

# NFPA® 88A

## Standard for Parking Structures

### 2011 Edition



NFPA, 1 Batterymarch Park, Quincy, MA 02169-7471  
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NFPA® 88A  
Standard for  
Parking Structures  
2011 Edition

This edition of NFPA 88A, *Standard for Parking Structures*, was prepared by the Technical Committee on Garages and Parking Structures. It was issued by the Standards Council on June 1, 2010, with an effective date of June 21, 2010, and supersedes all previous editions.

This edition of NFPA 88A was approved as an American National Standard on June 21, 2010.

#### Origin and Development of NFPA 88A

Work on fire protection safeguards for garages was initiated by NFPA in 1927 with the appointment of a committee. After extensive deliberations and the publication of successive drafts, a standard was adopted in 1932. Subsequently, the committee was discharged when it appeared that no further activity was needed in this field. In 1952, the present committee was created. This committee prepared a number of redrafts of the 1932 text, and in 1957 a revised NFPA 88, *Standard for Garages*, was adopted. Revisions were made in 1962, 1968, 1979, 1985, 1995, and 1998.

In order to treat separately the occupancies of repair garages and parking structures, NFPA 88A and NFPA 88B, *Standard for Repair Garages*, were published separately in 1973.

In 1991, partial revisions were made to this standard, and the 1995 edition contained editorial changes. The 1998 edition contained definitions clarifying the various configurations of parking structures. It also contained changes increasing the area of office space related to the parking structure and further clarified the requirements for vertical opening protection and automatic sprinkler installation. That edition also included new requirements for natural gas powered vehicles.

The 2002 edition contained primarily editorial revisions for compliance with the *Manual of Style for NFPA Technical Committee Documents*, and listed metric units of measurement as the primary units.

In the 2007 edition, the Committee rewrote the definition of *open parking structure* to comply with the *Manual of Style for NFPA Technical Committee Documents* and moved the requirements to a new 4.7.1. The NFPA 220 definition of *Noncombustible Material* was adopted in place of the one used in the previous edition.

Definitions were added to recognize the emergence of *mechanical parking structures* where cars are moved to parking places by lifts or other devices instead of being driven. No specific requirements were added.

Lastly, the committee clarified the use of vehicle ramps in 4.4.3 and 4.4.4.

In the 2011 edition, the committee has made a number of significant changes, including the following:

- (1) Added new definitions
- (2) Defined and addressed "automated mechanical-type parking structure" in a new chapter
- (3) Deleted certain sections that were not enforceable
- (4) Reorganized the entire document using a chapter structure that emulates other construction documents including, but not limited to, NFPA 101 and NFPA 5000

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NOTE: Membership on a committee shall not in and of itself constitute an endorsement of the Association or any document developed by the committee on which the member serves.

**Committee Scope:** This Committee shall have primary responsibility for documents on construction, control of fire hazards, ventilation, and fire protection in parking structures.

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

Changes other than editorial are indicated by a vertical rule beside the paragraph, table, or figure in which the change occurred. These rules are included as an aid to the user in identifying changes from the previous edition. Where one or more complete paragraphs have been deleted, the deletion is indicated by a bullet (•) between the paragraphs that remain.

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 B. 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 B.

Chapter 1 Administration

**1.1 Scope.** This standard shall cover the construction and protection of, as well as the control of hazards in, open and enclosed parking structures. This standard shall not apply to one- and two-family dwellings.

**1.2 Purpose.** The purpose of this standard is to provide minimum fire protection standards for parking structures.

**1.3 Retroactivity.** The provisions of this standard reflect a consensus of what is necessary to provide an acceptable degree of protection from the hazards addressed in this standard at the time the standard was issued.

**1.3.1** Unless otherwise specified, the provisions of this standard shall not apply to facilities, equipment, structures, or installations that existed or were approved for construction or installation prior to the effective date of the standard. Where specified, the provisions of this standard shall be retroactive.

**1.3.2** In those cases where the authority having jurisdiction determines that the existing situation presents an unacceptable degree of risk, the authority having jurisdiction shall be permitted to apply retroactively any portions of this standard deemed appropriate.

**1.3.3** The retroactive requirements of this standard shall be permitted to be modified if their application clearly would be impractical in the judgment of the authority having jurisdiction and only where it is clearly evident that a reasonable degree of safety is provided.

**1.4 Equivalency.** Nothing in this standard is intended to prevent the use of systems, methods, or devices of equivalent or superior quality, strength, fire resistance, effectiveness, durability, and safety over those prescribed by this standard, provided technical documentation is submitted to the authority having jurisdiction to demonstrate equivalency and the system, method, or device is approved for the intended purpose.

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 13, *Standard for the Installation of Sprinkler Systems*, 2010 edition.

NFPA 14, *Standard for the Installation of Standpipe and Hose Systems*, 2010 edition.

NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, 2011 edition.

NFPA 30, *Flammable and Combustible Liquids Code*, 2008 edition.

NFPA 30A, *Code for Motor Fuel Dispensing Facilities and Repair Garages*, 2008 edition.

NFPA 31, *Standard for the Installation of Oil-Burning Equipment*, 2006 edition.

NFPA 52, *Vehicular Gaseous Fuel Systems Code*, 2010 edition.

NFPA 54, *National Fuel Gas Code*, 2009 edition.

NFPA 58, *Liquefied Petroleum Gas Code*, 2011 edition.

NFPA 70<sup>®</sup>, *National Electrical Code*<sup>®</sup>, 2011 edition.

NFPA 72<sup>®</sup>, *National Fire Alarm and Signaling Code*, 2010 edition.

NFPA 80, *Standard for Fire Doors and Other Opening Protectives*, 2010 edition.

NFPA 90A, *Standard for the Installation of Air-Conditioning and Ventilating Systems*, 2009 edition.

NFPA 101<sup>®</sup>, *Life Safety Code*<sup>®</sup>, 2009 edition.

NFPA 211, *Standard for Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances*, 2010 edition.

NFPA 220, *Standard on Types of Building Construction*, 2009 edition.

NFPA 5000<sup>®</sup>, *Building Construction and Safety Code*<sup>®</sup>, 2009 edition.

**2.3 Other Publications.**

**2.3.1 ASTM Publications.** ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959.

ASTM E 136, *Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C*, 2004.

**2.3.2 IAPMO Publications.** International Association of Plumbing and Mechanical Officials, 5001 E. Philadelphia Street, Ontario, CA 91761.

*Uniform Mechanical Code*, 2003.



### 2.3.3 Other Publications.

*Merriam-Webster's Collegiate Dictionary*, 11th edition, Merriam-Webster, Inc., Springfield, MA, 2003.

### 2.4 References for Extracts in Mandatory Sections.

NFPA 101<sup>®</sup>, *Life Safety Code*<sup>®</sup>, 2009 edition.

NFPA 220, *Standard on Types of Building Construction*, 2009 edition.

## Chapter 3 Definitions

**3.1 General.** The definitions contained in this chapter shall apply to the terms used in this standard. Where terms are not defined in this chapter or within another chapter, they shall be defined using their ordinarily accepted meanings within the context in which they are used. *Merriam-Webster's Collegiate Dictionary*, 11th edition, shall be the source for the ordinarily accepted meaning.

### 3.2 NFPA Official Definitions.

**3.2.1\* Approved.** Acceptable to the authority having jurisdiction.

**3.2.2\* Authority Having Jurisdiction (AHJ).** An organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure.

**3.2.3 Labeled.** Equipment or materials to which has been attached a label, symbol, or other identifying mark of an organization that is acceptable to the authority having jurisdiction and concerned with product evaluation, that maintains periodic inspection of production of labeled equipment or materials, and by whose labeling the manufacturer indicates compliance with appropriate standards or performance in a specified manner.

**3.2.4\* Listed.** Equipment, materials, or services included in a list published by an organization that is acceptable to the authority having jurisdiction and concerned with evaluation of products or services, that maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services, and whose listing states that either the equipment, material, or service meets appropriate designated standards or has been tested and found suitable for a specified purpose.

### 3.3 General Definitions.

**3.3.1 Noncombustible Material.** A material that, in the form in which it is used and under the conditions anticipated, will not ignite, burn, support combustion, or release flammable vapors when subjected to fire or heat. Materials that are reported as passing ASTM E 136 are considered noncombustible materials. [220, 2009]

**3.3.2\* Parking Structure.** A building, structure, or portion thereof used for the parking, storage, or both, of motor vehicles.

**3.3.2.1 Parking Structure, Assisted Mechanical Type.** A parking structure that uses lifts or other mechanical devices to transport vehicles to the floors of a parking structure, where the vehicles are then parked by a person.

**3.3.2.2 Parking Structure, Automated Type.** A parking structure that uses computer-controlled machines to store and retrieve vehicles, without drivers, in multi-level storage racks with no floors.

**3.3.2.3 Parking Structure, Enclosed.** Any parking structure that is not an open parking structure.

**3.3.2.4 Parking Structure, Open.** A parking structure that meets the requirements of Section 5.5.

**3.3.2.5 Parking Structure, Ramp Type.** A parking structure that utilizes sloped floors for vertical vehicle circulation.

## Chapter 4 Means of Egress

### 4.1 Means of Egress.

**4.1.1** Means of egress shall comply with NFPA 101 or NFPA 5000 as modified by 4.1.2.

**4.1.2** The ramp requirement of NFPA 101, 7.2.5, and NFPA 5000, 11.2.5, shall not apply to those parts of sloped floors utilized for both parking and vehicle circulation.

**4.1.3** In a ramp-type open parking structure with open vehicle ramps not subject to closure, the ramp shall be permitted to serve in lieu of the second means of egress from floors above the level of exit discharge, provided that the ramp discharges directly outside at the street level. [101:42.8.2.2.6.1(2)]

**4.1.4** For parking structures extending only one floor level below the level of exit discharge, a vehicle ramp leading directly to the outside shall be permitted to serve in lieu of the second means of egress, provided that no door or shutter is installed therein. [101:42.8.2.2.6.1(3)]

**4.1.5\*** Open stairs shall be permitted in open parking structures.

## Chapter 5 Construction

### 5.1 General Requirements.

**5.1.1\*** Parking structures shall be built using one of the types of construction defined in NFPA 220, except as otherwise amended in this standard.

**5.1.2** Open parking structures shall be of Type I or Type II construction as defined in NFPA 220.

**5.1.3** Heights and floor areas of open parking structures of Type I, Type II (222), or Type II (111) construction shall be permitted to be unlimited.

**5.1.4** Open parking structures of Type II (000) construction shall be permitted to be of unlimited area where both of the following conditions are met:

- (1) The height does not exceed 25 m (75 ft).
- (2) The horizontal distance from any point on any parking level to an exterior wall opening on a street, an alley, a courtyard, or other similar permanent open space does not exceed 60 m (200 ft).

### 5.2 Compartmentation.

**5.2.1** Those parts of parking structures located within, immediately below, attached to, or less than 3000 mm (120 in.) from a building used for any other purpose shall be separated by walls, partitions, floors, or floor-ceiling assemblies having fire resistance ratings of not less than 2 hours, unless otherwise permitted by 5.2.2.