CLARKSVILLE FIRE RESCUE | CITY OF CLARKSVILLE TENNESSEE

Fire Alarm Submittal

Any new fire alarm system or modification of a fire alarm system requires plans to be submitted to Clarksville Fire Rescue for review. One set of hard copy plans and one digital set of plans shall be submitted for review.

Plans are reviewed in accordance with the 2016 edition of NFPA 72, the 2017 Edition of NFPA 70, the 2018 International Fire Code and other codes and standards as appropriate.

This submittal document is not intended to provide an all-inclusive listing of inspections or requirements, as it would be virtually impossible to cover all situations and systems. This submittal document contains information covering items required to be included on the working drawings and supporting documents.

Drawings shall show / contain the following

- Name of the protected premises and address
- Name of installing contractor with TN license and contact information
- Date of issue / revision
- Project scope
- System matrix / sequence of operation
- Riser diagram
- Location of FACP and annunciator
- Location of the document box
- Floor plan with a description of all rooms
- Indication of whether or not the building is sprinkled
- Include description of occupancy, IBC classification, and proposed use of structure
- Compass point
- Graphical scale
- All walls and doors
- Equipment legend. The equipment legend shall specify the manufacturer and model number of the equipment
- Zoned fire alarm panels must have a description of each zone

Be aware of the following Clarksville Fire Rescue requirements

- An exterior horn / strobe is required above the fire department connection for sprinkled building.
- Systems shall be resettable without any **special knowledge** or the use of an **access code.**

Notification Appliances

1. Provide DBA ratings of all audible notification appliances on drawings next to each notification device in accordance with NFPA 72, 18.4 and Table A. 18.4.3. In residential sleeping areas dBA at the pillow must be whichever is greater:
   - At least 75 dBA, or;
   - 15 dBA above the average ambient sound level, or;
   - 5 dBA above the maximum sound level having a duration of at least 60 seconds.

   If any barrier, such as a door, curtain, or retractable partition, is located between the notification appliance and the pillow, the sound pressure level shall be measured with the barrier placed between the appliance and the pillow. NFPA 72, 18.4.5.1, 18.4.1.2 and 18.4.5.2
2. Provide the candela (cd) rating of all visible notification devices on drawings next to each signaling device. NFPA 72, Table 18.5.5.4.1(a) and(b) Table 18.5.5.7.1
3. All corridor spaced strobes are placed a maximum of 100' feet apart and within 15' feet from ends of the corridor. NFPA 72, 18.5.5.5.5

Initiating Devices

1. Each manual fire alarm box shall be securely mounted throughout the protected area so that the operable part is between 42 in. and 48 in. above floor level, and shall be conspicuous, unobstructed, and accessible. NFPA 72, 17.14.5
2. Manual fire alarm boxes shall be located within 60 in. of the exit doorway opening at each exit on each floor. NFPA 72, 17.14.8.4
3. Manual fire alarm boxes shall be mounted on both sides of grouped openings over 40 ft. in width, and within 60 in, of each side of the opening. NFPA 72, 17.14.8.6
4. Additional manual fire alarm boxes shall be provided so that the travel distance to the nearest fire alarm box will not exceed 200 ft. measured horizontally on the same floor. NFPA 72, 17.14.8.5
5. A minimum of one manual fire alarm box shall be provided in an approved location to initiate a fire alarm signal for fire alarm systems employing automatic fire detectors or water flow detection devices. Where other sections of this code allow elimination of fire alarm boxes due to sprinklers, a single fire alarm box shall be installed. IFC 907.2
6. Where an automatic smoke detection system is required it shall utilize smoke detectors unless ambient conditions prohibit such an installation. In spaces where smoke detectors cannot be utilized due to ambient conditions, approved automatic heat detectors shall be permitted. IBC 907.4.3
7. System initiation in Group A occupancies with an occupant load of 1,000 or more (IBC 907.2.1.1): Activation of the fire alarm in Group A occupancies with an occupant load of 1,000 or more shall initiate a signal using an emergency voice/alarm communications system in accordance with Section 907.5.2.2.

Exception: Where approved, the prerecorded announcement is allowed to be manually deactivated for a period of time, not to exceed 3 minutes, for the sole purpose of allowing a live voice announcement from an approved, *constantly attended location*.

Show the following electrical and fire alarm connections

(1) Location of connections of all air handling shutdowns.
(2) Location of connections to the kitchen hood fire extinguishing system that activates the fire alarm system. Show other required shutdowns in the event the extinguishing system is activated.
(3) Location of flow switch or alarm check valve connection to the general building alarm and central station or fire department.
(4) Location of supervisory alarm connection from tamper switches on sprinkler system.
(5) Location of water alarm switch and specify connection to general building alarm.
(6) Location of provisions for the monitoring of other fire suppression systems, and other systems (fire pumps, etc.) for the protection of life and property for the initiation of a supervisory signal indicating an off-normal condition that could adversely affect the performance of the system.

Circuit Identification and Accessibility

1. ***Note required on plan.*** The Fire Alarm Control Panel circuit disconnecting means shall have a *red marking*, shall be accessible only to authorized personnel, and shall be identified as "FIRE ALARM CIRCUIT." The location of the circuit disconnecting means shall be permanently identified at the fire alarm control unit. NFPA 72, 10.6.5.2.1, 10.6.5.2.2, 10.6.5.2.3
2. ***Note required on plan.*** Where a circuit breaker is the disconnecting means, an approved breaker locking device shall be installed. NFPA 72, 10.6.5.4

Sprinkler System

1. Activation of the initiating device shall occur within 90 seconds of water flow at the alarm-initiating device when flow occurs that is equal to or greater than that from a single sprinkler of the smallest orifice size installed in the system. NFPA 72, 17.12.2
2. All valves controlling the water supply for automatic sprinkler systems and water-flow switches on all sprinkler systems shall be electrically supervised. IFC 903.4

Duct Detectors and Smoke Damper Detectors

1. If any duct smoke detectors are installed, they shall be supervised by this system and shall be wired to a supervisory zone only, not an alarm-initiating zone, as provided in NFPA 72 and 90A. (Required in HVAC systems > 2000 CFM.)
2. Activation of a duct smoke detector shall initiate a visible and audible supervisory signal at a constantly attended location. (IFC 907.3.1)
3. Remote test switches shall be labeled to designate which air handling unit they monitor.

FACP Replacements
If the panel is being replaced due to age, damage, parts are no longer available, or the system is no longer serviceable, a plan submittal is required unless panel replacement will not negatively impact the existing battery and voltage drop calculations. Clarksville Fire Rescue shall witness a test of the system after installation.

Monitoring
1. Fire alarm systems required by International Fire Code or by the International Building Code shall be monitored by an approved supervising station. IFC 907.6.6
2. Buildings with fire sprinkler systems shall be electrically supervised by a listed fire alarm control unit. IFC 903.4

Monitoring Method.
Clarksville Fire Rescue encourages the use of cellular communications.

Fire Alarm Control Panels and Fire Alarm Annunciators
The Fire alarm control panel shall be located at the main entrance to the building. If the FACP is not located at the entry, a Fire Alarm Annunciator shall be provided at the main entrance. FACPs and Annunciators shall be affixed such that the top of the panel/ device does not exceed 6ft in height. NFPA 72, 10.17.3.2

Document Box
Note required on plan: 1. "All required documentation regarding the design of fire detection, alarm, and communications systems and the procedures for maintenance, inspection, and testing of fire detection, alarm, and communications systems shall be maintained at an approved, secured location for the life of the system."
2. A documentation cabinet shall be installed at the system control unit or at another approved location at the protected premises. NFPA 72, 7.7.2.2

Cut Sheets/Specifications.
1. A minimum of one set of the manufacture's product information (cut sheets) shall be provided. This is to include the information on all devices that are part of, or being connected to, the fire alarm system. When cut sheets show multiple models/type of devices, the specific item being installed shall be highlighted.
2. As an example, the use of multi-candela horn/strobes shall have the specific model number highlighted and the current draws associated with that model and candela rating highlighted.

Door Release
1. Hold open devices must be tied into the fire alarm system and release upon activation. *Provide details.*
2. Smoke detectors controlling hold open devices must be located in accordance with NFPA 72, 17.7.5.6

Signage
1. Approved signage must be provided on the door of the enclosure in which any fire alarm control panels are located. The sign shall read “Fire Alarm Control Panel”, “FACP”, “Fire Alarm Control Unit”, or “FACU” (IFC Section 509).
2. Signs shall be permanent, weatherproof and appropriately secured.

Special Hazard Extinguishing Systems
1. Dry/wet chemical, carbon dioxide, and clean agent systems shall be connected to the building fire alarm system, if provided, in accordance with the requirements of NFPA 72 (IFC 904.3.5).
2. The actuation of the extinguishing system shall annunciate an alarm signal to fire alarm control panel as well as provide the function of the extinguishing system. (Reference the NFPA standard applicable to the type of system).

Keys/Tools
Any key and or tools required to reset all components of the fire alarm system will be left on site to be secured in the Knox Box. (This includes panel keys, proper size Allen keys or proper type of screwdriver(s) necessary to reset pull stations).

Addressable Systems
All devices on an addressable system shall be addressed as specific as possible. IFC 907.6.3

Elevators / Elevator Recall
Clarksville Fire Rescue defers to the State of Tennessee elevator inspector for elevator fire alarm requirements.

Testing
1. A full operational pre-test of the fire alarm system shall be performed **PRIOR** to the scheduled fire inspection and shall be documented on the Record of Completion form. Failure to pre-test will result in immediate failure of the inspection.
2. Canned smoke shall be provided for functional testing of devices by the installing contractor.
3. Notification appliances and circuits, alarm- supervisory- and trouble-initiating devices and circuits, primary and secondary power supplies, shall be tested in accordance with NFPA 72, 14.4.1. (IFC 907.7)
4. Monitoring devices are required to be provided for final testing even if there is no occupant for the building. Without verification of monitoring, the system cannot undergo final testing.
5. When any initiating device, notification appliance or control relay is added, it shall be functionally tested. NFPA 72, 14.4.2.1
6. When modifications or repairs to control equipment hardware are made, the control equipment shall be tested. NFPA 72 14.4.2.3

7. Fire alarm detection and notification devices shall be visually inspected for proper location, candela rating and installation (NFPA 72, 14.3).
8. Circuit disconnecting means shall have a red marking, shall be accessible only to authorized personnel, and shall be identified as “FIRE ALARM,” “EMERGENCY COMMUNICATIONS,” or “FIRE ALARMS/ECS” (NFPA 72:10.6.5.2.1)
9. The location of the circuit disconnecting means shall be permanently identified at the fire alarm control unit. (NFPA 72:10.6.5.2.1)
10. Circuit breaker and panel number as well as the central station account number are to be noted on the inside of the FACP door.
11. Sprinkler system waterflow and supervisory tamper switches will be functional tested.
12. Dry/Wet chemical, carbon dioxide, halon, clean agent suppression systems shall be functional tested.