SEATTLE FIRE DEPARTMENT	**Administrative Rule 9.03.25**

SUBJECT: **AUTOMATIC SPRINKLER AND STANDPIPE SYSTEMS**	EFFECTIVE DATE: August 1, 2025
REFERENCES: SFC Chapter 9 NFPA 13 NFPA 13R NFPA 13D NFPA 14 NFPA 20	SUPERSEDES: Administrative Rule 9.03.20 March 1, 2020
	FCAB REVIEW DATE: July 8, 2025
Notice: Administrative Rules are established per Seattle Fire Code Section 104.1, and they are subject to the Administrative Sections 104.10 Alternate Materials and Methods, Section 104.9 Modifications, and Section 111 Means of Appeals.	APPROVED: Timothy J. Munnis, 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, unless stated otherwise in specific sections of this rule. The only items applicable to NFPA13D systems are Items 2.1,2.9, 2.17 and Section 6.

Section 2. SPRINKLER REQUIREMENTS

2.1. Sprinkler systems shall be designed with a minimum cushion of 10% of the system design pressure. For this purpose, the system's design pressure is the pressure required at the lead-in connection to the city main. 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.

2.2. Sprinkler protection shall be provided in elevator shafts per NFPA 13 and in accordance with Seattle Fire Department Administrative Rule 9.06.14 and any future revision of that rule adopted by the fire code official (Seattle Department of Construction and Inspections Director's Rule 7-2014 and any future revision of that rule adopted by the Director of SDCI).

2.3. Sprinkler protection shall be provided under areas of buildings where above-grade floors extend more than four feet beyond the exterior wall below, and in recessed entries or exits more than four feet deep.

Exceptions:

1. Sprinkler protection is not required under such areas described above where the construction meets one of the NFPA 13 provisions to omit sprinklers below exterior projections, and the area below is limited to pedestrian circulation, seating or landscaping.
2. Sprinkler protection is not required under such areas described above where the underside of the building extension is 20 feet or more above grade, or floor level.
3. Sprinkler protection is not required under such areas described above for NFPA 13R sprinkler systems.

2.4. Sprinkler protection shall be provided under exterior projections such as balconies, decks and ground floor patios where there is a roof or deck above having a combined projection and/or building recess of more than four feet in depth. Where the depth varies, sprinkler protection is only required for those areas with depths more than four feet.

Exceptions:

1. Sprinkler protection is not required for exterior balconies, decks or ground floor patios on floors with Group B occupancies where the construction complies with one of the NFPA 13 provisions to omit sprinklers below exterior projections.
2. Sprinkler protection is not required under projections for NFPA 13R systems in buildings that are not type V construction.
3. If located over storage of combustible materials, the depth at which sprinklers are required is reduced to two feet.

2.5. Sprinkler protection shall be provided under non-combustible canopies on roofs over open flame cooking devices. Sprinkler protection is required over the open flame cooking device and 15 feet beyond.

Exception: Sprinkler protection is not required under canopies for NFPA 13R sprinkler systems.

2.6. Sprinkler protection shall be provided at each main floor landing in exit enclosures and stairways.

2.7. NFPA 13 sprinkler systems shall include sprinkler protection under solar photovoltaic arrays located on roofs of buildings.

Exceptions:

1. Sprinkler protection is not required under solar photovoltaic arrays on roofs, when the arrays are located near the roof level and not considered weather protection for occupants or storage, regardless of the array construction.

2. Sprinkler protection is not required under solar photovoltaic arrays used as weather protection if the canopy is not located over storage of combustible

materials or over open flame cooking devices, and the construction of the array and supporting structure complies with one of the NFPA 13 provisions to omit sprinklers below exterior projections.

2.8. Protection of individual storage units constructed with solid walls, not associated with commercial self-storage facilities, located in common use areas of a building shall be in accordance with one of the following:

1. Sprinkler heads installed within each storage unit.

2. Sprinkler protection is not required within each unit when in compliance with all of the following:

   a. The unit does not have full height solid walls. The top of the unit walls shall be such that the walls do not violate the NFPA 13 obstruction rules for the sprinkler heads in the vicinity of the storage units.
   b. The floor area of the unit is within the coverage area of sprinkler heads located outside the unit.
   c. The solid portion of the storage unit walls do not violate the obstructions rules of NFPA 13.
   d. 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.
   e. 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.

3. Sprinkler protection is not required within each individual storage unit when the room or area is provided with an Extra Hazard Group 2 sprinkler system. The sprinkler design is permitted to be limited to the room only, regardless of the fire resistance rating of the room walls. If the storage units are not within a room, the sprinkler design shall extend 15 feet beyond the units. Sprinkler heads shall be spaced based on the location of the room walls, not the front on the storage units.

4. Stacked storage units with open fronts shall be protected as bin box storage of Class IV commodities in accordance with the criteria in NFPA 13.

2.9. 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 NFPA standards. See 2.12 for projects that are a substantial alteration.

2.10. For the purposes of determining required sprinkler head locations, a closet is useable floor area meeting each of the following conditions:

1. The area is surrounded on at least three sides with walls matching the construction of the typical interior partitions of the building (generally gypsum board on steel or wood studs).
2. The fourth side has a minimum six-foot-high door, or doors, providing access to the area.
3. The depth of the floor area is more than two feet.

2.11. Where modifications or additions are made to existing light hazard systems equipped with standard response sprinklers, or where standard response sprinklers are replaced in existing light hazard systems, new standard response sprinklers shall be permitted to be used.

2.12. Sprinkler systems in projects determined by the Seattle Department of Construction and Inspections to be a substantial alteration shall be upgraded to meet all applicable current code requirements.

Exception: If an alteration is substantial only because it is a change to a more hazardous occupancy, compliance with this section is only required if the life hazard risk increases as determined by Chapter 3 of the Seattle Existing Building Code.

2.13. Fire pump room construction and separation from other areas of the building shall be in accordance with NFPA 20 and Seattle Building Code 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.

2.14. Underground main inspections, testing and length permitted to be located under a building shall be in accordance with Table A, as follows:

TABLE A

		DEDICATED FIRE			COMBINED FIRE / DOMESTIC		
	SIZE	13	13R	13D	13	13R	13D
UNDERGROUND							
Permitted Length Under Building Slabs	LESS THAN 4”	10 FT	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited
	4” AND GREATER	10 FT	10 FT	Unlimited	Unlimited	Unlimited	Unlimited
Pipe Material	all	Meet NFPA 13	Meet Plumbing Code or NFPA 13	Meet Plumbing Code or NFPA 13	Meet NFPA 13	Meet Plumbing Code	Meet Plumbing Code
INSPECTIONS		DEDICATED FIRE			COMBINED FIRE / DOMESTIC		
Cover	LESS THAN 4”	Req.	Req.	NA	Req.	NOT Req.	NA
	4” AND GREATER	Req.	Req.	NA	Req.	NOT Req.	NA
Hydrostatic	LESS THAN 4”	Req.	NOT Req.	NA	Req.	NOT Req.	NA
	4” AND GREATER	Req.	Req.	NA	Req.	NOT Req.	NA
Flush	LESS THAN 4”	Req.	Req.	NA	Req.	Req.	NA
	4” AND GREATER	Req.	Req.	NA	Req.	Req.	NA

2.15. Hose stations are not required to be installed in high pile storage occupancies.

2.16. Sprinkler systems in vacant, un-occupied areas of buildings shall meet light hazard requirements at a minimum, with the sprinkler heads installed in the proper orientation at the correct distances below the ceiling in accordance with NFPA 13.

2.17. CPVC Sprinkler risers are not required to be located within 1 ½ inches of an adjacent wall. There are no restrictions on the separation between a CPVC riser and an adjacent wall.

2.18 Sprinkler protection under overhead doors is not required for overhead doors at passenger car parking garage entrances.

Section 3. STANDPIPE AND FIRE DEPARTMENT CONNECTION REQUIREMENTS

3.1. Class I standpipes may be manual dry standpipe systems in non-high-rise buildings.

Exception: Where wet standpipes are required in underground transportation tunnels.

3.2. Waterflow alarms are not required to be installed on Class 1 standpipes.

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

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

3.5. Fire department connections in low rise buildings are permitted to be equipped with two 2½-inch inlet ports.

3.6. FDC's on all buildings are required to be separated from doors so that the 36 inches of working space on all sides of the FDC is provided when the door is wide open. On high rise buildings all fire department connections shall be located at least ten feet away from primary building exits.

3.7. In accordance with Seattle Fire Code 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 be increased to 400 feet where the building is sprinklered throughout and the fire department connections are not more than 400 feet from a hydrant.

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

3.9. Fire department connections for NFPA 13 or 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.

3.10. Dry standpipes requiring supervisory air shall have the air pressure maintained between 10 and 20 psi, and shall be monitored by the building fire alarm system.

3.11. Fire department connections are permitted to be located over raised planters with no additional requirements when the horizontal distance from the FDC to the outer edge of the planter is no more than 24 inches. If the horizontal distance exceeds 24 inches the following requirements apply:

1. The height of the FDC is measured from the soil surface of the planter, or the upper edge of the planter if within 18 inches horizontally from the FDC. The FDC height is required to be between 18 and 48 inches above adjacent grade, or planter edge if applicable.

2. Planters with the entire upper edge higher than 16 inches above the lower adjacent grade shall be provided with a step (or steps) at least 24 inches wide providing access into the planter. No step is required if there is one contiguous 24-inch-wide section of the planter edge that is no more than 16 inches above the lower adjacent grade located no more than 15 feet from the FDC.

3. There are no requirements for a path or concrete surfaces through the planter.

4. Plants are prohibited from obstructing the visibility of the FDC. This does not preclude locating plants in front of the FDC, but they must be maintained so that the FDC remains visible and a 36-inch clear working space is provided.

Section 4. HIGH RISE REQUIREMENTS

4.1. Dual/redundant automatic refill lines, each capable of refilling the tank at a minimum rate of 110 percent of the fire pump(s) capacity, shall be provided for the on-site water storage tank. Each refill line shall have separate tank fill valves arranged for automatic operation. Each automatic tank fill valve shall be provided with a separate approved means of actuation such as float assemblies, pressure sensors, etc. that are supervised by the fire alarm system. The status of the valves (i.e., 'open', 'closed') shall be indicated at the valves and in the Fire Command Center (FCC). The tank shall be kept filled, and the water level shall never be more than four inches below the designated fire service level.

> **Exception:** Automatic fill systems are not required when two fire pumps are installed, one primary and one secondary. The primary fire pump shall be supplied by a dedicated fire service main and the secondary fire pump supplied from the storage tank. The pumps shall operate at the same rated flow capacity and at similar discharge pressures. A manual means to fill the tank shall be provided and sized to fill the tank in a maximum time of eight hours. The tank shall be kept filled, and the water level shall never be more than four inches below the designated fire service level.

4.2. Two tank level indicators shall be provided, one located in the FCC and another in the immediate vicinity of the tank fill valves. The tank level indicator monitoring shall be provided through the fire alarm system in accordance with NFPA 72. Two separate and distinct signals shall be initiated: one indicating that the required water level has been lowered or raised (off-normal), and the other indicating restoration. The off-normal signal shall be initiated when the water level falls three inches or rises three inches.

4.3. Separate and distinct tank low level audible and visible alarms shall be provided in the FCC and in the vicinity of the tank fill valves. The alarms shall be activated when the tank water level drops below 50% capacity. The tank low level monitoring shall be provided through the fire alarm system in accordance with NFPA 72. The signaling devices shall be clearly labeled "Water Tank Low Level Alarm" or equivalent. An independent silence switch shall be provided for the tank low level alarms in the immediate vicinity of the alarm devices.

4.4. A full-size by-pass shall be installed around the storage tank and the fire pump in accordance with NFPA 20. The by-pass shall be installed on the supply side of the tank fill valves and connected to the system on the downstream side of the fire pump and any sprinkler system pressure regulating valves installed on feed mains.

Section 5. INSPECTION REQUIREMENTS

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

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

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

5.4. 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. To schedule an inspection - use our online form for regular or overtime inspections.

5.5 See Section 2.14 for inspection requirements for underground mains. When required by Section 2.14, 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 dedicated fire service underground piping shall not be less than three 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.

5.6 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.

5.7. For backflow preventers installed outside of buildings, contact the Seattle Public Utilities Water Quality Inspector at (206) 684-3536 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) 684-3536.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: Prevention Assemblies Permit Application

Section 6. PERMIT AND PLAN SUBMITTAL REQUIREMENTS

6.1. Permits and submittals are not required for projects consisting solely of replacing sprinklers with sprinklers having the same characteristics (response characteristics, temperature, orientation, k-factor).

6.1.1 For sprinkler replacement involving sprinklers installed prior to the 1999 edition of NFPA 13, or prior to the establishment of nominal K-factors, the replacement sprinkler shall be located within the nominal K-factor range per NFPA 13.

6.2. No plan submittal is required for projects consisting solely of relocating or adding 24 or fewer sprinklers on an existing system, or replacement of an existing fire pump with a new fire pump with the same capabilities and functionality. Projects of this type require an over-the-counter Fire Suppression permit and an SFD inspection.

6.3. Plan submittals shall include all information required by the appropriate NFPA standard.

6.4. For NFPA 13, 13R, and 13D systems using hydraulic design, plan submittals shall include water supply information less than 5 years old from a Fire Flow Availability Report from Seattle Public Utilities in close proximity to the project site. This report includes modelled data and will also include actual test data, except where SPU determines an actual test is not feasible or appropriate. Designers shall compare these values to obtain best information about system capacity. SFD will evaluate the sprinkler design and calculations using the more conservative of the values (test vs actual).

For water supply information, go to: https://www.seattle.gov/utilities/construction-resources/water/fire-hydrants/hydrant-flow-request

6.5. For NFPA 13D systems using the simplified calculation method, plan submittals shall include a WAC (Water Availability Certificate). WACs are available using the Public Utilities-Development Services option on the Seattle Services portal located at https://services.seattle.gov/Portal/Customization/SEATTLE/welcome.aspx

6.6. Hydraulic calculations are not required with submittals regarding modifications of existing systems with rigid sprinkler drops meeting all of the following conditions:

1. The sprinkler system modification is in a light hazard occupancy
2. Sprinkler heads are not changing with respect to orifice and response type
3. The spacing of sprinkler heads is not exceeding the existing sprinkler head spacing
4. Flexible sprinkler drops are not being used
5. The maximum number of sprinklers supplied from the existing branch lines shall be as follows: 1-inch pipe – 2 sprinklers

   1-1/4-inch pipe – 3 sprinklers
   1-1/2-inch pipe – 5 sprinklers
   2-inch pipe – 10 sprinklers

6.7. Hydraulic calculations are not required with submittals regarding modifications of existing systems with flexible sprinkler drops meeting all of the following conditions:

1. The sprinkler system is in a light hazard occupancy
2. Sprinkler heads are not changing with respect to orifice and response type
3. The spacing of sprinkler heads is not exceeding the existing sprinkler head spacing
4. The length of a new flexible drop is no longer than the existing flexible sprinkler drops
5. The sprinkler heads are not extended coverage sprinklers
6. The maximum number of sprinklers supplied from the existing branch lines shall be as follows: 1-inch pipe – 2 sprinklers

   1-1/4- inch pipe – 3 sprinklers
   1-1/2- inch pipe – 5 sprinklers
   2-inch pipe – 10 sprinklers