



Fire Sprinkler System Standard for Low-Rise Residential Occupancies

(NFPA 13R-2019)

Effective Date: January 1, 2020

2019 CBC 903.3.1.2 NFPA 13R sprinkler systems. Automatic sprinkler systems in Group R occupancies up to and including four stories in height in buildings not exceeding 60 feet in height above grade plane shall be permitted to be installed throughout in accordance with NFPA 13R. **NFPA 13R – 2019** edition (13R), referenced in the 2019 California Fire Code (CFC), is modified by the State in Chapter 80 (*80) and by San Jose Ordinance 30327 (*SJ). Presented herein is a summary of the modifications and SJFD interpretations:

1.0 PERMITS

1.1 This handout supplements the San Jose Fire Department's (SJFD) handout "FIRE SPRINKLER SYSTEMS DESIGN, INSTALLATION, AND PLAN SUBMITTAL REQUIREMENTS" (<AS> systems). See <AS> systems for submittal and inspection requirements.

2.0 DESIGN

2.1 **CFC 903.3.1.2.1** Modify as follows (*SJ) **Balconies and decks.** *Sprinkler protection shall be provided for exterior balconies, decks and ground floor patios of dwelling units and sleeping units. Sidewall sprinklers that are used to protect such areas shall be permitted to be located such that their deflectors are within 1 inch (25 mm) to 6 inches (152 mm) below the structural members and a maximum distance of 14 inches (356 mm) below the deck of the exterior balconies and decks that are constructed of open wood joist construction.*

2.2 **CFC 903.3.1.2.2** *Open-ended corridors. Sprinkler protection shall be provided in open-ended corridors and associated exterior stairways and ramps as specified in CFC Section 1027.6, Exception 3.*

2.3 **NFPA 13R Section 2.2** Add the following (*80):

NFPA Publications. *NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, 2013 California edition.*

2.4 **NFPA 13R Section 6.6.6.3** Deleted (*SJ)

2.5 **NFPA 13R Section 6.6.7** Deleted (*SJ)

2.6 **NFPA 13R Section 6.7** (*SJ)

Note: *CPVC Fire Sprinkler Products, like all piping materials, will expand and contract with changes in temperature. The installation of expansion loops, offsets, or bends is required on long straight runs to compensate for this movement. This will allow the piping system to absorb forces generated by expansion/contraction without damage. This movement must be designed into the system per the manufactures stipulations.*

- 2.7 **NFPA 13R Section 6.8.8** Modify as follows (*SJ): Sprinkler systems are required to be zoned by floor per local code. Follow policy for NFPA 13 system.
- 2.8 **NFPA 13R Section 6.8.10** Deleted (*SJ)
- 2.9 **NFPA 13R Section 6.11.2** Modify as follows (*SJ): Fire department connections shall be 2½ in. inlets.
- 2.10 **NFPA 13R Section 6.16.4** Modified as follows (*SJ): Sprinkler systems are required to be zoned by floor per local code. Follow policy for NFPA 13 system.
- 2.11 **NFPA 13R Section 7.4** Add the following (*SJ):

Pilot sprinklers.

Where sprinklers are not required by CFC 903.3.1.2.3 (1 and 3) pilot sprinklers shall be provided in the attics and between floors where floor/ceiling assemblies consist of open web wood joists or trusses. Pilot sprinklers shall be intermediate temperature rated, K=4.2, quick response. Pilot sprinklers shall be located within twelve inches of the structure and/or at the apex of each ridgeline when applicable. A sprinkler is required where the ridgeline and hips converge. Sprinklers shall be spaced at maximum thirty feet centers (maximum fifteen feet from outside walls) and shall be located at all heat and fire sources including furnaces, hot water heaters, above kitchen ranges, etc.

Note: Similar to the requirements of NFPA 13 when sprinklers are required in attics/concealed spaces, pilot sprinklers shall be provided in these spaces where the depth of the space exceeds 6 inches, measured after insulation. Otherwise, the attic shall be fully insulated. If the attic will be fully insulated, the installing contractor shall obtain approval from the San Jose Fire Department prior to covering pipe (sheet rocking). Where attic spaces used for storage the sprinkler design shall be as directed in CFC section 903.3.1.2.3.

- 2.12 **NFPA 13R Section 10.2.2.1.** Replaced with (*SJ): Per local code, the system shall be hydrostatically tested for leakage at 200 psi for a duration of 2 hours.
- 2.13 **NFPA 13R Section 10.2.2.2** Deleted (*SJ)
- 2.14 **NFPA 25 Section 11.4** Revise as follows (*80):

11.4 Instructions.

The installing contractor shall provide the property owner or the property owner's authorized representative with the following:

(1) All literature and instructions provided by the manufacturer describing proper operation and maintenance of any equipment and devices installed.

Modified - (2) NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems 2013 California Edition and California Code of Regulations, Title 19, Chapter 5.

Add - (3) Once the system is accepted by the authority having jurisdiction a label as prescribed by California Code of Regulations, Title 19, Chapter 5, shall be affixed to each system riser.

3.0 HYDRAULIC CALCULATIONS (*SJ)

- 3.1 The pressure cushion for hydraulic calculations shall be at least 10% of the water supply data provided by the water company.

- 3.2 All hydraulic calculations shall include a copy of the letter from the water company that states the water-flow data verified within six months of the submittal date. Water-flow data may be obtained from the San Jose Water Company, San Jose Municipal Water, or Great Oaks Water Company. The backflow prevention requirements for each water company are unique. **Backflow Preventer Retroactive Installation** – When backflow prevention devices are to be retroactively installed on existing fire sprinkler systems, a thorough hydraulic analysis, including revised hydraulic calculations, new fire flow data, and all necessary system modifications to accommodate the additional friction loss, shall be completed as a part of the installation. New or changes to existing backflow preventers shall not be installed without Fire Department approval.

4.0 REVISIONS

- 4.1 This document is subject to revisions. For general information and to verify that you have the most current document, see SJFD development website or call (408) 535-7750, and request the current version date.