

Fire Sprinkler Acceptance Testing Procedures

1. Approved drawing and piping certification documents are on-site.
2. Underground supply testing and flushing is witnessed and underground piping certification is provided.
3. Hydrostatic Testing on Aboveground piping: 200 psi for 2 hours or 50 psi above system working pressure, whichever is greater.
4. Pneumatic Testing (Dry System): Test with air at 40 psi for 24 hours with not greater than 1.5 psi loss.
5. 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 25.2.3.
6. PRVs are tested as a 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, 25.2.4

Riser Room:

7. 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 $\frac{3}{4}$ " or greater for a riser up to 2", $1\frac{1}{4}$ " or greater for a riser $2\frac{1}{2}$ " to $3\frac{1}{2}$ ", 2" for a riser 4" or greater, 25.2.3.4.
8. Water control valves and flow switches are electronically monitored and tested for all occupancies with 20 or more sprinklers, IFC 903 & NFPA 13:25.2.3.1.
9. Paddle-type water flow is not allowed for dry, pre-action or deluge systems.
10. Water flow test is completed and initiates an alarm within 90 seconds (NFPA 72)/ 5 minutes (NFPA 13).
11. Water supply valves are indicating type and supervised by one of the listed means, 8.17.1.4.
12. High-rise: Each floor system shall have a separate water flow device with a test connection and be connected to the fire alarm system, 8.17.
13. Permanent system identification signs for each control valve and what portion of the building each valve serves are provided, 6.7.4.
14. Permanent label with hydraulic calculations is attached to the riser, 25.5.
15. Riser supported by hanger or attachment, for multi-story at the lowest level, each alternative level, above and below offsets, and at the top, 9.2.5.4.1.
16. Gauges are above and below the riser check valve, 7.1.1.2.

Fire Department Connection (FDC):

17. FDC lock-capped and permanently signed with system type, PSI required, and area or building served, 8.17.2.
18. FDC has check valve and drip valve, 8.17.2.
19. FDC for a wet single riser connects to the system side, 8.17.2.
20. FDC for a wet multi-story riser system connects after the main system shutoff valve, 8.17.2.
21. FDC for dry system connects between the indicating and dry-pipe valves, 8.17.2. Ensure that the minimum clearance to the sides, front and height are provided in accordance with IFC 912.
22. FDC is a minimum of 4" pipe unless hydraulically calculated but not less than the riser dimensions; 18" to 48" above grade, and properly supported, 8.17.2.

Sprinklers

23. Extra Sprinklers: There are no less than 6, some of each type; 6 per 300, 12 per 300-1000, 24 per 1000+ and a wrench provided.
24. Sprinkler head and wrench location is the same as shown on the plans.
25. Sprinklers shall be a minimum of 4" from a wall and properly spaced.

26. Sprinkler heads shall have guards if subject to damage.
27. Sprinkler heads shall not be painted or covered.
28. ESFR sprinklers are installed in accordance with 8.4.6.
29. ESFR sprinklers are at least 1' horizontally from the bottom edge of bar joist or open truss and at least 36" above the top of the storage level, 8.4.6.
30. Proper type and temperature sprinklers are used and match plans.
31. Escutcheon plates are installed.
Pipe: Hangers, Seismic, and Penetrations:
32. Piping layout and size are the same as the plans.
33. Flexible sprinkler hose fitting bends are within manufacturer specifications.
34. Flexible couplings may be used for pipe 2.5" or larger at structural separations, within 24" of expansion joints, within 24" of the top and bottom of all risers, within 12" above and below a floor penetration in multi-story buildings, and on both sides of and within 1' of concrete or masonry wall penetrations unless pipe clearance is provided.
35. Minimum clearance around pipes: holes are 2" larger than pipe 1" to 3.5", 4" for pipe 4" 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' of penetration. A listed fire stop system shall be used for penetration holes.
36. A seismic separation assembly or listed flexible pipe assembly is provided at building seismic joints.
37. Lateral sway bracing are spaced in accordance with the plans and calculations for all mains, cross mains, and branch lines 2.5" and larger. Bracing is provided for the last length of pipe but within 6" of the end of a feed or cross main. Bracing is required unless all the pipe is supported by rods less than 6" or by 30 degree walk-around u-hooks for any size pipe.
38. Longitudinal sway bracing is a maximum of 80' for mains and cross-mains, check the spacing on the plans.
39. A 4-way sway brace is provided at least every 25' and at the top of each riser.
40. 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'.
41. Sprigs greater than 4' are restrained from lateral movement.
42. Splayed seismic bracing wire, wrap-around u-hooks, or lateral sway bracing shall not exceed 30" spacing and are used to restrict sprinkler movement that could impact the building, equipment or finishing materials.
43. Restraining straps are on all C-clamps and the strap is bolted through if there is not a lip on the beam.
44. Branch lines have one hanger per section of pipe, see exceptions.
45. Mains and cross-mains have one hanger between each branch line and at the end of the main.
46. The maximum distance between the end sprinkler and hanger is 36" for 1" pipe, 48" for 1 ¼", and 60" for 1 ½" pipe and greater.
47. Risers in multi-story have supports at the lowest level, at each alternate level, below offsets, and at the top.
48. Hangers are not within 3" of upright sprinklers.
Dry and Pre-action Systems
49. Dry system compressor with a minimum ½" fill line, pressure gauges, and relief valve that function automatically and fill the system within 30 minutes.

50. Pre-action and deluge systems are tripped by activation of the detection system.
51. Riser room is heated!!
52. Air pressure is set at least 20 psi above the trip pressure.
53. Dry and pre-action systems are supervised and water reaches the furthest delivery point within the time period provide on the plans or water delivery calculations.
54. Pre-action systems exceeding 20 sprinklers automatically supervise (constant monitoring) pipe pressure (maintain at least 7 psi) and detection devices.
Conclude Testing

Note: This may not be an inclusive list, but can serve as a great guide when completing a fire sprinkler acceptance test. This was produced utilizing NFPA 13 (2016 edition).