

Changes to the IFC
International Fire Code

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Commentary Notes Provided
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- During 2006 and 2007, work was done on the complete revision of Section 907, Fire Alarm and Detection Systems, to the International Fire Code. The changes that were purposed were both to the format of 907 and to the technical aspects within the section.
- The submittals and discussions were to the 2007 Supplement to the IFC. These changes, along with some additional work for clarity will be part of the 2008 IFC.

- These changes are now being enforced by any jurisdiction that has adopted the Supplement.

- The following individuals worked on these revisions:
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Bill Aaron (Code Consultants, Inc.)
Diane Arend (Office of the State Fire Marshal; California)
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Definitions

AVERAGE AMBIENT SOUND LEVEL. The root mean square, A-weighted sound pressure level measured over a 24-hour period, or the time any person is present, whichever time period is less.

DETECTOR, HEAT. A fire detector that senses heat either abnormally high temperature or rate-of-rise or both.

FIRE ALARM CONTROL UNIT. A system component that receives inputs from automatic and manual fire alarm devices and may be is capable of supplying power to detection devices and transponder(s) or off-premises transmitter(s). The control unit may be is capable of providing a transfer of power to the notification appliances and transfer of condition to relays or devices.

MULTIPLE-STATION SMOKE ALARM. Two or more single-station alarm devices that are capable of interconnection such that actuation of one causes the appropriate alarm signal to operate in all interconnected alarms, all integral or separate audible alarms to operate.

SMOKE ALARM. A single- or multiple-station alarm responsive to smoke, and not connected to a system.

AVERAGE AMBIENT SOUND LEVEL: This change was made for correlation with the definition and requirements used in NFPA 72 (2002).

DETECTOR, HEAT: This change was made for correlation with the definition and requirements used in NFPA 72 (2002). This revised definition includes all heat sources, not just limited to burning substances.

FIRE ALARM CONTROL UNIT: This change was made for correlation with the definition used in NFPA 72 (2002). In this case the word "may" is appropriate. The Fire Alarm Control Unit could have the capability to supply power or, alternately, that power could be supplied by an external source. Likewise, if the power supply is external, then the control for it is external as well.

MULTIPLE-STATION SMOKE ALARM: This change was made for correlation with the definition and requirements used in NFPA 72 (2002). This change requires the appropriate alarm signal to operate in all interconnected alarms, and will insure the approved type and synchronization of the notification signals.

SMOKE ALARM: This change was made for correlation with the definition and requirements used in NFPA 72 (2002). This change allows the connection to a fire alarm system for annunciation if required.

ZONE, NOTIFICATION. An area within a building or facility covered by notification appliances which are activated simultaneously:

ZONE, NOTIFICATION: This definition was added to define the term used in the IBC & IFC. This term and definition also correlates with the definition and requirements used in NFPA 72 (2002).

General

907.1 General. This section covers the application, installation, performance and maintenance of fire alarm systems and their components in new and existing buildings and structures. The requirements of Section 907.2 are applicable to new buildings and structures. The requirements of Section 907.3 are applicable to existing buildings and structures.

907.1 – The paragraph was divided and itemized for quicker visual reference to requirements for new and existing buildings.

- 907.1.1 Construction documents** Construction documents for fire alarm systems shall be submitted for review and approval prior to system installation. Construction documents shall include, but not be limited to, all of the following:
1. A floor plan which indicates the use of all rooms.
 2. Locations of alarm-initiating and notification appliances.
 3. Location of fire alarm control unit, transponders, and notification power supplies.
 4. Annunciators.
 5. Power connection.
 6. Battery calculations.
 7. Conductor type and sizes.
 8. Voltage drop calculations.
 9. Manufacturers, data sheets indicating model numbers and listing information for equipment, devices and materials.
 10. Details of ceiling height and construction.
 11. The interface of fire safety control functions.
 12. Classification of the supervising station.

#3 The terminology was changed to be more consistent with that used in NFPA 72.

#4 Annunciation is the action that occurs and is simply called "occupant notification." The intent is to identify where the Annunciator panels may be located so that coordination with the fire service needs can occur.

#9 The name of the manufacturer is what the code literally requires as written. What is actually requested and provided are data sheets from the manufacturers about their products. The data sheets contain the manufacturer's information as well as detailed descriptions of the products.

#12 This is a new item to the list. One question that seems to be asked regularly but is not previously identified as being required is the supervising station information. Now it will be required to submit what firm will be performing the supervising and what type of supervision will be done.

907.1.2 Equipment. Systems and components shall be listed and approved for the purpose for which they are installed.

907.1.2 It is possible to have fire alarm equipment that is not part of a "system" as defined by the code. Therefore the word "their" can be deleted.

New Buildings and Structures

907.2 Where required—new buildings and structures. An approved manual, automatic or manual and automatic 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 907.2.23 907.2.22 and provide occupant notification in accordance with Section 907.10 907.6, unless other requirements are provided by another section of this code.

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.

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

907.2 Section renumbering is intended to relate to what is done elsewhere in this proposal. The first sentence is deleted because there is no place in 907 that requires heat detection. Therefore the sentence is extraneous. The second deleted sentence is moved to the new section 907.5.3 because it has more to do with the initiating devices than to "new construction."

This manual fire alarm box is needed to provide a means of manually activating a fire alarm system that only contains automatic devices like waterflow switches or smoke detectors. It serves two purposes. One is for the sprinkler technician to be able to manually activate the fire alarm system in the event of a fire during the time the sprinkler system is down for maintenance. The second purpose is to allow building occupants a means to manually active the fire alarm system prior to sprinkler water discharge in the event a fire is discovered. The NFPA 72 Protected Premises Technical Committee feels this requirement belongs in building and fire codes rather than in NFPA 72. NFPA 72 provides the "how to" for fire alarm devices required by building and fire codes. Building and fire codes provide the "when required". This requirement will be removed from NFPA 72 once it is in the building and fire codes.

907.2.1 Group A. A manual fire alarm system that activates the occupant notification system in accordance with Section 907.6 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.

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 alarm occupant notification appliances will activate throughout the notification zones upon sprinkler water flow.

907.2.1 The code now clearly indicates that occupant notification is required. It had been assumed and is noted in the commentaries as being the understood response but it never clearly stated that in the code. It is also intimated in the definition but is not clear since there are systems in the code that do not require full occupant notification. The added text removes the ambiguity. This additional text is added in several locations throughout the code

In the exception, the term "alarm notification" technically only indicates that the alarm condition is recognized at the panel. It does not mean that horns and strobes will be activated. "Occupant notification" is the term used to describe that function. The added words "within the notification zones" are provided so that it is clear to what extent the notification should occur. While there is a general understanding about what devices should activate, the revised language clarifies the intent.

907.2.1.1 System initiation in Group A occupancies with an occupant load of 1,000 or more. 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 907.6.2.2.

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.

907.2.1.1 The reference to NFPA is removed from this section. It is included in the new Section 907.6.2.2. The existing section 907.2.1.2 is deleted because the requirement is included in the new Section 907.6.2.2.3. Because the voice alarm system is part of the fire alarm system, it is subject to 907.2 which requires emergency and standby power to be in accordance with NFPA 72.

907.2.2 Group B. A manual fire alarm system that activates the occupant notification system in accordance with Section 907.6 shall be installed in Group B occupancies where one of the following conditions exists:

1. The combined Group B occupant load for 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.

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 water flow.

907.2.2 The paragraph is divided into various conditions. This is similar to the manner in which Section 903 is organized and makes for easier identification of the various conditions; both in reading and citation. This approach is used throughout the reorganization as a general reformatting concept for clarity. In so doing, the language in item one needed to be changed to make sense and additional language in item two added for clarity

The text change in the exception is the same as that noted for Section 907.2.1. The code now clearly indicates that occupant notification is required. See rationale statement for Section 907.2.1.

907.2.3 Group E. A manual fire alarm system that activates the occupant notification system in accordance with Section 907.6 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.

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

907.2.3

Exception #1 To clarify a potential misunderstanding, the wording is added so that it is clear that the exception applies to the manual fire alarm system and not the connection referred to in the charging sentence.

Exception #2.1 Alarm Verification is a term that is no longer used.

Exception #2.2 The wording "the like" is vague. While "similar areas" does not give specific information, it is consistent with code language and better than the alternative – keeping "the like."

907.2.4 Group F. A manual fire alarm system that activates the occupant notification system in accordance with Section 907.6 shall be installed in Group F occupancies where both of the following conditions exist:

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

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 alarm occupant notification appliances will activate throughout the notification zones upon sprinkler water flow.

907.2.4 The section is divided and language changed for clarity.

The code now clearly indicates that occupant notification is required.

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

907.2.6 Group I. A manual fire alarm system shall be installed in Group I occupancies. An automatic smoke detection system shall be provided in accordance with Sections 907.2.6.1 and 907.2.6.2.
Exception: 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 907.5.2 are not exceeded.

907.2.6 There is no reason for the wording "electrically supervised" since all smoke detection systems must be supervised by a method using electricity.

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 907.6.

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 The charging statement is reworded to be in the positive and ordered in a similar manner to the other sections in 907.2. The reorganization also eliminates a confusion over whether or not the term "habitable" was intended to be applied to the other spaces in the list.

907.2.6.1.1 Smoke alarms. Single- and multiple-station smoke alarms shall be installed in accordance with Section 907.2.10.

907.2.6.1.1 A new section is added as a pointer to the smoke alarm requirement for Group I-1 occupancies. As it is currently written, the reader does not find out about smoke alarms for I occupancies until reading the section for residential occupancies. This will point out the requirement.

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 of the *International Building Code*. The system shall be activated in accordance with Section 907.6. Hospitals shall be equipped with smoke detection as required in Section 407.2 of the *International Building Code*.

Exceptions:

1. Corridor smoke detection is not required in smoke compartments that contain patient sleeping units where patient sleeping 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.
2. Corridor smoke detection is not required in smoke compartments that contain patient sleeping units where patient sleeping unit doors are equipped with automatic door-closing devices with integral smoke detectors on the unit sides installed in accordance with their listing, provided that the integral detectors perform the required alerting function.

907.2.6.2 – *Similar to Section 907.6.1, the text is reworded to be in the positive and consistent with language used elsewhere in Section 907.2.*

907.2.6.3 Group I-3 occupancies. Group I-3 occupancies shall be equipped with a manual and automatic fire alarm system installed for alerting staff.

907.2.6.3.1 System initiation. Actuation of an automatic fire-extinguishing system, a manual fire alarm box or a fire detector shall initiate an approved fire alarm signal which automatically notifies staff.

907.2.6.3.1 The sentence regarding presignal systems is removed because the sentence preceding it is describing a presignal feature. The existing second sentence contradicts the first sentence. Because the staff notification feature is both desirable and consistent with the Life Safety Code, the second sentence is not necessary.

907.2.6.3.2 Manual fire alarm boxes. Manual fire alarm boxes are not required to be located in accordance with Section 907.5.2 where the fire alarm boxes are provided at staff-attended locations having direct supervision over areas where manual fire alarm boxes have been omitted.
Manual fire alarm boxes are allowed to be locked in areas occupied by detainees, provided that staff members are present within the subject area and have keys readily available to operate the manual fire alarm boxes.

- **907.2.6.3.3 Smoke detectors.** An automatic smoke detection system shall be installed throughout resident housing areas, including sleeping units and contiguous day rooms, group activity spaces and other common spaces normally accessible to residents.

Exceptions:

1. Other approved smoke-detection arrangements providing equivalent protection, including, but not limited to, placing detectors in exhaust ducts from cells or behind protective guards listed for the purpose, are allowed when necessary to prevent damage or tampering.
2. Sleeping units in Use Conditions 2 and 3.
3. Smoke detectors are not required in sleeping units with four or fewer occupants in smoke compartments that are equipped throughout with an automatic sprinkler system.

907.2.6.3.3 The word “approved” is extraneous in this sense because all fire alarm systems require an approval through the permit process. The word adds nothing of value to the code in this use. This deletion occurs twice – once in the charging paragraph and once again in exception #3.

907.2.7 Group M. A manual fire alarm system that activates the occupant notification system in accordance with Section 907.6 shall be installed in Group M occupancies where one of the following conditions exists:

1. The combined Group M occupant load of all floors is having an occupant load of 500 or more persons.
2. The Group M occupant load is more than 100 persons above or below the lowest level of exit discharge.

Exceptions:

1. A manual fire alarm system is required in covered mall buildings complying with Section 402 of the *International Building Code*.
2. 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 automatically activate throughout the notification zones upon sprinkler water flow.

907.2.7 –The charging paragraph is divided in similar fashion to that noted above (see 907.2.2). The phrase stating what the manual system should activate is relocated to be still in the charging portion of the text. Language changes in the exceptions are the same as those in Section 907.2.2 and for the same reasons. The code now clearly indicates that occupant notification is required.

907.2.7.1 Occupant notification. During times that the building is occupied, the initiation of a signal from a manual fire alarm box or from a water flow switch shall not be required to activate the alarm notification appliances when an alarm signal is activated at a constantly attended location from which evacuation instructions shall be initiated over an emergency voice/alarm communication system installed in accordance with Section 907.6.2.2.

The emergency voice/alarm communication system shall be allowed to be used for other announcements, provided the manual fire alarm use takes precedence over any other use.

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 Smoke alarms are added to the charging language. While the requirement for smoke alarms is found in the following sections there is currently nothing in the charging text acknowledging it.

907.2.8.1 Manual fire alarm system. A manual fire alarm system that activates the occupant notification system in accordance with Section 907.6 shall be installed in Group R-1 occupancies.

Exceptions:

1. A manual fire alarm system is not required in buildings not more than two stories in height where all individual sleeping units and contiguous attic and crawl spaces to those units are separated from each other and public or common areas by at least 1-hour fire partitions and each individual sleeping unit has an exit directly to a public way, exit court or yard.
2. Manual fire alarm boxes are not required throughout the building when the following conditions are met:
 - 2.1. The building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
 - 2.2. The notification appliances will activate upon sprinkler water flow; and
 - 2.3. At least one manual fire alarm box is installed at an approved location.

907.2.8.1 The code now clearly indicates that occupant notification is required. The phrase "to those units" was added so that it is clear that the crawl spaces of interest are those associated with the units where the exception would be applied and not elsewhere in the building.

907.2.8.2 Automatic fire alarm system. An automatic fire alarm system that activates the occupant notification system in accordance with Section 907.6 shall be installed throughout all interior corridors serving sleeping units.

Exception: An automatic fire detection system is not required in buildings that do not have interior corridors serving sleeping units and where each sleeping unit has a means of egress door opening directly to an exit or to an exterior exit access that leads directly to an exit.

907.2.8.2 The code now clearly indicates that occupant notification is required. Additionally, it is necessary to indicate that the egress door could lead directly into an exit as well as to an exterior exit access. In compressed site designs, it is not uncommon for the alternative route to be an exit enclosure rather than an exterior balcony. And, if the path leads directly into an exit, that should be counted as at least equal to an exterior balcony.

907.2.8.3 Smoke alarms. Single- and multiple-station smoke alarms shall be installed in accordance with Section 907.2.10.

907.2.8.3 In the first sentence "single- and multiple-station" is added in association with smoke alarms so that it is clear that the requirements in 907.2.10 apply to both conditions. The second sentence is no longer necessary since all new construction for residential occupancies is required to be sprinklered.

907.2.9 Group R-2. Fire alarm systems and smoke alarms shall be installed in Group R-2 occupancies as required in Section 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 907.6 shall be installed in Group R-2 occupancies where:

1. Any dwelling unit or sleeping unit is located three or more stories above the lowest level of exit discharge;
2. Any dwelling unit or sleeping unit is located more than one story below the highest level of exit discharge of exits serving the dwelling unit or sleeping unit; or
3. The building contains more than 16 dwelling units or sleeping units.

Exceptions:

1. 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 or 903.3.1.2 and the occupant notification appliances will automatically activate throughout the notification zones upon a sprinkler water flow.
2. A manual fire alarm system is not required in buildings not more than two stories in height that do not have interior corridors serving dwelling units provided that dwelling units have a means of egress door opening directly to an exterior exit access that leads directly to the exits or are served by open-ended corridors designed in accordance with Section 1023.6, Exception 4.

907.2.9.1 A new title is added for the split off section. The code now clearly indicates that occupant notification is required.

New Exception #1 Since the building must be sprinklered reference to sprinklers was deleted. The word "water" is added so that the phrase "water flow" is consistent with that used elsewhere in the code.

New Exception #2 Because sprinklers are required in all residential occupancies, the reference to sprinklers was deleted. The rest of the exception is so similar to the old exception #1 that the two-story limitation was relocated to this exception. The two-story provision with an exterior exit access is the only thing that makes this exception different from the new Exception #1.

907.2.9.2 Smoke alarms. Single- and multiple-station smoke alarms shall be installed in accordance with Section 907.2.10.

907.2.10 Single- and multiple-station smoke alarms. Listed single- and multiple-station smoke alarms complying with UL 217 shall be installed in accordance with Sections 907.1.10.1 through 907.2.10.4 and NFPA 72.

907.2.10 Charging language from the old 907.10.1 was relocated into this section to make it the charging section. The reference to household fire warning devices is deleted since the term used in NFPA is "smoke alarm." If the same term is used, it is already clear what the intent is when applying NFPA 72.

907.2.10.1 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.

907.2.10.2 Groups R-2, R-3, R-4 and I-1. Single or multiple-station smoke alarms shall be installed and maintained in Groups R-2, 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.
2. In each room used for sleeping purposes.
Exception: Single- or multiple-station smoke alarms in Group -1 shall not be required where smoke detectors are provided in the sleeping rooms as part of an automatic smoke detection system.
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.

907.2.10.3 Interconnection. Where more than one smoke alarm is required to be installed within an individual dwelling unit or sleeping unit in Groups R-1, R-2, R-3 or R-4, or within an individual sleeping unit in Group R-1, 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.

907.2.10.4 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 back-up shall be connected to an emergency electrical system. 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.

907.2.10.4 The section is renumbered due to the change in the charging section. A sentence is added in recognition of a concern raised by NFPA 72. Reference to Group R-1 was deleted since the concept is applicable to all cases where a smoke alarm is required.

At the present time, there are on the market smoke alarms that have an integral strobe that do not have a built in battery for the strobe. Thus, if the power for the building goes down, while the smoke detection and horn of the device may still operate, the strobe will not. It is critical for rooms that are equipment with these smoke alarms that may house the hearing impaired that depend on the strobe to alert them to the alarm. The change to 907.2.10.4 would require that a smoke alarm with an integral strobe that does not have a battery backup would be required to be connected to an emergency electrical system for the required backup power. The section has been changed to 907.2.10.4 to be in alignment with the changes to Section 907.

907.2.11 Special amusement buildings. An automatic smoke detection system shall be provided in special amusement buildings in accordance with Sections 907.2.1.1 through 907.2.11.3.

Exception: In areas where ambient conditions will cause a smoke detection system to alarm, an approved alternative type of automatic fire detector shall be installed.

907.2.11 The word "approved" is deleted since all alarm systems must be reviewed and approved. In the exception the word "fire" is added to differentiate between what type of alternate detector is allowed should smoke detectors not be appropriate for the ambient conditions. It was not clear in the former text whether or not a pressure sensitive detonation detector could be used as an alternative. The intent is that a fire detector be used.

907.2.11.1 Alarm. Activation of any single smoke detector, the automatic sprinkler system or any other automatic fire detection device shall immediately sound an alarm at the building at a constantly attended location from which emergency action can be initiated, including the capability of manual initiation of requirements in Section 907.2.11.2.

907.2.11.2 System response. The activation of two or more smoke detectors, a single smoke detector with alarm verification, the automatic sprinkler system or other approved fire detection device shall automatically:

1. Cause illumination of the means of egress with light of not less than 1 foot-candle (11 lux) at the walking surface level;
2. Stop any conflicting or confusing sounds and visual distractions;
3. Activate an approved directional exit marking that will become apparent in an emergency; and
4. Activate a prerecorded message, audible throughout the special amusement building, instructing patrons to proceed to the nearest exit. Alarm signals used in conjunction with the prerecorded message shall produce a sound which is distinctive from other sounds used during normal operation.

907.2.11.3 Emergency voice/alarm communication system. An emergency voice/alarm communication system, which is also allowed to serve as a public address system, shall be installed in accordance with Section 907.6.2.2 and be audible throughout the entire special amusement building.

907.2.11.3 The reference to NFPA 72 was deleted since it is more appropriate to refer to the code sections that specifically address the system function. NFPA 72 gives information as to how the voice alarm system should be installed but leaves options since it is primarily an installation document. Without the reference to 907.6.2.2 it is unclear what functions should be provided for a voice alarm in a special amusement building.

907.2.12 High-rise buildings. Buildings with a floor used for human occupancy located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access shall be provided with an automatic fire alarm system and an emergency voice/alarm communication system in accordance with 907.6.2.2.

Exceptions:

1. Airport traffic control towers in accordance with Section 907.2.22 and Section 412 of the *International Building Code*.
2. Open parking garages in accordance with Section 406.3 of the *International Building Code*.
3. Buildings with an occupancy in Group A-5 in accordance with Section 303.1 of the *International Building Code*.
4. Low-hazard special occupancies in accordance with Section 503.1.1 of the *International Building Code*.
5. Buildings with an occupancy in Group H-1, H-2 or H-3 in accordance with Section 415 of the *International Building Code*.
6. In Group I-1 and I-2 occupancies, the alarm shall sound at a constantly attended location and general occupant notification shall be broadcast by the paging system.

907.2.12.1 Automatic fire detection. 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. 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, elevator machine rooms, and in elevator lobbies.
2. 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 inlet.
3. 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 (2.4m³/s) and serving not more than 10 air-inlet openings.

907.2.12.2 Fire department communication system. An approved two-way, fire department communication system designed and installed in accordance with NFPA 72 shall be provided for fire department use. It shall operate between a fire command center complying with Section 509 and elevators, elevator lobbies, emergency and standby power rooms, fire pump rooms, areas of refuge and inside enclosed exit stairways. The fire department communication device shall be provided at each floor level within the enclosed exit stairway.

Exception: Fire department radio systems where approved by the fire department.

907.2.13 Atriums connecting more than two stories. A fire alarm system shall be installed in occupancies with an atrium that connects more than two stories. The system shall be activated in accordance with Section 907.6. Such occupancies in Group A, E or M shall be provided with an emergency voice/alarm communication system complying with the requirements of Section 907.6.2.2.

907.2.14 High-piled combustible storage areas. An automatic fire detection system shall be installed throughout high-piled combustible storage areas where required by Section 2306.5.

907.2.15 Aerosol storage uses. Aerosol storage rooms and general-purpose warehouses containing aerosols shall be provided with an approved manual fire alarm system where required by this code.

907.2.16 Lumber, wood structural panel and veneer mills. Lumber, wood structural panel and veneer mills shall be provided with a manual fire alarm system.

907.2.17 Underground buildings with smoke control systems. Where a smoke control system is installed in an underground building in accordance with the *International Building Code*, automatic fire detectors shall be provided in accordance with Sections 907.2.17.1 and 907.2.17.2.

907.2.17 *The nomenclature is changed from smoke “exhaust” to smoke “control” to be consistent with Section 909 and language used elsewhere in the code. The section becomes the changing section for all underground buildings.*

- 907.2.17.1 Smoke detectors.** A minimum of one smoke detector listed for the intended purpose shall be installed in the following areas:
1. Mechanical equipment, electrical, transformer, telephone equipment, elevator machine or similar rooms.
 2. Elevator lobbies.
 3. The main return and exhaust air plenum of each air-conditioning system serving more than one story and located in a serviceable area downstream of the last duct inlet.
 4. Each connection to a vertical duct or riser serving two or more floors from return air ducts or plenums of heating, ventilating and air-conditioning systems, except that in Group R occupancies, a listed 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.

907.2.17.2 Alarm required. Activation of the smoke control system shall activate an audible alarm at a constantly attended location.

907.2.18 Deep underground buildings.

Where the lowest level of a structure is more than 60 feet (18 288 mm) below the lowest level of exit discharge, the structure shall be equipped throughout with a manual fire alarm system, including an emergency voice/alarm communication system installed in accordance with Section 907.6.2.2.

907.2.18 The former 907.2.19 addresses requirements for an underground building. The only difference between it and that in the previous section is the depth below grade.

907.2.18.1 Public address system. Where a fire alarm system is not required by Section 907.2, a public address system shall be provided which shall be capable of transmitting voice communications to the highest level of exit discharge serving the underground portions of the structure and all levels below.

907.2.19 Covered mall buildings. Covered mall buildings exceeding 50,000 square feet (4645 m²) in total floor area shall be provided with an emergency voice/alarm communication system. An emergency voice/alarm communication system serving a mall, required or otherwise, shall be accessible to the fire department. The system shall be provided in accordance with Section 907.6.2.2.

- **907.2.20 Residential aircraft hangars.** A minimum of one single-station smoke alarm shall be installed within a residential aircraft hangar as defined in the *International Building Code* and shall be interconnected into the residential smoke alarm or other sounding device to provide an alarm which will be audible in all sleeping areas of the dwelling.

907.2.21 Airport traffic control towers. An automatic fire detection system that activates the occupant notification system in accordance with Section 907.6 shall be provided in airport traffic control towers in all occupiable spaces.

907.2.21 The section is renumbered. The code now clearly indicates that occupant notification is required. A sentence is added to indicate where smoke detection is required. In airport control towers smoke detectors are provided as part of a package of provisions to supplement the lack of egress because only one exit is required. However, without some direction, smoke detectors could be construed to be required in every closet and underfloor space. The basic intent is to provide notification and early warning but with such a small area limited placement is all that is necessary. Therefore, the proposed text would direct the installation to be in those areas where people work; which are also the areas with the greatest potential fuel source for a fire. This application is consistent with what is being done in most parts of the country and with what the original intent was for the smoke detection requirement.

907.2.22 Battery rooms. An automatic smoke detection system shall be installed in areas containing stationary storage battery systems with a liquid capacity of more than 50 gallons (189 L). The detection system shall activate a local alarm signal at a constantly attended location or shall be supervised by an approved central, proprietary, or remote station service.

907.2.22 The section is renumbered due to text relocation. The word "approved" is deleted since all fire alarm systems must be approved. The word "having" is changed to "with" to be consistent with language used elsewhere in the code. The provision for activation of an alarm at a constantly attended location is moved forward in the sentence. Generally, the preferred solution is listed first. The constantly attended location is the option typically used because it will let people in the vicinity know immediately that there has been an incident so action can be taken immediately. Most of the facilities with this type of battery storage area also have on site fire brigades who can respond faster to the scene than the fire department of the local jurisdiction. The preference and generally accepted method should be listed first in the code.

Existing Buildings and Structures

907.3 Where required—retroactive in existing buildings and structures. An approved manual, automatic or manual and automatic fire alarm system shall be installed in existing buildings and structures in accordance with Sections 907.3.1 through 907.3.1.8 and provide occupant notification in accordance with Section 907.6 unless other requirements are provided by other sections of this code.
Exception: Occupancies with an existing, previously approved fire alarm system.

907.3.1 Group E. A fire alarm system shall be installed in existing Group E occupancies in accordance with Section 907.2.3.
Exceptions:
1. A manual fire alarm system is not required in a building with a maximum area of 1,000 square feet (93 m2) that contains a single classroom and is located no closer than 50 feet (15 240 mm) from another building.
2. A manual fire alarm system is not required in Group E with an occupant load less than 50.

907.3.2 Group I. A fire alarm system shall be installed in existing Group I occupancies in accordance with Sections 907.3.2.1 through 907.3.2.3.

Exception: 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 907.5.2 are not exceeded.

907.3.2 A new scoping statement is added to be similar to that in 907.2.6 for new construction. The same exception for new construction is included in 907.3.2.

907.3.2.1 Group I-1. An automatic or manual fire alarm system shall be installed in existing Group I-1 residential care/assisted living facilities in accordance with Section 907.2.6.1.

Exception: Where each sleeping room has a means of egress door opening directly to an exterior egress balcony that leads directly to the exits in accordance with Section 1014.5, and the building is not more than three stories in height.

907.3.2.1 The existing text stated a fire alarm system which includes both manual and automatic. Requirements for an existing Group I-1 occupancy is being reference back to 907.2.6.1 so that the exceptions of that section can also be applied as necessary. Otherwise the requirements for existing building would be more restrictive that those for new construction. The existing exception was retained.

907.3.2.2 Group I-2. An automatic or manual fire alarm system shall be installed in existing Group I-2 occupancies in accordance with Section 907.2.6.2.

907.3.2.2 The existing text stated a fire alarm system which includes both manual and automatic. Requirements for an existing Group I-2 occupancy is being reference back to 907.2.6.2 so that the exceptions of that section can also be applied as necessary. Otherwise the requirements for existing building would be more restrictive that those for new construction.

907.3.2.3 Group I-3. An automatic or manual fire alarm system shall be installed in existing Group I-3 occupancies in accordance with Section 907.2.6.3.

907.3.2.3 The existing text stated a fire alarm system which includes both manual and automatic. Requirements for an existing Group I-3 occupancy is being reference back to 907.2.6.3 so that the exceptions of that section can also be applied as necessary. Otherwise the requirements for existing building would be more restrictive than those for new construction.

907.3.3 Group R. A fire alarm system and smoke alarms shall be installed in existing Group R occupancies in accordance with Sections 907.3.3.1 through 907.3.3.4.

907.3.3.1 Group R-1 hotels and motels. An automatic or manual fire alarm system that activates the occupant notification system in accordance with Section 907.6 shall be installed in existing Group R-1 hotels and motels more than three stories or with more than 20 sleeping units.

Exception: Buildings less than two stories in height where all sleeping units, attics and crawl spaces are separated by 1-hour fire-resistance-rated construction and each sleeping unit has direct access to a public way, exit court or yard.

907.3.3.1 The section is renumbered due to relocated text. The code now clearly indicates that occupant notification is required. The words "manual or automatic" are added because these are both types of fire alarm systems.

907.3.3.2 Group R-1 boarding and rooming houses. An automatic or manual fire alarm system that activates the occupant notification system in accordance with Section 907.6 shall be installed in existing Group R-1 boarding and rooming houses.

Exception: Buildings that have single-station smoke alarms meeting or exceeding the requirements of Section 907.2.10.1 and where the fire alarm system includes at least one manual fire alarm box per floor arranged to initiate the alarm.

907.3.3.2 The section is renumbered due to relocated text. The code now clearly indicates that occupant notification is required. The words "manual or automatic" are added because these are both types of fire alarm systems.

907.3.3.3 Group R-2. An automatic or manual fire alarm system that activates the occupant notification system in accordance with Section 907.6 shall be installed in existing Group R-2 occupancies more than three stories in height or with more than 16 dwelling units or sleeping units.

Exceptions:

1. Where each living unit is separated from other contiguous living units by fire barriers having a fire-resistance rating of not less than 0.75 hour, and where each living unit has either its own independent exit or its own independent stairway or ramp discharging at grade.
2. A separate fire alarm system is not required in buildings that are equipped throughout with an approved supervised automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 and having a local alarm to notify all occupants.
3. A fire alarm system is not required in buildings that do not have interior corridors serving dwelling units and are protected by an approved automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2, provided that dwelling units either have a means of egress door opening directly to an exterior exit access that leads directly to the exits or are served by open-ended corridors designed in accordance with Section 1023.6, Exception 4.

907.3.3.4 Group R-4. An automatic or manual fire alarm system that activates the occupant notification system in accordance with Section 907.6 shall be installed in existing Group R-4 residential care/assisted living facilities.

Exceptions:

1. Where there are interconnected smoke alarms meeting the requirements of Section 907.2.10 and there is at least one manual fire alarm box per floor arranged to sound continuously the smoke alarms.
2. Other manually activated, continuously sounding alarms approved by the fire code official.

9097.3.4 Single- and multiple-station smoke alarms. Single- and multiple-station smoke alarms shall be installed in existing Group R occupancies in accordance with Sections 907.3.2.1 907.3.4.1 through 907.3.2.3 907.3.4.3.

907.3.4.1 Where required. Existing Group R occupancies not already provided with single-station smoke alarms shall be provided with approved single-station smoke alarms. Installation shall be in accordance with Section 907.2.10, except as provided in Sections 907.3.2.2 907.3.4.2 and 907.3.2.3 9097.3.4.3.

907.3.4.2 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.

Exceptions:

1. Interconnection is not required in buildings that are not undergoing alterations, repairs or construction of any kind.
2. Smoke alarms in existing areas are not required to be interconnected where alterations or repairs do not result in the removal of interior wall or ceiling finishes exposing the structure, unless there is an attic, crawl space or basement available which could provide access for interconnection without the removal of interior finishes.

907.3.4.3 Power source. In Group R occupancies, single-station smoke alarms shall receive their primary power from the building wiring provided that 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 back-up shall be connected to an emergency electrical system. 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 permitted to be solely battery operated: in existing buildings where no construction is taking place; in buildings that are not served from a commercial power source; and in existing areas of buildings undergoing alterations or repairs that do not result in the removal of interior walls or ceiling finishes exposing the structure, unless there is an attic, crawl space or basement available which could provide access for building wiring without the removal of interior finishes.

Fire Safety Functions

907.4 Fire safety functions. Automatic fire detectors utilized for the purpose of performing fire safety functions shall be connected to the building's fire alarm control unit where a fire alarm system is required by Section 907.2. Detectors shall, upon actuation, perform the intended function and activate the alarm notification appliances or activate a visible and audible supervisory signal at a constantly attended location. In buildings not required to be equipped with a fire alarm system, the automatic fire detector shall be powered by normal electrical service and, upon actuation, perform the intended function. The detectors shall be located in accordance with NFPA 72.

907.4 Formerly Section 907.11. The wording is changed twice to read fire control "unit" rather than panel to be consistent with terminology in NFPA 72.

907.4.1 Duct smoke detectors. Duct smoke detectors shall be connected to the building's fire alarm control unit when a fire alarm system is provided. Activation of a duct smoke detector shall initiate a visible and audible supervisory signal at a constantly attended location. Duct smoke detectors shall not be used as a substitute for required open area detection.

Exceptions:

1. The supervisory signal at a constantly attended location is not required where duct smoke detectors activate the building's alarm notification appliances.
2. In occupancies not required to be equipped with a fire alarm system, actuation of a smoke detector shall activate a visible and an audible signal in an approved location. Smoke detector trouble conditions shall activate a visible or audible signal in an approved location and shall be identified as air duct detector trouble.

907.4.2 Delayed egress locks. Where delayed egress locks are installed on means of egress doors in accordance with Section 1008.1.8.6, an automatic smoke or heat detection system shall be installed as required by that section.

907.4.3 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 72.

907.4.3 This is a new section written to provide clearer reference to both the Elevator Code and the Fire Alarm Code as the standards for installation. Both of these are standards are currently referenced in the codes.

907.4.4 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.

907.4.4 The new text was a part of the last sentence in former Section 907.2.11.2. However, the intent is applicable to all types of special fire safety functions and should not be limited to only special amusement buildings. If wiring is provided as a part of the installation, it should be monitored for integrity so that it has reasonable reliability.

Initiating Devices

907.5 Initiating devices. Where manual or automatic alarm initiation is required as part of a fire alarm system, the initiating devices shall installed in accordance with Sections 907.5.1 through 907.5.4.

907.5 This is a new scoping statement. In the current code it was unclear as to whether or not the manual fire alarm requirements are to be applied when a manual fire alarm is required or whether the placement in the code indicates that manual devices are required regardless. This is also part of an attempt to differentiate the code requirements between initiating devices and notification devices.

907.5.1 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 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 903.2.1.2.

907.5.1 This is a new section that is added to address the smoke detector that is required in NFPA 72. The NFPA 72 Fundamental Technical Committee feels this requirement is more appropriate in the building and fire codes rather than NFPA 72. NFPA 72 provides the "how to" for fire alarm devices required by building and fire codes. Building and fire codes provide the "when required". This smoke detector is required to ensure the fire alarm system is capable of performing its function in the event of a fire in the vicinity of the fire alarm control unit. This smoke detector will activate the fire alarm control and allow it to either notify occupants or transmit a signal to a remote monitoring location before the fire impairs the fire alarm control unit. This requirement will be removed from NFPA 72 once it is in the building and fire codes.

907.5.2 Manual fire alarm boxes. Where a manual fire alarm system is required by another section of this code, it shall be activated by fire alarm boxes installed in accordance with Sections 907.5.2.1 through 907.5.2.5.

907.5.2 The section is reworded so that it is clear that the intent is to install fire alarm boxes where a manual fire alarm system is required. This clears up the question as to when manual devices are required.

907.5.2.1 Location. Manual fire alarm boxes shall be located not more than 5 feet (1524 mm) from the entrance to each exit. Additional manual fire alarm boxes shall be located so that travel distance to the nearest box does not exceed 200 feet (60 960 mm).

907.5.2.2 Height. The height of the manual fire alarm boxes shall be a minimum of 42 inches (1067 mm) and a maximum of 48 inches (1372 mm) measured vertically, from the floor level to the activating handle or lever of the box.

907.5.2.3 Color. Manual fire alarm boxes shall be red in color.

907.5.2.4 Signs. Where fire alarm systems are not monitored by a supervising station, an approved permanent sign shall be installed adjacent to each manual fire alarm box that reads: WHEN ALARM SOUNDS—CALL FIRE DEPARTMENT.

Exception: Where the manufacturer has permanently provided this information on the manual fire alarm box.

907.5.2.5 Protective covers. The fire code official is authorized to require the installation of listed manual fire alarm box protective covers to prevent malicious false alarms or to provide the manual fire alarm box with protection from physical damage. The protective cover shall be transparent or red in color with a transparent face to permit visibility of the manual fire alarm box. Each cover shall include proper operating instructions. A protective cover that emits a local alarm signal shall not be installed unless approved. Protective covers shall not project more than that permitted by Section 1003.3.3.

907.5.2.5 – A reference was added to the allowed projections in the IBC. Without this reference, it would be possible for a review by the fire code official to allow a protective cover that would project in a manner not allowed by the IBC.

- **907.5.3 Automatic detection.** The automatic fire detectors shall be smoke detectors. Where ambient conditions prohibit installation of smoke detectors, other approved automatic fire detection shall be permitted. Where automatic sprinkler protection installed in accordance with Section 903.3.1.1 or 903.3.1.2 is provided and connected to the building fire alarm system, automatic heat detection required by this section shall not be required.

907.5.3 The basic language is located currently in Section 907.2. However, it is referring to detection devices and should be located in this part of Section 907. The first sentence is rephrased. Smoke detectors are the limiting installation device. A smoke detection system also includes wiring, power supply, etc. It is not these things but rather the smoke detectors that are of concern. Additionally "shall be permitted" is proper code language – not "shall be allowed." The word "approved" is inserted here because it is appropriate that there be coordination between the code official and the designer in the selection of the device that will substitute for the smoke detector.

Alarm Notification Systems

907.6 Alarm notification systems. A fire alarm system shall annunciate at the panel and shall initiate occupant notification upon activation, in accordance with Sections 907.6.1 through 907.6.2.3.4. Where a fire alarm system is required by another section of this code, it shall be activated by:

1. Automatic fire alarm detectors.
2. Sprinkler water-flow devices.
3. Manual fire alarm boxes.
4. Automatic fire-extinguishing systems.

907.6 The existing section 907.7 is given a new title to more clearly indicate the function of the activation. The first sentence is added so that it is clear that activation begins by notifying the panel and then notifying the occupants of an alarm condition.

The existing sentence (now the second sentence) has terminology changed to "fire alarm system" which is defined and used elsewhere in the code. The existing term "alarm notification system" is undefined and therefore not well enforceable. It is assumed that the "alarm notification" was intended to indicate that an alarm condition would be sent to the fire alarm control unit but it is not clear that occupant notification would be included in the assumption. The revised text clarifies the issue.

The fourth item in the list is a proposal based on moving the provisions in the existing section 907.14 to this location. It is not intended to increase or decrease any provisions of the code – only combine similar requirements into one location for better ease of use.

Exceptions:

1. Occupant notification is not required for fire detectors used to control fire safety functions in accordance with Section 907.4.
2. Where notification systems are permitted elsewhere in this section to annunciate at a constantly attended location.

Exception #1 According to the general understanding and the concepts addressed in NFPA 72, it is not necessary to initiate occupant notification if the device is to close a damper or affect the function of a door. The reference to Section 907.4 is to the proposed 907.4 dealing with specific fire safety functions.

Exception #2 This exception is a recognition that there are places in the code where one alternative to occupant notification is an alarm notification at a constantly attended location. The exception is intended to clarify the code so that there is no question as to whether this general provision for alarm activation is superseded by the other sections addressing the alarm notification at a constantly attended location. There is no new exception offered here, only recognition of and coordination with those already in the code.

907.6.1 Presignal feature. Presignal feature shall not be installed unless approved by the fire code official and the fire department. Where a presignal feature is provided, a signal shall be annunciated at a constantly attended location approved by the fire department, in order that the occupant notification can be actuated activated in the event of fire or other emergency.

907.6.1 The ability to "presignal" is a feature of a fire alarm system and not a separate system as described within NFPA 72. Thus the title and language with the section are changed to recognize that fact. And use language common to the industry. The phrase "24-hour personnel supervision" is deleted since that is language that describes a proprietary supervisory service. Instead, the phrase "at a constantly attended location" is used, consistent with its usage in other sections of the code where a presignal feature is allowed. The text noting that occupant notification can be activated in the event of a fire is consistent with description of a presignal feature in NFPA 72.

907.6.2 Alarm notification appliances.

Alarm notification appliances shall be provided and shall be listed for their purpose.

907.6.2.1 Audible alarms. Audible alarm notification appliances shall be provided and sound a distinctive sound that is not to be used for any purpose other than that of a fire alarm.

Exception: Visible alarm notification appliances shall be allowed in lieu of audible alarm notification appliances in critical care areas of Group I-2 occupancies.

907.6.2.1.1 Average sound pressure. The audible alarm notification appliances shall provide a sound pressure level of 15 decibels (dBA) above the average ambient sound level or 5 dBA above the maximum sound level having a duration of at least 60 seconds, whichever is greater, in every occupied space within the building. The minimum sound pressure levels shall be: 75 dBA in occupancies in Groups R and I-1; 90 dBA in mechanical equipment rooms; and 60 dBA in other occupancies.

907.6.2.1.1 The second sentence in the existing 907.10.2 is given its own title and section. These represent the general sound pressure requirements for audibility. A technical change is made to the minimum sound pressure level for sleeping rooms. Based on the current text in NFPA 72, the pressure level is proposed to be increased from 70 dBA to 75 dBA. Otherwise the sentence is unchanged. The higher level is deemed necessary in order to wake people from a deep sleep.

907.6.2.1.2 Maximum sound pressure. The maximum sound pressure level for audible alarm notification appliances shall be 110 dBA at the minimum hearing distance from the audible appliance. Where the average ambient noise is greater than 105 dBA, visible alarm notification appliances shall be provided in accordance with NFPA 72 and audible alarm notification appliances shall not be required.

907.6.2.1.2 The third sentence in the existing paragraph addresses special conditions relative to the maximum recommended sound pressure levels. Also based on recommendations from NFPA 72, the maximum sound pressure level is proposed to be lowered from 120 dBA to 110 dBA. The reduction is based on the fact that 120 dBA is just under the threshold of pain. If a person were close to such a device when it activated the result could be permanent hearing loss. The lower threshold is considered to still be loud enough for people to hear consistent with device spacing requirements in NFPA 72 for such spaces.

907.6.2.2 Emergency voice/alarm communication system. The emergency voice/alarm communication system shall be designed and installed in accordance with NFPA 72. The operation of any automatic fire detector, sprinkler water-flow device or manual fire alarm box shall automatically sound an alert tone followed by voice instructions giving approved information and directions for a general or staged evacuation on a minimum of the alarming floor, the floor above and the floor below in accordance with the building's fire safety and evacuation plans required by Section 404. Speakers shall be provided throughout the building by paging zones. As a minimum, paging zones shall be provided as follows:

1. Elevator groups.
2. Exit stairways.
3. Each floor.
4. Areas of refuge as defined in Section 1002.1.

907.6.2.2 The voice alarm system is a type of notification device. It is a audible one but one which can produce intelligible words and provide direction to occupants in case of an emergency. Although it is most often associated with high-rise buildings, it is also used in large assembly spaces. Therefore, it is more appropriate that it be located in a part of section 907 that is not specifically associated with one type of building. The existing location was considered "buried" in the text and not easily found. The new relocation to a section with other notification devices makes the requirement more user-friendly.

907.6.2.2.1 Manual override. A manual override for emergency voice communication shall be provided on a selective and all-call basis for all paging zones.

907.6.2.2.2 Live voice messages. The emergency voice/alarm communication system shall also have the capability to broadcast live voice messages by paging zones on a selective and all-call basis.

907.6.2.2.3 Emergency power. Emergency voice/alarm communications systems shall be provided with an approved emergency power source.

907.6.2.2.3 In the subsection for large assembly voice alarms, is the requirement for emergency power for the voice alarm system. This is assumed to be true also for high-rise but is noted in the high-rise section of the IBC (403.11.1, item 3). Thus it makes sense that the provision be inserted here so that it is clear that emergency power is required.

907.6.2.3 Visible alarms. Visible alarm notification appliances shall be provided in accordance with Sections 907.6.2.3.1 through 907.6.2.3.4.

Exceptions:

1. Visible alarm notification appliances are not required in alterations, except where an existing fire alarm system is upgraded or replaced, or a new fire alarm system is installed.
2. Visible alarm notification appliances shall not be required in exits as defined in Section 1002.1.
3. Visible alarm notification appliances shall not be required in elevator cars.

907.6.2.3.1 Public and common areas.

Visible alarm notification appliances shall be provided in public areas and common areas.

907.6.2.3.2 Employee work areas. Where employee work areas have audible alarm coverage, the notification appliance circuits serving the employee work areas shall be initially designed with a minimum of 20 percent spare capacity to account for the potential of adding visible notification appliances in the future to accommodate hearing impaired employee(s).

907.6.2.3.2 The word “initially” was added to make it clear that the intent is to initially provide for the expansion in circuitry when the system is designed. This is so that at some time in the future additional devices may be added. It is not the intent that the 20% spare capacity be increased each time that the system is modified. The reason for the additional capacity is so that visual devices can be added should hearing disabled employees be hired and renovations be required to add strobes. The 20% spare capacity is intended to be used – not continued at that time.

907.6.2.3.3 Groups I-1 and R-1. Group I-1 and R-1 dwelling units or sleeping units in accordance with Table 907.6.2.3.3 shall be provided with a visible alarm notification appliance, activated by both the in-room smoke alarm and the building fire alarm system.

TABLE 907.6.2.3.3
VISIBLE ALARMS

| NUMBER OF SLEEPING UNITS | SLEEPING ACCOMMODATIONS WITH VISIBLE ALARMS |
|--------------------------|---|
| 6 to 25 | 2 |
| 26 to 50 | 4 |
| 51 to 75 | 7 |
| 76 to 100 | 9 |
| 101 to 150 | 12 |
| 151 to 200 | 14 |
| 201 to 300 | 17 |
| 301 to 400 | 20 |
| 401 to 500 | 22 |
| 501 to 1,000 | 5% of total |
| 1,001 and over | 50 plus 3 for each 100 over 1,000 |

Table 907.6.2.3.3 The table is changed both in the title and in the second column heading. Because the table only deals with visual devices, the reference to audible devices is extraneous. Therefore, it is deleted from the table. Quantities in the table and threshold numbers are unchanged.

907.6.2.3.4 Group R-2. In Group R-2 occupancies required by Section 907 to have a fire alarm system, all dwelling units and sleeping units shall be provided with the capability to support visible alarm notification appliances in accordance with ICC A117.1.

Installation

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

907.7 A new scoping section was added that identifies the following provisions those associated with installation and not as being somehow another requirement for additional devices. The statement is made that installation shall comply with NFPA 72. This allows similar statements all other the section to be removed as redundant.

907.7.1 Wiring. Wiring shall comply with the requirements of the ICC *Electrical Code* and NFPA 72. Wireless protection systems utilizing radio-frequency transmitting devices shall comply with the special requirements for supervision of low-power wireless systems in NFPA 72.

907.7.2 Power supply. The primary and secondary power supply for the fire alarm system shall be provided in accordance with NFPA 72.

Exception: Back-up power for single-station and multiple-station smoke alarms as required in Sections 907.2.10.4 and 907.3.4.3.

907.7.2 The text was relocated from 907.5. Although the basic section is unchanged, a new exception was added to recognize the fact that battery back-up is provided for smoke alarms as the secondary power supply.

907.7.3 Zones. Each floor shall be zoned separately and a zone shall not exceed 22,500 square feet (2090 m²). The length of any zone shall not exceed 300 feet (91 440 mm) in any direction.

Exception: Automatic sprinkler system zones shall not exceed the area permitted by NFPA 13.

907.7.3.1 Zoning indicator panel. A zoning indicator panel and the associated controls shall be provided in an approved location. The visual zone indication shall lock in until the system is reset and shall not be canceled by the operation of an audible-alarm silencing switch.

907.7.3.2 High-rise buildings. In buildings with a floor used for human occupancy that is located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access, a separate zone by floor shall be provided for all of the following types of alarm-initiating devices where provided:

1. Smoke detectors.
2. Sprinkler water-flow devices.
3. Manual fire alarm boxes.
4. Other approved types of automatic fire detection devices or suppression systems.

907.7.4 Access. Access shall be provided to each detector for periodic inspection, maintenance and testing.

907.7.5 Monitoring. Fire alarm systems required by this chapter or by the *International Building Code* shall be monitored by an approved supervising station in accordance with NFPA 72.
Exception: Monitoring by a supervising station is not required for:

1. Single- and multiple-station smoke alarms required by Section 907.2.10.
2. Smoke detectors in Group I-3 occupancies.
3. Automatic sprinkler systems in one- and two-family dwellings.

907.7.5 –The requirement for monitoring the fire alarm is relocated here from 907.15. The terminology is changed from “supervisory service” to monitoring by a “supervising station” to reflect the current usage in NFPA 72 and within the industry.

907.7.5.1 Automatic telephone-dialing devices. Automatic telephone-dialing devices used to transmit an emergency alarm shall not be connected to any fire department telephone number unless approved by the fire chief.

Acceptance Test and
Completion

907.8 Acceptance tests and completion.
Upon completion of the installation, the fire alarm system and all fire alarm components shall be tested in accordance with NFPA 72.

907.8 Former Section 907.17 was renumbered and moved to be the scoping section for acceptance testing of fire alarm systems. The total is changed to reflect the fact that testing is a portion of what it means to complete the installation. The "grocery list" of components is deleted and the sentence revised to include the fire alarm system "and all fire alarm components." Because the acceptance testing is to be in accordance with NFPA 72, those components that have testing procedures will be included as part of the fire alarm system

Acceptance testing 907.8.1 Single- and multiple-station alarm devices. When the installation of the alarm devices is complete, each detector device and interconnecting wiring for multiple-station alarm devices shall be tested in accordance with the household fire warning equipment smoke alarm provisions of NFPA 72.

907.8.1 Specific acceptance testing is noted in the existing code for smoke alarms in new buildings. There is no similar provision in the code for existing buildings although it would make sense that the same testing be applied to those devices as well. By taking those provisions and relocating them here, it is clear that all smoke alarms are to be tested as applicable to smoke alarms.

907.8.2 Record of completion. A record of completion in accordance with NFPA 72 verifying that the system has been installed and tested in accordance with the approved plans and specifications shall be provided.

907.8.2 The record of completion should mean that the system has not only been installed but that it is tested. It is important to note testing here rather than allow the reference to NFPA 72 alone. If the system requires a special testing procedure due to special circumstances, then those testing procedures will be a part of the approved plans and/or specifications. Until it is tested, the installation is not complete. Otherwise the text from existing section 907.18 is unchanged.

907.8.3 Instructions. Operating, testing and maintenance instructions and record drawings (“as built”) and equipment specifications shall be provided at an approved location.

Inspection, Testing and
Maintenance

907.9 Inspection, testing and

maintenance. The maintenance and testing schedules and procedures for fire alarm and fire detection systems shall be in accordance with Sections 907.9.1 through 907.5 and NFPA 72.

907.9 –The section is renumbered as part of the reformatting. The reference to Chapter 10 in NFPA 72 is deleted. The code makes it clear enough that the requirements for inspection, testing and maintenance must be in accordance with NFPA 72. The provisions for that are no longer in Chapter 10. By deleting the chapter reference the code will always be consistent with the proper reference.

907.9.1 Maintenance required. Whenever required for compliance with the provisions of this code, such devices, equipment, systems, conditions, arrangements, levels of protection or other feature shall thereafter be continuously maintained in accordance with applicable NFPA requirements or as directed by the fire code official.

907.9.2 Testing. Testing shall be performed in accordance with the schedules of NFPA 72 or more frequently where required by the fire code official.

Exception: Devices or equipment that are inaccessible for safety considerations shall be tested during scheduled shutdowns where approved by the fire code official, but not less than every 18 months.

907.9.3 Smoke detector sensitivity. Smoke detector sensitivity shall be checked within one year after installation and every alternate year thereafter. After the second calibration test, where sensitivity tests indicate that the detector has remained within its listed and marked sensitivity range (or 4-percent obscuration light grey smoke, if not marked), the length of time between calibration tests shall be permitted to be extended to a maximum of five years. Where the frequency is extended, records of detector-caused nuisance alarms and subsequent trends of these alarms shall be maintained. In zones or areas where nuisance alarms show any increase over the previous year, calibration tests shall be performed.

907.9.4 Method. To ensure that each smoke detector is within its listed and marked sensitivity range, it shall be tested using either a calibrated test method, the manufacturer's calibrated sensitivity test instrument, listed control equipment arranged for the purpose, a smoke detector/control unit arrangement whereby the detector causes a signal at the control unit where its sensitivity is outside its acceptable sensitivity range or other calibrated sensitivity test method acceptable to the fire code official. Detectors found to have a sensitivity outside the listed and marked sensitivity range shall be cleaned and recalibrated or replaced.

Exceptions:

1. Detectors listed as field adjustable shall be permitted to be either adjusted within the listed and marked sensitivity range and cleaned and recalibrated or they shall be replaced.
2. This requirement shall not apply to single-station and multiple-station smoke alarms.

907.9.4.1 Testing device. Smoke detector sensitivity shall not be tested or measured using a device that administers an unmeasured concentration of smoke or other aerosol into the detector.

907.9.5 Maintenance, inspection and testing. The building owner shall be responsible to maintain the fire and life safety systems in an operable condition at all times. Service personnel shall meet the qualification requirements of NFPA 72 for maintaining, inspecting and testing such systems. A written record shall be maintained and shall be made available to the fire code official.

907.9.5 The language is changed to be clearer that the building owner bears the responsibility for maintaining the fire and life safety systems. Use of the word "ensure" does nothing to assist in the enforcement of the code. It only provides a mechanism by which the owner can argue that someone else is responsible for a particular action. While various responsibilities may be a reality, the code should not make the distinction. It is the owner's responsibility; plain and simple.

Thank You.
