



COLLIER TOWNSHIP

2418 Hilltop Road Presto PA 15142

www.colliertownship.net

FIRE ALARM SYSTEM

NFPA – 72 National Fire Alarm Code (2016), International Building/Fire Codes (2018)

Project Name: _____

Project Address: _____

Contact Name _____ Date: _____
(print)

All supporting documentation showing items listed below are required for review.
The checklist is based upon NFPA 72 – The National Fire Alarm Code

General (All submissions shall include the following):

- A minimum of 2 copies of shop drawings, calculations and submittal data shall be provided with the permit application permitting evaluation of the system prior to installation. **Copies shall include 1 Electronic submittal and 1 hard copy**
- All fire alarm plans shall contain the following information as a minimum:

All shop drawings shall be drawn on sheets of uniform size and shall contain the following information:

- Name of the building owner and occupant
- Location of the building, including street address, building identification or suite.
- A device legend.
- The date of the plans
- An Input/Output programming matrix.

Floor plans drawings shall be drawn to an indicated scale and shall include the following information:

- The floor identification.
- A point of compass.
- The graphic scale(s) used on the plans.
- All walls and doors.
- All partitions extending to within 15 percent of the ceiling height.
- Room descriptions or occupancy.
- The location(s) of all fire alarm system devices and components.

- The location of fire alarm system primary power connection.
- The location of the monitor/control interfaces to other systems.
- Riser locations.
- Routing for Class "A" circuits for compliance with NFPA 72, where applicable.
- Indicate the method(s) of compliance for survivability of emergency voice systems where applicable.
- The submitted plans shall indicate the ceiling height and ceiling construction details.

Fire alarm system riser diagrams shall include the following:

- The general arrangement of the system shown in a building-cross section.
- The number of risers.
- The type and number of circuits in each riser.
- The type and number of fire alarm system components and devices on each circuit, on each floor or level.
- Number of conductors for each circuit

Control unit wiring diagrams shall be provided for all control equipment (i.e., equipment listed as either control unit or control unit accessory), power supplies, battery chargers, and annunciators and shall include the following information:

- Identification of the control equipment depicted.
 - The location(s) of the control equipment.
 - All field wiring terminals and terminal identification.
 - All circuits connected to the field wiring terminals and circuit identification.
 - All indicators and manual controls, including the full text of all labels.
 - All field connections to the supervising station signaling equipment, releasing equipment, or fire safety control interfaces.
- Typical wiring diagrams shall be provide for all initiating devices, notification appliances, remote alarm light emitting diodes (LEDs), remote test stations, end-of-line and power supply supervisory devices.
 - The installation is required to be certified and placarded in accordance with NFPA 72 – Provide on the plans the location of the placard and design criteria information.
 - The floor plans shall be drawn to a recognized scale or dimensioned showing the layout of the building including walls and/or partitions for the verification of device spacing.
 - The submitted plans shall include the location of all fire rated assemblies and indicate how the rated assemblies will be maintained when penetrated by equipment and/or wiring. Indicate what each room or space is to be used for by the occupants. **(IBC)**

- Provide a device to device wiring arrangement, in the plan view, from fire alarm panel to all devices, inclusive of last device, indicating the location of end of line resistor. Indicate the style of wiring used for the verification of system performance under different conditions associated with the functionality. Indicate the size of wiring, the number of conductors used, and the protection methods required by NFPA 70 & 72

- All exterior circuits shall be provided with surge protection where they enter or exit a building in accordance with NFPA 72 and the NEC (NFPA 70). Provide a wiring arrangement, size of the wiring, location and mounting detail of the surge suppressor and how the wire is grounded and what it is grounded to.

- The floor plan drawings shall indicate the location and number of all alarm-initiating devices and alarm-notification appliances, with the dBA rating, in the plan view. The plans shall indicate the mounting height of all devices, and where devices are ceiling mounted, such as smoke detectors, heat detectors, beam detectors, the plan shall indicate type of ceiling layout (flat, cathedral, sloped, peaked, solid joist construction) and device mounting detail.

RISER DIAGRAM

- Provide a single line riser diagram for devices on the fire alarm system for:
 - All initiating devices
 - All indicating devices
 - Elevator capture function
 - Door hold open functions
 - Special locking devices
 - HVAC controls

STAND ALONE INFORMATION

- The HVAC system shall be appropriately balanced prior to testing of the duct mounted smoke detectors. A note to this effect shall be placed on the plans. Contractors shall be capable of performing air pressure differential testing of the duct mounted smoke detector to verify the proper placement of the device. NFPA 72

- If duct mounted smoke detectors or area smoke detectors are used to control smoke dampers, the plans shall indicate if the HVAC system is dynamic or static.
- Primary and secondary power sources.
 - The submitted plans shall indicate the location of the circuit breaker for the primary power source and shall have a red marking (red circuit breaker switch). The circuit shall be identified in the circuit break panel as "FIRE ALARM CIRCUIT". The circuit breaker shall also be equipped with breaker lock.
 - The submitted plans shall indicate the location of and the identification of the circuit breaker panel and circuit number to be dedicated to the fire alarm system. The location of and identification of the circuit breaker panel and dedicated fire alarm circuit shall be permanently identified at the fire alarm control panel.
 - The submitted plans shall include calculations for all secondary power sources based on the type and amount of equipment and devices to be installed.
 - The submitted plans shall include system voltage drop calculations.
- The submitted plans shall show the method of communications with monitoring agencies and the number of telephone lines used for the transmission.
- The submitted plans shall show the name, address, and telephone number of the central station(s) monitoring the fire alarm system. Indicate if the company is a UL Listed Central Station or Remote Station. Indicate if the signal transmission is directly to the central station or if the signal is forwarded from a local central station to an alternate central station. (i.e. – Local central station is not a 24-hour manned location).

- Manufacturer's data sheets shall be submitted for all equipment used or attached to the system, regardless of who the equipment is provided by or installed by. Where manufacturer's data sheets cover multiple devices, the submitted data sheet shall indicate those devices used in the system. Specifically provide information for the Digital Alarm Communicator Transmitter (DACT) programming options.

- DACT
- All smoke detectors
- All heat detectors
- All pull stations
- All duct detectors
- All sprinkler attachments (water flow, tampers and pressure switches)
- All other initiating devices attached to the FACP
- Control functions initiated through the fire alarm control panel
- All control relays
- All special locking devices
- All notification devices
- All audio/visual appliances
- Other _____

- In R-1 and R-2 occupancies equipped with Type "A" Accessible Units, the requirements for sleeping areas using a combination smoke detector and visible notification appliance(s) or a combination smoke alarm and visible notification appliance(s), the location of the devices and the effective intensity of the visible notification appliance(s) shall comply with NFPA 72

- In R-2 occupancies all units shall be wired to support visible alarm notification appliances. This includes all sleeping and dwelling units, not just Type "A" or "B" Accessible Units. The building fire alarm wiring must be extended to all of the unit smoke detectors, single-station or system smoke detectors, so that audible/visible alarm notification appliances may be connected to the building fire alarm system in accordance with IBC

- The plans shall include an operational input/output matrix for fire alarm systems that interface with and control the operation of other fire protection devices or peripherals. Use the format indicated in NFPA 72

Plans shall be stamped by a Fire Protection Engineer