NFPA® 720

Standard for the Installation of Carbon Monoxide (CO) Detection and Warning Equipment

2015 Edition

NFPA, 1 Batterymarch Park, Quincy, MA 02169-7471
An International Codes and Standards Organization

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NFPA® 720

Standard for the

Installation of Carbon Monoxide (CO) Detection and Warning Equipment

2015 Edition

This edition of NFPA 720, *Standard for the Installation of Carbon Monoxide (CO) Detection and Warning Equipment*, was prepared by the Technical Committee on Carbon Monoxide Detection (SIG-CAR), released by the Correlating Committee on Signaling Systems for the Protection of Life and Property (SIG-AAC), and acted on by NFPA at its June Association Technical Meeting held June 9–12, 2014, in Las Vegas, NV. It was issued by the Standards Council on August 14, 2014, with an effective date of September 3, 2014, and supersedes all previous editions.

This edition of NFPA 720 was approved as an American National Standard on September 3, 2014.

Origin and Development of NFPA 720

With the increased concern over carbon monoxide (CO) hazards in residential applications, the National Fire Protection Association was petitioned to develop a document covering the installation of CO detectors and related equipment. In late 1993, the Technical Committee on Household Fire Warning Equipment was tasked to develop a document covering the installation and use of CO detectors. This document was originally prepared by the Technical Committee on Household Fire Warning Equipment but was returned to committee at the 1995 Annual Meeting. The NFPA Standards Council later approved the formation of the Technical Committee on Carbon Monoxide and Fuel Gas Detectors to further develop this document.

The 2003 edition reflected editorial revisions to comply with the *Manual of Style for NFPA Technical Committee Documents*. Those revisions included the addition of three administrative chapters at the beginning of the document: "Administration," "Referenced Publications," and "Definitions." Two technical chapters followed the administrative chapters: "General Provisions" from Chapter 1 (in part) of the 1998 edition and "Household Carbon Monoxide Warning Equipment" from Chapter 2 of the 1998 edition. Editorial revisions also included breaking out paragraphs with multiple requirements into individually numbered paragraphs, minimizing the use of exceptions, and using consistent headings for sections and subsections. Changes also were made in some sections to provide language and terminology that was more consistent and user friendly. The 2003 edition also contained technical revisions, including the recommendation that printed instructions for carbon monoxide alarms and detectors include minimum and recommended distances from fuel-burning appliances.

As communities began to recognize the life safety benefit of carbon monoxide warning equipment, requirements by local jurisdictions for the installation of this equipment became more common, and the need for an installation standard written in enforceable language became evident. The 2005 edition of NFPA 720 reflected that need — it was changed from a recommended practice to a standard. In addition, terms such as *family living unit* and *household* were replaced, where appropriate, with the term *dwelling unit*, to provide language consistent with standard terminology used in NFPA codes and standards.

The 2009 edition was a complete rewrite of the standard and addressed installations of carbon monoxide detection systems in commercial types of applications as well as the installation of carbon monoxide warning equipment in household applications. The 2009 edition was largely extracted from the 2007 edition of *NFPA 72*, *National Fire Alarm Code*, and was organized in a fashion similar to that of *NFPA 72*. Paragraphs that were extracted from *NFPA 72* were shown with the extract reference in brackets [ ] at the end of the paragraph. In some cases, modifications were made to the extracted text to use terminology appropriate for this standard, such as the term *carbon monoxide* instead of *fire*. In those instances, brackets

encased the modified words. In a similar manner, where terms were deleted, empty brackets were shown, such as where the word *smoke* was removed from the term *smoke alarm*.

Some of the technical changes in the 2009 edition included the introduction of requirements for the placement of carbon monoxide detectors in commercial applications. Those requirements were based on the Fire Protection Research Foundation report *Development of a Technical Basis for Carbon Monoxide Detector Siting Research Project*. In addition, requirements for the siting, power supply, and interconnection of carbon monoxide alarms were updated.

The previous edition of NFPA 720 was largely extracted from the 2007 edition of *NFPA 72*. Extensive changes were made in the organization and content of the 2010 edition of *NFPA 72*. As a result, the extract material from *NFPA 72* was updated in the 2012 edition of NFPA 720 to provide consistency. As in the 2009 edition, paragraphs that were extracted from *NFPA 72* were shown with the extract reference in brackets [] at the end of the paragraph. In some cases, modifications were made to the extracted text to use terminology appropriate for this standard, such as the term *carbon monoxide* instead of *fire*. In those instances, brackets encased the modifying words. In similar manner, where terms were deleted, empty brackets were shown, such as where the word *smoke* was removed from the term *smoke alarm*.

Several noteworthy technical changes were also included in the 2012 edition of NFPA 720. These included an expanded definition of the term "carbon monoxide alarm"; a revision of the secondary power requirement for systems monitored by a supervising station; a revision of the record of completion form and the inspection, testing, and maintenance form; an addition of a provision to permit performance-based designs for the location of system CO detectors; new provisions for low-frequency audible signaling for sleeping areas; removal of requirements for sensitivity testing of system CO detectors; revisions to address the replacement of combination smoke/CO alarms; new provisions to address signaling to the deaf and hard of hearing in applications of CO alarms and household CO detection systems; new provisions for CO alarms that use wireless signals to interconnect alarms within a household; and updated provisions for the transmission of signals from a household CO detection system to a supervising station.

As with the two previous editions, the 2015 edition of NFPA 720 is largely extracted from *NFPA 72*. Numerous extracts have been updated in this edition to maintain consistency with the 2013 edition of *NFPA 72*. The same convention for identifying the extracts, as well as editorial changes to the extracts, has been used as in the previous two editions.

Technical changes have also been included in the 2015 edition of NFPA 720. These include the following: revision of requirements for personnel qualifications in Chapter 4 so they are more specific to CO systems; revision of the requirements for the audible CO alarm signal in Chapters 5 and 9 to allow the use of more than one tone; revision of the inspection and testing tables in Chapter 8 so they are consistent with the format used in *NFPA 72*; revision of the requirements in Chapter 9 for secondary power supply standby capacity from 8 to 24 hours; revision of the requirements in Chapter 9 for distinctive alarm signals to make it clear that CO, fire, and other alarm signals must each use a different audible signal; and the addition of new Annex C, Guidelines for Emergency Responders.

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Committee Scope: This Committee shall have primary responsibility for documents on the installation, performance, maintenance, testing, and use of signaling components and signaling systems for the protection of life, property and mission continuity.

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Committee Scope: This Committee shall have primary responsibility for documents addressing the selection, installation, operation, and maintenance of carbon monoxide warning equipment.

Contents

NFPA 720

Standard for the

Installation of Carbon Monoxide (CO) Detection and Warning Equipment

2015 Edition

NOTICE: An asterisk (*) following the number or letter designating a paragraph indicates that explanatory material on the paragraph can be found in Annex A.

A reference in brackets [ ] following a section or paragraph indicates material that has been extracted from another NFPA document. As an aid to the user, the complete title and edition of the source documents for extracts in mandatory sections of the document are given in Chapter 2 and those for extracts in informational sections are given in Annex D. Extracted text may be edited for consistency and style and may include the revision of internal paragraph references and other references as appropriate. Requests for interpretations or revisions of extracted text shall be sent to the technical committee responsible for the source document.

Information on referenced publications can be found in Chapter 2 and Annex D.

Chapter 1 Administration

1.1* Scope.

1.1.1 This standard is primarily concerned with life safety, not with protection of property.

1.1.2* This standard covers the selection, design, application, installation, location, performance, inspection, testing, and maintenance of carbon monoxide detection and warning equipment in buildings and structures.

1.1.3 This standard contains requirements for the selection, installation, operation, and maintenance of equipment that detects concentrations of carbon monoxide that could pose a life safety risk to most occupants in buildings and structures.

1.2* Purpose.

1.2.1 The purpose of this standard is to provide requirements for carbon monoxide detection and warning equipment intended to warn occupants of the presence of carbon monoxide in sufficient time to allow occupants to either escape or take other appropriate action and where required to summon aid.

1.2.2 The requirements provided by this standard address the means of signal initiation, transmission, notification, and annunciation; the levels of performance; and the reliability of carbon monoxide detection and warning equipment.

1.3 Application.

1.3.1 The requirements of this standard apply to the installation of carbon monoxide detection and warning equipment, including the following:

(1) Single- and multiple-station carbon monoxide alarms
(2) Carbon monoxide detectors and their related systems and components

1.3.2* Carbon monoxide detection and warning equipment shall not be used in lieu of fire detection or warning equipment required by *NFPA 72, National Fire Alarm and Signaling Code*; NFPA *101, Life Safety Code*; or *NFPA 5000, Building Construction and Safety Code*.

1.4 Equivalency. Nothing in this standard is intended to prevent the use of systems, methods, devices, or appliances of equivalent or superior quality, strength, fire resistance, effectiveness, durability, and safety over those prescribed by this standard.

1.4.1 Technical documentation shall be submitted to the authority having jurisdiction to demonstrate equivalency.

1.4.2 The system, method, device, or appliance shall be approved for the intended purpose by the authority having jurisdiction.

1.4.3 All alarms or detectors and related equipment having materials or forms different from those detailed in this standard shall be examined and tested in accordance with applicable standards and, if found equivalent, shall be permitted to be approved.

1.5 Units of Measure.

1.5.1 The units of measure in this standard are presented in U.S. customary units (inch/pound units).

1.5.2 Where presented, International System (SI) units follow the inch/pound units in parentheses.

1.5.3 Where both systems of units are presented, either system shall be acceptable for satisfying the requirements in this standard.

1.5.4 Where both systems of units are presented, users of this standard shall apply one set of units consistently and shall not alternate between units.

1.5.5 The values presented for measurements in this standard are expressed with a degree of precision appropriate for practical application and enforcement. It is not intended that the application or enforcement of these values be more precise than the precision expressed.

1.5.6* Where extracted text contains values expressed in only one system of units, the values in the extracted text have been retained without conversion to preserve the values established by the responsible technical committee in the source document.

Chapter 2 Referenced Publications

2.1 General. The documents or portions thereof listed in this chapter are referenced within this standard and shall be considered part of the requirements of this document.

2.2 NFPA Publications. National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471.

NFPA 70®, National Electrical Code®, 2014 edition.

NFPA 72®, National Fire Alarm and Signaling Code, 2013 edition.

NFPA *101®, Life Safety Code®,* 2015 edition.

NFPA 110, *Standard for Emergency and Standby Power Systems,* 2013 edition.