Summary of Key Changes:

2024 NFPA and ICC Model Codes

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Introduction

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Summary of Changes to 2024 ICC Codes:

- International Fire Code (IFC)
- International Building Code (IBC)
- International Existing Building Code (IEBC)
- International Property Maintenance Code (IPMC)



Summary of Changes to 2024 NFPA Codes:

- NFPA 101, *Life Safety Code*
- NFPA 1, *Fire Code*

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Introduction

Comments and opinions during the presentation are exclusively the presenter and do not reflect an official position of the International Code Council (ICC), National Fire Protection Association (NFPA), its employees, or any of the Technical Committees

This presentation will not cover all the revisions, editorial changes, details, requirements or exceptions

Highly recommend purchasing a copy of the ICC Commentary or NFPA Handbook for all the changes, requirements and details.

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All changes in presentation will be referenced using legislative text

~~Red strike through~~ means text is being removed

Blue underline means text is being added

Black text means no changes

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2024 I-Code Changes

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2024 IBC

Stairway Smoke Detection & Communications

SECTION 909 SMOKE CONTROL SYSTEMS

909.20.5 Pressurized stair and vestibule alternative. The provisions of Sections 909.20.5.1 through 909.20.5.3 shall apply to smokeproof enclosures using a pressurized stair and pressurized entrance vestibule.

909.20.5.4 Smoke Detection. The fan system shall be equipped with a *smoke detector* that will automatically shut down the fan system when smoke is detected within the system.

403.5.3.1 Stairway communication system. A telephone or other two-way communications system connected to an approved constantly attended station shall be provided at not less than every fifth floor in each stairway where the doors to the stairway are locked. Systems shall be listed in accordance with UL 2525 and installed in accordance with NFPA 72.

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2024 IFC

Emergency Responder Communications Coverage - Definitions

FREQUENCY LICENSE HOLDER(S). The person(s) or entity(s) that are issued the license from the frequency licensing authority of United States or other country of jurisdiction for the frequencies being used by both the in-building emergency responder communications enhancement system and the emergency services communications system that it enhances.

FREQUENY LICENSING AUTHORITY. The government authority in a country or territory that issues frequency licenses for the use of communications frequencies by authorized entities and individuals.

DOWNLINK. The signal from the base station/tower site to the portable

UPLINK. The signal from the portable to the base station/tower site.

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2024 IFC

Emergency Responder Communications Coverage - Frequency License Holder

510.1 Emergency responder communications ~~coverage~~ enhancement systems **in new buildings.** Approved in-building, ~~two-way~~ emergency responder communication ~~coverage~~ enhancement system (ERCES) for emergency responders shall be provided in all new buildings. In-building~~, two-way emergency responder communication coverage~~ ERCES within the building shall be based on the existing coverage levels of the public safety communication systems utilized by the jurisdiction, measured at the exterior of the building. The two-way emergency responder communications coverage system where required, shall be of a type determined by the fire code official and the frequency license holder(s). This section shall not require improvement of the existing public safety communication systems.

Exceptions:

1. Where approved by the building official and the fire code official, a wired communication system in accordance with Section 907.2.13.2 shall be permitted to be installed or maintained instead of an approved ~~radio~~ communications coverage system.

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Emergency Responder Communications Coverage – Exemptions

510.1 Emergency responder communication coverage in new buildings.

Exceptions:

2. Where it is determined by the fire code official that the ~~radio~~ communications coverage system is not needed.
3. In facilities where emergency responder ~~radio~~ communications coverage is required and such systems, components or equipment required could have a negative impact on the normal operations of that facility, the fire code official shall have the authority to accept an automatically activated emergency responder radio communications coverage system.
4. One-story buildings not exceeding 12,000 square feet with no below ground area(s).

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Emergency Responder Communications Coverage – Permits

510.3 Permits. Permits for in-building, two-way emergency responder communication coverage systems shall be in accordance with Sections 510.3.1 and 510.3.2

510.3.1 Permit required. A construction permit for the installation of or modification to in-building emergency responder communications enhancement systems and related equipment is required as specified in Section 105.6.5. Maintenance performed in accordance with this code is not considered a modification and does not require a permit.

510.3.2 Operational permit. Where required by the fire code official, an operational permit shall be issued for the operation of an in-building two way emergency responder communications coverage system.

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Emergency Responder Radio Coverage – Industry Terminology

510.4.1.1 Minimum signal strength into the building. The minimum ~~inbound~~ downlink signal strength shall be sufficient to provide usable voice communications throughout the coverage area as specified by the *fire code official*. The ~~inbound~~ downlink signal level shall be ~~a minimum of 95dBm throughout the coverage area and~~ sufficient to provide not less than a Delivered Audio Quality (DAQ) of 3.0 throughout the coverage area using either narrowband analog, digital or wideband LTE signals or an equivalent Bit Error Rate (BER) or Signal-to-Interference-Plus-Noise Ratio (SINR) applicable to the technology for either analog or digital signals.

510.4.1.2 Minimum signal strength out of the building. The minimum ~~outbound~~ uplink signal strength shall be sufficient to provide usable voice communications throughout the coverage area as specified by the *fire code official*. The ~~outbound~~ uplink signal level shall be sufficient to provide not less than a Delivered Audio Quality (DAQ) of 3.0 using either narrowband analog, digital or wideband LTE digital signals or an equivalent Bit Error Rate (BER) or Signal-to-Interference-Plus-Noise Ratio (SINR) applicable to the technology for either analog or digital signals.

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Emergency Responder Radio Coverage – NFPA 1225

510.4.2 System design. The in-building emergency responder communications enhancement system shall be designed in accordance with Sections 510.4.2.1 through 510.4.2.8 and NFPA 1225 ~~1221~~.

510.5 Installation requirements. The installation of the in-building, two-way emergency responder communication coverage system shall be in accordance with NFPA 1225 ~~1221~~ and Sections 510.5.2 through 510.5.5.



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Emergency Responder Radio Coverage – Signal Booster Requirements

510.4.2.4 Signal booster requirements. If used, signal boosters shall meet the following requirements:

5. Active RF-emitting devices used for in-building, two-way emergency responder communication coverage systems shall have built-in oscillation detection and control circuitry to reduce gain and maintain operation. When a signal booster detects oscillation, a supervisory signal shall be transmitted. In the event of uncorrectable oscillation, the system shall be permitted to shut down.

6. The installation of amplification systems or systems that operate on or provide the means to cause interference on any in-building emergency responder communication enhancement system shall be coordinated and *approved* by the *fire code official* and the frequency license holder(s).

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2024 IFC and IBC

Automatic Sprinkler System – Monitoring and Visual Notification

903.4 Sprinkler system supervision and alarms.

903.4.2 Monitoring. Alarm, supervisory and trouble signals shall be distinctly different and shall be automatically transmitted to an approved supervising station or, where approved by the fire code official, shall sound an audible signal at a constantly attended location.

903.4.3 Alarms. An approved audible and visual sprinkler waterflow alarm device, located on the exterior of the building in an approved location, shall be connected to each automatic sprinkler system. Such sprinkler waterflow alarm devices shall be activated by water flow equivalent to the flow of a single sprinkler of the smallest orifice size installed in the system. Where a waterflow switch is required by Section 903.4.1 to be electrically supervised, such sprinkler waterflow alarm devices shall be powered by a fire alarm control unit or, where provided, a fire alarm system. Where a fire alarm system is provided, actuation of the automatic sprinkler system shall actuate the building fire alarm system.

Exception: Automatic sprinkler systems protecting one- and two-family dwellings.

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Fire Alarm System – Smoke Detection Placement

907.2.11 Single- and multiple-station smoke alarms. *Listed* single- and multiple-station smoke alarms complying with UL 217 shall be installed in accordance with Sections 907.2.11.1 through 907.2.11.7, NFPA 72, and the manufacturer's instructions.

907.2.11.3 Installation near cooking appliances. Smoke alarms shall ~~not~~ be installed a minimum of 10 ft (3.0 m) horizontally from a permanently installed cooking appliance ~~in the following locations unless this would prevent placement of a smoke alarm in a location required by Section 907.2.11.1 or 907.2.11.2:~~

1. ~~Ionization smoke alarms shall not be installed less than 20 feet (6096 mm) horizontally from a permanently installed cooking appliance.~~
2. ~~Ionization smoke alarms with an alarm-silencing switch shall not be installed less than 10 feet (3048 mm) horizontally from a permanently installed cooking appliance.~~
3. ~~Photoelectric smoke alarms shall not be installed less than 6 feet (1829 mm) horizontally from a permanently installed cooking appliance.~~

Exception: Smoke alarms shall be permitted to be installed a minimum of 6 ft. (1.8 m) horizontally from a permanently installed cooking appliance where necessary to comply with Section 907.2.11.1 or 907.2.11.2.

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2024 IPMC

Fire Alarm System – Smoke Detection Placement

704.6.1.3 Installation near cooking appliances. Smoke alarms shall ~~not~~ be installed a minimum of 10 ft. (3.0 m) horizontally from a permanently installed cooking appliance ~~in the following locations unless this would prevent placement of a smoke alarm in a location required by Section 704.6.1.1 or 704.6.1.2.~~

1. ~~Ionization smoke alarms shall not be installed less than 20 feet (6096 m) horizontally from a permanently installed cooking appliance.~~
2. ~~Ionization smoke alarms with an alarm-silencing switch shall not be installed less than 10 feet (3048 mm) horizontally from a permanently installed cooking appliance.~~
3. ~~Photoelectric smoke alarms shall not be installed less than 6 feet (1829 mm) horizontally from a permanently installed cooking appliance.~~

Exception: Smoke alarms shall be permitted to be installed a minimum of 6 ft. (1.8 m) horizontally from a permanently installed cooking appliance where necessary to comply with Section 704.6.1 or 704.6.2.

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2024 IFC and IBC

Fire Alarm System – Sleeping Room Requirements for Low Frequency

907.5.2.1.3 Audible alarm signal frequency in Group R-1, R-2 and I-1 sleeping rooms. Audible alarm signal frequency in Group R-1, R-2, and I-1 occupancies shall be in accordance with Sections 907.5.2.1.3.1 and 907.5.2.1.3.2.

907.5.2.1.3.1 Fire alarm system alarm **signal.** In sleeping rooms of Group R-1, R-2 and I-1 occupancies, the audible alarm signal activated by a fire alarm system shall be a 520-Hz low-frequency signal complying with NFPA 72.

907.5.2.1.3.2 Smoke alarm signal in sleeping rooms. In sleeping rooms of Group R-1, R-2, and I-1 occupancies that are required by Section 907.2.8 or 907.2.9 to have a fire alarm system, the audible alarm signal activated by single- or multiple-station smoke alarms in the dwelling unit or sleeping unit shall be a 520-Hz signal complying NFPA 72.

Where a sleeping room smoke alarm is unable to produce a 520-Hz signal, the 520-Hz alarm signal shall be provided by a listed notification appliance or a smoke detector with an integral 520-Hz sounder.

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Fire Alarm System – Smoke Alarm Maintenance and Replacement

907.10 Smoke alarm maintenance. Smoke alarms shall be tested and maintained in accordance with the manufacturer's instructions and this code. ~~Smoke alarms shall be replaced when they fail to respond to operability tests, or when they exceed 10 years from the date of manufacture, unless an earlier replacement is specified in the manufacturer's published instructions.~~

907.10.1 Replacement. Smoke alarms shall be replaced where any of the following apply.

1. The smoke alarm fails to respond to operability tests.
2. The smoke alarm exceeds 10 years from the date of manufacture marked on the unit, unless an earlier replacement is specified in the manufacturer's instructions.
3. The smoke alarm end-of-life signal is sounded.
4. The smoke alarm date of manufacture cannot be determined.

Where the replacement of smoke alarms is required by this section, smoke alarms shall not be required to include the 520-Hz signal unless the smoke alarms to be replaced include that signal.

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2024 IFC and IBC

Carbon Monoxide (CO) Detection

915.1 General. Carbon monoxide detection shall be installed in new buildings in accordance with ~~Sections 915.1.1 through 915.6~~ Section 915.1.1. Carbon monoxide detection shall be installed in existing buildings in accordance with Section 1103.9.

Exception: Carbon monoxide detection is not required in Group S, Group F and Group U occupancies that are not normally occupied.

915.1.1 Where required. Carbon monoxide detection shall be installed ~~provided in Group I-1, I-2, I-4 and R occupancies and in classrooms in Group E occupancies~~ in the locations specified in Section 915.2 where any of the following conditions ~~in Sections 915.1.2 through 915.1.6~~ exist.

1. In buildings that contain a CO source.
2. In buildings that contain or are supplied by a CO producing forced -air furnace
3. In buildings with attached private garages
4. In buildings that have a CO producing vehicle that is used within the building

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Carbon Monoxide (CO) Detection, continued

915.3.1 Alarm limitations. Carbon monoxide alarms shall only be installed in dwelling units and in sleeping units. They shall not be installed in locations where the code requires carbon monoxide detectors to be used.

915.3.2 Fire alarm system required. New buildings that are required by Section 907.2 to have a fire alarm system and where carbon monoxide detectors are required by Section 915.2, they shall be connected to the fire alarm system in accordance with NFPA 72.

915.3.3 Fire alarm systems not required. New buildings that are not required by Section 907.2 to have a fire alarm system, carbon monoxide detection shall be provided by one of the following:

1. Carbon monoxide detectors connected to an approved carbon monoxide detection system in accordance with NFPA 72.
2. Carbon monoxide detectors connected to an approved combination system in accordance with NFPA 72.
3. Carbon monoxide detectors connected to an approved fire alarm system in accordance with NFPA 72.
4. Where approved by the fire code official , carbon monoxide alarms are permitted to be installed where maintained in accordance with the manufacturer's instructions.

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2024 IFC and IBC

Carbon Monoxide (CO) Detection, continued

915.5.4 Occupant notification. Activation of a carbon monoxide detector shall annunciate at the control unit and shall initiate audible and visible alarm notification throughout the building.

Exception: Occupant notification is permitted to be limited to the area where the carbon monoxide alarm signal originated and other signaling zones in accordance with the fire safety plan, provided that the alarm signal from an activated carbon monoxide detector is automatically transmitted to an approved on-site location or off-premises location.

915.5.5 Duct detection. Carbon monoxide detectors placed in environmental air ducts or plenums shall not be used as a substitute for the required protection in Section 915 of the Code.

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Mass Notification Risk Analysis

917.1 College and university campuses. Prior to construction of a new building requiring a fire alarm system on a multiple-building college or university campus having a cumulative building *occupant load* of 1,000 or more, a mass notification risk analysis shall be conducted in accordance with NFPA 72. Where the risk analysis determines a need for mass notification, an *approved* mass notification system shall be provided in accordance with the findings of the risk analysis.

917.2 Group E Occupancies. Prior to construction of a new building containing a Group E occupancy requiring a fire alarm system having an occupant load of 500 or more, a mass notification risk analysis shall be conducted in accordance with NFPA 72. Where the risk analysis determines a need for mass notification, an approved mass notification system shall be provided in accordance with the findings of the risk analysis.

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2024 IFC and IBC

Area of Rescue Assistance

1032.8 Inspection, testing and maintenance. ~~Two-way communication systems shall be inspected and tested on a yearly basis to verify that all components are operational. Where required, the tests shall be conducted in the presence of the fire code official. Records of inspection, testing and maintenance shall be maintained.~~ The inspection, testing and maintenance for two-way communication systems shall be in accordance with this code and NFPA 72, and shall not be conducted less than annually or more frequently where required by the fire code official.

1032.8.1 Records. Records of inspections, testing and maintenance shall be maintained on site in an *approved* cabinet at the command center or a location approved by the *fire code official*.

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2024 IFC

Energy Storage Systems (ESS)

SECTION 1107 ENERGY STORAGE SYSTEMS

1107.1 Lithium-ion technology energy storage systems. The owner of an energy storage system (ESS) utilizing lithium-ion battery technology having capacities exceeding the values in Table 1207.1.1 and that was installed prior to the jurisdiction's adoption of the 2018 or later edition of the *International Fire Code* shall provide the *fire code official* a failure modes and effects analysis (FMEA) or other approved hazard mitigation analysis in accordance with Section 104.8.2 for review and approval.

Exception: Detached one- and two-family dwellings and townhouses

1107.1.1 Early detection. In addition to the requirements of Section 1207.1.4.1 and 1207.1.4.2, the analysis shall include an assessment of the ability of the installed protection systems to provide for early detection and notification of a thermal runaway event in relation to the ability of emergency responders to safely mitigate the size and impact of a thermal runaway event.

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2024 IFC and IBC

Energy Storage Systems (ESS), continued

1107.1.2 Corrective action plan. Where hazards are identified by the analysis, a plan that includes a timetable for corrective action shall be submitted to the *fire code official* for review and approval. The plan shall include actions and system improvements necessary for eliminating or mitigating any identified hazards, including listed methods for early detection and notification of a thermal runaway event.

907.2.2 Group B.

907.2.2.2 Laboratories involving research and development or testing. A fire alarm system activated by an air sampling-type smoke detection system, or a radiant energy-sensing detection system shall be installed throughout the entire fire area utilized for the research and development or testing of lithium-ion or lithium metal batteries.

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2024 IFC and IBC

Energy Storage Systems (ESS), continued

907.2.4 Group F.

907.2.4.1 Manufacturing involving lithium-ion or lithium metal batteries. A fire alarm system activated by an air sampling-type smoke detection system, or a radiant energy-sensing detection system shall be installed throughout the entire fire area where lithium-ion or lithium metal batteries are manufactured; and where the manufacturer of vehicles, energy storage systems or equipment containing lithium-ion or lithium metal batteries where the batteries are installed as part of the manufacturing process.

907.2.7 Group M. Fire alarm systems shall be required in Group M occupancies in accordance with Sections 907.2.7.1 and 907.2.7.2:

907.2.7.2 Storage of lithium-ion or lithium metal batteries. A fire alarm system activated by an air sampling-type smoke detection system, or a radiant energy-sensing detection system shall be installed in a room or space within a Group M occupancy where required for the storage of lithium-ion, or lithium metal batteries by Section 321.

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2024 IFC and IBC

Energy Storage Systems (ESS), continued

907.2.10 Group S

907.2.10.2 Storage of lithium-ion or lithium metal batteries. A fire alarm system activated by an air sampling-type smoke detection system, or a radiant energy-sensing detection system shall be installed throughout the entire fire area where required for the storage of lithium-ion batteries or lithium metal batteries By Section 321of this code.

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2024 IEBC

Carbon Monoxide (CO) Detection

308.1 Carbon monoxide detection. Where an *addition*, *alteration*, *change of occupancy* or relocation of a building is made to an existing building ~~Group I-1, I-2, I-4 and R occupancies and classrooms of Group E occupancies,~~ the *existing building* shall be provided with carbon monoxide detection in accordance with the *International Fire Code* or Section R315 of the *International Residential Code*.

Exceptions:

1. Work involving the exterior surfaces of buildings, such as the replacement of roofing or siding, the addition or replacement of windows or doors, or the addition of porches or decks.
2. Installation, alteration or *repairs* of plumbing or mechanical systems, other than fuel-burning appliances.
3. Work classified as Level 1 *Alterations* in accordance with Chapter 7.
4. In Group I-2 occupancies, carbon monoxide detection is not required in each sleeping unit where carbon monoxide detection, which transmits an alarm signal to an approved location, is provided in each space containing a carbon monoxide source.

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2024 IEBC

Monitoring of Sprinkler Systems

904.1.8 Supervision and Alarms. Where an automatic sprinkler system is required by Sections 904.1.1 through 904.1.7 such systems shall be provided with supervision and alarms in accordance with Section 903.4 of the International Building Code.

Emergency Responder Radio Coverage

SECTION 908 EMERGENCY RESPONDER COMMUNICATIONS ENHANCEMENT SYSTEM COVERAGE

908.1 Emergency responder communication enhancement system coverage. The existing building shall undergo an evaluation of the emergency responder communication signal strength and coverage area within the entire building in accordance with Sections 908.1.1 and 908.1.2.

Exception: Where it is determined by the fire code official that the emergency responder communication enhancement system (ERCES) is not needed.

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2024 IEBC

Emergency Responder Radio Coverage, continued

908.1.1 Evaluation. The evaluation shall determine the current signal strength and coverage capabilities of the public safety communication systems utilized by the jurisdiction, measured at the exterior of the building.

908.1.2 Compliance. The evaluation report shall be submitted for approval by the fire code official and the frequency license holder. Where the coverage area, signal strength or DAQ does not comply with Section 510 of the International Fire Code, the existing building shall be provided with ERCES coverage. The fire code official is authorized to establish the timeframe for such installation or modification.

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2024 NFPA Code Changes

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2024 NFPA 101

Area of Rescue Assistance

Chapter 7 – Means of Egress

7.2.12.2 Accessibility.

7.2.12.2.1 Required portions of an area of refuge shall be accessible from the space they serve by an accessible means of egress.

7.2.12.2.5 The area of refuge shall be provided with a two-way communication system for communication between the area of refuge and a central control point. The door opening to the stair enclosure or the elevator door and the associated portion of the area of refuge that the stair enclosure door opening, or elevator door serves shall be identified by signage.

7.2.12.2.6 Newly installed two-way communication systems shall be listed in accordance with UL 2525, Standard for Two-Way Emergency Communications Systems for Rescue Assistance, and installed in accordance with NFPA 72.

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2024 NFPA 101

Fire Alarm System – Smoke Detection Placement

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

9.6.2.10 Smoke Alarms.

9.6.2.10.4 The installation of smoke alarms and smoke detectors near stationary or fixed cooking appliances shall be in accordance with NFPA 72.

~~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:~~

~~1) The kitchen or cooking area and adjacent spaces have no clear interior partitions or headers.~~

~~2) 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)]~~

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2024 NFPA 101

Carbon Monoxide (CO) Detection

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.

9.12.1* Carbon monoxide detectors that are installed in air duct systems shall not be used as a substitute for open area protection. [72:17.12.3]

A.9.12.1 At present there is no product performance listing for duct-mounted carbon monoxide detectors because there is no peer-reviewed research to determine what the alarm thresholds for duct-mounted carbon monoxide detectors should be. There are considerable differences between the operation of a spot-type carbon monoxide detector and a duct-mounted carbon monoxide detector. The environment in ducts can be very harsh and could impact the carbon monoxide detector's sensing element. Furthermore, in most buildings, there are periods when the HVAC system is not moving significant quantities of air from the compartments it serves. As a result, the carbon monoxide detection system cannot be designed to rely on the HVAC system operation for the transport of carbon monoxide to the carbon monoxide detectors. [72:A.17.12.3]

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2024 NFPA 101

Emergency Responder Communications Coverage

9.15* ~~Two-Way Radio~~ In-Building Emergency Responder Communications Enhancement Systems.

9.15.1 Where provided, ~~two-way radio~~ in-building emergency responder communication enhancement systems shall comply with the design, installation, testing, inspection, and maintenance requirements of ~~be in accordance with~~ NFPA ~~1221~~ 1225.

9.15.2 In new buildings, minimum ~~radio~~ in-building emergency responder communications enhancement system signal strength ~~for fire department communications~~ shall be in accordance with NFPA ~~1221~~ 1225.

9.15.3* In existing buildings, ~~radio signal strength for fire department communications~~ the minimum in-building emergency responder communications enhancement signal strength shall be as required by the authority having jurisdiction.

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2024 NFPA 101

Fire Alarm System – Emergency Voice/alarm Communication (EVAC) System

Chapter 15 - Existing Educational Occupancies

15.3.4.3 Notification.

15.3.4.3.1 Occupant Notification.

15.3.4.3.1.1* Occupant notification shall be accomplished automatically in accordance with 9.6.3.

15.3.4.3.1.2* When an existing fire alarm control unit or system in a building is replaced, the occupant notification required by 15.3.4.3.1.1 shall use an emergency voice/alarm communication system in accordance with 9.6.3 where the building has an occupant load of more than 100.

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2024 NFPA 101

Carbon Monoxide (CO) Detection

Chapter 16 – New Day-Care Occupancies

16.3.4.5.1 Carbon Monoxide Detection Systems.

16.3.4.5.1.1 Carbon monoxide detectors in accordance with Section 9.12 shall be provided in new day-care occupancies in the locations specified as follows:

1) Carbon monoxide detectors shall be installed on the ceilings of rooms containing permanently installed fuel-burning appliances.
2) Carbon monoxide detectors shall be installed centrally located within occupiable spaces served by the first supply air register from a permanently installed, fuel-burning HVAC system.
3) Carbon monoxide detectors shall be installed centrally located within occupiable spaces adjacent to a communicating attached garage.
4) Carbon monoxide detectors shall be installed centrally located within occupiable spaces adjacent to an attached garage with a separation wall constructed of gypsum panels.

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2024 NFPA 101

Carbon Monoxide (CO) Detection

Chapter 16 – New Day-Care Occupancies, continued

16.3.4.5.1.2 Where carbon monoxide detectors are installed in accordance with 16.3.4.5.1.1(1), the alarm signal shall be automatically transmitted to an approved on-site location or to an off-premises location in accordance with NFPA 72.

16.3.4.5.1.3 Carbon monoxide detectors as specified in 16.3.4.5.1.1 shall not be required in the following locations:

1) Garages
2) Occupiable spaces with communicating attached garages that are open parking structures as defined in 3.3.293.8.2
3) Occupiable spaces with communicating attached garages that are mechanically ventilated in accordance with the applicable mechanical code
4) Occupiable spaces that are separated from attached garages by walls constructed of gypsum panels where the garage is an open parking structure as defined in 3.3.293.8.2
5) Occupiable spaces that are separated from attached garages by walls constructed of gypsum panels where the garage is mechanically ventilated in accordance with the mechanical code

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2024 NFPA 101

Carbon Monoxide (CO) Detection

Chapter 17 – Existing Day-Care Occupancies

17.3.4.5.1 Carbon Monoxide Detection Systems. Carbon monoxide detectors in accordance with Section 9.12 shall be provided in existing day-care occupancies in the locations specified as follows:

1) Carbon monoxide detectors shall be installed on the ceilings of rooms containing permanently installed fuel-burning appliances.
2) Carbon monoxide detectors shall be installed centrally located within occupiable spaces served by the first supply air register from a permanently installed, fuel-burning HVAC system.
3) Carbon monoxide detectors shall be installed centrally located within occupiable spaces adjacent to a communicating attached garage.
4) Carbon monoxide detectors shall be installed centrally located within occupiable spaces adjacent to an attached garage with a separation wall constructed of gypsum panels.

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2024 NFPA 101

Carbon Monoxide (CO) Detection

Chapter 17 – Existing Day-Care Occupancies, continued

17.3.4.5.2 Where carbon monoxide detectors are installed in accordance with 17.3.4.5.1(1), the alarm signal shall be automatically transmitted to an approved on-site location or to an off-premises location in accordance with NFPA 72.

17.3.4.5.3 Carbon monoxide detectors as specified in 17.3.4.5.1 shall not be required in the following locations:

1) Garages
2) Occupiable spaces with communicating attached garages that are open parking structures as defined in 3.3.293.8.2
3) Occupiable spaces with communicating attached garages that are mechanically ventilated in accordance with the applicable mechanical code
4) Occupiable spaces that are separated from attached garages by walls constructed of gypsum panels where the garage is an open parking structure as defined in 3.3.293.8.2
5) Occupiable spaces that are separated from attached garages by walls constructed of gypsum panels where the garage is mechanically ventilated in accordance with the mechanical code

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2024 NFPA 101

Carbon Monoxide (CO) Detection

Chapter 18 – New Health Care Occupancies

18.3.4.6 Carbon Monoxide Detection.

18.3.4.6.1* Carbon monoxide detection, where required by 18.3.4.6.2(1), shall be in accordance with Section 9.12.

18.3.4.6.2 Carbon monoxide detection shall be provided in the following locations:

1) Carbon monoxide detectors shall be installed on the ceilings of rooms containing permanently installed fuel-burning appliances, including fireplaces.
2) Carbon monoxide detectors shall be installed within 36 in. (910 mm) of the first supply air register from a permanently installed, fuel-burning HVAC system.

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Carbon Monoxide (CO) Detection

Chapter 20 – New Ambulatory Health Care Occupancies

20.3.4.5 Carbon Monoxide Detection.

20.3.4.5.1* Carbon monoxide detection, where required by 20.3.4.5.2, shall be in accordance with Section 9.12.

20.3.4.5.2 Carbon monoxide detection shall be provided in the following locations:

1) Carbon monoxide detectors shall be installed on the ceilings of rooms containing permanently installed fuel-burning appliances, including fireplaces.
2) Carbon monoxide detectors shall be installed within 36 in. (910 mm) of the first supply air register from a permanently installed, fuel-burning HVAC system.

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Carbon Monoxide (CO) Detection

Chapter 22 – New Detection and Correctional Occupancies

22.3.4.5 Carbon Monoxide Detection.

22.3.4.5.1 New detention and correctional occupancies shall be provided with carbon monoxide detection and warning equipment in accordance with Section 9.12 in all of the following locations:

1) On the ceilings of rooms containing permanently installed fuel-burning appliances or fuel-burning fireplaces
2) Centrally located within occupiable spaces served by the first supply air register from permanently installed fuel-burning HVAC systems
3) *Centrally located within occupiable spaces adjacent to an attached garage that contains equipment that could produce carbon monoxide

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Carbon Monoxide (CO) Detection

Chapter 22 – New Detection and Correctional Occupancies, continued

22.3.4.5.2 Carbon monoxide detectors as specified in 22.3.4.5.1 shall not be required in any of the following locations:

1) Garages
2) Occupiable spaces with attached garages that are open parking structures as defined in 3.3.293.8.2.
3) Occupiable spaces with attached garages that are mechanically ventilated in accordance with the mechanical code

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Carbon Monoxide (CO) Detection

Chapter 23 – Existing Detection and Correctional Occupancies

23.3.4.5 Carbon Monoxide Detection.

23.3.4.5.1 New detention and correctional occupancies shall be provided with carbon monoxide detection and warning equipment in accordance with Section 9.12 in all of the following locations:

1) On the ceilings of rooms containing permanently installed fuel-burning appliances or fuel-burning fireplaces
2) Centrally located within occupiable spaces served by the first supply air register from permanently installed fuel-burning HVAC systems
3) *Centrally located within occupiable spaces adjacent to an attached garage that contains equipment that could produce carbon monoxide

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Carbon Monoxide (CO) Detection

Chapter 23 – Existing Detection and Correctional Occupancies, continued

23.3.4.5.2 Carbon monoxide detectors as specified in 23.3.4.5.1 shall not be required in any of the following locations:

1) Garages
2) Occupiable spaces with attached garages that are open parking structures as defined in 3.3.293.8.2.
3) Occupiable spaces with attached garages that are mechanically ventilated in accordance with the mechanical code

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Carbon Monoxide (CO) Detection

Chapter 24 – Existing One- and Two-Family Dwellings

24.3.4.2.1 Carbon monoxide alarms or carbon monoxide detectors in accordance with Section 9.12 and 24.3.4.2 shall be provided in new and existing one- and two-family dwellings where either of the following conditions exists:

1) Dwelling units with communicating attached garages, unless otherwise exempted by 24.3.4.2.3
2) Dwelling units containing fuel-burning appliances or fuel-burning fireplaces

24.3.4.2.2* Where required by 24.3.4.2.1, carbon monoxide alarms or carbon monoxide detectors shall be installed in the following locations:

1) Outside of each separate dwelling unit sleeping area in the immediate vicinity of the sleeping rooms
2) On every occupiable level of a dwelling unit, including basements, and excluding attics and crawl spaces

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Carbon Monoxide (CO) Detection

Chapter 26 – Existing Lodging or Rooming Houses

26.3.4.6.1 Carbon monoxide alarms or carbon monoxide detectors in accordance with Section 9.12 and 24.3.4.6 shall be provided in new and existing one- and two-family dwellings where either of the following conditions exists:

1) Dwelling units with communicating attached garages, unless otherwise exempted by 2.3.4.6.3
2) Dwelling units containing fuel-burning appliances or fuel-burning fireplaces

26.3.4.6.2* Where required by 26.3.4.6.1, carbon monoxide alarms or carbon monoxide detectors shall be installed in the following locations:

1) Outside of each separate dwelling unit sleeping area in the immediate vicinity of the sleeping rooms
2) On every occupiable level of a dwelling unit, including basements, and excluding attics and crawl spaces

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Carbon Monoxide (CO) Detection

Chapter 31 – Existing Apartment Buildings

31.3.4.6 Carbon Monoxide Alarms and Carbon Monoxide Detection Systems.

31.3.4.6.1 Carbon monoxide alarms or carbon monoxide detectors in accordance with Section 9.12 and 31.3.4.6 shall be provided in existing apartment buildings where either of the following conditions exists:

1) Dwelling units with communicating attached garages, unless otherwise exempted by 31.3.4.6.3
2) Dwelling units containing a permanently installed fuel-burning appliance or fuel-burning fireplace

31.3.4.6.2 Where required by 31.3.4.6.1, carbon monoxide alarms or carbon monoxide detectors shall be installed in the following locations:

1) Outside of each separate dwelling unit sleeping area in the immediate vicinity of the sleeping rooms
2) On every occupiable level of a dwelling unit

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Carbon Monoxide (CO) Detection

Chapter 31 – Existing Apartment Buildings, continued

31.3.4.6.3 Carbon monoxide alarms and carbon monoxide detectors as specified in 31.3.4.6.1(1) shall not be required in the following locations:

1) In garages
2) Within dwelling units with communicating attached garages that are open parking structures as defined by the building code
3) Within dwelling units with communicating attached garages that are mechanically ventilated in accordance with the mechanical code

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Carbon Monoxide (CO) Detection

Chapter 31 – Existing Apartment Buildings, continued

31.3.4.6.4* Where fuel-burning appliances or fuel-burning fireplaces are installed outside dwelling units, carbon monoxide detectors shall be installed in accordance with the manufacturer's published instructions in the locations specified as follows:

1) On the ceilings of rooms containing permanently installed fuel-burning appliances or fuel-burning fireplaces
2) Centrally located position within occupiable spaces served by the first supply air register from a permanently installed, fuel-burning HVAC system
3) Centrally located position within occupiable spaces adjacent to a communicating attached garage

31.3.4.6.5 Where carbon monoxide detectors are installed in accordance with 31.3.4.6.4, the alarm signal shall be automatically transmitted to an approved on-site location or to an off-premises location in accordance with NFPA 72.

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2024 NFPA 1

Emergency Responder Communications Coverage

11.10* In-Building Emergency Responder Communication Enhancement Systems.

11.10.1 Permits.

11.10.1.1 Where required by the AHJ, an installation permit shall comply with Section 1.13.

11.10.1.2 Where required by the AHJ, a renewable permit in accordance with ~~9.6.6.2~~ 18.7.7 of NFPA ~~1221~~ 1225 shall be issued at the conclusion of successful acceptance testing.

11.10.2* In all new and existing buildings, an approved emergency communication enhancement system shall be installed where the minimum radio signal strength ~~for emergency services department communications shall be maintained at a level determined by the AHJ~~ into the building cannot be maintained in accordance with NFPA 1225.

11.10.3 In-building emergency responder communication enhancement systems shall comply with the design, installation, testing, inspection, and maintenance requirements in NFPA ~~1221~~ 1225.

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2024 NFPA 1

Emergency Responder Communications Coverage, continued

11.10.4 Listed and Labeled. In-building emergency responder communication enhancement systems installed within buildings shall be listed and labeled in accordance with UL ~~1221~~ 2524, In-building 2-Way Emergency Radio Communication Enhancement Systems.

NOTE: Requirements relating to lightning protection, oscillation detection and control, minimum signal strength into the building, antenna(s), and acceptance test procedure were delated because these requirements are covered in NFPA 1225.

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Time for Questions!



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Questions

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