



RFDS 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 2012 International Fire Code. Automatic fire extinguishing systems of the following types shall be installed in accordance with the referenced standard indicated, as follows,

1. Carbon dioxide extinguishing systems, NFPA 12.
2. AUTOMATIC SPRINKLER SYSTEMS, NFPA 13.
3. Foam – water sprinkler systems or foam water spray systems, NFPA 16
4. Dry chemical extinguishing systems, NFPA 17.
5. Wet Chemical extinguishing systems, NFPA 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 and installed in accordance with Section 304.1 of the International Mechanical Code. (2012 IFC 904.11)**

6.2 PLANS AND PERMITS

6.2.1; All new installations of automatic fire-extinguishing systems or modifications of existing systems require a Fire Department permit issued from the Redmond Development Services Center. 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 a 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. (2009 NFPA 17A Section 5-6.1.4, 5-6.1.5 & 5-6.1.6)
- 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, a minimum of 10' and a maximum of 20' from the kitchen exhaust system and clearly identifies 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. (2012 IFC, Section 904.11.1)
- 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. (2012 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 to 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. (2009 NFPA 17A Section 5-2.1.9)
- 6.2.2.5;** Automatic fire extinguishing systems shall be interconnected to the fuel and/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. (2012 IFC Section 904.11.2)



- 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 internally to a hood, shall shut off when the extinguishing system actuates. (2011 NFPA 96 Section 8.3.2)
- 6.2.2.7; Portable fire extinguishers shall be provided within a 30' travel distance of commercial type cooking equipment. Cooking equipment involving vegetable or animal oils and fats shall be protected by a Class K rated portable extinguisher. (2012 IFC Section 904.11.5)

6.3 COMMERCIAL KITCHEN HOODS

- 6.3.1; Type I hoods shall be installed in all areas required by 2012 IFC Section 609 including, 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 mechanical permit is required from the Redmond Permit Center prior to the installation or modification of any commercial kitchen hood. (2012 IMC Section 507.1)
- 6.3.2; Hoods shall be constructed of galvanized steel, stainless steel, copper or other material approved by the Building Official. (2012 IMC Section 507.4 & 507.5)
- 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 designed in accordance with the International Mechanical Code. (2012 IMC Section 507.8)
- 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. (2012 IMC Section 507.12)
- 6.3.5; Type I hoods for use over (extra-heavy-duty) solid-fuel cooking equipment shall be provided with separate exhaust systems. (2012 IMC Section 507.2.4)

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 Redmond Fire Department.



- 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 Redmond Fire Department.

6.5 ACCEPTANCE TESTING

- 6.5.1;** New extinguishing systems shall be inspected and tests witnessed by a representative from the Redmond 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 (**everything** 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,
 - 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. (2012 IFC 609.3.3)
- 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 Redmond Fire Prevention Division upon completion. (2012 IFC Section 904.11.6.2)



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- 6.6.3;** Fusible links and automatic sprinkler heads shall be replaced at least annually; and other protection devices shall be serviced or replaced in accordance with manufacturers' instructions.
(~~2009~~ 2012 IFC Section 904.11.6. 3)