



**REQUIREMENTS FOR PLAN SUBMITTAL,  
DESIGN, INSTALLATION AND INSPECTION OF  
TWO-WAY COMMUNICATIONS SYSTEMS FOR  
AREAS OF REFUGE & ELEVATOR LANDINGS**

**Effective Date: January 2013 Rev6**

**1.0 REQUIREMENTS**

1.1 The provisions contained in 2010 California Building Code Sections 1007.6.3 & 1007.8 are to be followed.

**2.0 PERMITS**

2.1 Two-way communications systems for areas of refuge and/or elevator landings require a plan submittal. They may be submitted as part of the Architectural Plan Check or a deferred submittal under Fire Alarm Permit. The information required herein shall be provided without regard to the method of permit obtained.

2.1.1 To acquire approval for a Two-way Communications system, submit the following to the San Jose Fire Department's Bureau of Fire Prevention (BFP) located at 200 E. Santa Clara St., Development Services, San Jose, California:

2.1.1.1 A copy of the San Jose Fire Department Plan Check Comments – this may be obtained from the Architect or General Contractor.

2.1.1.2 A copy of any approved "Variance" or "Alternate Methods" if it is relevant to the system – check with the Architect or General Contractor if a "Variance" or "Alternate Methods" was submitted to and approved by the City of San Jose.

2.1.1.3 A minimum of three sets of shop quality plans and one submittal packet for the proposed Two-way communications system – one set of plans shall be retained by the BFP.

2.2 For two-way communications systems submitted under a Fire Alarm System, all components are considered "appliances".

2.3 Fees when submitted under the Architectural Plan check will be included on an hourly basis as part of the Architectural plan review and inspection approval process.

2.4 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 contractors shall also have a valid worker's compensation certificate, and a San Jose business license. When the design and plans are produced by a party other than contractor, the plans shall be stamped by a Professional Engineer.

2.5 Installation, alteration, or demolition of a system shall not commence prior to the approval of plans and the issuance of a permit.

2.6 The entire permit card and a San Jose Fire Department approved set of plans shall be kept at the project site until final approval of the permit, after which they shall remain in the possession of the owner.

**3.0 PLANS**

3.1 General Requirements for All two-way communications system projects:

3.1.1 Plans and attachments shall be clearly labeled and legible.

3.1.2 Plans and all revisions to the plans shall be dated. If utilizing an existing drawing or portion of a drawing, the area of work shall be highlighted and clouded with an appropriate symbol (delta). Provide a revision list with a symbol, date, description, and initials.

- 3.1.3 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 and system riser (single-line) diagram.
- 3.1.4 Plans shall include a title sheet, an equipment list, a written sequence of operation, a floor plan, a system riser diagram, and secondary power & voltage drop calculations (see paragraphs 3.2 through 3.7).
- 3.1.5 Attachments for all products and equipment shall include the manufacturer's specification sheets indicating the products proposed are IBC, NFPA and ADAAG Code Compliant. California State Fire Marshal (CSFM) listing sheets, as applicable, shall also be provided. See paragraph 3.8.

**Note: Failure to provide any of the information required in sections 3.1 through 3.8 will result in the plans being disapproved.**

### 3.2 Title Sheet

3.2.1 The front sheet shall contain the following information:

- (a) Project name and address of the project.
- (b) The designer's full name (no initials, pseudonyms, acronyms, or aliases) and signature. The designer of record shall be responsible for the entire system being worked on.
- (c) 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:
  - (i) **DESIGNED BY** - followed by the designer's business name, address, designer of record's full name and signature.
  - (ii) **INSTALLING CONTRACTOR** - followed by the installing contractor's business name, address and California Contractor's License number.
- (d) Type of system provided.
- (e) The supervising station and UL number.
- (f) Occupancy group(s) of building or area as defined by the California Building Code. Number of stories, building height, and construction type.
- (g) Scope of work and why the system is being installed, i.e., required by the California Building Code or California Fire Code, required due to a variance, or voluntary
- (h) A note stating that the design and installation complies with NFPA 72 (2010 edition) (if applicable), the International Electric Code (2010 edition), the California Fire Code (2010 edition), the California Building Code (2010 edition), the San Jose Fire Department Ordinances and Standards.
- (i) All other pertinent notes.

3.2.2 A key plan of the building and/or complex indicating the street location and the area of work within the building shall be provided.

### 3.3 Equipment List

3.3.1 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: The Fire Department reserves the right to disallow any listed product due to past performance*).

3.3.2 The symbols used on the plans shall match the legend. Strike out any "typical" symbols that do not pertain.

3.4 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. Also provide programming description.

3.5 Floor Plan – the following shall be clearly indicated:

3.5.1 Scale used and a graphical representation of the scale. The minimum scale for plans is 3/32" = 1'-0". Metric scale shall not be accepted.

3.5.2 The locations of partitions, non-rated walls, and rated walls. If not full height, indicate the heights of the wall and the ceiling.

3.5.3 The location of all equipment.

- 3.6 Riser Diagram – provide the following:
- 3.6.1 Single-line wiring diagram (riser diagram) that shows the interconnection of each device and equipment of the whole system.
  - 3.6.2 Number of conductors in each wiring segment and the type and size of wire or conductor to be used.
  - 3.6.3 The class for initiating, signaling line and notification device circuits. As well as circuit number or identification.
- 3.7 Calculations
- 3.7.1 The means of two-way communications normally connected to the building power supply, shall automatically transfer to a source of emergency power within 10 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 4 hours.
  - 3.7.2 Secondary power calculation - provide calculations to verify that standby batteries or other approved secondary power source, has 60 hours of battery backup or 24 hours with UL certification.
  - 3.7.3 Voltage drop calculation - calculations shall be provided to verify that the voltage drop in the Two-way communication system circuits do not exceed **20 percent**. Provide voltage drop calculations for each circuit.
- 3.8 Attachments
- 3.8.1 Manufacturer’s specification sheets for all equipment and materials to be used shall be submitted, including the transponder to the supervising station. Highlight on the cut sheet which device or equipment is being used, the listing information, and the application per listing.
  - 3.8.2 Submit copies of the CSFM listing number sheets for all devices and equipment requiring listing.

## **4.0 DESIGN AND INSTALLATION**

- 4.1 Two-way communication systems shall be designed and installed in accordance with NFPA 72 (2010 edition) (if applicable), the California Electrical Code (2010 edition), the California Fire Code (2010 edition), the California Building Code (2010 edition), and the San Jose Fire Department ordinances, policies, and standards. Other standards also contain design/installation criteria for specific life safety related equipment. These other standards are referred to in NFPA 72.
- 4.2 Two-way communication systems shall have a pathway survivability of Level 2 or 3 per NFPA 72, section 24.3.5.7 which is further explained in Sections 12.4.3 and 12.4.4 for the required elements.
- 4.3 Refer to the California Building Code (2010 edition), Sections 1007.6.3 & 1007.8 to determine when a two-way communication system is required.
- 4.4 Two-way communication systems shall provide communication between each required location and the fire command center (FCC) or a central control point (CCP) location approved by the fire department. Where the central control point 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. An approved central, proprietary or remote service, which will provide effective means of conversation for immediately summoning assistance at all hours in case of emergency, shall monitor the Two-way communication system.
- 4.5 The two-way communication system shall include both audible and visible signals. A button complying with the California Building Code (2010 edition) Section 1117B.6 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 central control point indicating that rescue is being requested. A button at the central control point shall activate both a light at the central control point and a light in the area of refuge and/or elevator landings indicating that the request has been received.
- 4.6 The operable part of each two-way communication system initiating device (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 nor higher than 4 feet for front reach or 4½ feet for side reach above floor level.
- 4.7 Each two-way communication system initiating device (Call Box) shall indicate its location to the FCC/CCP and the central monitoring service.
- 4.8 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. See examples provided on pages 5 & 6.

- 4.9 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.
- 4.10 Central Station Service shall provide all the services and comply with all the requirements delineated in section 26.3 of NFPA 72, 2010 edition. If any of the requirements for a central station service per NFPA 72 is not met, the F/A system is not a Central Station Service and by default must meet the requirements for a Remote Station Service and shall have 60 hours battery backup. The means of two-way conversation shall be provided for no less than for 4 hours.
- 4.11 Monitoring Integrity shall comply with section 10.17 of NFPA 72, 2010 edition.

## **5.0 INSPECTIONS**

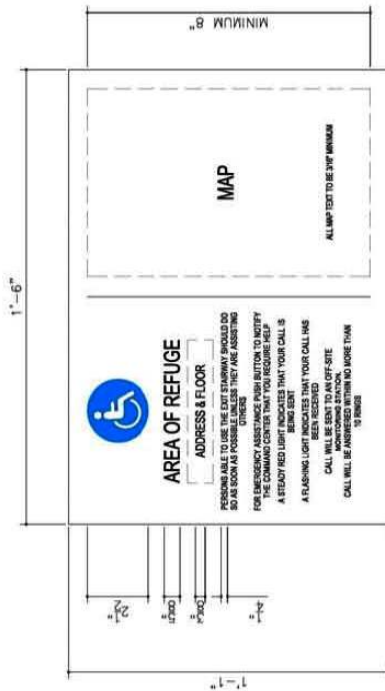
- 5.1 Field inspections shall be scheduled only after a permit has been issued.
- 5.2 Inspections shall be scheduled by the installing contractor only. When scheduling for inspection, request for sufficient time to complete a thorough inspection of the work performed. Travel time is included in your inspection time.
- 5.3 Inspections may be scheduled by calling (408) 535-3555. The following information is required: Permit Number (*Use permit# issued by Building Department if reviewed under architectural plan check permit application or the Fire Alarm Permit # if submitted as part of the Fire Alarm approval package*), the amount of time required for inspection (including travel time), name, and number of contact person. An inspector will call to schedule the time and date of the inspection.
- 5.4 Missed inspections or inspections canceled within 48 hours shall be counted against inspection time. The installing contractor shall conduct a complete test of the system and shall complete all parts of the "Record of Completion" (Figure 10.18.2.1.1 of NFPA 72) **prior** to the San Jose Fire Department (SJFD) inspection date.
- 5.5 At the time of inspection, the contractor shall hand the following to the SJFD inspector upon his/her arrival:
- 5.5.1 Approved and stamped plans and complete permit (white, pink, hard card)
  - 5.5.2 As-built plans if installation has deviations from the approved plan.
  - 5.5.3 All previous records of inspections.
  - 5.5.4 UL application if system has 24 hour back-up.
- 5.6 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 radios shall be provided and the technician at the panel shall communicate to the SJFD inspector which devices are activated on the panel.
- 5.7 Necessary coordination shall be made such that representatives of other contractors whose equipment are involved in the testing are present.
- 5.8 After the successful completion of the tests/inspections, provide the following to the SJFD inspector:
- 5.8.1 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 "finaled" without this certificate or placard.
  - 5.8.2 The permit card (for inspector's signature).
- 5.9 After final completion and acceptance of the project, the contractor shall provide the following to the owner:
- 5.9.1 All literature and instructions provided by the manufacturers describing proper operation and maintenance of all devices and equipment,
  - 5.9.2 A copy of the approved plan and as-built plan, if applicable,
  - 5.9.3 A copy of the Certificate of Completion from NFPA 72 and Emergency Communications Systems Supplementary Record of Inspection and Testing (72-12EmergCommSysForm\_7.8.2k) which are available from the NFPA web site, and
  - 5.9.4 The signed and finaled permit card.

## **6.0 DOCUMENT REVISIONS**

- 6.1 This document is subject to revisions. For general information and to verify that you have the most current document, please call (408) 535-7750, and request the current version date.

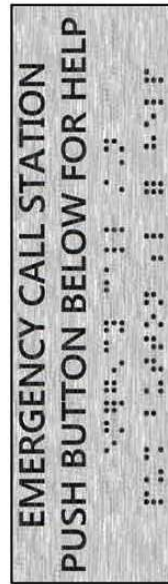
MONITORING STATION PROTOCOL

1. CALL MUST BE ANSWERED WITH IN NO MORE THAN 10 RINGS.
2. TRY AND INITIATE CONTACT WITH THE CALLER, ONCE OPERATOR HAS MADE CONTACT WITH CALLER A SECOND OPERATOR WILL CONTACT EMERGENCY SERVICES WHILE THE FIRST OPERATOR WILL STAY ON THE LINE TO INFORM CALLER AND EMERGENCY SERVICE OF STATUS.
3. IF NO RESPONSE OR HELP IS REQUESTED:  
DISPATCH THE LOCAL FIRE DEPARTMENT.  
NOTIFY PREMISES NUMBERS AS LISTED ON THE ACCOUNT. NOTIFY RESPONSIBLE PARTIES AS LISTED ON THE ACCOUNT.



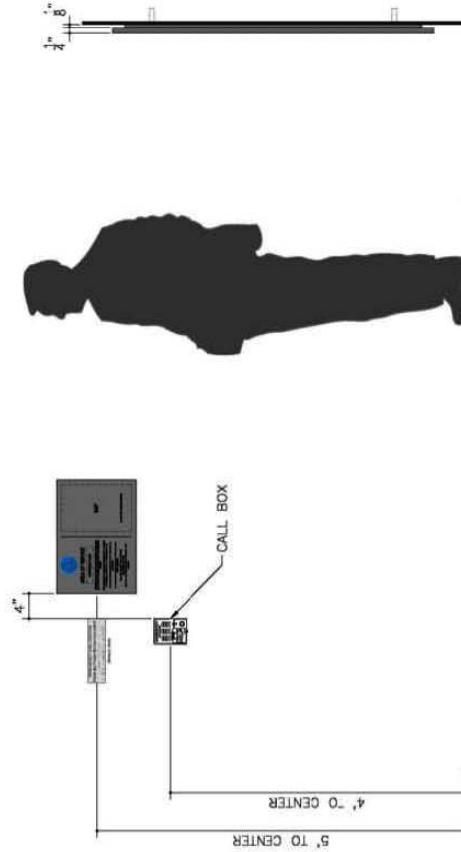
SIGN TYPE -- DETAIL 1

SCALE:



SIGN TYPE -- DETAIL 2

SCALE:



ELEVATION VIEW 3

SCALE:

SIDE VIEW 2

SCALE:

Example 4.8a

