling operation is complete.

Exception: Aircraft-fueling operations utilizing single-point refueling with a sealed, mechanically locked fuel line connection and the fuel is not a flammable liquid.

1106.13.1 Overwing fueling. Vehicles or equipment shall not be allowed beneath the trailing edge of the wing when aircraft fueling takes place over the wing and the aircraft fuel-system vents are located on the upper surface of the wing.

1106.14 Electrical equipment. Electrical equipment, including but not limited to, battery chargers, ground or auxiliary power units, fans, compressors or tools, shall not be operated, nor shall they be connected or disconnected from their power source, during fueling operations.

1106.14.1 Other equipment. Electrical or other spark-producing equipment shall not be used within 10 feet (3048 mm) of fueling equipment, aircraft fill or vent points, or spill areas unless such equipment is intrinsically safe and approved for use in an explosive atmosphere.

1106.15 Reserved.

1106.16 Lightning. The commissioner may require the owner or operator of an aviation facility to establish criteria for the suspension and resumption of aircraft-fueling operations and other written procedures to implement in the event of lightning flashes at or near the aviation facility.

1106.17 Fuel-transfer locations. It shall be unlawful to conduct aircraft-fueling operations indoors.

Exception: In aircraft hangars designed in accordance with the Building Code for Group F-1 occupancies, aircraft fuel-transfer operations are allowed where:

1. Such operation is necessary to accomplish aircraft fuel-system maintenance operations. Such operations shall be performed in accordance with nationally recognized standards; or

2. The fuel being used has a flash point greater than 100°F (37.8°C).

1106.17.1 Position of aircraft. Aircraft being fueled shall be positioned such that any fuel system vents and other fuel tank openings are a minimum of:

1. Twenty-five feet (7620 mm) from buildings or structures other than jet bridges; and

2. Fifty feet (15 240 mm) from air intake vents for boiler, heater or incinerator rooms.

1106.17.2 Fire equipment access. Access for fire service equipment to aircraft shall be maintained during aircraft-fueling operations.

1106.18 Defueling operations. The requirements for aircraft-fueling operations contained in this section shall also apply to aircraft-defueling operations. Additional procedures shall be established by the owner or operator of the aviation facility to prevent overfilling of the cargo tank or other vehicle used in the defueling operation.

1106.19 Maintenance of aircraft-fueling hose. Aircraft-fueling hoses shall be maintained in accordance with FC 1106.19.1 through 1106.19.4.

1106.19.1 Inspections. Hoses used to fuel or defuel aircraft shall be inspected periodically to ensure their serviceability and suitability for continued service.

1106.19.1.1 Daily inspection. Hoses shall be inspected daily. This inspection shall include a complete visual scan of the exterior for evidence of damage, blistering or leakage. Each coupling shall be inspected for evidence of leaks, slippage or misalignment.

1106.19.1.2 Monthly inspection. A more thorough inspection, including pressure testing, shall be performed on each hose on a monthly basis. This inspection shall include examination of the fuel delivery inlet screen for rubber particles, which may indicate deterioration of the hose lining.

1106.19.2 Damaged hose. Hose that has been damaged shall be immediately removed from service.

1106.19.3 Repairing hose. Hoses are allowed to be repaired by removing the damaged portion and recoupling the undamaged end. When recoupling hoses, only couplings designed and approved for the size and type of hose in question shall be used. Hoses repaired in this manner shall be visually inspected and hydrostatically tested prior to being placed back in service.

1106.19.4 New hose. New hose shall be visually inspected prior to being placed into service.

1106.20 Aircraft-fueling vehicles parking. Unattended aircraft-fueling vehicles shall be parked in areas that provide for both the unencumbered dispersal of vehicles in the event of an emergency and the control of leakage such that adjacent buildings and storm drains are not contaminated by leaking fuel.

1106.20.1 Parking area design. Parking areas for aircraft-fueling vehicles shall be designed and utilized such that a clearance of 10 feet (3048 mm) is maintained between each parked vehicle for department access. In addition, a minimum clearance of 50 feet (15 240 mm) shall be maintained between aircraft-fueling vehicles and parked aircraft and structures other than those used for the maintenance of aircraft-fueling vehicles. Aircraft-fueling vehicles shall not be stored indoors.

1106.21 Radar equipment. Aircraft-fueling operations shall be prohibited while the weather-mapping radar of that aircraft is operating. Aircraft-fueling or other operations in which flammable liquids, vapors or mists may be present shall not be conducted within 300 feet (91 440 mm) of an operating aircraft surveillance radar. Aircraft-fueling operations shall not be conducted within 300 feet (91 440 mm) of airport flight traffic surveillance radar equipment. Aircraft-fueling or other operations in which flammable liquids, vapors or mists may be present shall not be conducted within 100 feet (30 480 mm) of airport ground traffic surveillance radar equipment.

1106.21.1 Direction of radar beams. The beam from ground radar equipment shall not be directed toward fuel storage or loading racks.

Exceptions:

1. Fuel storage and loading racks in excess of 300 feet (91 440mm) from airport flight traffic surveillance equipment.

2. Fuel storage and loading racks in excess of 100 feet (30 480 mm) from airport ground traffic surveillance equipment.

SECTION FC 1107
HELISTOPS AND HELIPORTS

1107.1 General. Helistops and heliports shall be maintained in accordance with this section. Helistops and heliports on buildings or structures shall be constructed in accordance with the construction codes, including the Building Code.

1107.2 Clearances. The touchdown area shall be surrounded on all sides by a clear area having minimum average width at roof level of 15 feet (4572 mm) but no width less than 5 feet (1524 mm). The clear area shall be maintained.

1107.3 Flammable and Class II combustible liquid spillage. Landing areas on buildings or structures shall be maintained so as to confine flammable or Class II combustible liquid spillage to the landing area itself, and provisions shall be made to drain such spillage away from exits or stairways serving the helicopter landing area or from a structure housing such exit or stairway.

1107.4 Exits. Exits and stairways shall be maintained in accordance with the construction codes, including the Building Code.

1107.5 Standpipe systems. Where a building with a rooftop helistop or heliport is equipped with a standpipe system, the system shall be extended to the roof level on which the helistop or heliport is located. All portions of the helistop and heliport area shall be within 150 feet (45 720 mm) of a standpipe system outlet connection.

1107.6 Foam protection. Foam fire-protection capabilities shall be provided for rooftop heliports as required by the construction codes, including the Building Code. Such systems shall be designed, installed, operated and maintained in accordance with FC Chapter 9.

1107.6.1 Initial foam fire extinguishing system test. Upon installation, a foam fire extinguishing system shall be tested in accordance with FC Chapter 9. The test shall be conducted at the owner's risk by his or her representative before a representative of the department.

1107.6.2 Periodic foam fire extinguishing system test. The foam fire extinguishing system shall be inspected, tested and maintained in accordance with FC Chapter 9. Additionally, the foam fire extinguishing system shall be tested at least once every 2 years, as required in FC3406.4.10.7.

1107.7 Portable fire extinguishers. A minimum of one portable fire extinguisher having a minimum 80-B:C rating shall be provided for each permanent takeoff and landing area and for the aircraft parking areas. Installation, inspection and maintenance of these portable fire extinguishers shall be in accordance with FC906.

1107.8 Federal approval. Before operating helicopters from helistops and heliports, approval shall be obtained from the Federal Aviation Administration and any other federal, state or city authority having jurisdiction.

SECTION FC 1108
SEAPLANE BASE OPERATIONS

1108.1 General. Seaplane bases shall be operated in accordance with the requirements of FC 1101 through 1106, as applicable. Notwithstanding any provision of this code to the contrary, a waterfront liquid motor fuel dispensing facility used for the fueling of seaplanes shall be deemed to constitute a marine liquid motor fuel dispensing facility.

SECTION FC 1109
HELICOPTER LANDING OPERATIONS

1109.1 General. Helicopter landing operations, at other than an approved heliport or helistop, shall be conducted in accordance with this section.

1109.2 Permit application. The owner or operator of the helicopter conducting the helicopter landing operation shall make a permit application to the department at least 20 calendar days prior to the proposed landing. The permit applications shall be on such form and include such information and documentation as the commissioner may require, including the following:

1. A site map of the area in which the helicopter landing operation is proposed to be conducted.

2. Proof of a liability and casualty insurance policy in an amount to be determined by the commissioner but not less than two million dollars. Such insurance policy shall cover the permit holder and the permit holder's employees, agents and contractors for any loss, damage or injury to persons or property by reason of the conduct of the helicopter landing operation, or the failure to comply with any requirement of this chapter or the rules, or the terms and conditions of the permit.

3. A copy of the pilot's license issued by the Federal Aviation Administration.

4. A copy of the aircraft's airworthiness certificate issued by the Federal Aviation Administration.

5. An affidavit of the property owner authorizing the helicopter landing operation on their property.

1109.3 Required clearances. The location at which the helicopter landing operations are to be conducted is subject to the approval of the department. The commissioner may specify the open space clearances to be provided.

SECTION FC 1110
HELICOPTER LIFT OPERATIONS

1110.1 General. Helicopter lift operations shall be conducted in accordance with this section.

1110.1.1 Department of Buildings approval. Helicopter lift operations shall not be conducted except when the Commissioner of Buildings has authorized such operation.

1110.2 Permit application. The owner or operator of the helicopter used to conduct the lift operation shall make application to the department for a permit at least 20 calendar days prior to the proposed lift operation. The permit application shall be on such form and include such information and documentation as the commissioner may require, including the following:

1. A site map of the area in which the lifting operation is proposed to be conducted.

2. Proof of a liability and casualty insurance policy in an amount to be determined by the commissioner but not less than five million dollars. Such insurance policy shall cover the permit holder and the permit holder's employees, agents and contractors from any loss, damage or injury to persons or property by reason of the conduct of the lift operation, or the failure to comply with any requirement of this chapter or the rules, or the terms and conditions of the permit.

3. A copy of the pilot's license issued by the Federal Aviation Administration.

4. A copy of the aircraft's airworthiness certificate issued by the Federal Aviation Administration.

5. An affidavit of the property owner authorizing the helicopter lift operation on their property.

1110.3 Helicopter fueling. It shall be unlawful to fuel helicopters in the staging or discharge area.

1110.3.1 Portable fuel tanks. Portable fuel tanks or drums within or on the exterior of the helicopter are prohibited. Auxiliary fuel storage tanks may be used provided they are an integral part of the aircraft's fuel system and of a type meeting the requirements of the Federal Aviation Administration.

1110.4 Smoking. It shall be unlawful to smoke within 100 feet (30 480 mm) of a fuel storage area or fueling operation. It shall be unlawful to smoke within 100 feet (30 480 mm) of the helicopter staging area or discharge area while lift operations are being conducted.

1110.5 Staging and discharge areas. The location of the staging and discharge areas, and their distance from any buildings or other impediments to flight, shall be subject to the approval of the commissioner, and shall be arranged and operated as set forth in FC 1110.5.1 and 1110.5.2.

1110.5.1 Emergency access. Entrances to and exits from any premises or other location wherein lifting operations are being conducted shall be safeguarded in accordance with applicable laws, rules and regulations, but shall not be obstructed in a manner that prevents access or egress in the event of an emergency.

1110.5.2 Restricted locations. Bulk plants or terminals or other premises where hazardous operations or occupancies are maintained shall not be used as a staging area or discharge area unless approved by the commissioner.

1110.6 Fire protection. An adequate supply of water shall be provided at the location where lifting operations are conducted. When the discharge area or other area of the lifting operation requires the use of a fire pump or other auxiliary equipment to augment the water supply, such equipment shall be under the personal supervision of a certificate of fitness holder.

1110.6.1 Foam protection. An air foam nozzle, pick-up tube and a minimum of 5 gallons (19 L) of foam, suitable for the fuel hazard presented, shall be available on site.

1110.6.2 Portable fire extinguishers. Both the staging area and discharge area shall be provided with a minimum of two portable fire extinguishers each having a minimum 80-B:C rating.

1110.6.3 Department monitoring. Lift operations allowed pursuant to this section may be monitored by representatives of the department to ensure compliance with the requirements of this chapter and the rules. Such representatives shall be allowed within the perimeter of the lift operation for such purpose.

1110.7 Communication. Radio and/or other two-way wireless communication shall be maintained between the helicopter pilot and the ground at all times during the lift operation. The department representatives monitoring the lifting operation shall be provided with the ability to monitor such communications.

1110.8 Discontinuance. Department representatives may temporarily suspend or cancel any lifting operation if, in their judgment, conditions exist that endanger public safety.

SECTION FC 1111
HOT AIR BALLOON OPERATIONS

1111.1 General. Hot air balloon operations shall be conducted in accordance with this section.

1111.1.1 Storage, handling and use of flammable gas. The storage, handling and use of LPG or other flammable gas for hot air balloon operations shall additionally be conducted in accordance with FC Chapters 35 and 38, as applicable, and the rules.

1111.2 Permit application. The owner or operator of the hot air balloon, or in the case of an event involving multiple owners or operators of hot air balloons, the sponsor of such event, shall make application to the department for a permit at least 20 calendar days prior to any anticipated or scheduled operation. Permit applications shall be on such form and include such information and documentation as the commissioner may require, including the following:

1. A site map of the area in which the hot air balloon operation is proposed to be conducted.

2. Proof of a liability and casualty insurance policy in an amount to be determined by the commissioner but not less than two million dollars. Such insurance policy shall cover the permit holder and the permit holder's employees, agents and contractors from any loss, damage or injury to persons or property by reason of the conduct of the lifting operation, or

the failure to comply with any requirement of this chapter or the rules, or the terms and conditions of the permit.

3. A copy of the pilot's license issued by the Federal Aviation Administration.

4. A copy of the aircraft's airworthiness certificate issued by the Federal Aviation Administration.

5. An affidavit of the property owner authorizing the hot air balloon operation on their property.

6. All information and documentation required for issuance of a permit for LPG storage, handling and use in connection with the hot air balloon operation pursuant to FC Chapter 38 and the rules.

1111.3 Required clearances. The location at which hot air balloon operations are to be conducted are subject to the approval of the department, provided, however, that a balloon shall not be secured or filled unless there is at least 150 feet (45 720 mm) of open space in all directions when measured from the center of the balloon.

1111.4 Securing of balloons. Balloons shall have at least a three-point tie down to substantially immovable objects.

1111.5 Weather conditions. Hot air balloon operations shall be conducted only under weather conditions conducive to such operation and in no circumstance when prevailing winds exceed 15 miles (24.135 km) per hour.

1111.6 Discontinuance. Department representatives may temporarily suspend or cancel any hot air balloon operation if, in their judgment, conditions exist that endanger public safety.