

<p style="text-align: center;">City of Perris Department of Development Service Office of the Fire Marshal 135 North “D” Street, Perris CA. 92570 Phone: (951) 443-1029 Fax: (951) 943-3293</p>
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Fire Extinguishing Systems for Commercial Cooking Operations Guideline

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 2002 NFPA 17A; 2010 California Fire Code (CFC) Chapter 9, Section 904.11; and the 2010 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, charbroilers, 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.

SUBMITTAL REQUIREMENTS

Submit three (3) sets of legible, scaled plans with ONE (1) set of current and complete technical data sheets/manufacturer’s specifications shall be submitted to the Office of the Fire Marshal (OFM). These plans shall contain the following information and items:

1. Scope of work for the project.
2. Complete address of the project.
3. 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. CMC 513.10/NFPA 17A – 6.2
4. Applicable codes and standards used for the system design (e.g., 2010 CFC, 2010 CBC, etc.).
5. Sectional view of cooking appliances with the dimensions of each piece of cooking equipment specified.
6. Specify the size and location of the back shelf, if any.
7. If applicable to the appliances on site, specify the following:
 - whether or not the fryer has a drip board
 - type of charbroiler
 - the depth of wok
8. A scaled floor plan layout that includes the location of the cooking equipment, exit doors, manual pull, and other non-protected appliances indicated.
9. 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.
10. Hood, plenum, and duct dimensions.
11. 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.
12. 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 and/or identifier, the total number of flow point used, and the number of flow points allowed for that size tank.
13. 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 2010 NFPA 13, Section 7.10.

Provide the following notes on the plan, verbatim, under the heading "CITY OF PERRIS NOTES":

1. Where a building fire alarm or monitoring system is installed, automatic fire-extinguishing systems shall be monitored by the building fire alarm or monitoring system in accordance with NFPA 72. CFC 904.3.5 as amended.
2. The approved system shall be pre-tested prior to the OFM scheduled inspection of the required acceptance test.
3. Piping shall be rigidly supported to prevent movement.
4. Appliances with wheels shall be secured in place.
5. Manual pull stations shall be located no higher than four (4) feet above finished floor and shall be readily accessible for use.
6. All gas fueled, electrically powered, and heat producing equipment located under the hood shall shut down upon activation of the extinguishing system.
7. All discharge nozzles shall be provided with caps, covers, or other suitable protective devices.
8. All discharge nozzles shall be located and installed in relation to the protected appliance as shown in the manufacturer's listed installation manual.
9. 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 Building Official and are not part of the OFM plan review process except as it relates to the installation of the hood extinguishing system.
10. Where multiple manual actuators are installed for protection of separate extinguishing systems, they shall be identified as to which extinguishing system each will activate.
11. 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.

12. The inside edge of the hood shall overhang a horizontal distance of not less than six (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 four (4) feet unless the manufacturer's specifications state otherwise.

TESTING

The system shall be pre-tested prior to OFM inspection to determine that the system is properly installed and functions in accordance with the approved plans, the manufacturer's installation and maintenance manual. Testing during the OFM inspection shall include: a manual and automatic activation via fusible link, a shut down of all electrical and gas cooking equipment, verification of nozzle type and height, and orientation relative to placement of cooking appliances will also be verified during the inspection.