

# City of Bettendorf

## Fire Alarm System Requirements

Section 907 of the 2015 Edition of the International Fire Code (IFC) and Section 10-7-3 of the Municipal Code provide fire alarm requirements.

### IFC Section 907 Fire Alarm and Detection Systems

#### General Headings:

- 907.1 General.
- 907.2 Where required—new buildings and structures.
- 907.3 Fire safety functions.
- 907.4 Initiating devices.
- 907.5 Occupant notification systems.
- 907.6 Installation.
- 907.7 Acceptance tests and completion.
- 907.8 Inspection, testing and maintenance.

See code book for the requirements. <https://codes.iccsafe.org/public/collections/I-Codes>

### Adopted Amendments to the IFC Relating to Fire Alarm Requirements

#### MUNICIPAL CODE Section 10-7-3: ADDITIONS AND AMENDMENTS:

The 2015 International Fire Code is amended as follows (refer to 2015 IFC for body of text):

Section 105.1.1 shall be deleted and replaced as follows:

Permits Required: Permits required by this code shall be obtained from the chief or his/her designee. The permit fee of ten dollars (\$10.00) shall be paid prior to issuance of the permit. The permit fee for a city department shall be waived, however, a permit is still required. Issued permits shall be kept on the premises designated therein at all times and shall be readily available for inspection by the fire chief or his/her designee. Permits shall be obtained prior to engaging in the following activities as noted in the respective code section:

105.7.6	Fire alarm and detection systems and related equipment.
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Section 907.2.1 shall be amended by deletion of the first sentence and insertion of the following:

A manual and automatic fire alarm system shall be installed in accordance with NFPA 72 in group A occupancies having an occupant load of 300 or more.

Section 907.2.2 shall be amended by adding the following:

4. The group B fire area that contains an educational occupancy for students above the twelfth grade with an occupant load of greater than 50 persons.

Section 907.2.3 shall be amended by deletion of the section and its exceptions and insertion of the following:

**907.2.3 Group E.** In the absence of a complete automatic sprinkler system, a complete automatic detection system utilizing an emergency voice/alarm communication system shall be installed throughout the entire Group E occupancy. A Group E occupancy with a complete automatic sprinkler system shall be provided with a fire alarm system utilizing an emergency voice/alarm communication system in compliance with Section 907.5.2.2 and installed in accordance with Section 907.6. As a minimum, smoke detection shall be provided in corridors at a maximum spacing of 30 feet on center, and heat or smoke detection shall be provided in any hazardous or non-occupied areas in all new or existing Group E occupancies.

Exceptions:

1. Group E occupancies with an occupant load of less than 50.
2. Manual fire alarm boxes are not required in Group E occupancies where all of the following apply:
  - 2.1. Interior corridors are protected by smoke detectors with alarm verification.
  - 2.2. Auditoriums, cafeterias, gymnasiums and the like are protected by heat detectors or other approved detection devices.
  - 2.3. Shops and laboratories involving dusts or vapors are protected by heat detectors or other approved detection devices.
  - 2.4. Off-premises monitoring is provided.
  - 2.5. The capability to activate the evacuation signal from a central point is provided.
  - 2.6. In buildings where normally occupied spaces are provided with a two-way communication system between such spaces and a constantly attended receiving station from which a general evacuation alarm can be sounded, except in locations specifically designated by the fire code official.
3. Manual fire alarm boxes shall not be required in Group E occupancies where the building is equipped throughout with an approved automatic sprinkler system, the notification appliances will activate on sprinkler water flow, and manual activation is provided from a normally occupied location.
4. Emergency voice/alarm communication systems meeting the requirements of Section 907.5.2.2 and installed in accordance with Section 907.6 shall not be required in Group E occupancies with occupant loads of 100 or less, provided that activation of the fire alarm system initiates an approved occupant notification signal in accordance with Section 907.5.

Section 907.2.9 shall be amended by adding the following:

An automatic smoke detection system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group R-2 occupancies in all the following locations.

1. Common spaces outside of dwelling units and sleeping rooms.
2. Laundry rooms, mechanical equipment rooms and storage rooms.
3. All interior corridors serving sleeping units or dwelling units.

Section 907.3.1 shall be amended by adding the following to the beginning of the section:

Remote alarm indicators with integral test and reset switches for duct smoke detectors shall be installed in locations as required by NFPA 72. These remote indicators shall be appropriately labeled.

Section 907.4.2 shall be amended by adding the following:

Manual pull stations shall be double-action pull stations.

Section 907.6.4 shall be amended by adding the following:

See also subsection 10-7-5J1 of the municipal code for fire alarm zones and subsection 10-7-5J2 of the municipal code for addressable systems. Subsection 10-7-5J2 of the municipal code requires addressable fire alarm systems in certain cases.

Section 907.6.4.1 shall be amended by adding the following:

Addressable systems shall also have indicator panels and the device indication shall lock in until the alarm is reset and shall not be canceled by the operation of an audible-alarm silencing switch.

Section 907.6.4.2 shall be deleted and replaced as follows.

**907.6.4.2 High-rise buildings.** High-rise buildings shall have an addressable system in conformance with the requirements of City of Bettendorf Municipal Code section 10-7-5. See also section 907.2.13 of the fire code.

## CITY OF BETTENDORF MUNICIPAL CODE

### 10-7-5: FIRE ALARM SYSTEM REQUIREMENTS ADOPTED:

**A. General:** Fire alarm systems shall meet the requirements of this section, the requirements of chapter 9 of the **2015** edition of the international fire code and the requirements of the **2013** edition of NFPA 72 - national fire alarm code.

**B. Primary Fire Alarm Control Panel (FACP):** The primary fire alarm control panel shall be located in a heated location approved by the fire department.

1. A single silence switch shall control the evacuation alarms inside a building along with the outside horn and light.
2. Alarm verification is required as a feature of the primary fire alarm panel when it serves twenty (20) or more devices.

**C. Fire Alarm Annunciator Panel (FAAP):** Complexes with multiple buildings, remote access points or a twenty four (24) hour front desk, shall provide remote panel annunciators for each of the buildings at this desk that indicate the location of an alarm. Other annunciator panels may be required for large buildings, for buildings where the fire alarm control panel is not located near the primary entrance, or as otherwise required by the fire department. Annunciator specifications shall meet the requirements of the department.

**D. Type And Location Of Devices:** Fire alarm system devices shall be installed as required by the international fire code and the national fire alarm code (NFPA 72).

1. Outside Alarm And Light: Every building with a fire alarm system shall have an outside audible alarm (minimum 85 dB) and flashing light (minimum 80,000 candlepower).
  - a. The outside alarm and light shall be located on the side of the building that is facing the street or primary access approach as approved by the department.
  - b. The outside audible alarm and light shall be activated upon all evacuation alarms.
  - c. Fire alarm outside audible alarm shall be silenced with the primary panel silence switch.
2. Alarm Visual Signals:
  - a. Audible warning and alarm signals in public areas of occupancies required to be accessible to handicapped or disabled persons shall be accompanied by simultaneous visual signals for the benefit of those with hearing disabilities.
  - b. Audible warning and alarm signals in dwelling units and guestrooms in multiple-family residential buildings required to be accessible to handicapped or disabled persons shall be accompanied by simultaneous signals for the benefit of those with hearing disabilities. Audible warning and alarm signals in public areas serving these designated dwelling units and guestrooms shall also be accompanied by visual signals.
3. Heat And Smoke Detection: All system detectors shall lock on and have a solid red light when in alarm.
  - a. All system smoke detectors shall reset from the fire alarm panel.
  - b. Any lockable room or area that has smoke or heat detection devices shall have a remote indicating light.

Exception: Any room or area annunciating as a separate and distinct zone or when the alarm system is an addressable system.

- c. Heat detectors shall be used in areas that are likely to contaminate smoke detectors, causing false fire alarms, or areas that are unheated.
- 4. Magnetic Hold Opens: All doors with magnetic hold open devices shall release upon an evacuation alarm.
- 5. Replacement Devices: Replacement devices shall be provided. A ratio of one smoke detector for every twenty five (25) detectors (minimum of 2 for each type). All other devices shall be provided at a ratio of one device for every fifty (50) (minimum of 1). One replacement rod for each pull station shall be provided as required by the department.
  - a. An approved, lockable, labeled storage cabinet for replacement devices is required. A typed inventory list shall be attached to the inside of the door identifying the quantity, model, and type of device stored.
  - b. Special tools for opening duct detectors, tamper switches, pull stations or any other device shall be provided.

**E. Labeling:**

1. Labels Required: The fire alarm panel, remote annunciator, remote indicating lights including remote duct detector indicator test and reset switches, and firefighter telephone jacks shall be labeled. Labels shall be word graphic, of a durable material, permanently attached, on a contrasting background and easily legible. Engraved plastic labels are recommended.

Typical Labeling Examples:

Zone/Device Description Floor Level or Location	
Automatic Fire Alarm First Floor	Sprinkler Waterflow Basement
Duct Detector – Zone 7 RTU - 2	Sprinkler Tamper Alarm Ground Floor

2. Monitoring Company Identification Label: A label identifying the contracted service company, business telephone and twenty four (24) hour telephone shall be provided. This label shall be self-adhesive or otherwise permanently attached and placed on the front of the primary fire alarm panel.

**F. Fire Alarm Zones:**

- 1. Zones Enumerated: The following zones are required where applicable (refer also to 2015 IFC section 907.6.4):
  - a. Automatic fire alarm per floor or portion thereof.
  - b. Main sprinkler water flow.
  - c. Sprinkler water flow per floor or portion thereof.
  - d. Tamper alarm per floor.
  - e. Each stairwell.
  - f. Each elevator shaft.
  - g. Each "group A" occupancy.
  - h. Kitchen hood extinguishing system.
  - i. Duct detectors, one HVAC system per zone (see subsection D5b of this section).
  - j. Low air for dry sprinkler systems.

2. **Addressable Fire Alarm System:** An addressable fire alarm system is strongly recommended if the building is large or comprises several zones. If the contractor elects to install a nonaddressable fire alarm system, the size and location of all zones shall be approved by the fire department on a case by case basis during the plan review process. An addressable system must be installed in buildings three (3) or more stories in height or larger than fifty thousand (50,000) square feet.

3. **Zone Definitions:** Fire alarm initiating devices include smoke detectors, heat detectors, manual pull stations, duct detectors, sprinkler system water flow switches and kitchen hood extinguishing systems.

**LOW AIR ALARM:** Activates upon loss of air pressure in dry pipe sprinkler systems prior to charging the system.

**TAMPER ALARM:** Tamper switches shall be treated as an initiating device. Tamper switches shall be activated by the closing of any sprinkler or standpipe control valve and shall initiate a visual and audible trouble alarm at the fire alarm control panel and at any fire alarm annunciator panels.

**TROUBLE:** Separate for each required zone and panel circuit.

**G. Alarm System In Buildings With Automatic Sprinklers:** All sprinkler systems shall be connected into a fire alarm panel when required by code.

1. All sprinkler systems shall have an interior horn and light, and an exterior horn and light assembly connected to the fire alarm panel. All horn circuits shall be supervised. A single silence switch shall control all interior and exterior horns and lights. The portions of the building that are protected by the sprinkler system shall have horns that provide sixty (60) dBA with all intervening doors closed per subsection G of this section.

Exceptions:

a. Interior strobe lights may be omitted in R-3 occupancies.

b. Any existing building retrofitted with only a sprinkler system and not already having a fire alarm system is not required to provide supervised horn circuits or a silence switch; however, the panel shall be clearly labeled to indicate how the water flow is silenced. An exterior horn and light meeting the requirements of subsection D of this section shall be installed. Interior horns shall also be installed. Interior horns shall provide sixty (60) dBA to all areas protected by the sprinkler system.

2. Coordinated efforts by the sprinkler, fire alarm, electrical, general and monitoring contractors are necessary to ensure a problem free installation and final acceptance.

**H. Final Acceptance Testing:** A fire alarm final inspection shall be performed prior to issuance of certificate of occupancy. After the fire alarm final inspection has been completed, the system shall be placed into service prior to occupancy of the building.

1. The fire department should be contacted at least twenty four (24) hours prior to the final inspection so that a fire department may be present to observe the testing.

2. Prior to the fire alarm final acceptance testing, the fire alarm supplier shall perform a one hundred percent (100%) inspection of the system, per NFPA 72.

3. A record of completion and alarm system certification shall be provided as required by NFPA 72. In addition to the information required by NFPA 72, the following is also required:

System Installer:	
Company Name	
Address	
Telephone	

System Installer:	
Company Name	
Address	
Telephone	

4. As built drawings of the fire alarm system shall be provided to the fire department.

I. Fire Alarm System Inspection: Inspection, testing and maintenance shall be conducted as noted in section 907.8 of the international fire code and NFPA 72.