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907.5.2.3.3 Groups I-1 and R-1. Group I-1 and R-1 dwelling units or sleeping units in accordance with Table 907.5.2.3.3 shall be provided with a visible alarm notification appliance, activated by both the in-room smoke alarm and the building fire alarm system.

◆ Fire alarm systems in Group I-1 and R-1 sleeping accommodations must be equipped with visible alarms to the extent stated in Table 907.6.2.3.3. The visible alarm notification devices in these rooms are to be activated by both the required in-room smoke alarm and the building fire alarm system. All visible alarm notification appliances in a building, however, need not be activated by individual room detectors. It is not a requirement that the

accessible sleeping units be provided with visible alarm notification appliances even though some elderly patients or residents may be both mobility and hearing impaired.

◆ This table specifies the minimum number of sleeping units that are to be equipped with visible and audible alarms. The numbers are based on the

total number of sleeping accommodations in the facility. The requirements in this table are intended to be consistent with the ADAAG.

907.5.2.3.4 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

**TABLE 907.5.2.3.3
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



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visible alarm notification appliances in accordance with Chapter 10 of ICC A117.1. Such capability shall be permitted to include the potential for future interconnection of the building fire alarm system with the unit smoke alarms, replacement of audible appliances with combination audible/visible appliances, or future extension of the existing wiring from the unit smoke alarm locations to required locations for visible appliances.

◆ Group R-2 occupancies with a fire alarm system are required to have the capability to support visual alarm notification appliances in accordance with Chapter 10 of ICC A117.1. This requirement has been in the IBC and the language added in

2012 edition is intended to provide more specific guidance as to what is meant by “capability.” Note that this requirement includes all dwelling and sleeping units, not just those classified as either Type A or B.

Sections 1006.2 through 1006.4.4 of ICC A117.1 address smoke and fire alarm requirements as they pertain to accessible communication features. More specifically, Section 1006.2 states that when unit smoke detection is provided, it shall provide audible notification in compliance with NFPA 72.

Section 1006.3 is focused upon buildings where fire alarm systems are provided. If a fire alarm system is provided in the building, ICC A117.1 requires that the wiring be extended to a point

within the unit in the vicinity of the smoke detection system. Based upon the type of unit and the strategy used by the designer, this location may vary.

Section 1006.4 addresses the visible alarm requirements specifically and has various issues it addresses, as follows:

1. Complies with Section 702 of ICC A117.1, which focuses on the requirements of NFPA 72 and that such notification devices be hardwired.
2. Addresses the fact that all visible notification devices be activated within the unit either when the smoke alarms in the unit activate or when that portion of the building fire alarm system in that portion of the building activate.



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3. Allows the same visible notification for the smoke alarms in the unit and the building fire alarm system.

4. Prohibits the use of the visible notification for anything other than the operation of the smoke alarms in the unit or the building fire alarm system.

In terms of the specific capability requirements this section has been clarified to provide direction as to what may be meant by bringing the wiring to the unit. There has been confusion in the past and it has been interpreted that all units are required to be pre-wired for visible appliances, which was not the intent of ICC A117.1. More specifically, now the requirements provide essentially three options

for future capability, as follows:

- Potential for future interconnection of the building fire alarm system with the unit smoke alarms.
- Replacement of audible appliance with combination audible/visible appliances.
- Extension of wiring from the unit smoke alarm locations to required locations of visible appliances.

It is important to remember that the location of visible notification devices, if installed, are driven by the requirements of NFPA 72 and may vary the approach taken, based upon the configuration of the space.

907.6 Installation. A fire alarm system shall be installed in accordance with Sections 907.6.1 through 907.6.5.2 and NFPA 72.

◆ This section specifies the requirements for fire alarm system installation and also references the installation requirements of NFPA 72.

907.6.1 Wiring. Wiring shall comply with the requirements of NFPA 70 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.

◆ Wiring for fire alarm systems must be installed so that it is secure and will function reliably in an emergency. The code



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requires that the wiring for fire alarm systems meet the requirements of NFPA 70 and NFPA 72. This requirement is in addition to the general requirements for electrical installations set forth in Chapter 27 of the IBC. For reliability, systems that use radio-frequency transmitting devices for signal transmission are required to have supervised transmitting and receiving equipment that conforms to the special requirements contained in NFPA 72. This requirement is in addition to the general requirements for supervision in Section 907.7.5.

907.6.2 Power supply. The primary and secondary power supply for the fire alarm system

shall be provided in accordance with NFPA 72.

Exception: Backup power for single-station and multiple station smoke alarms as required in Section 907.2.11.4.

◆ The operation of fire alarm systems is essential to life safety in buildings and must be reliable in the event the normal power supply fails. For proper operation of fire alarm systems, this section requires that the primary and secondary power supplies comply with NFPA 72. This is in addition to the general requirements for electrical installations in Chapter 27 of the IBC. NFPA 72 offers three alternatives for secondary supply: a 24-hour storage battery; storage batteries with a 4-hour capacity

and a generator or multiple generators.

NFPA 72 requires that the primary and secondary power supplies for remotely located control equipment essential to the system operation must conform to the requirements for primary and secondary power supplies for the main system. Also, NFPA 72 contains requirements for monitoring the integrity of primary power supplies and requires a backup power supply.

907.6.3 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



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shall not exceed the area permitted by NFPA 13.

◆ Since the fire alarm system also aids emergency personnel in locating the fire, the system must be zoned to shorten response time to the fire location. Zoning is also critical if the fire alarm system initiates certain other fire protection systems or control features, such as smoke control systems. At a minimum, each floor of a building must constitute one zone of the system. If the floor area exceeds 22,500 square feet (2090 m²), additional zones per floor are required. The maximum length of a zone is 300 feet (91 440 mm).

The exception states that NFPA 13 defines the maximum areas to be protected by one sprinkler system and that the

sprinkler system need not be designed to meet the 22,500-square-foot (2090 m²) area limitations for a fire alarm system zone. For example, NFPA 13 permits a sprinkler system riser in a light-hazard occupancy to protect an area of 52,000 square feet (4831 m²) per floor. In accordance with the exception, a single water flow switch, and consequently a single fire alarm system zone, would be acceptable. If other alarm-initiating devices are present on the floor, they would need to be zoned separately to meet the 22,500-square-foot (2098 m²) limitation.

It is not intended that this section apply to sprinkler systems. This section only applies where a fire alarm system is required in accordance with Section 907. Unless the building is

categorized as a high rise and must comply with Section 907.7.3.2, the code does not mandate the zoning of sprinkler systems per floor.

With today's fully addressable fire alarm systems, each detector effectively becomes its own zone. The intent with zoning is to identify and limit the search area for fire alarm systems. Addressable devices will indicate the precise location of the alarm condition, thereby eliminating the need for the zoning contemplated by this section when approved by the fire code official in accordance with Section 104.9.

907.6.3.1 Zoning indicator panel. A zoning indicator panel and the associated controls shall be provided in an approved location. The visual zone indication



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shall lock in until the system is reset and shall not be canceled by the operation of an audible alarm-silencing switch.

◆ The zoning indicator panel, which can be the fire alarm control unit or a separate fire alarm annunciator panel (FAAP), must be installed in a location approved by the fire code official. One of the key considerations in determining panel placement is whether or not the panel is located to permit ready access by emergency responders. Once an alarm-initiating device within a zone has been activated, the annunciation of the zone must lock in until the system is reset.

907.6.3.2 High-rise buildings. In high-rise buildings, a separate zone by floor shall be provided

for each 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.

◆ High-rise buildings must have a separate zone by floor for each indicated type of alarm-initiating device.

Although this feature may be desirable in all buildings, the incremental cost difference is substantially higher in low-rise buildings in which basic fire alarm systems are installed. State-of-the-art fire alarm systems installed in high-rise

buildings are addressable and by their nature automatically provide this minimum zoning.

907.6.4 Access. Access shall be provided to each fire alarm device and notification appliance for periodic inspection, maintenance and testing.

◆ Automatic fire detectors, especially smoke detectors, require periodic cleaning to reduce the likelihood of malfunction. Section 907.9 and NFPA 72 require inspection and testing at regular intervals. Access to perform the required inspections, necessary maintenance and testing is a particularly important consideration for those detectors that are installed within a concealed space, such as an air duct.



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907.6.5 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 907.2.11.
 2. Smoke detectors in Group I-3 occupancies.
 3. Automatic sprinkler systems in one- and two-family dwellings.
- ◆ Fire alarm systems required by Section 907 or the IBC are required to be electrically supervised by one of the methods prescribed in NFPA 72.

Exception 1 exempts single- and multiple-station smoke alarms from being supervised due to the potential for unwanted false alarms.

Exception 2 recognizes a similar problem in Group I-3 occupancies.

Accordingly, due to the concern over unwanted alarms, smoke detectors in Group I-3 occupancies need only sound an approved alarm signal that automatically notifies staff (see Section 907.2.6.3.1). Smoke detectors in such occupancies are typically subject to misuse and abuse, and frequent unwanted alarms would negate the effectiveness of the system.

Exception 3 clarifies that sprinkler systems in one and two-family dwellings are not part of a

dedicated fire alarm system and are typically designed in accordance with NFPA 13D, which does not require electrical supervision.

907.6.5.1 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.

◆ Upon initiation of an alarm, supervisory or trouble signal, an automatic telephone-dialing device takes control of the telephone line for the reliability of transmission of all signals. The device, however, must not be connected to the fire department telephone number unless specifically approved by



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the fire department because that could disrupt any potential emergency (911) calls. NFPA 72 contains additional guidance on such devices including digital alarm-communicator systems.

907.6.5.2 Termination of monitoring service. Termination of fire alarm monitoring services shall be in accordance with Section 901.9.

◆ This section is simply an editorial cross-reference to highlight Section 901.9, which affects the monitoring requirements of Section 907.6.5 (see commentary, Section 901.9).

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Acceptance tests and completion.
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