

COMMERCIAL KITCHEN SUPPRESSION SYSTEMS INFORMATION PACKET



Colorado Springs Fire Department Division of the Fire Marshal

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PURPOSE

This information packet has been developed in an effort to provide the highest level of service to the customers of the CSFD. The major goal plan reviews conducted by the CSFD is to ensure the design of wet chemical commercial kitchen suppression systems meet the minimum requirements of the adopted codes and ordinances. To meet this goal, the submitted plans and supporting documentation must contain the information needed to conduct a thorough review.

SCOPE

This packet outlines the minimum requirements set forth in the International Fire Code, local amendments, and departmental policies and procedures as they relate to the installation of wet chemical commercial kitchen suppression systems. This packet is not intended to provide an all-inclusive listing of submittal and inspections requirements, as it would be virtually impossible to cover all situations. This packet only covers requirements set forth in the latest edition of applicable NFPA standards listed below. This packet does not cover any other type of suppression system. Also included in this packet is information covering items required to be included on the working drawings and supporting documents.

DEFINITIONS

CSFD	Colorado Springs Fire Department
NFPA	National Fire Protection Association
RBD	Regional Building Department
IFC	International Fire Code

GUIDELINES

I. INTRODUCTION.

A. APPLICABLE CODES AND STANDARDS.

1. 2009 International Fire Code and its local Amendments.
2. 2009 International Mechanical Code and local Amendments.
3. 2013 Edition of NFPA 17A Wet Chemical Extinguishing Systems.
4. 2014 Edition of NFPA 96 Ventilation Control and Fire Protection of Commercial Cooking Operations. (NFPA 96 is not adopted by Colorado Springs but is used as a reference for good practices.)
5. Colorado Springs City Ordinances.
6. CSFD Administrative Rulings/Interpretations.

B. ADMINISTRATIVE REQUIREMENTS.

1. **Approved Contractors.** All suppression contractors must obtain a Colorado Springs Fire Suppression Contractor's B License in order to design, install, add to, alter, service, repair, and inspect commercial kitchen suppression systems, in accordance with Pikes Peak Regional Building Code, Section 207. Please contact Regional Building Department, Contractor Licensing at 719-327-2887 for additional information.
2. **Service Technicians.** A Colorado Springs licensed Service Technician shall be on-site for all installations, additions, alterations, repair and inspections of commercial kitchen suppression systems. Service Technicians are required to pass a test and obtain approval from CSFD prior to overseeing any work on any commercial kitchen suppression system.
3. **Code/Standard Editions.** Commercial kitchen suppression systems shall meet the criteria of the adopted codes as amended and all applicable requirements of the most recent edition of the NFPA standards. NFPA standards are effective on the January 1st of the year following the effective date printed in the standard. NFPA 96 is not adopted by Colorado Springs but is used as a reference for good practices.
4. **Permits/Inspections.** Required plan submittal with approvals, permits and associated inspections must be secured through CSFD. Plan approval and permits shall be secured prior to the start of any work.
5. **Special Circumstances.** Depending upon the scope of work, different types of submittals may be required; therefore you may want to contact the CSFD for any additional information.
6. **Alternative Methods.** If special building conditions and/or restrictions exist that may prohibit any of the requirements set forth in this packet from being met, approval from the CSFD for an alternate installation will be required. This alternate method must be approved before any installation of the system begins.
7. **Additional Material and Information** required to be provided by the contractor. Product information and specifications (cut sheets and or applicable design manual pages) shall be provided for all equipment installed or added to an existing system.
8. **Revisions.** All revisions shall be clouded and identified with a sequential numbering or lettering system, such as Revision A, B, etcetera or Revision 1, 2, etc. Revisions are date sensitive, thus each revised sheet must bear the date of the revision.
9. **As-Builts.** All deviations from approved plans shall be documented and submitted to CSFD for archival. Reviews will not be conducted on As-builts, unless specifically required by the fire inspector, as these field changes are often verified as compliant by the fire inspectors. All as-built plans shall be conspicuously marked as such.

II. SUBMITTAL INFORMATION.

This section of the packet provides information as to documentation, in addition to the shop drawings, that shall be provided at the time of plan submittal. This documentation is required to assure the plan submittal package contains the necessary information for a complete plan review. Please refer to the checklist available at the end of this packet

A. MINIMUM REQUIREMENTS OF THE CSFD FOR SUBMITTAL.

1. **Drawings/Plans.** Drawings shall be submitted on sheets no less than 11 x 17 inches. Plans shall be scaled or suitably dimensioned and reproducible. Plans shall contain the following information and/or detail indicated in the checklist at the end of this packet.
2. **Plan Review Number.** Drawings shall be provided with **CSFD Plan Review Number**. This number is an eight digit numeric code located on the back of the Construction plans. Some projects are system work only so please indicate such and we will issue a plan review number.
3. **Number of Drawing Sets.** A minimum of 2 sets of drawings are required to be submitted to the CSFD and shall include the items found in the checklist provided with this packet. A maximum of three original sets may be stamped with our approval.
4. **Cut Sheets/Specifications.** A minimum of 1 set of manufacturer's product information shall be provided. This is to include information on all devices that are part of or being connected to, the commercial kitchen suppression system; such as piping, valves, control heads, nozzles, fusible links, etc. Any cut sheets showing multiple installation/protection methods shall have the specific method used highlighted. As an example, there are several nozzles used to protect fryers, the specific nozzle protection shall be highlighted. Please provide only those pages from the design manual that are applicable to the system. Stamped cut sheets will be returned to the contractor and must remain on the job site with the approved plans.

CSFD accepts cut sheets on CD. The CD must have the individual cut sheets for the materials specific to the job. Note: we will not accept manufacturer's CD's! If the option to submit cut sheets via CD is chosen, the CSFD will stamp, date and initial the CD – it is then the contractor's responsibility to provide the means of reviewing that disk upon the fire inspector's request.

III. GENERAL INFORMATION AND REQUIREMENTS.

- A. **MONITORING.** Where a building fire alarm system is provided, commercial kitchen suppression systems shall be monitored by the building fire alarm system. Buildings provided with a waterflow alarm system shall also monitor the commercial kitchen suppression system.

Buildings provided with a dedicated function system (such as elevator recall) that is not already monitored, are not required to monitor the commercial kitchen suppression system.

The general rule of thumb is if the building is provided with a monitored panel (other than burglar) the kitchen suppression system must also be monitored.

IV. SPECIFIC SYSTEM INFORMATION.

A. APPLIANCES REQUIRING PROTECTION. The adopted International Mechanical Code requires Type 1 hood installations to be provided over medium-, heavy- and extra-heavy-duty appliances. Light duty appliances that produce grease or smoke shall also be provided with a Type 1 Hood. Non-grease or smoke producing appliances exceeding 5860 Watts shall be placed under Type 1 hoods. Additionally, fire suppression systems shall be provided where a Type 1 hood is installed.

1. Medium Duty appliances. Medium duty cooking appliances include electric, discrete element rangers (with or without oven) electric and gas hot-top ranges, electric and gas griddles, electric and gas double-sided griddles, electric and gas fryers (including open deep fat fryers, donut fryers, kettle fryers and pressure fryers), electric and gas conveyor pizza ovens, electric and gas tilting skillets (braising pans) and electric and gas rotisseries.
2. Extra-Heavy Duty Appliances. Extra heavy duty appliances include appliances utilizing solid fuel such as wood, charcoal, briquettes, and mesquite to provide all or part of the heat source for cooking.
3. Heavy Duty Appliances. Heavy duty cooking appliances include electric and gas, under-fired broilers, electric and gas chain (conveyor) broiler, gas open burner ranges (with or without an oven), electric and gas wok ranges, electric and gas over-fired (upright) broilers and salamanders.
4. Light Duty Appliances: Light duty appliances include gas and electric ovens, (including standard, bake, roasting, revolving, re-therm, convection, combination convection/steamer, countertop conveyORIZED baking/finishing, deck and pastry), electric and gas steam-jacketed kettles, electric and gas pasta cookers, electric and gas compartment steamers (both pressure and atmospheric) and electric and gas cheese-melters.

B. WET CHEMICAL EXTINGUISHING SYSTEMS.

1. Plans shall be scaled or suitably dimensioned and reproducible. Plans shall contain the information and/or detail indicated in the checklist included at the end of this packet. (NFPA 17A:6.3)
2. Fuel and/or electrical power supply shall be arranged to shut off all cooking equipment AND electrical receptacles located under the hood when the suppression system is actuated. Any receptacles that could be used to power appliances located under the hood shall also be shut down. Shutoff devices shall require manual resetting. (IFC 904.11.2)
3. Where two or more hazards can be simultaneously involved in fire by reason of proximity, the hazards shall be protected by either multiple systems installed to operate simultaneously or one system designed to protected all hazards that can be simultaneously involved. (NFPA 17A:5.1.2.3)
4. Exhaust fans are required to remain on, while make-up air is shut down. (IFC 904.11.6.4)
5. Moveable cooking appliances shall be provided with a means to ensure that it is correctly positioned in relation to the appliance discharge nozzle during cooking operations. (NFPA 96:12.1.2.3.1)

6. At least one manual pull station shall be provided for each system and shall be located in a path of egress (IFC 904.11.1) at least 10 to 20-feet from the kitchen exhaust system. Multiple pull stations shall be provided with signage as to what system they are connected to and/or what appliances/hazards they protect.
7. All deep-fat fryers shall be installed with at least a 16-inch space between the fryer and surface flames from adjacent cooking equipment and not less than 3' from solid fuel cooking equipment. As an alternative a steel or tempered glass baffle may be installed at a minimum of 8-inches in height between the fryer and surface flames of the adjacent appliance; if the fryer and the surface planes are at different horizontal planes, the 8-inch height shall be measured from the higher of the two appliances. (NFPA 96:12.1)
8. Fusible links shall be provided within each exhaust duct opening and above each protected cooking appliance in accordance with the manufacturer's listing (NFPA 17A: 5.6.1.4 – 5.6.1.5)
9. A class K portable fire extinguisher is required for all commercial kitchens equipped with wet chemical fire suppression systems. Extinguishers shall be within 30-feet of appliances as measured along an unobstructed path of egress. Solid fuel cooking appliances may have additional requirements, please refer to 2009 IFC 904.11.5.

C. DRY CHEMICAL EXTINGUISHING SYSTEMS.

1. New Installations are required to meet the testing requirements of UL-300 and shall be listed and labeled for the application.
2. Existing dry chemical systems and pre-UL300 wet chemical systems protecting commercial cooking operations are required to be modified, upgraded or replaced to meet UL 300 requirements where changes in the cooking medium (i.e. from animal fats to vegetable oils), positioning of cooking equipment, or the replacement of cooking equipment occur in existing commercial cooking systems, the extinguishing systems shall comply with the applicable provisions of the adopted IFC. (IFC 904.11.6.1)

V. INSTALLATION.

A. PERMITS.

1. The installation of the commercial kitchen suppression system is not to commence, including any pre-piping until the working plans have been reviewed and approved by CSFD and a permit secured on site.
2. Permits for fire suppression systems expire one year after date of issue. A 30-day grace period is allowed to renew the permit. After the grace period expires, if inspections have been conducted in the past 13 months, new plans and permit is not required to be submitted. If the grace period has expired and no inspections have occurred in the past 13 months, new plans shall be submitted.
3. When modifications are made to an existing system that does not involve the changing of tank size or control equipment a permit is not needed. Work such as re-piping for a new appliance arrangement does not require a permit. Any abandoned pipe or conduit from a

previous installation shall be removed from within the hood, plenum and exhaust duct. Penetrations and holes resulting from the removal of conduit or piping shall be sealed with listed or equivalent liquid tight sealing devices. If a hood and resulting system are taken down and re-installed, then an inspection is required to confirm control functions and interlock function as intended. Please call Construction Services to discuss your situation. (NFPA 96:10.2.7).

4. If a new hood is being installed, a permit will be required for the modifications to the fire suppression system.
5. Maintenance is defined as the work necessary to keep equipment operable or to make repairs. Replacement of fusible links or repairing damaged components is considered maintenance and does not require a permit.

VI. INSPECTIONS AND TESTING.

It shall be the duty of the person doing the work authorized by a permit to notify the CSFD that the work is ready for inspection. It shall also be the responsibility of the person requesting the inspections to provide access to and means for proper inspection of the work.

- A. **VISUAL INSPECTION.** Piping shall be visually inspected to verify proper materials and installation methods. Nozzles shall be provided with caps to prevent grease, debris or other foreign materials from entering the piping system. Nozzles shall be located per the manufacturer's specification for proper protection of appliances.
- B. **SYSTEMS OPERATIONAL TESTS.** A puff test will be required, so please be prepared with the necessary equipment. Please check with your assigned fire inspector for additional information.
- C. **MANUFACTURER'S DESIGN MANUAL.** The current design manual shall also be available for reference if need be.
- D. **INSTALLERS CERTIFICATION.** A completed copy of the completed Dry/Wet Chemical Installer Certification shall be provided at the time of final inspection.

REFERENCES AND LINKS

Colorado Division of Fire Prevention and Control Website:
<http://dfpc.state.co.us/>

Administrative Rulings and IFC Amendments can be found on the CSFD web site at
<https://csfd.coloradosprings.gov/public-safety/fire/fire-code-and-permits/fire-code-amendments-and-administrative-rulings>

ATTACHMENTS

Working Drawing Submittal Checklist
Permit Application

Plan Requirements

Working Drawings

Title Block shall contain the following:

- Name of owner and occupant.
- Location including full street address as assigned by RBD Enumerations.
- Name, address, phone, FAX number and email address of installing contractor and designer.
- CSFD Plan Review number
- A scale including graphic representation OR suitably dimensioned.
- Detailed scope of work in narrative format

Information required on Drawings:

System Information:

- Type of Hood being protected - canopy, eyebrow, back shelf, etc.
- Type of Agent being used and amount provided
- Description of maximum number of flow points supported by the system, and the number of flow points used
- Description and location of nozzles
- Size, length and arrangement of connected piping - may be combined with an isometric view
- Maximum length of pipe, fittings permitted and/or any volume limitations.
- Location and function of detection devices (fusible links)
- Equipment schedule or bill of materials.
- Plan view of the kitchen layout to include exiting and manual pull station location.
- Isometric view of piping to include the nozzles and appliances
- Details of each unique rigid pipe support configuration showing method of securement to the pipe and to the building structure.
- Details of the method of container securement showing method to the container and to the building structure.



Commercial Kitchen System Permit Application

This form must be completed and attached to the front of plans

- Initial Review Re-Review Overtime Review Revision

Company Name: _____

Project Name: _____

Project Address: _____

Contact Person: _____

Company Phone: _____ Fax Number: _____

E-mail Address: _____

System Information:

Hazard Protected: Commercial Cooking Other: _____

Is the System: New Existing

Scope of Work: New Installation Modify Existing Replacement

Type of System: Wet Dry Other _____

Information to be provided on the plans:

- CSFD Plan Review Number Equipment Data Sheets
 Project address Device Legend
 Designer Address Narrative Scope of Work
 Plans, Calculations, Cut Sheets signed sealed by RME
 Project is within the City of Colorado Springs Fire Jurisdiction

I attest the above information is provided and accurate; I understand my plans will not be reviewed if any of the items were not provided.

Signature: _____

THIS PLAN IS READY FOR PICK-UP

APPROVED/APPROVED AS CORRECTED

DISAPPROVED/WITHDRAWN

FEES DUE: _____

Reviewer: Withee Taylor Peterson Other _____

Comments: _____

Please do not call our office regarding plan review comments until after pickup and review by your office.

Plan Review Status/Comments available online at:
http://springsgov.com/units/fire/Prevent/PlansReview/FPS_WebFPS.asp

**** All plans remaining in our office more than 30 days will be discarded as abandoned**

