



# Santa Clara Fire Department

## New and Existing Automatic Fire Sprinkler Systems



### PURPOSE

The intent of this guideline is to facilitate the design, installation, and consistent review of automatic fire sprinkler systems that comply with all applicable codes and standards.

### SCOPE

The Santa Clara Fire Department (SCFD) has established the following requirements for the submittal of all automatic fire sprinkler systems being installed within its jurisdiction. These guidelines apply to all new installations and alterations to existing fire sprinkler systems. Plans not conforming to these minimum requirements will be returned as incomplete. All fire sprinkler system installations shall comply with the current codes, standards, and ordinances as adopted by the State of California, and within SCFD's jurisdiction.

#### CODES & STANDARDS FOR SYSTEM REQUIREMENTS:

- CCR, Title 24, Part 2: 2013 California Building Code (CBC)
- CCR, Title 24, Part 9: 2013 California Fire Code (CFC)
- National Fire Protection Association (NFPA) 13, 2013 edition, as amended in the 2013 CFC
- National Fire Protection Association (NFPA) 13D, 2013 edition
- National Fire Protection Association (NFPA) 13R, 2013 edition

### SUBMITTAL REQUIREMENTS

#### 1. GENERAL REQUIREMENTS:

- A. All individuals and companies who intend to engage in the installation or alteration of sprinkler systems are subject to the requirements of this standard.
- B. The sprinkler system shall be installed by a licensed contractor who holds a state of California C-16 (sprinklers) license.
- C. Plans shall be designed by a C-16 licensed contractor or by a Registered Professional Engineer (Civil, Mechanical, or Fire Protection), licensed by the State of California (Board of Professional Engineers). All copies of the plans shall be stamped and signed by the licensed individuals.
- D. Contractor requirements specify that a C-16 contractor may only design the system as long as they perform the entire installation without subcontracting out any part of the work. If any of the work is subcontracted out, a "Fire Protection Engineer" is required to review the plans designed by the C-16 contractor and take responsible charge of them by stamping and signing the drawings.
- E. Submit a completed SCFD Permit Application, which can be obtained at the Fire Marshal's Office which is located at 1675 Lincoln Street, Santa Clara or on the City of Santa Clara website at [www.santaclaraca.gov](http://www.santaclaraca.gov).
- F. Submit appropriate fees: Please reference SCFD Plan Check Fees document.

- G. Submittals may be mailed or hand delivered to Santa Clara Fire Department, Division of Fire Prevention at 1675 Lincoln Street, Santa Clara, CA 95050. All fees must be paid at the time of plan submittal.
- H. Submit three sets of legible, scaled plans and hydraulic calculations. These plans shall contain the following information and items:
  - i. Scope of work for the project.
  - ii. Complete address of the project, including the tract and lot numbers.
  - iii. It shall be clearly stated on the plans if the sprinklers system is factoring into the area allowable, increased building height or a reduction in fire rating.
  - iv. Name and phone number of the project coordinator, facility owner, and system designer. Evidence of the designer's qualifications is to be provided upon request by the SCFD.
  - v. SCFD Fire Sprinkler Notes (See Page #).
  - vi. One copy of the Fire Department stamped plans and the job card shall be maintained at the job site. All modifications/changes to existing systems require a plan check and inspection by the Fire Department.
  - vii. Submit manufacture specifications for the sprinkler heads used.
  - viii. Tenant improvement plans up to 20 heads without calculations may be plan checked over the counter. For an appointment, please call (408) 615-4970.

## 2. DESIGN CONSIDERATIONS:

- A. For modifications to an existing sprinkler system where flex heads are being added and were not installed originally, hydraulic calculations shall be performed when there are more than 20 flex heads being added. When performing hydraulic calculations the UL listing for equivalent lengths shall be used. Submit manufacture's specifications highlighting the flex head model.
- B. When performing hydraulic calculations, a 12 psi pressure loss shall be used for the back flow prevention device. In lieu of the 12 psi drop, the manufacture's specification sheet can be submitted with the flow/pressure loss chart. The model of the back flow prevention device shall be highlighted along with the flow used, so that the proper pressure loss can be calculated for the specific model installed.
- C. When fire sprinkler systems are required in buildings of undetermined use, the system shall be designed and installed to have a sprinkler density of no less than that required for an Ordinary Hazard Group 2 with a minimum design area of 3,000 square feet. Where a subsequent occupancy requires a system with a greater capacity it shall be the responsibility of the occupant to upgrade the system to the required density for the new occupancy.
- D. All trash areas designed for storage in excess of 1 cubic yard (200 gallons 90.76 m<sup>3</sup>) that are located within 5 feet of combustible walls, openings or combustible roof eave lines, shall be protected by an automatic sprinkler system. CFC Section 304.3.4
- E. Systems shall be designed not to exceed 90% demand of available water supply.
- F. Fire protection for spray booths shall be hydraulically calculated based on Extra Hazard Group 2.
- G. Plans submitted for plan check must show complete hanger and sway bracing details. When the attachment method of hangers and sway braces is different than those shown in NFPA 13, a registered Professional Structural Engineer must certify the design.
- H. In stairways, automatic fire sprinklers shall protect each floor landing.

- I. Sprinkler main drains and inspector test drains shall drain to the sanitary sewer of a landscaped area of sufficient size that will prevent the water from reaching the storm drain system. Sprinkler system water is not allowed to enter the storm drain system.

### 3. OVERHEAD PIPING:

- A. Inspection of overhead piping will not be conducted until plans are approved.
- B. All piping must be exposed for rough inspection in order for the inspection to be completed.
- C. A hydrostatic test is required on all new systems and tenant improvement projects involving pipe sizes 2 inches or larger. The standard hydrostatic test tests the piping at 200 psi for 2 hours and visual inspection for any visible leaks.
- D. Riser shall not be connected to the underground fire service main until the main has been flushed and verified by the SCFD inspector.

### 4. RISER AND VALVES:

- A. For new systems and whenever modifications are done to the sprinkler riser a complete detail of the riser must be included in the plans.
- B. Floor control valves (indicating type) are required on each floor. The valves shall be readily accessible to Fire Department personnel, and shut off the entire floor without affecting other floors. Floor control valves shall be locked in the open position and electronically supervised. Each floor shall be provided with an auxiliary drain valve and an inspector's test valve.
- C. For maintenance and repair purposes, a clearance of 3 feet shall be provided around all risers. If a riser is to be concealed by a wall or closet, access to the riser shall be provided by a door with minimum dimensions of 2 feet by 6 feet 8 inches. The door shall have a "**Sprinkler Riser**" identification sign posted on the outside.
- D. At the time of system acceptance, an installation tag shall be affixed to the riser with the installers name and date of installation.
- E. Inspector's test valves for the fire sprinkler systems shall meet the following requirements:
  - i. Located in a readily accessible location.
  - ii. Test valves located within a wall shall be protected by a wall panel door with a simple turn knob. Panel doors kept closed by screws or locks may be acceptable. The panel door shall have an "**Inspector Test Valve**" identification sign posted on the outside of the door.

### 5. SPRINKLER SYSTEM MONITORING AND ALARM:

- A. All valves controlling the water supply and water-flow switches for automatic sprinkler systems shall be electrically monitored. CFC Sec. 903.4
- B. Valve monitoring, water-flow alarm and trouble signals shall be distinctly different and shall be automatically transmitted to an approved central station, remote station, or proprietary monitoring station as defined by NFPA 72. CFC Sec. 903.4.1

### 6. HYDRAULIC DESIGN CRITERIA PLACARD POSTING AT RISER AND ON PLANS:

- A. The installing contractor shall identify a hydraulically designed sprinkler system with a permanently marked weatherproof metal or rigid plastic placard secured to the riser at the alarm valve, dry-pipe valve, pre-action valve or deluge valve supplying the corresponding hydraulically designed area.
- B. The hydraulic design criteria placard shall include all the information shown on the sample shown on Page 6.

- C. For new sprinkler systems the information shall also be printed on the plans as it is to be shown on the hydraulic design criteria placard.

## 7. GENERAL INFORMATION SIGN FOR NEW SPRINKLER SYSTEMS: (NFPA 13, Section 25.6)

- A. The installing contractor shall provide a general information sign used to determine system design basis and information relevant to the inspection testing and maintenance requirements required by NFPA 25. The standard for the General Information Sign can be found on Page 7.
- B. Such general information shall be provided with a permanently marked weatherproof metal or rigid plastic sign and secured securely to each system control riser, antifreeze loop and auxiliary system control valve.

## SCHEDULING INSPECTIONS

1. Inspection appointments can only be made by the permit applicant or listed contractor.
2. It is the responsibility of the permit applicant or listed contractor to have a representative on the job site during the inspection with a set of approved plans. Failure to do so will result in the cancellation of the inspection and a re-inspection fee of will be assessed.
3. Call (408) 615-4970 at least one business day prior to the desired date of the inspection. Inspections are assigned on a first come first served basis. The inspection request line is open Monday through Friday between 8:00 a.m. and 5:00 p.m.

## SMART PERMIT INFORMATION SYSTEM

The City of Santa Clara offers you the opportunity to check the status of you fire permits on-line. To access the Smart Permit Information System please log onto the system at:

[http://santaclaraca.gov/community/smt\\_permit\\_information.html](http://santaclaraca.gov/community/smt_permit_information.html)

You can search the system using your Case Number (Permit number; fir2008-00001), Project Name, Applicant Name or the address of the project.

# SANTA CLARA FIRE DEPARTMENT – FIRE SPRINKLER SYSTEM NOTES

## Complete and place the following notes, verbatim, on the plan:

1. Scope of work:\_\_\_\_\_.
2. Sprinkler plans shall be approved prior to the installation of any pipe. One set of approved plans shall be maintained at all times at the construction site.
3. This automatic fire protection system shall be designed, fabricated, and installed in accordance with 2013 NFPA 13 and local amendments enforced by the SCFD.
4. The point of connection is \_\_\_\_\_(i.e., 6" above finished floor)
5. All valves shall have a permanently affixed sign indicating function and building protected.
6. Sprinkler systems are required to be monitored by an approved central station.
7. All underground mains and lead in connections shall be flushed in accordance with NFPA 13 and/or 24 prior to connection to the overhead system and it shall be witnessed by a SCFD inspector.
8. Call SCFD at (408) 615-4970 to schedule all inspections.
9. The installer shall perform all required acceptance tests in the presence of the fire inspector.
10. All system piping shall be hydrostatically tested at 200 PSI for two hours or at 50 PSI above the system operating pressure, whichever is greater.
11. All sprinkler piping shall remain exposed until inspected by SCFD.

## BUILDING INFORMATION (please fill in all blanks)

Building Occupancy Classification(s): \_\_\_\_\_ Building Area in Square Foot \_\_\_\_\_

Ceiling Construction Type (Check one) = Obstructed \_\_\_\_\_ Unobstructed \_\_\_\_\_

**FIRE SPRINKLER DESIGN CRITERIA PLACARD: (all blanks must be complete)**

**HYDRAULIC DESIGN INFORMATION SIGN**

This system as shown on \_\_\_\_\_ company

Print no. \_\_\_\_\_ dated: \_\_\_\_\_

for \_\_\_\_\_

at \_\_\_\_\_ contract no. \_\_\_\_\_

is designed to discharge at a rate of \_\_\_\_\_ gpm/ft<sup>2</sup> (L/min/m<sup>2</sup>) of

floor area over a maximum of area of \_\_\_\_\_ ft<sup>2</sup> (m<sup>2</sup>)

when supplied with water at a rate of \_\_\_\_\_ gpm (L/min) at

\_\_\_\_\_ psi (bar) at the base of the riser. Hose stream allowance

of \_\_\_\_\_ gpm (L/min) is included in the above.

Occupancy Classification: \_\_\_\_\_

Commodity Classification: \_\_\_\_\_

Maximum Storage Height: \_\_\_\_\_

**Required Flows and Pressures:**

**Water Source:**

\_\_\_\_\_ gpm at \_\_\_\_\_ psi.

**Fire Pump Discharge:**

\_\_\_\_\_ gpm at \_\_\_\_\_ psi.

**Pressure Setting for Pressure Reducing Valves: \_\_\_\_\_ psi.**

**Fire Sprinkler Head Information:**

Sprinkler Head Type(s) Installed including orientation and K-factor:

\_\_\_\_\_

Number of Sprinkler Heads: \_\_\_\_\_

Temperature Rating: \_\_\_\_\_

Response Type: \_\_\_\_\_

Protection Area per Sprinkler: \_\_\_\_\_ ft<sup>2</sup>

Minimum Discharge Flow Rate:

\_\_\_\_\_ gpm at \_\_\_\_\_ psi.

This fire sprinkler system has been designed and installed in accordance with \_\_\_\_\_ Edition of NFPA 13, Standard for the Installation of Fire Sprinklers.

