



SANTA CLARA COUNTY FIRE DEPARTMENT

1315 Dell Avenue, Campbell, CA 95008 | (408) 378-4010 | SCCFD.org

STANDARD DETAILS & SPECIFICATIONS

SUBJECT: Commercial Sprinkler Systems

Spec No SP-1
Rev. Date 00/00/00
Eff. Date 1/1/22
Approved By [Signature]
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SCOPE

This standard applies to the installation of a commercial sprinkler system, whether required by the California Building Code, local ordinance, or as an approved Alternate Method of Compliance thereto.

DEFINITIONS

SCCFD: Shall refer to the Santa Clara County Fire Department.

Alternate Method of Compliance: An approved method of compliance that, in the opinion of the Fire Department, meets the intent of the provisions of the California Fire Code. Revise to reference CFC 104.9 language.

NFPA 13: Shall refer to the National Fire Protection Association Standard 13 – Standard for the Installation of Sprinkler Systems. as amended by the CFC

NFPA 20: Shall refer to the National Fire Protection Association Standard 20 – Standard for the Installation of Stationary Pumps for Fire Protection as amended by the CFC

REQUIREMENTS

I. GENERAL

- A. 2019 California Fire Code (CFC), NFPA 13 2016 Edition, and NFPA 20 2016 Edition shall be followed perhaps add a code/authority section to reference code editions (NFPA, CFC, etc.)
- B. For tenant improvement work in existing, sprinklered buildings where proposed work changes the configuration of the building and requires no sprinkler modification the building permit submittal shall include verification from a California licensed Fire Protection Engineer, or C-16 contractor that the building modifications do not require sprinkler system modifications.

II. PERMITS

- A. **Installation of fire** sprinkler systems and any modification thereto require a plan submittal. Plans shall be submitted as a deferred submittal to:
 - i. Incorporated 16795 Lark Ave. #200, Los Gatos, California 95032.



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- ii. Unincorporated: submitted on the online Public Portal that can be accessed through: <https://aca-prod.accela.com/SCCGOV/Default.aspx>
- B. All submittals shall include the following:
1. A copy of the SCCFD architectural plan check comments – this may be obtained from the architect or general contractor.
 2. A copy of any approved alternate method that is relevant to the system – check with the architect or general contractor if an alternate method was submitted and approved. Three sets of shop quality plans and one submittal packet – one set of plans will be retained by SCCFD.
 3. A copy of the building permit unless it is a voluntary system
- C. Fees will be collected based on the appropriate jurisdiction.
- D. The applicant shall be the installing contractor. All installing contractors shall have a California Sprinkler (C-16) Contractor's License and be familiar with the design and installation of these systems. The installing contractor shall also have a valid worker's compensation certificate, and a business license for the city in which the work is being performed. When a party other than the contractor designs the plans, a professional engineer shall stamp the plans.
- E. Installation, alteration, or demolition shall not commence prior to the approval of plans and the issuance of a permit.
- F. Submittal of underground plans and overhead sprinkler plan are required to be separate.
- G. The permit card and a SCCFD approved set of plans shall be kept at the project site. They shall remain in the possession of the owner upon project completion.
1. Designer's full name (no initials, pseudonyms, or aliases) and signature. The designer of record shall be responsible for the entire system.
 2. Business name, address, and California Contractor's License number of the installing contractor. If the designer of the system is not the installing contractor, the following shall be clearly indicated/printed on the plans:
 - **DESIGNED BY** - followed by the designer's business name, address, designer of record's full name and signature.



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- **INSTALLING CONTRACTOR** - followed by the installing contractor's business name, address and California Contractor's License number.
- 3. Type of system provided.
- 4. Occupancy group(s) of building or area as defined by the California Building Code. Number of stories, building height, and construction type.
- 5. Note stating that the design and installation complies with current versions of NFPA 13, the California Fire Code, the California Building Code, and the city ordinances where the system is being installed.

III. PLANS

- A. The plans should follow the requirements noted in NFPA 13, 23.1.3
- B. Where a waterflow test is used for the purposes of sprinkler system design, it is SCCFD's policy to accept the test conducted no more than 12 months prior to the date of the initial submittal of the sprinkler system. Ref NFPA 13 23.2.1.1 and CFC Ch. 80
- C. In sprinkler tenant improvement plans, show main piping all the way back to riser
- D. For sprinkler tenant improvement work, provide hydraulic design information on the plans per NFPA 13, 23.1.3 (31) in order to ensure that the existing design is maintained
- E. Layout of structural members should be shown in order to determine whether the area is considered obstructed construction or unobstructed construction. Ref NFPA 13, A3.7.1, A3.7.2

IV. DESIGN AND INSTALLATION

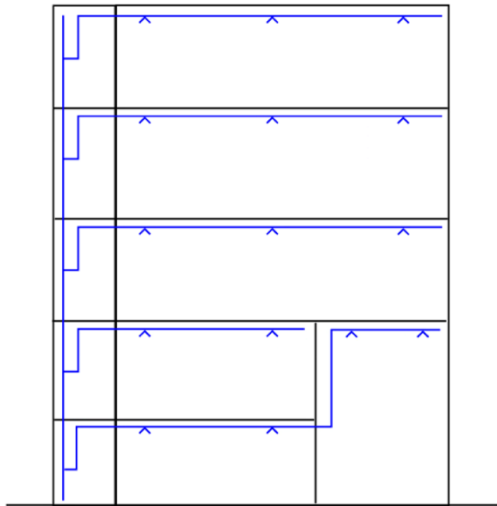
- A. Shell Sprinkler Design Criteria
 - 1. For new buildings having no designated use or tenant (commonly known as "shell space"), the minimum sprinkler design density shall be no less than Ordinary Group 2. Where future use is determined to require a higher density, the sprinkler system shall be modified to meet the higher demand.
- B. Exterior Audible Device
 - 1. CFC 903.4.2 requires one exterior audible device located on the exterior of the building in an approved location. This device is required to be located on the address side of the building.
- C. Floor control valves in high bay spaces Ref: NFPA 13, 8.2.4, CFC 903.3.9



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1. When floor control valves are required, sprinklers serving the floor shall be fed from the control valve serving the level of the floor (not the ceiling).
2. One common situation where this occurs is when there are high bay spaces whose ceilings align with a higher floor's ceiling. Sprinklers protecting the space should be connected to the lower floor control valve, not piped from the ceiling level system. The intent is for the waterflow switch to indicate the appropriate level for first responders.



SECTION VIEW

- D. Floor control valves Ref NFPA 13, 8.2.4, CFC 903.3.9
1. Where floor control valves are required by NFPA 13, 8.2.4, but not required by CFC 903.3.9, floor control valves are not required to be installed at each floor level (e.g., control valves may be located in a riser room).
 2. Where floor control valves are required by CFC 903.3.9, floor control valves are required to be located at each floor level (i.e., riser room with all control valves are not allowed). Floor control valve may not be omitted from the top story per NFPA 13, 8.2.4.2 where floor control valves are required by CFC 903.3.9
 3. Where floor control valves are voluntary, floor control valves are not required to be located at each floor level (e.g., control valves may be located in a riser room).
 4. R-2 buildings without interior corridors are not required to have control valves where approved.

E. Mechanical Tees



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1. Mechanical tees are not permitted in the design of new sprinkler systems; if used during modifications, cutouts shall per attached at each mechanical tee connection Ref. NFPA 13, Fig 25.1
- F. Alternative Automatic Fire-Extinguishing Systems
1. Substitution of an alternative automatic fire-extinguishing system for sprinkler coverage is not permitted unless approved through an alternate means application. The installation of an alternative automatic fire-extinguishing systems is permitted to be installed in addition to sprinkler coverage. Ref. CFC 904.2.
- G. Installation of Flexible Hose Connections
1. Hydraulic calculations are required for the installation of flexible hose connections on existing systems
- H. Trash Enclosures
1. Where dumpsters and containers exceed 1.5 Cubic yard or 1 cubic yard per CFC 304.3.3 and 304.3.4 within trash enclosures within unsprinklered buildings, limited area sprinklers are permitted to be installed per NFPA 13 and CFC 903.3.8
- I. Private residential non-dwelling accessory structures
1. Where required to be sprinklered, private residential non-dwelling accessory structures shall be sprinklered per NFPA 13 and monitored per CFC 903.4; this includes barns, storage, other similar facilities as required by SCCFD.
- J. Seismic bracing upgrades
1. Existing and new hangers, bracing, restraints within the scope of work for the sprinkler are not required to be upgraded provided existing bracing installed to the requires of the code at time of installation is provided. Newly installed piping and existing unbraced piping shall be braced to current code requirements. At SCCFD's discretion, bracing and branchline restraints in large tenant improvement are required to be upgraded
- K. Car Stackers
1. For car stackers greater than 2 cars stacked vertically, it is SCCFD's policy to accept the overhead sprinkler systems following NFPA 13 A5.4.2 requirements with additional standard coverage, standard response sidewall sprinklers listed for Ordinary Hazard for each level below the top level. The sidewall sprinklers are not required to be included in the overhead hydraulic calculations.
 2. Solid platforms greater than 4ft wide and open grate flooring greater than 4ft wide are considered obstructions per NFPA 13, 8.5.5.3.1; it is



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acceptable to provide standard coverage, standard response sidewall sprinklers listed for Ordinary Hazard.

L. Fire pump power source

1. NFPA 20 9.3.2 requires an alternate source of power when the normal source is not reliable. It is SCCFD's policy to accept PG&E as a reliable source of power if all of the following are met:
 - a. The source power plant has not experienced any shutdowns longer than 10 continuous hours in the last 3 years prior to plan submittal
 - b. Power outages have not routinely been experienced in the area of the protected facility caused by failures in generation or transmission
 - c. The normal source of power is not supplied by overhead conductors outside the protected facility
 - d. Only the disconnect switches and overcurrent protection devices permitted by NFPA 20 9.2.3 are installed in the normal source of power

M. Flow switch pressure loss

1. Unless otherwise documented, flow switches are to be assumed to be tested to UL 346 with a maximum pressure loss of 3psi for flow switches up to 4" and 1psi for flow switches 5" or larger

V. INSPECTIONS

- A. When 20 sprinklers are being modified and the portion of the piping can be isolated (i.e. the sprinkler system does not extend into an adjacent tenant space); a 200psi hydrostatic test is required. Ref NFPA 13 25.2.1.4.2
- B. Weld inspections are not required
- C. Hydrostatic testing at system working pressure
 1. Systems that are required to be tested at system working pressure shall be tested by closing the system control valve 2 hours prior to the inspection, documenting the pressure at that time, and providing that documentation at the time of the inspection. Ref NFPA 13 25.2.1

VI. DOCUMENT REVISIONS

This document is subject to revision. Please visit the Santa Clara Co