



SANTA CLARA COUNTY FIRE DEPARTMENT

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STANDARD DETAILS & SPECIFICATIONS

SUBJECT: Installation Requirements for Early Warning
Alarm Systems (EWAS) for Single-Family
Residence

Spec No C-4
Review Date _____
Revis. Date. 03.10.10
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Approved By _____
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SCOPE

This standard provides the requirements for an EWAS system in the City of Saratoga. EWAS systems shall be installed in accordance with Section 16.60.020 of the City of Saratoga Municipal Code.

DEFINITIONS

CBC: California Building Code. When followed by a year means the particular edition of that Code.

CEC: California Electric Code. When followed by a year means the particular edition of that Code.

CFC: California Fire Code. When followed by a year means the particular edition of that Code.

CMC: California Mechanical Code. When followed by a year means the particular edition of that code.

CSFM: California State Fire Marshal.

EWAS: Early Warning Fire Alarm System.

NFPA: National Fire Protection Association. When followed by a number and year means the particular number and year of the NFPA standard being referenced.

SPL: Sound Pressure Level. As measured in decibels with sound level meters set "A" weighted and "fast" response.

Supervising Station: A facility that receives EWAS signals and at which personnel are available at all times to respond to these signals.

Zone: A space within a structure that is separated from all other spaces by floors,



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horizontal exits, or smoke barriers. Compartments not meeting these requirements shall be evaluated as part of an adjacent zone. When a floor is not subdivided by horizontal exits or smoke barriers, the entire floor is considered to be a single zone. (See also CFC 2007 Section 907.9.1).

REQUIREMENTS

I. Where Required

- A. All **NEW** single-family dwellings, commercial structures and community facilities within a designated hazardous fire area.
- B. Any existing single-family dwelling, commercial structure or community facility which is expanded by 50% or more in gross floor area and is located within a designated hazardous fire area.
- C. All new single-family dwellings, commercial structures and community facilities having a gross floor area in excess of five thousand square feet.
- D. Any existing single-family dwelling, commercial structure or community facility which is expanded by 50% or more in gross floor area which, after such expansion, will exceed five thousand square feet in gross floor area.
- E. All new multi-family dwellings and other new structure having multiple sleeping units including, but not limited to, hotels, motels, apartments, condominiums or other community housing projects, townhouses and nursing homes.
- F. Any existing multi-family dwelling or other structure having multiple sleeping units such as described in Paragraph 5 above, which is expanded by 50% or more in gross floor area.

II. Discretionary Requirement for Existing Commercial Structures and Community Facilities

- A. Where an existing commercial structure or community facility is remodeled or the use thereof is changed, and such commercial structure or community facility either; (1) has a gross floor area in excess of five thousand square feet, or (2) regardless of size, is located within a designated Hazardous Fire Area, the Chief of the Fire Department having jurisdiction over the project may require the installation of an EWAS based on the following considerations:
 - 1. There is an occupant load increase of 50% or more.
 - 2. There is a new commercial cooking operation.



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3. A hazardous materials storage permit is required.
4. The principal use involves the care or supervision of building occupants such as day care facilities for children or senior citizens.

III. Plan Submittal

A. Submittal Requirements for Plan Check

1. All plans and specifications for the installation, repair, alteration, or upgrades of an Early Warning Fire Alarm System shall be subject to review and approval by the Fire Department. All documentation relative to the proposed installation, repair, alteration or upgrade shall be submitted to the Fire Department for plan check. **One copy of such documentation shall also be furnished to the Fire Chief of the Saratoga Fire District,** who shall determine whether the proposed installation, repair, alteration or upgrade will comply with the EWAS Regulations.

B. Qualification of System Designer

Submittals for approval of the EWAS work shall be made by a person holding a valid Fire Protection Engineering license or a qualified and experienced, design-build contractor with a valid California State C-10 Electrical Contractor's License. Plans and accompanying submittals shall be wet signed by the licensed design-build C-10 contractor. If the installing C-10 contractor is not the designer of the system, the plans and accompanying submittals shall be stamped and wet signed by a licensed Fire Protection Engineer.

C. Information and Documents to be Submitted

1. The submittal documentation shall include the following:
 - a. **Three sets** of working plans shall be submitted, drawn to an indicated scale (not smaller than 1/8" = 1'), on sheets of uniform size (11"x17" minimum), with a plan of each floor including basements and attics.
 - b. Complete manufacturer's specification sheets with appropriate CSFM listing for each system component. If more than one model of the device is represented on the specification sheet, clearly indicate the specific item(s) to be installed.
 - c. The working plans for new installations submitted for review shall contain the following items:



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- i. Names of owner and occupant.
- ii. Street address of building, including assessor's block and lot number or parcel number.
- iii. Contractor's name, address, telephone number, email address and license number and class.
- iv. Stamp (including expiration date) and wet signature of engineer of record (if applicable) or wet signature of C-10 design-build contractor.
- v. Legend to include symbol list, description, quantity, manufacturer, model number, CSFM number for each device.
- vi. Site map (for clarity) to include surrounding access roads and point of compass.
- vii. Cross sectional drawings including ceiling height as needed for clarity.
- viii. Location of partitions and walls indicating which extend through concealed space.
- ix. Use of each area and room.
- x. Describe the degree the building is protected by automatic sprinklers. Is the elevator hoistway and/or the elevator machine room protected by sprinklers?
- xi. Location of each device to include address, candela and proposed SPL.
- xii. Diagram indicating device address nomenclature.
- xiii. Mounting heights of manual fire alarm boxes and notification appliances.
- xiv. Type and size of wire, cable and conduit (include conduit fill ratio).
- xv. Single line riser diagram. NOTE: No combination control panels servicing both fire and burglar alarm systems will be allowed.
- xvi. Wiring diagram showing the connection to primary power source and typical point-to-point wiring diagram of each initiation and notification device.



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- xvii. Standby battery calculation for the fire control panel and fire alarm power supplies.
 - xviii. Voltage drop calculations (voltage drop shall not exceed 10% or manufacturer's minimum specification, whichever voltage drop is less).
 - xix. Sequence of operation narrative or matrix.
 - xx. Assignment of class and style designation to device circuits (signaling line circuit, initiating device circuit, and notification appliance circuit).
 - xxi. List of protected premises (fire system annunciator/fire control panel) zones to include list of zones assigned initiation device addresses.
 - xxii. Description of ancillary features and operations (such as smoke control, fire/smoke damper operation, fan shutdown, phase one emergency elevator operation, corridor pendant lights etc.), and a description of any special features, such as detector cross zoning.
 - xxiii. Indicate method of compliance with CBC 2007 Sections 709.6 and 710.3 for through penetrations. Include manufacturer's cut sheets and CSFM listing.
 - xxiv. Per CEC 2001 Section 760-10, fire alarm circuits shall be identified at terminal and junction locations, in a manner that will prevent unintentional interference with the signaling circuit during testing and servicing. All splice boxes shall be tagged, labeled, or color-coded to indicate containing fire circuits and remain accessible.
 - xxv. Name, address, and telephone number of alarm service company and, if available, the name of a contact person.
 - xxvi. Such other information and documents as Fire Chief deems reasonably necessary in order to determine whether the proposed EWAS installation will comply with the EWAS Regulations set forth herein.
- b. The working plans for **modifications to existing systems** shall contain the following items:
- i. Make, model number and current CSFM listing sheet of existing fired control panel.



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- ii. Size of existing battery, battery calculations to include new devices.
 - iii. Make and model number of existing devices (to ensure compatibility).
 - iv. Manufacturer's specification sheets and CSFM listing sheets on new devices.
 - v. Address all items for new submittal (listed above) relative to new or modified system devices.
 - vi. Sequence of operation to include all new, modified and existing devices.
 - vii. Such other information and documents as Fire Chief deems reasonably necessary in order to determine whether the proposed modification to the existing system will comply with the EWAS Regulations set forth herein.
- c. Payment of Plan Check Fee.

Each request to the Fire Department for review and approval of plans or other materials relating to the installation of a new Early Warning Alarm System or the modification of an existing Early Warning Alarm System shall be accompanied by the payment of a plan check fee.

D. Qualifications and Responsibilities of Installer

1. Installation of early warning fire alarm systems shall be under the direct supervision of a person holding a valid Fire Protection Engineering license or a qualified and experienced contractor with a valid California State C-10 Electrical Contractor's License.
2. All such systems shall be installed in a workmanlike manner and in accordance with the approved plans and specifications, the EWAS Regulations set forth herein, and such other requirements as may be adopted by the City of Saratoga.
3. Upon completion of the installation and prior to calling for a final inspection, the licensed installer shall conduct a 100% certification test of the system and provide a completed Fire Alarm System Record of Completion form (NFPA 72 2007 figure 4.5.2.1) for the Fire Department and the EWAS Owner.
4. The licensed installer shall instruct the EWAS Owner, or the Owner's designated representative, in the use of the EWAS.



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5. The licensed installer shall provide the EWAS Owner with a complete set of applicable manufacturer's operating manuals, specifications, and as-built drawings.
6. The licensed installer shall provide the Santa Clara County Fire Department one set of as-built drawings. A set of as-built drawings shall also be provided to the Saratoga Fire District.

IV. Required Inspections

- A. A rough wire inspection is required to assure the placement of devices meet the code requirements.
- B. A final inspection is required to determine all devices function properly and report to Saratoga Fire District's designated monitoring station through the phone line and radio transmission.

V. EWAS Design Standards

- A. Early Warning Fire Alarm Systems shall be designed, installed and maintained in accordance with the following codes and standards:
 1. CBC 2007
 2. CEC 2001
 3. CFC 2007
 4. CMC 2001
 5. NFPA 13, 13D, 13R (2002 editions) as amended in CBC 2007, Chapter 35.
 6. NFPA 20 2003
 7. NFPA 72 2007 as amended in CBC 2001, Chapter 35.
 8. NFPA 72 2007 Chapter 11, as amended in CBC 2001, Chapter 35.
 9. NFPA 90A 1999
 10. NFPA 92A 2003
 11. Any applicable provisions of the City's building regulations as contained in Title 16 of the Saratoga Municipal Code
- B. EWAS Equipment Certification

All equipment used in Early Warning Alarm Systems shall be CSFM listed and approved for the purposes for which it is installed.
- C. Monitoring of EWAS



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All Early Warning Alarm Systems shall be installed and maintained to permit monitoring 24 hours a day 7 days a week, in such manner as may be specified by the Saratoga Fire District. No EWAS equipment shall be altered to redirect an alarm signal to any location other than the supervising station approved by the Saratoga Fire District. The EWAS Owner may voluntarily install a dual monitoring system approved by the Fire Chief, but if installed, the first alarm signal must at all times be transmitted to the Saratoga Fire District's supervising station.

VI. General Installation Requirements

A. Inspection and Testing

1. Inspections by Fire Department

- a. The Fire Department will be conducting installation inspections of any EWAS installed in a structure pursuant to these EWAS Regulations. The Santa Clara County Fire Department will notify the Saratoga Fire District when the final test and acceptance of EWAS is completed and provide names and phone numbers of the property owners.
- b. The EWAS Owner shall be responsible for payment of any inspection fees that may be established by Santa Clara County Fire Department for performance of the inspection services pursuant to this Section.

2. Inspections by Contractors

- a. The inspection and testing of all fire alarm systems described in these standards shall be per NFPA 72 2007 Chapter 10 as adopted or amended by CSFM in the CBC/CFC. More stringent inspection or testing procedures that are required by other parties shall be permitted.
- b. Service personnel shall be qualified and experienced in the inspection, testing, and maintenance of fire alarm systems per NFPA 72 2007 Section 10.2.2.5.

B. Voluntary Installations

Nothing contained herein shall prohibit any person from voluntarily installing and maintaining an early warning fire alarm system as described in these EWAS Regulations in any type of building or structure within the City, subject only to appropriate arrangement for such installation and maintenance being made between the EWAS Owner and the Fire Department.

VII. Single Family Residential Structures



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A. Early Warning Alarm Systems for single-family residential structures shall comply with the following requirements:

B. Initiation

1. Smoke detectors. System smoke detectors shall be installed per NFPA 72 2007 Chapter 5 as amended in CBC 2007, Chapter 35.
 - a. Exception 1: System smoke detectors shall be installed within all sleeping rooms.
 - b. Exception 2: Single or multi-station "Smoke Alarms" can be substituted for System type smoke detectors if all of the following requirements are met:
 - i. An alarm condition on any one Smoke Alarm shall initiate the evacuation sequence of the alarm system.
 - ii. Alarm system shall annunciate and communicate the zone of fire origin.
 - iii. Per NFPA 72 2007 11.3.5: Newly installed alarm notification appliances used with a household fire warning system and single and multiple station smoke alarms shall produce the audible emergency signal described in ANSI S3.41, Audible Emergency Evacuation Signal. Signals from different notification appliances shall not be required to be synchronized.
2. Heat detectors. Heat-sensing fire detectors of the rate of rise and/or fixed temperature spot-type, with the appropriate temperature classification shall be installed in but not limited to the following areas: furnace/boiler rooms; mechanical rooms; bathrooms with a floor area exceeding 55 sq. ft.; attics; garages (not carports); kitchens; storage areas.
 - a. Exception: Where an automatic sprinkler system is installed per NFPA 13, 13D or 13R and monitored by the fire alarm system, no heat detectors shall be required to be installed in areas already protected by the sprinkler system except for operation of control equipment as required by another standard or code.
3. Automatic an automatic sprinkler system is installed per NFPA 13, 13D or 13R and monitored by the fire alarm system, no heat detectors shall be required to be installed in areas already protected by the sprinkler system except for operation of control equipment as required by another standard or code.



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4. Manually actuated alarm-initiating devices.
 - a. Manual fire alarm boxes shall be located in the following locations:
 - i. Minimum one manual pull on each floor level including basements.
 - ii. At the front entry.
 - iii. At the door from the dwelling to the garage if applicable.
 - b. Per CFC 2007 Section 907.4.2, manual fire alarm boxes shall be installed a minimum of 42" and a maximum of 48" above finished floor to the operable part.
5. Medical emergency push buttons. Medical emergency push buttons shall be required for all types of occupancies. At least one medical emergency push button shall be located on each story/level of the structure. A push button should normally be located in the kitchen area near the telephone and either in or near the master bedroom. Additional buttons may be required, as determined by the Fire Chief.

C. Notification

1. Notification appliances shall be installed per:
 - a. Notification 72 2007 as amended in CBC 2007, chapter 35.
 - i. Exception: The maximum allowable SPL of audible notification appliances complying with section 7.4.2.1 of NFPA 72 (2007 edition) shall be no greater than 110 dBA at the minimum hearing distance from the audible appliance per CFC 2007 section 907.10.
 - b. NFPA 72 2007 Chapter 7, as amended in CBC 2007, Chapter 35.
 - c. If alarm notification appliances for hearing impaired persons are employed in sleeping rooms then they shall be installed per NFPA 72 2007 chapter 7 or CBC 2007, chapter 35.
2. To facilitate location of premises, an exterior weatherproof horn strobe shall be installed facing the direction of emergency services approach.
3. Fire System Annunciation:



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- a. The fire system annunciator shall be installed per NFPA 72 2007 and CFC 2007 section 907.9.2.
- b. The fire system annunciator (also known as a remote keypad) can be located within the common entry area or other location approved by the Fire Chief.

D. Control Equipment

1. No control panels for a combination of fire and burglar alarm systems shall be allowed.
2. Control equipment shall be installed per CBC 2007, Chapter 35 Section and NFPA 72 2002 as amended in CBC 2007, chapter 35.
3. System type shall be supervising station.

E. Communications

1. All alarm systems shall be supervising station systems per CBC 2007, Chapter 35 provided, however, the test signal for any EWAS panel shall be daily instead of monthly, as cited in CBC chapter 35.
2. Optionally (but may be required by the Fire Chief), per NFPA 72 2007 section 8-5, a Digital Alarm Radio Transmitter can be provided as a secondary or backup channel of communication. For residential occupancies, other optional secondary or backup methods of transmitting signals off site may include radio, cell phone, second phone line or other method as approved by the Fire Chief.

VIII. Multi-Family Residential Structures

- A. Early Warning Alarm Systems for multi-family residential structures shall comply with the following requirements:
- B. Initiation
 1. Smoke Detectors
 - a. System smoke detectors shall be installed per NFPA 72 2007 Chapter 5.



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- b. System smoke detectors shall be provided in all common areas and interior corridors of all multi-family Group R occupancies.
 - c. System smoke detectors shall be provided within all dwelling units and guest rooms per CBC 2007 section 907.2.10.1.2. Upon activation of the detector(s), only those notification appliances in the dwelling unit or guest room shall activate. When activated, the system smoke detector shall indicate a supervisory condition on the fire system annunciator, the fire control panel, and the supervising station indicating dwelling unit of origin.
 - i. Exception: Single or multi-station "Smoke Alarms" can be substituted for System type smoke detectors if all of the following requirements are met:
 - 1. An alarm condition on any one Smoke Alarm shall indicate a supervisory condition on the fire system annunciator, the fire control panel, and the supervising station indicating dwelling unit of origin.
 - 2. Newly installed single and multiple station smoke alarms shall produce the audible emergency signal described in ANSI S3.41, Audible Emergency Evacuation Signal. Signals from different notification appliances shall not be required to be synchronized.
 - 3. Upon activation of the detector, only those notification appliances in the dwelling unit or guest room shall activate.
2. Smoke detectors for control of smoke spread.
- a. Smoke detectors installed and used to prevent smoke spread by initiating control of fans, dampers, doors, and other equipment shall be installed per CMC 2001, NFPA 72 2007, NFPA 90A 1999 and NFPA 92A 2000.
 - b. The smoke detector(s) shall be connected to the building fire alarm system such that activation of any one detector shall cause a supervisory signal to be indicated at the fire control panel, the fire system annunciator, and at the supervising station.



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- i. Exception: If open area smoke detectors are used to release doors per NFPA 72 2007 5.14.6 then they are no longer dedicated to smoke control and shall initiate the evacuation sequence.
- c. Duct smoke detectors and pendant mounted smoke detectors shall be accessible for cleaning, maintenance and testing.
- d. The location of duct smoke detectors in air duct systems shall be permanently and clearly identified and recorded. Permanent labels or placards outside the first point of access shall be installed to indicate that a detector is accessible from that point.
- e. All air-handling units shall be properly labeled.

3. Heat Detectors

- a. Heat detectors shall be installed per NFPA 72 2007 Chapter 5 as amended in CBC 2007, chapter 35.
- b. Heat-sensing fire detectors of the rate of rise and/or fixed temperature spot-type, with the appropriate temperature classification shall be installed in but not limited to the following areas: furnace/boiler rooms; mechanical rooms; common bathrooms; attics; garages (not carports); kitchens; storage areas.
- i. Exception: Where an automatic sprinkler system is installed per NFPA 13, 13D or 13R and monitored by the fire alarm system, no heat detectors shall be required to be installed in areas already protected by the sprinkler system except for operation of control equipment as required by another standard or code.

4. Fire Suppression Systems

- a. Automatic Sprinkler Systems: Automatic sprinkler system waterflow alarm and the control valve supervisory signals shall be monitored per NFPA 72 2007 Chapter 5 as amended in CBC 2007, Chapter 35.
- b. Other automatic fire extinguishing systems, such as Ansul, pre-action, deluge, foam, wet chemical, FM-200, etc., shall be connected to the fire alarm system as required by other standards. The activation of any of these fire suppression systems shall initiate the evacuation sequence.
- c. Fire Pumps:



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- i. All new and existing fire pumps shall be monitored per NFPA 20 2003.
- ii. All fire pumps shall be monitored for trouble and supervisory conditions (separate signals) at the supervising station.
- iii. Fire pump trouble and supervisory conditions shall be indicated at the fire control panel and at the fire system annunciator.

5. Manually Actuated Alarm-Initiating Devices

- a. Manual fire alarm boxes shall be located per NFPA 72 2007 5.13.
 - b. Per CFC 2007 section 907.4, manual fire alarm boxes shall be installed a minimum of 42" and a maximum of 48" above finished floor to the operable part.
6. Medical push buttons. Medical emergency push buttons shall be required for all types of occupancies. At least one medical emergency push button shall be located on each story/level of the structure. A push button should normally be located in the kitchen area near the telephone and either in or near the master bedroom. Additional buttons may be required, as determined by the Fire Chief.

C. Notification

- 1. Alarm systems shall include both audible and visual alarms per CFC 2007 Section 907.10.1.
- 2. Notification appliances shall be installed per:
 - a. NFPA 72 2007 chapter 7 as amended in CBC 2007, chapter 35.

Exception: The maximum allowable SPL of audible notification appliances complying with section 7.4.2.1 of NFPA 72 (2007 edition) shall be no greater than 110 dBA at the minimum hearing distance from the audible appliance per CFC 2007 section 907.10.
 - b. If alarm notification appliances for hearing impaired persons are employed in sleeping rooms then they shall be installed per NFPA 72 2007 chapter 7 as amended in CBC 2007, chapter 3.
- 3. To facilitate location of premises, an exterior weatherproof horn strobe shall be installed facing the direction of emergency services approach.



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4. Fire System Annunciation:

- a. The fire system annunciator shall be installed per NFPA 72 2007 and CFC 2007 section 907.9.1.
- b. The fire system annunciator shall be located within the common entry area or other location approved by the Fire Chief.

D. Control Equipment

1. Control equipment shall be installed per NFPA 72 2007 as amended in CBC 2007, chapter 35 and CFC 2007 section 907.9.2.
2. A permanent and readily visible sign shall identify the location of the fire control panel.
3. System Type shall be supervising station.

E. Communications

1. All alarm systems shall be supervising station systems employing a Digital Alarm Communicator Transmitter per NFPA 72 2007, section 8.6.3.2. The test signal for any EWAS panel is daily, not monthly as cited in CBC chapter 35.
2. Optionally (but may be required by the Fire Chief), per NFPA 72 2007 section 8-5, a Digital Alarm Radio Transmitter can be provided as a secondary or backup channel of communication. For residential occupancies, other optional secondary or backup methods of transmitting signals off site may include radio, cell phone, second phone line or other method as approved by the Fire Chief.

IX. Commercial Structures

- a. Early Warning Alarm Systems for commercial structures shall comply with the following requirements:
 1. Smoke detectors: System smoke detectors shall be installed per NFPA 72 2007 Chapter 6 as amended in CBC 2007, chapter 35.
 2. Smoke Detectors for Control of Smoke Spread:
 - a. Smoke detectors installed and used to prevent smoke spread by initiating control of fans, dampers, doors, and other equipment shall be



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installed per CMC 2001, NFPA 72 2007, NFPA 90A 1999 and NFPA 92A 2000.

- b. The smoke detector(s) shall be connected to the building fire alarm system such that activation of any one detector shall cause a supervisory signal to be indicated at the fire control panel, the fire system annunciator, and at the supervising station.
 - i. Exception: If open area smoke detectors are used to release doors per NFPA 72 2007 5.14.6 then they are no longer dedicated to smoke control and shall initiate the evacuation sequence.
- c. Duct smoke detectors and pendant mounted smoke detectors shall be accessible for cleaning, maintenance and testing.
- d. The location of duct smoke detectors in air duct systems shall be permanently and clearly identified and recorded. Permanent labels or placards outside the first point of access shall be installed to indicate that a detector is accessible from that point.
- e. All air-handling units shall be properly labeled.

3. Heat Detectors

- a. Heat detectors shall be installed per NFPA 72 2007 Chapter 5 as amended in CBC 2007, chapter 35.
- b. Heat-sensing fire detectors of the rate of rise and/or fixed temperature spot-type, with the appropriate temperature classification shall be installed in but not limited to the following areas: furnace/boiler rooms; mechanical rooms; bathrooms; attics; garages (not carports); kitchens; storage areas.
 - i. Exception: Where an automatic sprinkler system is installed per NFPA 13 and monitored by the fire alarm system, no heat detectors shall be required to be installed in areas already protected by the sprinkler system except for operation of control equipment as required by another standard or code.

4. Fire Suppression Systems:

- a. Automatic Sprinkler Systems: Automatic sprinkler system waterflow alarm and the control valve supervisor signals shall be monitored per NFPA 72 2007 Chapter 5 amended in CBC 2007, Chapter 35.



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- b. Other automatic fire extinguishing systems, such as Ansul, pre- action, deluge, foam, wet chemical, FM-200, etc., shall be connected to the fire alarm system as required by other standards. The activation of any of these fire suppression systems shall initiate the evacuation sequence.
 - c. Fire Pumps:
 - i. All new and existing fire pumps shall be monitored per NFPA 20 2003.
 - ii. All fire pumps shall be monitored for troubled and supervisory conditions (separate signals) at the supervising station.
 - iii. Fire pump trouble and supervisory conditions shall be indicated at the fire control panel and at the fire system annunciator.
- 5. Manually Actuated Alarm-Initiating Devices:
 - a. Manual fire alarm boxes shall be located per NFPA 72 2007 5.13.
 - b. Per CFC 2007 Section 907.4, manual fire alarm boxes shall be required for all types of occupancies. At least one medical emergency push button shall be located on each story/level of the structure. A push button should normally be located in the kitchen area near the telephone and either in or near the master bedroom. Additional buttons may be required, as determined by the Fire Chief.
- b. Notification
 - 1. Alarm systems shall include both audible and visual alarms per CFC 2007 Section 907.10.1
 - 2. Notification appliances shall be installed per:
 - a. NFPA 72 2007 Chapter 7 as amended in CBC 2007, Chapter 35.
 - i. Exception: The maximum allowable SPL of audible notification appliances complying with section 7.4.2.1 of NFPA 72 (2007 edition) shall be no greater than 110 dBA at the minimum hearing distance from the audible appliance per CFC 2007 section 907.10.
 - 3. To facilitate location of premises, an exterior weatherproof horn strobe shall be installed facing the direction of emergency services approach.
- 4. Fire System Annunciation:



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- a. The fire system annunciator shall be installed per NFPA 72 2007 and CFC 2007 section 907.2.3.3.
- b. The fire system annunciator shall be located within the common entry area or other location approved by the Fire Chief.
- c. Control Equipment
 1. Control equipment shall be installed per NFPA 72 2007 as amended in CBC 2007, Chapter 35 and CFC 2007 section 907.9.2.
 2. A permanent and readily visible sign shall identify the location of the fire control panel.
 3. System Type shall be supervising station.
- d. Communications
 1. All alarm systems shall be supervising station systems employing a Digital Alarm Communicator Transmitter per NFPA 72 2007, section 8-5.3.2.1. The test signal for any EWAS panel is daily, not monthly as cited in CBC 35, 2-4.9.1.

All commercial fire alarm systems shall have two methods of transmission to the supervising station. A Digital Alarm Radio Transmitter per NFPA 72 2007 section 8-6.3.2.1.4 and section 8-6.3.2.3, may be provided as the secondary channel of communication.