Hood and Duct Systems

PURPOSE: The purpose of this guideline is to maintain consistency pertaining to the installation of fire extinguishing equipment for the protection of commercial-type food heating and processing equipment.

POLICY: All buildings within the jurisdictions served by the North County Fire Protection District, and containing such equipment, shall have a system designed and installed in accordance with these guidelines.

SCOPE: Hood and Duct systems are required for protection of commercial-type cooking equipment which produces grease laden vapors (CFC 1006.1).

AUTHORITY: System designs shall comply with the 1998 edition of the California Fire Code. In addition, system designs shall conform to the 1994 edition of NFPA Standard 17 for Dry Chemical Extinguishing Systems, or NFPA Standard 17A for Wet Chemical Extinguishing Systems, or NFPA Standard 2001 for Clean Agent Fire Extinguishing Systems.

PROCEDURE:

I. REQUIRED INSTALLATIONS: The following appliances require a hood and duct system (in addition to plenum (duct) for all appliances):
   A. Cooking surfaces
   B. Deep fat fryers
   C. Griddles
   D. Upright broilers
   E. Charbroilers
   F. Range tops and grills

II. INSTALLATION STANDARD: Hood and duct systems shall be installed in accordance with NFPA 17. Only listed devices are to be used.

III. AREA OF COVERAGE. System shall include all surfaces which may become coated with flammable or combustible liquids, including adjacent walls, ducts, etc.

IV. PLAN REVIEW: The following information is required on all hood and duct system plans:

   A. Three sets of plans shall be submitted, including manufacturers specifications, and reviewed prior to installation.

B. All working plans shall include the information stated in NFPA 96, Chapter 7-4.1.

C. The responsible license holders name and contractors state license number shall be included in the title block of the plans.

D. A legal address shall be shown on the plans, in addition to an overall site plan and vicinity map.

E. NFPA or other recognized symbols shall be used with a legend for reference purposes.

F. Plans shall be drawn to an acceptable recognized architectural or engineering scale, with all information in blue or black line print; no pen changes are permitted.

G. A description of hazard to be protected shall be provided.

H. Alarm Monitoring Information (if applicable). For buildings equipped with a central station monitored fire sprinkler system, the hood and duct system shall be monitored, as well.

I. Complete drawing of system, to include the following:
   1. hoods
   2. exhaust ducts
   3. appliances to be protected
   4. system detectors & interfacing
   5. piping (type, size and length)
   6. nozzles, type and placement (must protect entire area, plus ducts).
   7. fuel shut-off devices (must interlock with extinguishing system)
   8. agent & agent storage vessel (sodium bicarbonate, potassium bicarbonate, or potassium chloride). Must be sufficient agent to cover entire surface area of protection.
   9. Location of compatible fire extinguisher (40-B minimum, within 30') or Class 'K'.
   10. manual activation device, type & location (must be 5' AFF, in path of egress).

V. SYSTEM INSPECTION:

A. Conformance with plans—hood and duct system

B. Agent—in conformance with plans. Note that Class K extinguishing agent is required for new deep fat fryer installations.

C. Piping—compatible with extinguishing agent, minimum thickness of Schedule 40. Galvanized pipe shall not be used for wet chemical systems. Piping to be rigidly supported.

D. Isolation of Gas & Electric—system activation shall shut off gas, and wet chemical systems shall shut of electricity to unit upon activation.

E. Container—appropriate size, adequate pressure

F. Extinguisher—appropriate size, type, and location, compatible with the agent within the hood system. Minimum 40 BC within 30' required. Class 'K' extinguisher required for deep fat fryers.

G. Nozzles—must protect all appliances plus all duct surfaces, caps in place.

H. Fusible links or Heat detectors—must be provided above each appliance, unless directly below a duct which has a fusible link or heat detector.

I. Penetrations in Hood or Duct—must be sealed via approved sealant or weld.

J. Manual Activation—pull switch in appropriate location

K. Instructions for manual operation of the fire-extinguishing system shall be posted at a conspicuous location in the kitchen.

VI. SYSTEM ACCEPTANCE TEST:

A. Pull station—with burners operating and balloons over nozzles, activate pull station. Burners should shut off, balloons should fill with propellant gas.

B. Fusible link/Heat Detector—with burners operating and balloons over nozzles, activate fusible link/heat detector. Burners should shut off, balloons should fill with propellant gas.

C. Wet Chemical Systems—shall shut of electricity upon activation