



Santa Barbara County Fire Department

Fire Prevention Division

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Development Standard - #5

FIRE ALARM SYSTEM STANDARD

The information contained in this standard is provided solely for the convenience of the reader in complying with the Santa Barbara County Fire Department (SBCFD) requirements. It should be used as a schematic reference only. The SBCFD reserves the right to make changes and improvements to this standard as and when required by law, or otherwise, at any time. The Department's current standards will be posted and made available for downloading by the public at the following web site: www.sbcfire.com

Please note that the SBCFD assumes no liability for any damages incurred directly or indirectly as a result of any errors, omissions, or discrepancies between this standard and any applicable law. It is the sole responsibility of the person or persons conducting any work pursuant to this standard to ensure their work complies with any and all applicable codes, ordinances, and regulations.

CHAPTER 1 ADMINISTRATION

1.1 PURPOSE. This standard is prepared for the use and guidance of those charged with designing, installing, testing, and maintaining fire alarm systems and associated appurtenances.

1.2 SCOPE. This standard applies to the design and installation of automatic and manual fire alarm systems and systems whose sole purpose is to provide fire sprinkler monitoring within the Jurisdiction of the Santa Barbara County Fire District (SBCFD). This standard shall be used in conjunction with the California Fire Code as adopted by SBCFD, the California Building Code (CBC), NFPA 72, and other applicable standards.

1.3 APPLICABILITY. This standard shall apply to all fire alarm and fire sprinkler monitoring systems installed within the jurisdictional boundaries of the Santa Barbara County Fire District.

1.4 FEES. A plan check fee is required for the installation of or modification to a fire alarm system as required by the current SBCFD fee schedule.

CHAPTER 2 DEFINITIONS

DEDICATED FUNCTION FIRE ALARM SYSTEM: A protected premises fire alarm system installed specifically to perform fire safety function(s) where a building fire alarm system is not required.

FIRE SPRINKLER MONITORING SYSTEM: A system designed for the sole purpose of monitoring an automatic fire sprinkler system.

FIRE ALARM SYSTEM: A system consisting of components and circuits arranged to monitor and annunciate the status of fire alarm or supervisory signal-initiating devices and to initiate the appropriate response to those signals.

CHAPTER 3 DESIGN AND PLAN SUBMITTAL

3.1 DESIGN AND INSTALLATION. Only the following classifications of contractors and professionally licensed individuals shall be allowed to design and install commercial fire sprinklers:

3.1.1 System Design. Plans shall be designed by a C-10 licensed contractor or by a qualified person as defined in NFPA 72.

3.1.2 System Installation. Fire alarms shall be installed by an individual who holds a current State of California C-10 Electrical License.

3.1.3 Installing Contractor. Contractors may only design systems that the firm has a contract to install.

3.2 PLAN SUBMITTAL. At the time of building permit application for new structures designed to accommodate a fire alarm system, or for any installation of or modification to an existing fire alarm system, plans and specifications shall be submitted for review and approval. The submittal shall include the information specified herein as well as a copy of the manufacturer's data sheets, California State Fire Marshal listings on all system components and devices, and U.L. certificate for a central station monitoring company. Once approved, a copy of the approved plan shall be maintained on the premises.

3.2.1 Plans shall be drawn to an indicated scale of not less than 1/8 inch = 1 foot and digitally submitted to Planning and Engineering by emailing digital copies of all documents to pe.submittals@countyofsb.org. Plans shall include:

- 1) Scope of work for the project
- 2) Name of owner and/or occupant
- 3) Location of project, including parcel #, street, number, and city
- 4) Applicable codes and standards used for the system design
- 5) Building occupancy classification
- 6) Total occupant load for each floor level
- 7) Identify sprinklered buildings
- 8) List of initiating and signaling zone assignments
- 9) Room use/description
- 10) Sequence of Operations
- 11) Designated ADA room(s)
- 12) Device and locations of devices
- 13) Controls locations
- 14) Smoke/fire damper locations
- 15) Location and identification of fire protection systems (hoods, FM-200, pre-action, etc)
- 16) Location and purpose of all external devices/relays (door holders, elevator recall, etc)
- 17) Point to point system wiring diagram
- 18) Interconnection of identified devices
- 19) Conduit connection and size

- 20) Type and size of wire or cable
- 21) Symbol list and equipment identification per NFPA 170
- 22) Model number and manufacturer's name
- 23) Quantity of each type of device
- 24) California state Fire Marshal listing number
- 25) Riser diagram
- 26) Single line interconnection of devices
- 27) Conductor quantity, either hash marks or number
- 28) For installations with a voice evacuation system, submit the voice evacuation message for review and approval prior to final inspection.

3.2.2 Voltage Drop Calculations. The following information shall be contained in the voltage drop calculations.

- 1) Quantity of audio/visual indicating devices on furthest circuit and current consumption.
- 2) Length of furthest circuit and resistance of wire.
- 3) Formula on drawing and acceptable limit.

3.2.3 Battery Calculations. The following information shall be contained in the battery calculations.

- 1) Standby power consumption for all current drawing devices, multiplied by the hours required by the applicable NFPA Standard.
- 2) Alarm power consumption of all current drawing devices, multiplied by the minutes required by the applicable NFPA Standard.

3.2.4 Field Changes. Field changes may require re-submittal of plans along with additional plan check fees.

3.3 VERBATIM NOTES. The following notes shall be completed and placed verbatim on the working fire alarm plans:

1. This fire alarm system shall be designed and installed per the Santa Barbara County Fire Code Chapter 15, the 2022 California Building Code (CBC) NFPA 72-2022, and other applicable standards.
2. All fire alarm systems wiring shall be installed per National Electrical Code requirements.
3. Automatic fire sprinkler water flow alarms, supervisory initiating devices, and their circuits, shall be designed and installed so they cannot be readily tampered with, opened, or removed without initiating a signal.
4. The circuit disconnect breaker providing power to the fire alarm unit shall be locked and identified in red as "FIRE ALARM CONTROL UNIT."
5. All fire alarm control units shall be interconnected with any other fire alarm control units located within the facility.
6. All audible alarm notification signals shall be a three pulse temporal pattern. For installations with a voice evacuation system, submit the voice evacuation message for review and approval by SBCFD.
7. Upon general alarm, all doors with electro-magnetic locks shall release.
8. Combination Fire/Burglary alarm units are not permitted in Santa Barbara County. A listed combination control panel may be used for fire alarm purposes only. An engraved plastic placard with white letters on red background shall be

permanently affixed to the front of the FACU and shall read "FIRE ALARM CIRCUIT WIRING ONLY".

9. A manual means to transmit an alarm signal shall be required in systems installed in remote locations.

10. Duct detectors shall shut down the individual unit along with its smoke/fire dampers.

11. Duct detectors that are not readily visible shall have a remote LED with label mounted on the ceiling directly below the detector.

12. Provide a sign at the door to the fire control panel to read "FIRE ALARM CONTROL PANEL INSIDE".

13. Upon completion of the work on the approved plans, a satisfactory test of the entire installation shall be conducted in the presence of a Fire Prevention Bureau representative.

14. The contractor shall conduct a 100% pre-test of the system prior to inspection. The inspection will include an actual test of the system. If during the inspection, deficiencies are noted, the test may be stopped and re-inspection fees may be charged.

15. A final copy of the "RECORD OF COMPLETION" shall be given to the system owner and the fire code official after completion of alarm testing as witnessed by a SBCFD representative.

16. A document box that contains required records including approved plans, records of completion, and ITM reports and placed adjacent to the panel.

17. An exterior notification appliance (audio and visual) shall be provided at the location of the main fire department apparatus access point.

18. Secondary (standby) power supply shall be tested in accordance with NFPA 72 in the presence of Santa Barbara County Fire representative.

19. Smoke detectors shall be tested using smoke. Refer to manufacture for compatibility.

3.4 MODIFICATIONS AND UPGRADES. All modifications, changes and communication upgrades to existing systems require a plan check and inspection by the Fire District.

CHAPTER 4 GENERAL

4.1 COMBINATION ALARM PROHIBITED. Combination Fire/Burglary alarm units are not permitted in the Fire District.

4.2 R-2 BUILDINGS. R-2 buildings in which an alarm is required shall have an audible device in each dwelling unit, as well as an exterior device. Group R-2 Occupancies per 2022 CFC section 907.5.2 shall provide capabilities to support visual notification devices.

4.3 ANNUNCIATOR. An annunciator panel may be required in an approved remote location when deemed necessary (building lobbies, reception areas, etc).

4.3.1 Annunciators shall not be used to annunciate security alarm or any other building signals.

4.4 EXTERIOR NOTIFICATION DEVICE. An exterior notification device with both audio and visual shall be provided on the exterior of the building at the location of the main fire department apparatus access point.

4.5 DUCT DETECTORS. Duct detectors shall sound a supervisory signal at the panel, and may initiate notification appliances, but are not permitted to transmit a general alarm signal when monitored by a supervising station.

4.5.1 Duct detectors shall perform a global shut down of all units.

4.6 FIXED EXTINGUISHING SYSTEMS. Fixed Extinguishing Systems such as Kitchen Hood Suppression Systems shall be interconnected to Fire Alarm and may be interconnected to Fire Sprinkler Monitoring Systems if desired by the business/building owner.

4.7 FIRE ALARM CONTROL PANELS. Fire Alarm Control Panels (FACP) shall be installed in accordance with the following:

4.7.1 FACP's shall have thirty-six (36) inches of clearance.

4.7.2 FACP's shall be mounted sixty (60) to seventy-two (72) inches above finished floor to the top of the panel.

4.7.3 When placed in a room, the door to the room shall be labeled with a sign reading "FIRE ALARM CONTROL PANEL INSIDE" or verbiage to the same practical effect.

4.7.4 FACP's shall be locked to prevent tampering. A key shall be placed in the Knox Box.

4.8 FIRE SPRINKLER MONITORING SYSTEM. All commercial automatic fire sprinkler systems with twenty (20) or more sprinklers shall be monitored by a UL listed central station. Fire alarm systems dedicated to fire sprinkler monitoring only shall be provided with the following minimum devices:

4.8.1 Fire Alarm Control Unit. Underwriters Laboratory and California State Fire Marshal listed control panel. (Fire alarm wiring only)

4.8.2 Annunciator Panel. An annunciator panel may be required in an approved remote location when deemed necessary. (building lobbies, reception areas, etc)

4.8.3 Smoke Detector. Smoke detection shall be provided at the location of each fire alarm control unit.

4.8.4 Waterflow Switch. All waterflow switches shall be electrically supervised. Tamper Switch. All valves controlling the water supply shall have a tamper switch that is electrically supervised.

4.8.5 Audible Device. One exterior approved audible device shall be connected to every automatic sprinkler system in an approved location. The fire sprinkler bell shall meet this requirement and no interior devices shall be required unless a building fire alarm system is required by Section 907 of The Ventura County Fire Code.

4.8.6 Duct Detectors may be connected to Fire Sprinkler Monitoring Systems.

4.9 ALTERNATIVE METHODS. The Fire Chief or their designee is authorized to approve alternate materials or methods provided that the Chief finds that the proposed design, use or operation satisfactorily complies with the intent of the Fire Code.

CHAPTER 5 EXISTING FIRE ALARM SYSTEMS

5.1 GENERAL. Alterations to an existing fire alarm system shall be approved by SBCFD.

5.2 FIRE ALARM CONTROL PANELS. Any replacement or upgrade of the fire alarm control panel in an existing fire alarm system shall be approved.

5.3 COMMUNICATION METHODS. Any proposed changes to the communication methods of an existing fire alarm system shall be approved.

5.4 PLANS. Plans shall reflect an accurate scope of work, show existing number of devices, and proposed number of new devices.

CHAPTER 6 INSPECTIONS AND TESTING

6.1 INSPECTIONS. The requirements for inspections and types of inspections that are to be conducted are listed in this chapter and shall comply with the following.

Note: Rough or Pre-wire inspections are not required by SBCFD

6.2 COVERING WORK. No work shall be covered or otherwise rendered inaccessible or unviewable prior to fire department inspection.

6.3 SCHEDULING WINDOW. Inspections shall be scheduled at least two business days prior to the desired inspection time via the inspection request webpage found at <https://sbcfire.com/inspection-requests/>

6.4 FINAL INSPECTION AND ACCEPTANCE TEST. The fire alarm system and all of the related components shall be tested and accepted by the Fire Prevention Bureau at the final inspection stage, prior to occupancy being granted.

6.4.1 At the time of new system acceptance, a final copy of the "RECORD OF COMPLETION" shall be provided to the system owner and the fire code official.

6.4.2 A copy of the plans shall be kept by the FACP in a document storage box labeled "Fire Alarm Plans", "Fire Alarm Drawings" or similar.

Exception: For changes to Fire Alarm Systems, a minimum of 50% off ALL existing devices shall be randomly tested. All new devices shall be tested.