About This Document: This document is the Balloting Version of the First Draft of the proposed 2015 edition of NFPA 101. It has been compiled by NFPA staff for the purpose of balloting by the responsible Technical Committee(s) in accordance with the Regulations Governing the Development of NFPA Standards ("Reg.s.") This Balloting Version of the First Draft incorporates the changes made through First Revisions developed by the Technical Committee at its First Draft Meeting, and it is made available to Technical Committee members for their review during balloting. Only First Revisions that Pass the Technical Committee ballot will be included in the Final First Draft that will be published for public review. See, generally, Regs. at Section 4.3, Committee Activities: Input Stage.
Chapter 9  Building Service and Fire Protection Equipment

9.1 Utilities.
9.1.1 Gas. Equipment using gas and related gas piping shall be in accordance with NFPA 54, *National Fuel Gas Code*, or NFPA 58, *Liquefied Petroleum Gas Code*, unless such installations are approved existing installations, which shall be permitted to be continued in service.

9.1.2 Electrical Systems. Electrical wiring and equipment shall be in accordance with *NFPA 70, National Electrical Code*, unless such installations are approved existing installations, which shall be permitted to be continued in service.

9.1.3 Emergency Generators and Standby Power Systems. Where required for compliance with this *Code*, emergency generators and standby power systems shall comply with 9.1.3.1 and 9.1.3.2.

9.1.3.1 Emergency generators and standby power systems shall be installed, tested, and maintained in accordance with NFPA 110, *Standard for Emergency and Standby Power Systems*.

9.1.3.2 New generator controllers shall be monitored by the fire alarm system, where provided, or at an attended location, for the following conditions:

- Generator running
- Generator fault
- Generator switch in nonautomatic position


9.2.1 Air-Conditioning, Heating, Ventilating Ductwork, and Related Equipment. Air-conditioning, heating, ventilating ductwork, and related equipment shall be in accordance with NFPA 90A, *Standard for the Installation of Air-Conditioning and Ventilating Systems*, or NFPA 90B, *Standard for the Installation of Warm Air Heating and Air-Conditioning Systems*, as applicable, unless such installations are approved existing installations, which shall be permitted to be continued in service.


9.2.3 Commercial Cooking EquipmentOperations. Where required by another section of this *Code*, commercial cooking equipment operations shall be protected in accordance with NFPA 96, *Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations*, unless such installations are approved existing installations, which shall be permitted to be continued in service.


9.3 Smoke Control.
9.3.1 **Installation.** Where required by the provisions of another section of this Code, smoke control systems shall be designed, installed, inspected, tested, and maintained in accordance with NFPA 92, *Standard for Smoke Control Systems;* NFPA 204, *Standard for Smoke and Heat Venting;* or nationally recognized standards, engineering guides, or recommended practices, as approved by the authority having jurisdiction.

9.3.2 **System Design.** The engineer of record shall clearly identify the intent of the system, the design method used, the appropriateness of the method used, and the required means of inspecting, testing, and maintaining the system.

9.3.3 **Acceptance Testing.** Acceptance testing shall be performed by a special inspector in accordance with Section 9.913.

9.3.4 **Smoke Control System Operation.**

9.3.4.1 Floor- or zone-dependent smoke control systems shall be automatically activated by sprinkler waterflow or smoke detection systems.

9.3.4.2 Means for manual operation of smoke control systems shall be provided at an approved location.

9.4 **Elevators, Escalators, and Conveyors.**

9.4.1* **General.** An elevator, other than an elevator in accordance with 7.2.13, shall not be considered a component in a required means of egress but shall be permitted as a component in an accessible means of egress.

9.4.2 **Code Compliance.**

9.4.2.1 Except as modified herein, new elevators, escalators, dumbwaiters, and moving walks shall be in accordance with the requirements of ASME A17.1/CSA B44, *Safety Code for Elevators and Escalators.*

9.4.2.2 Except as modified herein, existing elevators, escalators, dumbwaiters, and moving walks shall be in accordance with the requirements of ASME A17.3, *Safety Code for Existing Elevators and Escalators.*


9.4.2.4 For other than elevators used for occupant-controlled evacuation in accordance with Section 7.14 and other than existing elevators, the elevator corridor call station pictograph specified in 2.27.9 of ASME A17.1/CSA B44, *Safety Code for Elevators and Escalators,* shall be provided at each elevator landing.

9.4.3 **Fire Fighters’ Emergency Operations.**

9.4.3.1 All new elevators shall conform to the fire fighters’ emergency operations requirements of ASME A17.1/CSA B44, *Safety Code for Elevators and Escalators.*

9.4.3.2 All existing elevators having a travel distance of 25 ft (7620 mm) or more above or below the level that best serves the needs of emergency personnel for fire-fighting or rescue purposes shall conform to the fire fighters’ emergency operations requirements of ASME A17.3, *Safety Code for Existing Elevators and Escalators.*

9.4.4 **Number of Cars.** The number of elevator cars permitted in a hoistway shall be in accordance with 8.6.9.4.

9.4.5* **Elevator Machine Rooms.** Elevator machine rooms that contain solid-state equipment for elevators, other than existing elevators, having a travel distance exceeding 50 ft (15 m) above the level of exit discharge, or exceeding 30 ft (9.1 m) below the level of exit discharge, shall be provided with independent ventilation or air-conditioning systems to maintain temperature during fire fighters'
emergency operations for elevator operation (see 9.4.3). The operating temperature shall be established by the elevator equipment manufacturer’s specifications. When standby power is connected to the elevator, the machine room ventilation or air-conditioning shall be connected to standby power.

9.4.6 Elevator Testing.
9.4.6.1 Elevators shall be subject to periodic inspections and tests as specified in ASME A17.1/CSA B44, Safety Code for Elevators and Escalators.

9.4.6.2 All elevators equipped with fire fighters’ emergency operations in accordance with 9.4.3 shall be subject to a monthly operation with a written record of the findings made and kept on the premises as required by ASME A17.1/CSA B44, Safety Code for Elevators and Escalators.

9.4.6.3 The elevator inspections and tests required by 9.4.6.1 shall be performed at frequencies complying with one of the following:

- Inspection and test frequencies specified in Appendix N of ASME A17.1/CSA B44, Safety Code for Elevators and Escalators
- Inspection and test frequencies specified by the authority having jurisdiction

9.4.7 Openings to Exit Enclosures. Conveyors, elevators, dumbwaiters, and pneumatic conveyors serving various stories of a building shall not open to an exit enclosure.

9.5 Rubbish Waste Chutes, Incinerators, and Laundry Chutes.

9.5.1 Enclosure.
9.5.1.1 Rubbish Waste chutes and laundry chutes shall be separately enclosed by walls or partitions in accordance with the provisions of Section 8.3.
9.5.1.2 Inlet openings serving chutes Chute intake openings shall be protected in accordance with Section 8.3.
9.5.1.3 The doors of chutes specified in 9.5.1.2 shall open only to a room that is designed and used exclusively for accessing the chute opening.
9.5.1.4 The room used for accessing the chute opening Chute service opening rooms shall be separated from other spaces in accordance with Section 8.7.
9.5.1.5 The requirements of 9.5.1.1 through 9.5.1.4 shall not apply where otherwise permitted by the following:

- Existing installations having properly enclosed service chutes and properly installed and maintained service openings shall chute intake doors shall be permitted to have inlets chute intake doors open to a corridor or normally occupied space.
- Rubbish Waste chutes and laundry chutes shall be permitted to open into rooms not exceeding 400 ft² (37 m²) that are used for storage, provided that the room is protected by automatic sprinklers.

9.5.2 Installation and Maintenance. Rubbish Waste chutes, laundry chutes, and incinerators shall be installed and maintained in accordance with NFPA 82, Standard on Incinerators and Waste and Linen Handling Systems and Equipment, unless such installations are approved existing installations, which shall be permitted to be continued in service.

9.6 Fire Detection, Alarm, and Communications Systems.

9.6.1 General.
9.6.1.1 The provisions of Section 9.6 shall apply only where specifically required by another section of this Code.
9.6.1.2 Fire detection, alarm, and communications systems installed to make use of an alternative permitted by this Code shall be considered required systems and shall meet the provisions of this Code applicable to required systems.
9.6.1.3 A fire alarm system required for life safety by this Code shall be installed, tested, and maintained in accordance with the applicable requirements of NFPA 70, National Electrical Code, and NFPA 72, National Fire Alarm and Signaling Code, unless it is an approved existing installation, which shall be permitted to be continued in use.

9.6.1.4 All systems and components shall be approved for the purpose for which they are installed.

9.6.1.5* To ensure operational integrity, the fire alarm system shall have an approved maintenance and testing program complying with the applicable requirements of NFPA 70, National Electrical Code, and NFPA 72, National Fire Alarm and Signaling Code.

9.6.1.6* Where a required fire alarm system is out of service for more than 4 hours in a 24-hour period, the authority having jurisdiction shall be notified, and the building shall be evacuated, or an approved fire watch shall be provided for all parties left unprotected by the shutdown until the fire alarm system has been returned to service. Fire alarm system impairment procedures shall comply with NFPA 72, National Fire Alarm and Signaling Code.

9.6.1.7 For the purposes of this Code, a complete fire alarm system shall provide functions for initiation, notification, and control, which shall perform as follows:
(1) The initiation function provides the input signal to the system.
(2) The notification function is the means by which the system advises that human action is required in response to a particular condition.
(3) The control function provides outputs to control building equipment to enhance protection of life.

9.6.1.8 Protection of Fire Alarm System.
9.6.1.8.1* In areas that are not continuously occupied, and unless otherwise permitted by 9.6.1.8.1.1 or 9.6.1.8.1.2, automatic smoke detection shall be installed to provide notification of fire at the following locations:
(1) Each fire alarm control unit
(2) Notification appliance circuit power extenders
(3) Supervising station transmitting equipment

9.6.1.8.1.1 The provisions of 9.6.1.8.1(2) and (3) shall not apply to existing alarm systems.
9.6.1.8.1.2 Where ambient conditions prohibit installation of a smoke detector, a heat detector shall be used.

9.6.2 Signal Initiation.
9.6.2.1 Where required by other sections of this Code, actuation of the complete fire alarm system shall be initiated, but shall not be limited to, any or all of the following means of initiation but shall not be limited to such means:

1. Manual fire alarm initiation
2. Automatic detection
3. Extinguishing system operation

9.6.2.2 Manual fire alarm boxes shall be used only for fire-protective signaling purposes. Combination fire alarm and guard’s tour stations shall be acceptable.

9.6.2.3 A manual fire alarm box shall be provided as follows, unless modified by another section of this Code:

1. For new alarm system installations, the manual fire alarm box shall be located within 60 in. (1525 mm) of exit doorways.
2. For existing alarm system installations, the manual fire alarm box either shall be provided in the natural exit access path near each required exit or within 60 in. (1525 mm) of exit doorways.

9.6.2.4 Manual fire alarm boxes shall be mounted on both sides of grouped openings over 40 ft (12.2 m) in width, and within 60 in. (1525 mm) of each side of the opening.

9.6.2.5* Additional manual fire alarm boxes shall be located so that, on any given floor in any part of the building, no horizontal distance on that floor exceeding 200 ft (61 m) shall need to be traversed to reach a manual fire alarm box.

9.6.2.6* For fire alarm systems using automatic fire detection or waterflow detection devices to initiate the fire alarm system in accordance with Chapters 11 through 43, not less than one manual fire alarm box, located as required by the authority having jurisdiction, shall be provided to initiate a fire alarm signal. The manual fire alarm box shall be located where required by the authority having jurisdiction.

9.6.2.7* Each manual fire alarm box on a system shall be accessible, unobstructed, and visible.

9.6.2.8 Where a sprinkler system provides automatic detection and alarm system initiation, it shall be provided with an approved alarm initiation device that operates when the flow of water is equal to or greater than that from a single automatic sprinkler.

9.6.2.9 Where a total (complete) coverage smoke detection system is required by another section of this Code, automatic detection of smoke in accordance with NFPA 72, National Fire Alarm and Signaling Code, shall be provided in all occupiable areas in environments that are suitable for proper smoke detector operation.
9.6.2.10.4* Smoke alarms and smoke detectors shall not be installed within an area of exclusion determined by a 10 ft (3.0 m) radial distance along a horizontal flow path from a stationary or fixed cooking appliance, unless listed for installation in close proximity to cooking appliances. Smoke alarms and smoke detectors installed between 10 ft (3.0 m) and 20 ft (6.1 m) along a horizontal flow path from a stationary or fixed cooking appliance shall be equipped with an alarm-silencing means or use photoelectric detection.

Exception: Smoke alarms or smoke detectors that use photoelectric detection shall be permitted for installation at a radial distance greater than 6 ft (1.8 m) from any stationary or fixed cooking appliance when the following conditions are met:

(a1) The kitchen or cooking area and adjacent spaces have no clear interior partitions or headers and
(b2) The 10 ft (3.0 m) area of exclusion would prohibit the placement of a smoke alarm or smoke detector required by other sections of this Code. [72:29.8.3.4(4)]

9.6.2.10.5* Smoke alarms and smoke detectors shall not be installed within a 36 in. (910 mm) horizontal path from a door to a bathroom containing a shower or tub. [72:29.8.3.4(5)]

9.6.2.10.46 System smoke detectors in accordance with NFPA 72, National Fire Alarm and Signaling Code, and arranged to function in the same manner as single-station or multiple-station smoke alarms shall be permitted in lieu of smoke alarms.

9.6.2.10.27 Smoke alarms, other than existing battery-operated smoke alarms as permitted by other sections of this Code, shall be powered in accordance with the requirements of NFPA 72, National Fire Alarm and Signaling Code.

9.6.2.10.38* In new construction, where two or more smoke alarms are required within a dwelling unit, suite of rooms, or similar area, they shall be arranged so that operation of any smoke alarm shall cause the alarm in all smoke alarms within the dwelling unit, suite of rooms, or similar area to sound, unless otherwise permitted by one of the following:

(1) The requirement of 9.6.2.10.38 shall not apply where permitted by another section of this Code.
(2) The requirement of 9.6.2.10.38 shall not apply to configurations that provide equivalent distribution of the alarm signal.

9.6.2.10.49 The alarms described in 9.6.2.10.8 shall sound only within an individual dwelling unit, suite of rooms, or similar area and shall not actuate the building fire alarm system, unless otherwise permitted by the authority having jurisdiction. Remote annunciation shall be permitted.

9.6.2.10.10 Smoke alarms shall be permitted to be connected to the building fire alarm system for the purpose of annunciation in accordance with NFPA 72, NFPA 72.

First Revision No. 13:NFPA 101-2012
[FR 614: FileMaker]

9.6.2.11 Where required by Chapters 11 through 43, an automatic fire detection system shall be provided in hazardous areas for initiation of the signaling system.

9.6.3 Occupant Notification.

9.6.3.1 Occupant notification shall be provided to alert occupants of a fire or other emergency where required by other sections of this Code.

9.6.3.2 Occupant notification shall be in accordance with 9.6.3.3 through 9.6.3.10.2, unless otherwise provided in 9.6.3.2.1 through 9.6.3.2.4.

9.6.3.2.1* Elevator lobby, hoistway, and associated machine room smoke detectors used solely for elevator recall, and heat detectors used solely for elevator power shutdown, shall not be required to activate the building evacuation alarm if the power supply and installation wiring to such detectors are monitored by the building fire alarm system, and if the activation of such detectors initiates a supervisory signal at a constantly attended location.
9.6.3.2.2* Smoke detectors used solely for closing dampers or heating, ventilating, and air-conditioning system shutdown shall not be required to activate the building evacuation alarm, provided that the power supply and installation wiring to the detectors are monitored by the building fire alarm system, and the activation of the detectors initiates a supervisory signal at a constantly attended location.

9.6.3.2.3* Smoke detectors located at doors for the exclusive operation of automatic door release shall not be required to activate the building evacuation alarm, provided that the power supply and installation wiring to the detectors are monitored by the building fire alarm system, and the activation of the detectors initiates a supervisory signal at a constantly attended location.

9.6.3.2.4 Detectors in accordance with 22.3.4.3.1(2) and 23.3.4.3.1(2) shall not be required to activate the building evacuation alarm.

9.6.3.3 Where permitted by Chapters 11 through 43, a presignal system shall be permitted where the initial fire alarm signal is automatically transmitted without delay to a municipal fire department, to a fire brigade (if provided), and to an on-site staff person trained to respond to a fire emergency.

9.6.3.4 Where permitted by Chapters 11 through 43, a positive alarm sequence shall be permitted, provided that it is in accordance with NFPA 72, National Fire Alarm and Signaling Code.

9.6.3.5 Unless otherwise provided in 9.6.3.5.1 through 9.6.3.5.8, notification signals for occupants to evacuate shall be by audible, and visible signals in accordance with NFPA 72, National Fire Alarm and Signaling Code, and ICC/ANSI A117.1, American National Standard for Accessible and Usable Buildings and Facilities, or other means of notification acceptable to the authority having jurisdiction shall be provided.

9.6.3.5.1 Areas not subject to occupancy by persons who are hearing impaired shall not be required to comply with the provisions for visible signals.

9.6.3.5.2 Visible-only signals shall be provided where specifically permitted in health care occupancies in accordance with the provisions of Chapters 18 and 19.

9.6.3.5.3 Existing alarm systems shall not be required to comply with the provision for visible signals.

9.6.3.5.4 Visible signals shall not be required in lodging or rooming houses in accordance with the provisions of Chapter 26.

9.6.3.5.5 Visible signals shall not be required in exit stair enclosures.

9.6.3.5.6 Visible signals shall not be required in elevator cars.

9.6.3.5.7* Public mode visual notification appliances in accordance with NFPA 72, National Fire Alarm and Signaling Code, shall not be required in designated areas as permitted by Chapters 11 through 43, provided that they are replaced with approved alternative visible means.

9.6.3.5.8* Where visible signals are not required, as permitted by 9.6.3.5.7, documentation of such omission shall be maintained in accordance with 9.7.7.

9.6.3.6 The general evacuation alarm signal shall operate in accordance with one of the methods prescribed by 9.6.3.6.1 through 9.6.3.6.3.

9.6.3.6.1 The general evacuation alarm signal shall operate throughout the entire building other than the locations described in 9.6.3.6.4 and 9.6.3.6.5.
9.6.3.6.2* Where total evacuation of occupants is impractical due to building configuration, only the occupants in the affected zones shall be initially notified initially. Provisions and provisions shall be made to selectively notify occupants in other zones to afford orderly evacuation of the entire building when approved by the authority having jurisdiction.

9.6.3.6.3 Where occupants are incapable of evacuating themselves because of age, physical or mental disabilities, or physical restraint, all of the following shall apply:

1. The private operating mode, as described in NFPA 72, National Fire Alarm and Signaling Code, shall be permitted to be used.
2. Only the attendants and other personnel required to evacuate occupants from a zone, area, floor, or building shall be required to be notified.
3. The notification shall include means to readily identify the zone, area, floor, or building in need of evacuation.

9.6.3.6.4 The general evacuation signal shall not be required in exit stair enclosures.

9.6.3.6.5 The general evacuation signal shall not be required in elevator cars.

9.6.3.7 Audible alarm notification appliances shall be of such character and so distributed as to be effectively heard above the average ambient sound level that exists under normal conditions of occupancy.

9.6.3.8 Audible alarm notification appliances shall produce signals that are distinctive from audible signals used for other purposes in a given building.

9.6.3.9 Automatically transmitted or live voice evacuation or relocation instructions shall be permitted to be used to notify occupants and shall comply with either 9.6.3.9.1 or 9.6.3.9.2.

9.6.3.9.1 Automatically transmitted or live voice evacuation or relocation instructions shall be in accordance with NFPA 72, National Fire Alarm and Signaling Code.

9.6.3.9.2* Where permitted by Chapters 11 through 43, automatically transmitted or live voice announcements shall be permitted to be made via a voice communications or public address system that complies with all of the following:

1. Occupant notification, either live or recorded, shall be initiated at a constantly attended receiving station by personnel trained to respond to an emergency.
2. An approved secondary power supply shall be provided for other than existing, previously approved systems.
3. The system shall be audible above the expected ambient noise level.
4. Emergency announcements shall take precedence over any other use.

9.6.3.10 Unless otherwise permitted by another section of this Code, audible and visible fire alarm notification appliances shall comply with either 9.6.3.10.1 or 9.6.3.10.2.

9.6.3.10.1 Audible and visible fire alarm notification appliances shall be used only for fire alarm system or other emergency purposes.

9.6.3.10.2 Emergency voice/alarm communication systems shall be permitted to be used for other purposes, subject to the approval of the authority having jurisdiction, if the fire alarm system takes precedence over all other signals, with the exception of mass notification inputs in accordance with NFPA 72, National Fire Alarm and Signaling Code.

9.6.4 Emergency Forces Notification.

9.6.4.1 Where required by another section of this Code, emergency forces notification shall be provided to alert the municipal fire department and fire brigade (if provided) of fire or other emergency.
9.6.4.2 Where fire department emergency forces notification is required by another section of this Code, the fire alarm system shall be arranged to transmit the alarm automatically via any of the following means acceptable to the authority having jurisdiction and shall be in accordance with NFPA 72, National Fire Alarm and Signaling Code:

1) Auxiliary fire alarm system
2) Central station fire alarm system
3) Proprietary supervising station fire alarm system
4) Remote supervising station fire alarm system

9.6.4.3 For existing installations where none of the means of notification specified in 9.6.4.2(1) through (4) are available, an approved plan for notification of the municipal fire department shall be permitted.

9.6.4.4 Where fire alarm systems are required to provide emergency forces notification, supervisory signals and trouble signals shall sound and be visibly displayed either at an approved, remotely located receiving facility or at a location within the protected building that is constantly attended by qualified personnel.

9.6.5 Fire Safety Functions.

9.6.5.1 Fire safety functions shall be installed in accordance with the requirements of NFPA 72, National Fire Alarm and Signaling Code.

9.6.5.2 Where required by another section of this Code, the following functions shall be actuated:

1) Release of hold-open devices for doors or other opening protective devices
2) Stairwell or elevator shaft pressurization
3) Smoke management or smoke control systems
4) Unlocking of doors
5) Elevator recall and shutdown
6) HVAC shutdown

9.6.6 Location of Controls. Operator controls, alarm indicators, and manual communications capability shall be installed at a convenient location acceptable to the authority having jurisdiction.

9.6.7 Annunciation.

9.6.7.1 Where alarm annunciation is required by another section of this Code, it shall comply with 9.6.7.2 through 9.6.7.7.

9.6.7.2 Alarm annunciation at the control center shall be by means of audible and visible indicators.

9.6.7.3 For the purposes of alarm annunciation, each floor of the building, other than floors of existing buildings, shall be considered as not less than one zone, unless otherwise permitted by 9.6.7.4.3, 9.6.7.4.4, 9.6.7.4.5, or another section of this Code.

9.6.7.4 If a floor area exceeds 22,500 ft² (2090 m²), additional fire alarm zoning shall be provided, and the length of any single fire alarm zone shall not exceed 300 ft (91 m) in any direction, except as provided in 9.6.7.4.1 through 9.6.7.4.5 or as otherwise modified by another section of this Code.

9.6.7.4.1 Where permitted by another section of this Code, fire alarm zones shall be permitted to exceed 22,500 ft² (2090 m²), and the length of a zone shall be permitted to exceed 300 ft (91 m) in any direction.
9.6.7.4.2 Where the building is protected by an automatic sprinkler system in accordance with 9.7.1.1(1), the area of the fire alarm zone shall be permitted to coincide with the allowable area of the sprinkler system.

9.6.7.4.3 Where the building is protected by a water mist system in accordance with 9.8.1 and Table 9.8.1, the area of the fire alarm zone shall be permitted to coincide with the allowable area of the water mist system.

9.6.7.4.4 Unless otherwise prohibited by another section of this Code, where a building not exceeding four stories in height is protected by an automatic water mist system in accordance with 9.7.3, the water mist system shall be permitted to be annunciated on the fire alarm system as a single zone.

9.6.7.4.45 Unless otherwise prohibited elsewhere in this Code, where a building not exceeding four stories in height is protected by an automatic sprinkler system in accordance with 9.7.1.1(1), the sprinkler system shall be permitted to be annunciated on the fire alarm system as a single zone.

9.6.7.4.46 Where the building is protected by an automatic sprinkler system in accordance with 9.7.1.1(2) or 9.7.1.1(3), the sprinkler system shall be permitted to be annunciated on the fire alarm system as a single zone.

9.6.7.4.45 Where the building is protected by an automatic sprinkler system in accordance with 9.7.1.1(3), the sprinkler system shall be permitted to be annunciated on the fire alarm system as a single zone.

9.6.7.5 A system trouble signal shall be annunciated at the control center by means of audible and visible indicators in accordance with NFPA 72, National Fire Alarm and Signaling Code.

9.6.7.6 A system supervisory signal shall be annunciated at the control center by means of audible and visible indicators in accordance with NFPA 72, National Fire Alarm and Signaling Code.

9.6.7.7 Where the system serves more than one building, each building shall be annunciated separately.

9.6.7.8 Where permitted by another section of this Code, the alarm zone shall be permitted to coincide with the permitted area for smoke compartments.

9.7 Automatic Sprinklers and Other Extinguishing Equipment.

9.7.1 Automatic Sprinklers General.

9.7.1.1* Each automatic sprinkler system required by another section of this Code shall be in accordance with one of the following:
9.7.1.2 Sprinkler piping serving not more than six sprinklers for any isolated hazardous area shall be permitted to be connected directly to a domestic water supply system having a capacity sufficient to provide 0.15 gpm/ft² (6.1 mm/min) throughout the entire enclosed area.

9.7.1.3 Sprinkler piping serving hazardous areas as described in 9.7.1.2 shall be provided with an indicating shutoff valve, supervised in accordance with 9.7.2 or NFPA 13, Standard for the Installation of Sprinkler Systems, shall be and installed in an accessible, visible location between the sprinklers and the connection to the domestic water supply.

9.7.1.34* In areas protected by automatic sprinklers or an automatic water mist system, automatic heat-detection devices required by other sections of this Code shall not be required.

9.7.1.45 Automatic sprinkler systems installed to make use of an alternative permitted by this Code shall be considered required systems and shall meet the provisions of this Code that apply to required systems.

9.7.2 Supervision.

9.7.2.1* Supervisory Signals.

9.7.2.1.1 Where supervised automatic sprinkler systems are required by another section of this Code, supervisory attachments shall be installed and monitored for integrity in accordance with NFPA 72, National Fire Alarm and Signaling Code, and a distinctive supervisory signal shall be provided to indicate a condition that would impair the satisfactory operation of the sprinkler system.

9.7.2.1.2 Supervisory signals shall sound and shall be displayed either at a location within the protected building that is constantly attended by qualified personnel or at an approved, remotely located receiving facility.

9.7.2.2 Alarm Signal Transmission.

9.7.2.2.1 Where supervision of automatic sprinkler systems is provided in accordance with another provision section of this Code, waterflow alarms shall be transmitted to an approved, proprietary alarm-receiving facility, a remote station, a central station, or the fire department.

9.7.2.2.2 The connection described in 9.7.2.2.1 shall be in accordance with 9.6.1.3.

9.7.3 Other Automatic Extinguishing Equipment.

9.7.3.1* Alternative Systems. In any occupancy where the character of the fuel for fire is such that extinguishment or control of fire is accomplished by a type of automatic extinguishing system in lieu of an automatic sprinkler system, such extinguishing system shall be installed in accordance with the appropriate applicable standard, as determined referenced in accordance with Table 9.7.3.1.

### Table 9.7.3.1 Fire Suppression System Installation Standards

<table>
<thead>
<tr>
<th>Fire Suppression System</th>
<th>Installation Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-, medium-, and high-expansion foam systems</td>
<td>NFPA 11, Standard for Low-, Medium-, and High-Expansion Foam</td>
</tr>
<tr>
<td>Carbon dioxide systems</td>
<td>NFPA 12, Standard on Carbon Dioxide Extinguishing Systems</td>
</tr>
</tbody>
</table>

First Revision No. 33: NFPA 101-2012
[FR 626: FileMaker]
### Halon 1301 systems

NFPA 12A, *Standard on Halon 1301 Fire Extinguishing Systems*

### Water spray fixed systems


### Deluge foam-water sprinkler systems


### Dry chemical systems

NFPA 17, *Standard for Dry Chemical Extinguishing Systems*

### Wet chemical systems

NFPA 17A, *Standard for Wet Chemical Extinguishing Systems*

### Water mist systems

NFPA 750, *Standard on Water Mist Fire Protection Systems*

### Clean agent extinguishing systems

NFPA 2001, *Standard on Clean Agent Fire Extinguishing Systems*

#### 9.7.39.8.2 Alarm Activation.

**9.8.1** If the extinguishing system is installed in lieu of a required, supervised automatic sprinkler system, the activation of the extinguishing system shall activate the building fire alarm system, where provided.

**9.8.2** The actuation of an extinguishing system that is not installed in lieu of a required, supervised automatic sprinkler system shall be indicated at the building fire alarm system, where provided.


**9.7.4.1** Where required by the provisions of another section of this Code, portable fire extinguishers shall be selected, installed, inspected, and maintained in accordance with NFPA 10, *Standard for Portable Fire Extinguishers*.

#### 9.7.49.10 Standpipe Systems.

**9.10.1** Where required by the provisions of another section of this Code, standpipe and hose systems shall be provided in accordance with NFPA 14, *Standard for the Installation of Standpipe and Hose Systems*.

**9.10.19.10.2** Where standpipe and hose systems are installed in combination with automatic sprinkler systems, installation shall be in accordance with the appropriate provisions established by NFPA 13, *Standard for the Installation of Sprinkler Systems*, and NFPA 14, *Standard for the Installation of Standpipe and Hose Systems*.

#### 9.7.59.11 Fire Protection System Operating Features.

**9.11.1 Maintenance and Testing.** All automatic sprinkler and standpipe systems required by this Code shall be inspected, tested, and maintained in accordance with NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*.

9.7.79.11.3 Documentation. 

9.7.89.11.3.1 All required documentation regarding the design of the fire protection system and the procedures for maintenance, inspection, and testing of the fire protection system shall be maintained at an approved, secured location for the life of the fire protection system.

9.7.89.11.3.2 Record Keeping. Testing and maintenance records required by NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, shall be maintained at an approved, secured location.


9.913 Special Inspections and Tests. 

9.913.1 System Verification. Where required by another section of this *Code*, special inspections and tests shall be performed to verify the operation of the fire protection system in its final condition for acceptance by the authority having jurisdiction.

9.913.2 Experience. The special inspector’s relevant experience in the design, installation, and testing of the fire protection systems being tested shall be documented.

9.913.3 Documentation. The design documents shall provide the procedures and methods to be used and items subject to special inspections and tests.

9.913.4 Report. The special inspector shall submit an inspection and test report to the authority having jurisdiction and registered design professional (RDP) in responsible charge.

A.9.4.1 Under certain conditions, elevators are recognized as means of egress.

The use of elevators for emergency evacuation purposes, where operated by trained emergency service personnel (e.g., building personnel, fire personnel), should be incorporated into the building evacuation program. Elevators are normally capable of manual, in-car fire fighter operation (Phase II) after elevator recall (Phase I). In addition, there usually are two or more shafts wherever there are more than three elevators, which further enhances the possibilities for elevator use during an emergency evacuation where operated by trained personnel.

In high-rise buildings, in towers, or in deep underground spaces where travel over considerable vertical distance on stairs can cause persons incapable of such physical effort to collapse before they reach the street exit, stairways are permitted to be used for initial escape from the immediate area of danger, and elevators are permitted to be used to complete the travel to the street.

It can be reasonably assumed that, in all buildings of sufficient height to indicate the need for elevators, elevators will be provided for normal use; for this reason, no requirements for mandatory installation of elevators are included in the *Code*.


A.9.4.5 Continued operation of solid-state elevator equipment is contingent on maintaining the ambient temperature in the range specified by the elevator manufacturer. If the machine room ventilation/air-conditioning is connected to the general building system, and that system is shut down during a fire, the fire department might lose the use of elevators due to excessive heat in the elevator machine room.
A.9.6.1 The provisions of Section 9.6 cover the basic functions of a complete fire alarm system, including fire detection, alarm, and communications. These systems are primarily intended to provide the indication and warning of abnormal conditions, the summoning of appropriate aid, and the control of occupancy facilities to enhance protection of life.

Some of the provisions of Section 9.6 originated with NFPA 72, National Fire Alarm and Signaling Code. For purposes of this Code, some provisions of Section 9.6 are more stringent than those of NFPA 72, which should be consulted for additional details.

A.9.6.1.54 Records of conducted maintenance and testing and a copy of the certificate of compliance should be maintained.

A.9.6.1.65 A fire watch should at least involve some special action beyond normal staffing, such as assigning an additional security guard(s) to walk the areas affected. Such individuals should be specially trained in fire prevention and in occupant and fire department notification techniques, and they should understand the particular fire safety situation for public education purposes. (Also see NFPA 601, Standard for Security Services in Fire Loss Prevention.)

The term out of service in 9.6.1.65 is intended to imply that a significant portion of the fire alarm system is not in operation, such as an entire initiating device, signaling line, or notification appliance circuit. It is not the intent of the Code to require notification of the authority having jurisdiction, or evacuation of the portion of the building affected, for a single nonoperating device or appliance.

A.9.6.1.8.1 The Code intends that only one smoke detector is required to be installed at the fire alarm control unit, the notification circuit power extenders, and the supervising station transmitting equipment, even when the area of the room would require more than one smoke detector if installed according to the spacing rules in NFPA72, National Fire Alarm and Signaling Code, Chapter 5.

A.9.6.2.5 It is not the intent of 9.6.2.5 to require manual fire alarm boxes to be attached to movable partitions or to equipment, nor is it the intent to require the installation of permanent structures for mounting purposes only.

A.9.6.2.6 The manual fire alarm box required by 9.6.2.6 is intended to provide a means to manually activate the fire alarm system when the automatic fire detection system or waterflow devices are out of service due to maintenance or testing, or where human discovery of the fire precedes automatic sprinkler system or automatic detection system activation. Where the fire alarm system is connected to a monitoring facility, the manual fire alarm box required by 9.6.2.6 should be connected to a separate circuit that is not placed “on test” when the detection or sprinkler system is placed on test. The manual fire alarm box should be located in an area that is accessible to occupants of the building and should not be locked.

A.9.6.2.7 Manual fire alarm boxes can include those with key-operated locks for detention areas or psychiatric hospitals, manual fire alarm boxes in areas where explosive vapors or dusts might be a hazard, or manual fire alarm boxes in areas with corrosive atmospheres. The appearance of manual fire alarm boxes for special uses often differs from those used in areas of normal occupancy. Manual fire alarm boxes, such as those with locks, that are located in areas where the general public has limited access might need to have signage advising persons to seek assistance from staff in the event a fire is noted.

A.9.6.2.10.1.3 NFPA 72, National Fire Alarm and Signaling Code, mandates smoke alarms in all sleeping rooms, and interconnection of smoke alarms is required for both new and existing installations. Per, 9.6.2.10.1.2, the residential occupancy chapters determine whether smoke alarms are needed within sleeping rooms. Paragraph 9.6.2.10.1.3 limits the requirement for interconnection of smoke alarms to those in new construction. This Code does not intend to require compliant,
existing smoke alarm installations to be interconnected. This Code is periodically revised to add retrospective requirements only where the need is clearly substantiated.

**A.9.6.2.10.3** A dwelling unit is that structure, area, room, or combination of rooms, including hotel rooms/suites, in which a family or individual lives. A dwelling unit includes living areas only and not common usage areas in multifamily buildings, such as corridors, lobbies, and basements.

**A.9.6.2.10.4** As per annex material located in A.29.5.1 of NFPA 72, it is not normally recommended that smoke alarms or smoke detectors be placed in kitchen spaces. This section of the code provides guidelines for safe installation if a need exists to install a smoke alarm or smoke detector in a residential kitchen space or cooking area.

Within this Code section, a fixed cooking appliance is any appliance that is intended to be permanently connected electrically to the wiring system or the fuel source. A stationary cooking appliance is any appliance that is intended to be fastened in place or located in a dedicated space, and is connected to the supply circuit or fuel source.

Smoke alarms and smoke detectors that are currently available to consumers are susceptible to particles released into the air during normal cooking procedures. If smoke alarms and smoke detectors are placed too close to the area where the cooking source originates, a high level of nuisance alarms can occur. Frequent nuisance alarms can result in an occupant disabling the smoke alarm or smoke detector.

Nuisance alarm studies show that commercially available residential smoke alarms and smoke detectors are susceptible to nuisance alarms when installed too close to cooking appliances. As the horizontal distance between the smoke alarm or smoke detectors and the cooking appliance increases, the frequency of nuisance alarms decreases. Smoke alarms or smoke detectors that use ionization smoke detection have been shown to be more susceptible to cooking nuisance alarms than those that use photoelectric smoke detection when the alarms or detectors are installed within 10 ft (3.0 m) along a horizontal smoke travel path from a cooking appliance. Smoke alarms or smoke detectors that use photoelectric smoke detection produce nuisance alarms when installed less than 10 ft (3.0 m) from a cooking appliance, though to a lesser degree.

The occurrence of the higher frequency of nuisance alarms observed in smoke alarms or smoke detectors that use ionization detection have been documented in the fire research data. Due to the differences in technology between ionization detection and photoelectric detection, the sensitivity typically used for ionization detection is much higher than that used for photoelectric detection. This sensitivity difference is a result of each type of the detection being required to satisfy UL 217, Single and Multiple Station Smoke Alarms, performance tests. Removing detection technology from consideration, the frequency of nuisance alarms is solely due to the sensitivity of the detection method used. Thus, both ionization and photoelectric detector technologies will produce nuisance alarms due to cooking, but currently available smoke alarms and smoke detectors that use ionization detection typically produce more cooking related nuisance alarms.

The higher sensitivities of currently available smoke alarms and smoke detectors that use ionization detection do provide a benefit at the expense of a potentially higher rate of cooking-related nuisance alarms. Research has demonstrated that ionization detection will typically respond faster than photoelectric detection to flaming fires, providing earlier warning to occupants that might allow for quicker intervention or faster egress. In general, the installation of smoke alarms or smoke detectors that use ionization detection will result in increased fire safety at the risk of a higher frequency of nuisance alarms. The installation of smoke alarms or smoke detectors that use photoelectric detection will result in reduced fire safety for flaming fires and a reduced risk of nuisance alarms. Based on the trade-off between faster response to fires and the frequency of nuisance alarms,
detectors that utilize both technologies (i.e., ionization, photoelectric, and a combination) are allowed to be installed between 10 ft (3.0 m) and 20 ft (6.1 m) along a horizontal flow path from a standard or fixed cooking appliance if the specific detector is equipped with an alarm silencing means or is of the photoelectric-type. Nuisance alarm studies provide data on cooking nuisances that emanate from both fixed cooking appliances and stationary cooking appliances (e.g., stove, oven) as well as portable cooking appliances (e.g., toaster). Based on these studies, which demonstrate the potential of all cooking appliances to generate nuisance sources, a zone of exclusion has been specified surrounding each stationary or fixed cooking appliance. The purpose of this zone is to limit the installation of smoke alarms and detectors in areas where stationary, fixed, or portable cooking appliances will be located within the residential kitchen space such that potential nuisance alarms are minimized. The size of the zone of exclusion is specified to attempt to take into account the unknown and transitory locations of portable cooking appliances. This zone of exclusion is determined by measuring a 10 ft (3.0 m) radial distance from the closest edge of a stationary or fixed cooking appliance. The zone of exclusion is not intended to pass through walls or doorways. Figure A.9.6.2.10.4(a) [72: Figure A.29.8.3.4(4)(a)] provides an example of the zone of exclusion in a generalized residential kitchen. If other areas of this Code require that a smoke alarm or smoke detector be placed within a horizontal flow path distance between 10 ft (3.0 m) and 20 ft (6.1 m) from a stationary or fixed cooking appliance, the following method should be used to determine the distance, and only photoelectric detection or smoke alarms/detectors with alarm silencing means can be installed in this area.

To install a smoke alarm or detector between 10 ft (3.0 m) and 20 ft (6.1 m) from the cooking appliance, an installer must first determine the 10 ft (3.0 m) area of exclusion. Once the area of exclusion is determined, an installer must then determine the horizontal flow distance. This is the horizontal distance along the ceiling from the closest edge of the cooking appliance to the smoke alarm or detector. The horizontal distance can consist of line segments due to impediments, such as interior partitions. Once an impediment is met, the measurement of the distance will then continue along the new horizontal path segment until the distance requirement is met or another impediment is encountered. Figure A.9.6.2.10.4(b) [72: Figure A.29.8.3.4(4)(b)] provides an example for placement outside a kitchen in a nearby hallway. Figure A.9.6.2.10.4(c) [72: Figure A.29.8.3.4(4)(c)] provides another example of appropriate placement outside of a kitchen in an adjacent room. At a horizontal flow path distance of greater than 20 ft (6.1 m), any type of smoke alarm or smoke detector can be installed. In rare cases, a residential dwelling can be of such size and configuration that an area of exclusion of 10 ft (3.0 m) from a stationary or fixed cooking appliance excludes the placement of a smoke alarm or smoke detector required by other areas of this Code. In these cases, a smoke alarm or smoke detector using photoelectric detection can be installed at least 72 in. (1.83 m) from the fixed or stationary cooking appliance. Figure A.9.6.2.10.4(d) [72: Figure A.29.8.3.4(4)(d)] provides an example of this situation in practice where a smoke alarm or smoke detector is required outside of the sleeping area, but the space is in close proximity to the kitchen space. [72:A.29.8.3.4(4)]

A.9.6.2.10.5 Studies indicate that smoke alarms and smoke detectors that use ionization detection, photoelectric detection, or a combination of ionization and photoelectric detection, are susceptible to nuisance alarms caused by steam. Little research has been done on the comparative response of these types of detection to steam. Steam particles, in general, are visible, reflect light easily, and are typically produced in a size range that would be more likely to activate a photoelectric sensor. Thus, it is required that smoke alarms and smoke detectors be installed greater than 36 in. (910 mm) from the bathroom door where possible. Increasing the distance between the smoke alarm or smoke detector and the bathroom door can reduce the frequency of nuisance alarms from bathroom steam. Frequent nuisance alarms can result in the occupant disabling the smoke alarm. Each incremental increase in
separation, up to 10 ft (3.0 m), between the bathroom door and the smoke alarm or smoke detector is expected to reduce the frequency of nuisance alarms. [72:A.29.8.3.4(5) A.29.8.3.4(5)]

A.9.6.3.2.1 Elevator lobbies have been considered areas subject to unwanted alarms due to factors such as low ceilings and smoking. In the past several years, new features have become available to reduce this problem. These features are, however, not necessarily included in any specific installation.

A.9.6.3.2.2 The concept addressed is that detectors used for releasing service, such as door or damper closing and fan shutdown, are not required to sound the building alarm.

A.9.6.3.2.3 The concept addressed is that detectors used for releasing service, such as door or damper closing and fan shutdown, are not required to sound the building alarm.

A.9.6.3.5.7 Visual notification appliances installed in large-volume spaces, such as arenas, stadiums, malls, and atriums, can be alternative devices that are not listed as visible notification appliances for fire alarm systems, provided that the notification objective of the visual signal is reasonably achieved. Examples of alternative devices include, but are not limited to, scoreboards, message boards, and other electronic devices that meet the performance objectives of visible fire alarm appliances in large-volume spaces.

It is the intent to permit the omission of visible notification appliances as identified in 9.6.3.5.7, provided that the adjacent areas that have not been specifically designated as exempt are provided with visible notification as required by 9.6.3.5.

A.9.6.3.5.8 Documentation should be maintained with the as-built drawings so that inspection and testing personnel understand that the visible appliances have been exempted from certain areas and, therefore, can note the deviation on the acceptance test documentation and ongoing inspection reports. This will provide inspection and testing personnel with necessary details regarding the omission of visible notification appliances.

A.9.6.3.6.2 To approve an evacuation plan to selectively notify building occupants, the authority having jurisdiction should consider several building parameters, including building compartmentation, detection and suppression system zones, occupant loads, and the number and arrangement of the means of egress.

In high-rise buildings, it is typical to evacuate the fire floor, the floor(s) above, and the floor immediately below. Other areas are then evacuated as the fire develops.

A.9.6.3.9.2 The provisions of 9.6.3.9.2 offer an alternative to the emergency voice alarm and communications system provisions (live voice or recorded voice announcements) of NFPA 72, National Fire Alarm and Signaling Code. Occupancies such as large-venue assembly occupancies and mercantile mall buildings are occupancies in which the physical configuration (e.g., large-volume spaces), function, and human behavior (including elevated levels of occupant-generated noise) present challenges with respect to effective occupant notification by standard means in accordance with NFPA 72. Because the routine operation of these occupancies demands highly reliant, acoustically capable, and sufficiently audible public address systems, properly trained staff can be relied on to use these public address systems to effect occupant evacuation, relocation, or both.

As 9.6.3.9.2 specifically permits an alternative means of notification to that prescribed by NFPA 72, it does not mandate that the secondary power supply and the intelligibility and audibility facets of the public address system comply with NFPA 72 or suggest that equivalency with the related provisions of NFPA 72 is required. However, it is anticipated that, when approving the secondary power and audibility capabilities of public address systems, authorities having jurisdiction will ensure that these systems are conceptually comparable to the emergency voice alarm and communications system provisions of NFPA 72, such that a reliable and effective occupant notification system is provided.
A.9.7.1.1 For a discussion of the effectiveness of automatic sprinklers, as well as a general discussion of automatic sprinklers, see the NFPA Fire Protection Handbook. Where partial sprinkler protection is permitted by another section of this Code, the limited area systems provisions of NFPA 13, Standard for the Installation of Sprinkler Systems, should apply.

A.9.7.1.3 Properly designed automatic sprinkler systems provide the dual function of both automatic alarms and automatic extinguishment. Dual function is not provided in those cases where early detection of incipient fire and early notification of occupants are needed to initiate actions in behalf of life safety earlier than can be expected from heat-sensitive fire detectors.

A.9.7.2.1 NFPA 72, National Fire Alarm and Signaling Code, provides details of standard practice in sprinkler supervision. Subject to the approval of the authority having jurisdiction, sprinkler supervision is also permitted to be provided by direct connection to municipal fire departments or, in the case of very large establishments, to a private headquarters providing similar functions. NFPA 72 covers such matters. System components and parameters that are required to be monitored should include, but should not be limited to, control valves, water tank levels and temperatures, tank pressure, and air pressure on dry-pipe valves.

Where municipal fire alarm systems are involved, reference should also be made to NFPA 1221, Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems.

A.9.7.4.1 For a description of standard types of extinguishers and their installation, maintenance, and use, see NFPA 10, Standard for Portable Fire Extinguishers. The labels of recognized testing laboratories on extinguishers provide evidence of tests indicating the reliability and suitability of the extinguisher for its intended use. Many unlabeled extinguishers are offered for sale that are substandard by reason of insufficient extinguishing capacity, questionable reliability, or ineffective extinguishing agents for fires in ordinary combustible materials or because they pose a personal hazard to the user.

A.9.8.1 There are typically two different ways that extinguishing systems other than fire sprinkler systems are used. The first is when the entire building is protected with one of these alternate systems. When this is the case, the exceptions, reductions, and alternative code provisions that are offered as options when fire sprinkler systems are installed should not be granted to the other extinguishing system unless the other system has demonstrated the same temperature control during a fire and reliability of operation as a fire sprinkler system. Reliability of operation needs to extend to the long-term use of the other system and an analysis of the reliability of the component parts. Some component of other extinguishing systems can show reliability data from their use in systems outside of fire protection where they get exercised on a regular basis, but acceptance on this basis is cautioned because many mechanical parts that sit for a long time without being exercised, as fire protection systems need to do, may not have the same reliability. A reliability analysis should also take into account inspection, testing, and maintenance criteria and the likelihood of a building owner knowing and understanding what needs to be performed to keep the other system operational. The second manner in which other systems are used as alternatives to fire sprinkler systems are in individual rooms or spaces of otherwise sprinklered occupancies. Here the authority having jurisdiction needs to use some judgment in the application of exceptions, reductions, and alternative code provisions that are offered for sprinklered occupancies. The permission to utilize such exceptions, reductions, and alternative code provisions far from the space with the other fire protection system should be granted. Closer to the space with the alternate system, exceptions,
reductions, and alternate code provisions for sprinklers could be granted if the system was analyzed as discussed above and found to be equivalent to a fire sprinkler system.