
*Changes to the Fire Alarm
Requirements of the 2009 IBC with
Ohio Building Code Modifications*

2007 Supplement

- Changes were proposed and accepted for the 2007 Supplement
- Work was done by an informal committee of individuals to improve the usability of Section 907
- Most of the changes are to improve wording and flow of this section
- There were a few new technical changes



Chapter 9 – Fire Protection Systems

901.6.2 Fire alarm systems. Fire alarm systems required by the provisions of Section 907.2 of this code and Sections 907.2 of the *International Fire Code* shall be monitored by an approved supervising station in accordance with Section 907.6.5.



Section 907 - Fire Alarm & Detection Systems

- The entire Section was replaced with the accepted changes from the 2007 Supplement
- Not everything is new – some paragraphs were simply re-located for better usability
- Many paragraphs were re-worded to clarify the intent
- This presentation will cover the significant changes to Section 907



907.1.1 Construction documents. *Construction documents* for fire alarm systems 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 provisions of this code, and relevant laws, ordinances, rules and regulations, as determined by the *building official*.



New in 2009

907.1.2 Fire alarm shop drawings. Shop drawings for fire alarm systems shall be submitted for review and approval prior to system installation, and shall include, but not be limited to, all of the following:

1. A floor plan that indicates the use of all rooms.
2. Locations of alarm-initiating devices.



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3. Locations of alarm notification appliances, including candela ratings for visible alarm notification appliances.
 4. Location of fire alarm control unit, transponders and notification power supplies.
 5. Annunciators.
 6. Power connection.
 7. Battery calculations.

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8. Conductor type and sizes.
 9. Voltage drop calculations.
 10. Manufacturers' data sheets indicating model numbers and listing information for equipment, devices and materials.
 11. Details of ceiling height and construction.
 12. The interface of fire safety control functions.
 13. Classification of the supervising station.

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907.2 Where required—new buildings and structures. An approved fire alarm system installed in accordance with the provisions of this code and NFPA 72 shall be provided in new buildings and structures in accordance with Sections 907.2.1 through 907.2.23 and provide occupant notification in accordance with Section 907.5, unless other requirements are provided by another section of this code.

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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 waterflow 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.

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Exceptions:

1. The manual fire alarm box is not required for fire alarm systems dedicated to elevator recall control and supervisory service.

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2. The manual fire alarm box is not required for Group R-2 occupancies unless required by the *building official* to provide a means for fire watch personnel to initiate an alarm during a sprinkler system impairment event. Where provided, the manual fire alarm box shall not be located in an area that is accessible to the public.

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907.2.1 Group A. A manual fire alarm system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group A occupancies having an occupant load of 300 or more. Portions of Group E occupancies occupied for assembly purposes shall be provided with a fire alarm system as required for the Group E occupancy.

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Exception: Manual fire alarm boxes are not required where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 and the occupant notification appliances will activate throughout the notification zones upon sprinkler waterflow.

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907.2.1.1 System initiation in Group A occupancies with an occupant load of 1,000 or more. Activation of the fire alarm system 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.

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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.



907.2.2 Group B. A manual fire alarm system shall be installed in Group B occupancies where one of the following conditions exists:

1. The combined Group B occupant load of all floors is 500 or more.
2. The Group B occupant load is more than 100 persons above or below the lowest level of exit discharge.
3. The Group B fire area contains a Group B ambulatory health care facility.



Exception: Manual fire alarm boxes are not required where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 and the occupant notification appliances will activate throughout the notification zones upon sprinkler waterflow.



907.2.2.1 Group B ambulatory health care facilities. Fire areas containing Group B ambulatory health care facilities shall be provided with an electronically supervised automatic smoke detection system installed within the ambulatory health care facility and in public use areas outside of tenant spaces, including public corridors and elevator lobbies.

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Exception: Manual fire alarm boxes are not required where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 and the occupant notification appliances will activate throughout the notification zones upon sprinkler waterflow.

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907.2.3 Group E. A manual fire alarm system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group E occupancies. When automatic sprinkler systems or smoke detectors are installed, such systems or detectors shall be connected to the building fire alarm system.

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Exceptions:

1. A manual fire alarm system is not required in 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.

2.2. Auditoriums, cafeterias, gymnasiums and similar areas 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. The capability to activate the evacuation signal from a central point is provided.



2.5. In buildings where normally occupied spaces are provided with a two-way communication system between such spaces and a constantly attended receiving station from where a general evacuation alarm can be sounded, except in locations specifically designated by the *building* official.

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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 installed in accordance with Section 903.3.1.1, the notification appliances will activate on sprinkler waterflow and manual activation is provided from a normally occupied location.

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907.2.4 Group F. A manual fire alarm system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group F occupancies where both of the following conditions exist:

1. The Group F occupancy is two or more stories in height; and
2. The Group F occupancy has a combined occupant load of 500 or more above or below the lowest level of exit discharge.

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Exception: Manual fire alarm boxes are not required where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 and the occupant notification appliances will activate throughout the notification zones upon sprinkler waterflow.

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907.2.5 Group H. A manual fire alarm system that activates the occupant notification system shall be installed in Group H-5 occupancies and in occupancies used for the manufacture of organic coatings. An automatic smoke detection system that activates the occupant notification system shall be installed for highly toxic gases, organic peroxides and oxidizers in accordance with Chapters 37, 39 and 40, respectively, of the *fire code*.

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907.2.6 Group I. A manual fire alarm system that activates the occupant notification system shall be installed in Group I occupancies. An automatic smoke detection system that activates the occupant notification system shall be provided in accordance with Sections 907.2.6.1, 907.2.6.2 and 907.2.6.3.3.

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Exceptions:

1. Manual fire alarm boxes in resident or patient sleeping areas of Group I-1 and I-2 occupancies shall not be required at exits if located at all nurses' control stations or other constantly attended staff locations, provided such stations are visible and continuously accessible and that travel distances required in Section 907.4.2 are not exceeded.



New exception.

Exception 2. Occupant notification systems are not required to be activated where private mode signaling installed in accordance with NFPA 72 is approved by the *building official*.



907.2.6.1 Group I-1. An automatic smoke detection system shall be installed in corridors, waiting areas open to corridors and habitable spaces other than sleeping units and kitchens. The system shall be activated in accordance with Section 907.5.



Exceptions:

1. Smoke detection in habitable spaces is not required where the facility is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.
2. Smoke detection is not required for exterior balconies.



907.2.6.1.1 Smoke alarms. Single- and multiple-station smoke alarms shall be installed in accordance with Section 907.2.11.



Reworded for clarity

907.2.6.2 Group I-2. An automatic smoke detection system shall be installed in corridors in nursing homes (both intermediate care and skilled nursing facilities), detoxification facilities and spaces permitted to be open to the corridors by Section 407.2. The system shall be activated in accordance with Section 907.5. Hospitals shall be equipped with smoke detection as required in Section 407.



Exceptions:

1. Corridor smoke detection is not required in smoke compartments that contain patient sleeping units where such units are provided with smoke detectors that comply with UL 268. Such detectors shall provide a visual display on the corridor side of each patient sleeping unit and shall provide an audible and visual alarm at the nursing station attending each unit.

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Group I-3. No changes

Group M. No changes

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907.2.8 Group R-1. Fire alarm systems and smoke alarms shall be installed in Group R-1 occupancies as required in Sections 907.2.8.1 through 907.2.8.3.

907.2.8.1 Manual fire alarm system. A manual fire alarm system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group R-1 occupancies.

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907.2.8.2 Automatic smoke detection system.

An automatic smoke detection system that activates the occupant notification system in accordance with Section 907.5 shall be installed throughout all interior corridors serving sleeping units.

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907.2.9 Group R-2. Fire alarm systems and smoke alarms shall be installed in Group R-2 occupancies as required in Sections 907.2.9.1 and 907.9.2.

907.2.9.1 Manual fire alarm system. A manual fire alarm system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group R-2 occupancies where:

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No other changes to Group R-2 or Group R-4

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(all smoke alarm info for any occupancy that requires them was relocated to one common section)



907.2.11 Single- and multiple-station smoke alarms.

Listed single- and multiple-station smoke alarms complying with UL 217 shall be installed in accordance with Sections 907.2.11.1 through 907.2.11.4 and NFPA 72.



907.2.11.1 Group R-1. Single- or multiple-station smoke alarms shall be installed in all of the following locations in Group R-1:

1. In sleeping areas.
2. In every room in the path of the means of egress from the sleeping area to the door leading from the sleeping unit.



3. In each *story within the sleeping unit, including basements. For sleeping units with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.*

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907.2.11.2 Groups R-2 (except "Single Room Occupancy" occupancies as defined in section 310.2), R-3, R-4 and I-1. Single- or multiple-station smoke alarms shall be installed and maintained in Groups R-2 (except "SRO" occupancies), R-3, R-4 and I-1 regardless of *occupant load at all of the following locations:*

1. On the ceiling or wall outside of each separate sleeping area in the immediate vicinity of bedrooms.

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2. In each room used for sleeping purposes.
Exception: Single- or multiple-station smoke alarms in Group I-1 shall not be required where smoke detectors are provided in the sleeping rooms as part of an automatic smoke detection system.

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3. In each story within a dwelling unit, including basements but not including crawl spaces and uninhabitable attics. In dwellings or dwelling units with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.

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907.2.11.3 Interconnection. Where more than one smoke alarm is required to be installed within an individual dwelling unit or sleeping unit in Group R-1, R-2, R-3 or R-4, the smoke alarms shall be interconnected in such a manner that the activation of one alarm will activate all of the alarms in the individual unit. The alarm shall be clearly audible in all bedrooms over background noise levels with all intervening doors closed.

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[F] 907.2.11.4 Power source. In new construction, required smoke alarms shall receive their primary power from the building wiring where such wiring is served from a commercial source and shall be equipped with a battery backup. Smoke alarms with integral strobes that are not equipped with battery backup shall be connected to an emergency electrical system.

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Smoke alarms shall emit a signal when the batteries are low. Wiring shall be permanent and without a disconnecting switch other than as required for overcurrent protection.

Exception: Smoke alarms are not required to be equipped with battery backup where they are connected to an emergency electrical system.

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No changes to 907.2.12 – Special amusement buildings

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907.2.13.1 Automatic smoke detection.
Automatic smoke detection in high-rise buildings shall be in accordance with Sections 907.2.13.1.1 and 907.2.13.1.2.

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907.2.13.1.1 Area smoke detection. Area smoke detectors shall be provided in accordance with this section. Smoke detectors shall be connected to an automatic fire alarm system. The activation of any detector required by this section shall operate the emergency voice/alarm communication system in accordance with Section 907.5.2.2.

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Smoke detectors shall be located as follows:

1. In each mechanical equipment, electrical, transformer, telephone equipment or similar room which is not provided with sprinkler protection.
2. In each elevator machine room and in elevator lobbies.

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907.2.13.1.2 Duct smoke detection. Duct smoke detectors complying with Section 907.3.1 shall be located as follows:

1. In the main return air and exhaust air plenum of each air-conditioning system having a capacity greater than 2,000 cubic feet per minute (cfm) (0.94 m³/s). Such detectors shall be located in a serviceable area downstream of the last duct

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2. At each connection to a vertical duct or riser serving two or more stories from a return air duct or plenum of an air-conditioning system. In Group R-1 and R-2 occupancies, a smoke detector is allowed to be used in each return air riser carrying not more than 5,000 cfm (2.4 m³/s) and serving not more than 10 air-inlet openings.

(Voice EVAC not required for duct detectors)

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907.2.13.2 Fire department communication system.

Where a wired communication system is approved in lieu of a radio coverage system in accordance with Section 510 of the fire code, the wired fire department communication system shall be designed and installed in accordance with NFPA72.....

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907.2.22 Airport traffic control towers. An automatic smoke detection system that activates the occupant notification system in accordance with Section 907.5 shall be provided in airport control towers in all occupiable and equipment spaces.

Exception: Audible appliances shall not be installed within the control tower cab.

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907.3.1 Duct smoke detectors. Smoke detectors installed in ducts shall be listed for the air velocity, temperature and humidity present in the duct. Duct smoke detectors shall be connected to the building's fire alarm control unit when a fire alarm system is required by Section 907.2.



Activation of a duct smoke detector shall initiate a visible and audible supervisory signal at a constantly attended location and shall perform the intended fire safety function in accordance with this code and the *mechanical code*. Duct smoke detectors shall not be used as a substitute for required open area detection.



New Section under Fire Safety Functions

907.3.2 Delayed egress locks. Where delayed egress locks are installed on means of egress doors in accordance with Section 1008.1.9.6, an automatic smoke or heat detection system shall be installed as required by that section.



New Sections under Fire Safety
Functions

907.3.3 Elevator emergency operation.

Automatic fire detectors installed for elevator emergency operation shall be installed in accordance with the provisions of ASME A17.1 and NFPA

907.3.4 Wiring. The wiring to the auxiliary devices and equipment used to accomplish the above fire safety functions shall be monitored for integrity in accordance with NFPA 72.



New Section

907.4 Initiating devices. Where manual or automatic alarm initiation is required as part of a fire alarm system, the initiating devices shall be installed in accordance with Sections 907.4.1 through 907.4.3.



907.4.1 Protection of fire alarm control unit.

In areas that are not continuously occupied, a single smoke detector shall be provided at the location of each fire alarm control unit, notification appliance circuit power extenders, and supervising station transmitting equipment.



Exceptions:

1. Where ambient conditions prohibit installation of a smoke detector, a *heat detector shall be permitted.*
2. The smoke detector shall not be required where the building is equipped throughout with an *automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.*



907.5 Occupant notification systems. A fire alarm system shall annunciate at the panel and shall initiate occupant notification upon activation, in accordance with Sections 907.5.1 through 907.5.2.3.4. Where a fire alarm system is required by another section of this code, it shall be activated by:

(previously required, but not described)



907.6 Installation. A fire alarm system shall be installed in accordance with this section and NFPA 72.



Questions? Comments?

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