

# **CARROLLTON FIRE RESCUE**

***FIRE MARSHAL'S OFFICE***



## **CONSTRUCTION GUIDE KITCHEN HOOD & SPRAY BOOTH SUPPRESSION SYSTEMS**

**2022 Edition**

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*Fire Marshal's Office*

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# **CARROLLTON FIRE RESCUE**

*Fire Marshal's Office*

## **FIRE PREVENTION STAFF**

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## **GENERAL FIRE PERMIT INFORMATION**

The goal of the Fire Prevention Division is to assist its customers in understanding our submittal, plan review and inspection process and policies, as they pertain to pre-engineered fire suppression systems. Familiarity with and adherence to these guidelines can greatly assist you in compliance with local codes, ordinances and inspections.

This guide does not replace, nor supersede any adopted codes and/or ordinances adopted by the City of Carrollton, or determinations and positions of the Fire Chief or Fire Marshal.

To expedite the plan review and inspection processes, please refer to the information listed below:

1. **All permits shall be submitted online through the CityServe Portal.**
2. All plan review and inspection process steps must be followed. Deviation from the requirements may result in delays and possible rejection of plans or inspection delays.
3. Installation, fabrication or otherwise construction of the system is prohibited without approved plans and permit.
4. A set of approved/stamped plans, fire permit and all fire department inspection forms shall be kept in a permit packet on the job site until final inspection.
  - o Failure to have the approved drawings and permit on-site may result in a failed inspection and re-inspection fees.
5. The contractor is responsible for ensuring that the system(s) being installed or serviced are in compliance with all current locally adopted codes – including, but not limited to the **2021 International Fire Code (IFC), 2021 International Building Code (IBC)**, NFPA Standards, and City of Carrollton Amendments.
6. All submitted plans must be signed by an individual with the appropriate TDI License
7. Any approval issued by the Fire Marshal's Office does not release the contractor or property owner from the responsibility of full compliance with all applicable codes and ordinances relating to the construction project.
8. All installations must concur with the approved plans. Any deviation from the approved plans requires a re-submittal to the Fire Prevention Division.
9. Plans approved by the Fire Marshal's Office give authorization for construction only. Final approvals are subject to field verification.
10. The Fire Inspector will provide documented results after each inspection.

It is the goal of the Fire Prevention Division to complete your plan review within the shortest possible time. **We strive to complete your plan review within 15 business days from receipt of the plan submittal package.** Please be advised that revisions, changes, or an incomplete submittal package may delay your final plan approval.

# **COMMERCIAL KITCHEN SUPPRESSION SYSTEMS**

These guidelines are to be followed when a business, facility or organization proposes to perform cooking operations that will produce grease-laden vapors. This guideline identifies protection for cooking surfaces which include; 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 equipment. The plenum space within the hood, above the filters, and exhaust ducts servicing the hood shall also be protected.

All commercial cooking operations for the purposes of this guideline and any other guidelines or requirements of the Fire Department shall conform to the **2021 International Fire Code**, as adopted and amended by the City of Carrollton Amendments, NFPA 17 and NFPA 17A.

This guide does not replace, nor supersede any adopted codes and/or ordinances adopted by the City of Carrollton, or determinations and positions of the Fire Chief or Fire Marshal.

## **Installation Requirements**

- The piping shall be rigidly supported to prevent excessive movement and shall be protected from mechanical or other damage.
- Both a manual and automatic means of activation shall be provided.
  - A minimum of one manual activation pull station shall be provided in the path of egress and shall be located no more than five feet above the floor.
  - The manual actuation device shall be located a minimum of 10 feet and a maximum of 20 feet from the kitchen hood.
  - Where multiple manual actuators are installed for protection of separate extinguishing systems, they shall be clearly identified as to the hood being protected.
- A Class-K fire extinguisher shall be installed at an approved location within 30 feet of the kitchen hood, as measured along an unobstructed path of travel.
- Distinctive audible and/or visual alarms shall be provided to indicate system operation and activation. Specifically, an audible/visual notification device shall be provided to indicate system operation, requiring personnel attention and system recharge.
- When a building fire alarm system is provided, the kitchen fire suppression system (KFSS) shall be interconnected to it. **(Separate Fire Alarm permit required)**
  - Activation of the kitchen hood suppression system shall transmit Contact ID and conform to the Fire Alarm Monitoring Guidelines.
  - KFSS activation shall cause the fire alarm to activate throughout the building.
- If there is no Building Fire Alarm System, a Local Alarm Bell/Horn Strobe Notification shall occur with Hood System Activation (1 in kitchen and 1 in seating area)
- Activation of the fire suppression system shall automatically shut off the fuel supply, electrical power, ventilation controls if required, fans & any other equipment necessary.
  - Shutoff valves & switches shall require a manual action to reset.
- **A 135-degree heat-detector shall be installed in hood to automatically turn on the exhaust system upon cooking if there is not another approved automatic system in place.**
  - Connection to the fan switch must be accomplished by a licensed electrician (requires a separate permit).
- An approved labeled document bin shall be installed next to fire alarm control panel with all construction documents, panel instructions and documents required by IFC & NFPA.

## **Plan Submittal Requirements for Kitchen Hood Suppression Systems**

**One set of digitally signed plans and a set of data/spec sheets shall be uploaded through the CityServe Portal for review.**

**Each submittal booklet shall contain the following:**

- Scope of Work Summary
  - Full contact information of installing company including street address, main point of contact, phone #, email address, State ECR #
  - Full contact information of business requiring installation including street address, main point of contact, phone #, email address
  - Letter shall state, "All work will meet 2021 IFC, NFPA, & Local Amendments"
  - Electronic Signature in contrasting color (EPL, FEL-A or FEL-K)
- Copy of Company's ECR License from the Texas Dept. of Insurance (TDI)
- Copy of designer's EPL License from TDI (FEL-A or FEL-K if Pre-Engineered)
- Copy of the FEL-K License from TDI for each installer
- Copy of Manufacturers Certificate for Installation for each installer
- Data specifications sheets for all equipment shall be provided
  - Specific materials on data sheets shall be identified by arrow or highlighter

**Plans submission Package Requirements:**

- Plans shall contain sufficient detail to enable the plan reviewer to accomplish a complete review. All sheets shall be in a common & appropriate scale (Min. 1/8" = 1'0")
- The following information shall be provided on the floor plan(s):**
  - Floor plans w/ room description (walls & doors shown)
  - Indicated scale with graphic reference
  - Location and size of hood(s)
  - Location, type and size of equipment under hood(s)
  - Location of manual pull station, extinguishing agent/actuator and K-Class Ext.
  - IBC/IFC occupancy classification of the business (i.e., S-1, A-2, etc.)
- The following information shall be provided on the isometric plan(s):**
  - Include duct diameter
  - Include piping schematic
  - Indicate nozzle type and number
  - Total flow points and pipe length used, and maximum allowed
  - Indicate the location and temperature of the fusible links
  - Indicate the interconnection to the fuel supply shutoff and the type of fuel
  - Indicate interconnection to the building fire alarm system
  - Indicate the location and temperature of the heat detector
  -
- The title block on each set of plans shall contain the following:**
  - Name of the business and complete address of installation location
  - Name and complete address of the installing company
  - Licensing information of installing company (ECR #)
  - Printed name and license number of the designer (EPL, FEL-A or FEL-K)
  - Digital signature of the designer in contrasting color, with date

# **KITCHEN HOOD INSPECTION REQUESTS**

## **Guidelines for Requesting an Inspection**

- All inspection requests shall be coordinated by contacting the inspector on your permit.
- **Contact your inspector at least 48 hours in advance of the requested inspection.**
- **Note: Due to limited staffing, your requested inspection may need to be scheduled more than 48 hours out.**

## **Kitchen Hood Suppression System - Final inspection request format**

### **Subject Line of e-mail shall contain:**

- Type of inspection - Address of installation - Permit #
- (i.e., KFSS Final Inspection Request – 1234 Any Street – Permit #202101120)

### **Body of e-mail shall contain:**

- Name, complete address, phone number and e-mail of installing company
- Name, cell number and e-mail of lead technician at the acceptance test
- Name, address, Ph. # of fire alarm company who will be at the test (Bldgs w/Fire Alarm)
- Name, cell number and e-mail of Fire Alarm technician who will attend acceptance test
- Photo of current Fire Alarm System – Annual Inspection tag (Bldgs w/Fire Alarm)
- Photo of approved labeled document bin
- Video of correctly functioning Heat Detector
- Video of System Activation via Pull Station (Show Fan On & Gas/Electric Shut Off)

## **Kitchen Hood Acceptance Tests**

1. **Manual Pull Station Test.** Operation of the manual pull station shall bring about full system Operation with test cartridge installed for blow off test at same time.
2. **135 Degree Heat Detector Test.** Heat detector shall activate exhaust fan automatically when cooking devices are in use.
3. **Fusible Link & Make-up Air Test.** Fusible link shall be cut to verify exhaust stays on and other turns off.
4. **Utility Shut-off Test.** All utilities connected to the protected devices, shall have automatic shut-off valves.
5. **Audible/Visual Notification.** Audible and/or visual notification devices shall be tested.
6. **Fire Alarm Connection.** Automatic fire-extinguishing systems shall be monitored by the building fire alarm system in accordance with NFPA 72.
7. **Final Inspection** – System shall be reset to tagged and placed into service.

# **SPRAY BOOTH SUPPRESSION SYSTEMS**

These guidelines are to be followed when a business, facility or organization proposes to apply flammable and/or combustible materials.

All spray booth operations for the purposes of this guideline and any other guidelines or requirements of the Fire Department shall conform to the **2021 International Fire Code**, as adopted and amended by the City of Carrollton Amendments, NFPA 30A and 33.

This guide does not replace, nor supersede any adopted codes and/or ordinances adopted by the City of Carrollton, or determinations and positions of the Fire Chief or Fire Marshal.

## **Installation Requirements**

- Both a manual and automatic means of activation shall be provided.
  - A minimum of one manual activation pull station shall be provided in the path of egress and shall be located no more than five feet above the floor.
  - Manual actuation device shall be located within 20 feet of the spray booth.
  - Where multiple manual actuators are installed for protection of separate systems, they shall be clearly identified as to the spray booth being protected.
- Distinctive audible and/or visual alarms shall be provided to indicate system operation and activation.
  - Device shall indicate activation, requiring personnel attention & system recharge.
- When a building fire alarm system is provided, the spray booth suppression system shall be interconnected to it. **(Separate Fire Alarm permit required)**
  - Activation of the spray booth suppression system shall transmit Contact ID and conform to the Fire Alarm Monitoring Guidelines.
  - System activation shall cause the fire alarm to activate throughout the building.
- If there is no Building Fire Alarm System, a Local Alarm Bell Notification shall occur with Spray Booth System Activation.
- Activation of the fire suppression system shall automatically shut off the flammable material supply, ventilation controls if required, and any other equipment necessary.
  - Shutoff valves & switches shall require a manual action to reset.
- Portable fire extinguishers complying with 2021 IFC Section 906 shall be provided for spraying areas in accordance with the requirements for an extra (high) hazard occupancy
- A **minimum 4-A:40-B:C** fire extinguisher shall be installed at an approved location **within 30 feet** of the spray booth, as measured along an unobstructed path of travel.
- Automatic sprinklers installed in flammable vapor areas shall be protected from accumulation of residue from spraying operations in an approved manner.
  - Bags used as a protective covering shall be 0.003-inch-thick polyethylene or cellophane or shall be thin paper. Automatic sprinklers contaminated by overspray particles shall be replaced with new automatic sprinklers
- An approved labeled document bin shall be installed next to fire alarm control panel with all construction documents, panel instructions and documents required by IFC & NFPA.



## **Plan Submittal Requirements for Spray Booth Suppression Systems**

**One set of digitally signed plans and a set of data/spec sheets shall be uploaded through the CityServe Portal for review.**

**Each submittal booklet shall contain the following:**

- Scope of Work Summary
  - Brief summary explaining the scope of work
  - Full contact information of installing company including street address, main point of contact, phone #, email address, State ECR #
  - Full contact information of business requiring installation including street address, main point of contact, phone #, email address
  - Letter shall state, "All work will meet 2021 IFC, NFPA, & Local Amendments"
  - Electronic Signature in contrasting color (EPL or FEL-A)
- Copy of Company's ECR License from the Texas Dept. of Insurance (TDI)
- Copy of designer's EPL License from TDI (or FEL-A if Pre-Engineered)
- Copy of the Installer's FEL-A License from TDI
- Copy of Manufacturers Certificate for Installation for installer(s)
- Data specifications sheets for all equipment shall be provided
  - Specific materials on data sheets shall be identified by arrow or highlighter

**Plans submission Package Requirements:**

- Plans shall contain sufficient detail to enable the plan reviewer to accomplish a complete review. All sheets shall be in a common & appropriate scale (Min. 1/8" = 1'0")
- The following information shall be provided on the floor plan(s):**
  - Floor plans w/ room description (walls & doors shown)
  - Indicated scale with graphic reference
  - Location and size of spray booth(s)
  - Location of manual pull station, extinguishing agent and ABC Extinguisher
  - IBC/IFC occupancy classification of the business (i.e., S-1, A-2, etc.)
- The following information shall be provided on the isometric plans:**
  - Include spray booth dimensions
  - Include duct diameter
  - Include piping schematic
  - Indicate nozzle type and number
  - Agent storage container (type and size)
  - Indicate the location and temperature of the fusible links
  - Total flow points and pipe length used, and maximum allowed
  - Indicate the interconnection to the fuel supply shutoff and the type of fuel
  - Indicate the interconnection to the building fire alarm system
- The title block on each set of plans shall contain the following:**
  - Name of business and complete address of installation location
  - Name and complete address of the installing company
  - Licensing information of installing company (ECR #)
  - Printed name and EPL number of the designer (or FEL-A if Pre-Engineered)
  - Signature of the designer in contrasting color, with date

# **SPRAY BOOTH INSPECTION REQUESTS**

## **Guidelines for Requesting an Inspection**

- All inspection requests shall be coordinated by contacting the inspector on your permit.
- **Contact your inspector at least 48 hours in advance of the requested inspection.**
- **Note: Due to limited staffing, your requested inspection may need to be scheduled more than 48 hours out.**

## **Spray Booth Suppression System - Final inspection request format**

### **Subject Line of e-mail shall contain:**

- Type of inspection - Address of installation - Permit #
- (i.e., Spray Booth Final Inspection Request – 1234 Any Street – Permit #202101120)

### **Body of e-mail shall contain:**

- Name, complete address, phone number and e-mail of installing company
- Name, cell number and e-mail of lead technician at the acceptance test
- Name, address, Ph. # of fire alarm company who will be at the test (Bldgs w/Fire Alarm)
- Name, cell number and e-mail of Fire Alarm technician who will attend acceptance test
- Photo of current Fire Alarm System – Annual Inspection tag (Bldgs w/Fire Alarm)
- Photo of approved labeled document bin

## **Paint Booth Acceptance Tests**

1. **Manual Pull Station Test.** Operation of the manual pull station shall bring about full system Operation with test cartridge installed for blow off test at same time.
2. **Fusible Link & Make-up Air Test.** Fusible link shall be cut to verify exhaust stays on and other turns off.
3. **Utility Shut-off Test.** All utilities connected to the protected devices, shall have automatic shut-off valves.
4. **Audible/Visual Notification.** Audible and/or visual notification devices shall be tested.
5. **Fire Alarm Connection.** Automatic fire-extinguishing systems shall be monitored by the building fire alarm system in accordance with NFPA 72.
6. **Final Inspection** – System shall be reset to tagged and placed into service.

**\*\* SEE ACCEPTANCE TEST CHECKLISTS ON WEBSITE FOR MORE DETAILS \*\***