

NFS 6.00; HOOD & DUCT EXTINGUISHING SYSTEMS

6.1 GENERAL

- 6.1.1;** This standard shall apply to all automatic fire-extinguishing systems provided for protection of commercial-type cooking operations that produce grease-laden vapors. Automatic fire-extinguishing systems shall be installed where required by the International Fire Code. Additional information and requirements can be found in the International Mechanical Code, NFPA Standard 96 and NFPA Standard 17A.
- 6.1.2;** Automatic fire extinguishing systems shall comply with standard **UL 300, Fire Testing of Fire Extinguishing Systems for Protection of Restaurant Cooking Areas**, or other equivalent standards and shall be installed in accordance with their listing.
Exception: Automatic fire-extinguishing equipment provided as part of listed re-circulating systems complying with standard UL 197, *Standard for Safety-Commercial Electric Cooking Appliances*. (NFPA 96 Section 10.2)

6.2 PLANS AND PERMITS

- 6.2.1;** All new installations of automatic fire-extinguishing systems or modifications of existing systems require a permit issued from the Northshore Fire Department. Installation of the system shall not begin until the permit has been issued.
- 6.2.1.1;** The submittal package for a permit to install or modify a system shall include all of the following:
- A completed permit application form. (A separate permit is required for each extinguishing system.)
 - 3 copies of design drawings, to include;
 - a) nozzle types, locations and heights above surfaces,
 - b) detector locations, temp. ratings and linkage style,
 - c) type and size of piping (including lengths),
 - d) system type and cylinder size,
 - e) location of manual activation,
 - f) size and type of protected appliances,
 - g) size of hood and exhaust duct.
 - 3 copies of all applicable sections from the manufacturer's design and installation manual, including documentation of compliance with standard UL 300.
 - Permit fees are based on the number of devices in the system. Devices are defined as; fusible links, nozzles, manual pull stations and agent cylinders (one device count for multiple cylinders in a system).

6.2.2; System Design

- 6.2.2.1;** Automatic activation shall be by means of an approved fusible link or heat detector. A fusible link or heat detector shall be provided above each cooking appliance, or group of appliances protected by a single nozzle, and at the exhaust opening. Appliances located below, or within 12 inches of the duct opening do not require separate detection. (NFPA 17A)
- 6.2.2.2;** A readily accessible means of manual activation shall be located between 42 in. and 48 in. above the floor, located in a path of exit or egress, and clearly identify the hazard protected. The automatic and manual means of system activation shall be separate and independent of each other so that the failure of one shall not impair the other. A single cable may be used if the manual means of activation is located between the control head or releasing device and the first fusible link. Exception: An automatic sprinkler system. (NFPA 96)
- 6.2.2.3;** Commercial-type cooking equipment protected by automatic sprinkler systems shall be supplied from a separate, readily accessible indicating-type control valve that is clearly identified. Sprinklers used for protection of fryers shall be listed for that application and installed in accordance with their listing. (IFC Section 904.11.4)
- 6.2.2.4;** Upon activation of the system, an audible or visual indicator shall be provided to show that the system has activated. Where there is a fire alarm system installed in the building, activation of the extinguishing system shall cause the building alarm system activate. The extinguishing system shall be monitored by a separate zone on the fire alarm control panel and transmitted as a separate zone to the central station. (NFPA 17A)
- 6.2.2.5;** Automatic fire extinguishing systems shall be interconnected to the fuel or electrical current supply for the cooking equipment. The interconnection shall be arranged to automatically shut off all cooking equipment gas supply and circuits feeding electrically supplied equipment located under the hood. Shut-off valves or switches shall be of a type that requires manual operation to reset. (UFC Section 1006.2.4.1)
- 6.2.2.6;** Upon activation of the system, the exhaust fan shall continue to operate. Exhaust system make-up air, if provided through mechanical means, shall shut off when the extinguishing system actuates. (NFPA 96)

6.3 COMMERCIAL KITCHEN HOODS

- 6.3.1;** Type I hoods shall be installed at or above all commercial-type deep fat fryers, broilers, fry grills, hot-top ranges, barbecues, rotisseries, woks and

similar equipment that produce comparable amounts of grease, heat, and smoke in food processing. A separate mechanical permit is required prior to the installation or modification of any commercial kitchen hood. (IMC Section 507)

- 6.3.2; Type I hoods shall be constructed of steel not less than .043 inch (1.09 mm) (No. 18 MSG) in thickness, or stainless steel not less than .037 inch (.94 mm) (No. 20 MSG) in thickness. (IMC Section 507)
- 6.3.3; When installed, a hood shall be designed for thorough cleaning of the entire hood. Grease duct systems shall not have openings therein other than those required for proper operation and maintenance of the system. Any portion of the system having sections inaccessible from the duct entry or discharge shall be provided with adequate cleanout openings.
- 6.3.4; For canopy-type commercial cooking hoods the inside edge thereof shall overhang or extend a horizontal distance of not less than 6 inches beyond the cooking surfaces on all open sides. (IMC Section 507)
- 6.3.5; Type I hoods for use over solid-fuel cooking equipment shall discharge to an exhaust system that is independent of other exhaust systems. (IMC Section 507)

6.4 EXISTING SYSTEMS

- 6.4.1; Every existing automatic fire-extinguishing system provided for the protection of commercial cooking appliances and associated ventilation equipment shall be upgraded as necessary to meet the requirements of Standard UL 300 within 6 months of receiving written notification from the Northshore Fire Department.

Exception: Upgrade to UL 300 will not be required if all of the following conditions are met:

1. The commercial cooking equipment is located in buildings where the equipment will be used no more than once per month.
2. There are no deep fat fryers or similar types of appliances present.
3. There is an existing, approved wet-chemical extinguishing system installed to provide protection for the appliances, plenum and hood.

- 6.4.2; Owners of occupancies equipped with existing automatic fire-extinguishing systems may submit certified documentation of compliance with UL 300 in lieu of system modifications. The documentation must be acceptable to the Northshore Fire Department.

6.5 ACCEPTANCE TESTING

- 6.5.1; New extinguishing systems shall be inspected and tests witnessed by a representative from the Northshore Fire Department. The following is a list of recommended inspection steps to perform for system acceptance:

- a) Cooking appliances are sized and located as on the approved plans,
- b) Each nozzle is per plan and listed for the hazard protected,
- c) Nozzles; appliance, plenum and duct are correct for height and perimeter location for hazard, blow off caps in place,
- d) Piping and conduit secure,
- e) Location of manual pull correct,
- f) Fusible links located over each appliance and at the duct opening,
- g) Location of gas and electric shutoff correct (all appliances under the hood must shut down),
- h) Witness trip test for manual release and automatic operation:
 - Control head “trips” to operate system,
 - Gas and power shuts off completely under hood,
 - Shut down of mechanically supplied make up air (if integral to the hood),
 - Alarm system activated if present,
 - FACP zone and central station indicate hood zone.
- i) Type “K” extinguisher mounted within 30 feet of cooking appliances, in an accessible location along the exit path and be provided with required signage.
- j) Isometric drawing permanently mounted near hood,
- k) System fully reset and left in “ready” condition.

6.6 SYSTEM MAINTENANCE

- 6.6.1;** Hoods, grease-removal devices, fans, ducts, and other appurtenances shall be cleaned at intervals necessary to prevent the accumulation of grease. Cleanings shall be recorded, and records shall state the extent, time and date of cleaning. Such records shall be maintained on the premises. (IFC Section 904.11.6.3)
- 6.6.2;** Extinguishing systems shall be serviced at least every 6 months or after any activation of the system. Inspection shall be made by qualified individuals, and a Certificate of Inspection shall be forwarded to the Northshore Fire Prevention Division upon completion. (IFC Section 904.11.6.4)