

# **FIRE ALARM SYSTEMS INFORMATION PACKET**



## **Des Moines Fire Department Fire Prevention Bureau**

February 2011

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## PURPOSE

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This information packet has been developed in an effort to provide the highest level of service to the customers of the Des Moines Fire Department. The major goal of the fire alarm plan reviews conducted by the DMFD Fire Prevention Bureau is to insure the design of fire alarm systems meet the minimum requirements of the adopted codes and ordinances. To meet this goal, the submitted plans and supporting documentation must contain all the necessary information needed to conduct a thorough review.

## SCOPE

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This packet outlines the requirements set forth in the International Fire Code, local amendments, departmental policies and NFPA 72 as they relate to the installation of fire alarm systems. Also included in this packet is information covering items required to be included on the working drawings and supporting documents. This packet is not intended to provide an all-inclusive listing of submittal and inspection requirements, as it would be virtually impossible to cover all situations.

## ACRONYMS

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DMFD	Des Moines Fire Department
FACP	Fire Alarm Control Panel
FAA	Fire Alarm Annunciator
IFC	International Fire Code
NFPA	National Fire Protection Association
IBC	International Building Code

## GUIDELINES

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### I. INTRODUCTION

#### A. APPLICABLE CODES AND STANDARDS.

1. 2009 International Fire Code (including State and Local Amendments).
2. 2007 NFPA 72 National Fire Alarm Code.
3. 2008 NFPA 70 National Electrical Code.
4. Des Moines City Ordinances.
5. DMFD Fire Prevention Bureau Policies.

#### B. ADMINISTRATIVE REQUIREMENTS.

1. **Approved Contractors.** All fire alarm contractors shall obtain a State of Iowa Fire Alarm System Contractor License if they wish to engage in layout, installation, repair, alteration, addition, maintenance, or maintenance inspection of alarm systems, in the State of Iowa in accordance with Iowa Administrative Code 661 Ch 277. Please contact the State of Iowa Licensing board (email: [alarminfo@dps.state.ia.us](mailto:alarminfo@dps.state.ia.us) or phone: 515-725-6145) for additional information.

2. **Approved Installers.** All fire alarm installers shall obtain a State of Iowa Fire Alarm System Installer License if they wish to engage in layout, installation, repair, alteration, addition, or maintenance of alarm systems, in the State of Iowa in accordance with Iowa Administrative Code 661 Ch 277. Please contact the State of Iowa Licensing board (email: [alarinfo@dps.state.ia.us](mailto:alarinfo@dps.state.ia.us) or phone: 515-725-6145) for additional information.
3. **Code/Standard Editions.** Fire alarm systems shall meet the criteria of the 2009 IFC as amended and all applicable requirements of the referenced edition of the NFPA standards. Fire alarm systems shall also meet the requirements set forth in adopted ordinances and DMFD Fire Prevention Bureau Policies.
4. **Permits/Inspections.** Required plan submittal with approvals, permits and associated inspections must be secured through the DMFD.
5. **Special Circumstances.** Depending on the scope of work, different types of submittals may be required; therefore you may want to contact the DMFD Fire Protection Engineer for any additional guidance. For example, a performance based installation must be substantiated with documentation such as: fire models with scenarios chosen by and/or acceptable to the Fire Code Official and/or documentation from an independent testing agency or manufacturer's recommendations supporting the proposed design.
6. **Alternative Methods.** If special building conditions and/or restrictions exist that may prohibit any of the requirements set forth in this packet from being met, approval by the DMFD Fire Marshal for an alternate installation will be required. This alternate method must be approved before any installation of the system begins. In some cases, the alternative method may be referred to the Building and Fire Code Board of Appeals for consideration.
7. **Non-Required Systems.** All non-required fire alarm systems shall meet the requirements as listed previously. Additionally, they shall be submitted for review and approval to the DMFD Fire Prevention Bureau. Non-required systems still require a DMFD construction permit.

## II. SUBMITTAL INFORMATION

Submittals shall be of sufficient clarity and quality to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provisions of the IFC, and other relevant laws, ordinances, rules and regulations adopted by DMFD, and as determined by the Fire Marshal. You may refer to the attachments section of this packet for a more complete checklist of items required to be provided on the submitted plans.

### A. MINIMUM REQUIREMENTS FOR SUBMITTAL.

1. **Drawing Size.** Drawings shall be submitted on sheets no less than 24x36 inches and shall be drawn to  $\frac{1}{8}''=1'$  scale. Where  $\frac{1}{8}''$  scale is not large enough to show pertinent details, then a  $\frac{1}{4}''=1'$  scale shall be used in a detail drawing. Other scales may be accepted on an as-needed basis, please contact the DMFD Fire Protection Engineer if you have questions regarding the use of different scales.
2. **Number of Drawing Sets.** A minimum of three (3) sets of fire alarm plans shall be submitted to the DMFD and shall include the items found in the checklist provided within this packet. Only folded plans will be accepted, due to our existing storage arrangements in the office. A maximum of 4 original sets may be stamped for approval with one submittal.
3. **Cut Sheets/Specifications.** Two (2) sets 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. 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. Cut sheets shall be stapled, bound, placed in a binder or otherwise neatly organized when submitted. One copy of the cut sheets will be returned to the contractor and must remain with the approved plans, on the job site.
4. **Secondary Power Calculations (Battery Calculations).** A minimum of two (2) sets of the secondary power (battery) calculations shall be provided for all power supplies being installed within the system. This is to include the voltage and amperage information on all batteries being installed within the main panel and any supplemental power panels being provided. One copy of the battery calculations will be returned to the contractor and must remain with the approved plans, on the job site. Battery calculations shall include the following information:
  - a. Standby and Alarm current draws for each device/appliance connected to the fire alarm system.
  - b. The Model number of each device/appliance.
  - c. Description of each device/appliance.
  - d. Standby time (i.e. 24 hours, 60 hours, etc.)
  - e. Alarm time (i.e. 5 minutes, 15 minutes, 60 minutes etc.)
  - f. Total current draw of the system.
  - g. Batteries provided, size of batteries and whether wired in series or parallel.
6. **Voltage Drop Calculations.** Two (2) sets of voltage drop calculations shall be submitted with the plans. Sample calculations may be obtained from the DMFD Fire Protection Engineer. One copy of the voltage drop calculations will be returned to the contractor and must remain with the approved plans, on the job site. These calculations are to include the following information:
  - a. The total number of devices on each wiring circuit.
  - b. The current draw of each device.
  - c. The maximum length of wire utilized on each circuit.

- d. The wire size being used.
  - e. The voltage remaining at the last device.
  - f. Intelligent Horn/Strobes must show the manufactures information of how the voltage drops shall be calculated.
  - g. Adjustable Multi-Candela Horn/Strobes - the battery calculations shall be calculated according to the candela rating on the fire alarm plans. For example, if the fire alarm plans indicate the candela rating is 110, the battery calculation shall be calculated for 110 candela.
- 7. Sequence of Operations.** The sequence of operation of the fire alarm system shall be provided in matrix format. An example of the typical input/output matrix format is located in the 2002 edition of NFPA 72: Figure A.10.6.2.3(9). The sequence of operations shall be specific to each submittal and shall not include functions that do not pertain to the specific submittal.
- 8. Self Addressed Stamped Envelope.** Approved plans and permits will be returned in this envelope. If an envelope is not included, the plans and permit will be available for pick up.

**B. CONSTRUCTION DOCUMENTS.**

Construction documents shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provision of the IFC, and relevant laws, ordinances, rules and regulations as determined by the DMFD.

Refer to the attachments within this packet for a checklist of items to be included on construction drawings.

**C. RESUBMITTALS.**

When a resubmittal is required; plans, cutsheets, and calculations shall be clouded with an attached explanation of the change made to the plans. Only documents required to be altered for the resubmittal shall be resubmitted. Three sets of resubmitted documents shall be provided for review.

### III. GENERAL INFORMATION AND REQUIREMENTS

#### A. FACP'S AND FAA'S.

1. 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 (NFPA 72:4.4.6.3). FACP's and Annunciators shall be affixed such that the top of the panel/device does not exceed 6ft in height. Buildings shall have no more than one (1) FACP per building.

#### B. ZONED SYSTEMS.

1. Each floor of a multi-floor building shall be zoned separately (NFPA 72:4.4.6.6). If floors exceed 22,500 feet squared, then each floor shall be divided into zones less than 22,500 feet squared.
2. Manual and automatic initiation devices located within the same fire zone or floor may be wired on the same zone. Duct detectors shall be zoned separately from manual and automatic devices.

#### C. MONITORING.

1. **Requirement.** In accordance with IFC 907.15, all required fire alarm systems shall be monitored by an approved supervising station. DMFD considers all UL listed or FM approved central, remote or proprietary supervising stations as approved supervising stations. DMFD shall be notified prior to final inspection as to which listed/approved supervising station is being utilized (noting this on the NFPA 72 Record of Completion is acceptable).
2. **Communication Methods.** Supervising station systems shall have communication methods that are approved. The 2010 edition of NFPA 72 provides general requirements for transmission methods used by supervising station systems. In general, all transmission methods shall meet the requirements of Sections 26.6.3.1.1 through 26.6.3.1.13, in addition to these requirements digital alarm communicator (DACT) systems and radio systems shall meet the requirements of 26.6.3.2 and 26.6.3.3 respectively.

I. **Internet Protocol DACTs:** IP DACTs shall be allowed, provided they meet the criterion set forth in Sections 26.6.3.1.1 through 26.6.3.1.13 of the 2010 edition of NPFA 72.

NOTE: IP DACTs must be supplied with the required stand-by and alarm back-up power.

#### D. 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" in 2-inch high block letters with a stroke width of not less than ¼-inch and a color contrasting with its background (IFC Section 510).
2. Signs shall be permanent, weatherproof and appropriately secured.

#### E. TENANT FINISHES/ADDITIONS.

1. **Audible.** DMFD requires all newly installed devices to utilize the 3-pulse temporal pattern for notification. Existing devices are not required to meet this requirement (Note: where existing devices conflict with the temporal pattern, they shall be upgraded to provide the temporal pattern).
  - I. **Public Mode requirements:** Audible signals shall be heard at a minimum of 15 dB (not to exceed 110 dBa) above the average ambient noise level. Average ambient noise levels exceeding 105 dBa shall require visual notification (NFPA 72:7.4.2).
  - II. **Private Mode requirements:** Audible signals shall be heard at a minimum of 10 dB (not to exceed 110 dBa) above the average ambient noise level. Where approved, complete visual notification may take the place of any required audible notification (NFPA 72:7.4.3).

2. **Visual.** The new strobe devices are required to be synchronized amongst each other. The new strobe devices do not have to be synchronized with existing strobe devices, unless there are more than two visible notification appliances in the same room or adjacent space within the same field of view (NFPA 72:7.5.4). Visual notification appliances shall be in accordance with the applicable sections within NFPA 72.
3. **FACP replacements.** If the panel is being replaced due to damage, a plan submittal is not required unless panel replacement will negatively impact the existing battery and voltage drop calculations. The DMFD would still like to witness a test of the system. Please contact the DMFD FPB when ready for testing.
4. **FACP upgrades.** If the panel is being upgraded due to age because system parts are no longer available or the system is no longer serviceable, all components not compatible with the new panel must be replaced or upgraded as well. Any work done will require the full submittal of construction documents as described in this packet.

**F. ALARM VERIFICATION AND POSITIVE ALARM SEQUENCE.**

1. Alarm verification is permitted in the City of Des Moines with prior approval from the DMFD. This feature is NOT to be initially enabled unless conditions or occupant activities that are expected to cause nuisance alarms are anticipated in protected area.
2. Positive alarm sequence is permitted in the City of Des Moines with prior approval from the DMFD. A letter of request shall be submitted to the DMFD for review and approval prior to the use of this feature.

Note: All devices programmed with alarm verification or positive alarm sequence shall be tested with these features in place.

**G. VOICE ALARM AND MASS NOTIFICATION SYSTEMS.**

Due to the inherent complexities and rapidly enhancing technology of voice alarm and mass notification systems the 2010 edition of NFPA 72 is referenced for this section. Voice alarm and mass notification systems require an extreme amount of pre-planning and design on the part of the design professional and contractor as well as early input from the AHJ.

1. **Acoustically Distinguishable Spaces.** Buildings utilizing voice alarm or mass notification technology shall be divided up into acoustically distinguishable spaces (ADS). Not all ADS shall require intelligibility, however, prior to approval of construction documents the designer shall submit to the AHJ which ADS will meet intelligibility requirements and which will only meet audibility requirements (NFPA 72:18.4.10.3).
2. **Voice Intelligibility.** In every ADS where intelligibility is proposed/required the final product shall be functionally tested to meet specified criteria. Intelligibility testing may be accomplished in a number of different ways (e.g. STI, STIPA); however the method and required results may be different for each project. Intelligibility requirements and testing criteria shall be established prior to approval of construction documents. Submittals shall include detailed information regarding ADS and intelligibility testing parameters. (Reference the 2010 edition of NFPA 72 Supplement 3 for additional information).

**H. MAG-LOCKS, DOOR RELEASING SERVICE AND DELAYED EGRESS.**

Magnetic-held door locks shall drop/release upon activation of the fire alarm system.

Door releasing for high ceiling areas (>15-ft) where the depth of the lintel exceeds 60 inches on both sides of the door will require an engineering evaluation to be conducted in accordance with NFPA 72.



Delayed egress requires prior approval from the City of Des Moines Building Department before fire alarm plans indicating this feature can be approved by the DMFD. Please provide a copy of the building code approval letter with your plan submittal to verify that use of delayed egress has been approved by the City of Des Moines Building Department.

**I. ADDITION/REPLACING DIALERS ON EXISTING FIRE ALARM SYSTEMS.**

If no other work is being done to the existing fire alarm system, plans and permit are not required to replace or exchange a stand-alone dialer. A letter must be submitted to the DMFD to document the work that is taking place. Once the work is completed, a test and inspection report must be submitted to the DMFD confirming the work that was done and the results of the test.

If a dialer is being added to an existing, previously unmonitored system, a permit and inspection is required. A letter must be submitted to the DMFD to document the work that is taking place. A permit will be issued and a DMFD inspector must witness the testing of the dialer.

If the system was not previously monitored and/or there is not an existing Lock Box, one will be required to be placed on the building with the appropriate keys. Contact the Office of the Fire Prevention Bureau for more information regarding Lock Boxes for existing structures.

#### **IV. DEDICATED FUNCTION SYSTEMS**

A dedicated function system is a type of system that is installed specifically to perform fire safety function(s) where a building fire alarm system is not required. These systems are not required to be interconnected with each other, so you can have a separate elevator recall panel and waterflow alarm panel within the same facility. If a building fire alarm system were added to a facility, the dedicated function systems must be interconnected with the fire alarm system.

##### **A. ELEVATORS/ELEVATOR RECALL.**

###### **(NFPA 72:6.16.3 AND ANSI/ASME A17.1A/CSA B44A)**

Automatic detection (smoke or heat) is not permitted in the elevator shaft, unless protected by automatic sprinklers or required for activation of hoistway smoke relief systems (NFPA 72:6.16.3.6).

Elevator Recall functions shall include a 3<sup>rd</sup> circuit to indicate to emergency responders the elevator is no longer safe to use. When the elevator machine room smoke detector activates, it shall cause the firefighters hat in the elevator cars controlled by that machine room to flash (NFPA 72:6.16.3.9 and 72:6.16.3.12.3). Elevator recall functions shall be in accordance with ANSI/ASME A17.1a/CSA B44a and NFPA 72.

Elevator Recall system shall be tied to the building fire alarm system if provided (NFPA 72:6.16.3.2).

In facilities without a building fire alarm system, automatic smoke detection shall be connected to a dedicated fire alarm system control unit that shall be designated an "Elevator Recall Control/Supervisory Panel" permanently identified on the control unit. Panel and/or annunciator shall be located within a normally occupied location. The LED's and piezo's on the panel provide the required notification of supervisory and trouble conditions. The control unit for the elevator recall system shall be located in a normally occupied area. No form of general notification or evacuation is intended by a dedicated function elevator recall system. Monitoring of this system is also not required (NFPA 72:6.16.3.2).

##### **B. WATER FLOW ALARM SYSTEMS.**

In accordance with the IFC section 903.4, all valves controlling the water supply for automatic sprinkler systems and water-flow switches on all sprinkler systems shall be electrically supervised. There are exceptions to this, please refer to the 2009 IFC and local amendments for these exceptions.

There must be an exterior horn/strobe placed above the FDC. The exterior horn/strobe shall activate upon a water flow only, and de-activate when the water flow stops. No other devices are required to be monitored by a water flow alarm system.

The intent of the water flow alarm system is merely to monitor the status of the suppression systems. Thus duct detectors are not required to be tied into these systems. No form of general notification or evacuation is intended by a water flow alarm system.

##### **C. DUCT DETECTORS AND SMOKE DAMPER DETECTORS.**

Duct detectors required by the provisions of the 2009 International Mechanical Code shall be connected to the building fire alarm system, where provided, in accordance with the requirements of NFPA 72. Duct detectors are not required to be connected to a waterflow alarm system or an elevator recall system.

If the fire alarm panel is monitoring smoke damper detectors, the smoke damper detectors shall initiate a supervisory signal not a general alarm signal. Remote test switches shall be labeled to the designate which air handling unit they monitor.

**V. ADDITIONAL SYSTEMS.**

**A. COMBINATION FIRE/BURGLARY SYSTEMS.**

**(NFPA 72:6.8.4)**

Combination fire/burg system control unit shall be listed for their intended use.

Short and open circuits, ground faults in fire and non-fire alarm equipment shall not interfere with the monitoring for integrity of the fire alarm system or prevent alarm, supervisory or fire safety control signal transmissions. Ground faults shall at least indicate a trouble signal, even if the panel is not capable is specifying what caused the trouble alarm (NFPA 72:6.8.4.3).

Fire Alarm signals shall be distinctive, clearly recognizable and take precedence over any other signal, even if the non-fire alarm system was initiated first. The monitoring company must be able to distinguish between fire and burglar alarms, as well as the panel. The signals to the monitoring company must report as a burglar alarm when it is a burglar alarm and vice verse.

All non-fire alarm components of the combination system shall be listed for fire alarm use unless removal, failure, or replacement of the component will not impair the capabilities of the fire alarm system (NFPA 72:6.8.4.4).

**B. SPECIAL HAZARD EXTINGUISHING SYSTEMS.**

Dry/wet chemical, carbon dioxide, halon, 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). 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).

## **VI. INSTALLATION**

### **A. PERMITS.**

The installation of the fire alarm system is not to commence, including any pre-wiring, until the working plans have been reviewed and approved by the DMFD Fire Protection Engineer and an installation permit has been obtained.

### **B. APPROVED CONTRACTORS.**

An Iowa licensed contractor/installer shall be on-site for all installations, additions, alterations, repair and inspections of fire alarm systems.

### **C. SMOKE DETECTORS.**

Where possible, smoke detectors should not be installed until the construction clean up of all trades is complete. The shipping covers that come with the smoke detectors are not considered listed dust covers and are not to be considered as protection against dust or other contaminants (NFPA 72:5.7.1.11). However, if installed prior to clean-up, dust covers should be left in place until such time that all trades have cleaned up and the building is ready for occupancy.

## VII. INSPECTION AND TESTING

### A. INSPECTION.

It shall be the duty of the person doing the work authorized by a permit to notify the DMFD that the work is ready for inspection. It shall also be the responsibility of the person requesting the inspections to provide access to and means for proper inspection of the work (IFC 106.2). It shall be the duty of the permit applicant to cause the work to remain accessible and exposed for inspection purposes. If work is not complete, but will be concealed, a rough-in inspection may be required. Please contact the DMFD New Construction Inspector to schedule this inspection. Please allow 48 hrs (MINIMUM) lead time to schedule an inspection.

Don't put the inspectors on the spot. Call before they walk on the site with any questions and get them resolved up front with all parties involved. Additionally, if you want them to be consistent, compliance with the minimum codes is a must.

1. **Visual.** Fire alarm detection and notification devices shall be visually inspected for proper location, candela rating and installation (NFPA 72:10.3).

### B. TESTING.

1. 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 (IFC 907.8).
2. 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 DMFD Pre-Final Acceptance Test Checklist.
3. Battery/Voltage Drop Test Procedure: Systems are to be taken off of AC power 24 hours prior to scheduled final testing. Once the inspector arrives on site, the 5 or 15 minute alarm test shall commence. One initiating device will be activated and visual/audible devices will continue to operate for 5 minutes (15 minutes for voice alarms).
4. Phone lines/monitoring devices are still 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.
6. If any of the above is deleted, another item of the same description on the circuit shall be tested
7. When any modification to the control equipment is made, the control equipment shall be tested in accordance with NFPA 72:10.4.

### C. COMPLETION DOCUMENTS.

1. The completed *Fire Alarm System Record of Completion* form is to be provided to the DMFD prior to the time of inspection. An example of this form can found in NFPA 72.
2. A copy of the completed DMFD Pre-Final Acceptance Test Checklist.
3. Permanent records in accordance with NFPA 72:10.6 shall be provided to the owner to remain on site.

## **LINKS**

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1. Policies can be found on the DMFD website at:  
<http://www.dmgov.org/Departments/Fire/Pages/Documents.aspx>
2. Amendments to the 2009 International Fire Code can be found on the DMFD website at:  
[http://library2.municode.com/default-test/home.htm?infobase=13242&doc\\_action=whatsnew](http://library2.municode.com/default-test/home.htm?infobase=13242&doc_action=whatsnew)
3. State of Iowa Contractor Application can be found at:  
[http://www.dps.state.ia.us/fm/alarm/PDFS/2008\\_alarm\\_system\\_contractor\\_application.pdf](http://www.dps.state.ia.us/fm/alarm/PDFS/2008_alarm_system_contractor_application.pdf)
4. State of Iowa Installer Application can be found at:  
[http://www.dps.state.ia.us/fm/alarm/PDFS/2008\\_alarm\\_system\\_installer\\_application.pdf](http://www.dps.state.ia.us/fm/alarm/PDFS/2008_alarm_system_installer_application.pdf)
5. State of Iowa Administrative Code 661 Chapter 227 can be found at:  
<http://www.legis.state.ia.us/aspx/ACODocs/DOCS/4-21-2010.661.277.pdf>

## **ATTACHMENTS**

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Construction Drawing Submittal Checklist

Public/Common Use Areas requiring Visual Notification

## **Construction Drawing Submittal Checklist:**

Plan Requirements Per the DMFD, NFPA 72 and IFC.

### **INFORMATION REQUIRED ON COVER PAGE:**

- C1: Project Name and Location including complete street address, including Suite numbers!
- C2: A list of the codes, including the edition dates that were used to design the fire alarm system.
- C3: Name, address, and phone number of mechanical/electrical engineer/designer.
- C4: Name, address, and phone number of electrical/installing contractor.
- C5: Type of fire alarm system – manual, automatic, voice, zoned, addressable, or intelligent.
- C6: Name, address, UL Listing #, and type (central, remote, proprietary) of monitoring agency.
- C7: Name, address, and phone number of AHJ.
- C8: Device Legend to include: Make, model, temperature rating if applicable, candela rating if applicable.
- C9: Wiring Legend to include: Wire type and size.
- C10: Sequence of operations – matrix format.
- C11: Any specific notes that would be applicable to the specific project.
- C12: Signature/seal that these drawings were reviewed by a person holding a NICET level III or IV certification in Fire Alarm Systems or State of Iowa Professional Engineering license certification.
- C13: Detailed scope of work.

### **INFORMATION REQUIRED ON EVERY PAGE:**

- E1: Key/Plot Plan showing the detailed area.
- E2: Point of Compass.
- E3: A scale including graphic representation.

**INFORMATION REQUIRED ON DRAWING PAGES:**

**Building Information:**

- D1: Ceiling height and construction details.
- D2: Building elevation detail/view (if required for clarification).

**System Information:**

- R1: Complete Riser Detail.
- R2: Conduit Details.
- R3: Device Mounting heights and details.
- A1: All addressable fire alarm systems are to provide a listing of the addresses being used on each indicating device. This information is to include the device identification number, type of device, location of the device and the location description to be displayed at the FCP.
- A2: A zoned fire alarm system shall include the zone identification of each zone to be displayed at the FCP. In addition, a listing of the zones shall be included.
- P1: Power Connection to include emergency generator monitoring.
- P2: Battery calculations (can be provided in submittal packet).
- P3: Voltage Drop calculations (can be provided in submittal packet).
- Interface of fire safety functions.

**Plan Information (general items shown on every plan):**

- Floor plan indicating use of all rooms.
- Location of Alarm control and trouble signaling equipment.
- Location of Remote Annunciation Devices.
- Location of FDC and corresponding alarm bells (exterior horn/strobe).
- Location and details of all tamper switches, control relays, etc. for all suppression systems and their appurtenances.
- The location of all elevators and elevator equipment rooms shall be indicated. (Refer to section IV of this).
- The location of system duct smoke detectors shall be indicated. This information is to include the location of the remote test switch, when a remote test switch is required.



- The location of smoke control/exhaust fans, vents, dampers and other similar equipment. This information is to include the design information on the smoke control/management system.
- The location of all electromagnetic door holders and the smoke detectors that release those electromagnetic doors shall be shown. The ceiling elevation on either side of these doors must be indicated on the plans.
- Locations of all initiating devices shall be shown on the plans. This information is to include point-to-point-wiring and the address or zone of the device. On intelligent systems, the address of the device shall be placed next to the device on the plans. On zone systems, the zone circuit shall be identified on the plans next to the device.
- The locations of all system notification appliances shall be provided. Include the point-to-point-wiring and the circuit number between devices on the plans. **The candela rating of each device shall be indicated on the plans next to the device.**
- For addressable notification circuits, provide the full address for each device next to the device on the plans.
- Intended areas of coverage (should be clouded or otherwise indicated).
- When a new system is an addition to an existing system, enough of the old system shall be indicated to make all conditions clear (clearly indicate new vs. existing).
- Manufacturer's Technical Data Sheets (cutsheets) shall be submitted in the submittal packet.

## Public Accessible/Common Use Rooms Requiring Visual Notification

The rooms requiring notification devices include, but are not limited to:

- Reception Lobbies
- Waiting Lobby/area
- Conference/meeting rooms
- Corridors
- Restrooms
- Elevator Lobbies
- School Common Office Areas
- School health/nurse rooms
- Places of assembly:
  - Theater, Auditorium, Gymnasium etc.
- Classrooms
- Hearing Impaired rooms
- Counselor offices
- Locker/shower rooms
- Indoor Pool Areas
- Common Use Laundry Rooms
- Break/lunch rooms
- Dining/cafeteria rooms
- Sales floors/customer areas
- Music Practice Rooms
- Work room/office space greater than 150 sq ft. OR Office areas designed for 3 or more people
- Libraries
- Mechanical/electrical/data/phone/utility rooms greater than 300 sq ft.
- Patient examination rooms (per ADAAG)
  - Some exceptions may apply (consult with your local AHJ)
- Parking Garages where fire alarm systems are required
- Copy/mail rooms greater than 150 square feet
- Dressing rooms
- Open work areas greater than 150 square feet