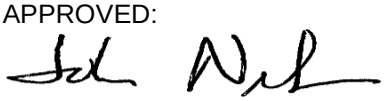
SEATTLE FIRE DEPARTMENT

Administrative Rule 9.03.14

SUBJECT: **AUTOMATIC SPRINKLER AND STANDPIPE SYSTEMS**	EFFECTIVE DATE: November 23, 2014
REFERENCES: SFC Chapter 9 NFPA 13 NFPA 13R NFPA 13D NFPA 14	SUPERSEDES: Administrative Rule 9.03.09, January 12, 2009
	FCAB REVIEW DATE: October 21, 2014
Notice: Administrative Rules are established per Seattle Fire Code Section 104.1, and they are subject to the Administrative Sections 104.9 Alternate Materials and Methods, Section 104.8 Modifications, and Section 108.1 Appeals.	APPROVED:  JOHN NELSEN, FIRE MARSHAL

Section 1. SCOPE

This Administrative Rule provides additional and/or modified requirements for automatic sprinkler and standpipe systems beyond those found in the referenced documents. All of the sprinkler requirements apply to NFPA13 and 13R systems. The only item applicable to NFPA13D systems is Item 1 of Section 2.

Section 2. SPRINKLER REQUIREMENTS

1. A 10 psi reserve 'cushion' between the available water supply pressure and the system design demand pressure is required. Note: The reserve 'cushion' is not required for the hose allowance that is added to the demand flow at the sprinkler system point of connection to the water supply.

2. Elevator shafts with elevators using combustible suspension means (belts) that do not provide at least an FT-1 rating, and machine rooms and elevator pits for elevators having combustible hydraulic fluids shall be protected in accordance with Seattle Fire Department Administrative Rule 9.06.14 (Department of Planning and Development (DPD) Director's Rule 7-2014). New and existing construction vested under previous codes may apply the new rule, subject to the approval of the DPD.

3. Building recesses that are inset 4 feet or more into a building must be sprinklered. Sprinkler protection shall be provided for exterior decks and ground floor patios where there is a roof or deck above having a combined projection and/or building inset of 4 feet or more. Exterior

egress balconies/exit corridors shall be sprinklered regardless of width or type of construction. Noncombustible canopies over roof decks are not required to be sprinklered unless there are charcoal burners or other open flame devices present.

4. Storage closets on decks attached to buildings shall be sprinklered.

5. All dry pipe systems, regardless of size, shall meet a 60 second water to inspector's test outlet trip test time.

6. All stairways serving sprinklered buildings require a sprinkler at each floor landing.

7. Supply mains for automatic sprinklers may be located under building slabs for a maximum length of 20 feet when using a single length of pipe.

   Exception: Combined domestic and fire supplies.

8. Non-rigid insulation without reinforced plastic backing installed over sprinklers shall be supported by wire mesh or equivalent within 2 feet of sprinkler heads.

9. Suspended ceilings that are not continuous between all walls of a room or space (cloud ceilings) are to be treated as obstructions to sprinkler discharge and require sprinklers above and below the obstruction.

   Exception: For cloud ceilings where the clouds and structural ceiling are of non-combustible construction, and where the clouds are level and co-planar, sprinklers can be omitted on the structural ceiling if the gap between a wall and any cloud or between two adjacent clouds is less than or equal to 1 inch of gap per foot of ceiling height.

10. Provide a contrasting label on the door to the sprinkler control room that reads "SPRINKLER CONTROL ROOM" in minimum 1 inch letters.

11. Existing sprinkler pipe in areas being remodeled and consisting primarily of sprinkler relocations may retain the existing methods of hanging, bracing, and restraint. New or relocated branch lines, cross and feed mains shall be provided with hangars and seismic bracing conforming to current standards.

12. New sprinkler heads being installed in existing light hazard occupancies are required to be quick response sprinkler heads.

    Exception: Remodel projects with existing standard response sprinkler heads that affect less than 30% of the sprinkler heads within a compartment are allowed to use standard response heads throughout the compartment. If any sprinklers within a compartment are changed to quick response then all of the sprinklers within the compartment are required to be changed to quick response.

13. Individual tenant storage units that do not have full height solid walls are allowed to be without a sprinkler head in the unit providing all of the following conditions are met:

    1. The floor area of the unit is within the coverage area of sprinkler heads located

outside the unit.
2. The solid portion of the storage unit walls do not violate the obstructions rules of NFPA 13.
3. Wire mesh of a minimum thickness of 11-gage shall be installed horizontally across the top of the unit at least 18 inches below the level of the sprinkler head to restrict the height of storage.
4. No storage is allowed on top or above the wire mesh. The mesh shall not be covered with plastic sheet or other obstructions to the sprinkler discharge pattern.

14. Sprinkler systems protecting residential units with the use designated as live/work shall be designed in accordance with NFPA 13.

    Exception: NFPA 13R or NFPA 13D may be used (as applicable) for Group R occupancies in buildings with four or fewer dwelling units that do not exceed two stories in height and that are less than 5,000 square feet in area. See Seattle Building Code (SBC) Section 419.5.

15. Hydrostatic testing is required for sprinkler system modifications where pipe greater than two inches has been altered.

16. Fire department connections for NFPA 13R systems in townhouse style or similar residential buildings may be omitted when each townhouse or dwelling unit has a separate sprinkler system with separate water supply service for each unit, and where any common areas requiring sprinkler protection can be protected by sprinklers from the individual dwelling units (such as by using sidewall sprinklers or dry pendants) without needing to provide a separate sprinkler system for common area coverage.

17. Fire pump room construction and separation from other areas of the building shall be in accordance with NFPA 20 and SBC Section 913.2.1. Fire pump rooms not directly accessible from the outside are not required to be accessible through an enclosed passageway from an enclosed stairway or exterior exit.

Section 3. STANDPIPE AND FIRE DEPARTMENT CONNECTION REQUIREMENTS

1. For buildings not classified as high-rise, Class I standpipes may be a manual dry standpipe system.

2. Standpipes shall be hydrostatically tested at a minimum of 200 psi for 2 hours at the topmost outlet, or 50 psi above the design pressures in the system whichever is greater.

3. The standpipe flow test is not required during system acceptance testing or thereafter. However, flow testing of any pressure reducing devices is required at acceptance and in accordance with maintenance testing requirements.

4. The 2½-inch outlet installed in cabinets shall be turned so that it faces out of the cabinet.

5. Fire department connection inlet ports shall be 2½-inch swivel female couplings with national standard thread.

6. A fire department connection with a minimum of four 2½-inch inlet ports shall be provided for 6 inch and larger standpipes. Standpipes with two 2½-inch ports are acceptable on standpipes with pipe sizes of 4-inch and smaller.

7. All fire department connections shall be located at least 10 feet away from building exits.

8. In accordance with SFC Section 507.5.1.1, buildings equipped with a standpipe system are required to have a fire hydrant within 100 feet of the fire department connections. The distance may exceed 100 feet where the building is sprinklered throughout and the fire department connections are not more than 400 feet from a hydrant.

9. Caps on 2½-inch outlet valves shall incorporate a 1/8-inch hole for pressure relief.

10. Signage with letters at least 1 inch in size shall be provided at the fire department connections of high-rise buildings that indicate the building fire pump static (churn) discharge pressure. Where the pump is more than two stories above or below the fire department connections, the pump static/churn discharge pressure on the signage shall be adjusted to correct for the elevation difference. For example, for a building having a pump drafting from a tank and providing a static pressure boost of 260 psi, the sign would read FDC INLET PRESSURE 260 PSI.

Section 4. INSPECTION REQUIREMENTS

1. Seattle Fire Department inspection of all overhead sprinkler piping, hangers, sway bracing, etc. prior to cover or concealment is required. Escutcheons or covers for concealed sprinklers must be left off for inspection purposes. Additional inspection after installing the covers is not required. Call 206-386-1443 between 8:00 and 9:00 AM to schedule fire department inspection after the work is complete but before cover.

2. The fire department must inspect all joints, thrust blocks, tie-rods, etc. for new underground pipe prior to cover, and witness the hydrostatic test and flush prior to connection of the sprinkler system to the supply piping. Minimum depth of bury for underground piping shall not be less than 3 feet. The use of existing pipe for new systems shall be subject to inspection or flow test to determine the extent of tuberculation within the pipe.

   Exception: Sprinkler systems supplied with a combined domestic/fire main metered by a domestic service meter. Flushing of combined domestic/fire mains shall be documented on the appropriate Contractor's Material and Test Certificate.

3. Completed Contractor's Material and Test Certificates for Aboveground Piping and Underground Piping, signed by an authorized representative of the installing contractor, must be provided to the fire department inspector prior to final acceptance of the sprinkler system.

4. For backflow preventers installed outside of buildings, contact the Seattle Public Utilities Water Quality Inspector at (206) 233-2635 at least 48 hours in advance to schedule backflow prevention assembly inspection prior to fire department final inspection/acceptance testing. For backflow preventers installed inside buildings, call (206) 233-2621.The installation of a backflow preventer requires a permit from and inspection by the Environmental Health Services Division of King County. Permit and inspection information

can be found at: http://kingcounty.gov/healthservices/health/ehs/plumbing/downloads.aspx. See also: http://www.seattle.gov/util/myservices/water/water_quality/crossconnectioncontrol/

Section 5. PLAN SUBMITTAL REQUIREMENTS

1. Submit three (3) sets of drawings, one (1) set of catalog cut sheets for all equipment to be installed, one (1) set hydraulic calculations, one (1) set of seismic sway bracing load calculations, and a copy of the flow test report from Seattle Public Utilities (SPU) to the Department of Planning and Development Applicant Services Center. Please do not submit drawings directly to the Seattle Fire Department.

2. Submittals shall include all information required by NFPA 13 Plans must include water supply information from a flow test conducted within ten (10) years in close proximity to the project site and in the same pressure zone and on the main to be tapped for sprinkler protection. For existing water supply information, or to schedule a flow test with SPU, go to: http://www.seattle.gov/util/forbusinesses/water/waterservice/installwatermains/hydrantflowtest/

3. Submittals are not required for relocation or addition of six (6) or fewer devices on an existing system. Call 206-386-1443 between 8:00 and 9:00 AM to schedule fire department inspection after the work is complete but before cover.