

# FIRE EXTINGUISHING SYSTEMS FOR COMMERCIAL COOKING OPERATIONS

## **PURPOSE:**

This guideline has been prepared to assist those responsible for the design, installation, testing, and inspection of wet chemical fire extinguishing systems used to protect commercial cooking appliances to comply with 2009 NFPA 17A; 2016 California Fire Code (CFC) Chapter 9, Section 904.12; and the 2016 California Mechanical Code (CMC) Chapter 5. The information contained in this document is intended to promote compliance and to ensure that commercial type food heating and processing operations are adequately protected in the event of a grease fire.

## **SCOPE:**

This guideline applies to any facility where commercial cooking operations produce grease-laden vapors. Cooking appliances producing grease-laden vapors shall be equipped with an exhaust system with the following components: hood, grease removal devices, duct system, and fire extinguishing equipment. This guideline defines protection for cooking surfaces, deep fat fryers, griddles, upright broilers, char broilers, range tops and grills, open face ovens, salamanders, cheese melters, woks, open face pizza ovens, and other similar cooking appliances. Protection shall also be provided for the enclosed plenum space within the hood, above filters, and in exhaust ducts serving the hood.

## **DEFINITIONS:**

**Assembly Permit Required:** For the purposes of this guideline, a gathering of 500 or more persons for a specific event.

**Booths, single and multi-level:** Assembled display structures for displaying sales literature and product demonstrations. Multi-level booths are characterized as having human occupancy above the floor or ground.

**Class K Fire Extinguisher:** Fire extinguisher that has been subjected to special tests on cooking appliances using combustible cooking media.

**Cooking:** Heat food products to over 200 degrees by baking, boiling, deep fat frying, sautéing, etc.

**Exit:** That portion of a means of egress system which is separated from other interior spaces of a building or structure by fire-resistance rated construction and opening protection as required to provide a protected path of egress travel between the exit access and exit discharge. Exits include exterior exit doors at ground level, exit enclosures, exit passageways, exterior stairs, exterior exit ramps and horizontal exits.

**Exit Travel Distance:** Distance from any point within a building to an exit.

**Hot Work:** Working metal, glass, jewelry, or other materials by brazing, soldering, flames, grinding, producing sparks or welding.

**LP-gas:** Compressed liquid petroleum gas consisting mainly of propane with a lesser amount of butane and

pentane.

## **PERMIT FEES:**

Permit fees shall be assessed in accordance with the Permit Fee Schedule as adopted in the City of Santa Clara Municipal Fire & Environmental Code.

## **SUBMITTAL REQUIREMENT**

1. General Requirements:
  - A. Submit a completed SCFD Permit Application, which can be obtained at the Fire Marshal's Officer which is located at 1675 Lincoln Street, Santa Clara or on the City of Santa Clara website at [www.santaclaraca.gov](http://www.santaclaraca.gov).
  - B. Submit appropriate fees in accordance with the Permit Fee Schedule as adopted in the City of Santa Clara Municipal Fire & Environmental Code.
  - C. Submit two (2) sets of legible, scaled plans with ONE set of current and complete technical data sheets/manufacturer's specifications.
  
2. A minimum of two (2) sets of scaled plans shall be submitted at time of application;  
The plans submitted shall include the following information:
  - A. Scope of work for the project.
  - B. Complete address of the project.
  - C. Only persons properly trained shall be considered competent to design, install, and service pre-engineered wet chemical systems. Proof of proper training for the designer and installer shall be provided upon plan submittal.
  - D. Applicable codes and standards used for the system design.
  - E. Sectional view of cooking appliances with the dimensions of each piece of cooking equipment specified.
  - F. Specify the size and location of the back shelf, if any.
  - G. If applicable to the appliances on site, specify the following:
    - i. Whether or not the fryer has a drip board;
    - ii. Type of char broiler;
    - iii. The depth of wok.
  - H. Floor plan layout that includes the location of the cooking equipment, exit doors, manual pull, and other non-protected appliances indicated.
  - I. Fire extinguishing protection is required for open pizza ovens. If the pizza oven is closed, and no protection is provided, this must be specified on the plan.
  - J. Hood, plenum, and duct dimensions.
  - K. Piping schematic that includes the equivalent pipe length calculation (if applicable); the number and type of nozzles; and the location, height and direction of nozzle placement over each piece of cooking equipment.
  - L. An equipment legend for each supply tank (multiple cylinders supplying the same nozzles shall be combined on legend). The legend shall include the type of nozzles that are connected to that tank, the tip number/identifier, the total number of flow point used, and the number of flow points allowed for that size tank.
  - M. Detection schematic that includes the location of each fusible link for each protected equipment, the location of the manual pull, and the length of the detection system.

NOTE: If the chemical fire extinguishing system is not designed to fully protect the duct then the duct will also require fire sprinklers to be installed as per NFPA 13.

## **TESTING:**

The system shall be pre-tested prior to SCFD inspection to determine that the system is properly installed and functions in accordance with the approved plans and the manufacturer's installation and maintenance manual. Testing during the SCFD inspection shall include a manual and automatic activation via fusible link. A shut down of all electrical and gas cooking equipment shall also be demonstrated. Nozzle type, height, and orientation relative to placement of cooking appliances will also be verified during the inspection. For SCFD inspections, please call 408-615-4970.

## **OPERATIONS/MAINTENANCE:**

The extinguishing system shall be maintained in accordance with the manufacturer's requirements and with the following:

1. Extinguishing systems shall be serviced at least every six months or after activation of the system. Maintenance shall be conducted in accordance with the manufacturer's listed installation and maintenance manual.
2. The hood ventilation system shall be operated at the required rate of air movement, and approved grease filters shall be in place when cooking equipment under a kitchen grease hood is operated.
3. When grease extractors are installed they shall be operated with the commercial type cooking equipment.
4. Hoods, grease removal devices, fans, ducts, and other appurtenances shall be periodically cleaned to prevent grease accumulation. Cleanings shall be recorded and records shall state the extent, time, and date of cleaning. Such records shall be maintained on the premises for a period of two years.

## **SCHEDULING INSPECTIONS:**

1. Inspection appointments can only be made by the installing contractor.
2. It is the responsibility of the installing contractor or a representative to be on the job site during the inspection with a set of approved plans. Failure to do so will result in the cancellation of the inspection and an assessment of a re-inspection fee will be assessed.
3. Call (408) 615-4970 to schedule inspections with SCFD. Inspections are assigned on a first come first served basis. The inspection request line is open Monday through Friday between 8:00 a.m. and 5:00 p.m.

## **SMART PERMIT INFORMATION SYSTEM:**

The City of Santa Clara offers you the opportunity to check the status of you fire permits on-line. To access the Smart Permit Information System please log onto the system at:

[http://smartpermit.santaclaraca.gov/tm\\_bin/tmw\\_cmd.pl?tmw\\_cmd=StatusQueryForm&tmw\\_query=PublicCase](http://smartpermit.santaclaraca.gov/tm_bin/tmw_cmd.pl?tmw_cmd=StatusQueryForm&tmw_query=PublicCase)

You can search the system using your Case Number (Permit number; FIR2018-00001), Project Name, Applicant Name or the address of the project.

## **SANTA CLARA FIRE DEPARTMENT NOTES:**

Provide the following notes on the plan, verbatim, under the heading "SANTA CLARA FIRE DEPARTMENT NOTES":

1. This system is designed in accordance with ANSI/UL 300, 2009 NFPA 17A, 2016 CFC, 2016 CMC and the most recent Manufacturer's Manual.

2. 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. The hood extinguishing system does not need to be interconnected if the building is only equipped with a fire sprinkler monitoring system.
3. The approved system shall be pre-tested prior to the SCFD scheduled inspection of the required acceptance test.
4. 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.
5. 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.
6. Manual pull stations shall be located no higher than four feet above finished floor and shall be readily accessible for use at or near a means of egress from the cooking area a minimum of 10 feet and maximum of 20 feet from the kitchen exhaust system.
7. All gas fueled, electrically powered, and heat-producing equipment located under the hood shall shut down upon activation of the extinguishing system.
8. All discharge nozzles shall be provided with caps, covers, or other suitable protective devices.
9. All discharge nozzles shall be located and installed in relation to the protected appliance as shown in the manufacturer's listed installation manual.
10. 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.
11. Where multiple manual actuators are installed for protection of separate extinguishing systems, they shall be identified as to which extinguishing system each will activate.
12. Hood exhaust fans shall continue to operate after the extinguishing system has been activated, unless fan shutdown is required by a listed component of the ventilation system or by the design of the extinguishing system.
13. The inside edge of the hood shall overhang a horizontal distance of not less than 6 inches beyond the edge of the cooking surface on all open sides, and the vertical distance between the lip of the hood and the cooking surface shall not exceed 4 feet unless the manufacturer's specifications state otherwise.
14. 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.
15. A Class K rated extinguisher shall be provided within a maximum of 30 ft. of cooking equipment. Additional extinguishers may be required based on travel distance for solid fueled equipment or multiple fryers. Portable fire extinguishers shall be maintained in accordance with CFC 906, portable fire extinguishers shall be conspicuously located along normal paths of travel where they will be readily accessible.