COMMERCIAL COOKING OPERATIONS

When Required

Any facility where commercial cooking operations produce grease-laden vapors. Hazards and equipment are required to be protected using alternative extinguishing systems. These include restaurants, commercial and institutional hoods, plenums, ducts, and filters with their associated cooking appliances, special grease removal devices, odor control devices, and energy recovery devices installed in the exhaust system.

Code Sections

2021 NFPA 17A; 2022 California Fire Code (CFC) Chapter 9, Section 904.13; 2022 California Mechanical Code (CMC), Chapter 5; ANSI/UL 300; and UL 1254.

Requirements

Commercial cooking systems

A Type I Hood is required with an automatic fire extinguishing system that is listed and labeled for its intended use as follows:

1. Wet chemical extinguishing system, complying with UL 300.
2. Carbon dioxide extinguishing systems.
3. Automatic fire sprinkler systems.

This system shall be designed and installed in accordance with the California Mechanical Code and the most recent Manufacturer's Manual.

Qualifications

Only trained persons shall be considered competent to design, install, and service alternative fire extinguishing systems. It might be necessary for many of those charged with the purchasing, inspecting, testing, approving, operating, and maintaining of this equipment, to consult an experienced fire protection engineer competent in this field.

Actuation

All systems shall have both automatic and manual methods of actuation. Automatic detection and system actuation shall comply with this standard and the manufacturer's design, installation, and maintenance manual.

A manual actuation device shall be located at or near a means of egress from the cooking area between 10 feet and not more than 20 feet from the kitchen exhaust system. The manual actuation device shall not be installed more than 3 feet above the floor.

Fire Alarm

When a fire alarm system is provided in the building, it shall be interconnected so that the activation of the hood extinguishing system will sound the fire alarm and transmit a signal to the central station.

> Note: *The hood extinguishing system does not need to be interconnected if the building is only equipped with a fire sprinkler monitoring system*.

A separate fire alarm permit/submittal will be required for the system "tie in" to the building's fire alarm system.

Signaling

Systems shall be provided with an audio or visual indicator to show that the system is in ready condition, needs recharging, or that the system has been actuated.
Where electrical power is required to operate the fixed automatic fire-extinguishing and/or its associated devices, the system shall be monitored by a supervisory alarm with a reserve power supply provided. Signals indicating the failure of supervised devices or equipment shall give indication of any failure and shall be distinct from signals indicating operation or hazardous conditions.

> Exception: Monitoring shall not be required where systems are interconnected or interlocked with the cooking equipment power sources and automatically shut off all sources of fuel and heat to cooking appliances during a power failure.

System Interconnection

The actuation of the fire extinguishing system shall automatically shut down the fuel or electrical power supply to the cooking equipment. The fuel and electrical supply reset shall be manual.

Exhaust fans shall continue to operate after the extinguishing system has been activated (unless fan shutdown is required by design), and makeup air supplied internally to a hood shall shut off.

Positioning

Piping shall be rigidly supported to prevent movement. Swivel nozzles shall be rotated to a predetermined aiming point and then tightened to hold that angle. Careful attention shall be given at the time of designing the system as nozzles cannot be moved "out of the way" once approved in the field. Any moving of the pipe or nozzles shall require an approved contractor to evaluate the pipe/nozzle layout.

Protection shall also be provided for the enclosed plenum space within the hood, above filters, and in exhaust ducts serving the hood.

Movable cooking equipment shall be provided with a means to ensure that it is correctly positioned in relation to the appliance discharge nozzle during cooking operations and that movement of equipment does not occur.

All discharge nozzles shall be located and installed in relation to the protected appliance as shown in the manufacturer's listed installation manual.

All discharge nozzles shall be provided with caps, covers, or other suitable protective devices. The protection device shall blow off, blow open, or blow out upon agent discharge.

Appliances

Protection of appliances include open cooking surfaces, deep fat fryers, griddles, upright broilers, char broilers, range tops, grills, open face ovens, salamanders, woks, open face pizza ovens, and other similar cooking appliances.

Fryers shall be separated from surface flame appliances by 16 inches, or an 8-inch steel or tempered glass baffle plate shall be provided between fryers and surface flames.

Labeling

A placard shall be conspicuously placed near each Class K extinguisher that states that the fire protection system shall be activated prior to using the fire extinguisher.

Where multiple manual actuators are installed for protection of separate extinguishing systems, they shall be identified as to which extinguishing system each will activate.

Portable Fire Extinguishers

Cooking equipment involving solid fuels, vegetable or animal oils and fats shall be protected by a Class K-rated portable extinguisher. Fire shall be of an approved type compatible with the automatic fire-extinguishing system agent. Portable fire extinguishers shall be installed within 30 feet distance of travel from commercial cooking equipment, in conspicuous locations where they will have ready access and be immediately available for use and shall be installed so that their tops are not more than 5 feet above the floor.

Additional extinguishers may be required based on travel distance for solid fueled equipment or multiple fryers.

Inspection

The approved system shall be pre-tested prior to the SCFD scheduled inspection of the required acceptance test.

Hood and duct construction and installation shall be in accordance with the CMC and nationally recognized standards. These assemblies are subject to approval and inspection by the City of

Santa Clara Building Official and are not part of the SCFD plan review process except as it relates to the installation of the hood extinguishing system.

A test using nitrogen or dry air shall be performed on the piping. The test is intended to verify that flow is continuous and that the piping and nozzles are reasonably unobstructed. The piping shall not be hydrostatically tested.

System operational tests shall be performed in accordance with the manufacturer's design, installation, and maintenance manual and include functional tests of the automatic detection system, the manual release devices, the gas shutoff, the shutoff of makeup air supplied internally to a hood, and the electrical power shutdown.

Where the system is connected to a building alarm system, verification that alarm-sounding or notification devices and remote annunciation devices are functional shall be required.

At the time of system acceptance, the installing contractor shall complete and sign an acceptance test report and upload it to the permitting portal.