



STANDARD 14.7.3

FIRE PROTECTION SYSTEMS INSTALLATION OF FIRE ALARMS

The information contained in this standard is provided solely for the convenience of the reader and was being enforced by the Ventura County Fire Protection District at the time of its publication. The District reserves the right to make changes and improvements to this standard as and when required by law, or otherwise, at any time. (The District's current standards will be posted and made available for downloading by the public at the following web site: <http://fire.countyofventura.org>.)

Please note that the District 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 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 Ventura County Fire Protection District (VCFPD). This standard shall be used in conjunction with the Ventura County Fire Code (VCFC), the 2010 California Building Code (CBC), NFPA 72-2010, and other applicable standards.

1.2 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.

1.3 Responsibility.

1.3.1 General. All individuals and companies who intend to engage in the installation or alteration of Fire Alarm Systems are subject to the requirements of this standard.

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

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

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

1.4 Permits. A construction permit is required for the installation of or modification to a fire alarm system.

1.4.1 Construction permits shall automatically become invalid unless an inspection authorized by such permit is commenced within 6 months of being issued.

1.4.2 Construction permits shall require inspections at a minimum of every 6 months or such permit shall become invalid.

1.4.3 Construction permits that have become invalid may be re-issued, if all of the following conditions are met:

- (1) The permit was issued or an inspection has occurred within the previous 12 months.
- (2) No changes have been made or will be made in the original construction documents.
- (3) Previously approved construction documents shall be submitted to VCFPD.
- (4) Fees equal to one-half the amount for a new permit have been paid.

CHAPTER 2 DEFINITIONS

2.1 General. The following words and terms shall, for the purposes of this standard and permit requirements of the VCFC, have the meanings shown herein.

2.2 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.

2.2.1 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 per Section 907 of the VCFC.

2.3 Dwelling Unit. One or more rooms arranged for complete, independent housekeeping purposes with space for eating, living, and sleeping; facilities for cooking; and provisions for sanitation.

2.4 Fire Sprinkler Monitoring System. A system designed for the sole purpose of monitoring an automatic fire sprinkler system as described in Section 903.4 of the VCFC.

2.5 Ventura County Fire Code (VCFC). The specified portions of the California Building Standards Codes known as California Code of Regulations, Title 24, Part 9, "California Fire Code (CFC)" as adopted by the State Fire Marshal (SFM) and; portions of The International Fire Code (IFC), 2009 Edition referenced by the California Building Standards Code and not adopted or modified by the SFM and; the VCFPD amendments contained in Ordinance 27 to the above-referenced codes.

CHAPTER 3 FIRE SPRINKLER MONITORING SYSTEMS

3.1 General. All commercial automatic fire sprinkler systems with 20 or more sprinklers shall be monitored by a UL listed central station.

3.2 Minimum Requirements. Fire alarm systems dedicated to fire sprinkler monitoring only shall be provided with the following minimum devices:

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

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

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

3.2.4 Waterflow Switch. All waterflow switches shall be electrically supervised.

3.2.5 Tamper Switch. All valves controlling the water supply shall have a tamper switch that is electrically supervised.

3.2.6 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.

3.3 Duct Detectors. May be connected to Fire Sprinkler Monitoring Systems.

CHAPTER 4 GROUP R-2 OCCUPANCIES

4.1 Visible Notification. All dwelling units in **Group R-2** occupancies required by **Section 907** of the **2010 Ventura County Fire Code** to have a fire alarm system shall be provided with the capability to support visible alarm notification appliances in accordance with **NFPA 72**.

4.2 Code Interpretation. The interpretation by VCFPD is the fire alarm system shall be designed to accommodate any future installation of visual appliances in any units. The intent of the code is having flexibility to convert any unit in R-2 occupancies to a hearing impaired unit. Although the code is not clear at what level the system should be designed for future expansion, the flexibility to convert any dwelling unit requires all system components to be installed with the exception of the visual appliance (i.e. junction boxes conduits, wire sized to support expansion of the system, and power supplies.) Power supplies are permitted to be provided or expandable.

4.3 Plans. One separate set of plans shall be submitted upon initial submittal for Group R-2 occupancies detailing complete future expansion.

CHAPTER 5 EXISTING FIRE ALARM SYSTEMS

5.1 General. Alterations to an existing fire alarm system shall be approved by VCFPD.

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, proposed number of new devices and applicable requirements stated in Chapter 4.

5.5 Fees. The current published fee schedule shall be referenced for all fee assessments.

5.6 Inspections. A minimum of **50%** off ALL existing devices shall be randomly tested. **ALL** new devices shall be tested.

CHAPTER 6 PLANS SUBMITTAL

6.1 General. Plans and specifications shall be submitted to VCFPD, Fire Prevention Bureau as indicated elsewhere in this document.

6.2 Building Permits. Obtain any applicable permits from the appropriate **Building & Safety Department** to install the fire alarm system.

6.3 Plans and Specifications 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. In addition to the information required by the applicable standard, the submittal shall include the information specified herein. Once approved, a copy of the approved plan shall be maintained on the premises.

6.4 Submittal Requirements. Submit a minimum of three sets of plans, one copy of the manufacturer's data sheets, California State Fire Marshal listings on all system components and devices, U.L. certificate for a central station monitoring company, Fire Prevention Bureau incoming transmittal form and the appropriate fees to the Ventura County Fire Prevention Bureau located at 165 Durley Avenue, Camarillo CA 93010. Fire Prevention Counter hours are Monday through Friday, 8:00 a.m. to 5:00 p.m.

6.5 Fees. Appropriate fees can be found in the Ventura County Fire Protection District's Fee Schedule at <http://fire.countyofventura.org> or by calling the Fire Prevention Counter at (805)389-9738. Fees can be paid by check/money order, Visa or MasterCard. Plan Check fees include the original plan check and one re-check. Please ensure that all corrections are made prior to re-submittal to avoid additional fees. All fees shall be paid at the time of plan submittal.

6.6 Plans Approval. Plans will be checked and if approved, will be stamped "**Acceptable**", signed and dated. The Fire Department will retain one set.

6.7 Case Number. The Fire Department has instituted the use of a "**Case Number**" for tracking all projects submitted for review. To provide faster customer service, please refer to your Case Number when contacting this Department. Your Case Number will also be listed on the Fire Department approved plans.

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

CHAPTER 7 PLAN SPECIFICATIONS

7.1 Specifications. Specifications for Fire Alarm Systems shall be drawn with care by a trained person.

7.2 Size and Scale. Plans shall be drawn on a minimum of 24"x36" paper and shall be drawn to an indicated scale of not less than 1/8 inch = 1 foot.

7.3 Plans. The following items shall be included in all Fire Alarm System plan specifications.

- (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

7.4 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.

7.5 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.

CHAPTER 8 VERBATIM NOTES

- 8.1 Verbatim Notes.** The following notes shall be completed and placed verbatim on the working fire alarm plans.
- 8.1.1** Construction permits shall automatically become invalid unless an inspection authorized by such permit is commenced within 6 months of being issued.
- 8.1.2** Construction permits shall require an inspection at a minimum of every 6 months or such permit shall become invalid.
- 8.1.3** A current 5-year inspection certification tag shall be affixed to the fire sprinkler system riser(s) and a copy of the inspection report shall be on file with this department per the VCFC and NFPA 25-2006 California Edition.
- 8.1.4** This fire alarm system shall be designed and installed per the Ventura County Fire Code (VCFC), the 2010 California Building Code (CBC) NFPA 72-2010, and other applicable standards.
- 8.1.5** All fire alarm systems wiring shall be installed per National Electrical Code requirements.
- 8.1.6** 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.
- 8.1.7** The circuit disconnect breaker providing power to the fire alarm unit shall be locked and identified in red as **"FIRE ALARM CONTROL UNIT."**
- 8.1.8** All fire alarm control units shall be interconnected with any other fire alarm control units located within the facility.
- 8.1.9** 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 VCFD.
- 8.1.10** Upon general alarm, all doors with electro-magnetic locks shall release.
- 8.1.11** Combination Fire/Burglary alarm units are not permitted in Ventura 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"**.
- 8.1.12** Duct detectors shall send a supervisory signal to the panel, and may initiate notification appliances, but are not permitted to transmit a general alarm signal to a central station.
- 8.1.13** Duct detectors shall shut down the individual unit along with its smoke/fire dampers.
- 8.1.14** Duct detectors that are not readily visible shall have a remote LED with label mounted on the ceiling directly below the detector.
- 8.1.15** Duct detectors connected to a fire sprinkler monitoring system shall be monitored for power loss and must be capable of being reset from the panel or LED/reset switch.
- 8.1.16** Manual pull stations, area smoke detectors, and heat detectors shall shut down all HVAC units and close smoke/fire dampers, unless otherwise approved by the chief.

8.1.17 Provide a sign at the door to the fire control panel to read “**FIRE ALARM CONTROL PANEL INSIDE**”.

8.1.18 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.

8.1.19 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.

8.1.20 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 VCFPD representative.

CHAPTER 9 INSPECTIONS

9.1 General. The inspection fee that is paid at the time of plan submittal will provide you with two inspections to complete the project. For projects that exceed this limit, inspection requests will not be accepted unless additional fees are paid prior to scheduling an inspection.

9.2 Responsibility. It is the responsibility of the installing contractor to be on the job site during the inspection with approved plans. Failure to do so will result in the cancellation of the inspection. Cancelled inspections will be counted as one inspection.

9.3 Inspection requests. Inspection requests can only be taken from the installing contractor. Inspections shall be requested Monday through Friday prior to 3:00 p.m., one business day prior to inspection.

9.4 Inspection Schedule. It is the intent of the Ventura County Fire Prevention Bureau to perform inspections one business day after the inspection has been requested. However due to training requirements, meetings, emergency services and other scheduled and non-scheduled events it cannot be guaranteed that all inspections will be conducted the next business day.

9.5 Schedule by phone. Call (805) 389-9744 one business day prior to inspection for scheduling an inspection. The inspection request line is open Monday through Friday between 8:00 a.m. and 3:00 p.m.

9.6 Schedule by fax. Inspections can be scheduled via fax at (805) 388-4356. Ventura County Fire Prevention Bureau form FP13.1.3, found at <http://fire.countyofventura.org>, must be used to request inspections. Fax inspection requests must be received prior to 3:00 p.m.

9.7 Contact Information. Be sure to leave your phone number, when you schedule an inspection by phone or fax, where the inspector can call you back, after 7:30 a.m. the day of the inspection, to notify you of your inspection time.

9.8 Inspection times. Inspection times are approximate and may vary because of delays at previous inspections or emergency response by Fire Department personnel. Please allow time on either side of the inspection time for the inspector to arrive.

CHAPTER 10 ACCEPTANCE TESTING

10.1 General. Inspections of fire alarm systems will not be conducted prior to plans being approved.

10.2 Pre-Test. The contractor shall conduct a 100% pre-test prior to scheduling an inspection.

10.3 Rough Inspection. Rough inspections are not required by VCFPD but may be performed when requested.

10.4 Final Inspection. 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.

10.4.1 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.

CHAPTER 11 INSPECTION AND MAINTENANCE

11.1 General. The maintenance and testing schedules and procedures for fire alarm and fire detection systems shall be in accordance with Sections 907.9.1 through 907.9.5 of the VCFC and NFPA 72.

11.1.1 The building owner shall be responsible to maintain the fire and life safety systems in an operable condition at all times.

11.2 Service Personnel. Service personnel shall be qualified and experienced and maintain an appropriate and valid contractor’s license with the California Contractors State License Board.

11.3 Annual Testing. Fire alarm systems shall be tested in accordance with **Chapter 14 of NFPA 72** and records shall be retained until the next test and for **1 year thereafter.**

11.4 Inspections. Visual inspections shall be performed in accordance with **Chapter 14 of NFPA 72** and records shall be retained until the next inspection and for **1 year thereafter.**

11.5 False Alarms. Fire alarm systems that transmit excessive false alarms will be evaluated by the Fire Prevention Bureau and may be assessed fees in accordance with the current fee schedule.