



New Construction Fire Inspection Process

This document is intended to provide the **Owner, Designer, and/or Contractor** of new construction with an outline of required fire inspections and with the specific requirements for fire protection equipment within the City of Rock Hill. **This document should not be construed as a list of every item to be reviewed and does not relieve the owners, designers and contractors, or their representatives from their responsibility to comply with applicable provisions of the adopted and referenced codes.**

Any questions may be directed to the Fire Marshal:
Otis Driggers, Fire Marshal
Rock Hill Fire Department
214 Elizabeth Lane
Phone: 803-329-7244
Fax: 803-326-3707

All **Requests for Inspections** shall be directed to the Planning Department at 803-329-5590.

Inspection Checklist

I. Underground Fire Line and FDC Inspection and Flush

1. Verify the installing contractor has a valid City of Rock Hill business license & Permit. No fire inspections will be conducted until license is obtained.
2. Provide *Contractor's Material and Test Certificate for Underground Piping*. Certificate shall be provided prior to flush inspection.
3. Consult the submitted plans. Plans must be submitted to the State Fire Marshal's Office for approval. C.O. cannot be issued until approval has been received.
4. Consult NFPA 13 and 14. Also, IFC (2012) Chapter 9
5. Verify:
 - a. Size of piping
 - b. Type of piping
 - c. Depth of piping
 - d. Proper pipe configuration
 - i. Thrust blocking and pipe bracing
 - ii. Protective wrap (polywrap) of piping (Applies to ductile only).
 - iii. Direction changes
 - iv. Location of:
 1. Backflow Device
 - a. Proper Size

- b. Correct direction
 - c. Monitored tamper switches installed on OS&Y control valves
 - d. If in aboveground vaults, verify heater device installed.
2. Remote FDC
- a. Verify 5" cap facing fire lane or public road.
 - b. FDC shall be installed 18 to 48 inches above finished grade.
 - c. Verify three foot diameter clearance around FDC.
 - d. Verify proper signage:
 - i. Ring identifying FDC as either a Sprinkler or Standpipe System and working pressure.
 - ii. FDC sign – White with minimum 6" tall red letters – "FDC"
 - iii. If not obvious as to what building(s) the FDC serves, a durable sign, white with minimum 4 inch red letters, shall be installed identifying the building(s) served by the FDC.
 - e. When conditions warrant such, remote FDC's shall be protected against mechanical damage with bollards installed according to IFC (2012) 312.
3. Fire Hydrants
- a. Fire hydrants shall be provided to meet the fire flow requirements of the building being constructed. Fire hydrants shall be located within 500 feet of all parts of the grade level exterior of a building as measured along the normal routes of fire department vehicle access.
 - b. Verify the pumper nozzle is facing towards the fire lane or public road. The 2½ inch nozzles shall be National Standard Fire Thread with caps.
 - c. Verify that hydrant is painted correctly:
 - Barrel: Private Hydrant = Silver
 - Public Hydrant = Silver
 - Caps and Bonnet: Based on flow of hydrants:
 - 0- 499 gpm = red
 - 500-999 gpm = orange
 - 1000-1499 gpm = green
 - Greater than 1500 gpm = blue
 - d. Center of the 5" pumper nozzle shall be 18 inches above grade.
 - e. Verify three feet diameter clearance around hydrant.
 - f. When conditions warrant such, fire hydrants shall be protected against mechanical damage with bollards installed according to IFC (2012) 312.
6. Verify all valves fully open (including fire hydrant sectional valves).
7. Observe hydrostatic test of piping at 150 psi for 2 hours or 50 psi above the system working pressure, whichever is greater.
8. Relieve pressure after hydrostatic test and confirm the test gauge returns to zero.
9. Observe flushing of all piping with city water until clear.

II. Rough Fire Sprinkler Piping Inspection

1. Verify the installing contractor has a valid City of Rock Hill business Permit & license. No fire inspections will be conducted until license is obtained.
2. Consult the submitted plans. Plans must be submitted to the State Fire Marshal's Office for approval. CO cannot be issued until approval has been received.
3. Consult NFPA 13 and IFC (2012) Chapter 9
4. Verify:
 - 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 effect 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.
 - 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.
5. Observe hydrostatic test of all piping at 200 psi for 2 hours or 50 psi in excess of system working pressure, whichever is greater.
6. Relieve pressure after hydrostatic test and confirm the test gauge returns to zero.
7. Verify all signage is in place (control valves, inspector's test, and main drain)
8. Verify that spare sprinkler head cabinet is installed in an area that will not exceed 100 degrees Fahrenheit, and has the correct number of spare heads, sprinkler wrench, and NFPA 25 inside.
9. Verify the following when the FDC is on the building:
 - a. Fire Department Connection shall be within 100 feet of a fire hydrant.
 - b. FDC shall be located along a normal route of vehicle access unless otherwise approved.
 - c. Signage for the FDC shall be as follows:
 - i. FDC sign – White with minimum 6" tall red letters – "FDC" attached to building 7 to 10 feet above grade level directly above the FDC in a position to be clearly visible from the street as it approaches the building.
 - ii. Additional sign of same color and description as necessary to provide clear directions to the location of the FDC (example: "FDC in rear").
 - d. FDC shall be installed between 18 and 48 inches above the finished grade level.

- e. Verify connection with cap facing the street or access road.
- f. Verify that FDC is not blocked by any outside obstructions (example: electrical transformers)

III. Final Fire Sprinkler Inspection

1. Verify the installing contractor has a valid City of Rock Hill Permit & business license. No fire inspection will be conducted until the license is obtained.
2. Fire Sprinkler contractor shall provide the *Contractor's Material and Test Certificate for Aboveground Piping* for each system installed. Final Fire Sprinkler Inspection will not be conducted without this document.
3. Consult submitted plans. Plans must be submitted to the State Fire Marshal's Office for approval. CO cannot be issued until approval has been received.
4. Consult NFPA 13 and IFC (2012) Chapter 9
5. Verify that the following components are installed and functioning:
 - a. Tamper switch
 - b. Water flow switch
6. 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.
 - a. Test must flow for at least two minutes.
7. Document static and residual pressures listed on the "calc" plate.
8. Verify proper signage on riser components:
 - a. Main Drain
 - b. 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.
 - c. Control valve
 - d. Inspectors test
 - e. Hydraulic "calc" plate
9. 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.
10. Verify floor is sealed were riser enters the building.
11. Walk through building and observe:
 - a. Proper placement, type, and temperature of sprinkler heads
 - b. Sprinkler heads are free of obstructions by building elements (light fixtures, ceiling fans, exit signs, decorations, etc.)
 - c. Check to ensure fire sprinklers are not painted. Painted sprinkler heads must be replaced, they cannot be cleaned.
 - d. Check to ensure fire sprinkler escutcheons are installed properly.
12. Observe activation test of the fire alarm notification appliances, including:
 - a. Electric water flow bell on exterior of building (by water flow through inspector's test valve). Alarm should operate within 90 seconds of water flow.
 - b. General fire alarm – water flow through inspector's test valve
 - c. Supervisory Alarm at alarm panel for:
 - i. Tamper switches on valves (indicating a valve is closed or partially closed)
 - ii. Air pressure on dry or pre-action systems (shall not drop below 7 psi)
 - iii. Fire pump powers supplies or running conditions

- iv. Water tank levels and temperatures

IV. Rough Fire Alarm Inspection

1. Verify the installing contractor has a valid City of Rock Hill business license & Permit. No fire inspection will be conducted until the license is obtained.
 - a. Installation of a Fire Alarm includes pulling wire, installing conduit, placement of related boxes (pull stations, horn strobes, detectors, etc.) as well as installing and/or programming the FACP.
2. Consult the approved plans.
3. Consult NFPA 72, the National Electric Code (NEC) and IFC (2012) Chapter 9
4. Verify the following:
 - a. Proper wiring being used
 - b. Proper wire gauge
 - c. Verify support of all conduit and boxes, including protective bushings in conduit
 - d. Verify support of all wiring is per NFPA 72 and National Electric Code (NEC)
 - e. Verify location all fire alarm system devices
 - f. Verify location of fire alarm control panel
 - g. Verify location of remote annunciator panel(s)
 - h. Verify proper separation of wiring. (A minimum of four feet separation on horizontal runs and one-foot separation on vertical runs shall be provided.)
5. Verify that fire alarm wiring has not been painted or damaged during installation
6. Duct Detectors (required in units that exceed 2000 cfm or units that share an area that exceeds 2000 cfm collectively) shall provide the following:
 - a. Unit shut down on activation of the duct detector.
 - b. On activation of the duct detector a fire alarm signal shall be sent to the fire alarm control panel.
 - c. A ceiling remote annunciator shall be installed with a LED at ceiling level that will light up when the duct detector is activated.
 - d. All devices shall be marked with their appropriate address at the FACP.
7. Verify hood suppression system wiring has been installed from kitchen exhaust hood system to FACP.

V. Final Fire Alarm System Inspection

1. Verify the installing contractor has a valid City of Rock Hill business license. No fire inspection will be conducted until the license is obtained.
2. Obtain NFPA 72 Record of Completion from the Fire Alarm Contractor. Final fire inspection cannot be performed without this document.
3. Consult the approved plans.
4. Consult NFPA 72, the National Electric Code (NEC) and IFC (2012) Chapter 9.
5. Verify the proper location and type of all fire alarm devices.
6. Observe fire alarm system functional tests of all alarm devices, including duct detectors.
7. Observe activation of the fire alarm notification devices, including electric bell on fire sprinkler system water flow (via inspector's test valve). Alarms shall activate within 90 seconds of full flow.

8. Observe action tests of fire sprinkler control valves. ON activation of a tamper switch, a supervisory signal (audible and visible) shall be indicated at the FACP.
9. Observe activation of notification appliances upon activation of kitchen hood suppression system.
10. Verify the following during the tests:
 - a. Decibel reading of notification appliances shall be 15dB above ambient noise level.
 - b. Verify proper size batteries installed
 - c. Verify duct detectors provide the following:
 - i. Unit shut down on activation of the duct detector.
 - ii. On activation of the duct detector a fire alarm signal shall be sent to the fire alarm control panel.
 - iii. A ceiling remote annunciator shall be installed with a LED at ceiling level that will light up when the duct detector is activated.
 - iv. All devices shall be marked with their appropriate address at the FACP.
 - d. Observe a 24 hour battery standby test. Electrical breaker that provides power to the FACP shall be shut off for 24 hours prior to the fire alarm test. At the end of the 24 hours, an audible alarm shall be allowed to sound for at least 5 minutes. Also verify that electrical breaker is indicated as FACP, marked in red, and serves no other circuits.
 - e. Verify that all signals are received at the FACP.
 - f. Verify that all signals are received at the remote annunciator panels.
 - g. Verify that all signals were received at the off-site monitoring agency.
 - h. Monitoring report shall be faxed to Fire Marshal's Office at 803-326-3707 after completion of final testing.
11. Fire Alarm Zone maps shall be located at each FACP and remote annunciator if these panels are not fully addressable. Maps shall include:
 - d. Floor plan of the occupancy being protected.
 - e. All detection device locations
 - f. Indicate type of detection device
 - g. "Address" or zone of the detection device
 - h. The map shall be properly mounted to the wall and measures shall be taken to protect the map from physical damage or vandalism.
12. Fire Alarm Contractor shall provide evidence of Third Party Certification. If Third Party Certification will be applied for (i.e. UL Placarding), Final C/O will not be issued until Placard is posted (a temporary or conditional C/O may be granted at the will of the Building Official.)

VI. Kitchen Hood Suppression System Inspection

1. Verify the installing contractor has a valid City of Rock Hill business license & Permit. No fire inspection will be conducted until license is obtained.
2. Consult the approved plans.
3. Consult IFC Chapter 9, and appropriate NFPA standard(s).
4. Request to see and review the manufacturer's installation manual for the system that is installed.
5. Verify the following:
 - a. Location of manual pull stations
 - b. Signage of manual pull stations

- c. Location, size, and type extinguishing agent
- d. Proper pipe size
- e. Proper pipe support
- f. Proper nozzle type
- g. Nozzle location
- h. Observe air movement through all system nozzles
- i. Observe fusible link test
- j. Observe activation of manual pull stations
- k. Observe deactivation of fuel sources under hood during all tests (electric and gas)
- l. Observe deactivation of “make up air” on test activation of system (exhaust air shall remain working)
- m. Observe activation of fire alarm notification appliances during all tests and verify that the signal is received at the alarm panel.
- n. Verify proper placement of class K fire extinguisher. Class K fire extinguisher shall be located within thirty feet of cooking equipment
- o. Verify the presence of proper signage at the class K fire extinguisher
- p. Indicate the total number of flow points
- q. If multiple systems, verify coordination of system components. 3-inch high numbers or letters shall be used to identify hoods, pull stations, and system cabinets for each system.
- r. Capture and Containment Test - The permit holder shall verify capture and containment performance of the exhaust system. This field test shall be conducted with all appliances under the hood at operating temperatures, with all sources of outdoor air providing *makeup air* for the hood operating and with all sources of re-circulated air providing conditioning for the space in which the hood is located operating. Capture and containment shall be verified visually by observing **smoke or steam** produced by actual or simulated cooking, such as with smoke candles, smoke puffers, etc.

** A wet system acceptance test is required.

VII. Final Building and Site Inspection

1. Verify building address numbers posted at approved location
 - a. 4” minimum height numbers / letters required.
 - b. Shall be legible and visible from the street fronting the property. If the building is located more than 50 feet from the street, shall also be posted at the street.
2. Verify proper location of Knox Box(es).
 - a. Shall be installed approximately 60 inches above finished grade.
 - b. Shall be installed left of the main entrance
 - c. Keys to all doors and pad locks shall be placed inside Knox Box at time of final inspection
3. Occupant Load of Assembly spaces posted:
 - a. All spaces that are areas of Assembly shall have the occupant load of that room or space posted in a conspicuous location at or near the main entrance of the room or space.
4. Verify locations of fire extinguishers
 - a. Consult approved plans, IFC chapter 9, and NFPA 10
 - b. Verify appropriate size (minimum 5# ABC)

- c. Extinguishers shall be installed at a maximum travel distance of 75 feet.
 - d. Shall be installed a maximum of 5 feet to the top of a fire extinguisher above the finished floor level and shall be unobstructed from access or view. Provide signage as required.
 - e. If installed in cabinets, and if cabinets are installed in rated walls, cabinets must be listed and marked as "fire rated" cabinets.
5. Verify Proper Exit Signs and Emergency Lighting:
- a. Consult approved plans and IFC Chapter 10
 - b. Exit signs and emergency lighting shall be tested in both normal and emergency power modes.
6. Verify Proper Exit Door Operation
- a. Consult approved plans and IFC Chapter 10.
 - i. All exit doors shall be opened to ensure that they operate properly.
 - ii. Exterior exit path shall lead to a public way
 - iii. Exit door hardware shall be of approved type and operation.
7. Verify building door signage:
- a. Provide the letters "FACP" on all unobvious doors that give access to the fire alarm control panel. This can be accomplished with self-adhesive letters, stencil, or a sign with a minimum three-inch high letters in contrast to door colors.
 - b. Provide letters "RISER ROOM" on all doors that give access to a sprinkler riser. This can be accomplished with self-adhesive letters, stencil, or a sign with a minimum three-inch high letters in contrast to door colors.
 - c. Provide letters "ELECTRICAL ROOM" on all doors that give access into electrical control panels or main disconnects. This can be accomplished with self-adhesive letters, stencil, or a sign with a minimum three-inch high letters in contrast to door colors.
 - d. Provide on all suite access doors the "Suite Number or Letter". This can be accomplished with self-adhesive letters, stencil, or a sign with a minimum four-inch high letters in contrast to door colors.
8. Verify fire lanes are appropriately marked:
- a. Fire department access roads are required to extend to within 150 feet of all parts of the exterior of the first floor of the building as measured by an approved route around the exterior of the building.
 - b. Where designated, fire lanes shall not be less than 20 feet wide at any point. Curves and corners shall be wide enough to permit the passage or operation of all fire apparatus owned by the city. The surface of fire lanes shall be all-weather surface and shall be of sufficient strength to support all firefighting apparatus (70,000 lbs.).
 - c. All fire lanes and access roads shall be maintained free of obstructions by the property owner, and this shall be accomplished by methods to include pavement markings and signage.
 - d. Pavement and sidewalk marking shall be done with red paint with white letters that read "FIRE LANE" at fifty foot intervals or as otherwise directed by the fire department.
 - e. Fire lanes shall be marked with permanent "NO PARKING" signs, placed along the road at 100 foot intervals.
 - f. Signs shall be minimum 12 by 18 inches; have red letters on a white background, and mounted at between 4 and 7 feet from the finished grade level of the road.