



FIRE ALARM SYSTEMS PERMIT APPLICATION, PLAN SUBMITTAL, DESIGN, INSTALLATION AND INSPECTION REQUIREMENTS

Effective Date: January, 2011

1.0 PERMITS

- 1.1 To acquire an installation permit for a fire alarm (F/A) 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:
- 1.1.1 A completed Fire Protection and Special Systems Installation Permit – provide all required information and make sure the permit card (manila card) is legible.
 - 1.1.2 A copy of the San Jose Fire Department Plan Check Comments – this may be obtained from the architect or general contractor.
 - 1.1.3 A copy of any approved “variance” or “alternate methods” that is relevant to the F/A 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.
 - 1.1.4 A minimum of three sets of shop quality plans and one submittal packet for the proposed F/A system – one set of plans shall be retained by the BFP.

Note: Refer to the handout on “Fire Sprinkler System Monitoring” for requirements on fire sprinkler monitoring systems.

- 1.2 Permits are required for any of the following work:
- 1.2.1 Installation of a new F/A system
 - 1.2.2 Any alteration to an existing F/A system
 - 1.2.3 Addition to an existing F/A system.
 - 1.2.4 Demolition of a part or of a whole F/A system.
- 1.3 See Fee Schedule for permit fees.
- 1.4 Permit fees will be collected when plans are approved.
- 1.5 The permit applicant shall be the installing contractor. All installing contractors shall have a California Electrical (C-10) Contractor's License, 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.
- 1.6 Installation, alteration, or demolition of a system shall not commence prior to the approval of plans and the issuance of a permit.



- 1.7 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.

2.0 PLANS

2.1 General Requirements for All Fire Alarm Projects

- 2.1.1 Plans and attachments shall be clearly labeled and legible.
- 2.1.2 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.
- 2.1.3 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.
- 2.1.4 Plans shall include a title sheet, an equipment list, a written sequence of operation or functional matrix, a floor plan, a system riser diagram, and secondary power & voltage drop calculations (see paragraphs 2.2 through 2.7).
- 2.1.5 Attachments shall include the manufacturer's specification sheets and California State Fire Marshall (CSFM) listing sheets for all equipment and devices requiring listing. See paragraph 2.8.

Note: Failure to provide any of the information required in sections 2.1 through 2.8 will result in the plans being disapproved.

2.2 Title Sheet

- 2.2.1 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 F/A 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 NFPA 72 system provided, i.e., local, auxiliary, remote station, proprietary or central station service.
 - (e) The supervising station facility and UL number.
 - (f) Occupancy group(s) of building or area as defined by the California Building Code. Number of stories building height 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. If

the scope of work is the demolition of an existing F/A system, justification for removal shall be provided.

- (h) Description of annunciation zone assignments. For addressable devices, provide device addresses.
 - (i) Indicate if the building does not have an automatic sprinkler system.
 - (j) A note stating that the design and installation complies with NFPA 72 (2010 edition), 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.
 - (k) All other pertinent notes.
- 2.2.2 A key plan of the building and/or complex indicating the street location and the area of work within the building shall be provided.
- 2.2.3 State the required performance objective of heat/smoke installation per NFPA 72 17.3.
- 2.3 Equipment List
- 2.3.1 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*).
 - 2.3.2 The symbols used on the plans shall match the legend. Strike out any "typical" symbols that do not pertain.
- 2.4 Sequence of Operation – a written description or matrix chart shall be provided to define the events that occur when various initiating devices are activated. The description shall include details relating to annunciation, evacuation warning, remote signaling, and activation of fire safety control functions, as applicable. Also provide programming description/label for each initiation, monitoring, and control device.
- 2.5 Floor Plan – the following shall be clearly indicated:
- 2.5.1 Scale used and a graphical representation of the scale. The minimum scale for fire alarm plans is 3/32" = 1'-0". Metric scale shall not be accepted.
 - 2.5.2 The locations of partitions, non-rated walls, and rated walls. If not full height, indicate the heights of the wall and the ceiling.
 - 2.5.3 The location of all equipment, devices, and appliances (including fire sprinkler control and test valves, fire smoke dampers, air handler units, magnetic door holders, etc.) and end-of-line devices.
 - 2.5.4 The candela rating of each strobe.
 - 2.5.5 Use of each room or space.
 - 2.5.6 Type of ceiling or roof construction, i.e., smooth, solid joist construction, beam construction, and/or sloped ceiling.
 - 2.5.7 A scaled cross-section or elevation-plan if automatic detectors are to be installed.
- 2.6 Riser Diagram – provide the following:
- 2.6.1 Single-line wiring diagram (riser diagram) that shows the interconnection of each device and equipment of the whole system.

- 2.6.2 Candela rating of each strobe.
 - 2.6.3 Number of conductors in each wiring segment and the type and size of wire or conductor to be used.
 - 2.6.4 The class and style for initiating, signaling line and notification device circuits. As well as circuit number or identification.
- 2.7 Calculations
- 2.7.1 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.
 - 2.7.2 Voltage drop calculation - calculations shall be provided to verify that the voltage drop in the alarm notification circuits do not exceed **20 percent**. Provide voltage drop calculations for each circuit.
- 2.8 Attachments
- 2.8.1 Manufacturer's specification sheets for all devices, 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.
 - 2.8.2 Submit copies of the CSFM listing number sheets for all devices and equipment requiring listing.

3.0 DESIGN AND INSTALLATION

- 3.1 F/A systems shall be designed and installed in accordance with NFPA 72 (2010 edition), the International 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 contain design/installation criteria for specific life safety related equipment. These other standards are referred to in NFPA 72.
- 3.2 Refer to the fire and building codes to determine when a F/A system is required. The attached Table on "FIRE ALARM SYSTEMS – Required Installations" (FA001A) may be used as a guide.
- 3.3 An approved central, proprietary or remote service, which gives audible and visual signals at a constantly attended location, shall monitor F/A systems.
- 3.4 There shall be no more than one F/A system in a building. Likewise, there shall be no more than one supervising station providing service to a building, and each building shall be provided with a dedicated Fire Alarm panel.
- 3.5 Combination fire/burglar systems shall not be allowed. Wireless dispatching and monitoring will be approved, wireless mesh network will not be approved.
- 3.6 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.

3.7 Access controlled egress doors shall be installed per CFC 1008.1.4.4. A seismic sensor shall be accepted if criteria #1 can not be met. For elevator lobby egress doors in high-rise, when approved by the Fire Chief, refer to CFC 1008.1.4.6 code.

3.8 Fire Pumps

3.8.1 Audible and visual supervisory alarms shall be provided at a **constantly** attended space. These alarms shall indicate the following:

(a) Electrically-driven pumps

- Controller has operated into a motor running condition (separate signal)
- Loss of any phase on the line side of the motor contactor (separate signal)
- Phase reversal on line side of motor starter (separate signal)

(b) Engine-driven pumps

- Engine running (separate signal)
- The controller main switch has been turned to “off” or “manual” position (separate signal)
- Trouble on the controller or engine and low fuel (separate or common signal)

3.9 Emergency Generators

3.9.1 Audible and visual supervisory alarms shall be provided at a constantly attended space. These alarms shall indicate the following:

(a) Engine running (separate signal)

(b) The controller main switch has been turned to “off” or “manual” position (separate signal)

(c) Trouble on the controller or engine and low fuel (separate or common signal)

4.0 NON-HIGH RISE R OCCUPANCIES

4.1 In buildings with mixed occupancy involving residential above commercial occupancy, each occupancy shall be provided with dedicated notification circuits.

4.2 Riser notification circuits shall be Class A wiring.

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. 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 A copy of the completed "Record of Completion".
 - 5.5.3 As-built plans if installation has deviations from the approved plan.
 - 5.5.4 All previous records of inspections.
 - 5.5.5 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 F/A 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 (i.e., fire/smoke damper, air handlers, elevator, fire pumps, emergency generators, etc.).
- 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, and
 - 5.9.4 The signed and finaled permit card.