Santa Clara Fire Department
Emergency Fire Alarm Systems

PURPOSE

The intent of this guideline is to facilitate the design, installation, and consistent review of emergency alarm 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 emergency alarm systems being installed within its jurisdiction. These guidelines apply to all new installations and alterations to existing alarm systems. Plans not conforming to these minimum requirements will be returned as incomplete. All system installations shall comply with the current codes, standards, and ordinances as adopted by the State of California, and the various municipalities within SCFD's jurisdiction.

CODES & STANDARDS FOR SYSTEM REQUIREMENTS:

- CCR, Title 24, Part 2: 2013 California Building Code (CBC)
- CCR, Title 24, Part 3: 2013 California Electrical Code (CEC)
- CCR, Title 24, Part 4: 2013 California Mechanical Code (CMC)
- CCR, Title 24, Part 9: 2013 California Fire Code (CFC)
- National Fire Protection Association (NFPA) 72 National Fire Alarm Code, 2010 edition, as amended in Chapter 47 of the 2013 CFC

Code Requirements for Emergency Alarms:

Chapter 27 – Semiconductor Fabrication Facilities

Section 2703.12 **Emergency alarm system.** Emergency alarm system shall be provided in accordance with Sections 2703.12.1 through 2703.12.3, Section 5004.9 and Section 5005.4.4. The *maximum allowable quantity per control area* provisions of section 5004.1 shall not apply to emergency alarm systems required for HPM.

Where Required:

Service Corridors;
Exit Access Corridors and Exit Enclosures;
Liquid Storage Rooms, HPM Rooms and Gas Rooms.

Chapter 50 – Hazardous Materials

Section 5005.4.4 **Emergency alarm.** Where hazardous materials having a health ranking of 3 or 4 in accordance with NFPA 704 are transported through corridors or exit enclosures, there shall be an emergency telephone system, a local manual alarm station or an approved alarm-initiating device at no more than 150-foot (45 720 mm) intervals and at each exit and exit access doorway throughout the transport route. This signal shall be relayed to an approved central station, proprietary supervising station or remote supervising station or a constantly attended on-site location and shall also initiate a local audible alarm.

Emergency Alarm System is a system designed to provide indication and warning of emergency situations involving hazardous materials. 2013 CFC, Section 902.1

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Hazardous Materials Division ▪ Tel: (408) 615-4960 ▪ Fax: (408) 241-3006

SUBMITTAL REQUIREMENTS

1. GENERAL REQUIREMENTS

A. Submit a completed SCFD Permit Application, which can be obtained at the Fire Marshal's Office, located at 1675 Lincoln Street, Santa Clara or on the City of Santa Clara website at www.santaclaraca.gov.

B. Submit appropriate fees: Please reference SCFD Plan Check Fees Document

C. Submit three sets of legible, scaled plans with ONE set of current and complete technical data sheets. 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. 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. NFPA 72: 10.5.1. A C-10 contractor can also design the fire alarm system, as long as that contractor performs the entire installation without subcontracting any portion of the work.
iv. A copy of the installing contractor's identification card or provide the contractor's registration number, license class, and expiration date. NFPA 72: 10.5.1.2
v. With the exception of some security system information and mechanical calculations, the plans shall contain only fire alarm system information.
vi. When a fire alarm system or component is voluntarily installed, a note shall be provided on the plans clearly indicating the building owner's intent. NFPA 72.10.4
vii. Completed SCFD fire alarm notes (See Page 5).

2. DATA SHEETS

A. Highlight one set of data sheets (style, type, model, amps, volts, etc.) for all fire alarm components. Include this information for combination fire/security alarms.

B. Provide ONE copy of current California State Fire Marshal (CSFM) listing sheets for all devices and equipment to be installed. CFC 907.1.3

3. SPECIFIC PLAN REQUIREMENTS

A. Provide a floor plan showing the location of all initiating and signaling devices, control and trouble signaling equipment, annunciators, power connectors, and all egress control devices.

B. Identify all zones and notifying circuits. Each address shall be placed adjacent to each device. CFC 907.6.3

C. Provide the ceiling configuration, surface, and height. NFPA 72: 17.7.3.1.2

D. Identify zone assignments. This is also required for addressable systems. Any existing suppression system or future suppression system shall be on a separate zone. All ancillary systems shall be on a separate zone and shall be supervised by the main fire alarm control panel (FACP), which shall initiate a general alarm. CFC 907.6.3

E. Provide a matrix of the manufacturer, model numbers, and listing information for all equipment, devices, and materials. Include the CSFM listing numbers and the quantities of each component. CFC 907.1

F. In matrix form, provide the sequence of operations that identifies the required action for the actuation of any fire and life safety device or ancillary device tied into the fire alarm system (i.e. special egress control, smoke control, leak detection, and HVAC duct detection). See NFPA 72 Figure A.14.6.2.4 (9) for a typical matrix layout. CFC 907.1

G. If duct detectors are required by code, provide cut sheets demonstrating the detectors are listed for the complete range of air velocities, temperature, and humidity expected at the detector present in the duct. Duct smoke detectors shall be connected to the building's fire alarm control unit when a

fire alarm system is installed. Activation of a duct smoke detector shall initiate a visible and audible supervisory signal at a constantly attended location and shall perform the intended fire safety function in accordance with this code and the California Mechanical Code. Duct smoke detectors shall not be used as a substitute for required open area detection CFC 907.3.1

H. If duct detectors are part of the alarm system, their activation shall initiate a shutdown of all applicable HVAC system(s) and a supervisory alarm signal to the central station. Activation of the duct detector alone shall not put the alarm system into general alarm. CFC 907.2.13.1.2 Amended, NFPA 72 17.4.7 and NFPA 72 17.4.8

I. Provide automatic fire detection in all rooms or areas that are not continuously occupied contain fire alarm control equipment (e.g., FACP, transponders, power expanders etc.). CFC 907.4.1

J. A supervised remote annunciator(s) is required if the FACP is not located in an area that the fire department would normally respond to. The annunciator shall be placed in an area that the fire department would respond to, typically the front lobby. CFC 907.6.3.1

K. In strip malls or multi-tenant suites with individual exterior exits, the remote annunciator shall be located in the lowest number or lettered suite, i.e. “A” or “1.” If each suite has a different address, the suite with the lowest street address shall contain the remote annunciator. CFC 907.6.3.1

L. Specify the fire alarm device mounting heights and locations. NFPA 72

M. Local notification shall include both audible and visual devices. Visual notification within stairwells shall be similar to the spacing requirements for corridors. A device (15 cd) shall be located on the 1st and top floors and every 100’ linear (vertical) feet in between. Notification devices in the stairwells shall activate upon an alarm on any floor. CFC 907.6.2

4. SECONDARY POWER SUPPLY

A. Voltage drop calculations shall be on the plans. The voltage drop may not exceed 10%. For fire alarm tenant improvements, voltage drop calculations shall be provided for the most demanding circuit(s) in the area of the work.

B. Standby battery calculations shall be on the plans. These shall include both standby and alarm conditions. Calculations are to be performed for 100% of the load. Any security device load shall be included. NFPA 72 10.6.7 and CFC 907.1.2

C. Storage batteries shall be permanently marked with the month and year of manufacture, using the month/year format. The marking shall be permitted to be applied by either the battery manufacturer or the installer. NFPA 72 10.6.10.1.1

D. Where the battery is not marked with the month/year by the manufacturer, the installer shall obtain the date-code and mark the battery with the month/year of battery manufacture. NFPA 72 10.6.10.2

E. Provide a means of monitoring the batteries and charger integrity so that a battery charger failure is detected. NFPA 72 6.10.6.1

F. Failure of battery charger shall result in the initiation of a trouble signal in accordance with NFPA 72 10.6.10.6.2

G. When auxiliary power and/or control panels are being added to an existing system, detailed “point to point” connection between this equipment and the main control panel, including relays and modules, shall be on the plans. Only circuit zones affected by this work need to be identified on the drawings.

5. AUXILIARY EQUIPMENT CONNECTIONS

A. All fixed fire protection systems (wet agent, gaseous suppression, etc.) and duct detectors shall be interconnected to required or optional fire alarm systems. CFC 904.3.5

B. The systems described above will not be required to be interconnected to fire sprinkler-monitoring systems. CFC 904.3.5

C. When an existing sprinkler monitored building requires a fire alarm or a fire detection system, the existing duct detectors shall be connected to the new fire alarm control unit for supervision. New or existing smoke detectors installed in ducts shall be listed for the air velocity, temperature and humidity present in the duct. CMC 609, CFC 907.4, CFC 907.4.1.

D. If special egress control systems are located in the building, the alarm contractor shall provide a copy of the approved architectural plans that demonstrate compliance with all provisions of CBC 1008.1.9.7 and1008.1.9.8

E. All card readers and egress control devices shall be indicated on the fire alarm plans. The code may impose additional requirements such as smoke detection throughout. CBC 1008.1.4.4 and 1008.1.9.7,CFC 907.3.2 and NFPA 72 21.9

F. SCFD does not require a manual fire alarm box for the initiation of a fire alarm signal as permitted per CFC 907.2 Exception 3.

6. MISCELLANEOUS

A. All emergency warning systems for hazardous materials shall have visual notification appliances that are blue in color. Audible devices shall be of a different tone and pattern than the fire alarm systems. An approved UL central station, remote station, or a proprietary station approved by the SCFD shall supervise these emergency alarm systems. CFC 5004.10 and 908

B. Manual fire alarm pull station covers shall be evaluated on a case-by-case basis and shall be subject to the approval of SCFD. If the installation is allowed the station cover shall not be equipped with a sounding device. CFC 907.4.2.5

C. Minimum fire alarm audibility may be affected by the occupancy use or operations, some equipment may be required to be shut down by a relay. If this is needed to achieve minimum audibility levels, include on the sequence of operations matrix.

D. The circuit disconnect providing power to the fire alarm unit shall only be accessible to authorized personnel, and shall be identified as “FIRE ALARM CIRCUIT”.

E. The inspection, testing, and maintenance of systems, their initiating devises, and notification appliances shall comply with the requirements of NFPA 72 Chapter 14 and conform to the manufacturer’s published instructions.

F. An annunciator panel shall be required if the FACP does not provide specific alarm conditions on site. The annunciator location shall comply with the above-mentioned requirements for the FACP. CFC 907.6.3.1

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 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://smartpermit.santaclaraca.gov/tm_bin/tmw_cmd.pl?tmw_cmd=StatusQueryForm&tmw_query=PublicCase

You can search the system using your Case Number (Permit number; fir2014-00001), Project Name, Applicant Name or the address of the project.