



Office of University Building Official

4400 University Drive, MS 1E4; Fairfax, VA 22030

Telephone: (703) 993-6070

Fire Sprinkler Review Tips

- 1. Water Supply Flow Testing:** Indicate the water flow test results, the date and time taken, and who conducted the test. A small-scale drawing showing the locations of fire pumps, fire water tanks, test and flow hydrants and routing of underground pipe shall be included in submittals. Where a water flow test is performed for the purpose of a system design, the test shall be conducted no more than 12 months prior to working plan submittal. Test data must be adjusted to account for seasonal and daily pressure fluctuations, i.e., safety factors, etc. (*USBC 903.3.5, NFPA 13 23.2*)
- 2. Hazard and Commodity Classifications:** Sprinkler systems shall be designed to the correct hazard and commodity classification as prespecified within the provisions of NFPA 13 and through an engineering evaluation. An “owner’s information certificate” must be prepared by the A/E design team during schematic design and will be submitted by the project manager (PM) for schematic review. This approved document is to be included in shop drawing submission. (*USBC 903.3.1 NFPA 13 4.3, Chapters 5, and 22*)
- 3. Sprinkler Spacing and Obstructions:** The layout and arrangement of sprinklers, dependent upon the Hazard and Commodity Classification and the type of sprinkler used, must provide adequate coverage and meet the design provisions of NFPA 13. (*NFPA Chapter 8*)
- 4. Hydraulic Calculations:** When calculations are required, calculate the most hydraulically demanding portion(s) of the fire system (which shall include fire hose demand) back to the water supply source (flow test, fire pump, fire water tank, etc.) and provide a reference piping schematic, or reference drawings, indicating pipe arrangement and hydraulic nodes back to the source. (*NFPA 13 Chapter 22*)
- 5. Hanger Support:** Requirements for proper hanging of sprinkler piping shall meet the provisions of NFPA 13 and must be shown on the shop drawing submission. (*NFPA 13 Chapters 9 and 22*)
- 6. Seismic Protection:** When required by the seismic design category of the building - Seismic protection (sway bracing, branch line restraint, flexible couplings, etc.) locations, details and calculations shall be provided. (*USBC 1613.1, NFPA 13 Chapter 9*)
- 7. Hose Valve and FDC Threads:** Fire Hose Valve (FHV) and Fire Department Connection (FDC) threads shall comply with Fairfax County. (*USBC 901.4, USBC 903.3.6, and 912.3*)

8. **Inspectors Test and Drains:** Location of all system drains, inspector's test station(s) and associated discharge/draining piping shall be shown on the working drawing shop submission.
9. **Drawing Submittals:** Each design phase; Schematic, Preliminary, and Construction Document, require a specific detail of scope in their submittal for OUBO review. The HECOM manual details each design phase's required submittal for "fire protection". In addition, NFPA 13 also has specific "plans and calculations" that shall be meet as part of the "fire protection" submittals. *(NFPA 13 23.1.3, A.23.1)*
10. **System Acceptance:** All components of the designed sprinkler system shall be tested per NFPA 13 and witnessed by OUBO. Required documentation shall be provided, hydraulic name plates posted, and as-builts submitted. In buildings where an automatic sprinkler system is required by the VUSBC it shall be successfully tested and approved before occupancy. *(USBC 901.5 and NFPA 13 Chapter 25)*

**Based on the 2018 USBC*