Rutherford County Fire-Rescue Department
Division of Fire Prevention - Fire Marshal's Office
2785 Barfield Road
Murfreesboro, Tennessee 37128
(615) 907-3600 Ext. 1

CONSTRUCTION PERMITS

105.7.1- Automatic Fire-Extinguishing Systems

Permit Fee- $150

Permit Period- 1 Year

Where Required

In accordance with Rutherford County's enacted permitting requirements. A construction permit is required for the installation of or modification to an automatic fire-extinguishing system. An automatic fire-extinguishing system is defined as an approved system of devices and equipment which automatically detects a fire and discharges an approved fire-extinguishing agent onto or in the area of a fire.

Systems Covered

Automatic Sprinkler Systems	Dry-chemical Systems	Halon Systems
Automatic Water Mist Systems	Foam Systems	Clean Agent Systems
Wet-chemical Systems	Carbon Dioxide Systems	Commercial Cooking Systems

Exception: A permit is not required for normal required maintenance on the system.

Permit Application

- Must be submitted online at https://cityworks.rutherfordcountytn.gov/PublicAccess
- No work may be performed until plans have been reviewed and approved.
- Inspections are required for all permits.

*Installation/Inspection Records are required to be submitted to The Compliance Engine

Plan Review Submittal Requirements

1. Completed permit application signed by licensed sprinkler contractor
2. Scope of work to be performed
3. Type of system to be installed
4. Detailed system plans (signed and sealed) to be submitted electronically.
    a. Certification that pre-engineered automatic dry- or wet-chemical extinguishing system will be tested in accordance with UL 300and listed and labeled for intended application
    b. Certification that the automatic fire-extinguishing systems of the following types will be installed in accordance with the referenced standard indicated:
        i. Carbon dioxide extinguishing systems, NFPA 12
        ii. Automatic sprinkler systems, NFPA 13
        iii. Foam-water sprinkler systems, NFPA 13
        iv. Dry-chemical extinguishing systems, NFPA 17
        v. Wet-chemical extinguishing systems, NFPA 17A
5. Plans shall also contain the following:
    a. Location of manual actuation device (required to be located at or near a means of egress from the cooking area a minimum of 10 feet and a maximum of 20 feet from the kitchen exhaust system. The manual actuation device shall be installed not more that 48 inches nor less than 42 inches above the finished floor and shall clearly identify the hazard protected. The manual actuation shall require a maximum force of 40 pounds and a maximum movement of 14 inches to actuate the fire suppression system.
    b. The location and type of portable fire extinguishers.
    c. The location and type of automatic shutdown system for the fuel or electrical power supply to the cooking equipment. The fuel and electrical supply reset shall be manual.
    d. Hydraulic calculations for each area of sprinkler design
    e. Component cut-sheets to include sprinkler heads, valves, piping, hose connections, check valves and pressure reducers.

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f. Letter of design certification indicating that the system design as submitted meet all local requirements and standards set forth by NFPA.

Required Inspections

Automatic Sprinkler Systems/Water-based Systems

1. Underground fire line inspection
2. Fire line hydrostatic test
    a. 200 PSI for 2 hours or 50 PSI in excess of system working pressure, whichever is greater.
    b. Relieve pressure and ensure return to zero
3. Underground fire line flush
    a. Flush until water clear. Flush at flow rates specified in 10.10.2.1.3
4. Fire Sprinkler Rough-in Inspection
    a. Proper type of piping.
    b. Backflow device (if installed inside building) for size, type, and direction
    c. Confirm the installation of piping does not have excess change of directions that are not indicated on the submitted plans (may affect hydraulic calculations)
    d. Proper size of piping
    e. Proper hangers and supports with correct spacing as indicated on plans
    f. Sway bracing in installed per NFPA 13. Sway bracing is required at top of fire riser, turn of directions, and every forty feet on main piping only.
    g. Proper type and temperature of sprinkler heads
    h. Proper clearance of sprinkler heads from obstructions
    i. Check for correct distances between sprinkler heads, off of walls, maximum coverage per sprinkler head, suspended ceilings and distance below roof deck.
    j. Check for installation of orifice inspectors test (shall be the same size as the smallest orifice installed in the system).
    k. Check to ensure that fire sprinklers are not painted. Painted fire sprinklers must be replaced, they may not be cleaned.

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l. All control, auxiliary, and inspector's test valves shall not be located more than seven feet above finish floor or grade.
m. Minimum 12" x 36" access panels shall be provided for all valves located inside walls or concealed spaces. Signage shall be provided on the outside of access panels indicating type of valve that is concealed within
n. Verify signage
o. Sprinkler cabinet
p. FDC

5. Sprinkler piping hydrostatic test
    a. 200 PSI for 2 hours or 50 PSI in excess of system working pressure, whichever is greater
    b. Relieve pressure and ensure return to zero
6. Final Sprinkler Inspection and Acceptance
    a. Verify that the following components are installed and functioning:
        i. Tamper switch
        ii. Water flow switch
    b. Observe a Main Drain test and verify the residual pressure at the base of the riser meets or exceeds the required system demand pressure listed in the approved hydraulic calculations.
        i. Test must flow for at least two minutes.
    c. Document static and residual pressures listed on the "calc" plate.
    d. Verify proper signage on riser components:
        i. Main Drain
        ii. Access panels shall be provided for all valves located inside walls or concealed spaces. Signage shall be provided on the outside of the panel indicating type of valve that is concealed within.
        iii. Control valve
        iv. Inspector's test
        v. Hydraulic "calc" plate

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e. Verify that spare sprinkler head cabinet is installed in an area that will not exceed 100 degrees Fahrenheit and has inside the correct number of spare heads, sprinkler wrench, and NFPA 25.
f. Verify floor is sealed where riser enters the building.
g. Walk through building and observe:
    i. Proper placement, type, and temperature of sprinkler heads
    ii. Sprinkler heads are free of obstructions by building elements (light fixtures, ceiling fans, exit
    iii. signs, decorations, etc.)
    iv. Check to ensure fire sprinklers are not painted. Painted sprinkler heads must be replaced, they
    v. cannot be cleaned.
    vi. Check to ensure fire sprinkler escutcheons are installed properly.
h. Observe activation test of the fire alarm notification appliances, including:
    i. Electric water flow bell on exterior of building (by water flow through inspector's test valve).
    ii. Alarm should operate within 90 seconds of water flow.
    iii. General fire alarm – water flow through inspector's test valve
    iv. Supervisory Alarm at alarm panel for:
        1. Tamper switches on valves (indicating a valve is closed or partially closed)
        2. Air pressure on dry or pre-action systems (shall not drop below 7 psi)
        3. Fire pump powers supplies or running conditions
        4. Water tank levels and temperatures

<u>Commercial Kitchen Suppression Systems</u>

1. Light Test
    a. Must be conducted prior to concealment of the exhaust duct
2. Puff Test
    a. Verify system functionality by moth manual pull station and test link

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b. Verify gas and electric shut trip
c. Verify alarm system activation

3. Final inspection and acceptance
    a. Class K extinguisher present
    b. Verify nozzle protection on all appliances
    c. Verify the kitchen hood extends 6” beyond all appliances’
    d. Verify splash guard (9”) or 16” separation present between fryers and open-flame, gas-fired appliances.

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