



Murphy Fire-Rescue/Fire Marshal Office

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Fire Alarm

Effective Date: 8/1/13

Summary: Fire Department requirements for a permit issuance and proper operation of a fire alarm system.

These guidelines are to be followed when a business, facility or organization proposes to install or modify a fire alarm system, within the City of Murphy.

All fire alarm systems for the purposes of this guideline and any other guidelines or requirements of the Fire Department shall conform to the 2006 International Fire Code, as adopted and amended by City of Murphy Ordinance No. 09-03-789 and NFPA 72, 2002 Edition.

This guide does not replace, nor supersede any adopted codes and/or ordinances adopted by the City of Murphy, or determinations and positions of the Fire Chief or Fire Marshal.

Performance and Installation Requirements

- 1) Fire alarm systems, new or replacement shall be addressable. (IFC 907.1.3)
- 2) Fire alarm systems, new or replacement serving 200 or more initiating devices, or 75 or more smoke detectors, shall be analog intelligent addressable. (IFC 907.1.3)
- 3) Occupant notification in accordance with IFC Section 907.10 shall be required for all new construction provided with an automatic sprinkler system. Renovations to existing buildings and their fire alarm systems will include the addition of alarm notification appliances only when there is substantive construction modifications, new tenant use of the space, change in occupancy, and entire replacement of the fire alarm system or required by the Fire Marshal.
- 4) A manual fire alarm system shall be installed in Group A occupancies having an occupant load of 300 or more persons or more than 100 persons above or below the lowest level of exit discharge. Portions of Group E occupancies occupied for assembly purposes shall be provided with a fire alarm system as required for the Group E occupancy. (IFC 907.2.1)
- 5) A manual fire alarm system shall be installed in Group E educational occupancies. When automatic sprinkler systems or smoke detectors are installed, such systems or detectors shall be connected to the building fire alarm system. An approved smoke detection system shall be installed in Group E day care occupancies. Unless separated by a minimum of one hundred feet (100') open space, all buildings whether portable buildings or the main building, will be considered one building for alarm occupant load consideration and interconnection of alarm systems. (IFC 907.2.3)
- 6) High-rise buildings. Buildings having any floors used for human occupancy located more than 55 feet above the lowest level of fire department vehicle access shall be provided with an automatic fire alarm system and an emergency voice/alarm communications system in accordance with Section 907.2.12.2. (IFC 907.2.12)
- 7) Manual alarm actuating devices (pull stations) shall be an approved double action type.
- 8) All fire alarm systems shall be installed in such a manner that the failure of any single alarm-actuating or alarm indicating device will not interfere with the normal operation of any other such devices. All systems shall be Class "A" wired with a minimum of six feet separation between supply and return loops. IDC - Class "A" style - D - SLC Class "A" Style 6 - notification Class "B" Style Y.'
- 9) All alarms are required to be transmitted to the U.L. Listed Central Station monitoring company with the device(s) designation and location, or addressable device identification. This is commonly referred to as POINT ID. (See *Fire Alarm Operational Guidelines* for additional information). This provision includes releasing panels or other sub-panels within a building and all devices associated with their operation.
- 10) An exterior audible and visible notification device shall be provided on the exterior of the building and shall be located above the Fire Department Connection. The notification device shall operate on a waterflow alarm only, shall be non-silenceable and shall continue to flash after the panel is silenced on the condition the alarm was a waterflow alarm only. The notification device shall be wired from the fire alarm control panel as a dedicated latching circuit and be supervised.
- 11) Addressable or analog systems shall show address numbers on the plans and provide a detail list of address verbiage for approval. (See Back)

- 12) Primary power shall be from a dedicated circuit which is listed on the approved building electrical plans.
- 13) Approved supervised indicating control valves shall be provided at the point of connection to the riser on each floor in high-rise buildings.
- 14) Fire pumps shall be monitored for "loss of power", "phase reversal" and "pump running" conditions on distinct circuits. (IFC 913.4)
- 15) A UL Listed surge suppressor shall be provided for each FACP or Power Supply and shall be located a minimum of a 6 ft. wire run length from each protected device. It is recommended the surge suppressor is located as close as practical to the dedicated AC service breaker.
- 16) All devices, circuits, and auxiliary systems shall be supervised.
- 17) When the fire alarm control panel is not located at the main entrance, a remote annunciator shall be located at the entrance. Regardless of the location, the ability to control the fire alarm shall be provided at the location of the automatic sprinkler system and main entrance.
- 18) Systems shall be operable and resettable without any special knowledge or the use of an access code or key.
- 19) Addressable/analog intelligent systems shall contain a history file of the past 100 events.
- 20) Duct detectors shall alarm supervisory only.
- 21) Where an HVAC unit with duct detection is location in a concealed area, or area in which activation of the duct detector cannot be readily identified, a remote visible notification device shall be located in an easily accessible location.
- 22) Where an HVAC unit with duct detection is location in a concealed area, or area in which inspection and testing of the duct detector cannot be readily performed, a remote testing device shall be location in an easily accessible location.
- 23) An adequate number of fire alarm notification devices shall be provided such that a minimum sound level 15 db above average ambient will be achieved.
- 24) All fire alarm equipment shall be listed for its intended purpose.
- 25) The fire alarm control panel shall be listed and compatible with all devices and capable of delivering all required signals.
- 26) Fire alarm systems shall be installed only by companies and individuals licensed by the State of Texas State Fire Marshal's Office, or as otherwise provided for in state statutes.
- 27) Based upon the specific use and construction of the building, additional and/or specialized fire alarm equipment may be required.

To expedite the plan review and inspection processes, please refer to the information listed below.

Submittal Requirements

- 28) A "Wet" APS signature and stamp, as required by Article 5-43.2, Section 34.619, or signed and sealed by a registered Fire Protection Engineer (PE), is required on all plan drawings and calculations.
- 29) The plans shall be designed and will be reviewed based on the requirements in the International Fire Code, 2006 Edition and NFPA 72, 2002 Edition, and shall be indicated on the plan drawings as the code and standard or record.
- 30) Plans shall be clear and legible and all sheets shall be in a common and appropriate scale.
- 31) Plans shall include interior walls and rooms. Ceiling tiles shall not be shown on the drawings.
- 32) A minimum of three (3) sets of plans shall be submitted. Plans shall contain sufficient detail to enable the plan reviewer to accomplish a complete review. The following information shall be provided on the plans;
 - a) North arrow.
 - b) Floor plan.
 - c) Building Permit number.
 - d) Project name.
 - e) Project address.
 - f) Device location.
 - g) Site map inset.
 - h) Type of device.
 - i) Provide a "point-to-point" wiring configuration.
 - j) Fire alarm control panel.
 - k) Annunciators.
 - l) Square footage.
 - m) Location of doors.
 - n) Intended use of each room.
 - o) Location of all air handling units.

- p) Show location of all fire sprinkler risers, flow switches, tamper switches and fire pumps (if equipped).
 - q) Notification devices shall indicate candela rating.
 - r) Heat detectors shall indicate temperature rating.
 - s) Indicate the length of wiring between devices.
- 33) The notification device wiring shall be shown different than the initiating device wiring. When necessary, they shall be provided on different plan drawings.
- 34) Scope of Work.
- 35) Sequence of Operations in matrix format.
- 36) Equipment List.
- 37) Point ID/Addressable device list. Shall indicate how the devices will report to the CSM.
- 38) Specification booklet shall contain the following;
- a) A minimum of one (1) set of data specifications sheets for all devices and equipment shall be provided.
 - b) Listing of the system design, operation and test functions.
 - c) Specific materials in the specification booklet are to be identified by an arrow or highlighter.
 - d) Battery discharge curves.
 - e) Wire specifications.
 - f) Type of primary power and secondary power (i.e. size and number of batteries to be provided).
- 39) Device mounting height diagrams.
- 40) Voltage drop calculations provided. Shall clearly indicate each notification device and wire length.
- 41) Battery calculations to include Standby and Alarm.
- 42) The notes shall clearly indicate that the initiating circuit wiring shall be Class A.
- 43) Identification of the type of conduit used, if any.
- 44) Identification on the gauge and type of wire used.
- 45) Notes shall identify the following;
- g) Authority Having Jurisdiction.
- 46) The use of each room is identified on the plans.
- 47) The title block shall contain the following;
- a) Location of the installation.
 - b) Name and complete address of the business.
 - c) Name and complete address of the installing company.
 - d) Licensing information.
 - e) "Wet" signature of the APS.
 - f) Date.
 - g) Drawn by.
 - h) Authority Having Jurisdiction.
- 48) The riser diagram shall include all devices as they are shown on the plans, or wired.
- 49) A legend shall be provided to include;
- h) All devices shown on plans.
 - i) Total number of devices of each type.
 - j) Symbol, device description, manufacturer, model number, and quantity for each device.
- 50) Device address numbers provided for addressable/analog intelligent systems.
- 51) Provide a copy of your State of Texas State Fire Marshal's Office license.
- 52) All contractors are required to be registered with the City of Murphy prior to the release of the permit.

General Requirements

- 53) Installation, fabrication or otherwise construction of the system is prohibited without approved plans and permit.
- 54) Each submittal shall have a completed Murphy Fire Department Plan Review/Permit Application.
- 55) Plans approved by the Fire Marshal's Office give authorization for construction. Final approvals are subject to field verification. Any approval issued by the Fire Marshal's Office does not release the contractor or property owner from the responsibility of full compliance with all applicable codes and ordinances relating to the construction project.
- 56) All installations must concur with the approved plans. Any deviation from the approved plans requires a re-submittal to the Fire Marshal's Office.
- 57) All fire department inspection forms and permits shall be kept in a permit packet on the job site until final inspection.