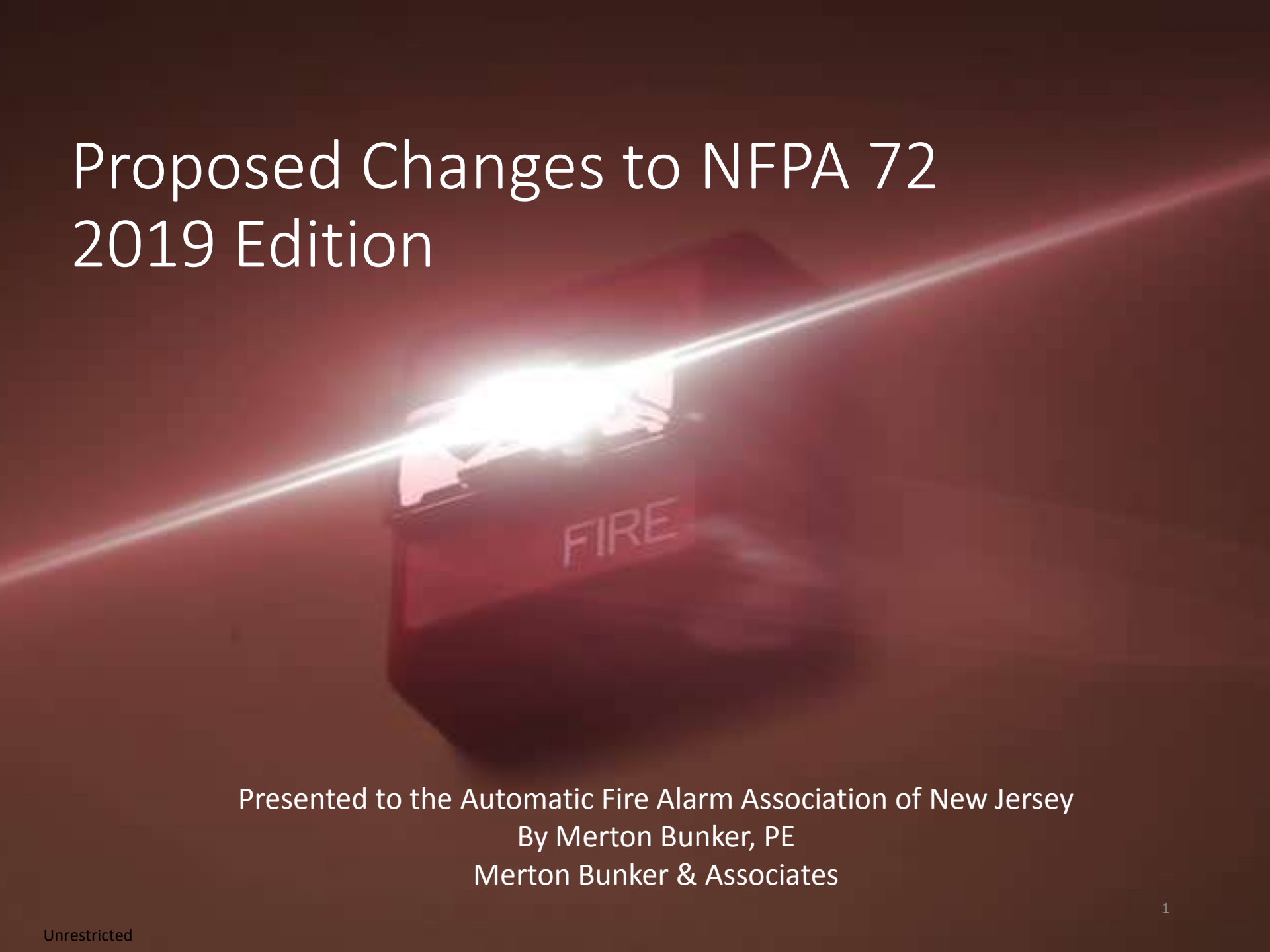
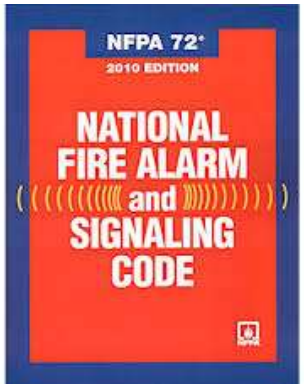
Proposed Changes to NFPA 72 2019 Edition



Presented to the Automatic Fire Alarm Association of New Jersey
By Merton Bunker, PE
Merton Bunker & Associates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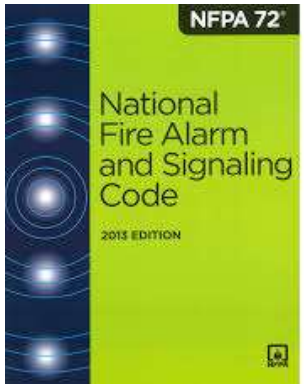
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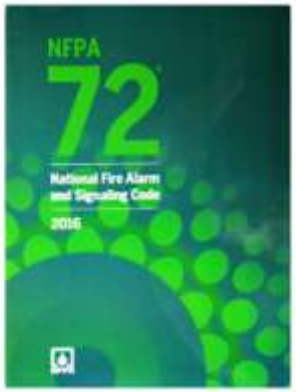
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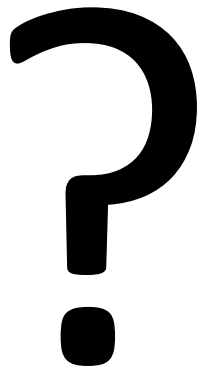


Thanks to All TC Chairs

- SIG-FUN: Manuelita David (Chapters 7 and 10)
- SIG-PRO: Jack Poole (Chapters 12, 21 and 23)
- SIG-TMS: Jeff Moore (Chapter 14)
- SIG-IDS: Dan O'Connor (Chapter 17)
- SIG-NAS: David Lowrey (Chapter 18)
- SIG-ECS: Bill Koffel (Chapter 24)
- SIG-SSS: Warren Olsen (Chapter 26)
- SIG-PRS: Leo Martin (Chapter 27)
- SIG-HOU: LJ Dallaire (Chapter 29)
- SIG-CAR: Dan Gottuk (NFPA 720)

The Annual 2019 Revision Process

✓Technical Committee First Draft Meetings: July 2016, Salt Lake City

✓Correlating Committee First Draft Meetings: December 2016, New Orleans

✓Public Comment Closing Date: May 10, 2017

✓Technical Committee Second Draft Meetings: July 17-21, Charlotte, NC

✓Correlating Committee Second Draft Meetings: November 15-16, Savannah, GA

✓NITMAM Closing Date: February 21, 2018

✓NITMAM Closing Date: April 4, 2018

- NFPA Annual Meeting Adoption: June 2018, Las Vegas
- Standards Council Approval: July 2018
- Issue NFPA 72-2019: September 2018

Proposed “Global” Changes

- Dissolve NFPA 720 and blend applicable requirements into NFPA 72, for Carbon Monoxide equipment and systems.
- Change “fire alarm systems” to “fire alarm and signaling systems”.
- Change “speaker” to “loudspeaker”.
- Change “hearing impaired” to “deaf”.
- Change “visible” to “visual”.
- Clarify the use of “activate” vs “actuate”
- Change “communication” to “communications”.
- Change “enforcing authority” to “authority having jurisdiction”.
- Correlate all SI and Standard units for consistency.
- Elimination of exceptions, where possible.

Proposed Changes **SIG-FUN**

Change: Revise text:

3.3.3 Accessible, Readily (Readily Accessible).

Capable of being reached quickly for operation, renewal, or inspections without requiring those to whom ready access is requisite to take actions such as to use tools (other and keys), to climb over or under, to remove obstacles, or to resort to portable ladders, and so forth.

Reason: The definition of readily accessible is extracted from Article 100 of NFPA 70.

Proposed Changes **SIG-FUN**

Change: Revise text:

<u>Replaced “UPS” with “ESS”</u>

Reason: Text was revised to reflect that UPS systems are a form of Energy Storage Systems (ESS) as addressed by Article 706 of 2017 NEC.

Proposed Changes **SIG-FUN**

Change: Revise as follows:

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.

Reason: With this change the language becomes mandatory while still tying it to the Annex text. The storage of paperwork, manuals, software, etc. in the control unit is commonplace and presents a very real fire hazard.

Proposed Changes **SIG-FUN**

Change: New section added:

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.

Reason: The new section was added to include maximum and minimum mounting height requirements for fire alarm control unit displays found in NECA 1, Standard for Good Workmanship in Electrical Construction.

Proposed Changes **SIG-FUN**

Change: Revise as follows:

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)m 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)m and supervising station transmitting equipment.

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

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.

Reason: Text was edited to maintain the requirement to provide early warning detection, but added text to eliminate the requirement for dedicated systems that do not provide notification.

Proposed Changes **SIG-FUN**

Change: Revise as follows:

10.6.5.2.2* The system circuit disconnecting means shall be permanently identified as to its purpose~~. Methods for marking shall be permitted to include, but not be limited to, one of the following:~~ and marked as a fire alarm system and/or a signaling system.

Reason: The section was revised to clarify how branch circuit disconnecting means must be identified and removes the examples in order to comply with the Manual of Style. Examples were moved into the Annex, and "CARBON MONOXIDE" systems were also added.

Proposed Changes **SIG-FUN**

Change: Add new Section 10.13

10.13 Carbon Monoxide (CO) Notification Appliance Deactivation. A CO initiating device with an integral sounder shall be permitted to be silenced locally if the CO alarm or supervisory status continues to be displayed at the control unit.

Reason: Incorporates requirements from NFPA 720.

Proposed Changes **SIG-FUN**

Change: Revise as follows:

A.10.11.2

The intent of this requirement is to ensure that ~~hearing-impaired~~ persons who are deaf or hard of hearing are alerted to seek additional information regarding an emergency situation. ~~Hearing-impaired persons might not be~~ Persons who are deaf or hard of hearing are not always alerted by the ~~speaker notification appliances~~ loudspeakers that provide evacuation tones or voice instructions. It is intended that the ~~speakers~~ loudspeakers and visible ~~devices~~ notification appliances located in the same area be activated together whenever tones, recorded voice instructions, or live voice instructions are being provided.

Reason: “Hearing-impaired person” is replaced by “person who is deaf or hard of hearing” for consistency throughout the Code.

Proposed Changes **SIG-PRO**

Change: Added new definition.

3.3.132 High Volume Low Speed (HVLS) Fan.

A ceiling fan that is approximately 6 ft (1.8 m) to 24 ft (7.3 m) in diameter with a rotational speed of approximately 30 to 70 revolutions per minute. **[13,** 2016].

Reason: The term is used in Section 21.8. Control of HVLS fans is required to coordinate with NFPA 13.

Proposed Changes SIG-PRO

Change: Revised text:

3.3.150 Life Safety Network.

A type of combination system that transmits fire and emergency communications system data ~~between devices and systems throughout a building(s)~~ to at least one other life safety system .

Reason: The broadened definition includes systems used for other purposes beyond fire safety and is differentiated from the definition of a "combination system" by having at least two of the networked systems be used for life safety.

Proposed Changes SIG-PRO

Change: Add new Section 21.3.7.

21.3.7* Fire Alarm Initiating Device(s) Inside Elevator Hoistways. Fire alarm initiating device(s) required to be installed inside an elevator hoistway by other sections of this code or by other governing laws, codes, or standards shall be required to be accessible for service, testing, and maintenance from outside the elevator hoistway.

Reason: There are costs associated with accessing equipment located in the hoistway. These costs include elevator technicians or injuries while working in the hoistway.

Proposed Changes **SIG-PRO**

Change: Revised section:

21.6* Occupant Evacuation Elevators (OEE) .

Proposed Changes SIG-PRO

Change: Revised text:

21.8 High Volume Low Speed (HVLS) Fans. Where required by NFPA 13, all HVLS fans shall be interlocked to shut down upon ~~activation~~ actuation of a sprinkler waterflow switch that indicates waterflow in the area served by the fans .

Reason: The Technical Committee edits the text to better define the requirement regarding shutting down of HVLS fans for consistency with NFPA 13.

Proposed Changes SIG-PRO

Change: Added section:

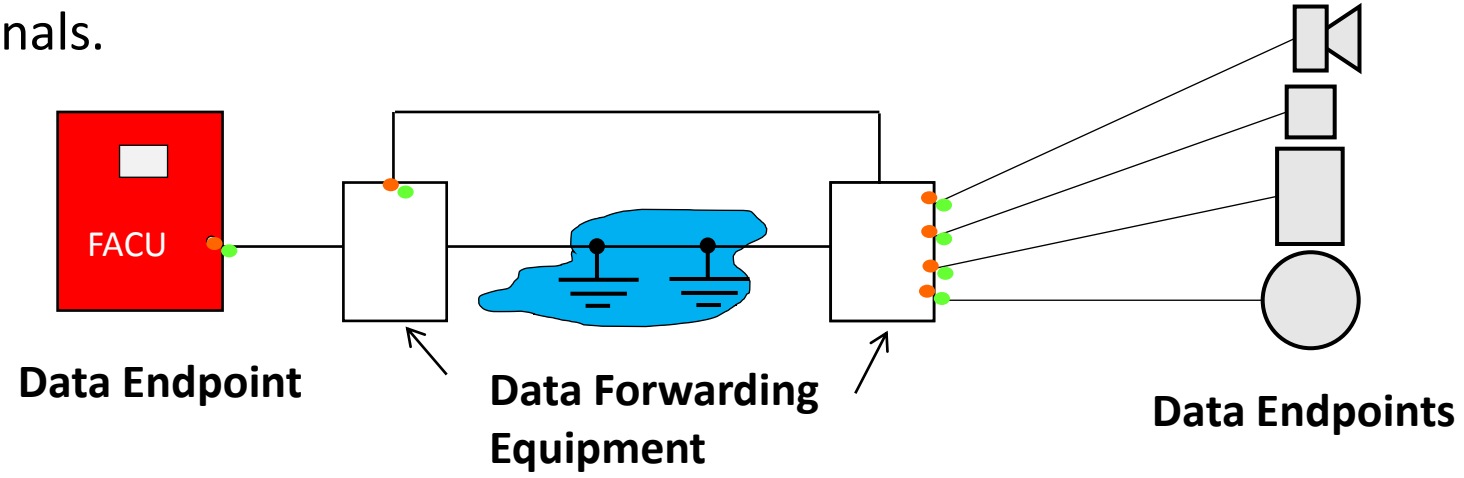
23.2.3 Separate Systems. The requirements of this chapter shall not preclude the use of separate fire, carbon monoxide, or other life safety systems provided the systems do not generate simultaneous conflicting notification to the building occupants or conflicting actuation of safety functions.

Reason: The Technical Committee adds and edits the text from NFPA 720 Section 5.2.3 as recommended by the 720/72 Consolidation Task Group as required by the Standards Council.

Proposed Changes **SIG-PRO (Slide 1 of 2)**

Change: Revised text:

23.6.2* Class N Devices. ~~No~~ Unless permitted in 23.6.2.1 or 23.6.2.2 , no area or zone shall be ~~serviced~~ served solely by a single device where Class N pathways are deployed, such that a single device failure resulting from a multiple ground-fault pathway failure would render an area or zone incapable of initiating input signals or receiving output signals.



Proposed Changes **SIG-PRO (Slide 2 of 2)**

Change: Revised text:

23.6.2.3* ~~Unless otherwise permitted~~ Where a device as referenced by 23.6.2, ~~a single fault on a Class N pathway connected to the addressable devices shall not cause the loss of more than one addressable device~~ is serviced by only a single pathway, it shall terminate that pathway with no ability to connect additional endpoint devices to the pathway.

Proposed Changes SIG-PRO (Slide 1 of 2)

Change: Added sections:

23.6.3.3.3 Equipment Location.

23.6.3.3.3.1 The requirements of 23.6.3.3.3.2 through 23.6.3.3.3.4 shall apply to all equipment rooms, equipment closets, telecommunication rooms, telecommunication enclosures, or the like, for which both Class N life safety network infrastructure and non–life safety network equipment resides.

23.6.3.3.3.2* Equipment rooms or enclosures shall be permitted to contain both Class N life safety networking cable, equipment, and associated infrastructure provided the deployment satisfies 23.6.3.3.3.3 through 23.6.3.3.3.4 .

Proposed Changes SIG-PRO (Slide 2 of 2)

Change: Added sections:

23.6.3.3.3.3 Class N life safety network cabling, equipment, and infrastructure shall be clearly segregated and identified as “Life Safety Network.”

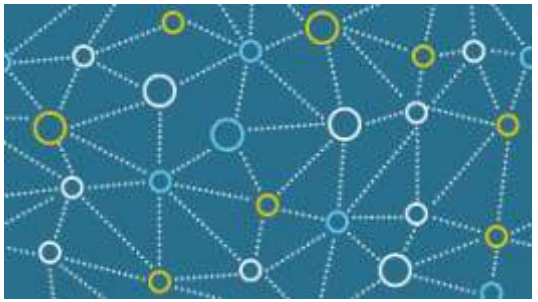
23.6.3.3.3.4 Equipment rooms or enclosures shall be accessible to only authorized personnel via a locked access or via an enclosure requiring the use of tools to open, as acceptable by the authority having jurisdiction.

Reason: These sections specify the requirements for equipment rooms and supporting annex material to ensure that the information technology equipment spaces used for life safety network systems are consistent with the design criteria and to provide guidance for the AHJ.

Proposed Changes **SIG-PRO**

Change: Added section:

23.6.3.8* Network Risk Analysis for Class N….



(1) Natural hazards — geological events
(2) Natural hazards — meteorological events
(3) Human caused — accidental events
(4) Human caused — intentional events
(5) Technological — caused events

Reason: The Technical Committee revises as this section to specify what is included in the Risk Analysis and the characteristics of those risks. Annex material is provided to support the expansion of this section.

Proposed Changes SIG-PRO

Change: Added sections:

23.8.4.9.3 Where carbon monoxide warning equipment is connected to a protected premises fire alarm system, receipt of signals shall initiate the signal required by Section 18.4 .

23.8.4.9.4 Operation of carbon monoxide alarms or detectors shall not cause fire alarm or combination control units to actuate either protected premises or supervising station fire alarm signals.

Reason: The text is revised to include the requirements from NFPA 720.

Proposed Changes **SIG-PRO**

Change: Added sections:

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.

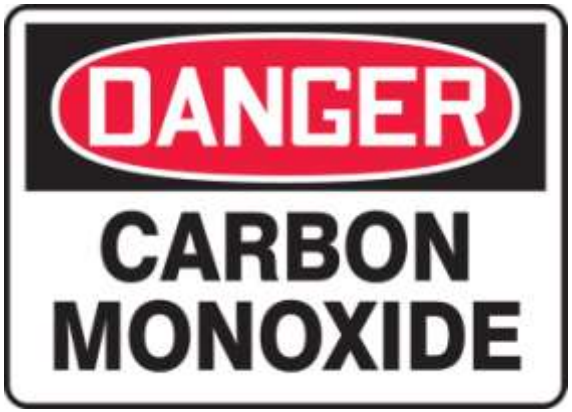
Reason: The Technical Committee edits the text from NFPA 720 Section 5.8.7 and incorporates the requirement into NFPA 72.

Proposed Changes **SIG-PRO**

Change: Added section:

23.15.6 Carbon Monoxide. Where provided, carbon monoxide control functions shall comply with the requirements of 21.7.6 .

Reason: The Technical Committee adds the new section regarding carbon monoxide to include the reference to 21.7.6.



Proposed Changes **SIG-TMS**

Change:

9. VRLA Battery and Charger

Prior to conducting any battery testing, verify by the person conducting the test, that all system software stored in volatile memory is protected from loss.

(1) Temperature test - Semiannually

(2) Charger test - Semiannually

(3) Cell/Unit voltage test - Semiannually

(4) Ohmic test - Semiannually

(5) Replacement/ Load test - 3 years

Reason: The recommendations are made with support from the IEEE Stationary Battery Committee project team dedicated to this effort and are based on battery manufacturer's specifications, IEEE standards, and studies performed by various entities including the Electric Power Research Institute (EPRI), North American Electric Research Corporation (NERC), and Albercorp.

Proposed Changes **SIG-TMS**

Change: Added Section

(9) Carbon monoxide detectors/carbon monoxide alarms for the purposes of fire detection Test Annually

(a) CO entry test Annually

(b) Air sampling Annually

(c) Duct type Annually

(d) CO detector with control output functions Annually

Reason: To incorporate requirements from NFPA 720 into NFPA 72.

Proposed Changes **SIG-TMS**

Change:

14.4.5.4* Notwithstanding other requirements of 14.2.3 , the occupant of a dwelling unit shall be deemed qualified to perform inspection, testing, and maintenance on single- and multiple-station alarms protecting that dwelling unit when provided with information from the manufacturer or a manufacturer's certified representative.

Reason: Added requirements for testing of household single- and multiple-station alarms by the homeowner. This includes CO alarms.

Proposed Changes **SIG-TMS**

Change:

14.4.5.7 Carbon monoxide alarms shall be replaced when either the end-of-life signal is actuated or the manufacturer's replacement date is reached.

Reason: Added requirements for CO alarms from NFPA 720.

Proposed Changes SIG-TMS

Change: Added sections

14.4.8 Household Carbon Monoxide Detection Systems.

14.4.8.1 Testing of Household Carbon Monoxide Detection Systems.
14.4.8.1.1 Household carbon monoxide detection systems shall be tested by a qualified service technician at least every 3 years according to the methods in line 1 of Table 14.4.3.2.

14.4.8.1.2 Household carbon monoxide detection systems shall be tested in accordance with the manufacturer's published instructions.
14.4.8.1.3* Notwithstanding other requirements of 14.2.3.6 , the occupant of a dwelling unit shall be deemed qualified to perform inspection, testing, and maintenance on an alarm system protecting that dwelling unit when provided with information and training from the manufacturer or a manufacturer's certified representative.

Reason: Added requirements for CO detection systems from NFPA 720.

Proposed Changes **SIG-SSS**

Change: New Text Added:

3.3.94 Emergency Response Agency (ERA): Organizations providing law enforcement, emergency medical, fire, rescue, communications, and related support services.

Reason: Carry-over from NFPA 720

Proposed Changes **SIG-SSS**

Change: New Text Added:

<u>3.3.135 Immediately. Performed without unreasonable delay.</u>

Reason*:* As used in Chapter 26.

Proposed Changes **SIG-SSS**

Change: Clarification was given to Section 26.2.1.3 requirements for retransmission of signals received by a supervising station.

If the supervising station receives specific signal information it must be shared with the fire department

- Retransmit zone information
- Retransmit point specific information
- Retransmit any other signals

Proposed Changes **SIG-SSS**

Change: Clarification was given to Section 26.2.2, *Fire* Alarm Signal Verification, requirements for alarm signal verification

- Signal verification is only permitted for “fire” alarm signals
- Verification cannot be used for CO signals
- PI submitted to completely eliminate verification (but was rejected)

Proposed Changes **SIG-SSS**

Change: New Text Added. CO signal processing instructions were added under *Section 26.2.4, Carbon Monoxide Signal Disposition*, to the other signal processing instructions that have existed in the chapter for alarm, supervisory and trouble conditions

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.

Reason: To incorporate CO requirements from NFPA 720.

Proposed Changes **SIG-SSS**

Change: Text Added. CO signal processing instructions for the Supervising Station added as *Section 26.2.4.1.4, Carbon Monoxide Signal Disposition*

- Where required by the ERA, immediately retransmit to the Communications Center
- Contact the responsible party
- Advise the subscriber, once contacted what they should do depending on whether or not an emergency response plan exists

Reason: To incorporate CO requirements from NFPA 720.

Proposed Changes **SIG-SSS**

Change: New Text Added. Trouble signals received by a supervising station, other than the communication center, do not have to be retransmitted for 15 minutes in order to allow for a restoral

- 26.3.8.3.4, Central Station Service Alarm Systems Trouble Signal Disposition
- 26.5.6.3.3.2, Remote Supervising Station Alarm Systems Trouble Signal Disposition

Proposed Changes **SIG-SSS**

Change: Term Revision. The phrase "*Managed Facilities-Based Voice Network*" (MFVN) was inserted in several sections within the chapter **replacing** the term "public-switched telephone network" (PSTN) which is intended to indicated that the two are functionally equivalent

- 26.6.4.1.1, Public Switched Telephone Network
- 26.6.4.1.1 (A)
- 26.6.4.1.5
- Several definitions

Reason: The PTSN is effectively gone as of 2019.

Proposed Changes **SIG-SSS**

Change: Private One-way Radios

- The requirement for placing physically separated elements of transmitting equipment in conduit (26.6.5.2.3.2(c)) has been eliminated.
- Interconnections between the elements are required to be supervised.

Proposed Changes **SIG-SSS**

Change: Pending. Certified Amending Motion (CAM 72-6)

26.5.3.1.3 ~~Where permitted by the authority having jurisdiction, a~~Alarm, Alarm, supervisory, and trouble signals shall be permitted to be received at a listed central supervising station.

New for the 2016 code, but was the subject of a CAM in Chicago at NFPA C&E. This will be CAM 72-6 at the 2018 NFPA C&E. If defeated, text reverts to 2016 language.

Proposed Changes **SIG-SSS**

Change: Pending. Certified Amending Motion (CAM)

- Only affects Remote Supervising Station Alarm Systems which includes the vast majority of alarm systems
- Signals sent directly to the Fire Station or the Communications Center from the protected premises would not be affected
- Signals sent to other supervising stations which retransmit to the Communications Center would be affected

Proposed Changes **SIG-IDS**

Change: New text was added to incorporate CO devices into Chapter 17 (household applications in Chapter 29)

1) CO devices now integrated to the general scope
2) CO devices subject to the concealed location requirements
3) Specific provisions for CO devices in a new section (17.12)

Proposed Changes **SIG-IDS**

Change: Item 3 added to 17.12.1 to address hotels, apartments, assisted living

17.12.1*

~~Carbon~~ Where required by other governing laws, codes, or standards, carbon monoxide detectors shall be installed ~~as specified~~ in ~~the manufacturer's published instructions in~~ accordance with the following ~~17.12.2(1) and 17.12.2(2), or 17.12.2(3)~~ :

(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

Proposed Changes **SIG-IDS**

Change: New Section 17.12 was added to address specific requirements for CO devices, when required by other codes/ordinances

1) Location & mounting
2) CO threshold requirements – ANSI/UL 2034
3) Ambient conditions, factors of environment
4) Protection during construction
5) Provisions related to HVAC and smoke control systems

Proposed Changes **SIG-IDS**

Change: Added New Section 17.7

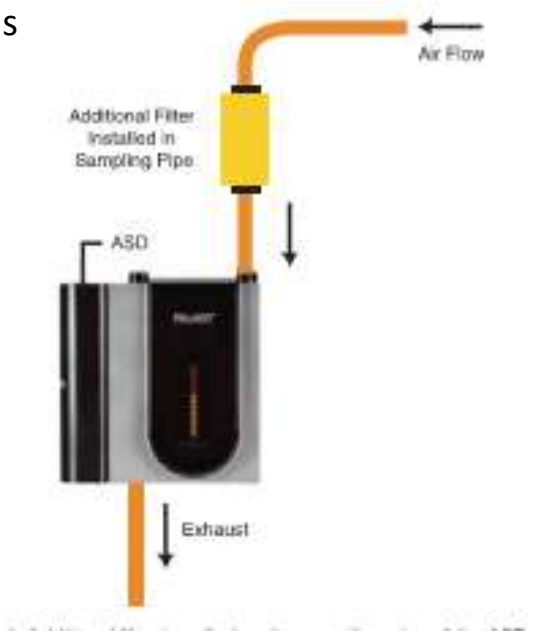
General requirements

a) Apply Performance-based design (PBD) criteria
b) If not PBD - Each port treated as a spot smoke detector for location and spacing
c) Airflow trouble signals required
d) Atmospheric contaminant filters – listed and per mfg's instructions

1) Pipe Network
2) Installation
3) Air duct applications
4) Electrical Cabinet applications

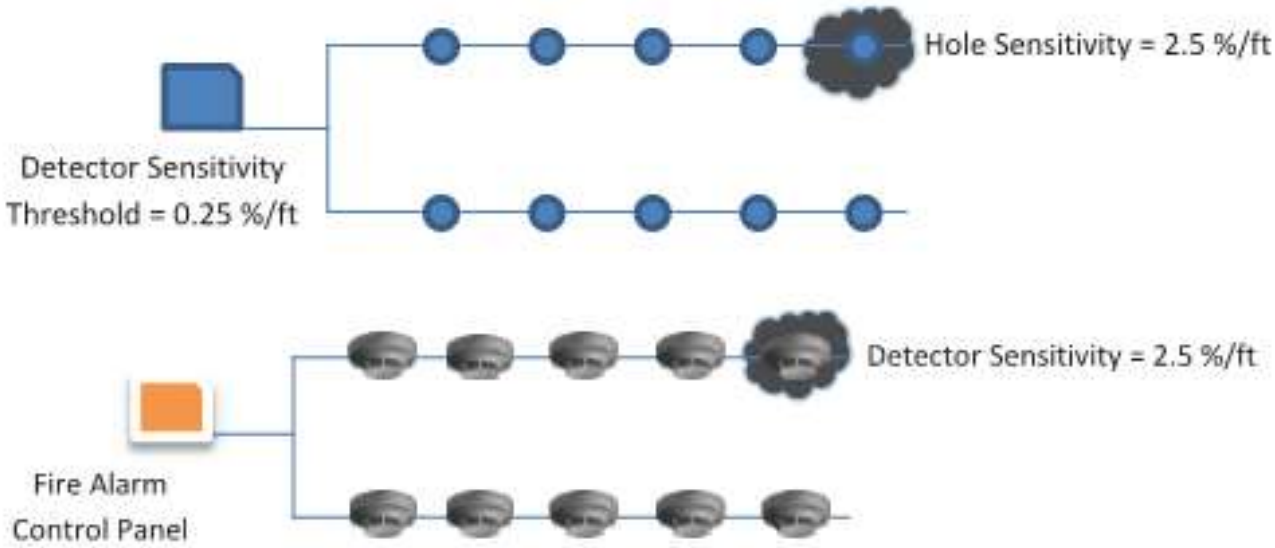
Reason: added to address specific requirements

for Air-Sampling Type Smoke Detectors



Proposed Changes SIG-IDS

Air-Sampling Smoke Detector – If PBD criteria is not being Applied Then Use Spot Criteria



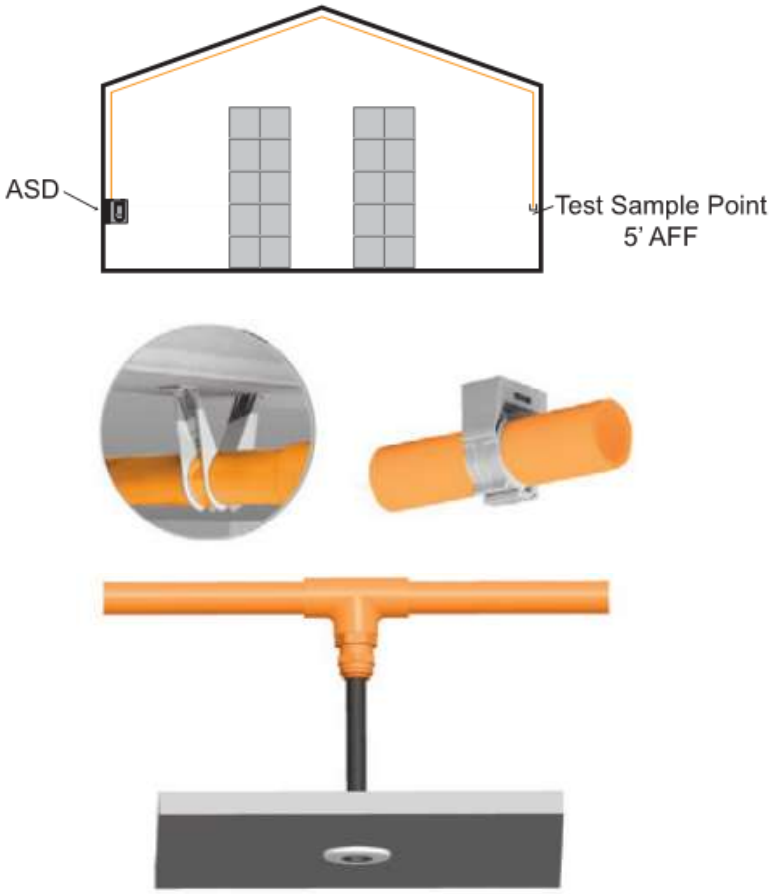
Comparison (ASD – point smoke detector) with smoke reaching a single sampling hole or a spot point smoke detector

Proposed Changes **SIG-IDS**

Change: Added New Section 17.7.3.6.2

1) Transport time - 120 seconds
2) Design must be based on Fluid Dynamics calculations
   - Pressure , Volumetric flow, port sensitivity
3) Design Software – Listed for MFG's product
4) Treatment of test ports
5) Painting - per MFG's instructions
6) Pipe – suitable for the environment
7) Fittings – airtight and permanently fixed
8) Exhaust – lessor or equal pressure zone
9) Materials, installation, pipe and tubing - per MFG's instructions

Reason: To address piping network issues

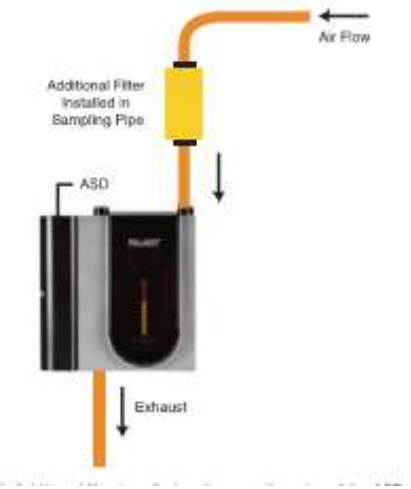


Proposed Changes **SIG-IDS**

Change: Revised Section 17.7.2.2

17.7.2.2

~~Smoke~~ Spot-type smoke detectors that have provision for field adjustment of sensitivity via a mechanical means shall have an adjustment range of not less than 0.6 percent per foot (1.95 percent per meter) obscuration.



Reason: To eliminate potential confusion between Air-Sampling Type Smoke Detectors and Spot Smoke Detectors.

Existing requirement may create confusion if it is viewed within the context of high sensitivity aspirated detectors, which have sensitivity settings outside of the normal UL range of 0.5 to 4%/ft

Proposed Changes **SIG-IDS**

Change: Wording revised so as not to preclude other standards

17.6.1.4

Heat sensing fire detectors shall be listed in accordance with applicable standards such as ANSI/UL 521 *Standard for Heat Detectors for Fire Protective Signaling Systems* and installed in accordance with their listing.

17.10.2.1

Gas detection equipment shall be listed in accordance with applicable standards such as UL 1484 *Standard for Residential Gas Detectors* or UL 2075 *Standard for Gas and Vapor Detectors and Sensors* for the specific gas or vapor it is intended to detect.

17.15.1

Manually actuated alarm-initiating devices shall be listed in accordance with applicable standards such as ANSI/UL 38, *Standard for Manual signaling Boxes for Fire Alarm Systems*.

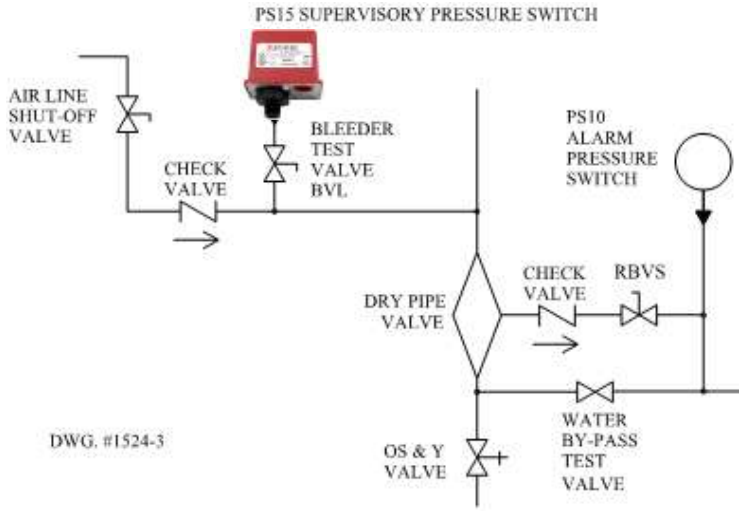
Proposed Changes **SIG-IDS**

Change: Revised Section 17.17.2.2

1) Off-normal signal traditionally required to signal
   a) Pressure increase of 10 psi
   b) Pressure decrease of 10 psi
   c) Applicable to systems using 40 psi pressure

2) Low differential systems operating in 10-15 psi range
   a) Use manufacturer's instructions

Reason: to correctly address air pressure monitoring for both high and low differential dry valves



Proposed Changes **SIG-IDS**

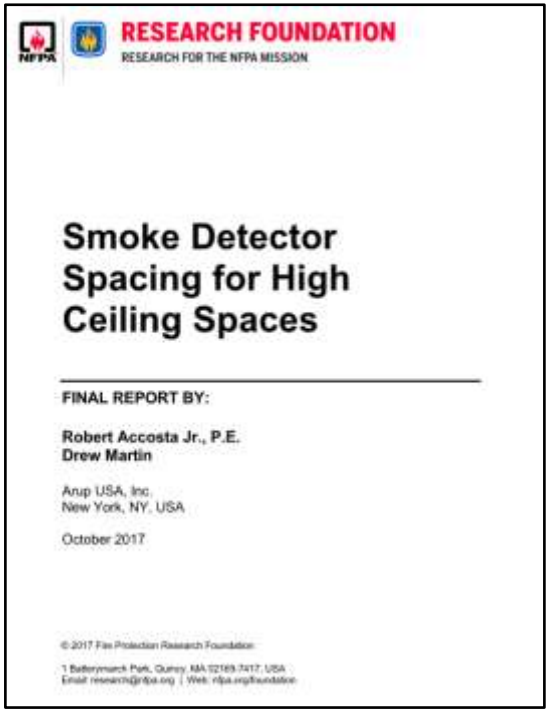
Change: Section A.17.6.3.5.1 revised to clarify that Table 17.6.3.5.1 is only applicable to spot-type heat detectors.

No technical basis or data for reduction of spacing on high ceilings – No further work pursued

Table 17.6.3.5.1 Heat Detector Spacing Reduction Based on Ceiling Height

Ceiling Height Greater than (>)		Up to and Including		Multiply Listed Spacing by
ft	m	ft	m	
0	0	10	3.0	1.00
10	3.0	[illegible]	[illegible]	0.91
12	3.7	[illegible]	[illegible]	0.84
14	4.3	16	4.9	0.77
16	[illegible]	[illegible]	5.5	0.71
18	[illegible]	20	6.1	0.64
20	6.1	22	6.7	0.58
[illegible]	[illegible]	24	7.3	0.52
[illegible]	[illegible]	26	7.9	0.46
26	7.9	28	8.5	0.40
28	8.5	30	9.1	0.34

Not applicable to Smoke Detectors, only spot type heat detectors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Smoke Detector Spacing for High Ceiling Spaces

FINAL REPORT BY:

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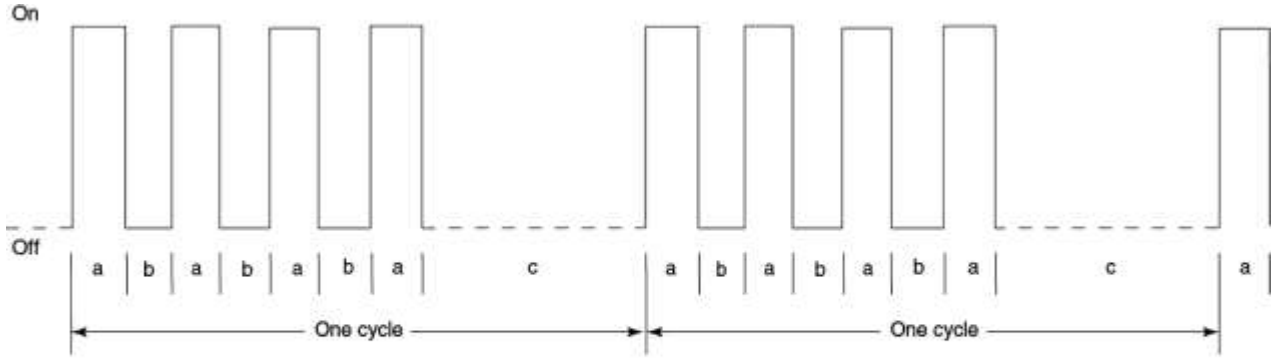
October 2017

Proposed Changes **SIG-NAS**

Change: Revise 14.4.3.1 to add Figure 18.4.3.2

Figure 18.4.3.2 Temporal Pattern Parameters — Carbon Monoxide Signal.



Phase a: signal is on for 100 ms ± 10 ms.
Phase b: signal is off for 100 ms ± 10 ms.
Phase c: signal is off for 5 sec ± 0.5 sec for initial 4 minutes.
After the initial 4 minutes Phase c: signal is permitted to be changed to 60 s ± 6 s off.

Although the diagram shows a square waveform, the wave can have other shapes that produce a similar effect.

Reason: To include CO signals from NFPA 720

Proposed Changes **SIG-NAS**

Notification Appliances:

- Ambient Sound Pressure Level (SPL) table in A.18.4.4 has been revised
  - Table is intended to be used for design guidance purposes only

A.18.4.3

The typical average ambient sound level for the occupancies specified in Table A.18.4.3 are intended only for design guidance purposes. The typical average ambient sound levels specified should not be used in lieu of actual sound level measurements.

Table A.18.4.3 Average Ambient Sound Level According to Location

Location	Average Ambient Sound Level (dBA)
Business occupancies	~~55~~ 54
Educational occupancies	45
Industrial occupancies	~~90~~ 85
Institutional occupancies	50
Mercantile occupancies	40
Mechanical rooms	~~95~~ 91
Piers and water-surrounded structures	40
Places of assembly	~~55~~ 50
Residential occupancies	35
Storage occupancies	30
Thoroughfares, high-density urban	70
Thoroughfares, medium-density urban	55
Thoroughfares, rural and suburban	40
Tower occupancies	35
Underground structures and windowless buildings	40
Vehicles and vessels	50

Sound levels can be significantly reduced due to distance and losses through building elements. Every time the distance from the source doubles, the sound level decreases by about 6 decibels (dB). Audible notification appliances are typically rated by manufacturers' and testing agencies at 10 ft (3 m) from the appliance. Subsequently, at a distance of 20 ft (6.1 m) from an audible appliance rated at 84 dBA, the sound level might be reduced to 78 dBA. At a closed door, the loss might be about 10 dB to 24 dB or more depending on construction. If the opening around the door is sealed, this might result in a loss of 22 dB to 34 dB or more.

Proposed Changes **SIG-NAS**

Change: Revise as follows:

18.5.3.2

The maximum light pulse duration shall be 20 milliseconds, except as permitted in 18.5.3.3.

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.

Reason: Testing performed by the UL STP Task Group indicates that equivalent alerting can be achieved with a pulse duration greater than 20 milliseconds by increasing the candela output to compensate for the longer pulse duration.

Proposed Changes **SIG-NAS**

Change: new annex material

A.18.5.3.3

Research indicates that equivalent indirect alerting is obtained between 0.1 milliseconds to 20 milliseconds. Testing above 20 milliseconds indicates that the effective candela must be increased to obtain equivalent alerting capability to that of shorter light pulse durations of 20 milliseconds or less. The effective candela rating should be increased by the value in Table A.18.5.3.3 to achieve equivalent alerting capability.

Rated Light Pulse Duration (milliseconds)	Rating Multiplier
20	1.00
25	1.22
50	2.20
75	3.00
100	3.67
Other Durations in Table	

Proposed Changes **SIG-NAS**

Change: Annex material added

A.18.5.5.5.1

In rooms with an average ambient level greater than 500 lx, visual notification appliance spacing should be reduced by 30 percent (i.e., listed spacing × 0.7) or the required effective candela should be increased by 100 percent (i.e., effective candela × 2.0)

Ambient light levels have an effect on the proper candela ratings in indirect viewing of visual notification appliances. The amount of ambient light is normally from two sources: artificial lighting and natural light from outside.

Reason: Research has shown that ambient lighting plays an important part in visual notification appliance performance. Annex material is added to provide support for selection of visual notification appliances for ambient lighting conditions.

Proposed Changes **SIG-NAS**

Table A.18.5.5.5.1 Typical Ambient Illumination for Various Locations

Locations	Illumination(lx)
Unoccupied rooms (only emergency lighting active)	100–150
Warehouses, homes, theaters, archives	150
Classrooms	250
Normal offices, study library, show rooms, laboratories	500
Supermarkets, mechanical workshops	750
Detailed work spaces, operating rooms	1000

Note: Table derived from “Recommended Light Levels,” published by National Optical Astronomy Observatory.

Proposed Changes **SIG-NAS**

Change: Revised as follows:

18.5.5.8.2

Combination carbon monoxide detectors ~~and visual notification appliances~~ or ~~combination carbon monoxide~~ alarms ~~and~~ with visual notification appliances shall be ~~installed~~ located in accordance with the applicable requirements for the visual notification appliance and the applicable requirements for the carbon monoxide detector or alarm of Chapters 17, 18, ~~and~~23, and 29.

Reason: Clarify the CO alarms and detectors that have visual are the same as other visual requirements.

Proposed Changes **SIG-NAS**

Change: Revised as follows:

18.5.5.7.3* Table 18.5.5.7.3 shall apply to the minimum required intensity of strobes in sleeping areas after establishing the mounting height.

Reason: Clarifies the intent of the table

Proposed Changes SIG-ECS

Change: Added new Sections

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.

Reason: This revision also ensures that, as a minimum, the pre-recorded messages be in the prevailing language at the country/location they are installed. Since NFPA 72 is used throughout the world, there should be no specific reference to English but rather to the official spoken language acceptable to the AHJ.

Proposed Changes **SIG-ECS**

Change: Revise 24.4.8.5.2

24.4.8.5.2 Manually activated loudspeakers shall be permitted in exit stair enclosures, and exit passageways, and elevators in buildings that have emergency voice/alarm communications systems in accordance with Section 24.4.

Reason: The Technical Committee permits exit stairwells, exit passageways, and elevators to have manually activated loudspeakers.

Proposed Changes **SIG-ECS**

Change: Revise 24.10

24.10* Area of Refuge (Area of Rescue Assistance) Emergency Communications Systems, Stairway Communications Systems, Elevator Landing Communications Systems, and Occupant Evacuation Elevator Lobby Communications Systems.

…

24.10.2.1 When a remote communications station(s) is activated by a building occupant(s), a two-way live voice communication shall be required to operate between the remote communications station(s) and a constantly attended location.

24.10.2.2* The master control unit shall be installed in a central control point within the building.

24.10.2.3* The constantly attended location shall be located either within the building or at an off-site monitoring location and shall be approved by the authority having jurisdiction.

…

24.10.6* In the event of an off-site connection, a signal shall be transmitted to the off-site monitoring location, identifying the specific building prior to initiating the live voice two-way communication.

…

24.10.8 The ~~area of refuge station shall provide for hands free~~, specific location of each remote communications station shall be identified on the master control unit display on a floor and area basis.

Reason: These changes will provide the installation requirements for the emergency systems required in the national building codes.

Proposed Changes **SIG-ECS**

Change: Delete Section 24.11

~~24.11 Elevator Emergency Communications Systems.~~

Reason: Under the scope of ASME A17.1, Sagety Code for Elevators and Escalators.

Proposed Changes **SIG-ECS**

Change: Delete Section 24.12

~~24.12 Stairway Communications Systems.~~

Reason: These changes will provide the installation requirements for the emergency systems required in the national building codes. This was incorporated into 24.10.

Proposed Changes **SIG-HOU**

Change: Add new Section 29.4

29.4 Remote Annunciation. Remote annunciation from single- and multiple-station alarms shall be permitted, provided signals at the remote annunciator properly identify the hazard.

Reason: The Technical Committee adds text previously in NFPA 720 and revises to incorporate all alarms.

Proposed Changes **SIG-HOU**

Change: Added Section 29.7.1.1

29.7.1.1* 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

Reason: Incorporate NFPA 720 requirements

Proposed Changes **SIG-HOU**

Change: Add new Section 29.10.7.4

29.10.7.4 The use of a common audible notification appliance shall be permitted as long as distinctive signals are generated.

Reason: Fire alarm must produce T3 signals and CO must produce T4 signals.

Proposed Changes SIG-HOU

Change: Add New Section 29.10.7.7

29.10.7.7 Audible alarm notification signals shall be provided in the following priority order:

(1) Fire alarm

(2) Carbon monoxide

(3) Other

Reason: To address the priority of fire alarm, CO, and other signals.

Proposed Changes **SIG-HOU**

Change:

(6) Effective ~~May 29~~ January 1, ~~2020~~ 2022, smoke alarms and smoke detectors installed between 6 ft (1.8 m) and 20 ft (6.1 m) along a horizontal flow path from a stationary or fixed cooking appliance shall be listed for resistance to common nuisance sources from cooking.

Reason: Sufficient test facilities are not available. Consequently, manufacturers have not been provided time for product research and development to meet new listing requirements using sufficient test facilities.

Questions?

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