

<p>July 1, 2010</p>	<p>SANTA ROSA FIRE DEPARTMENT FIRE PREVENTION BUREAU STANDARD</p>
	<p>FIRE ALARM SYSTEM MODIFICATION</p>

PURPOSE

This standard outlines the general requirements for the minor modification of an existing Fire Alarm System by addition or removal of detection and/or notification devices, connection of a Special Extinguishing System, or replacement of a deficient FACU with the exact same make and model of FACU. Replacement of an FACU with a different make or model of FACU is considered a Major Modification and is subject to the fees and requirements of the Fire Alarm Installation permit. Information contained herein applies to typical instances and may not address all circumstances.

CODE REFERENCES

- 2007 California Fire Code (CFC)
- SRFD Fire Prevention Bureau Standards
- NFPA 70: National Electric Code, Article 760 – Fire Alarm Systems
- 2007 NFPA 72: National Fire Alarm Code

PERMIT(S) REQUIRED

A Fire Alarm System Minor Modification permit is required. Categories and fee amounts are found at: <http://ci.santa-rosa.ca.us/doclib/Documents/IB%20018.pdf>

ATTACHMENTS

- 1) Plan Review Checklist - Fire Alarm Minor Modification
- 2) Inspection Checklist – Fire Alarm Minor Modification

REQUIRED INSPECTIONS

- 1) Fire Alarm Modification Acceptance Testing - NFPA 72, Chapter 10.

Inspections shall be scheduled a minimum of 48 hours in advance. Directions for scheduling are found at: <http://ci.santa-rosa.ca.us/news/Pages/AutomatedFireInspectionRequestSystem.aspx>

PERMIT INFORMATION

Fire Alarm Minor Modification permit applications shall be in accordance with 2007 CFC Section 907.

Working plans shall be submitted for approval to the Santa Rosa Fire Department before any equipment is installed or removed. A completed Permit and Plan Review Application Form and fee shall be submitted along with not less than three (3) sets of plans, equipment data sheets, and calculations as required. A Santa Rosa BusinessTax Certificate, current appropriate contractor's license and proof of worker's compensation insurance shall be provided or shall be on file at the time of application.

All plans shall be stamped by a qualified registered professional engineer or a C-10 Fire Alarm Contractor. Plans shall include the information specified below; failure to provide all of the required information may result in the plans being rejected. Rejected plans will be returned with a Plan Review Correction Form. Review the form and

Standard

Fire Alarm System Minor Modification

make the required additions/ changes which shall be clouded for identification. Provide a legend to describe the addition or change. Allow ten (10) working days for review of submitted plans.

Working plans shall be drawn to an indicated scale, on sheets of uniform size, with a plan of each floor (including Room Names and Uses) and shall show the following data:

- Project street address and CBC Occupancy Type
- Installing Contractor's name, address, telephone and license number
- Alarm Service company's name, address, telephone and license number
- Alarm Monitoring Company's name, address, telephone and license number
- Type of System (eg: protected premises, central station)
- Symbol List and quantity of each device or system component
- Location of each device, control panel, power boosters, terminal cabinets
- Mounting heights of initiation and notification devices
- Manufacturer's data sheets and CSFM listing for each device or system component
- Type and size of wire, cable and conduit, and conduit fill ratios
- Point-to-point wiring plan including Class and Style of circuits
- Single line diagram with devices addressed by circuit
- Details of rated wall assembly penetrations
- Voltage drop calculations
- Standby battery calculations for notification appliance circuits

At the discretion of the Plan Reviewer, these requirements may be modified to reflect the actual modification work being performed. Where the work is limited to replacement of a deficient FACU with the exact same model of FACU, a written description of the Scope of Work and submittal of manufacturer's data sheets for the FACU along with a scaled building plan showing location of the FACU may be sufficient.

SYSTEM REQUIREMENTS - GENERAL

All Fire Alarm System Minor Modifications – including those for systems installed at Owner's or Tenant's option and not required by Building, Fire, or Life Safety Codes - shall be designed and installed in accordance with 2007 NFPA 72, and shall be reviewed and approved by the SRFD Plans Review office prior to any work being performed on the system.

Fire Alarm systems shall be designated on the plans as Protected Premises (local alarm only), Central Station, Remote Supervising Station, or Proprietary Supervising Station systems.

Manual pull stations shall be mounted 42 to 48 inches above finished floor. Automatic heat and smoke detectors shall be installed according to their listings. The room or closet containing the FACU shall be protected by a smoke detector.

Standard
Fire Alarm System Minor Modification

Fire Alarm audible notification devices shall sound throughout each occupancy, providing a sound pressure level at least 15 dBA above average ambient noise levels. Minimum sound pressure levels shall be 75 dBA in Residential Occupancies, 90 dBA in hospitals, and 75 dBA in other occupancies. Devices shall be located at least 90 inches above finished floor and at least 6 inches below finished ceiling, if conditions allow. Audible notification shall be a three-pulse temporal "evacuation" pattern.

Fire Alarm visual notification devices shall be spaced per NFPA 72, Section 7.5 or located so as to provide 0.375 cd to all occupiable spaces. Visual notification devices shall be mounted at least 96 inches above finished floor. Visual notification devices in sleeping areas for the hearing impaired shall be 110 cd if mounted 24 inches or more below the ceiling, 170 cd if mounted less than 24 inches below the ceiling.

Alarm system conductors (cable or wiring) shall be listed for their intended use and location: FPL, FPLR for risers, FPLP in plenums, THHN in conduit. FPL may not be used unprotected in underground installations (direct burial). Conductors shall be protected from physical damage (walls, conduit or raceway) for 7 feet above finished floor. Alarm wiring shall not be run in the same conduit with power or lighting circuits. Maximum conduit fill is 40% of cross-sectional area. Fire alarm system wiring is governed by NFPA 70 (National Electric Code).

The point-to-point wiring plan and the single-line diagram shall be coordinated so that devices have the same circuit address on each diagram.

Voltage drop calculations (to verify that notification devices will function at their required levels) shall include the full circuit length (two times the one-way distance), with device current requirements taken from manufacturer's data. Wire losses shall reflect the gauge of conductors shown on plans as well as the highest anticipated temperature of the location where they are to be installed. A 10% drop in voltage is permitted.

All fire alarm systems shall have two reliable sources of power: public electric service (primary) and either storage batteries or generator (secondary). Secondary power service shall be sized to run the system for 24 hours of monitoring + 5 minutes of alarm. Voice evacuation systems shall operate at full capacity for 15 minutes after 24 hours of monitoring. When a generator is to be used for secondary power, it shall include on-site fuel storage for at least 12 hours of operation, and shall be supplemented by storage batteries sufficient to operate the fire alarm system for four hours. Storage batteries shall be sized to provide at least 20% reserve capacity above the calculated operational minimum, to account for battery degradation over time.