



SANTA CLARA COUNTY FIRE DEPARTMENT

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STANDARD DETAILS & SPECIFICATIONS	Spec No	<u>C-1</u>
	Review Date.	
SUBJECT: Two-Way Communication System for Areas of Refuge & Elevator Landings	Revis. Date	<u>05/12/21</u>
	Eff. Date	<u>03/01/17</u>
	Approved By	<u>[Signature]</u>
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SCOPE

This standard applies to the installation of a two-way communication 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.

NFPA 72: Shall refer to the National Fire Protection Association Standard 72 – National Fire Alarm and Signaling Code.

REQUIREMENTS

I. General

Sections 1009.6.5 & 1009.8 of the 2019 California Building Code shall be followed.

II. Permits

- A. Two-way communication systems for areas of refuge and/or elevator landings require a plan submittal. Note that interface connections of the two-way communication system with the fire alarm system, such as monitor modules, shall be shown in a separate plan submittal for fire alarm work (see Standard Detail & Specification C-5). Plans shall be submitted as a deferred submittal to: Santa Clara County Fire Department Fire Prevention Division, 1315 Dell Avenue, Campbell, CA 95008.





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- 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.
 - 3. Three sets of shop quality plans and one submittal packet – one set of plans will be retained by SCCFD.
- C. As part of the fire alarm system, all components are considered “appliances.”
- D. Fees will be collected based on the appropriate jurisdiction.
- E. The applicant shall be the installing contractor. All installing contractors shall have a California Electrical (C-10) 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.
- F. Installation, alteration, or demolition shall not commence prior to the approval of plans and the issuance of a permit.
- G. The permit card and a SCCFD approved set of plans shall be kept at the project site. They shall remain in possession of the owner upon project completion.

III. Plans

- A. General Requirements:
 - 1. Plans and attachments shall be clearly labeled and legible.
 - 2. Plans and all revisions shall be dated. If using an existing drawing or portion of drawing, the area work shall be highlighted and clouded with an appropriate symbol (delta). Provide a revision list with a symbol, date, description, and details.
 - 3. When making alterations, additions, or deletions to an existing system, all existing devices and equipment shall be shown and properly identified on the floor plan along with system riser (single-line) diagram.





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4. Plans shall include a title sheet, equipment list, written sequence of operation, floor plan, system riser diagram, and secondary power & voltage drop calculations.
 5. All products and equipment shall include the manufacturer's specification sheets indicating the proposed products are California State Fire Marshal (CSFM) listed.
- B. Title Sheet:
1. Project name and address.
 2. Designer's full name (no initials, pseudonyms, or aliases) and signature.
 3. 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:
 - a. **DESIGNED BY** – followed by the designer's business name, address, designer of record's full name and signature.
 - b. **INSTALLING CONTRACTOR** – followed by the designer's business name, address, designer of record's full name and signature.
 4. Type of system provided.
 5. Supervising station and UL number.
 6. Occupancy group(s) of building or area as designed by the California Building Code. Number of stories, building height, and construction type.
 7. Note stating that the design and installation complies with current versions of NFPA 72, the National Electrical Code, the California Fire Code, the California Building Code, and the city ordinances where the system is being installed.
- C. A key plan of the building and/or complex indicating the street location and the area of work within the building shall be provided.
- D. Equipment List:
1. Provide the model number, manufacturer's name, description, quantity, CSFM listing number, and symbols to be used (legend) for each device, equipment, and conductors proposed to be installed (*Note: SCCFD reserves the right to disallow any listed product due to past performance*).





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2. Symbols used on the plans shall match the legend. Strike out any “typical” symbols that do not pertain.
- E. Sequence of Operation - a written description shall be provided to define the events that occur when initiating the two-way communication system. The description shall include details relating to annunciation, remote signaling, and activation of control functions, as applicable.
- F. Floor plan – the following shall be clearly indicated:
1. Scale used and a graphical representation of the scale. The minimum scaled for plans is $3/32" = 1'0"$. Metric scale shall not be accepted.
 2. Locations of partitions, non-rated walls, and rated walls. If not full height; indicated the heights of the wall and the ceiling.
 3. The locations of all equipment.
- G. Riser Diagram:
1. Single-line wiring diagram (riser diagram) that shows the interconnection of each device and equipment of the whole system.
 2. Number of conductors in each wiring segment and the type and size of wire or conductor to be used.
 3. Class for initiating, signaling line, notification device circuits, and circuit number or identification.
- H. Calculations:
1. Two-way communication systems normally connected to the building power supply shall automatically transfer to a source of emergency power within ten seconds after the normal supply fails. The power source shall be capable of providing for the operation of the system (including annunciators) for one hour and the means of two-way conversation for four hours.
 2. Secondary power calculation – provide calculations to verify that standby batteries or other approved secondary power source, has 24 hours of battery backup.
- I. Attachments:
1. Manufacturer’s specification sheets for all equipment and materials to be used shall be submitted, including the transponder to the supervising station.





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Highlight on the cut sheet which device or equipment is being used, the listing information, and the application per listing.

2. Submit copies of the CSFM listing number sheets for all devices and equipment requiring listing.

IV. Design and Installation

- A. Two-way communication systems shall be designed and installed in accordance with NFPA 72 (2016 Edition), the National Electrical Code (2014 Edition), the California Fire Code (2019 Edition), the California Building Code (2016 Edition), applicable city ordinances, SCCFD policies and standards. NFPA 72 contains other standards regarding design/installation criteria.
- B. Two-way communication systems shall have a pathway survivability of level 2 or 3 per NFPA 72, Sections 24.3.13.7, and 12.4.

Exception: Level 1 shall be permitted where the building is less than 2-hour fire-rated construction.

- C. Two-way communication systems shall provide communication between each required location and the fire command center (FCC) or a central point (CCP) location approved by the fire department. When the CCP is not constantly attended (24/7/365), a two-way communication system shall have an automatic voice dial-out capability to a central monitoring location providing 24-hour service.
- D. The two-way communication system shall include both audible and visible signals. A button complying with the California Building Code (2019 Edition) Section 1009.8.1.1, 11B-205, and 11B-309 in the area of refuge and/or elevator landings shall activate both a light in the area of refuge and/or elevator landings indicating that rescue has been requested and a light at the CCP indicating that rescue is being requested. A button at the CCP shall activate both a light at the CCP and a light in the area of refuge and/or elevator landings indicating that the request has been received.
- E. The operable part of each two-way communication system call box shall be not less than 3½ feet and not more than 4 feet above floor level. Each call box shall have a Braille faceplate located not less than 3½ feet and not higher than 4 feet for front reach or 4½ feet for side reach above floor level. Each two-way call box shall indicate its location to the FCC/CCP and the central monitoring service.
- F. Directions for the use of the two-way communication system, instructions for summoning assistance via the two-way communication system and written identification of the location shall be posted adjacent to the two-way communication system.





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- G. There shall be no more than one two-way communication system in a building. Likewise, there shall be no more than one supervising station providing service to a building.
- H. Central station service shall provide all the services and comply with all the requirements delineated in NFPA 72 section 26.3 the means to two-way conversation shall be provided for no less than 4 hours.
- I. Monitoring integrity shall comply with NFPA 72, section 10.18.

V. Inspections

- A. Field inspections shall be scheduled only after a permit has been issued.
- B. The installing contractor shall schedule inspections. When scheduling an inspection, request sufficient time to complete a thorough inspection. Travel time is included in your inspection time.
- C. Inspections may be scheduled by calling (408) 341-4420. The following information is required: permit number (SCCFD Permit), the amount of time required for the inspection, name, and number of contact person who will be on site.
- D. The installing contractor shall conduct a complete test of the system and shall complete a "Record of Completion" as shown in NFPA 72 Figure 7.8.2(a) **prior** to the SCCFD inspection date.
- E. At inspection, the contractor shall hand the following to the SCCFD inspector upon his/her arrival:
 - 1. Approved plans and permit.
 - 2. As-built plans if installation has deviations from the approved plan.
 - 3. All previous records of inspections.
 - 4. UL application if system has 24-hour back-up.
- F. There shall be a minimum of two technicians. One technician will be at the two-way communication system control panel while the other will be testing the devices. Two-way radio shall be provided by the installing contractor.
- G. Coordination for the presence of outside contractors whose equipment is involved in the testing shall be made.
- H. After the successful completion of the tests/inspections, provide the following to the SCCFD inspector:





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1. For central station service systems, a copy of the listing organization's certification that the installation complies with NFPA 72 or a copy of the placard from the listed central station certifying that the installation complies with NFPA 72. Permit shall not be finalized without this certificate or placard.
2. The permit card.
 - I. After final completion and acceptance of the project, the contractor shall provide the following to the owner:
 1. All literature and instructions provided by the manufacturers describing operation and maintenance of all devices and equipment.
 2. A copy of the approved plan and as-built plan, if applicable a copy of the Record of Completion, and Emergency Communications Systems Supplementary Record of Inspection and Testing form.
3. The signed and finalized permit card.

VI. Document Revisions

This document is subject to revision. Please visit the Santa Clara County Fire Department website at www.sccfd.org to verify the most current version.

