NFPA 72® 2019 Edition
Summary of Changes

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AFAA and CCFS Board of Directors
AFAA Codes & Standards Steering Committee
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Contact alex@afaa.org with any questions
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Currently, Mr. Roberts is a member of eight NFPA Technical Committees. He serves on the Board of Directors for the Automatic Fire Alarm Association (AFAA), the Board of Directors for the Center for campus Fire Safety and Chair of the NEMA Building Codes Committee.
Agenda

• **Summary of Changes to NFPA 72 – 2019 Edition:**
  - Global Change Relating to Carbon Monoxide (CO)
  - Chapter 7: Documentation
  - Chapter 10: Fundamentals
  - Chapter 17: Initiating Devices
  - Chapter 18: Notification Appliances
  - Chapter 23: Protected Premises Alarm and Signaling Systems
  - Chapter 24: Emergency Communication Systems
  - Chapter 26: Supervising Station Alarm Systems
  - Chapter 29: Alarms and Household Alarm Systems

• **Q&A**
Introduction

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

• Presentation will not cover all the revisions, editorial changes, details, requirements or exceptions

• Highly recommend purchasing a copy of the NFPA 72 Code or the Handbook for all the changes, requirements and details:
  - www.nfpa.org
Introduction

• 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

• FR and SR references
Summary of Changes to 2019 Edition of NFPA 72®
Carbon Monoxide (CO) Global Change

• In 2015 the NFPA Standards Council approved a project to merge NFPA 720 into NFPA 72 because the two standards have similar requirements

• Every new edition of NFPA 720 updating of extracts from NFPA 72 is very time consuming effort that is prone to error for both NFPA Staff and the Technical Committee

• The scope and title of NFPA 72 was intentionally changed in 2010 to include CO as well as other signaling needs
Chapter 7 - Documentation

7.7.2.3* All record documentation shall be stored in the documentation cabinet. **No record documentation shall be stored in the control unit.**

A.7.7.2.3 The intent is that paper and/or electronic documents should not be stored inside the control unit because control units are not typically approved for the storage of combustible material.

FR 1031
FR 1032
Chapter 10 - Fundamentals

10.4.4* Unless otherwise permitted by the authority having jurisdiction, control unit displays, visible indicators, or controls shall be mounted such that the distance to the highest switch, lamp, or textual display does not exceed 6 ft (1.8m) above the finished floor, and the lowest switch, lamp, or textual display shall not be less than 15 in. (375 mm) above the finished floor.

FR-1017
SR-1003
Chapter 10 - Fundamentals

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10.4.5* Unless otherwise permitted by 10.4.6, in areas that are not continuously occupied, **early warning fire detection** an automatic smoke detector shall be provided at the location of each control unit(s), notification appliance circuit power extender(s), and supervising station transmitting equipment to provide notification of fire at that location **by one of the following means:**

1) An automatic smoke detector at the location of each control unit(s), notification appliance circuit power extender(s), and supervising station transmitting equipment.

2) **An automatic heat detector where ambient conditions prohibit installation of an automatic smoke detector.**

*Exception: Where ambient conditions prohibit installation of an automatic smoke detector, an automatic heat detector shall be permitted.*
Chapter 10 - Fundamentals

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**10.4.6** Smoke or heat detector(s) shall not be required to be installed at the location of dedicated function(s) fire alarm control unit(s) that are not required to provide local or supervising station notification signals.

FR-1018
SR-1026
Chapter 10 - Fundamentals

10.17 Notification Appliance Circuits and Control Circuits.

10.17.3 Control circuits shall not be required to comply with 10.16.1, provided that the circuit is monitored used for the purpose of controlling NAC extender panels shall comply with all of the following:

1. The NAC extender panel(s) connected to the control circuit shall not serve more than one notification zone
2. The control circuit shall be monitored for integrity in accordance with Section 12.6.
3. A fault in the control circuit installation conductors shall result in a trouble signal in accordance with Section 10.15.
Chapter 17 – Initiating Devices

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17.7.3.6 Air Sampling–Type Smoke Detector.

17.7.3.6.1 General.

17.7.3.6.1.1* In the absence of specific performance-based design criteria, each sampling port of an air sampling–type smoke detector shall be treated as a spot-type smoke detector for the purpose of location and spacing in accordance with 17.7.3.

17.7.3.6.1.2 Air sampling–type smoke detectors shall produce trouble signals if the airflow is outside the manufacturer’s specified range.

Note: Relocated from 17.7.3.6.5
17.7.3.6.1.3 If provided, atmospheric contaminant filtration shall be listed for use with the detector and installed and maintained in accordance with the air sampling–type smoke detector manufacturer’s published instructions.

17.7.3.6.2 Pipe Network.

17.7.3.6.2.1 Maximum air sample transport time from the farthest sampling port to the detector shall not exceed 120 seconds.

Note: Relocated from 17.7.3.6.2
Chapter 17 – Initiating Devices

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17.7.3.6.2.2 Sampling pipe networks shall be designed on the basis of, and shall be supported by, computer-based fluid dynamics design calculations to ensure required performance.

Note: Relocated from 17.7.3.6.3

17.7.3.6.2.3 The sampling pipe network design calculations shall include pressure, volumetric flow, and alarm sensitivity at each sampling port.

Note: Relocated from 17.7.3.6.4

17.7.3.6.2.4 Software applications for the design of pipe networks shall be listed for use with the manufacturer’s equipment.
Chapter 17 – Initiating Devices

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17.7.3.6.2.5 Sampling system piping shall be conspicuously identified as “SMOKE DETECTOR SAMPLING TUBE — DO NOT DISTURB,” as follows:

1) At changes in direction or branches of piping
2) At each side of penetrations of walls, floors, or other barriers
3) At intervals on piping that provide visibility within the space, but no greater than 20 ft (6.1 m)

Note: Relocated from 17.7.3.6.8

17.7.3.6.2.6* Sampling ports shall be identified as such.
Chapter 17 – Initiating Devices

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17.7.3.6.2.7* If provided, test ports at the end (most remote location) of a pipe run installed in the pipe network solely for the purpose of validating consistency in performance (also referred to as benchmark test points) shall be included in the design calculations and allowed, but not required, to comply with the requirements of 17.7.3.6.2.

17.7.3.6.2.8 If the piping and fittings are painted, the painting shall be performed in accordance with the air sampling–type smoke detector manufacturer’s published instructions.

17.7.3.6.2.9* Pipe network materials, sizing, and installation shall be in accordance with the manufacturer’s published requirements and suitable for use in the environment in which they are installed.
Chapter 17 – Initiating Devices

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17.7.3.6.2.10 Where used, capillary tubing shall be sized and affixed in accordance with the manufacturer’s published instructions and computer-based design calculations.

17.7.3.6.3 Installation and Spacing.

17.7.3.6.3.1* Air sampling pipe network fittings shall be installed air-tight and permanently affixed.

Note: Relocated from 17.7.3.6.7
Chapter 17 – Initiating Devices

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17.7.3.6.3.2 Sampled air shall be exhausted to a lessor or equal pressure zone. The pressure differential between the sampled air and detector exhaust shall not exceed the manufacturer’s published instructions.

17.7.3.6.3.3* Supports for sampling pipe shall be in accordance with the air sampling–type smoke detector manufacturer’s published instructions.
Chapter 17 – Initiating Devices

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17.7.3.6.4.1 Air Duct Applications.
A. The air sampling system shall be listed for air duct applications and shall be installed in accordance with the manufacturer’s published instructions.
B. The inlet and exhaust sections of pipe that are installed inside the air duct shall be air-tight and shall exhaust the sampled air in accordance with the manufacturer’s published instructions.

17.7.3.6.4.2* Electrical Cabinet Applications. For protection of cabinets containing electrical equipment, the air sampling ports shall be located in the main airflow at the exhaust vents, downstream of the airflow distribution path, or in accordance with the manufacturer’s published instructions.
Join us in Orlando at the Hilton-Lake Buena Vista, May 14-17 for our Annual Meeting and Codes Conference

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We will be issuing CEUs for the education sessions that we are providing during this conference.

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• This year … Expanded Exhibits - 1.5 days, 2 Evening Networking Receptions, Lunch & Learns and meals with attendees.
• Town Meeting - last year was with Directors from AFAA and CCFS (on FaceBook).
• Join us! Registration will open end April.

Contact SupportTeam@campusfiresafety.org for any questions
Chapter 17 – Initiating Devices

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17.12 Carbon Monoxide Detectors.

17.12.1 Where required by other governing laws, codes, or standards, carbon monoxide detectors shall be installed in accordance with the following:

1) On the ceiling in the same room as permanently installed fuel-burning appliances, and

2) * Centrally located on every habitable level and in every HVAC zone of the building, and

3) Outside of each separate dwelling unit, guest room, and guest suite sleeping area within 21 ft (6.4 m) of any door to a sleeping room, with the distance measured along a path of travel, and

4) Other locations where required by applicable laws, codes, or standards, or

5) A performance-based design in accordance with Section 17.3
Chapter 17 – Initiating Devices

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17.12.2 Carbon monoxide detectors shall meet the following requirements:

1) Carbon monoxide detectors shall be listed in accordance with applicable standards, such as ANSI/UL 2075, *Gas and Vapor Detectors and Sensors*

2) Carbon monoxide detectors shall be set to respond to the sensitivity limits specified in ANSI/UL 2034, *Standard for Single and Multiple Station Carbon Monoxide Alarms*.

17.2.3 All carbon monoxide detectors shall be located and mounted so that accidental operation will not be caused by jarring or vibration.

17.2.4 The location of carbon monoxide detectors shall be based on an evaluation of potential ambient sources and flows of carbon monoxide, moisture, temperature, dust, or fumes and of electrical or mechanical influences to minimize nuisance alarms.
Chapter 18 – Notification Appliances

18.4.3.1 Where a carbon monoxide detector or alarm is required by other codes or standards or by the authority having jurisdiction and where an audible signal is required, a distinctive signal pattern shall be required that is different from a fire evacuation signal.

18.4.3.2 Where an audible signal is required, the carbon monoxide signal shall be a four-pulse temporal pattern and comply with the following:

1) Signals shall be a pattern consisting of four cycles of 100 milliseconds ± 10 percent “on” and 100 milliseconds ± 10 percent “off,” followed by 5 seconds ± 10 percent “off.” as demonstrated in Figure 18.4.3.2.

2) After the initial 4 minutes of the carbon monoxide signal, the 5-second “off” time shall be permitted to be changed to 60 seconds ± 10 percent.

3) The alarm signal shall be repeated in compliance with 18.4.3.2(1) and 18.4.3.2(2) until the alarm resets or the alarm signal is manually silenced.
Chapter 18 – Notification Appliances

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18.5.3.2 The maximum light pulse duration shall be 20 milliseconds with a maximum duty cycle of 40 percent, except as permitted in 18.5.3.3.

    Exception: Lights used to meet the requirements of 18.5.5.5 shall be permitted to be listed and labeled to have pulse durations up to 100 milliseconds.

18.5.3.3* Light pulse durations greater than 20 milliseconds, but not greater than 100 milliseconds, shall be permitted where the alerting capability of the visual notification appliance is demonstrated to be equal to or greater than visual notification appliances with a 20-millisecond pulse duration.
Chapter 23 Protected Premises Fire Alarm and Signaling Systems

23.1.1* The application, installation, and performance of fire alarm and signaling systems within protected premises shall comply with the requirements of this chapter.

A.23.1.1 It is intended that fire alarm and signaling systems and their components be covered by Chapter 23, such as fire alarm, mass notification, carbon monoxide, and other signaling systems.
Chapter 23 – Protected Premises Alarm and Signaling Systems

23.8.4.9* Carbon Monoxide Detector Signals. **Signals** Unless otherwise permitted by 23.8.4.9.1, signals from carbon monoxide detectors and carbon monoxide detection systems transmitted to a fire alarm system shall be indicated as a carbon monoxide alarm signal.

Exception: When in accordance with the emergency response plan, evacuation plan, fire safety plan, or similar documentation, signals from carbon monoxide detectors and carbon monoxide detection systems transmitted to a fire alarm system shall be permitted to be supervisory signals.

23.8.4.9.1 When in accordance with the emergency response plan, evacuation plan, fire safety plan, or similar documentation, signals from carbon monoxide detectors and carbon monoxide detection systems transmitted to a fire alarm system shall be permitted to be supervisory signals.

SR-3006
Chapter 23 – Protected Premises Alarm and Signaling Systems

23.8.6.1.2 Except as permitted in 23.8.6.1.3, occupant notification of carbon monoxide systems shall be throughout the protected premises.

23.8.6.1.3 Where carbon monoxide alarm signals are transmitted to a constantly attended on-site location or off-premises location in accordance with this chapter, selective public mode occupant notification shall be permitted to be limited to the notification zone encompassing the area where the carbon monoxide alarm signal was initiated.

23.8.6.3.3* The boundaries of carbon monoxide alarm notification zones shall be coincident with the area where the alarm initiation originated and other signaling zones in accordance with the building’s emergency response plan.

SR-3053
2019 AFAA Annual Breakfast

Join us in San Antonio, TX on June 18th from 7:00 AM - 9:00 AM at the Grand Hyatt – connected to the Henry B. Gonzalez Convention Center

Our topic this year is: Hostile Event Preparedness and Emergency Communication/Fire Alarm System Response

Please visit: https://www.afaa.org/2019-annual-breakfast-information for more information

Contact alex@afaa.org for any questions
Chapter 24 – Emergency Communications Systems

24.3.6.2.2 The proposed verbiage of prerecorded automatic emergency messages shall be identified on the permit plans and be approved by the authority having jurisdiction prior to their programming into the emergency voice communications system.

24.3.6.2.3 As a minimum, the proposed verbiage of prerecorded messages shall be in the official spoken language acceptable to the authority having jurisdiction.

SR-521
Chapter 26 – Supervising Station Alarm Systems
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26.2.4 Carbon Monoxide Signal Disposition.

26.2.4.1 Carbon Monoxide Alarm Signal Disposition.

26.2.4.1.1 A carbon monoxide alarm signal shall take precedence over supervisory or trouble signals.

26.2.4.1.2 The actuation of a carbon monoxide detector or system shall be distinctively indicated as a carbon monoxide alarm signal.
26.2.4.1.4* Upon receipt of a carbon monoxide alarm signal, supervising station personnel shall perform the following actions in the order listed:

1) Where required by the emergency response agency, immediately retransmit indication of the carbon monoxide alarm signal to the communications center.
2) Contact the responsible party(s) in accordance with the notification plan.
3) Once contacted, inform the subscriber to take one of the actions in (a) or (b):
   (a) Where the subscriber has a carbon monoxide emergency response plan, implement the plan
   (b) Where the subscriber has no carbon monoxide emergency response plan:
       i. Immediately move to fresh air, either outdoors or by an open door or window
       ii. Verify that all occupants are accounted for
       iii. Do not re-enter the premises or move away from an open door or window until the emergency service responders have arrived, the premises have been aired out, and the alarm returns to its normal condition
Chapter 26 – Supervising Station Alarm Systems

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26.2.4.2.1 Upon receipt of a carbon monoxide trouble signal, the responsible party(s) shall be notified.

26.2.4.2.2 Servicing of a system in trouble shall be in accordance with Chapter 14 and shall occur within 4 hours of the trouble indication.

26.2.4.2.3 Carbon monoxide end-of-life signals, if provided, shall be treated as trouble signals.

FR-4009 and SR-4005
Chapter 26 – Supervising Station Alarm Systems

26.3.8.3.4 Trouble Signals. Upon receipt of trouble signals or other signals pertaining solely to matters of equipment maintenance of the alarm systems, the central station shall perform the following actions:

1) If a received trouble signal does not restore within 15 minutes, communicate immediately with persons designated by the subscriber

FR-4020
Chapter 26 – Supervising Station Alarm Systems

26.5.6.3.2 For trouble signals, the remote station operator shall be permitted to delay transmission for 15 minutes to allow for a status change in the signal that would resolve the trouble signal.

26.5.6.3.3 If a trouble restoral signal is received within 15 minutes, the operator shall not be required to notify the owner or the owner's designated representative or the authority having jurisdiction.

FR-4024
Chapter 26 – Supervising Station Alarm Systems

26.6.3.13.1* Premises Equipment. The secondary power capacity for all transmitters and shared equipment necessary for the transmission of alarm, supervisory, trouble, and other signals located at the protected premises shall be a minimum of 24 hours or as permitted by 10.6.7.3.1(2), 26.6.3.13.1.1, or 26.6.3.13.1.2 10.6.7.3.1(2)10.6.7.3.1.

26.6.3.13.1.1* Secondary power capacity for shared equipment shall be permitted to have a capacity of 8 hours where acceptable to the authority having jurisdiction and where a risk analysis is performed to ensure acceptable availability is provided.

26.6.3.13.1.2* Secondary power capacity for shared and premises equipment used in additional communications paths shall not be required where the first communications path meets the performance requirements of 26.6.3.3

FR-4028
Chapter 29 – Smoke Alarms and Household Alarm Systems

29.6* Carbon Monoxide Detection. The warning functions intended in this standard shall be performed by single or multiple-station alarms or by detectors connected to a control unit and associated equipment.

29.6.1.1* Where required by other governing laws, codes, or standards for a specific type of occupancy, listed carbon monoxide alarms or detectors shall be installed as follows:

1) Outside of each separate dwelling unit sleeping area, within 21 ft (6.4 m) of any door to a sleeping room, with the distance measured along a path of travel
2) On every occupiable level of a dwelling unit, including basements, excluding attics and crawl spaces
3) In all sleeping rooms and guest rooms containing installed fuel-burning appliances
4) Other locations where required by applicable laws, codes, or standards

SR-1507
Chapter 29 – Smoke Alarms and Household Alarm Systems

29.6.1.2* Each alarm or detector shall be located on the wall, ceiling, or other location as specified in the manufacturer’s published instructions that accompany the unit.

29.6.2 Carbon Monoxide Alarm Interconnection. Unless exempted by applicable laws, codes, or standards, carbon monoxide alarms used to provide a warning function, and where two or more alarms are installed within a dwelling unit, suite of rooms, or similar area, shall be arranged so that the operation of any carbon monoxide alarm causes all carbon monoxide alarms within these locations to sound.

FR-1507
29.9.3 Household Fire Alarm Systems. Power for household fire alarm systems shall comply with the following requirements:

2) The secondary source shall be capable of operating the household alarm system for at least 24 hours in the normal condition, followed by 4 minutes of fire alarm or 12 hours of carbon monoxide alarm.

   (a) Effective January 1, 2022, the secondary power source of the household carbon monoxide system shall be capable of operating the system for at least 12 hours of alarm in accordance with 29.5.3.

   (b) The secondary power source of a household carbon monoxide system shall not be required to operate the system for 12 hours of alarm if the power source of carbon monoxide detectors and carbon monoxide audible notification appliances incorporating a low-power radio (wireless) transmitter/transceiver is capable of providing at least 24 hours in the normal condition, followed by 12 hours of alarm.

SR-1534
Chapter 29 – Smoke Alarms and Household Alarm Systems

29.10.1.4 The supplier or installing contractor shall provide the system owner or other responsible parties with the following:

5) Information noting both of the following:

(b) Smoke alarms installed in one-and-two-family dwellings shall not remain in service longer than 10 years from the date of manufacture shall not remain in service longer than 10 years from the date of manufacture unless otherwise provided by manufacturer’s published instructions.

FR-1525
NFPA 72® 2019 Edition
Summary of Changes

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