



**FIRE
INSPECTION
GUIDE FOR NEW
COMMERCIAL
BUILDINGS**

**Handout
800**

REV 08/08

ADOPTED CODES (with City of Peoria amendments):

2006 International Fire Code (IFC)

**City of Peoria Fire Department
Fire Prevention Division**

8351 West Cinnabar Avenue
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www.peoriaaz.gov/fire



City of Peoria Fire Marshal's Office

FIRE INSPECTION GUIDE FOR COMMERCIAL BUILDINGS

(This document is an attempt to identify the items inspected during the course of normal fire inspections. This document is not to be construed as a complete guide or all encompassing. Additional items may be required to be inspected as deemed necessary by the Fire Inspector.)

IVR Automated Inspection Line (623) 773-7220

Note:

This phone number is to be used to request all fire related inspections. When calling for an inspection you will need your seven (7) digit Building Permit Number (no letters needed), the inspection code for the inspection you are requesting (see below) and a phone number you can be contacted at. A Fire Inspector will contact you to schedule the inspection.

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Note:

Only use the following phone number to schedule an inspection if you have a permit number that begins with a letter "F" or you would like to schedule a fire hydrant flow test, lock keys in a lock box or have a general fire code question. Please leave your name, telephone number and a brief message and someone from Fire Prevention will call you back.

Fire Prevention Inspection and Information Line (623) 773-7593

General Notes:

Excerpts from the *International Fire Code* – 2006 edition

105.4.4 Approved documents.

Construction documents approved by the fire code official are approved with the intent that such construction documents comply in all respects with this code. Review and approval by the fire code official shall not relieve the applicant of the responsibility of compliance with this code.

106.3 Concealed work.

Whenever any installation subject to inspection prior to use is covered or concealed without having first been inspected, the fire code official shall have the authority to require that such work be exposed for inspection.

Underground Fire Line & Flush Inspection

All fire lines that are connected to the City of Peoria water system are inspected and approved by the City of Peoria Engineering Department up to and including the floor flange in the building. The Fire Department must witness all fire line flushes. The following information pertains to fire lines that are installed on private water systems and therefore must be permitted and inspected by the Fire Department.

1. The installing contractor shall have a valid City of Peoria Fire Department "Fire Equipment Contractor Permit" (See the information and application at the end of this document) and an "On Site Competent Person" with supporting documentation. No fire inspections will be conducted until a permit is obtained and the competent person documentation is provided.
2. An Underground Contractor's Material and Test Certificate shall be provided. The certificate shall be provided prior to the flush inspection. The flush inspection shall not be conducted without this documentation. The Underground Contractor's Material and Test Certificate can be found in NFPA 24 – 2002, figure 10.10.1.
3. The approved plans shall be consulted to verify meeting the requirements of NFPA 13 and 24:
 - a. Size of the piping.
 - b. Type of piping material.
 - c. Depth of cover over the piping.
 - d. Isolation valves.
 - e. Proper configuration of:
 - i. Joint restraints.
 - ii. Protective wrap (polywrap) of piping, including fire riser flange spigot. (Applies to ductile piping only.)
 - iii. Direction changes.
 - iv. Proper fittings passing below foundations.
 - v. Double Backflow assembly (if exterior to the building).
4. All valves within the system are to be in the open position, including the fire hydrant sectional valve.
5. A hydrostatic test of all piping at two hundred (200) psi for two (2) hours or fifty (50) psi in excess of the system working pressure, whichever is greater shall be observed.
6. The pressure after the hydrostatic test shall be relieved to confirm that the test gauge returns to zero. (A gauge that does not return to zero could be an indication that the gauge is broken or pegged).
7. Flushing of all piping with city water shall be observed for a sufficient amount of time to ensure that the piping is clear and free of all debris. The following flow rates shall be provided to produce a minimum velocity of ten (10) feet/second in the pipes.

Pipe Size (inches)	Flow Rate (gpm)
4	390
6	880
8	1,560
10	2,440
12	3,520

Note: The fire line shall be visible during the hydrostatic testing. Center loading of the pipe is acceptable; however, all joints, valves, joint restraints, and fittings shall be visible. **DO NOT** cover the

fire line until the inspection is approved. The Fire Department inspection of the fire line consists of the fire line supply piping from the inside / outside of the building(s) to the point of connection to the supply water main at the street or to the water main loop. Stacking of the fire sprinkler riser onto the fire line is not allowed until the fire line is approved and flushed.

Rough Fire Sprinkler System Inspection

1. The inspection shall be scheduled by the fire sprinkler contractor.
2. The installing contractor shall have a valid City of Peoria Fire Department "Fire Equipment Contractor Permit" (See the information and application at the end of this document) and an "On Site Competent Person" with supporting documentation. No fire inspections will be conducted until a permit is obtained and the competent person documentation is provided.
3. The Approved Plans shall be consulted to verify meeting the requirements of NFPA 13;
 - a. Proper type of fire sprinkler piping.
 - b. Double Backflow assembly for size, type, and direction.
 - c. Confirm that the installed piping does not have excessive changes of direction that are not indicated on approved plans. (Excessive use of extra fittings, such as elbows may effect hydraulic calculations and require re-submittal for review and approval).
 - d. Proper size of the fire sprinkler piping.
 - e. Proper pipe hangers and supports with the correct spacing.
 - f. Sway bracing is installed per City of Peoria code requirements. Sway bracing is required at top of fire risers and major changes of direction.
 - g. Proper type, orifice, and temperature of all fire sprinklers.
 - h. Proper clearance of fire sprinklers from ALL obstructions.
 - i. Check for correct distances between the fire sprinklers, off of walls, maximum coverage per fire sprinkler, and distance below roof deck. Also deflector orientation to roof deck.
 - j. Check for installation of orifice in inspector's test. (Orifice shall be the same size as the smallest orifice installed in the system).
 - k. Check to ensure fire sprinklers are not painted. Painted fire sprinklers shall be replaced. Painted sprinkler heads shall not be cleaned.
 - l. All control, auxiliary, drain, and inspector's test valves shall not be located more than seven (7) feet above finish floor or grade.
 - m. Access panels shall be provided for all valves located inside a wall or concealed space.
4. A hydrostatic test of all piping at two hundred (200) psi for two (2) hours or fifty (50) psi in excess of system working pressure whichever is greater shall be observed.
5. Where a tenant improvement addition or modification is made to an existing fire sprinkler system affecting more than twenty (20) fire sprinklers, the new portion shall be isolated and hydrostatically tested at two hundred (200) psi for two (2) hours or fifty (50) psi in excess of system working pressure whichever is greater. Modifications that cannot be isolated shall not require hydrostatic testing in excess of system working pressure.
6. Tenant Improvement modifications affecting twenty (20) or fewer fire sprinklers shall not require hydrostatic testing in excess of system working pressure.
7. The pressure after the hydrostatic test shall be relived to confirm that the test gauge returns to zero. (A gauge that does not return to zero could be an indication that the gauge is broken or pegged).
8. Verify a listed and approved pressure relief valve is installed on all grid type fire sprinkler systems.
9. The following items shall be verified regarding the Fire Department Connection (FDC);

- a. Fire Department Connection shall be within one hundred (100) feet of a fire hydrant.
- b. Fire Department Connection shall be located on the address side (front) of building or located on the building in the fire department access approach as approved.
- c. Fire Department Connection shall be installed between eighteen (18) and forty eight (48) inches above finish grade.
- d. The swing check valve is to be installed as close to the Fire Department Connection as possible and is installed in correct direction.
- e. The 2.5 inch approved caps or plugs are installed.
- f. The Fire Department Connection is not to be obstructed (i.e.: electrical transformers, landscaping, etc.).

Rough Fire Alarm System Inspection

1. The inspection shall be scheduled by the fire alarm contractor.
2. The installing contractor shall have a valid City of Peoria Fire Department "Fire Equipment Contractor Permit" (See the information and application at the end of this document) and an "On Site Competent Person" with supporting documentation. No fire inspections will be conducted until a permit is obtained and the competent person documentation is provided.
3. The approved plans shall be consulted to verify meeting the requirements of NFPA 70 and 72:
 - a. Proper wire type.
 - b. Proper wire gauge.
 - c. Verify that a Class 'A' fire alarm system has been installed. All fire alarm systems installed in the City of Peoria shall be Class 'A' fire alarm systems. This includes all modules. No exceptions.
 - d. Verify support of all of the wiring is per NFPA 72 and National Electrical Code. (Wrapping fire alarm wiring around steel nails, connecting it to ceiling grid support wires, and using metal staples are not approved methods of securing or supporting fire alarm wiring).
 - e. Verify the support of the conduit and back boxes, including protective bushings in conduit and junction boxes.
 - f. All exposed wiring installed below seven (7) feet shall be installed in conduit.
 - g. Verify location of all fire alarm system devices.
 - h. Verify that ALL notification appliances, pulls stations, heat detectors, smoke detectors, and duct detector LEDs located in ALL walls and above ALL ceilings are installed with approved back boxes. This applies to ALL fire alarm systems installed in commercial buildings. Mud rings only are NOT acceptable mounting methods.
 - i. Verify the location of the fire alarm control panel. (If the fire alarm control panel is located in the same room as the fire sprinkler riser and that room has a door that provides direct access to the outside; then an annunciator strip pad is not required).
 - j. Verify that the location of fire alarm control panel is in a temperature controlled space.
 - k. Verify that the fire alarm control panel and any notification appliance booster panels are mounted to a maximum height of five (5) feet to the top of the cabinet.
 - l. Verify the location of the remote annunciator, if required.
 - m. Verify the proper separation of the fire alarm wiring. (A minimum of four (4) feet separation between the wiring on the horizontal runs and one (1) foot separation on the vertical runs shall be provided).
4. Verify that the fire alarm wiring is not painted. Fire alarm wiring that is painted shall be replaced.

5. Verify that tamper switches are installed on ALL fire sprinkler system control valves, including control valves on any outside double back flow assembly feeding the fire sprinkler system.
6. Verify any duct detectors required by the Mechanical Code are installed.

Final Fire Sprinkler System Inspection

1. The inspection shall be scheduled by the fire sprinkler contractor.
2. The installing contractor shall have a valid City of Peoria Fire Department "Fire Equipment Contractor Permit" (See the information and application at the end of this document) and an "On Site Competent Person" with supporting documentation. No fire inspections will be conducted until a permit is obtained and the competent person documentation is provided.
3. The fire sprinkler contractor shall provide an Aboveground Contractor Material and Test Certificate for each system installed. The final fire inspection shall not be conducted without this documentation. This certificate is found in NFPA 13 – 2002, figure 16.1.
4. Consult the approved plans to verify meeting the requirements of NFPA 13.
5. Verify tamper switch and flow switch components are installed and functioning on the fire sprinkler system.
6. Observe a main drain test. Document the static and residual pressures; then verify that the residual pressure at the base of the riser meets or exceeds the required system demand pressure listed in the approved hydraulic calculation summary on the approved plans. Also, verify that the hydraulic placard and the fire sprinkler system general information sign on the fire riser assembly are correctly filled out. (See the example at the end of this document along with a blank form to be used)
7. Verify that ALL required fire sprinkler system signage is in place. Each valve shall have a sign attached indicating its function.
 - a. Main drain.
 - b. Access panels shall be provided for all valves located inside a wall or concealed space. Signage shall be provided on the outside of access panel indicating type of valve that is concealed within. (This includes Fire Department Connection check valves).
 - c. Control valves.
 - d. Inspectors test.
 - e. Fire Department Connection.
 - f. Hydraulic Placard. (If hydraulic placard is located on a fire riser that will be exposed to corrosive conditions then hydraulic placard shall be aluminum and hydraulic information shall be engraved or stamped).
8. Verify that the spare fire sprinkler head cabinet is installed in an area that will not exceed one hundred (100) degrees Fahrenheit and has the following contents; the correct number of spare fire sprinkler heads, correct size fire sprinkler head wrench, and a NEW current issue of NFPA 25. (An ILLEGALLY copied NFPA 25 is NOT acceptable).
9. Verify the floor is sealed where the fire riser flange spigot penetrates the building.
10. Verify that all fire rated walls and exterior wall pipe penetrations are sealed by approved means.
11. Walk through building to verify;
 - a. Verify proper placement, type, and temperature of fire sprinklers.
 - b. Verify that ALL fire sprinklers are unobstructed.
 - c. Verify fire sprinklers are not painted. Painted fire sprinklers shall be replaced. Painted fire sprinkler heads shall NOT be cleaned.

- d. Verify fire sprinkler escutcheons are in place and properly installed per the fire sprinkler manufacturer data sheet.
12. Observe the activation test of fire alarm system notification appliances and electric bell on the fire sprinkler system water flow through the inspector's test valve. Alarms shall activate in ninety (90) seconds or less with the flow switch adjustment setting on or greater than "B". Document the time it takes the alarms activate.

Final Fire Alarm System Inspection

1. Provide a NFPA 72 Inspection and Testing Form. The form shall be completed and faxed to Fire Prevention at 623 773-7295 prior to scheduling final fire alarm inspection. Final fire inspection shall not be conducted without this documentation. This documentation is found in NFPA 72 – 2002, figure 10.6.2.3. The inspection shall be scheduled by the fire alarm contractor.
2. The installing contractor shall have a valid City of Peoria Fire Department "Fire Equipment Contractor Permit" (See the information and application at the end of this document) and an "On Site Competent Person" with supporting documentation. No fire inspections will be conducted until permit is obtained and the competent person documentation is provided.
3. The approved plans shall be consulted to verify meeting the requirements of NFPA 70 and 72.
4. Verify the proper location, type, and candela setting of all fire alarm notification appliances.
5. Observe fire alarm system functional tests of all fire alarm devices, including duct smoke detectors. NOTE: a certification form provided by a third party testing facility for testing of the duct smoke detectors can be accepted in lieu of actual testing.
6. Verify that ALL notification appliances are synchronized per NFPA 72 requirements.
7. Observe the activation test of the fire alarm system notification appliances, including the electric bell on the fire sprinkler system water flow through inspector's test valve. All alarms shall activate in ninety (90) seconds or less with the flow switch adjustment setting on or greater than "B".
8. Observe the activation test of the fire sprinkler control valve tamper switches. On activation of the tamper switch a supervisory signal shall be received at the fire alarm control panel.
9. If a kitchen hood extinguishing system is installed; observe function tests of the fire alarm system notification appliances upon kitchen hood extinguishing system activation.
10. Verify the following from all tests;
 - a. Measure decibel reading of audible appliances five (5) feet above finish floor in the farthest point of the room from any device. Decibel reading shall be fifteen (15) dBA above ambient noise level and five (5) dBA above peak sound levels lasting sixty (60) seconds or more.
 - b. Verify proper voltage drop. The maximum allowed voltage drop is 4.4 volts. (The installing contractor is to provide a voltage meter at inspection)
 - c. Verify a Class 'A' fire alarm system is installed.
 - d. Verify the proper size of the batteries and verify that batteries are date marked with; month / year
 - e. Verify duct detectors provide the following; unit shuts down on activation of the duct detector, on activation of the duct detector a supervisory signal shall be received at the fire alarm control panel, and if a ceiling is installed, then LED provided at ceiling level operates when duct detector is activated.
 - f. Observe a twenty four (24) hour stand by battery power test. The electrical breaker that provides power to the fire alarm control panel shall be turned off twenty four (24) hours

prior to this test. At the end of the twenty four (24) hours an audible test shall be conducted for five (5) minutes.

- g. Verify that the circuit breakers for the fire alarm control panel and electric bell power are secured (with breaker locks), identified on electric panel schedule, and are designated power circuit breakers.
- h. Verify the fire alarm control panel power circuit breaker number and electrical panel location is identified inside or near the fire alarm control panel.
- i. Verify that all signals are received at the fire alarm control panel.
- j. Verify that all signals are received at the annunciator, if applicable.
- k. Verify that all signals were received at the off-site, third party, UL listed monitoring agency. A fire alarm system monitoring activity report shall be faxed to Fire Prevention at 623 773-7295 after completion of final testing. Monitoring activity report shall include the twenty four (24) hour battery power fault.

Kitchen Hood Extinguishing System Inspection

1. The inspection shall be scheduled by the kitchen hood suppression system contractor.
2. The installing contractor shall have a valid City of Peoria Fire Department "Fire Equipment Contractor Permit" (See the information and application at the end of this document) and an "On Site Competent Person" with supporting documentation. No fire inspections will be conducted until permit is obtained and the competent person documentation is provided.
3. The approved plans shall be consulted to verify meeting the requirements of NFPA 17A.
4. The installing contractor shall provide the latest system manual as provided by the manufacturer to verify the system installation.
5. Verify the following;
 - a. Hood size.
 - b. Location of manual pull station.
 - c. Signage for manual pull station.
 - d. Location, size, and type extinguishing agent.
 - e. Type and size of firing cartridge.
 - f. Proper pipe size and type.
 - g. Proper pipe support.
 - h. Proper nozzle type.
 - i. Verify that nozzle height is per the manufacturer requirements.
 - j. Verify number of allowed fittings for system.
 - k. Verify link installation placement, type, and temperature.
 - l. Verify nozzle locations using the factory laser pointer device, if applicable. The installing kitchen hood extinguishing system contractor shall provide the laser. No inspection will be conducted without this testing device.
 - m. Observe air movement through all system nozzles.
 - n. Observe test of fusible link.
 - o. Observe activation of manual pull station.
 - p. Observe deactivation of all fuel sources under hood during all tests. (Electric and/or Gas)
 - q. Observe deactivation of the "make up air" upon activation of the system. (Exhaust air shall remain working).