Plan Submittal Requirements for Commercial Hood and Duct Extinguishing Systems

Effective Date: January1, 2020

1.0 PERMITS

1.1 Approved Mechanical, Electrical, Plumbing and Structural Building Permit for the Hood & Duct system(s) are required prior to submittal of the Fire Suppression System(s).To acquire an installation permit for the Commercial Hood and Duct Extinguishing system, submit the following to the San Jose Fire Department's Bureau of Fire Prevention (BFP):

1.2 We no longer accept paper plans. Plans are to be submitted using the SJePlans system. Uploaded files must be correctly named. See "Fire SJePlans File Naming Convention". To acquire an installation permit for the automatic sprinkler system, submit the following to the San Jose Fire Department's Bureau of Fire Prevention (BFP):

1.2.1 To apply for fire and hazardous materials systems permits, please schedule an appointment and complete your application submittal using SJePlans.

1.2.2 A completed Fire Protection and Special Systems Installation Permit form (permit application) – for project/facility business name, if the project is speculative, type-in "SPEC." followed by the anticipated occupancy (e.g., SPEC OFFICE, SPEC. WAREHOUSE, ETC).

1.2.3 The San Jose Fire Department Plan Check Comments (Plan Check Directives) – this may be obtained from the general contractor or architect.

1.2.4 All approved variances or alternate means or methods of constructions that are relevant to the project – these may be obtained from the general contractor or architect.

1.2.5 Shop quality plans, calculations and supporting documents for the proposed Commercial Hood and Duct Extinguishing System.

1.3 See current **Fee Schedule.**

1.4 Initial permit fees will be collected when plans are submitted. Permit fees are non-refundable.

1.5 **Regular plan review** time is approximately one month unless the contractor schedules an **express plan review** (over-the-counter). The fee for express plan review is 1.5 times the hourly plan check rate. Missed appointments or cancellations within 24 hours of the scheduled plan review time shall be billed to the contractor by the amount of time scheduled.

Express plan review service is for projects that will require less than 1 hour to review. This service is generally for simple hood and duct systems. See "**Express Review Requirements for Fire Suppression Systems**" for further instructions.

1.6 Permits are required for all new life safety and any alteration to or addition to a life safety system. Permits are required when (a) lengthening or shortening a drop; (b) relocating, adding or deleting a nozzle(s); and (c) exchanging equipment for different styles (e.g., tanks, panels, piping and/or nozzles; etc.)

1.7 All installing contractors shall have a California Contractor's License, a valid Worker's Compensation certificate, and a San Jose Business License. The said license and certificate numbers shall be indicated on the permit application prior to submittal of an installation permit.

Note: *A Fire Protection Contractor's License (C-16) shall be the only license classification acceptable for installing Commercial Hood and Duct Extinguishing systems.*

1.8 Equipment and piping shall not be installed prior to approval of plans and issuance of permits.

1.9 The permit and a San Jose Fire Department approved set of plans must be kept at the project site until final approval of the permit, after which they shall remain in the possession of the owner.

1.10 Plans not conforming to the minimum requirements herein will be returned as incomplete.

2.0 PLANS

The hood and duct system shall be designed and installed in accordance with CFC Chapter 9, CMC Chapter 5, NFPA 17A and/or NFPA 96, in accordance with Underwriters' Laboratory Standard 300, the requirement of the system's manufacturer, the San Jose Municipal Code, Chapter 17.12 as modified by Local Ordinance, and other standards that contain system design criteria for fire control and/or suppression of specific hazards.

2.1 The exhaust hood and duct systems of all commercial ranges, fryers, broilers, and other cooking devices shall be protected by an automatic fire protection system incorporating full surface protection and automatic fuel shut-off. There shall be a remote activation device placed along the route of egress. If the building is equipped with a fire alarm system, the activation of the hood and duct system shall initiate an alarm with a separate zone.

2.2 This information is to be provided on plans submitted for a building permit to install or modify a commercial hood and duct fire suppression system:

- 2.2.1 Fully dimensioned plans
- 2.2.2 Kitchen layout, including exits, pantry and access to dining area
- 2.2.3 Hood dimensions
- 2.2.4 Exhaust duct and appliance dimensions, along with the interface of the fire extinguishing system detectors
- 2.2.5 Piping (size and length)
- 2.2.6 Nozzles (type and distance to the appliance)
- 2.2.7 Fuel shut-off devices and their listing type
- 2.2.8 Agent storage container (type and size)
- 2.2.9 Manual actuation device and related cable installation in the kitchen
- 2.2.10 Type and size of systems
- 2.2.11 Project name
- 2.2.12 Applicant/Owner
- 2.2.13 Street address, including suite or space number
- 2.2.14 City, State, Zip Code
- 2.2.15 Provide pipe length equivalency calculations
- 2.2.16 Provide flow point calculations
- 2.2.17 Point of compass
- 2.2.18 A graphical representation of the scale. Scale shall be suitable to provide legible drawings
- 2.2.19 Contractor's name, telephone number, address, California Contractor's and/or P.E. license
- 2.2.20 The owner's name, address and telephone number

2.3 The plans shall be stamped and signed by the designer of record (installing contractor). The designer's name shall be clearly printed in the plans - no pseudonyms, acronyms, or aliases. Installation work shall be done by licensed, fully experienced, and responsible persons.

2.4 The designer of record is responsible for the entire system being worked on.

2.5 A key plan of the building and/or complex indicating the street location and the area of work shall be provided. If the work to be performed is a revision to a previous submittal, the area of work shall be revised to indicate the area of work for the current submittal.

2.6 Plans and all revisions to the plans shall be dated. If utilizing an existing drawing or a portion of a drawing, the area of work shall be highlighted and clouded with an appropriate revision symbol Δ(delta). Provide a revision list with a symbol, date, description, and initials.

2.7 Working plans shall be drawn to an indicated scale (not smaller than ⅛" = 1'), on sheets of uniform size (11" x 17" minimum).

2.8 A legend shall be provided and the symbols used shall match the legend. Strike out any "typical" symbols and/or details which do not pertain.

2.9 All equipment and devices shall be noted on the plans and shall be listed by a nationally recognized testing agency. ***Note:*** *The San Jose Fire Department reserves the right to disallow any listed product due to past performance.*

2.10 If technical expertise is unavailable within the Fire Department because of new technology, process, products, facilities, materials and uses attending the design, operation or use of a building or premises, the Fire Department may require the applicant to provide, without charge to the Fire Department, a technical opinion and report, or plan review. The opinion and report or plan review shall be prepared by a qualified engineer, specialist, laboratory, or fire-safety specialty organization acceptable to the Fire Department and the applicant and shall analyze the design, operation or use of the building or premises as it relates to required codes and ordinances.

2.11 Indicate the number, location(s), type and size of portable fire extinguishers required. See CFC Section 906.4 & 904.12.5.

2.12 Plans shall indicate actual, maximum and minimum lengths of pipe and equivalent lengths. In addition, the actual and maximum vertical rise shall be indicated.

2.13 Branch line piping limitations shall be indicated showing compliance with manufacturer's design data. Reference design data by chapter, page, and revision on plans and provide data sheet with submittal.

2.14 If the building has a fire alarm system or other suppression system monitoring, show how the hood suppression system is connected to the system (any activation shall be indicated by alarm status at the FACP). A separate Fire Alarm/Monitoring System Tenant Improvement Permit is required.

2.15 One set of manufacturer's product data cut sheets shall be submitted with the application for each submittal. All information not pertinent to the proposed project shall be "struck out" of the cut sheets. As a minimum, the following cut sheets are required:

- 2.15.1 Nozzle coverage and placement
- 2.15.2 Cylinder sizing
- 2.15.3 Piping limitations
- 2.15.4 Detector requirements
- 2.15.5 Multiple cylinder installation (if applicable)

3.0 DESIGN

3.1 General

- 3.1.1 The system(s) shall have an alarm or indicator that shows system has activated.
- 3.1.2 All power and fuel shall be shut down if located under the protected exhaust hood regardless of what the power or fuel source is located there for. Show all mechanical and/or electrical interrupts.

3.1.3 Each appliance shall be provided with at least one detector unless located directly below the exhaust duct, in which case, one detector may be provided for two appliances provided this configuration is allowed by the system's manufacturer.

3.1.4 Indicate the actual surface dimension being protected, as well as the size of the unit (e.g., 36" griddle with 30" x 24" cooking surface).

3.1.5 Use the same terminology as in the design manual (e.g., "range" not "stove" or "burner", "griddle" not "grill" or "plate", etc.). Be specific (e.g., radiant broiler, synthetic rock broiler, chain broiler, etc.).

3.1.6 The shutdown of make-up or supply air is required upon system actuation.

3.1.7 Exhaust fan(s) in the ventilation system should remain on during system discharge as they assist the dispersion of chemical through the ventilating system.

3.1.8 All appliances shall be locked in place. If appliances must be moveable for cleaning, location markers shall be permanently installed to indicate the approved location of the appliance (e.g., wheel chocks designed to precisely relocate mobile cooking equipment under the exhaust hood, at the approved designed location, in accordance with NFPA 96 and NFPA 17A requirements).

3.1.9 Hoods for canopy type commercial cooking shall overhang or extend 6" inch horizontally beyond the edge of the cooking surface on all open sides and shall not exceed 4' feet vertically from the cooking surface to the lip of the hood except if listed otherwise. Listed exhaust hoods are to be installed with the terms of their listings and installation instructions. (CMC 508.5.1)

3.1.10 Safety Interlocks. Systems shall be provided with interlocks of all critical components and operations such that if any interlock components are interrupted the cooking appliance shall not be able to operate.

3.2 **Fire Extinguishers:**

3.2.1 Fire extinguishers are placed in relation to the hazards they are to protect. Only the class K fire extinguisher is compatible with the wet chemical agents. Every commercial kitchen with a Type 1 Hood shall have a Class K extinguisher located in it to supplement the suppression system. (NFPA 10 & 96)

3.2.2 Maximum travel distance shall not exceed 30 feet (9.1 m) from the hazard to the Class K extinguisher(s). (NFPA 10)

3.2.3 Where a hazard is protected by an automatic fire protection system, a placard shall be conspicuously placed near the extinguisher that states that the fire protection system shall be actuated prior to using the fire extinguisher. (NFPA 10)

3.2.4 All solid fuel cooking appliances (whether or not under a hood) with fire boxes of 5 ft^3 volume or less shall have at least a listed 2-A rated water-type fire extinguisher or a 1.6 gal (6 L) wet chemical fire extinguisher that is listed for Class K fires in accordance with NFPA 10, with a maximum travel distance of 6 m (20 ft) to the appliance. (NFPA 96)

3.3 **Deep-Fat Fryers:**

3.3.1 All deep-fat fryers shall installed with a minimum clearance of 16" inches between the fryer and surface flames from adjacent cooking equipment except when a steel or tempered glass baffle-plate is installed at a min. 8" inches in height between the fryer and surface flames of the adjacent appliances. (CMC 515.1)

3.3.2 Deep-fat fryers shall be equipped with a separate high-limit control in addition to the adjacent operating control (thermostat) to shut off fuel or energy when the fat temperature reaches 475 degrees F at one (1) inch below the surface. (CMC 515.2)

3.4 **Rooftop Equipment:**

3.4.1 All hoods shall be secured in place by methods demonstrated by the Building Permit and approved by Building Inspection(s).

3.4.2 Rooftop emission control systems shall be interlocked for simultaneous fire suppression activation and safety shutdowns.

3.4.3 All interior surfaces of the exhaust system shall be reasonably accessible for cleaning and inspection.

3.4.4 Grease gutters shall drain to an approved receptacle fabricated, designed and installed to allow for access & cleaning.

3.5 **Access Panels for Service and Inspection:**

3.5.1 Openings for installation, servicing, and inspection of listed fire protection system devices and for duct cleaning shall be provided in ducts and enclosures. (CMC 510.3).

3.5.2 Openings required to reach access panels in the ductwork shall be large enough for the removal of the access panel.

3.5.3 Access panels shall be listed grease duct access door assemblies, or shall be constructed of the same materials as the duct. (CMC 510.3.6).

3.5.4 Signage shall be placed on all access panels stating the following: "ACCESS PANEL - DO NOT OBSTRUCT". (CMC 510.1.5).

3.6 **ELECTRICAL REQUIREMENTS:**

3.6.1 Wiring systems of any type shall not be installed in ducts. (CMC 512.2).

3.6.2 Motors, lights, and other electrical devices shall not be installed in ducts or hoods or located in the path of travel of exhaust products, except where specifically approved for such use. (CMC 512.2.1).

3.6.3 Lighting units in hoods shall be listed for use over commercial cooking appliances and installed per the terms of their listing. (CMC 512.2.2).

3.7 **CERTIFICATION:**

3.7.1 Installation of systems shall be made only by persons trained and certified to install the specific systems being provided. Acceptable certifications are from the product manufacturer or International Code Council Certifications as Pre-engineered Kitchen Fire Extinguishing System Technician (FK) and/or Pre-engineered Industrial Fire Extinguishing System Technician (FN) as pertain to the installation.

4.0 EXISTING DRY CHEMICAL SYSTEMS

4.1 All new installations shall have been tested to the UL Standard for Fire Extinguishing Systems for Protection of Restaurant Cooking Areas, UL300 and be listed by Underwriters Laboratories, Inc.

4.2 Systems that do not meet the UL 300 standard are not in compliance and shall be upgraded immediately.

5.0 INSPECTION/TESTING

5.1 Field inspections can be scheduled only after a permit has been issued. Only the installing contractor shall schedule all tests and inspections. To schedule an inspection, call (408) 535-3555 at least 3 days before the desired inspection date.

Note:

a) When scheduling an inspection, it is the contractor's responsibility to request sufficient time to complete a thorough inspection of the work performed. Inspections are booked in increments of one hour. This time includes travel and completion of the Record of Inspection form.

b) Missed inspections or inspections cancelled less than 48 hours before the scheduled date shall be billed as an inspection for the amount of time booked.

c) Inspections are provided as covered by the permit fees. Additional inspections shall be billed by the amount of time required.

d) Pursuant to Chapter 5.5, Division 1, Title 19 of the California Code of Regulations, effective 7/1/17 any individual performing the installation, alteration, or repair of water-based fire protection systems will be certified or registered with the State Fire Marshal. Violators may be subject to a "Stop Work Order".

5.2 The Fire Department reserves the option to require a discharge test, requiring full discharge of the chemical extinguishing agent. The test may be required to show the discharge pattern and/or discharge into suitable receptacles for weighing the results prior to acceptance.

5.3 Approval test shall include:

5.3.1 PRE-INSPECTION:

5.3.1.1 Have approved plans and permit(s) available.
5.3.1.2 Verify nozzle count, size and that balloons are attached to each nozzle.
5.3.1.3 Check heat rating of fusible link as per plans.
5.3.1.4 Check automatic gas shut off is in open position.
5.3.1.5 Check return air and make up air are running properly.
5.3.1.6 Check that hood unit power and lights are on.
5.3.1.7 Check that pilot light(s) are on.
5.3.1.8 Check equipment used is same as listed on approved plans.
5.3.1.9 Check movable equipment is in place and marked with permanent lines.
5.3.1.10 Check pull station is located near an exit.
5.3.1.11 Check K rated extinguisher tag and is within 30 feet of equipment and hung properly.
5.3.1.12 Check activation valve/ manifold and test cartridge are installed properly.
5.3.1.13 Check that 2 radios or cell phones are available for test.
5.3.1.14 Check alarm technician is ready and at panel for address signaling (if alarmed).
5.3.1.15 Notify central station of test (if monitored).

5.3.2 INSPECTION 1 (Initial System Test):

5.3.2.1 Contractor will verbalize test procedure step to inspector.
5.3.2.2 Check communications (and readiness of alarm technician, if applicable).
5.3.2.3 Contractor/representative to pull the manual release station.
5.3.2.4 Discharge expellant gas through the piping and nozzles.
5.3.2.5 Observations shall be made for serious gas leakage and for continuity of piping with free, unobstructed flow.
5.3.2.6 Observations shall be made of the flow of expellant gas through all nozzles (Check all balloons fill properly).
5.3.2.7 Strainer assemblies shall be disassembled and proven to be clean and clear. (If dirty, clean, reset, retest –time permitting).
5.3.2.8 Piping shall not be hydrostatically tested.
5.3.2.9 Where pressure testing is required, it shall be by means of a dry gas.
5.3.2.10 Check that hood unit power and lights are off.
5.3.2.11 Check makeup air is off and exhaust fan is on.
5.3.2.12 Check pilot light is off (automatic gas valve closes properly).
5.3.2.13 Check alarm (strobes work and alarm horns sound as appropriate).
5.3.2.14 Have alarm technician verbalize panel display if applicable.
5.3.2.15 The labeling of devices with proper designations and instructions shall be checked.

5.3.3 INSPECTION 2 (Fusible Link Test):

5.3.3.1 Reset the electrical system.
5.3.3.2 Reset the mechanical system.
5.3.3.3 Have alarm technician reset the alarm system and stand by for fusible link test (if applicable).
5.3.3.4 Check return & make up air are on.
5.3.3.5 Check communications and readiness of alarm technician (as applicable).
5.3.3.6 Cut fusible link.
5.3.3.7 Have alarm technician verbalize panel display (if applicable).
5.3.3.8 Have alarm technician reset alarm panel (if applicable).
5.3.3.9 Verify with central station and that notification was received (if applicable).
5.3.3.10 Place system in a ready state.
5.3.3.11 Notify central station that system is in “service “mode (if applicable)

5.4 MAINTENANCE MANUAL: The owner shall be provided with a copy of the manufacturer's listed installation and maintenance manual or listed owner's manual. The manual shall contain, as a minimum, the following additional information:

5.4.1 A copy of the "finaled" permit card.
5.4.2 As built drawing(s).
5.4.3 Copies of correspondence with the Fire Department.
5.4.4 Copies of certification.
5.4.5 The duplicate set of cut sheets required by #2.16 above.

6.0 Operation and Maintenance

6.1 The ventilation system in connection with hoods shall be operated at the required level and grease filters shall be in place when equipment under kitchen grease hood is used. If grease extractors are installed, they shall be operated when the food heat processing equipment is used. Extinguishing systems shall be serviced at least every six months or after the activation of the system. Inspection shall be by qualified individuals and a certificate of inspection shall be forwarded to the San Jose Fire Department upon completion. Fusible links and automatic sprinkler heads shall be replaced at least annually, and other protection devices shall be serviced or replaced in accordance with the manufacturer's instructions.
NOTE: Cleaning intervals will increase for systems that have a high volume of use and systems using solid fuels.

6.2 Posting Operation Instructions - Instructions for manually operating the fire extinguishing systems shall be posted at a conspicuous location within the kitchen. Hoods, grease removal devices, fans, ducts, and other appurtenances shall be cleaned at frequent intervals.

7.0 DOCUMENT REVISIONS

7.1 This document is subject to revisions. For general information and to verify that you have the most current document, see SJFD development website, or call (408) 535-7750 and request the current version date.