

4.03 Acceptance Testing of New High-Rise Sprinkler and Standpipe Systems (2016)

Reference: 2016 SFFC, Section 403 and 2016 NFPA13

Purpose: To standardize Fire Department reports and to insure that sprinkler and standpipe systems in life-safety buildings are operational, and conform to design concepts and all applicable codes.

Testing: Testing shall be performed to obtain the following information to verify performance of the sprinkler and standpipe systems. All such systems shall comply with all applicable standards and regulations and shall conform to the system design. A summary of the test results (comparing actual tested values to design values when applicable) shall be certified by the Mechanical Engineer of record and submitted to the Fire Department for their records. The following information is required:

1. City supply pressure regulating valve
 - a. Upstream and downstream pressure.
 - b. Minimum flow needed to open valve
2. Fire Pumps
 - a. Certified acceptance tests with curves for all pumps.
 - b. On-off pressure setting and time delay settings.
3. Pump suction pressures (all pumps)
 - a. Pressures at pump suction flange at rated capacity and 150% of rated capacity from on-site reservoir supply.
4. Standpipe performance (for each pump)
 - a. Pressure at roof manifold with 500 GPM flowing from the hydraulically most remote riser and 250 GPM flowing from each of the other riser manifolds. Total flow not to exceed 1000 GPM. The fire pump rated capacity shall be equal to or greater than the maximum standpipe flow requirements.
5. Standpipe pressures (using primary pump only)
 - a. Pressures at each sprinkler connection and each hose valve connection under pump churn condition and at 750 GPM pump capacity (flowing 500 GPM to the most hydraulically remote riser and 250 GPM to a second riser).
6. Sprinkler system performance (using primary pump only)
 - a. Pressures on the system side of each control valve under no flow condition and with full flow of main drain
 - b. Time delay for water-flow alarm using the inspector's test valve
 - c. Deviation between test gauge and systems pressure gauge
 - d. Valve supervision
 - e. Valve data (manufacturer, model, type, and settings)
7. Hose valve performance
 - a. Pressures on the outlet side of the valve under no flow condition and with a flow of 250 GPM through valve with pump operating at 750 GPM capacity.
 - b. Valve data (manufacturer, model, type, and settings).
8. Other tests and inspections to verify proper operation and compliance with applicable codes and standards
 - a. Visual inspection of interior of on-site reservoir to verify that it is free of all debris and foreign objects.
 - b. All valves are supervised per San Francisco Fire Code requirements.
 - c. Pump controller installation is approved by the Electrical Inspection Division and Bureau of Building Inspection.
 - d. Pump testing facilities and associated valves.
 - e. Secondary power and its ability to operate the system for the required duration.