Sprinkler Final Inspection

The City of Oklahoma City Fire Department

To request a Sprinkler Final of your building, the General Contractor must call in all permits together. The Fire Sprinkler Permit will start with FIRS-2015-0000. The parent permit (if applicable) will start with BLDC-2015-00000. The Fire Alarm permit (if applicable) will start with FIRA-2015-0000. The Kitchen Hood permit (if applicable) will start with FIRH-2015-0000.

Exception: 50% Sprinkler Inspection or Temp Power

General
NFPA 13 Sprinkler System Operational Inspection for Tenant Improvement Remodel
NFPA 13
NFPA 13R
NFPA 13D
Standpipe System Acceptance Inspection

General

Fire inspection request shall be call in after all work is completed and a pretest conducted of the respected system.
Sprinkler System Test Requirements and pretest check off form

All certification forms and documents are required to be on the site for review:

- ✓ Plans
- ✓ Permit
- ✓ A system hydrostatic test is required before calling for an inspection as well as the completion of the items on this pretest form. Use the Acceptance Inspection worksheet for the pretest.
- ✓ Installation certification is completed.

A person familiar with installation must be present to perform the test.

- ✓ Owner's representative approval is needed for the time and date of testing.
- ✓ All areas are accessible.
- ✓ Hydrostatic testing and the flow test should be done during the same inspection.
- ✓ If Items 1-5 are incomplete, the inspection will be cancelled and another inspection request is required. A re-inspection fee may be assessed.

NFPA 13 Sprinkler System Operational Inspection for Tenant Improvement/Remodel/Small Additions and pretest check off form

Sprinklers

- ✓ Obtained a copy of installation certification or a Record of Completion from installer.
- ✓ Sprinklers shall be a minimum of 4 in. from the wall and be properly spaced. 8.6.3.3
- ✓ Sprinklers are not obstructed. 8.12.5.1
- ✓ Sprinkler heads have a guard if subject to damage.
- ✓ Sprinkler heads are not painted or covered.
- ✓ Escutcheon plates are properly installed.
- ✓ Storage is a minimum of 18 in. below deflectors, IFC 315.2.1.

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Pipe: Hangers, Seismic, and Penetrations

- ✓ Minimum clearance around pipes: holes are 2 in. larger than pipe 1 in. to 3½ in., 4 in. for pipe 4 in. and larger. Clearance is not required through sheetrock which is not required to be fire rated nor when flexible couplings are used on each side and within 1 ft. of penetration.
- ✓
- ✓ A listed fire stop system shall be used for penetration through fire-rated assemblies, the system listing sheet is available, 9.3.4.
- ✓ Longitudinal and lateral bracing is provided for each run of pipe between the change of pipe direction unless the pipe run is less than 12 ft., 9.3.5.11.3.
- ✓ Sprig ups greater than 4 ft. are restrained from lateral movement, 9.3.6.6.
- ✓ Branch lines have one hanger per section of pipe, see exceptions, 9.2.3.2.
- ✓ The maximum distance between the end sprinkler and hanger is 36 in. for 1 in. pipe, 48 in.for 1¼ in., and 60 in. for 1½ in. pipe and greater, 9.2.3.4.
- ✓ Hangers are not within 3 in. of upright sprinklers, 9.2.3.3.

NFPA 13 Sprinkler System Acceptance Inspection and pretest check off form

- ✓ Approved drawing and above-ground piping certification documents are on-site.
- ✓ Underground supply testing and flushing is witnessed and underground piping certification is provided. Flushing requirements shall be 880 gpm for 6 in., 1,560 gpm for 8 in., 2,440 gpm for 10 in., 3,520 for 12 in., have them pitot and calculate that flow and confirm the velocity is at least 10 ft/sec.
- ✓ Hydrostatic test: wet system, 200 psi for 2 hours and it should include the FDC piping.
- ✓ Hydrostatic test: dry and double interlock system: 200 psi for 2 hours and a 40 psi air leak test for 24 hours with less than 1.5 psi loss, 24.2.2.
- ✓ Double back flow prevention device is installed and forward flow tested, 24.2.5.
- ✓ Systems subject to pressures greater than 150 psi shall be hydrostatically tested at 50 psi above system working pressure, 24.2.1.2
- ✓ Operational test of the dry-pipe valve is performed and the quick opening device (500+gallon systems) is tested, 750+ gallon system must trip within the time provided in Table
- ✓ 7.2.3.6.1, 24.2.3.2.
- ✓ PRVs are tested at maximum and normal inlet pressures or as specified by the
- ✓ manufacturer, the supply pressure is recorded on the certificate, a relief valve is on the discharge side and gauges on each side of the valve, 24.2.4.

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Riser Room

- ✓ The main drain is routed to the exterior with a turned down elbow or an inside drain capable of handling the water flow. A flow test is performed. The main drain pipe is ¾ in. or greater
- ✓ for a riser up to 2 in., 1¼ in. or greater for a riser 2½ in. to 3½ in., 2 in. for a riser 4 in. or greater, 8.16.2.4.2, 24.2.3.4.
- ✓ Water control valves and flow switches are monitored and tested for all occupancies with 20 or more sprinklers, 903.4, 24.2.3.1.
- ✓ Paddle-type water flow is not allowed for dry, preaction or deluge systems.
- ✓ 24-hour monitoring service agency received signals.
- ✓ Water flow alarm is tested and initiates an alarm within 5 minutes, located above the FDC, and it is properly signed, 24.2.3.1.
- ✓ Water supply valves are indicating type and supervised by one of 4 means, 8.16.1.1.2.1.
- ✓ High-rise: each floor system shall have a separate water flow device with a test connection and be connected to the fire alarm system, 8.16.1.1.2.2 and 8.17.1.6.
- ✓ Permanent system identification signs for each control valve and what portion of the building each valve serves are provided, 6.7.4.
- ✓ Permanent label with hydraulic calculations is attached to the riser, 24.5.1.
- ✓ Riser is supported by hanger or attachment, for multistory at the lowest level, each alternate level, above and below offsets, and at the top, 9.2.5.4.
- ✓ Gauges are above and below riser check valve, 7.1.1.2.

Fire Department Connection (FDC)

- ✓ FDC capped and permanently signed with system type, PSI required, and area or building served, 8.17.2.4.7.
- ✓ FDC has check valve and drip valve, 8.17.2.5.
- ✓ FDC for wet single riser system connects to the system side, 8.17.2.4.1.
- ✓ FDC for wet multiriser system connects after the main system shutoff valve, 8.17.2.4.
- ✓ FDC for dry system connects between the indicating and dry-pipe valves, 8.17.2.4.2.Ensure that the minimum clearance to the sides, front. And height are provided in accordance with IFC 912.3.2.
- ✓ FDC is a minimum 4 in. pipe unless hydraulically calculated but not less than the riser dimension; 18 in. to 48 in. above grade, and properly supported, 8.17.2, A.8.17.2.

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Sprinklers

- ✓ Extra sprinklers: there are no less than 6, some of each type: 6 per 300, 12 per 300 to 1000, and 24 per 1000+ and a wrench are provided, 6.2.9.
- ✓ Sprinkler head and wrench location are the same as the plans.
- ✓ Sprinklers shall be a minimum of 4 in. from the wall and be properly spaced, 8.6.3.3.
- ✓ Sprinkler heads have a guard if subject to damage.
- ✓ Sprinkler heads are not painted or covered.
- ✓ ESFR deflectors are placed in accordance with 8.12.4.
- ✓ EFSR sprinklers are at least 1 ft. horizontally from the bottom edge of bar joist or open truss and at least 36 in. above the top of the storage level, 8.12.6.
- ✓ Proper type and temperature sprinklers are used and match plans.
- ✓ Escutcheon plates are installed.

Pipe: Hangers, Seismic, and Penetrations

- ✓ Piping layout and size are the same as the plans.
- ✓ Flexible sprinkler hose fitting bends are within manufacturer specifications, 9.2.1.3.3.
- ✓ Flexible couplings may be used for pipe 2½ in. or larger at structural separations, within 24 in. of expansion joints, within 24 in. of the top and bottom of all risers, within 12 in. above and below a floor penetration in multistory buildings, and on both sides of and within 1 ft. of concrete or masonry wall penetrations unless pipe clearance is provided, 9.3.2.
- ✓ Minimum clearance around pipes: holes are 2 in. larger than pipe 1 in. to 3½ in., 4 in. for pipe 4 in. and larger. Clearance is not required through sheetrock which is not required to be fire rated nor when flexible couplings are used on each side and within 1ft. of penetration. A listed fire stop system shall be used for penetration holes, the system listing sheet is available, 9.3.4.
- ✓ A 6 ell seismic separation assembly or listed flexible pipe assembly is provided at building seismic joints, 9.3.3.
- ✓ Lateral sway bracing are spaced in accordance with the plans and calculations for all mains, cross mains, and branch lines 2½ in. and larger. Bracing is provided for the last length of pipe but within 6 ft. of the end of a feed or cross main. Bracing is required unless all the pipe is supported by rods less than 6 in. or by 30₀ wrap-around u-hooks for any size pipe, 9.3.5.3.
- ✓ Longitudinal sway bracing is a maximum of 80 ft. for mains and crossmains, check spacing on the plans, 9.3.5.4.
- ✓ A 4-way sway brace is provided at least every 25 ft. and at the top of each riser, 9.3.5.5.

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- ✓ Longitudinal and lateral bracing is provided for each run of pipe between the change of pipe direction unless the pipe run is less than 12 ft., 9.3.5.11.3.
- ✓ Sprigs greater than 4 ft. are restrained from lateral movement.
- ✓ Splayed seismic bracing wire, wrap-around u-hooks, or lateral sway bracing shall not exceed 30 ft. spacing and are used to restrict sprinkler movement that could impact the building, equipment or finishing materials.
- ✓ Restraining straps are on all C-clamps and the strap is bolted through if there is not a lip on the beam.
- ✓ Branch lines have one hanger per section of pipe, see exceptions.
- ✓ Mains and crossmains have one hanger between each branch line and at the end of the main.
- ✓ The maximum distance between the end sprinkler and hanger is 36 in. for 1in. pipe, 48 in. for 1¼ in., and 60 in. for 1½ in. pipe and greater, 9.2.3.4.1.
- ✓ Risers in multi-story buildings have supports at the lowest level, at each alternate level, below offsets, and at the top.
- ✓ Hangers are not within 3 in. of upright sprinklers.

Dry and Preaction Systems

- ✓ Dry system compressor with a minimum ½ in. fill line, pressure gauges, and relief valve that function automatically and fill the system within 30 minutes, 7.2.6.2.2.
- ✓ Preaction and deluge systems are tripped by activation of the detection system.
- ✓ Riser room is heated, 7.2.5.2.
- ✓ Air pressure is set at least 20 psi above the trip pressure, 16.2.2.
- ✓ Dry and preaction systems are supervised and water reaches furthest point within the time period provided on the plans or water delivery calculations in accordance with Table
- ✓ 7.2.3.6.1.
- ✓ Preaction systems exceeding 20 sprinklers automatically supervise (constant monitoring) pipe pressure (maintain at least 7 psi) and detection devices, 7.3.2.4.

NFPA 13R Sprinkler System Acceptance Inspection and pretest check off form

- ✓ Approved plans and above-ground piping certification documents are on-site, 8.1.
- ✓ Underground supply testing and flushing are witnessed and underground piping certification is provided, 10.2.1.1.
- ✓ Hydro test for a wet system is 200 psi for 2 hrs. and should include the FDC piping.
- ✓ Hydro test for a dry system is 200 psi for 2 hrs.

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- ✓ Hydro test for systems with less than 20 heads and no FDC can be tested at 50 psi above the maximum design pressure, 10.2.2.2.
- ✓ Backflow prevention device is installed in accordance with its listing and approved plans, and a forward flow test is performed, IFC 903.3.5.

Riser Room

- ✓ Water flow drain is routed to the exterior with a turned down elbow. Flow test is performed.
- ✓ Test valve and flow switch are monitored and tested.
- ✓ Paddle-type water flow is not allowed for dry systems.
- ✓ 24-hour monitoring service agency received signals.
- ✓ Water flow alarm is located according to the approved set of plans, is properly signed, and connected to the fire alarm system, if a fire alarm system is provided.
- ✓ Water supply valves are indicating type and supervised.
- ✓ Riser valves signed: main drain, main control, test valves, etc., and pressure gauges are on the supply and system sides of the check valve.
- ✓ A permanent label with hydraulic calculations is attached to the riser.
- ✓ The riser is supported by hanger or attachment, for multistory at the lowest level, alternate levels, at offsets, and at the top.
- ✓ At least 3 spare sprinklers are provided for each type of sprinkler, 11.1.

Sprinklers

- ✓ Sprinkler head locations are the same as the plans.
- ✓ Pendent deflectors are 1 in. to 4 in. from the ceiling unless listing permits otherwise, 6.4.6.1.1.
- ✓ Sidewall deflectors are 4 in. to 6 in. from the ceiling unless listing permits otherwise, 6.4.6.2.1.
- ✓ Sidewall deflectors are at least 5 ft. from a fan, 6.4.6.3.3.1.
- ✓ Soffits exceeding 8 in. in width from the wall are sprinklered underneath or when sidewall sprinklers are installed and the soffit exceeds 12 in., 6.4.6.3.6.1-.2.
- ✓ Sprinkler heads have guard if subject to damage.
- ✓ Sprinkler heads are not painted or covered.
- ✓ Proper type and temperature sprinklers are used.
- ✓ Escutcheon plates are installed.

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Pipe: Hangers, Seismic, and Penetrations

- ✓ Piping layout and size are the same as the plans.
- ✓ Minimum clearance around pipes: Holes are 2 in. larger than pipe 1 in. to 3½ in., and 4 in. larger than pipe 4 in. or larger. NFPA 13: 9.3.4.2 - .7.
- ✓ Flexible couplings may be used for pipe 2½ in. or larger at structural separations, within 2 ft. of expansion joints, within 2 ft. of the top and bottom of all risers, within 1 ft. above and below a floor penetration in multistory buildings, and on both sides of and within 1 ft. of concrete or masonry wall penetrations unless pipe clearance is provided, NFPA 13: 9.3.2.
- ✓ Lateral sway bracing is installed in accordance with approved plans, NFPA 13: 9.3.5.3
- ✓ If provided, seismic separation assemblies are installed in accordance with the approved plans.
- ✓ Longitudinal sway bracing is a maximum of 80 ft. for mains and cross mains, within 40 ft. of the end of the pipe, and check spacing on the plans, NFPA 13: 9.3.5.4
- ✓ Lateral sway bracing is required at a maximum spacing of 40 ft. for all mains and cross mains, check the spacing on the plans, NFPA 13: 9.3.5.3.
- ✓ A 4-way sway brace is provided at least every 25 ft. and at the top of the riser, NFPA 13: 9.3.5.5.
- ✓ Longitudinal and lateral bracing is provided for each run of pipe between the changes of direction unless the pipe run is less than 12 ft., NFPA 13: 9.3.5.11.3.
- ✓ Splayed seismic bracing wire, wrap-around u-hooks, or lateral sway bracing used to restrict sprinkler movement that could impact the building, equipment, or finishing materials are located in accordance with the plans, NFPA 13: 9.3.6.2.
- ✓ Restraining straps are on all C-clamps and the strap is bolted through if there is not a lip on the beam, NFPA 13: 9.3.7.1.
- ✓ Branch lines have one hanger per section of pipe, NFPA 13: 9.2.3.2.
- ✓ Cross mains have one hanger between each branch line and at the end of the main, 13:9.2.4.
- ✓ Risers in multistory buildings have supports at the lowest level, each alternate level, below offsets, and at the top, NFPA 13: 9.2.5.4.
- ✓ Distance between riser supports is not greater than 25 ft., NFPA 13: 9.2.5.5.

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NFPA 13D Sprinkler System Acceptance Inspection and pretest check off form

- ✓ System is leak tested at normal operating pressure when an FDC is not provided, 4.2.1.
- ✓ The one system control valve for both the sprinkler and domestic systems is on. If the sprinkler system has its own control valve, the valve is supervised by one of the three approved methods.
- ✓ Signage is adjacent to the main water shut off valve: Warning, the water system for this house supplies a fire sprinkler system that depends on certain flows and pressures being available to fight a fire…Don't remove this sign.

Riser Room

- ✓ Operate the drain valve on the system side of the control valve.
- ✓ **Sprinklers**
- ✓ Spacing between sprinklers and distance from a wall does not exceed its listing, and sprinklers have a minimum spacing of 8 ft. between other unless their listing allows reduced spacing.
- ✓ Sprinkler heads are not painted, covered, or blocked.
- ✓ Proper type and temperature sprinklers are used.
- ✓ Escutcheon plates are installed and pendent/upright deflectors are within 1 in. to 4 in. from
- ✓ the ceiling, sidewalls are within 4 in. to 6 in. from the ceiling or all are per their listing.
- ✓ Pendent and upright deflectors in closets can be installed within 12 in. of the ceiling.
- ✓ Sprinklers are in all areas except bathrooms 55 sq. ft. or less; clothes closets 24 sq. ft. or less with noncombustible or limited-combustible surface materials, and the least dimension does not exceed 3 ft.; garages, open attached porches, and carports; attics, crawl spaces, and concealed spaces not used; covered unheated projections from buildings at entrances/exits as long as there is another means of egress from the dwelling unit.

Pipe and Support

- ✓ Piping layout and diameters match those on the approved plans.
- ✓ Pipe hangers and supports are in accordance with the manufacturer's requirements.
- ✓ Pipe laid on open joists is secured to prevent lateral movement.
- ✓ Pipes in attics are adequately insulated.
- ✓ Antifreeze (AF) system is installed in accordance with the approved plans and detail. The local plumbing regulations may require a backflow prevention device, and shall be indicated on the plans.

Fire Department Connection (FDC)

- ✓ FDC is capped and permanently signed.
- ✓ FDC has check valve and drip valve.
- ✓ FDC for wet single riser system connects to the system side.
- ✓ FDC is a minimum 1½ in. connection and 18 in. to 48 in. above grade.