**Chapter 9 Building Service, Fire Protection, and Life Safety Equipment**

9.1 Utilities

9.1.1 Gas

Equipment using gas and related gas piping shall be in accordance with NFPA 54 or NFPA 58 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 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, inspected, tested, and maintained in accordance with NFPA 110.

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

9.1.4 Stored Electrical Energy Systems

Stored electrical energy systems shall be installed, inspected, tested, and maintained in accordance with NFPA 111.

9.1.5 Energy Storage Systems

Energy storage systems shall be in accordance with NFPA 855.

9.2 Heating, Ventilating, and Air-Conditioning

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 or NFPA 90B, as applicable, unless such installations are approved existing installations, which shall be permitted to be continued in service.

9.2.2 Ventilating or Heat-Producing Equipment

Ventilating or heat-producing equipment shall be in accordance with NFPA 31, NFPA 54, NFPA 70, NFPA 91, or NFPA 211, as applicable, unless such installations are approved existing installations, which shall be permitted to be continued in service.

Upcodes Diagrams

9.2.2.1 Unvented Fuel-Fired Heating Equipment

Unvented fuel-fired heating equipment shall be prohibited in bathrooms and sleeping areas of all occupancies. In all other areas, gas space heaters installed in compliance with NFPA 54, National Fuel Gas Code, as adopted and modified by these Regulations shall be permitted.

9.2.3 Commercial Cooking Operations

Diagram

Where required by another section of this Code, commercial cooking operations shall be protected in accordance with NFPA 96 unless such installations are approved existing installations, which shall be permitted to be continued in service.

UpCodes Diagrams

P

Ductwork with Haz. Exhaust

9.2.4 Ventilating Systems in Laboratories Using Chemicals

Ventilating systems in laboratories using chemicals shall be in accordance with NFPA 45.

Upcodes Diagrams

9.3 Smoke Control

9.3.1 Installation

Where required by another section of this Code, smoke control systems shall be designed, installed, inspected, tested, and maintained in accordance with NFPA 92, NFPA 204, 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 that method, 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 9.13.

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.

9.3.5 Integrated System Testing

Smoke control systems that are integrated with other fire protection or life safety systems shall be tested in accordance with 9.11.4.2.

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.

9.4.2.3

Elevators in accordance with ASME A17.7/CSA B44.7, Performance-Based Safety Code for Elevators and Escalators, shall be deemed to comply with ASME A17.1/CSA B44, Safety Code for Elevators and Escalators, or 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 7.15 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 Waste Chutes, Incinerators, and Laundry Chutes

Diagram

Upcodes Diagrams

9.5.1 Enclosure

9.5.1.1

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

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

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 chute intake doors shall be permitted to have chute intake doors open to a corridor or normally occupied space.

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

Waste chutes, laundry chutes, and incinerators shall be installed and maintained in accordance with NFPA 82 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

Fire alarm systems required by this Code shall be installed, tested, and maintained in accordance with the applicable requirements of NFPA 70 and NFPA 72 unless otherwise permitted by 9.6.1.4.

9.6.1.4

An approved existing installation shall be permitted to be continued in use and shall comply with 9.6.1.5.

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 and NFPA 72.

9.6.1.6

Fire alarm system impairment procedures shall comply with NFPA 72.

9.6.2 Signal Initiation

9.6.2.1

Where required by other sections of this Code, actuation of the fire alarm system shall occur by any or all of the following means of initiation but shall not be limited to such means:

Manual fire alarm initiation

Automatic detection

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 permitted.

9.6.2.3

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

For new alarm system installations, the manual fire alarm box shall be located within 60 in. (1525 mm) of exit door ways.

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.

9.6.2.7\*

Manual fire alarm boxes 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 shall be provided in all occupiable areas in environments that are suitable for proper smoke detector operation.

9.6.2.10 Smoke Alarms

9.6.2.10.1

Where required by another section of this Code, single-station and multiple-station smoke alarms shall be in accordance with NFPA 72 unless otherwise provided in 9.6.2.10.4, 9.6.2.10.5, 9.6.2.10.7, or 9.6.2.10.8.

9.6.2.10.2

Where automatic smoke detection is required by Chapters 11 through 43, smoke alarms shall not be used as a substitute.

9.6.2.10.3 Smoke Alarms in Sleeping Rooms

9.6.2.10.3.1

In new construction, where required by Chapters 11 through 43, the alarm notification signal in sleeping rooms resulting from activation of smoke alarms shall be a 520 Hz low-frequency signal complying with NFPA 72.

9.6.2.10.4\*

The interconnection of smoke alarms shall apply only to new construction as provided in 9.6.2.10.10.

9.6.2.10.5\*

Unless otherwise provided in 9.6.2.10.7, 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. [72:29.11.3.4(4)]

9.6.2.10.6

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:

The kitchen or cooking area and adjacent spaces have no clear interior partitions or headers.

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 NFPA 72. [72:29.11.3.4(5)]

Upcodes Diagrams

9.6.2.10.7\*

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 unless listed for installation in close proximity to such locations. [72:29.11.3.4(7)]

9.6.2.10.8

System smoke detectors in accordance with NFPA 72 and arranged to function in the same manner as singlestation or multiple-station smoke alarms shall be permitted in lieu of smoke alarms.

9.6.2.10.9

Smoke alarms, other than battery-operated smoke alarms as permitted by other sections of this Code, shall be powered in accordance with the requirements of NFPA 72.

9.6.2.10.10\*

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:

The requirement of 9.6.2.10.10 shall not apply where permitted by another section of this Code.

The requirement of 9.6.2.10.10 shall not apply to configurations that provide equivalent distribution of the alarm signal.

9.6.2.10.11

The alarms described in 9.6.2.10.10 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.

9.6.2.10.12

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

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 9.6.3.11.2, 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 required by Chapters 11 through 43, the audible alarm notification signal provided in sleeping rooms resulting from the activation of the fire alarm system or sleeping room smoke detector shall be a 520 Hz low-frequency signal complying with NFPA 72.

9.6.3.4

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.

9.6.3.5

Where permitted by Chapters 11 through 43, a positive alarm sequence shall be permitted, provided that it is in accordance with NFPA 72.

9.6.3.6

Unless otherwise provided in 9.6.3.6.1 through 9.6.3.6.8, notification signals for occupants to evacuate shall be by audible and visible signals in accordance with NFPA 72 and ICC A117.1, Accessible and Usable Buildings and Facilities, or other means of notification acceptable to the authority having jurisdiction.

9.6.3.6.1

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

9.6.3.6.2

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

9.6.3.6.3

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

9.6.3.6.4

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

9.6.3.6.5

Visible signals shall not be required in exit stair enclosures.

9.6.3.6.6

Visible signals shall not be required in elevator cars.

9.6.3.6.7\*

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

9.6.3.6.8\*

Where visible signals are not required, as permitted by 9.6.3.6.7, documentation of such omission shall be maintained in accordance with 9.13.3.

9.6.3.7

The general evacuation alarm signal shall operate in accordance with one of the methods prescribed by 9.6.3.7.1 through 9.6.3.7.3.

9.6.3.7.1

The general evacuation alarm signal shall operate throughout the entire building other than the locations described in 9.6.3.7.4 and 9.6.3.7.5.

9.6.3.7.2\*

Where total evacuation of occupants is impractical due to building configuration, only the occupants in the affected zones shall be initially notified, and provisions shall be made to selectively notify occupants in other zones to afford orderly evacuation of the entire building, provided that such arrangement is approved by the authority having jurisdiction.

9.6.3.7.3

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

The private operating mode, as described in NFPA 72 shall be permitted to be used.

Only the attendants and other personnel required to evacuate occupants from a zone, area, floor, or building shall be required to be notified.

Notification of personnel as specified in 9.6.3.7.3(2) shall include means to readily identify the zone, area, floor, or building in need of evacuation.

9.6.3.7.4

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

9.6.3.7.5

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

9.6.3.8

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.

9.6.3.9

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

9.6.3.10

Automatically transmitted or live voice evacuation or relocation instructions shall be permitted to be used to notify occupants and shall comply with either 9.6.3.10.1 or 9.6.3.10.2.

9.6.3.10.1

Automatically transmitted or live voice evacuation or relocation instructions shall be in accordance with NFPA 72.

9.6.3.10.2\*

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

Occupant notification, either live or recorded, shall be initiated at a constantly attended receiving station by personnel trained to respond to an emergency.

An approved secondary power supply shall be provided for other than existing, previously approved systems.

The system shall be audible above the expected ambient noise level.

Emergency announcements shall take precedence over any other use.

9.6.3.11

Unless otherwise permitted by another section of this Code, audible and visible fire alarm notification appliances shall comply with either 9.6.3.11.1 or 9.6.3.11.2.

9.6.3.11.1

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

9.6.3.11.2

Emergency voice/alarm communication systems shall be permitted to be used for other purposes in accordance with NFPA 72.

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 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:

Auxiliary fire alarm system

Central station fire alarm system

Proprietary supervising station fire alarm system

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 9.6.4.2(4) are available, an approved plan for notification of the municipal fire department shall be permitted.

9.6.4.4

For other than existing installations, 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\* Monitor-It-Yourself (MIY) Systems

The use of a monitor-it-yourself (MIY) system that transmits directly to an emergency forces call center shall not be permitted unless approved by the authority having jurisdiction.

9.6.6 Emergency Control Functions

9.6.6.1

Emergency control functions shall be installed in accordance with the requirements of NFPA 72.

9.6.6.2

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

Release of hold-open devices for doors or other opening protectives

Stairwell or elevator shaft pressurization

Smoke management or smoke control systems

Unlocking of doors

Elevator recall and shutdown

HVAC shutdown

9.6.7 Location of Controls

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

9.6.8 Annunciation

9.6.8.1

Where alarm annunciation is required by another section of this Code, it shall comply with 9.6.8.2 through 9.6.8.8.

9.6.8.2

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

9.6.8.3

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 9.6.8.4.4, 9.6.8.4.5, 9.6.8.4.6, or another section of this Code.

9.6.8.4

Where 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 9.6.8.4.1 through 9.6.8.4.6, or as otherwise modified by another section of this Code.

9.6.8.4.1

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.

9.6.8.4.2

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.

9.6.8.4.3

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.

9.6.8.4.4

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 9.8.1, the water mist system shall be permitted to be annunciated on the fire alarm system as a single zone.

9.6.8.4.5

Unless otherwise prohibited by another section of 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.

9.6.8.4.6

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.

9.6.8.5

A system trouble signal shall be annunciated by means of audible and visible indicators in accordance with NFPA 72.

9.6.8.6

A system supervisory signal shall be annunciated by means of audible and visible indicators in accordance with NFPA 72.

9.6.8.7

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

9.6.8.8

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

9.7.1 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:

NFPA 13

NFPA 13D

NFPA 13R

9.7.1.2

Sprinkler piping serving not more than six sprinklers for any 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, and installed in an accessible, visible location between the sprinklers and the connection to the domestic water supply.

9.7.1.4\*

In areas protected by automatic sprinklers, automatic heat-detection devices required by other sections of this Code shall not be required.

9.7.1.5

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 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 required by another 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.

9.8 Other Automatic Extinguishing Equipment

9.8.1\* 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 applicable standard referenced in Table 9.8.1.

Table 9.8.1 Fire Suppression System Installation Standards

Fire Suppression System Installation Standard

Low-, medium-, and high-expansion foam systems NFPA 11

Carbon dioxide systems NFPA 12

Halon 1301 systems NFPA 12A

Water spray fixed systems NFPA 15

Deluge foam-water sprinkler systems NFPA 16

Dry chemical systems NFPA 17

Wet chemical systems NFPA 17A

Water mist systems NFPA 750

Clean agent extinguishing systems NFPA 2001

9.8.2 Alarm Activation

9.8.2.1

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.

9.8.2.2

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.

9.8.2.3

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

9.9\* Portable Fire Extinguishers

Where required by another section of this Code, portable fire extinguishers shall be selected, installed, inspected, and maintained in accordance with NFPA 10.

Upcodes Diagrams

9.10 Standpipe Systems

9.10.1

Where required by another section of this Code, standpipe and hose systems shall be provided in accordance with NFPA 14.

9.10.2

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 and NFPA 14.

9.11 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.

9.11.2 Sprinkler System Impairments

Sprinkler impairment procedures shall comply with NFPA 25.

9.11.3 Documentation

9.11.3.1

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.

9.11.3.2

Testing and maintenance records required by NFPA 25 shall be maintained at an approved, secured location.

9.11.4 Integrated Fire Protection and Life Safety System Tests

9.11.4.1 Basic Testing

Where required by Chapters 11 through 43, installations involving two or more integrated fire protection or life safety systems shall be tested to verily the proper operation and function of such systems in accordance with 9.11.4.1.1 and 9.11.4.1.2.

9.11.4.1.1

When a fire protection or life safety system is tested, the response of integrated fire protection and life safety systems shall be verified.

9.11.4.1.2

After repair or replacement of equipment, required retesting of integrated systems shall be limited to verifying the response of fire protection or life safety functions initiated by repaired or replaced equipment.

9.11.4.2\* NFPA 4 Testing

Where required by 9.3.5 or Chapters 11 through 43, the following integrated fire protection and life safety systems shall be tested in accordance with 9.11.4.1 and 9.11.4.2.1 through 9.11.4.2.2:

Integrated fire protection and life safety systems in high-rise buildings

Integrated fire protection and life safety systems that include a smoke control system

9.11.4.2.1

For new buildings, integrated testing in accordance with NFPA 4 shall be conducted prior to the issuance of a certificate of occupancy.

9.11.4.2.2

For existing buildings, integrated testing in accordance with NFPA 4 shall be conducted at intervals not exceeding 10 years unless otherwise specified by an integrated system test plan prepared in accordance with NFPA 4.

9.12 Carbon Monoxide (CO) Detection and Warning Equipment

Where required by another section of this Code, carbon monoxide (CO) detection and warning equipment shall be provided in accordance with NFPA 72.

9.13 Special Inspections and Tests

9.13.1 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.

9.13.2 Experience

The special inspector's relevant experience in the design, installation, and testing of the fire protection systems shall be documented.

9.13.3 Documentation

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

9.13.4 Report

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

9.14\* Risk Analysis for Mass Notification Systems

9.14.1\*

Where required by Chapters 11 through 43, a risk analysis for mass notification systems shall be provided in accordance with the requirements of Chapter 24 of NFPA 72.

9.14.2

Where a mass notification system is required by the risk analysis in 9.14.1, the system shall be in accordance with the requirements of Chapter 24 of NFPA 72.

9.15\* Two-Way Radio Communication Enhancement Systems

9.15.1

Where provided, two-way radio communication enhancement systems shall be in accordance with NFPA 1221.

In new buildings, minimum radio signal strength for fire department communications shall be in accordance with NFPA 1221.

9.15.3\*

In existing buildings, radio signal strength for fire department communications shall be as required by the authority having jurisdiction.

