



**Fire Sprinkler System Standard for
One- and Two- Family Dwellings**
(NFPA 13D-2022)
Effective Date: January 1, 2023

2022 California Fire Code (CFC) 903.3.1.3 NFPA 13D sprinkler systems. Automatic sprinkler systems installed in one- and two- family dwellings, Group R-3, and townhouses shall be permitted to be installed throughout in accordance with NFPA 13D as amended in 2022 CFC Chapter 80 per SJMC Section 17.12.1005.

1.0 PERMITS

1.1 This policy supplements the San Jose Fire Department’s (SJFD) policy “**FIRE SPRINKLER SYSTEMS DESIGN, INSTALLATION, AND PLAN SUBMITTAL REQUIREMENTS**” (<AS> SYSTEMS). See <AS> SYSTEMS for submittal and inspection requirements.

2.0 DESIGN

2.1 Controls, Valves, and Waterflow Alarms amended as follows:

2.1.1 13D Section 6.2.3 See image below for SJFD interpretation. SJFD doesn’t allow installation per 13D section 7.1

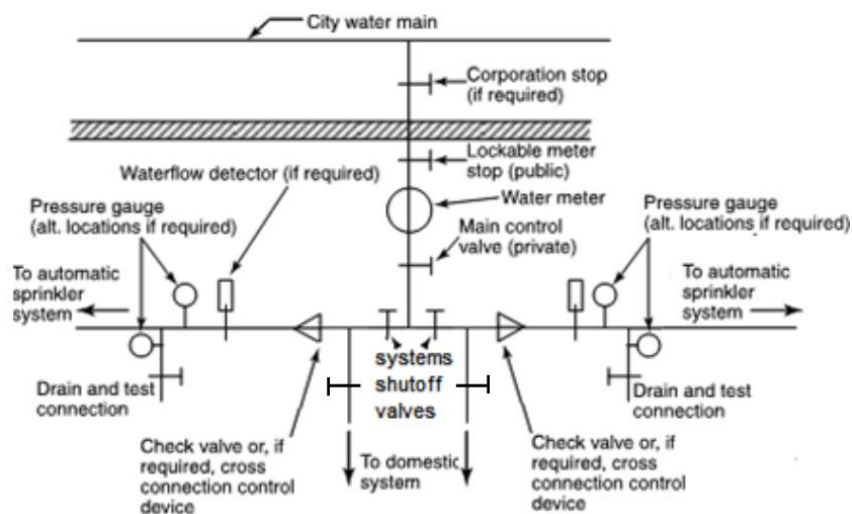


FIGURE A.6.2.3 (SJFD)
Where more than one dwelling unit is served by the same water supply pipe.

2.2 Attic Protection

2.2.1 13D Installation of Sprinkler System shall be per 2022 CFC Chapter 80 per SJMC Section 17.12.1005: 8.3.12 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 fuel-fired equipment including furnaces, hot water heaters, 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 below in the amendment to section 903.2.18.

2.3 Exterior Projections, Utility/Equipment Rooms, and Garages

2.3.1 13D 2022 CFC Chapter 80 per SJMC Section 17.12.1005: 8.3.4 **Deleted.** Hence, sprinklers shall be required to be installed under exterior roofs, canopies, balconies, decks, or similar projections exceeding 4 feet in width and in garages, open attached porches, carports, and similar structures. Sprinklers shall be designed commensurate with the design area for the residence.

Note: Sprinklers and components in exterior locations or locations open to the exterior shall be listed as corrosion resistant.

2.3.2 The following 13D Sections are **deleted** per SJFD Ordinances: Section 8.3.5, Section 8.3.5.1, Section 8.3.5.1.1, Section 8.3.5.1.2, Section 8.3.6, Section 8.3.8.

2.3.3 13D 2022 CFC Chapter 80 per SJMC Section 17.12.1005: 8.3.11 **Added** Where sprinklers may be subject to excess temperature such as closets containing heat producing equipment, unconditioned garages, Exterior unconditioned space, etc., intermediate temperature sprinklers shall be required.

2.3.4 2022 CFC Section 903.2.18 is **amended** per SJMC Section 17.12.640 as follows:

Group U private garages and carports accessory to R-3 occupancies. Carports with habitable space above and attached garages, accessory to Group R-3 occupancies, shall be protected by residential fire sprinklers in accordance with this section. Residential fire sprinklers shall be connected to and installed in accordance with an automatic residential fire sprinkler system that complies with NFPA 13D as amended by San José. Fire sprinklers shall be residential sprinklers or quick-response sprinklers, design to provide a minimum density of 0.05 gpm/ft² (2.04 mm/min) over the area to the garage and/or carport, but not to exceed two sprinklers for hydraulic calculation purposes. Garage doors shall not be considered obstructions with respect to sprinkler placement. Exception: Deleted

2.4 Sprinklers

2.4.1 13D Section 7.5 **Add** the following:

2.5 7.5.10 Spare sprinklers shall be provided as required by NFPA 13 – 2022, Section 16.2.7 Deleted Section 7.8 Multipurpose & Passive Purge Systems.Piping

2.5.1 13D Section 10.4.9 **Deleted per SJMC Section 17.12.1005**

2.6 Solar Photovoltaic Panel Structures

2.6.1 CFC added 13D Section 8.3.11 and 8.3.11.1

2.7 Water Supplies

2.7.1 San Jose is provided service by 3 different water purveyors. All 3 require the sprinkler system to be supplied through a water meter. The minimum size meter allowed for a new service is 1 inch. The water company may require the meter be larger. An allowance to use an existing meter smaller than 1 inch may be approved if hydraulic calculations and field verification prove the meter can deliver sufficient supply.

2.7.2 CFC added 13D Section 6.2.2.1:

2.7.3 SJFD policy 13D Section 6.5.2 AMMENDED as follows:

13D Section 6.5.2 - Where a water supply serves both domestic and fire sprinkler systems, 5 gpm (19 L/min) shall be added to the sprinkler system demand at the point where the systems are connected, to determine the size of common piping and the size of the total water supply requirements where no provision is made to prevent flow into the domestic water system upon operation of a sprinkler.

3.0 Hydraulic Calculations

3.1 All hydraulic calculations shall include a copy of the Water Supply Letter from the Water Company that states the water-flow data was verified within six months of the submittal date or within the verification date provided by the water company on the letter. Water-flow data may be obtained from the San Jose Water Company, San Jose Municipal Water Company or Great Oaks Water Company.

3.2 Hydraulic calculations shall require a pressure safety that is a minimum 10% of the water supply data.

3.3 The backflow prevention requirements for each water company are unique. San Jose Water Company and Great Oaks Water Company require an additional check valve after their meter. San Jose Municipal Water Company requires a “Lead Free Dual Check Valve Backflow Device (or equivalent)”. We will need verification that the correct devices have been represented in the calculations.

3.4 Provide documentation for all pipe length equivalents used to develop your calculations. As an Example, Tyco CPVC fittings are “special” in that they get reduced equivalent lengths (for 90° elbow) compared to other manufacturers, you need to provide note on plans and in the calculations that only Tyco CPVC fittings will be used. We will check these in the field, so, the fittings must be readily identified as Tyco CPVC fittings. If not, then you will need to revise your calculations to reflect the “normal” equivalent lengths.

3.5 The 2-sprinkler calculation design is contingent on the installation conforming to the situations presented in 2022 NFPA 13D section 10.2. For the situation of flat, smooth, horizontal ceilings

with beams at the ceiling, there are a number of variables that could cause many sprinklers to open during a fire. Residential sprinklers must be used in accordance with all of the restrictions of their listing to protect against this circumstance.

3.5.1 As indicated in Section 10.2.4 - for situations not meeting one of the conditions in 10.2.1 and 10.2.3, the number of sprinklers in the design area shall be determined in consultation with SJFD as appropriate for the conditions. For the ceiling constructions and room configurations that are beyond the scope of the two-sprinkler discharge criterion referenced in 10.2.1 and 10.2.3, a greater number of design sprinklers and/or higher discharge flows should be considered in the system design. Currently, there is limited fire test data available to include specific design criteria in this standard. Commonly a 4-sprinkler calculation design has been approved by SJFD as being capable of controlling the fire for 10 minutes and meeting the goals of NFPA 13D where the largest compartment has no more than 4 sprinklers.

4.0 **INSPECTIONS**

4.1 13D 2022 CFC Chapter 80 per SJMC Section 17.12.1005: AMMENDED Section 11.2.1.1 with: All piping and attached appurtenances subjected to system working pressure shall be hydrostatically tested at 200 psi and shall maintain that pressure without loss for 2 hours.

4.2 13D 2022 CFC Chapter 80 per SJMC Section 17.12.1005: Section 11.2.1.2 **Deleted.**

5.0 **DOCUMENT REVISIONS**

5.1 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.