



NFPA 72  
2010 and Beyond!

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Agenda

- What is the current status of 72?
- Where is the standard headed?
- Review of AFAA proposals
- Changes for 2010



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Code Development  
Where is NFPA 72 in the Process

- ROP Meetings were held – January 20-24, 2008
- Report on proposals posted – June 20, 2008
- Comment Closing Date – August 29, 2008
- ROC Meetings – October 20-24, 2008
- Report on comments posted – February 24, 2009
- NFPA WSC – June 2009
- Standards council issuance – July 31, 2009



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Take Fire out of NFPA 72?



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Why the change?

- NFPA 72 now covers many issues in addition to Fire Alarm Systems.
  - Combination Systems
  - Video Imaging Detection
  - Carbon Monoxide Detection
  - Supervisory Service of Sprinkler Control Valves
  - Water Level Supervisory – 5.15.3
  - Water Temperature Supervisory – 5.15.4
  - Room Temperature Supervisory – 5.15.5
  - Fire Extinguisher Monitoring – 6.8.4.11



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NFPA TCC Directive for 2010

- Remove the word fire wherever possible
  - Chapter 4 – Fundamentals of Fire Alarm Systems
  - Chapter 8 – Supervising Station Fire Alarm Systems
  - 8.3.7.1.1 Alarm signals initiated by manual fire alarm boxes, automatic fire detectors, waterflow from the automatic sprinkler system, or actuation of other fire suppression system(s) or equipment shall be treated as fire alarms.



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## NFPA 72 History

- Originally Titled
- General Rules and Requirements for the Installation of Wiring and Apparatus for Automatic Fire Alarms, Hatch Closers, Sprinkler Alarms and Other Automatic Alarm Systems and Their Manual Auxiliaries
- Originally published in 1899
- 9 – 5" x 8" pages



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## NFPA 72 Name Change?

- Today – National Fire Alarm Code
- Proposed Name
  - National Fire Alarm and Signaling Code

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## AFAA and NFPA 72 Proposals

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Remember

What you are about to see  
~~could~~ shall be changed!



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AFAA and NFPA 72 Proposals

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### Chapter 4

- **Proposal**
  - 4.4.1.5.3.1 Add new item (A) and re-letter the current (A) and (B) to (B) and (C).
    - (A) Battery calculations shall include a 20% safety margin to the calculated amp-hour rating.
- **Committee Action can be any one of the following:**
  - Accept

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Chapter 4

- **Proposal**
  - **4.4.1.8.1\* Marking.** Batteries shall be permanently marked with the month and year of manufacture, using the month/year format. The marking shall be permitted to be applied by either the battery manufacturer or the installer.
- **Committee Action**
  - Accept in Principal
  - 4.4.1.8.1.1 Batteries shall be permanently-marked with the month and year of manufacture, using the month/year format. The marking shall be permitted to be applied by either the battery manufacturer or the installer.
  - 4.4.1.8.1.2 Where the battery is not marked with the month/year by the manufacturer, the installer shall obtain the date-code and mark the battery with the month/year of battery manufacture.



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Chapter 4

- **Proposal**
  - **4.4.5\* Protection of Fire Alarm System Preservation of Fire Alarm Signal.** In areas that are not continuously occupied, automatic smoke detection shall be provided at the location of each fire alarm control unit(s), notification appliance circuit power extenders, and supervising station transmitting equipment to provide notification of fire at that location.
  - **Exception No. 1: 4.4.5.1** Where ambient conditions prohibit installation of automatic smoke detection, automatic heat detection shall be permitted in lieu of the smoke detection required in 4.4.5.
  - **Exception No. 2: Fully sprinklered buildings shall not require protection in accordance with 4.4.5.**
  - **4.4.5.2** Where ambient conditions prohibit installation of automatic smoke detection, signaling initiated by fire sprinkler actuation shall be permitted in lieu of automatic smoke detection required in 4.4.5 providing there is no delay in signal initiation from the release of water from the sprinkler.
- **Committee Action**
  - Reject



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Chapter 4

- **Proposal**
  - Add new **4.4.7.1.18**
  - **A wire-to-wire short circuit fault on any voice alarm notification appliance circuit, before or after the circuit has been activated, shall initiate a trouble signal in accordance with 4.4.3.5 and shall isolate that circuit from the rest of the system.**
- **Committee Action**
  - Reject
  - Committee cited;
  - 4.4.7.1.16 An open, ground, or short-circuit fault on the installation conductors of one alarm notification appliance circuit shall not affect the operation of any other alarm notification circuit.



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## Chapter 4 Annex

- **Proposal**
  - Add A.4.4.7.1.16
  - A notification appliance circuit of a fire alarm control unit may, with the Authority Having Jurisdiction's approval, be connected to activate supplemental notification appliance power supplies provided there are no notification appliance appliances installed on that circuit. That circuit would then be known as a control circuit.
- **Committee Action**
  - Reject

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### 4.4.7.1.16

- 4.4.7.1.16 An open, ground, or short-circuit fault on the installation conductors of one alarm notification appliance circuit shall not affect the operation of any other alarm notification circuit.

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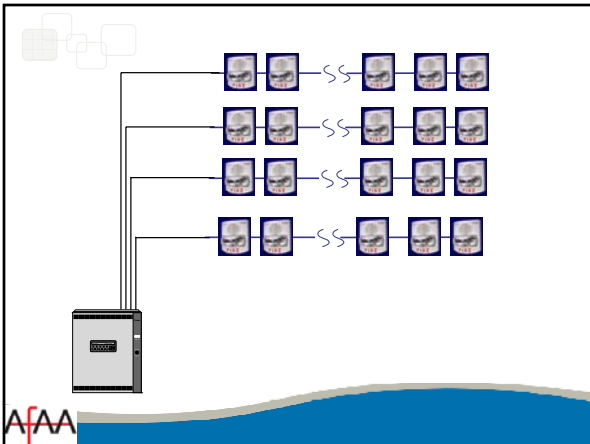
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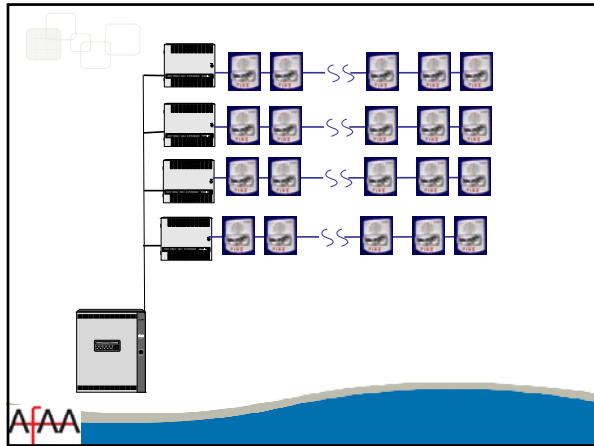
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Chapter 4 Annex

- **Proposal**
  - Add Annex Section A-4.5.1.1 for shop drawings, revise (3) to read as follows:
  - (3) Device legend in accordance with NFPA 170, Standard on Symbols.
- **Committee Action**
  - Accept

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Chapter 5

- **Proposal**
  - ~~5-16.5.8~~ 5.4.8 Where ~~in-duct~~ smoke detectors are installed in concealed locations more than 3m(10 ft) above the finished floor or in arrangements where the detector's alarm or supervisory indicator is not visible to responding personnel, the detectors shall be provided with remote alarm or supervisory indication in a location acceptable to the authority having jurisdiction
- **Committee Action**
  - Accept

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## Chapter 6

- **Proposal**
  - 6.1.5 The requirements of Chapter 12.1.2 shall apply where emergency voice/alarm communications systems are used.
- **Committee Action**
  - Accept

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## Chapter 6

- **Proposal**
  - 6.2.1\* Purpose. The systems covered in Chapter 6 shall be for the protection of life or property, or both, by indicating the existence of heat, fire, smoke or other emergencies within the protected premises, or other emergencies impacting the protected premises.
- **Committee Action**
  - Reject
    - "The current wording reflects that the requirements are intended to cover system response to emergencies occurring inside and outside the protected premises."

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## Chapter 6

- **Proposal**
  - 6.4.1 Purpose. Section 6.4 provides information that shall be used in the design and installation of protected premises fire alarm and mass notification systems for the protection of life and property.
- **Committee Action**
  - Accept

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## Chapter 6

- **Proposal**

- **6.8.4.5\*** Speakers used as alarm notification appliances on fire alarm systems shall also be permitted to be used for nonemergency purposes, provided they meet the criteria in Table 12.1.2.x and that condition (1) or (2) is met:
  - (1) The fire command center is constantly attended by trained personnel and selective paging is permitted by the authority having jurisdiction.
  - (2) All of the following conditions are met:
    - (a) The speakers and associated audio equipment are installed or located with safeguards to resist tampering or misadjustment of those components essential for intended emergency notification.
    - (b) The monitoring integrity requirements of 4.4.7 and 6.9.8 shall continue to be met while the system is used for non-emergency purposes.
    - (c) It is permitted by the local authority having jurisdiction.
- **6.8.4.6** Speakers used as alarm notification appliances on fire alarm systems shall also be permitted to be used for emergency communication mass notification systems, when installed in accordance with Chapter 12.
- **6.8.4.7\*** In combination systems, fire alarm signals shall be distinctive, clearly recognizable, and, with the exception of mass notification inputs, take precedence over any other signal even when a non-fire alarm signal is initiated first and shall be indicated as follows in descending order of priority unless otherwise permitted by this Code except where otherwise required by other governing laws, codes or standards, or by other parts of this code:
  - (1) Signals associated with life safety
  - (2) Signals associated with property protection
  - (3) Trouble signals associated with life and/or property protection
  - (4) All other signal



## Chapter 7

- **Proposal**

- **7.4.1.4\*** Where required, voice communications systems shall be designed to be capable of the reproduction of prerecorded, synthesized, or live (e.g., microphone, telephone handset, and radio) messages with voice intelligibility. Intelligibility can be measured by one of the following methods:
  - (1) Subject-based techniques for measuring intelligibility are defined by ANSI S3.2, *Method for Measuring the Intelligibility of Speech Over Communications Systems*. ANSI S3.2 should be considered an acceptable alternative to ISO TR 4870, where referenced in IEC 60268, Part 16.
  - (2) Voice intelligibility measured in accordance with the guidelines in ISO Standard 7240-19, *Design, Installation, Commissioning and Service of Sound Systems for Emergency Purposes* and ISO 7240-16, *Sound System Control and Indicating Equipment*. The system should exceed the equivalent of a common intelligibility scale (CIS) score of 0.7 or an alternative approved scoring method.

- **Committee Action**

- Accept in Principal



## Chapter 7

- **Proposal**

- Add new language to 7.4.6 to read:
  - **7.4.6.1 Application.** Exit Marking Audible Notification shall be permitted if used in addition to audible or visible, or both, notification appliances.

- **Committee Action**

- Reject
  - "It is not the intent of the committee that exit marking audible notification appliances replace other required audible or visible notification appliances. Nor is it the intent to prohibit the installation of exit marking audible notification appliances when a fire alarm system is not otherwise required."



## Chapter 10

- **Proposal**

- 10.4.2.2 Table
- (4) Duct type In addition to the testing required in 10.4.2.2(g)(1), air duct smoke detectors utilizing sampling tubes shall be tested by verifying the correct pressure differential (within the manufacturer's published ranges) between the inlet and exhaust tubes using a method acceptable to the manufacturer an air pressure differential meter, manometer or other to ensure that the device will properly sample the air stream. These tests shall be made in accordance with the manufacturer's published instructions for the device installed

- **Committee Action**

- Accept in Principal



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## Chapter 11

- **Proposal**

- 11.5.2.1.3 Single- or multiple-station alarms shall not be connected to a protected premises fire alarm control unit.

- **Committee Action**

- Reject
  - It is not the intent of the committee to prohibit supplementary or off-site monitoring of smoke alarms by a fire alarm system.



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## Chapter 12

- **Proposal**

- 12.2.1.11.5.3 All circuits necessary for the operation of the notification appliances shall be protected until they enter the evacuation signaling zone that they serve by any of the following methods considered acceptable as meeting the requirements of this subsection:
  - (1) A 2-hour fire rated circuit integrity (CI) cable
  - (2) A 2-hour fire rated cable system (electrical circuit protective system)
  - (3) A 2-hour fire rated enclosure
  - (4) Performance alternatives approved by the authority having jurisdiction
  - (5) Buildings-Areas where the circuits are installed are fully protected by an automatic sprinkler system installed in accordance with NFPA 13, Standard for the Installation of Sprinkler Systems, and with the interconnecting wiring or cables used for the operation of notification appliances installed in metal raceways and in accordance with Article 760 of NFPA 70

- **Committee Action**

- Reject
  - The proposal does not provide sufficient technical substantiation or research. The submitter is requested to provide additional substantiation.



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Chapter 12

- **Proposal**
  - 12.2.1.11.5.6 Where the separation of the emergency voice/alarm control equipment occurs as in 6.9.10.4.3, and where the circuits are run through peripheral devices and appliances including junction boxes these circuit accessories shall also be protected by using one of the following methods:
  - (1) A 2-hour fire rated enclosure
  - (2) A 2-hour fire rated room
  - (3) Other equivalent means to provide a 2-hour fire resistance rating approved by the authority having jurisdiction
- **Committee Action**
  - Accept in Principal



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Chapter 12

- **Accepted in Principal – Rewrite**
  - 12.2.1.11.5.6 Where the separation of the emergency voice/alarm control equipment occurs as in 12.2.1.11.5.4 (1) or
  - (2), and where the circuits are run through peripheral devices and appliances including junction boxes, and cable
  - integrity is not maintained, these circuit accessories shall also be protected by using one of the following methods:
  - (1) A 2-hour fire rated enclosure
  - (2) A 2-hour fire rated room protected by sprinklers
  - (3) Other equivalent means to provide a 2-hour fire resistance rating approved by the authority having jurisdiction



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Chapter 12

- **Proposal**
  - 12.2.1.11.5.6 Where the separation of the emergency
- **Committee Action**
  - Accept in Principal



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## Additional Changes Within 72 for 2010



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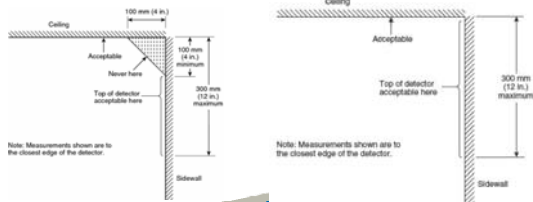
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### 72, 2010 Edition Chapter 5 (IDS)

- 5.7.3.2.1 Spot-type smoke detectors shall be located on the ceiling or, if on a sidewall, between the ceiling and 300 mm (12 in.) down from the ceiling to the top of the detector.



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## Intelligibility Testing



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## Chapter 10 – Today in 2007 edition

- Table 10.4.2.2 (15)
- In locations where voice intelligibility is required, it shall be verified by one of the following methods:
- (1) Use of subject-based test methods as described in ANSI S3.2, Method for Measuring the Intelligibility of Speech Over Communications Systems
- (2) Use of methods and instruments that measure certain physical parameters and provide a common intelligibility scale score as described in IEC 60849, Sound systems for emergency purposes
- (3) Use of other methods acceptable to the authority having jurisdiction
- The use of test methods that provide a common intelligibility scale score shall be permitted for use in existing systems but shall not require revisions to systems that were designed prior to the 2002 edition of this Code.



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## Chapter 7 INTELIGIBILTY

- Chapter 7 - Proposed to adopt ISO 7240 Part 19
- What is it?

INTERNATIONAL STANDARD ISO 7240-19  
First edition 2017-06-15

Fire detection and alarm systems —  
Part 19:  
Design, installation, commissioning and  
service of sound systems for emergency  
purposes  
Systèmes de détection et d'alarme d'incendie —  
Partie 19: Conception, installation, prise en charge et entretien des  
systèmes sonores pour les besoins de secours



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## Chapter 7 Proposals

- 7.4.9\* Voice Intelligibility
- Voice intelligibility, shall be designed and measured in accordance with ISO 7240-19.
- What does this mean?



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## NFPA 72 – 2010 Proposed

- 7.4.9.1 Required speech intelligibility values for indoor locations shall be achieved as outlined in Table 7.4.9.1. The speech intelligibility values shown in Table 7.4.9.1 are considered minimum values.
- 7.4.9.2\* In cases where these values cannot be achieved, the Authority Having Jurisdiction shall be permitted to allow lower minimum values or require alternative methods of notification.

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## ISO 7240-19

Table 7.4.9.1

METHOD	Average Value Minimum	Single Point Minimum
STI or STIPA	0.50	0.45
PB 256 words	94	91
PB 1000 words	77	68
MRT, %	94	90
SII	0.50	0.45

STI 0.50 same as CIS 0.7

$CIS = 1 + \log(STI)$

- Compressed relationship
- 5 qualification intervals

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## ISO 7240-19

- **Scope**
- This part of ISO 7240 specifies the design, installation, commissioning and service requirements for a Sound System for Emergency Purposes (s.s.e.p.; see ISO 7240-1:2005, Figure 1, item C), which is primarily intended to broadcast information for the protection of lives within one or more specified indoor or outdoor areas during an emergency.

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# Chapter 12

## ECS Emergency Communications Systems




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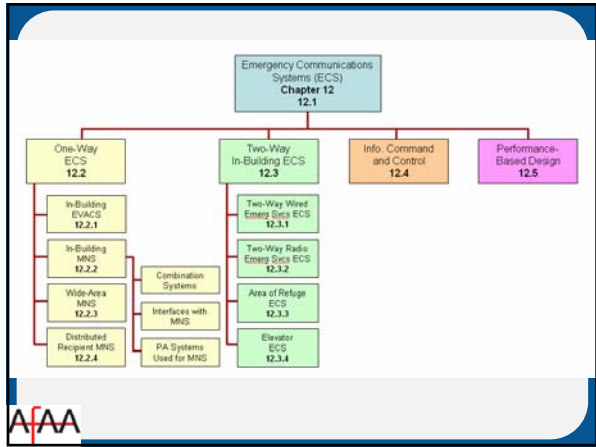
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