



Public Input No. 44-NFPA 88A-2024 [Global Input]

NEW ANNEX C

C Sample Ordinance Adopting NFPA 88A

This annex is not a part of the requirements of this NFPA document but is included for informational purposes only.

C.1

The following sample ordinance is provided to assist a jurisdiction in the adoption of this code and is not part of this code.

ORDINANCE NO. _____

An ordinance of the [jurisdiction] adopting the [year] edition of NFPA 88A Standard for Parking Structures; documents listed in Chapter 2 of that code; prescribing regulations governing conditions hazardous to life and property from fire or explosion; providing for the issuance of permits and collection of fees; repealing Ordinance No. _____ of the [jurisdiction] and all other ordinances and parts of ordinances in conflict therewith; providing a penalty; providing a severability clause; and providing for publication; and providing an effective date.

BE IT ORDAINED BY THE [governing body] OF THE [jurisdiction]:

SECTION 1 That the Standard for Parking Structures and documents adopted by Chapter 2, three (3) copies of which are on file and are open to inspection by the public in the office of the [jurisdiction's keeper of records] of the [jurisdiction], are hereby adopted and incorporated into this ordinance as fully as if set out at length herein, and from the date on which this ordinance shall take effect, the provisions thereof shall be controlling within the limits of the [jurisdiction]. The same are hereby adopted as the code of the [jurisdiction] for the purpose of prescribing regulations governing conditions hazardous to life and property from fire or explosion and providing for issuance of permits and collection of fees.

SECTION 2 Any person who shall violate any provision of this code or standard hereby adopted or fail to comply therewith; or who shall violate or fail to comply with any order made thereunder; or who shall build in violation of any detailed statement of specifications or plans submitted and approved thereunder; or failed to operate in accordance with any certificate or permit issued thereunder; and from which no appeal has been taken; or who shall fail to comply with such an order as affirmed or modified by or by a court of competent jurisdiction, within the time fixed herein, shall severally for each and every such violation and noncompliance, respectively, be guilty of a misdemeanor, punishable by a fine of not less than \$ _____ nor more than \$ _____ or by imprisonment for not less than _____ days nor more than _____ days or by both such fine and imprisonment. The imposition of one penalty for any violation shall not excuse the violation or permit it to continue; and all such persons shall be required to correct or remedy such violations or defects within a reasonable time; and when not otherwise specified the application of the above penalty shall not be held to prevent the enforced removal of prohibited conditions. Each day that prohibited conditions are maintained shall constitute a separate offense.

SECTION 3 Additions, insertions, and changes — that the [year] edition of NFPA 88A: Standard for Parking Structures, is amended and changed in the following respects:

List Amendments

SECTION 4 That ordinance No. _____ of [jurisdiction] entitled [fill in the title of the ordinance or ordinances in effect at the present time] and all other ordinances or parts of ordinances in conflict herewith are hereby repealed.

SECTION 5 That if any section, subsection, sentence, clause, or phrase of this ordinance is, for any reason, held to be invalid or unconstitutional, such decision shall not affect the validity or constitutionality of the remaining portions of this ordinance. The [governing body] hereby declares that it would have passed this ordinance, and each section, subsection, clause, or phrase hereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses, and phrases be declared unconstitutional.

SECTION 6 That the [jurisdiction's keeper of records] is hereby ordered and directed to cause this ordinance to be published.

[NOTE: An additional provision may be required to direct the number of times the ordinance is to be published and to specify that it is to be in a newspaper in general circulation. Posting may also be required.]

SECTION 7 That this ordinance and the rules, regulations, provisions, requirements, orders, and matters established and adopted hereby shall take effect and be in full force and effect [time period] from and after the date of its final passage and adoption.

Type your content here ...

Statement of Problem and Substantiation for Public Input

While 88A is referenced in numerous Standards and Building Codes, municipalities may be inclined to directly adopt the entire Standard for enforcement in their jurisdiction. Providing a Sample Ordinance for adopting simplifies the process for these entities, and encourages them to adopt the Standard in its entirety. This follows suit with numerous other Standard which provide a Sample Ordinance, such as NFPA 30A and 58.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
<u>Public Input No. 43-NFPA 88A-2024 [New Section after 1.6]</u>	PI 43 States the enforcement authority, while PI 44 provides the sample ordinance for adopting the Standard for enforcement.

Submitter Information Verification

Submitter Full Name: Christopher Platz
Organization: Abington Township
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jun 03 09:57:47 EDT 2024
Committee: GAR-AAA

Committee Statement

Resolution: FR-3-NFPA 88A-2024

Statement: The committee agreed to add this language to create a new annex. While 88A is referenced in numerous codes and standards, municipalities may be inclined to directly adopt the entire standard for enforcement in their jurisdiction. Providing a sample

ordinance simplifies the process and encourages them to adopt the standard in its entirety. See NFPA 30A and 58 for other examples.



Public Input No. 34-NFPA 88A-2024 [New Section after 1.1]

1.1.3

This standard shall not apply to garages associated with single family occupancies.

Statement of Problem and Substantiation for Public Input

There are some houses and townhouses that are built with garages that exceed 1000 FT² (R3 in the IBC). This standard should never apply to these types of occupancies.

Submitter Information Verification

Submitter Full Name: Peter Schwab

Organization: Wayne Automatic Fire Sprinkler

Street Address:

City:

State:

Zip:

Submittal Date: Wed May 29 12:45:34 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: This PI was requested to be resolved by the submitter.



Public Input No. 32-NFPA 88A-2024 [Section No. 1.1.1]

1.1.1

This standard shall not apply to private garages not exceeding 1000 ft² (92.9 m²) ~~associated with residential buildings.~~

A.1.1.1

The threshold for private garages is 1000 ft² (92.9 m²) which is similar to model building code language. A common location for these garages is in residential properties. Small buildings are generally arranged to house multiple individual private garages, usually for rent. If no one individual garage exceeds the threshold, then this standard would not apply.

Statement of Problem and Substantiation for Public Input

The descriptive language belongs in the annex.

Submitter Information Verification

Submitter Full Name: Peter Schwab

Organization: Wayne Automatic Fire Sprinkler

Street Address:

City:

State:

Zip:

Submittal Date: Wed May 29 12:27:01 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: FR-1-NFPA 88A-2024

Statement: The committee agreed to this change, which deletes explanatory text from the body to the annex, and provided additional clarity and context with new annex material.



Public Input No. 6-NFPA 88A-2024 [Section No. 1.4]

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.

1.5 Enforcement

The Authority Having Jurisdiction (AHJ) shall have the authority to enforce all of the requirements of this standard on open and enclosed parking structures and parking systems.

Statement of Problem and Substantiation for Public Input

An enforcement provision was proposed to be added to the code. The existing 1.5 Emergency Plans. 1.6 Units, 1.6.1 SI Units, and 1.6.2 Primary Values would follow the proposed new 1.5 if accepted.

Submitter Information Verification

Submitter Full Name: Michael Carsillo

Organization: Palm Beach Gardens Fire Rescue

Affiliation: International Fire Marshals Association (IFMA)

Street Address:

City:

State:

Zip:

Submittal Date: Mon Feb 05 05:18:14 EST 2024

Committee: GAR-AAA

Committee Statement

Resolution: This PI was requested to be resolved by the submitter.



Public Input No. 67-NFPA 88A-2024 [New Section after 1.5]

TITLE OF NEW CONTENT

1.6 New Technology. [409 : 1.6]

1.6.1 . Nothing in this standard shall be intended to restrict new technologies or alternate arrangements, provided the level of safety prescribed by this standard is not lowered. [409 : 1.6.1]

1.6.2 . Materials or devices not specifically designated by this standard shall be utilized in complete accord with all conditions, requirements, and limitations of their listings. [409 : 1.6.2]

Statement of Problem and Substantiation for Public Input

Add the technology section to ensure consistency between standards and establish the ability to use new technology if applicable.

Submitter Information Verification

Submitter Full Name: James Gaut

Organization: Marriott Vacations Worldwide

Street Address:

City:

State:

Zip:

Submittal Date: Tue Jun 04 10:07:04 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: FR-4-NFPA 88A-2024

Statement: The committee agreed to add the language from PI-36, which mirrored PI-67, without the extract tags. This language is consistent across several NFPA codes and standards. This text allows for new technology considerations within NFPA 88A to be considered.



Public Input No. 36-NFPA 88A-2024 [New Section after 1.6]

NEW TECHNOLOGY

1.7 New Technology.

1.7.1

Nothing in this standard shall be intended to restrict new technologies or alternate arrangements, provided the level of safety prescribed by this standard is not lowered.

1.7.2

Materials or devices not specifically designated by this standard shall be utilized in complete accord with all conditions, requirements, and limitations of their listings.

Statement of Problem and Substantiation for Public Input

Adding a new technology section provides the opportunity for new systems, services, and alternate arrangements to be proposed that may not be explicitly named in the standard. It allows the standard to be flexible in providing for advancements while ensuring that the current level of safety is still provided. This follows suit with numerous other NFPA Standards which have the same section.

Submitter Information Verification

Submitter Full Name: Christopher Platz
Organization: Abington Township
Street Address:
City:
State:
Zip:
Submittal Date: Sun Jun 02 21:45:10 EDT 2024
Committee: GAR-AAA

Committee Statement

Resolution: FR-4-NFPA 88A-2024

Statement: The committee agreed to add the language from PI-36, which mirrored PI-67, without the extract tags. This language is consistent across several NFPA codes and standards. This text allows for new technology considerations within NFPA 88A to be considered.



Public Input No. 43-NFPA 88A-2024 [New Section after 1.6]

ENFORCEMENT

1.8 Enforcement.

This code shall be administered and enforced by the authority having jurisdiction designated by the governing authority. (See Annex C for sample wording for enabling legislation.)

Statement of Problem and Substantiation for Public Input

The addition of this section will clearly outline how the standard is to be enforced. This follows suit with numerous other NFPA standards to outline who has the overall responsibility to enforce the standard.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
<u>Public Input No. 44-NFPA 88A-2024 [Global Input]</u>	

Submitter Information Verification

Submitter Full Name: Christopher Platz
Organization: Abington Township
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jun 03 09:43:46 EDT 2024
Committee: GAR-AAA

Committee Statement

Resolution: FR-2-NFPA 88A-2024

Statement: The committee agreed with the submitter with modification. The addition of this section will clearly outline how the standard is to be enforced. This follows suit with numerous other NFPA standards to outline who has the overall responsibility to enforce the standard.



Public Input No. 12-NFPA 88A-2024 [New Section after 2.2]

TITLE OF NEW CONTENT

NFPA 855 Standard for the Installation of Stationary Energy Storage Systems, 2023

Statement of Problem and Substantiation for Public Input

Task Group 5 added language in section 7 to reference NFPA 855 and this change is necessary to reference the correct edition. Additional work to section 6 also refers to this standard.

Submitter Information Verification

Submitter Full Name: Chris Towski

Organization: International Association of Fire Fighters

Street Address:

City:

State:

Zip:

Submittal Date: Thu Mar 21 19:47:57 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: See FR-21.

**Public Input No. 35-NFPA 88A-2024 [Section No. 2.3.2]****2.3.2 UL Publications.**

Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062-2096. www.ul.com

UL 32, *Standard for Metal Waste Cans*, 1994, revised 2019.

UL 263, *Fire Tests of Building Construction and Materials*, 2011, revised ~~2020~~ 2022 .

~~UL 325, *ANSI/CAN/UL Standard for 325, Door, Drapery, Gate, Louver, and Window Operators and Systems*, 2017, revised 2020~~ 2023 .

UL 2202, *Standard for Electric Vehicle (EV) Charging System Equipment*, ~~2009, revised 2018~~ 2022 .

UL 2594, *Standard for Electric Vehicle Supply Equipment*, ~~2016~~ 2022 .

UL 2750, ~~*UL LLC Outline of Investigation for Wireless*~~ *Wireless Power Transfer Equipment for Electric Vehicles*, ~~2020~~ 2023 .

Statement of Problem and Substantiation for Public Input

The language “Standard for” has been removed to use the short titles, UL 2750 is no longer an outline of investigation but is a full standard and the most recent revisions have been brought up to current dates.

Submitter Information Verification

Submitter Full Name: Kelly Nicoletto

Organization: UL Solutions

Street Address:

City:

State:

Zip:

Submittal Date: Sat Jun 01 12:52:45 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: See FR-21.



Public Input No. 52-NFPA 88A-2024 [New Section after 3.2]

TITLE OF NEW CONTENT

n-3.3.3 _ Horizontal Barrier. A solid barrier in the horizontal position covering the rack at certain height increments to prevent vertical fire spread. [13, 2022]

Statement of Problem and Substantiation for Public Input

Horizontal barriers are being added to chapter 9. The task group felt it was necessary to add the definition.

Submitter Information Verification

Submitter Full Name: James Gaut
Organization: Marriott Vacations Worldwide
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jun 04 09:30:36 EDT 2024
Committee: GAR-AAA

Committee Statement

Resolution: Because PI-71 was not incorporated as an FR, it is not appropriate to include these requirements at this time. These requirements should be addressed by the TG working on the Chapter 9 requirements for parking systems.



Public Input No. 53-NFPA 88A-2024 [New Section after 3.2]

TITLE OF NEW CONTENT

Type your content here ...

3.3. 3 4 Mixing Fan. A mechanical unit that moves air to prevent uncirculated segments of a volume, within a space, by inducing air velocity and for the purpose of mitigating the accumulation of contaminants in any portion of that space.

Statement of Problem and Substantiation for Public Input

Realigning the section number because the addition of new definitions caused the numbering to be off.

Submitter Information Verification

Submitter Full Name: James Gaut

Organization: Marriott Vacations Worldwide

Street Address:

City:

State:

Zip:

Submittal Date: Tue Jun 04 09:32:58 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: As these PI's only address possible relocations, these have been resolved. Any subsequent renumbering will be addressed by NFPA Editorial on an as-needed basis.



Public Input No. 54-NFPA 88A-2024 [New Section after 3.2]

TITLE OF NEW CONTENT

Type your content here ...

3.3.4. 5 Noncombustible Material. See Section 5.2.

Statement of Problem and Substantiation for Public Input

Realigning the section number because the addition of new definitions caused the numbering to be off.

Submitter Information Verification

Submitter Full Name: James Gaut

Organization: Marriott Vacations Worldwide

Street Address:

City:

State:

Zip:

Submittal Date: Tue Jun 04 09:36:21 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: As these PI's only address possible relocations, these have been resolved. Any subsequent renumbering will be addressed by NFPA Editorial on an as-needed basis.



Public Input No. 55-NFPA 88A-2024 [New Section after 3.2]

TITLE OF NEW CONTENT

Type your content here ...

3.3. ~~5~~ 6* _ Parking Structure. A building, structure, or portion thereof used for the parking, storage, or both, of motor vehicles.

3.3.6.1 _ Parking Structure, Enclosed. Any parking structure that is not an open parking structure.

3.3.6.2 _ Parking Structure, Open. A parking structure that meets the requirements of Section 5.6.

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

Statement of Problem and Substantiation for Public Input

Realigning the section number because the addition of new definitions caused the numbering to be off.

Submitter Information Verification

Submitter Full Name: James Gaut

Organization: Marriott Vacations Worldwide

Street Address:

City:

State:

Zip:

Submittal Date: Tue Jun 04 09:38:33 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: As these PI's only address possible relocations, these have been resolved. Any subsequent renumbering will be addressed by NFPA Editorial on an as-needed basis.



Public Input No. 56-NFPA 88A-2024 [New Section after 3.2]

TITLE OF NEW CONTENT

Type your content here ...

3.3. ~~6~~ 7 . Parking Systems. Equipment, either stand-alone or incorporated into the building, that parks vehicles by mechanical or automatic means.

3.3.7.1 * Fully Automated Parking System. An unoccupied vehicle storage and retrieval system that transports vehicles in X (i.e., horizontal right to left), Y (i.e., forward and backward), and Z (i.e., up and down) directions.

A.3.3.7.1 Fully Automated Parking System. Vehicles can be driven into terminals separated from the parking system. Typically, fully automated systems can be designed to accommodate thousands of parking spaces. Many storage and retrieval actions can occur simultaneously, which allows high peak storage and retrieval performance.

Statement of Problem and Substantiation for Public Input

Realigning the section number because the addition of new definitions caused the numbering to be off.

Submitter Information Verification

Submitter Full Name: James Gaut

Organization: Marriott Vacations Worldwide

Street Address:

City:

State:

Zip:

Submittal Date: Tue Jun 04 09:39:56 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: As these PI's only address possible relocations, these have been resolved. Any subsequent renumbering will be addressed by NFPA Editorial on an as-needed basis.



Public Input No. 57-NFPA 88A-2024 [New Section after 3.2]

TITLE OF NEW CONTENT

Type your content here ...

A.3.3.7.1 Fully Automated Parking System. Vehicles can be driven into terminals separated from the parking system. Typically, fully automated systems can be designed to accommodate thousands of parking spaces. Many storage and retrieval actions can occur simultaneously, which allows high peak storage and retrieval performance.

n. Fully automated is differentiated from a mechanical Parking System since, in Fully Automated Parking Systems move vehicles in three axes, up/down, forward/backward, and side to side. Mechanical Parking systems move only in two axes, up/down and side to side.

n. Robotic parking system definition is a retired term that was replaced by combining Fully Automated, Mechanical, and Stacker Parking System definitions.

Statement of Problem and Substantiation for Public Input

The task group felt more explanation was necessary to clarify the definition.

Submitter Information Verification

Submitter Full Name: James Gaut

Organization: Marriott Vacations Worldwide

Street Address:

City:

State:

Zip:

Submittal Date: Tue Jun 04 09:40:36 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: Because PI-71 was not incorporated as an FR, it is not appropriate to include these requirements at this time. These requirements should be addressed by the TG working on the Chapter 9 requirements for parking systems.



Public Input No. 58-NFPA 88A-2024 [New Section after 3.2]

TITLE OF NEW CONTENT

Type your content here ...

3.3.8.2* Mechanical Parking System. A parking system that stores and retrieves vehicles on a platform, and that transports vehicles horizontally and vertically to an available parking location within the parking system.

A.3.3.8.2 Mechanical Parking System. Vehicles can be permitted to be driven into the mechanical parking system. One mechanical parking unit typically serves for up to 50 vehicles. For more than 50 vehicles, additional units will need to be added.

Statement of Problem and Substantiation for Public Input

Realigning the section number because the addition of new definitions caused the numbering to be off.

Submitter Information Verification

Submitter Full Name: James Gaut

Organization: Marriott Vacations Worldwide

Street Address:

City:

State:

Zip:

Submittal Date: Tue Jun 04 09:42:22 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: As these PI's only address possible relocations, these have been resolved. Any subsequent renumbering will be addressed by NFPA Editorial on an as-needed basis.



Public Input No. 59-NFPA 88A-2024 [New Section after 3.2]

TITLE OF NEW CONTENT

Type your content here ...

A.3.3.8.2 Mechanical Parking System. Vehicles can be permitted to be driven into the mechanical parking system. One mechanical parking unit typically serves for up to 50 vehicles. For more than 50 vehicles, additional units will need to be added.

(n) Mechanical parking systems are also referred to as semiautomated parking systems.

Statement of Problem and Substantiation for Public Input

The task group felt more explanation was necessary to clarify the definition.

Submitter Information Verification

Submitter Full Name: James Gaut

Organization: Marriott Vacations Worldwide

Street Address:

City:

State:

Zip:

Submittal Date: Tue Jun 04 09:43:32 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: Because PI-71 was not incorporated as an FR, it is not appropriate to include these requirements at this time. These requirements should be addressed by the TG working on the Chapter 9 requirements for parking systems.



Public Input No. 37-NFPA 88A-2024 [New Section after 3.3]

Light electric vehicle (LEV)*

A light duty on-road or off-road vehicle that uses electricity as its source of energy for motive power, which is not considered suitable for use on highway systems.

Statement of Problem and Substantiation for Public Input

This definition is created to support a new code section regarding e-mobility devices.

Submitter Information Verification

Submitter Full Name: Jennifer Hoyt

Organization: Code Red Consultants

Street Address:

City:

State:

Zip:

Submittal Date: Sun Jun 02 22:54:45 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: CI-15-NFPA 88A-2024

Statement: The committee created this committee input to permit further work on this topic at Second Draft. During the discussion on these PI's it was determined that NFPA 1 has requirements on this topic via the 2024 edition. Further, requirements pertaining to golf carts were not included in the PI submissions, but was deemed to be an important topic for review. Finally, definitions on this topic require review to determine if coordination with other NFPA documents is warranted. A task group will continue work on this topic and provide a report to the technical committee at Second Draft.



Public Input No. 38-NFPA 88A-2024 [New Section after 3.3]

Safety-certified light electric vehicle (SCLEV)*

A *light electric vehicle* for which the vehicle, or its electrical system, has been certified for compliance with an approved standard.

Statement of Problem and Substantiation for Public Input

This definition is created to support a new code section regarding e-mobility devices.

Submitter Information Verification

Submitter Full Name: Jennifer Hoyt

Organization: Code Red Consultants

Street Address:

City:

State:

Zip:

Submittal Date: Sun Jun 02 22:56:37 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: CI-15-NFPA 88A-2024

Statement: The committee created this committee input to permit further work on this topic at Second Draft. During the discussion on these PI's it was determined that NFPA 1 has requirements on this topic via the 2024 edition. Further, requirements pertaining to golf carts were not included in the PI submissions, but was deemed to be an important topic for review. Finally, definitions on this topic require review to determine if coordination with other NFPA documents is warranted. A task group will continue work on this topic and provide a report to the technical committee at Second Draft.



Public Input No. 62-NFPA 88A-2024 [New Section after 3.3]

TITLE OF NEW CONTENT

n-3.3.10 Performance-Based Design Approach. A design process where fire and life safety solutions are engineered to achieve a specified goal for a specified use or application.

Statement of Problem and Substantiation for Public Input

This term is used in chapter 9 and/or 10. The task group felt adding the definition to the standard was necessary.

Submitter Information Verification

Submitter Full Name: James Gaut

Organization: Marriott Vacations Worldwide

Street Address:

City:

State:

Zip:

Submittal Date: Tue Jun 04 09:49:14 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: The committee did not agree with the text of PI-72 as provided, as it contained NFPA MOS concerns, as well as questions pertaining to language as extracted from NFPA 409. PI-62 was resolved as it was a related input based on the definition, which could not be added as the term is not utilized within NFPA 88A. The task group for Chapter 9 will review this further and provide possible Public Comment, as well as provide a report to the committee at the Second Draft meeting.



Public Input No. 63-NFPA 88A-2024 [New Section after 3.3]

TITLE OF NEW CONTENT

n-3.3.11 _ Physical Barrier . A physical obstruction intended to prevent contact with equipment or energized electrical conductors and circuit parts or to prevent unauthorized access to a work area. [70E:100]

Statement of Problem and Substantiation for Public Input

This term is used in chapter 9 and/or 10. The task group felt adding the definition to the standard was necessary.

Submitter Information Verification

Submitter Full Name: James Gaut

Organization: Marriott Vacations Worldwide

Street Address:

City:

State:

Zip:

Submittal Date: Tue Jun 04 09:51:20 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: Because PI-71 was not incorporated as an FR, it is not appropriate to include these requirements at this time. These requirements should be addressed by the TG working on the Chapter 9 requirements for parking systems.



Public Input No. 65-NFPA 88A-2024 [New Section after 3.3]

TITLE OF NEW CONTENT

n-3.3.13 Vehicle Platform, open. A device that is part of a parking system where the vehicle drives onto, and the platform moves the vehicle to its desired location in the parking system. An Open platform is exposed to the vehicle below.

Statement of Problem and Substantiation for Public Input

This term is used in chapter 9 and/or 10. The task group felt adding the definition to the standard was necessary.

Submitter Information Verification

Submitter Full Name: James Gaut

Organization: Marriott Vacations Worldwide

Street Address:

City:

State:

Zip:

Submittal Date: Tue Jun 04 09:53:34 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: Because PI-71 was not incorporated as an FR, it is not appropriate to include these requirements at this time. These requirements should be addressed by the TG working on the Chapter 9 requirements for parking systems.



Public Input No. 66-NFPA 88A-2024 [New Section after 3.3]

TITLE OF NEW CONTENT

n-3.3.13 Vehicle Platform, solid. This is a device that is part of a parking system. The vehicle drives onto it, and the platform moves the vehicle to its desired location in the parking system. The solid (closed) platform is not open to the vehicle below.

Statement of Problem and Substantiation for Public Input

This term is used in chapter 9 and/or 10. The task group felt adding the definition to the standard was necessary.

Submitter Information Verification

Submitter Full Name: James Gaut

Organization: Marriott Vacations Worldwide

Street Address:

City:

State:

Zip:

Submittal Date: Tue Jun 04 09:54:23 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: Because PI-71 was not incorporated as an FR, it is not appropriate to include these requirements at this time. These requirements should be addressed by the TG working on the Chapter 9 requirements for parking systems.



Public Input No. 50-NFPA 88A-2024 [New Section after 3.3.2]

NEW DEFINITIONS FOR ELECTRIC VEHICLE CHARGING EQUIPMENT AREAS

3.3.3 Electric Vehicle Charging Equipment Area. The location(s) of electric vehicle supply equipment and designated spot for its use, including the equipment/vehicles it is attached to.

3.3.4 Electric Vehicle Charging Supply Area. The location(s) of equipment and systems designed to distribute electricity to EVSE and Electric Vehicle Charging Equipment, including but not limited to transformers, switch gears, and similar equipment.

Statement of Problem and Substantiation for Public Input

These definitions support Public Input 49 submitted on behalf of Task Group 7 as it relates to Electric Vehicle Charging Equipment and their associated areas. These definitions provide clarity on the standards set forth in PI 49.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 49-NFPA 88A-2024 [Sections <u>7.1.5, 7.1.6, 7.1.7, 7.1.8</u>]	Definitions of Public Input 50 support the content proposed as part of Public Input 49

Submitter Information Verification

Submitter Full Name: Christopher Platz
Organization: Abington Township
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jun 04 08:35:23 EDT 2024
Committee: GAR-AAA

Committee Statement

Resolution: CI-10-NFPA 88A-2024

Statement: The committee created this Committee Input to allow the task group to continue work at this topic, in conjunction with the CI created for PI-49. The task group that has provided this input will review these comments and determine possible changes for the technical committee to consider at the Second Draft meeting.



Public Input No. 61-NFPA 88A-2024 [New Section after 3.3.6.3]

TITLE OF NEW CONTENT

(n) A.3.3.9.3 Stacker Parking System. A stacker system can store up to five vehicles in a single unit. Vehicles are permitted to be driven into the stacker system and backed out at time of retrieval.

Statement of Problem and Substantiation for Public Input

The task group felt more explanation was necessary to clarify the definition. And there is an increase from 4 to 5 vehicles.

Submitter Information Verification

Submitter Full Name: James Gaut

Organization: Marriott Vacations Worldwide

Street Address:

City:

State:

Zip:

Submittal Date: Tue Jun 04 09:48:04 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: Because PI-71 was not incorporated as an FR, it is not appropriate to include these requirements at this time. These requirements should be addressed by the TG working on the Chapter 9 requirements for parking systems.



Public Input No. 60-NFPA 88A-2024 [Section No. 3.3.6.3]

3.3.6.3* Stacker Parking System.

A parking system that stores vehicles vertically only.

3.3.9.3 * Stacker Parking System. A parking system that stores vehicles vertically only.

Statement of Problem and Substantiation for Public Input

Realigning the section number because the addition of new definitions caused the numbering to be off.

Submitter Information Verification

Submitter Full Name: James Gaut

Organization: Marriott Vacations Worldwide

Street Address:

City:

State:

Zip:

Submittal Date: Tue Jun 04 09:45:35 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: As these PI's only address possible relocations, these have been resolved. Any subsequent renumbering will be addressed by NFPA Editorial on an as-needed basis.



Public Input No. 18-NFPA 88A-2024 [New Section after 3.3.7]

Qualified Person

A Qualified Person is one who has demonstrated skills and knowledge related to the construction and operation of equipment and installations and has received safety training to identify the hazards and reduce the associated risk.

Statement of Problem and Substantiation for Public Input

Proposed new section in chapter 9 will name qualified person and this proposal will provide the needed definition.

Submitter Information Verification

Submitter Full Name: Chris Towski

Organization: International Association of Fire Fighters

Street Address:

City:

State:

Zip:

Submittal Date: Sun Mar 24 08:13:20 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: The submitter requested that this PI be withdrawn. As PI-19 was not accepted, adding this definition was deemed unnecessary.



Public Input No. 64-NFPA 88A-2024 [Section No. 3.3.7]

3.3.7 Terminal.

A space or room where a vehicle is driven into or out of that serves as the location for the vehicle occupants to exit or enter the vehicle at the entry or exit point of the parking system.

[Change the section number to 3.3.12](#)

Statement of Problem and Substantiation for Public Input

Realigning the section number because the addition of new definitions caused the numbering to be off.

Submitter Information Verification

Submitter Full Name: James Gaut

Organization: Marriott Vacations Worldwide

Street Address:

City:

State:

Zip:

Submittal Date: Tue Jun 04 09:52:19 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: As these PI's only address possible relocations, these have been resolved. Any subsequent renumbering will be addressed by NFPA Editorial on an as-needed basis.



Public Input No. 31-NFPA 88A-2024 [Section No. 4.1.1]

4.1.1— *

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

A.4.1.1

An important consideration is the marking of the means of egress and adequate numbers and types of signage, including tactile signage. Please see NFPA 101, Chapter 7, for specific requirements.

Statement of Problem and Substantiation for Public Input

The NFPA Disability Access Review and Advisory Committee (DARAC) requests the addition of this new annex material to call specific attention to the applicable signage provisions as noted in NFPA 101. These provisions include exit door tactile signage in accordance with A117.1, Accessible and Usable Buildings and Facilities. As parking structures can be transient spaces, the need for signage, and tactile signage where required, offers greater wayfinding for people with disabilities.

Submitter Information Verification

Submitter Full Name: Jessica Hubert
Organization: Guardian Services Inc.
Affiliation: Representing the Disability Access Review Advisory Committee
Street Address:
City:
State:
Zip:
Submittal Date: Wed May 08 15:08:41 EDT 2024
Committee: GAR-AAA

Committee Statement

Resolution: FR-5-NFPA 88A-2024

Statement: The committee agreed with the submitter with modification. This change provides clarity regarding the specific chapter of NFPA 101 that should be utilized. Further, the specific reference to tactile signage provides a necessary reminder for consideration within parking structures.



Public Input No. 2-NFPA 88A-2023 [Chapter 5]

-
-
-

NFPA 88A Section 5.X

No battery charging stations of any type shall be installed in an enclosed parking structure. Charging stations already installed in enclosed parking structures shall be removed.

Larry Stine stinefam1@earthlink.net

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 75 ft (25 m).
- (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 200 ft (60 m).

5.1.5*

Where a pre-incident plan is to be conducted at a parking structure, it shall be developed in accordance with NFPA 1620.

5.1.6

Parking structures under construction, demolition, or alteration shall comply with NFPA 241.

5.2 Noncombustible Material.

A material that complies with any one of the following shall be considered a noncombustible material:

- (1) The material, 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.
- (2) The material is reported as passing ASTM E136, *Standard Test Method for Assessing Combustibility of Materials Using a Vertical Tube Furnace at 750°C*.
- (3) The material is reported as complying with the pass/fail criteria of ASTM E136 when tested in accordance with the test method and procedure in ASTM E2652, *Standard Test Method for Assessing Combustibility of Materials Using a Tube Furnace with a Cone-shaped Airflow Stabilizer, at 750°C*.

[5000:7.1.4.1.1]

5.3 Compartmentation.

5.3.1

Those parts of parking structures located within, immediately below, attached to, or less than 10 ft (3 m) from a building or another occupancy 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, determined in accordance with ASTM E119, *Standard Test Methods for Fire Tests of Building Construction and Materials*, or UL 263, *Fire Tests of Building Construction and Materials*, unless otherwise permitted by 5.3.3.

5.3.2

The 2-hour fire resistance rating required in 5.3.1 shall be permitted to be reduced to 1 hour, determined in accordance with ASTM E119, *Standard Test Methods for Fire Tests of Building Construction and Materials*, or UL 263, *Fire Tests of Building Construction and Materials*, where the parking structure is protected throughout by an approved automatic sprinkler system.

5.3.3

No fire-rated separation shall be required when parts of a parking structure and a building used for any other purpose are separated by 10 ft (3 m) or more, and are attached only via open pedestrian balconies or bridges, or open vehicle bridges.

5.3.4*

Those portions of an open parking structure located within or immediately below a building used for another purpose shall have the principal supporting members and bearing walls in all levels of the parking structure protected to provide a fire resistance rating equivalent to that required for the other occupancy.

5.3.5

Offices or other similar spaces that are related to the operation of the parking structure and are less than 3000 ft² (300 m²) in area, other than cashier or attendant booths, shall be separated from parking areas by walls or partitions that resist the passage of smoke.

5.4 Floors.

5.4.1

Floor surfaces shall be of noncombustible material.

5.4.1.1

Where combustible construction is permitted, floor surfaces shall be noncombustible and liquidtight.

5.4.1.2*

Asphalt shall be permitted on grade.

5.4.2

Floors shall be graded and equipped with drains.

5.4.3

Floors in areas of parking structures where motor fuels are dispensed shall be designed in accordance with NFPA 30A.

5.5 Openings in Fire Resistance–Rated Assemblies.**5.5.1**

Doorways and other openings in fire walls and fire partitions shall be protected with approved fire doors and opening protectives installed in accordance with NFPA 80.

5.5.2

Where ducts pass through fire walls or fire partitions, the openings shall be protected in accordance with NFPA 90A.

5.5.3

Unless otherwise provided in 5.5.5, 5.5.6, or 5.5.7, vertical openings through floors in enclosed parking structures four stories or more in height shall be enclosed with walls or partitions having a fire resistance rating of not less than 2 hours determined in accordance with ASTM E119, *Standard Test Methods for Fire Tests of Building Construction and Materials*, or UL 263, *Fire Tests of Building Construction and Materials*.

5.5.4

Unless otherwise provided in 5.5.5, 5.5.6, or 5.5.7, vertical openings through floors in enclosed parking structures less than four stories in height shall be enclosed with walls or partitions having a fire resistance rating of not less than 1 hour determined in accordance with ASTM E119, *Standard Test Methods for Fire Tests of Building Construction and Materials*, or UL 263, *Fire Tests of Building Construction and Materials*.

5.5.5

Ramps in enclosed parking structures shall not be required to be enclosed in accordance with 5.5.3 or 5.5.4 where the parking structure is protected throughout by an approved, automatic sprinkler system.

5.5.6

Ramps in enclosed parking structures shall not be required to be enclosed in accordance with 5.5.3 or 5.5.4 where the parking structure is protected throughout by an approved, supervised, automatic fire detection system and a mechanical ventilation system in accordance with 6.3.1.

5.5.7

Openings in the floor assembly between an enclosed parking structure and an open parking structure, except exit openings, shall not be required to be enclosed where the enclosed parking structure is protected in accordance with 5.5.5 or 5.5.6.

5.5.8

Unprotected vertical openings through floors in open parking structures shall be permitted.

5.6 Opening Requirements for Open Parking Structures.**5.6.1**

For natural ventilation purposes, the exterior sides of the structure shall have uniformly distributed openings on two or more sides.

5.6.2

The area of such openings in exterior walls on a level shall be not less than 20 percent of the total perimeter wall area of each level.

5.6.3

The aggregate length (i.e., total of widths) of the openings considered to be providing natural ventilation shall be not less than 40 percent of the perimeter of the level.

5.6.4

Where the required openings are uniformly distributed over two opposing sides of the building, 5.6.3 shall not apply.

5.6.5

Interior wall lines and column lines shall be at least 20 percent open, with openings uniformly distributed to provide ventilation.

5.6.6

The construction documents shall indicate the openness of the walls for parking structures to be considered open.

5.6.7

The construction documents shall provide evidence of natural ventilation and ventilation capacity by using airflow models or mathematical calculations that demonstrate at least four air changes per hour.

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
NFPA_88A_Section_5.docx	EV charging stations are prohibited	

Statement of Problem and Substantiation for Public Input

It is well known that Li-IOn EV batteries are prone to thermal runaway especially when being charged. This is a top priority for the NFPA. It is crucial that revisions to 88A prohibit the installation of such chargers and installed chargers be removed from enclosed parking structures.

Submitter Information Verification

Submitter Full Name: larry Stine

Organization: self

Street Address:

City:

State:

Zip:

Submittal Date: Fri Feb 17 14:00:09 EST 2023

Committee: GAR-AAA

Committee Statement

Resolution: The committee did not agree with the submitter. No technical substantiation for this proposal was provided for the technical committee to consider. The matter of enforcement of this proposal was determined to be infeasible. Requirements for EV charging within NFPA 88A are currently prescribed via NFPA 70, the industry-leading publication on electrical safety, and a widely used electrical code.



Public Input No. 47-NFPA 88A-2024 [New Section after 5.1.6]

STRUCTURE/USE MODIFICATION

5.1.7 Before any modifications to a parking structure, change in operational process, or divergence from original intended use, a structural analysis, including load-bearing capacity assessment, shall occur to ensure that the structure can withstand the modification and/or change of use.

Statement of Problem and Substantiation for Public Input

This Public Comment was brought up for discussion during the NFPA 88A Task Group 7 discussion, but while the committee felt necessary to add to the standard, felt it more relevant as a general Public Input as opposed to only related to the scope of Task Group 7.

Parking structures often last for decades of use, and generally go unchanged, however with the shifting dynamics of the world and the increased reallocation of space, parking structures may find themselves as the next venue for reallocation. As such, it is important that these structures be evaluated to ensure that any proposed changes, modifications, new uses, are able to be accommodated safely in these structures. A proper evaluation of the structure, measured against its proposed modifications, shall be conducted to provide a long, successful, safe new use for the parking structure.

Submitter Information Verification

Submitter Full Name: Christopher Platz
Organization: Abington Township
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jun 04 08:20:28 EDT 2024
Committee: GAR-AAA

Committee Statement

Resolution: FR-6-NFPA 88A-2024

Statement: The committee agreed with the submitter with modification. The addition of this language provides a mechanism for the AHJ to require a structural analysis when changes to the parking arrangement or the quantity of vehicle storage is provided to existing parking structures. This change addresses modifications within a parking structure that may not require a building code analysis, which could create a new or increased hazard.



Public Input No. 13-NFPA 88A-2024 [New Section after 5.6.2]

TITLE OF NEW CONTENT

5.6.2.1 Where barriers, textile, scrim, or other covering is added to an exterior wall of an open parking garage, the material

shall be evaluated to verify that it does not obstruct natural ventilation. If the material is found to obstruct natural

ventilation, the portion of the exterior wall obstructed shall not be included in the calculation of the open perimeter

for the purposes of determining an open parking garage.

Statement of Problem and Substantiation for Public Input

There is a gap in the current requirements that does not take into account products placed over openings qualifying the intentions for natural ventilation. This proposal fixes that to have products evaluated to be sure the airflow through them stays inline as originally intended to define "open".

Submitter Information Verification

Submitter Full Name: Chris Towski

Organization: International Association of Fire Fighters

Street Address:

City:

State:

Zip:

Submittal Date: Sat Mar 23 17:59:07 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: FR-8-NFPA 88A-2024

Statement: The committee agreed with the submitter with MOS modification. This change addresses existing garages that are proposing to add new covering materials, and the language clarifies how these types of installations should be evaluated. The section has been relocated to 5.6.7 for applicability with the existing requirements.



Public Input No. 48-NFPA 88A-2024 [New Section after 5.6.7]

ACCESSIBILITY

5.7 Accessibility.

5.7.1 Parking structures shall provide accessible access in compliance with Americans with Disabilities Act (ADA).

Statement of Problem and Substantiation for Public Input

This Public Comment was brought up for discussion during the NFPA 88A Task Group 7 discussion, but while the committee felt necessary to add to the standard, felt it more relevant as a general Public Input as opposed to only related to the scope of Task Group 7.

While modern construction codes generally adopt Accessibility requirements, it felt necessary to directly address such requirements within the Standard. Accessibility standards provide an in depth assessment to ensure that all who need it have appropriate access to structures, facilities, and other venues. As such, we felt it necessary to ensure that no matter the local regulations, those who construct parking structures shall ensure that the applicable and appropriate Accessibility requirements are factored into the design and operation of the structure, providing equal access for all.

Submitter Information Verification

Submitter Full Name: Christopher Platz
Organization: Abington Township
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jun 04 08:23:32 EDT 2024
Committee: GAR-AAA

Committee Statement

Resolution: The committee did not agree with adding this language, as it was determined that the reference to ADA was out of the scope of NFPA 88A, and would not be applicable to areas outside of the US.



Public Input No. 23-NFPA 88A-2024 [New Section after 6.3.1]

TITLE OF NEW CONTENT

6.3.1.1 Open parking structures shall not be required to be ventilated by a mechanical system if minimum air flow requirements noted in 6.3.1 are provided in accordance with 5.6.7.

Statement of Problem and Substantiation for Public Input

TG 8 found this necessary to carve out open air and add clarity to the section.

Submitter Information Verification

Submitter Full Name: Chris Towski

Organization: International Association of Fire Fighters

Street Address:

City:

State:

Zip:

Submittal Date: Thu Apr 18 10:26:05 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: FR-22-NFPA 88A-2024

Statement: The requirements for CO and NO2 detectors were added as those are an allowable option when the mechanical ventilation system is activated automatically. The requirement to provide mechanical ventilation was clarified to apply to any parking structure that does not comply with Section 5.6 which provides the requirements for open parking structures. Additionally, the requirement to provide standby power for mechanical ventilation systems is necessary as the ventilation system functions as a life safety system.



Public Input No. 22-NFPA 88A-2024 [Section No. 6.3.1]

6.3.1*

~~All enclosed parking~~ All parking structures shall be ventilated by a mechanical system capable of providing a minimum of 1 ft³/min per ft² of floor area (300 L/min per m² of floor area) during hours of normal operation.

Statement of Problem and Substantiation for Public Input

TG 8 agreed that this change was necessary and that carve out for open air will be proposed.

Submitter Information Verification

Submitter Full Name: Chris Towski
Organization: International Association of Fire Fighters
Street Address:
City:
State:
Zip:
Submittal Date: Thu Apr 18 10:21:39 EDT 2024
Committee: GAR-AAA

Committee Statement

Resolution: FR-22-NFPA 88A-2024

Statement: The requirements for CO and NO2 detectors were added as those are an allowable option when the mechanical ventilation system is activated automatically. The requirement to provide mechanical ventilation was clarified to apply to any parking structure that does not comply with Section 5.6 which provides the requirements for open parking structures. Additionally, the requirement to provide standby power for mechanical ventilation systems is necessary as the ventilation system functions as a life safety system.



Public Input No. 24-NFPA 88A-2024 [Section No. 6.3.2]

6.3.2 –

~~A mechanical ventilation system shall not be required in an open parking structure.~~

Statement of Problem and Substantiation for Public Input

See PI 23

Submitter Information Verification

Submitter Full Name: Chris Towski

Organization: International Association of Fire Fighters

Street Address:

City:

State:

Zip:

Submittal Date: Thu Apr 18 10:28:53 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: FR-22-NFPA 88A-2024

Statement: The requirements for CO and NO2 detectors were added as those are an allowable option when the mechanical ventilation system is activated automatically. The requirement to provide mechanical ventilation was clarified to apply to any parking structure that does not comply with Section 5.6 which provides the requirements for open parking structures. Additionally, the requirement to provide standby power for mechanical ventilation systems is necessary as the ventilation system functions as a life safety system.



Public Input No. 25-NFPA 88A-2024 [Section No. 6.3.2]

6.3.2

~~A mechanical ventilation system shall not be required in an open parking structure.~~

Mechanical systems activated by Carbon Monoxide (CO) or Nitrous Oxide (NO2) detectors shall be installed throughout the parking structure and comply with all of the following:

- (1) Be approved.
- (2) Be listed.
- (3) Be installed per manufacturer's written instructions.

6.3.2.1 CO or NO2 detectors shall be preset to activate when they reach predetermined parts per million (ppm) as specified by the engineer of record.

6.3.2.2 Exhaust fans shall immediately activate upon activation of any CO or NO2 detector.

Statement of Problem and Substantiation for Public Input

TG 8 revises this section for the numbering and adds new language to clarify the types of systems available and how they should operate.

Submitter Information Verification

Submitter Full Name: Chris Towski

Organization: International Association of Fire Fighters

Street Address:

City:

State:

Zip:

Submittal Date: Thu Apr 18 10:30:17 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: FR-22-NFPA 88A-2024

Statement: The requirements for CO and NO2 detectors were added as those are an allowable option when the mechanical ventilation system is activated automatically. The requirement to provide mechanical ventilation was clarified to apply to any parking structure that does not comply with Section 5.6 which provides the requirements for open parking structures. Additionally, the requirement to provide standby power for mechanical ventilation systems is necessary as the ventilation system functions as a life safety system.



Public Input No. 26-NFPA 88A-2024 [New Section after 6.3.3]

TITLE OF NEW CONTENT

6.3.3 When mechanical systems are required in enclosed parking garages, the mechanical systems shall be provided with emergency power to operate in the event of loss of power failure.

Statement of Problem and Substantiation for Public Input

TG 8 felt this necessary to have these systems be on emergency power supply to ensure their operability.

Submitter Information Verification

Submitter Full Name: Chris Towski

Organization: International Association of Fire Fighters

Street Address:

City:

State:

Zip:

Submittal Date: Thu Apr 18 10:37:32 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: FR-22-NFPA 88A-2024

Statement: The requirements for CO and NO2 detectors were added as those are an allowable option when the mechanical ventilation system is activated automatically. The requirement to provide mechanical ventilation was clarified to apply to any parking structure that does not comply with Section 5.6 which provides the requirements for open parking structures. Additionally, the requirement to provide standby power for mechanical ventilation systems is necessary as the ventilation system functions as a life safety system.



Public Input No. 1-NFPA 88A-2022 [Section No. 6.4]

6.4 Sprinkler Systems.

6.4.1

Automatic sprinkler systems shall be installed ~~in all parking structures in accordance with NFPA 13 and NFPA 13R as applicable~~ in accordance with NFPA 13.

6.4.2 Automatic sprinkler systems shall be installed in portions of enclosed parking structures, the ceilings of which are less than 600 mm (24 in.) above grade, regardless of type of construction, and in enclosed parking structures of Type III or Type IV construction over 15 m (50 ft) in height.

6.4.

2-

3 Automatic sprinkler systems shall be installed in enclosed parking structures located at or above grade, or within or immediately below a building used for another occupancy.

6.4.4 Automatic sprinkler systems shall ~~not~~ be required in open parking structures.

6.4.5 Automatic sprinkler systems shall be inspected, tested, and maintained in accordance with NFPA 25.

Statement of Problem and Substantiation for Public Input

The text provided reverts to the 2019 edition requirements, which does not require open parking structures to be provided with sprinkler protection. Note that even when an open parking garage is sprinkler protected, the top level, open to the sky, will not have sprinkler protected provided. What is accomplished when requiring sprinklers to be provided in the covered sections of a parking garage and not on the top level? A two story garage would only be protected on one story.

The requirement to provide sprinkler protection for all open parking structures was not warranted even though the committee accepted this change during the last cycle. The cost of installing the multiple dry systems per floor, which is almost always the case based on the NFPA 13 installation requirements and the size of garages, and the costs of maintenance for these systems was not technically justified. The Cost Estimating group in VA has estimated costs to be as much as \$8.00 per square foot just for the capital costs and that doesn't cover the testing and maintenance costs of the dry pipe systems.

Where local jurisdictions want to require sprinkler protection for vehicles in open parking garages, nothing would stop them from legislating that as a requirement. However, to require every open parking structure to be sprinkler protected is not justified, especially when the only items being protected are the vehicles in the structure. This adds significant and unnecessary installation and maintenance costs for the owners to protect someone else's vehicles.

While there may be a few anecdotal fires regarding parking structures, the data doesn't support the requirement to protect all parking structures with automatic sprinkler systems.

In addition, the committee statement to add 13R was substantiated by the following at the Second Draft meeting for the 2023 edition: "This language has been clarified to show sprinklers are to be provided in all parking structures and that NFPA 13R has been added to provide sprinklers in low-rise residential structures."

Adding NFPA 13R will not require sprinklers in low-rise residential structures. NFPA 13R is an installation standard that doesn't tell anyone when to install sprinklers. If sprinklers are required and the premises is a low-rise residential facility that allows NFPA 13R, that standard directs the user to

follow NFPA 13, not NFPA 13R, when going outside the dwelling unit, so reference to NFPA 13R doesn't provide any useful information.

In addition, NFPA 88A, 1.1.1 states that this standard doesn't apply to private garages not exceeding 1000 square feet associated with residential buildings, so adding NFPA 13R seems to be a conflict since the scope of NFPA 13R is residential buildings.

Fires in electric vehicles, though difficult to extinguish, are not sufficiently documented to require sprinklers in all parking structures.

Submitter Information Verification

Submitter Full Name: Peter Larrimer

Organization: US Department of Veterans Affa

Street Address:

City:

State:

Zip:

Submittal Date: Thu Sep 08 10:37:49 EDT 2022

Committee: GAR-AAA

Committee Statement

Resolution: The committee did not agree with the submitter. The decision to add the requirement for sprinklers in open parking structures for the 2023 edition was based on research data from Phase I of the Fire Protection Research Foundation. The committee currently has an additional report, Phase 2, which adds significant data in the literature review that substantiate the fire risk in all parking structures, including open parking structures.



Public Input No. 73-NFPA 88A-2024 [Section No. 6.4]

6.4

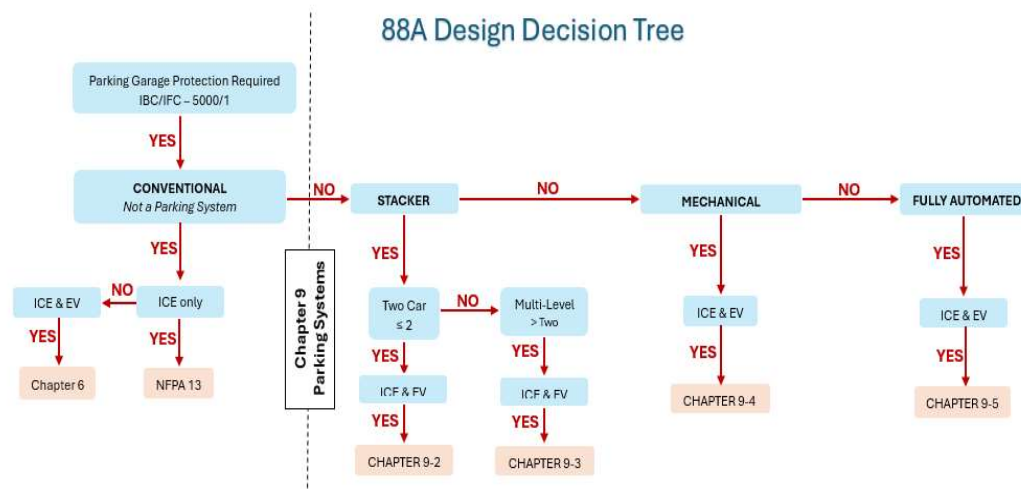
Sprinkler Systems.

6.4.1

Automatic sprinkler systems shall be installed in all parking structures in accordance with NFPA 13 and NFPA 13R as applicable chapters 9 & 10 .

6.4.2

Automatic sprinkler design tree



6.4.3 Automatic sprinkler systems shall be inspected, tested, and maintained in accordance with

NFPA 25

NFPA 25 .

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
6-4-24_chapter_6_PI_with_AS_Decision_tree.docx	Automatic Sprinkler Decision Tree	

Statement of Problem and Substantiation for Public Input

Task group 9 was tasked with providing a solution for fire protection. We worked with committee members from NFPA 13, who informed us that we had to provide guidance for NFPA 13. Task group 9 worked diligently to provide a sensible option for prescriptive and performance-based fire protection options that can be supported by engineering principles and designs. It started with the decision tree to provide guidance on how to consider hazards posed by EVs and lithium-ion batteries.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
<u>Public Input No. 72-NFPA 88A-2024 [New Section after 9.2.6.4]</u>	

Submitter Information Verification

Submitter Full Name: James Gaut
Organization: Marriott Vacations Worldwide
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jun 04 14:52:50 EDT 2024
Committee: GAR-AAA

Committee Statement

Resolution: Because PI-71 was not incorporated as an FR, it is not appropriate to include these requirements at this time. These requirements should be addressed by the TG working on the Chapter 9 requirements for parking systems.



Public Input No. 74-NFPA 88A-2024 [New Section after 6.4.1]

TITLE OF NEW CONTENT

6.4.1.1 Sprinkler systems in parking structures having up to two levels of automobiles being parked in a single story shall be protected in accordance with NFPA 13.

6.4.1.2 Sprinkler systems in parking structures utilizing Stacker Parking Systems in accordance with 3.3.9.3, having more than two levels of automobiles being parked, shall be protected in accordance with Chapter 9.3.

6.4.1.3 Sprinkler systems in parking structures utilizing Mechanical Parking Systems in accordance with 3.3.8.2, having more than two levels of automobiles being parked, shall be protected in accordance with Chapter 9.4.

6.4.1.4 Sprinkler systems in parking structures utilizing Fully Automated Parking System in accordance with 3.3.7.1, having more than two levels of automobiles being parked, shall be protected in accordance with Chapter 9.5

Statement of Problem and Substantiation for Public Input

Sprinkler system requirements are not available for many car park arrangements. This provide guidance on which newly created sections to go to for guidance.

Additionally NFPA already covers stackers up to 2 levels, and this allows those requirements to remain.

Submitter Information Verification

Submitter Full Name: Cecil Bilbo

Organization: Academy of Fire Sprinkler Technology

Street Address:

City:

State:

Zip:

Submittal Date: Tue Jun 04 16:51:17 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: Because PI-71 was not incorporated as an FR, it is not appropriate to include these requirements at this time. These requirements should be addressed by the TG working on the Chapter 9 requirements for parking systems.



Public Input No. 33-NFPA 88A-2024 [Section No. 6.4.1]

6.4.1

Automatic sprinkler systems shall be installed in all parking structures ~~in accordance with NFPA 13 and NFPA 13R~~ meeting any one of the following:

- (1) Where the fire area of the enclosed parking garage exceeds 12,000 ft²
- (2) Where the enclosed parking garage is located below another occupancy.
- (3) Where the fire area of the open parking garage exceeds 48,000 ft²

6.4.1.1

Sprinkler systems shall be in accordance with NFPA 13 or NFPA 13R as applicable.

Statement of Problem and Substantiation for Public Input

I believe that this standard should be in alignment with the model building code used.

Submitter Information Verification

Submitter Full Name: Peter Schwab

Organization: Wayne Automatic Fire Sprinkler

Street Address:

City:

State:

Zip:

Submittal Date: Wed May 29 12:35:50 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: The committee did not agree with the submitter. The decision to add the requirement for sprinklers in open parking structures for the 2023 edition was based on research data from Phase I of the Fire Protection Research Foundation. The committee currently has an additional report, Phase 2, which adds significant data in the literature review that substantiate the fire risk in all parking structures, regardless of size. Where provided in building and life safety codes, size thresholds are already determined.



Public Input No. 21-NFPA 88A-2024 [New Section after 6.6.4]

Charging Areas

6.7.1 Charging areas serving equipment and devices using electromechanical technologies, subject to the release of gases or thermal runaway, shall provide the requirements in accordance with 6.3 and the requirements identified in Chapter 9 of NFPA 855 for normal operation exhaust venting and venting for explosion control.

6.7.2 Charging areas serving equipment and devices using electromechanical technologies, subject to the release of electrolyte, shall provide the requirements identified in Chapter 9 of NFPA 855 for spill control and neutralization.

Statement of Problem and Substantiation for Public Input

There are Task Groups working on content related to vehicle charging and have language for venting and controls. This proposal enhances those sections and pulls in another recognized standard that address more technical applications.

Submitter Information Verification

Submitter Full Name: Chris Towski

Organization: International Association of Fire Fighters

Street Address:

City:

State:

Zip:

Submittal Date: Fri Apr 05 18:33:43 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: The submitter requested that this PI to be resolved, and stated that he intends to bring back new language via Public Comment for the committee to consider.



Public Input No. 39-NFPA 88A-2024 [Chapter 7]

Chapter 7 Special Hazard Protection

7.1 Storage Use, Handling, and Dispensing of Fuels and Lubricants.

7.1.1

The storage, use, handling, and dispensing of ignitable (flammable or combustible) liquids shall conform to NFPA 30 and NFPA 30A.

7.1.2

The storage, use, handling, and dispensing of liquefied petroleum gas shall conform to NFPA 58.

7.1.3

The storage, use, handling, and dispensing of natural gas fuels shall conform to NFPA 52.

7.1.4

The storage, use, handling, and dispensing of hydrogen fuels shall conform to NFPA 2.

7.1.5

The installation of electric vehicle charging equipment shall comply with *NFPA 70*.

7.1.6

Electric vehicle charging stations shall be listed and labeled in accordance with UL 2202, *Standard for Electric Vehicle (EV) Charging System Equipment*.

7.1.7

Electric vehicle charging system equipment shall be listed and labeled in accordance with UL 2594, *Standard for Electric Vehicle Supply Equipment*.

7.1.8

Wireless power transfer equipment for transferring power to an electric vehicle shall be listed and labeled in accordance with UL 2750, *UL LLC Outline of Investigation for Wireless Power Transfer Equipment for Electric Vehicles*.

7.2 Autodrive Vehicles. (Reserved)

7.3 Automatic Vehicular Doors and Gates.

Where provided, automatic vehicular door barrier arm, and gate operators shall be both of the following:

- (1) Listed and labeled in accordance with UL 325, *ANSI/CAN/UL Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems*
- (2) Installed in accordance with the manufacturer's installation instructions and *NFPA 70*

7.4 Light electric vehicles.

7.4.1* Parking and charging of *light electric vehicles* shall comply with the requirements of Section 7.4.1 through 7.4.4.

7.4.1.1 Where approved by the authority having jurisdiction, parking and charging areas designated for only, *safety-certified light electric vehicles* may be provided with protection in accordance with all of the following:

- (1) the product's listing
- (2) the manufacturer's written instructions
- (3) an engineering analysis.

7.4.2 Parking of *light electric vehicles* shall be in designated area as approved by the authority having jurisdiction.

7.4.3 A designated area shall be provided for the charging of *light electric vehicles* in a location approved by the authority having jurisdiction.

7.4.3.1 Charging areas shall be separated from other portions of the building by 2 hour rated construction.

7.4.3.2 Charging areas shall be provided with fire detection systems.

7.4.3.3 Charging areas shall be provided with an automatic fire sprinkler system.

7.4.3.4* Ventilation shall be provided for enclosed charging areas in accordance with Section 6.3.

7.4.3.5 Charging ports shall comply with NFPA 70.

7.4.3.5.1 Designated charging ports for *light electric vehicles* shall be located such that charging cords between the port and the *light electric vehicle* do not obstruct a means of egress.

7.4.4 Signage shall be provided to indicate designed areas for parking and charging.

7.4.4.1 Signage stating, "NO LIGHT ELECTRIC VEHICLE PARKING OR CHARGING PERMITTED" shall be provided in areas where parking and charging of LEVs is restricted:

- (1) On every level
- (2) In the stairwell
- (3) In ramps
- (4) In means of egress and adjacent to receptacles, as required by the AHJ

Statement of Problem and Substantiation for Public Input

This new section is proposed as an attempt to provide regulation for the issue of e-mobility device parking and storage. As has been shown in recent fire history, e-mobility devices can be prone to increase a fire risk in a structure. When unregulated, these devices can be parked, stored, or charged in any location and the increased fire risk is unchecked. The intent of this section is to provide a location and regulation to support a modified fire risk for the parking, storage, and charging of these devices.

Submitter Information Verification

Submitter Full Name: Jennifer Hoyt
Organization: Code Red Consultants
Street Address:
City:
State:
Zip:
Submittal Date: Sun Jun 02 22:59:22 EDT 2024
Committee: GAR-AAA

Committee Statement

Resolution: CI-15-NFPA 88A-2024

Statement: The committee created this committee input to permit further work on this topic at Second Draft. During the discussion on these PI's it was determined that NFPA 1 has requirements on this topic via the 2024 edition. Further, requirements pertaining to golf carts were not included in the PI submissions, but was deemed to be an important topic for review. Finally, definitions on this topic require review to determine if coordination with other NFPA documents is warranted. A task group will continue work on this topic and provide a report to the technical committee at Second Draft.



Public Input No. 8-NFPA 88A-2024 [Section No. 7.1]

7.1 Storage, Use, Handling, and Dispensing of Fuels and Lubricants.

7.1.1

The storage, use, handling, and dispensing of ignitable (flammable or combustible) liquids shall conform to NFPA 30 and NFPA 30A.

7.1.2

The storage, use, handling, and dispensing of liquefied petroleum gas shall conform to NFPA 58.

7.1.3

The storage, use, handling, and dispensing of natural gas fuels shall conform to NFPA 52.

7.1.4

The storage, use, handling, and dispensing of hydrogen fuels shall conform to NFPA 2.

7.1.5

The installation of electric vehicle charging equipment shall comply with *NFPA 70*.

7.1.6

Electric vehicle charging stations shall be listed and labeled in accordance with UL 2202, *Standard for Electric Vehicle (EV) Charging System Equipment*.

7.1.7

Electric vehicle charging system equipment shall be listed and labeled in accordance with UL 2594, *Standard for Electric Vehicle Supply Equipment*.

7.1.8

Wireless power transfer equipment for transferring power to an electric vehicle shall be listed and labeled in accordance with UL 2750, *UL LLC Outline of Investigation for Wireless Power Transfer Equipment for Electric Vehicles*.

Statement of Problem and Substantiation for Public Input

Editorial only. Task Group 5 agreed there needed to be a comma between the words storage and use in 7.1

Submitter Information Verification

Submitter Full Name: Chris Towski

Organization: International Association of Fire Fighters

Street Address:

City:

State:

Zip:

Submittal Date: Thu Mar 21 19:22:43 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: As this PI addresses an item strictly editorial in nature, it has been resolved and will be addressed during the NFPA Editorial review of NFPA 88A.

**Public Input No. 3-NFPA 88A-2023 [Section No. 7.1.5]****7.1.5**

The installation of electric vehicle charging equipment shall comply with *NFPA 70*.

Revision 7.1.5 The installation of electric vehicle charging stations shall be prohibited in underground and enclosed parking structures

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
.1690478157219	prohibition of ev charging statons	
Revision_to_88A.docx	prohibition of EV charging stations	

Statement of Problem and Substantiation for Public Input

" Our research discovered that just over a third of reported electric vehicle traction battery fires occurred while connected to energised AC or DC charging, or within one hour of being disconnected from energised charging." <https://www.evfiresafe.com/risks-ev-fire-charging>

Submitter Information Verification

Submitter Full Name: larry Stine

Organization: self

Street Address:

City:

State:

Zip:

Submittal Date: Thu Jul 27 13:10:58 EDT 2023

Committee: GAR-AAA

Committee Statement

Resolution: The committee did not agree with the submitter. While a single technical substantiation for this proposal was provided, it was determined that this alone did not warrant this request for a change. The matter of enforcement of this proposal was determined to be infeasible. Requirements for EV charging within NFPA 88A are currently prescribed via NFPA 70, the industry-leading publication on electrical safety, and a widely used electrical code.



Public Input No. 49-NFPA 88A-2024 [Sections 7.1.5, 7.1.6, 7.1.7, 7.1.8]

Sections 7.1.5, 7.1.6, 7.1.7, 7.1.8

7.4 Electric Vehicle Charging Equipment

7.4.1 **Compliance** . The installation of electric vehicle charging equipment, and charging of electric vehicles in parking structures, shall comply with 7.4.1 through 7.5.4.4.

7.4.1.1 The requirements listed shall be applicable to all new installations in both existing and new parking structures.

7.4.1.2 Electric Vehicle Charging Equipment equipped with Energy Storage Systems (ESS) shall also comply with the applicable regulations of NFPA 855, Standard for the Installation of Stationary Energy Storage Systems.

7.4.2 The charging of electric vehicles in parking structures shall only occur in Electric Vehicle Charging Areas utilizing approved EVSE.

7.4.3 **Listed**. The installation of electric vehicle charging equipment shall comply with NFPA 70 .

~~**7.4.6**~~ – **4.3.1** Electric vehicle charging stations shall be listed and labeled in accordance with UL 2202, *Standard for Electric Vehicle (EV) Charging System Equipment* .

~~**7.4.4**~~ ~~**7.3.2**~~ Electric vehicle charging system equipment shall be listed and labeled in accordance with UL 2594, *Standard for Electric Vehicle Supply Equipment* .

7.4.8 – 4.3.3 Wireless power transfer equipment for transferring power to an electric vehicle shall be listed and labeled in accordance with UL 2750, *UL LLC Outline of Investigation for Wireless Power Transfer Equipment for Electric Vehicles*.

7.4.4 Designated Area . Electric vehicle charging equipment and supply equipment shall be installed in a designated approved area(s).

7.4.4.1 The designated electric vehicle charging area and electric vehicle charging supply area shall be located in a building or designated fire area with a 2-hour fire rated construction.

7.4.4.2 The parking structure shall be protected throughout with an automatic sprinkler system designed in accordance with NFPA 13 and the following provisions. If the requirements can not be met, a performance-based design may be utilized that meets or exceeds the intent outlined in the prescriptive requirements and is designed in accordance with Chapter 5 of NFPA 5000.

7.4.4.2.1 _____ Sprinklers shall be ceiling mounted

7.4.4.2.2 _____ Sprinklers shall have a minimum nominal discharge density of 0.3 gpm/ft²

7.4.4.2.3 _____ The sprinkler system shall have a shunt trip to de-energize all electric vehicle charging equipment within the building upon activation of the sprinkler system.

7.4.4.3 Electric vehicle charging equipment shall be provided with one or more clearly identified emergency shutoff devices or electrical disconnects.

7.4.4.3.1 _____ At least one emergency shutoff device or electrical disconnect shall be installed in approved locations not less than 6 m (20 ft) or more than 30 m (100 ft) from the electric vehicle charging device(s) that they serve.

7.4.4.3.2 _____ Additional shutoff devices or electrical disconnects shall be permitted to be located less than 6 m (20 ft) or greater than 30 m (100 ft) from an individual dispenser, or as required by the Authority Having Jurisdiction.

7.4.4.3.3 _____ Emergency shutoff devices or electrical disconnects shall disconnect power to all electric vehicle charging equipment; to all associated power, control, and signal circuits; to all other electrical equipment in the electric vehicle charging area.

7.4.4.3.4 _____ When more than one emergency shutoff device or electrical disconnect is provided, all devices shall be interconnected.

7.4.4.3.5 _____ Resetting from an emergency shutoff condition shall require manual intervention.

7.4.4.3.6 _____ The manner of resetting shall be approved.

7.4.4.3.7 _____ The devices or disconnects shall be readily accessible to occupants and labeled with an approved sign stating "EMERGENCY ELECTRIC VEHICLE CHARGING EQUIPMENT SHUTOFF" or equivalent language.

7.4.4.4 The designated electric vehicle charging area and associated elements shall not interfere with or be within a designated emergency egress path.

7.4.4.4.1 _____ The Electric Vehicle Charging Area shall be separated from any accessible means of egress as required by the AHJ to ensure safe egress under fire conditions but in no case less than 10 ft (3 m).

7.4.4.5* _____ Electric vehicle charging equipment shall be protected from vehicle impact in accordance with NFPA 70.

7.4.4.6 The Electric Vehicle Charging Area shall be designed to prevent vehicle traffic from traveling through the charging area.

7.4.4.7 Electric Vehicle Charging cables shall be maintained in accordance with Manufacturer's Guidelines.

7.4.4.7.1 _____ Electric Vehicle Charging cables shall be stored in a manner to prevent them from laying on the ground in the Electric Vehicle Charging Area and within egress paths.

7.4.4.7.2 Electric Vehicle Charging connectors shall be stored in their designed holder when not in use.

7.4.4.8 Electric Vehicle Charging Supply Area(s) shall be designed in accordance with NFPA 70 relative to the associated equipment being installed.

7.4.5 Signage. Signage shall be provided in accordance with 7.4.5.1 through 7.4.5.4.

7.4.5.1 Signage shall be posted at the Electric Vehicle Charging Area stating, "Charging of Electric Vehicles not permitted if vehicle has been: 1) damaged, 2) submerged in water, 3) exposed to fire/heat, 4) has an outstanding battery recall, or 5) shows a fault/batter warning light on dashboard", or other similar wording as approved.

7.4.5.2 Signage shall measure at least 18 inches by 12 inches in size and installed no farther than 20 feet from any electric vehicle charger.

7.4.5.3 Signage shall be visible and legible from every electric vehicle charger.

7.4.5.4 Multiple signs are permitted to meet the requirements of 7.5.4.2 through 7.5.4.3

7.4.6 Parking structures containing Electric Vehicle Charging Equipment shall provide an approved Pre-Incident Plan created in accordance with NFPA 1620.

7.4.7 Reserved for compliance with NFPA 800, Battery Safety Code.

A.7.4.4.5 As outlined in NFPA 70 110.27(B), protection from vehicle impact shall be so arranged and of such strength as to prevent such damage.

Statement of Problem and Substantiation for Public Input

This Public Input is being submitted on behalf of the NFPA 88A Task Group 7, assigned with the scope of "Consider the existing language of 7.1.5-7.1.8 pertaining to electric vehicle charging equipment. The task group will determine if changes to NFPA 88A for the existing language should be provided via a diverse and well-balanced group of both NFPA 88A TC members and interested parties. Efforts will be made to include as many outside voices, including NFPA 70 and other NFPA technical committees, with an emphasis on publicly-available data, for inclusion within the task group."

The Task Group evaluated numerous reports, data sources, and publicly available information as it related to electric vehicle charging equipment and the installation of said equipment within parking structures. The task group focused on finding reasonable, data-based solutions to address hazards associated with electric vehicle charging equipment in parking structures. The scope of the committee was not to evaluate electric vehicles being parked in the structure in general.

Through the work of the Task Group, comprised of members from a variety of professions and entities, the content of this Public Input was established. The Task Group is cognizant of the variety of interested parties and worked to find reasonable standards for hazard reduction and mitigation. With that said, we understand that the following may be of special interest to those reviewing the public input: sprinkler protection, emergency shut offs, personal chargers.

The topic of sprinkler protection was reviewed, and basic expectations were provided. It was established that any parking structure containing electric vehicle charging equipment shall be protected with an NFPA 13 sprinkler system. While parking structures have always had some level of electrical supply and systems in the structure, adding these electric vehicle charging systems adds a potentially significant increase in number and/or capacity of electrical systems, potentially more than what the structures were designed to house. While the requirement of a sprinkler system is included, the Task Group also understood there are potentially other solutions that exist and provided the option for Performance-Based Design as protect the hazard associated with these systems. This gives property owners flexibility while ensuring that the hazards are mitigated.

Emergency shut offs were a continued topic, including both manual versus automatic and the location of such shut offs. While these systems are understood to have protective measures and built-in safeguards, the Task Group felt it important to provide an added level of protection for not only the

building occupants but the first responders. Since every parking structure is unique, and each fire department may have varying procedures and limitations, the Task Group provided the Authority Having Jurisdiction with greater say in where these shut offs are located and how they can best support the first responders, so long as they meet basic requirements.

While the Task Group evaluated the use of designated electric vehicle charging equipment within parking structures, we felt it important to provide regulations on the utilization of personal chargers that patrons of the structure may utilize. Since the standard requires that electric vehicle charging equipment be listed in accordance with a variety of UL standards, the management of oversight of personal chargers brought by patrons seemed implausible to properly regulate. There would be no reasonable way, in the eyes of the task group, to monitor personal charger use in a parking structure to ensure that it was happening safely. Members discussed situations where patrons used unlisted equipment, numerous extension cords, or had other unsafe processes. We felt it important to address, in 7.4.2, that charging of electric vehicles shall only occur in designated areas (as defined) with approved electric vehicle supply equipment.

The Task Group worked diligently to provide the supplied Public Input and looks forward to reviewing throughout the standards development process.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 50-NFPA 88A-2024 [New Section after 3.3.2]	

Submitter Information Verification

Submitter Full Name: Christopher Platz
Organization: Abington Township
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jun 04 08:29:06 EDT 2024
Committee: GAR-AAA

Committee Statement

Resolution: CI-9-NFPA 88A-2024

Statement: The committee created this Committee Input to allow the task group to continue work at this topic. As provided, the committee had concerns regarding specific sprinkler design densities in the absence of cited technical data. Concerns were also raised regarding the need for specific separation criteria. Finally, several NFPA MOS items were noted that require additional review and modification. The task group that has provided this input will review these comments and determine possible changes for the technical committee to consider at the Second Draft meeting.



Public Input No. 10-NFPA 88A-2024 [New Section after 7.1.6]

TITLE OF NEW CONTENT

7.1.7.1 Output cables shall not be located within 10' to an exit.

Statement of Problem and Substantiation for Public Input

Task Group 5 agreed to insert this language after the EV charging station to ensure cables to not impose a hazard to ingress or egress.

Submitter Information Verification

Submitter Full Name: Chris Towski

Organization: International Association of Fire Fighters

Street Address:

City:

State:

Zip:

Submittal Date: Thu Mar 21 19:36:42 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: CI-11-NFPA 88A-2024

Statement: The committee created this Committee Input to allow the task group to continue work at this topic in conjunction with actions taken on PI-49 and PI-50. The task group that has provided this input will review these comments and determine possible changes for the technical committee to consider at the Second Draft meeting.



Public Input No. 28-NFPA 88A-2024 [New Section after 7.2]

TITLE OF NEW CONTENT

7.2 Accessible EV Charging Locations

7.2.1*

Accessible charging spaces shall be provided as a separate charging space.

A.7.2.1

Accessible charging spaces have several design considerations that need to be considered. These include, but are not limited to, accessibility, equipment, ingress/egress, and applicable communication technologies. For further information and applicable guidance, please see the US Access Board's publication, *Design Recommendations for Accessible Electric Vehicle Charging Stations*.

7.2.2

Accessible charging spaces shall be provided in proximity to non-accessible charging spaces.

7.2.3*

A plan shall be developed to determine the number of accessible charging spaces and presented to the AHJ for approval.

A.7.2.3

Accessible charging spaces should not be considered as an acceptable substitute for an accessible parking space, as the accessible charging spaces perform a specific function. Therefore, accessible charging spaces should be considered separate and independent of accessible parking spaces. The AHJ should be consulted to determine how both types of spaces should be accounted for.

Statement of Problem and Substantiation for Public Input

The NFPA Disability Access Review and Advisory Committee (DARAC) requests the addition of these new sections, and annex material, to call specific attention to accessible electric vehicle (EV) charge locations. Members of DARAC observe that accessible EV charging locations and spaces are often misunderstood and can be incorrectly classified. One way this can occur is when a traditional accessible parking space (non-EV charging location or space) has a charger installed in this location for its use. Another is when the accessible EV charging location is not grouped with existing or proposed non-accessible EV charging. These requirements require a plan to be developed that accurately and correctly identifies these locations and provides the appropriate use of accessible spaces. The reference to the US Access Board's publication provides current guidance, useful information and applicable diagrams that can be considered during the planning process.

Submitter Information Verification

Submitter Full Name:

Jessica Hubert

Organization:

Guardian Services Inc.

Affiliation:

Representing the Disability Access Review Advisory Committee

Street Address:

City:**State:****Zip:****Submittal Date:** Wed May 08 11:29:21 EDT 2024**Committee:** GAR-AAA

Committee Statement

Resolution: The committee did not agree with adding this language, as it was determined that the submission was out of the scope of NFPA 88A. These requirements were determined to be addressed via the applicable building code. As written, 7.2.1 was determined to require EV charging stations for parking structures. Further, the committee noted that text in 7.2.2 "in proximity" was vague and potentially unenforceable.



Public Input No. 11-NFPA 88A-2024 [New Section after 7.3]

TITLE OF NEW CONTENT

7.4.2 Electric vehicle charging systems that utilize integral ESS shall be in installed accordance with NFPA 855.

Statement of Problem and Substantiation for Public Input

Task Group 5 believed this section needed to be added to be aligned with NFPA 855.

Submitter Information Verification

Submitter Full Name: Chris Towski

Organization: International Association of Fire Fighters

Street Address:

City:

State:

Zip:

Submittal Date: Thu Mar 21 19:40:27 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: The committee did not agree with the submitter. This topic will be addressed via the task group that is reviewing CI's from Chapter 7.



Public Input No. 51-NFPA 88A-2024 [New Section after 7.3]

MOTOR FUEL DISPENSING FACILITIES, REPAIR GARAGES, AND ON-DEMAND MOBILE FUELING

7.4.1 Motor Fuel Dispensing Facilities and Repair Garages.

7.4.2 Motor Fuel Dispensing Facilities. Any motor fuel dispensing facility located within a parking structure must comply with NFPA 30A.

7.4.2.1 Motor fuel dispensing facilities may only be located within parking structures which have an automatic sprinkler system installed in accordance with NFPA 13.

7.4.3 Repair Garages. Any repair garage located within a parking structure must comply with NFPA 30A.

7.4.3.1 Repair garages may only be located within parking structures which have an automatic sprinkler system installed in accordance with NFPA 13.

7.5 On-Demand Mobile Fueling.

7.5.1 On-Demand mobile fueling within parking structures must comply with the requirements of NFPA 30A.

7.5.2 On-Demand mobile fueling operations may only be conducted in parking structures protected with throughout with an NFPA 13 fire sprinkler system.

7.5.3 On-Demand mobile fueling operations within a parking structure shall be approved by the Authority Having Jurisdiction and property owner.

Statement of Problem and Substantiation for Public Input

This Public Input is being submitted on behalf of the NFPA 88A Task Group 3, assigned with the scope of "Review NFPA 30A requirements that pertain to NFPA 88A, including mobile fueling and parking structure/repair garage terms."

The Task Group evaluated both the current NFPA 88A Standard for Parking Structures as well as the NFPA 30A Code for Motor Fuel Dispensing Facilities and Repair Garages, and looked to determine if there were any correlating requirements or definitions. Throughout the process, members of the Task Group determined that there were both a few areas that overlapped, as well as some opportunities for improvements between both.

There was no identified regulation that states a Motor Fuel Dispensing Facility or Repair Garage could not be located within a parking structure. The topics reviewed included, but were not limited to, construction standards, sprinkler systems, and on-demand mobile fueling.

The Task Group evaluated current construction standards in NFPA 88A and NFPA 30A as they relate, along with the other applicable NFPA Standards, including NFPA 101. The Task Group felt that the general established requirements applicable to such a scenario would adequately address most of hazards presented. However, the Task Group did discuss automatic sprinkler systems. We felt that the Motor Fuel Dispensing Facilities and Repair Garages presented a hazard that would need to be addressed by an NFPA 13 automatic sprinkler system. As such, the Task Group is providing Public Input that any Motor Fuel Dispensing Facility or Repair Garage located within a parking structure, or facilities permitting on-demand mobile fueling, must be protected throughout the structure with an automatic sprinkler system. The increased hazard of processes, occupancy, and hazardous materials presents a significant threat that needs to be properly mitigated.

On-Demand Mobile Fueling is an expanding industry providing on-site fueling services to a variety of customers. NFPA 30A provides a substantial list of regulations for the service of on-demand mobile fueling, which the Task Group felt properly addressed the hazard, but understood that flexibility of the service provides unique hazards to a parking structure and their operations within. As such, the Task Group is submitting Public Input to require that any on-demand mobile fueling that is to occur within a parking structure must comply with the regulations set forth in NFPA 30A. Accordingly, this would require AHJ approval for such operations, allowing each AHJ to determine how to safely conduct on-demand mobile fueling operating inside of a parking structure in accordance with the regulations, while matching the operational abilities of their first responders.

The Task Group worked diligently to provide the supplied Public Input and looks forward to reviewing throughout the standards development process.

Submitter Information Verification

Submitter Full Name: Christopher Platz
Organization: Abington Township
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jun 04 08:39:01 EDT 2024
Committee: GAR-AAA

Committee Statement

Resolution: [FR-13-NFPA 88A-2024](#)

Statement: The committee agreed with the submitter with MOS modification. These sections provide specific requirements and clarity regarding these arrangements located within parking structures. This change provides clarification that these operations are permitted within the parameters specified.



Public Input No. 9-NFPA 88A-2024 [New Section after 7.3]

Energy Storage Systems (ESS)

7.4.1. Stationary ESS shall be installed in accordance with NFPA 855.

Statement of Problem and Substantiation for Public Input

Task Group 5 felt the need to cover ESS to be in line with NFPA 855 reference to parking structures

Submitter Information Verification

Submitter Full Name: Chris Towski

Organization: International Association of Fire Fighters

Street Address:

City:

State:

Zip:

Submittal Date: Thu Mar 21 19:29:48 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: FR-12-NFPA 88A-2024

Statement: The committee agreed with this change. The reference to NFPA 855 is appropriate as it is applicable document that addresses these systems. Providing this reference creates consistency on which requirements are to be applied to ESS.



Public Input No. 14-NFPA 88A-2024 [New Section after 8.5]

TITLE OF NEW CONTENT

8.6 Floor drains shall be designed, constructed, installed and maintained to be able to effectively manage all of the following under fire conditions:

- 1) fire protection water volume runoff
- 2) remain free from clogging from fire damage debris

Statement of Problem and Substantiation for Public Input

A common problem appears to find that floor drains are not able to keep up with fire condition components introduced into them causing pooling and concerns for potential life safety.

Submitter Information Verification

Submitter Full Name: Chris Towski
Organization: International Association of Firefighters
Street Address:
City:
State:
Zip:
Submittal Date: Sat Mar 23 18:11:22 EDT 2024
Committee: GAR-AAA

Committee Statement

Resolution: FR-16-NFPA 88A-2024

Statement: The committee agreed with the submitter. As changes to parking structures are being observed the question regarding the drainage of water needs to be addressed. Recent events have provided examples of underground garage areas that have had difficulty with drainage. This change provides two prescriptive criteria for designers, owners and AHJ's to consider regarding this issue. The committee welcomes Public Comment on this topic for review during the Second Draft phase. A task group will review this topic and provide a report during the Second Draft phase.



Public Input No. 15-NFPA 88A-2024 [New Section after 8.5]

TITLE OF NEW CONTENT

8.7 Floor drain sump pumps shall be supplied on emergency power electrical circuits when emergency power is required.

Statement of Problem and Substantiation for Public Input

Without this requirement, lower level areas could pool during loss of power and potentially cause concern for life safety. Many underground parking structures are tied to another use group that requires emergency power and this provision will ensure that the power feeders supplying the sump pumps will be supported while on emergency power.

Submitter Information Verification

Submitter Full Name: Chris Towski

Organization: International Association of Fire Fighters

Street Address:

City:

State:

Zip:

Submittal Date: Sat Mar 23 18:22:41 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: The submitter requested that this PI to be withdrawn. This topic will be addressed via a task group reviewing actions taken via PI-14.



Public Input No. 16-NFPA 88A-2024 [Chapter 9 [Title Only]]

Special Structures Parking Systems

Statement of Problem and Substantiation for Public Input

As written there is no definition in this standard for Special Structures. The intent is to cover Parking Systems (within parking structures) and should therefore be titled as such.

Submitter Information Verification

Submitter Full Name: Chris Towski

Organization: International Association of Fire Fighters

Street Address:

City:

State:

Zip:

Submittal Date: Sat Mar 23 19:01:56 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: FR-17-NFPA 88A-2024

Statement: The committee agreed with the submitter of PI-16. As written there is no definition in this standard for Special Structures. Chapter 9 requirements address Parking Systems and should therefore be titled as such.



Public Input No. 68-NFPA 88A-2024 [Chapter 9 [Title Only]]

~~Special Structures~~ Parking Systems

Statement of Problem and Substantiation for Public Input

The task group felt the title is made more apparent by saying Parking systems.

Submitter Information Verification

Submitter Full Name: James Gaut

Organization: Marriott Vacations Worldwide

Street Address:

City:

State:

Zip:

Submittal Date: Tue Jun 04 13:39:14 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: FR-17-NFPA 88A-2024

Statement: The committee agreed with the submitter of PI-16. As written there is no definition in this standard for Special Structures. Chapter 9 requirements address Parking Systems and should therefore be titled as such.



Public Input No. 19-NFPA 88A-2024 [New Section after 9.1]

Installation

Parking Systems shall be installed by Qualified Persons.

Statement of Problem and Substantiation for Public Input

The standard currently does not address who can and should install parking systems. This proposal fixes that.

Submitter Information Verification

Submitter Full Name: Chris Towski

Organization: International Association of Fire Fighters

Street Address:

City:

State:

Zip:

Submittal Date: Sun Mar 24 08:18:29 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: The committee did not agree with the submitter. Qualifications are intended to be addressed via the AHJ per permits or other regulatory bodies or as required by the manufacturer's instructions. Given this, this requirement was deemed unnecessary.



Public Input No. 20-NFPA 88A-2024 [New Section after 9.1]

Product Safety

Parking Systems shall meet product safety standards acceptable to the local AHJ.

Statement of Problem and Substantiation for Public Input

The present practice does not hold parking system manufacturing accountable to product safety standards. This proposal is intended to generate discussion to find the correct pathway.

Submitter Information Verification

Submitter Full Name: Chris Towski

Organization: International Association of Fire Fighters

Street Address:

City:

State:

Zip:

Submittal Date: Sun Mar 24 08:21:54 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: The committee did not agree with the submitter as applicable product safety standards were not available for review. A task group has been formed on this topic and will provide a report to the committee during the Second Draft meeting.



Public Input No. 69-NFPA 88A-2024 [New Section after 9.1]

9.1.1*. Design and installation requirements in Chapters 1 – 8 shall be followed unless otherwise specified in Chapter 9.

A.9.1.1. The prescriptive guidelines herein are intended to set a minimum basis of design for the Parking Systems that currently exist. If the Parking System that is proposed has features or operations that are not specifically addressed within Chapter 9, a Performance Based Design Alternative is recommended following the guidelines in Chapter 10.

Statement of Problem and Substantiation for Public Input

This section was added to be more concise with additional information and in line with the manual of style.

Submitter Information Verification

Submitter Full Name: James Gaut

Organization: Marriott Vacations Worldwide

Street Address:

City:

State:

Zip:

Submittal Date: Tue Jun 04 13:41:51 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: Because PI-71 was not incorporated as an FR, it is not appropriate to include these requirements at this time. These requirements should be addressed by the TG working on the Chapter 9 requirements for parking systems.



Public Input No. 70-NFPA 88A-2024 [New Section after 9.1]

9.1.2. Exit and egress design shall be in accordance with NFPA 101 Chapter 7 as modified in Chapter 9.

9.1.2.1. Vehicle pick-up and drop-off locations shall be designed so vehicle occupants are required to enter and exit the vehicle at designated locations prior to the vehicle being moved to a parking space.

9.1.2.2. The designated enter and exit location shall be designed to prevent vehicle drivers and passengers from coming into physical contact with the parking system's equipment, machinery, energizing elements, and other moving parts of the system.

9.1.2.3. In parking systems that do not provide physical barriers or terminals, a parking attendant shall transport the vehicle from a passenger drop-off and pick-up area, preventing vehicle occupants from coming in contact with the parking system's equipment, machinery, and other moving parts of the system.

9.1.3. Pay Stations

9.1.3.1. Automated Pay Stations. Automated pay stations that are located within a parking structure, but that are not within an enclosed room or space, shall be installed greater than 5 ft (1.52 m) from the edge of any parking space(s) or traffic lane(s).

9.1.3.2. Pay Stations Within Separate Spaces. Pay stations located within an enclosed room or space shall be subject to all other requirements of NFPA 88A, as applicable.

9.1.3.3. Pay Station Entrance.

9.1.3.4. The entrance to this pay station room or space shall be made only from a sidewalk or other pedestrian way.

9.1.3.5. Pedestrian access directly to a parking space or traffic lane to or from this pay station room or space shall not be permitted.

9.1.3.6. Vehicle Barriers. A vehicle barrier system protecting an automated pay station area or pay station room or space shall be installed on all sides of the pay station area, room or space that abut a parking space(s) or traffic lane(s) and be constructed in accordance with the structural provisions of NFPA 5000.

9.1.4*. Fire protection systems shall be required in accordance with NFPA 1, NFPA 5000 and NFPA 101.

*A9.1.4. This includes active and passive systems, e.g., sprinklers or alternative suppression systems, fire alarm and detection, separation, spacing, egress, and exiting considerations.

Statement of Problem and Substantiation for Public Input

In the previous version of NFPA 88a, all of the subsections were under automated parking systems. This is a formatting change with some substance.

Submitter Information Verification

Submitter Full Name: James Gaut

Organization: Marriott Vacations Worldwide

Street Address:

City:

State:

Zip:

Submittal Date: Tue Jun 04 13:48:32 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: FR-19-NFPA 88A-2024

Statement: The committee agreed with the submitter with modification. This change provides new requirements for vehicle access while relocating 9.2.6 to 9.1.3, making pay stations applicable to all parking systems. This change aligns with modifications to technical requirements for Chapter 9 to be presented by the task group for review during the Second Draft.



Public Input No. 71-NFPA 88A-2024 [New Section after 9.2]

9.2 Stacker Parking

9.2.1. Stacker Parking Systems with or without EVs and/or EV charging stations shall be in accordance with 9.2.1 through 9.2.2.

9.2.1.1*. Spacing and location of Stacker units shall be in accordance with the following criteria (a – c).

- (1) EV's shall be allowed on ground level of a Stacker unit only. EV's shall be allowed on the upper level when the vehicle parking platform at the top level is solid and non-combustible.
- (2) The maximum number of Stacker unit rows shall be no greater than two (2). (Figure 9.2.1.1.b).
- (3) Rows and columns of Stacker units shall be arranged limiting the number of exposures to adjacent parking spaces to not greater than three (3). (Figure 9.2.1.1.c).

A9.2.1.1 (a). The upper-level vehicle platform must be solid and made of non-combustible material in order to prevent heat from a fire below impinging directly to the underside of a vehicle directly above.

A9.2.1.1 (b and c). By limiting the number of exposures or targets around a vehicle the opportunity for there to be "nested" vehicles is restricted.

9.2.2. Fire Protection for single level stacker units shall be in accordance with 9.2.2.1.

9.2.2.1*. An automatic sprinkler system shall be provided in accordance with 9.2.2.1(a – g).

- (1) Fire sprinkler systems may be wet, dry, single interlock preaction or deluge. Double interlock preaction systems are not allowed.
- (2) Fire sprinkler system design density shall be 0.20 gpm/ft² (8.2 lpm/m²).
- (3) Area of Operation shall be 1,500 ft² (139 m²). Reduction in area for use of Quick Response sprinklers is not allowed. Modifiers for dry and single interlock preaction systems shall apply.
- (4) Maximum area of coverage per sprinkler shall be 130 ft²/spk (12 m²/spk).
- (5) Maximum sprinkler spacing shall be 12 ft (3.7 m).
- (6) Sprinklers shall be Quick Response.
- (7) Sprinkler temperature shall be intermediate.
- (8) Hose allowance shall be 250 gpm (950 lpm) for a duration of 60 minutes when EVs are present.

A9.2.2.1 (a). Double interlock preaction systems are not allowed due to the inherent delay in actual water delivery from a sprinkler. While dry systems can also have delays in activation, typically such delays are limited to 60 seconds or less. Double interlock can have times well beyond 60 seconds based on the type of detection system(s) used which contradicts the early suppression fast response methodology for protection of this type of hazard.

A9.2.2.1 (g). This criterion is only required over the Stacker unit area plus a 15 ft (4.6 m) perimeter. The balance of the parking area without Stackers may be in accordance with

NFPA 13.9.3 Multi-Level Stacker Parking

9.3.1*. Multi-Level Stacker Parking systems with or without EV and/or EV charging stations shall be in accordance with 9.3.1 – 9.3.2.

9.3.1.1. Spacing and location of Multi-Level Stacker (greater than 2) units shall be in accordance with the following criteria (a - d).

- (1) EV's shall be allowed on ground level of Stacker unit only. EV's shall be allowed on upper levels with Stacker units that have non-combustible solid vehicle parking platforms at each level throughout the entire vertical Stacker unit.
- (2) The maximum number of Stacker unit rows shall be no greater than two (2). (Figure 9.3.1.1.b).
- (3) Rows and columns of Stacker units shall be arranged limiting the number of exposures to adjacent parking spaces to not greater than three (3). (Figure 9.3.1.1.c).
- (4) I [SS1] . [SS2] . he maximum height of any Stacker unit shall be five levels. Additional levels shall be allowed when horizontal barriers [SS3] are installed at every 5th level.

A9.3.1.1 (a). The upper-level vehicle platform must be solid and made of non-combustible material in order to prevent heat from a fire below impinging directly to the underside of a vehicle directly above.

A9.3.1.1 (b and c). By limiting the number of exposures or targets around a vehicle the opportunity for there to be "nested" vehicles is restricted.

A9.3.1.1 (d) When Stacker unit has solid vehicle platforms the horizontal barrier will be complete by filling in the flue space between units.

9.3.2. Fire Protection for Multi-Level Stacker units shall be in accordance with NFPA 13 except as modified in 9.3.2.1.

9.3.2.1*. An automatic sprinkler system shall be provided in accordance with 9.3.2.1(a – h).

- (1) Fire sprinkler systems may be wet, dry, single interlock preaction or deluge.
- (2) Fire sprinkler system design density shall be 0.20 gpm/ft² (8.2 lpm/m²).
- (3) Area of Operation shall be 1,500 ft² (139 m²). Reduction in area for use of Quick Response sprinklers is not allowed.
- (4) Maximum area of coverage per sprinkler shall be 130 ft²/spk (12 m²/spk).
- (5) Maximum sprinkler spacing shall be 12 ft (3.7 m).
- (6) Sprinklers shall be Quick Response.
- (7) Sprinkler temperature shall be intermediate.
- (8) Hose Allowance shall be 250 gpm (950 lpm) for 90 minutes when EVs are present.

A9.3.2.1 (a). Double interlock preaction systems are not allowed due to the inherent delay in actual water delivery from a sprinkler. While dry systems can also have delays in activation, typically such delays are limited to 60 seconds or less. Double interlock can have times well beyond 60 seconds based on the type

of detection system(s) used which contradicts the early suppression fast response methodology for protection of this type of hazard.

A9.3.2.1 (g). This criterion is only required over the Stacker unit area plus a 15ft perimeter. The balance of the parking area without Stackers may be in accordance with NFPA 13.

9.3.2.1.1*. When horizontal barriers are installed, the sprinkler system under each barrier shall be installed in accordance with 9.3.2.1 (a – h).

A9.3.2.1.1. This includes proof calculations for every level separated by a horizontal barrier. This ensures that the most demanding level is being calculated since the system may be fed from overhead or in a standpipe configuration.

9.4 Mechanical Parking System

9.4.1. Mechanical Parking systems with or without EVs and/or EV charging stations shall be in accordance with 9.4.1 through 9.4.2.

9.4.1.1. Spacing and location of Mechanical Parking Systems shall be in accordance with the following criteria (a - d).

- (1) EV's shall be allowed on ground level of Mechanical Parking Systems only. EV's shall be allowed on upper levels with Mechanical Parking System units that have non-combustible solid vehicle parking platforms at each level throughout the entire vertical Mechanical Parking System unit.
- (2) The maximum number of Mechanical Parking System unit rows shall be no greater than two (2). (Figure 9.4.1.1.b).
- (3) Rows and columns of Mechanical Parking System units shall be arranged limiting the number of exposures to adjacent parking spaces to not greater than three (3). (Figure 9.4.1.1.c).
- (4) The maximum height of any Mechanical Parking System unit shall be five levels. Additional levels shall be allowed when horizontal barriers are installed at every 5th level.

A9.4.1.1 (a). The upper-level vehicle platform must be solid and made of non-combustible material in order to prevent heat from a fire below impinging directly to the underside of a vehicle directly above.

A9.4.1.1 (b and c). By limiting the number of exposures or targets around a vehicle the opportunity for there to be "nested" vehicles is restricted.

A9.4.1.1 (d) When a Stacker unit has solid vehicle platforms the horizontal barrier will be complete by filling in the flue spaces between each unit.

9.4.1.2. The designated exit location for Mechanical Parking systems shall be designed to prevent vehicle drivers and passengers from coming into physical contact with the parking system's equipment, machinery, energizing elements, and other moving parts of the system.

9.4.2. Fire Protection for Mechanical Parking System units shall be in accordance with NFPA 13 except as modified in 9.4.2.1.

9.4.2.1*. An automatic sprinkler system shall be provided in accordance with 9.4.2.1(a – h).

- (1) Fire sprinkler systems may be wet, dry, single interlock preaction or deluge.

- (2) Fire sprinkler system design density shall be 0.20 gpm/ft² (8.2 lpm/m²).
- (3) Area of Operation shall be 1,500 ft² (139 m²). Reduction in area for use of Quick Response sprinklers is not allowed.
- (4) Maximum area of coverage per sprinkler shall be 130 ft²/spk (12.1 m²/spk).
- (5) Maximum sprinkler spacing shall be 12 ft (3.7 m).
- (6) Sprinklers shall be Quick Response.
- (7) Sprinkler temperature shall be intermediate.
- (8) Hose Allowance shall be 250 gpm (950 lpm) for 90 minutes when EVs are present. A minimum of 100 gpm (379 lpm) shall be applied to inside hose demand.

A9.4.2.1 (a). Double interlock preaction systems are not allowed due to the inherent delay in actual water delivery from a sprinkler. While dry systems can also have delays in activation, typically such delays are limited to 60 seconds or less. Double interlock can have times well beyond 60 seconds based on the type of detection system(s) used which contradicts the early suppression fast response methodology for protection of this type of hazard.

A9.4.2.1 (g). This criterion is only required over the Mechanical Parking System unit area plus a 15ft perimeter. The balance of the parking area without a Mechanical Parking System may be in accordance with NFPA 13.

9.4.2.1.1*. When horizontal barriers are installed, the sprinkler system under each barrier shall be installed in accordance with 9.4.2.1 (a – h).

A9.4.2.1.1. This includes proof calculations for every level separated by a horizontal barrier. This ensures that the most demanding level is being calculated since the system may be fed from overhead or in a standpipe configuration.

9.4.3.1.1. Flue Sprinklers shall be provided at every vehicle platform level. A minimum of three (3) flue sprinklers shall be provided in each flue space on both sides of the vehicle platform. Sprinklers shall be located within 12 inches (305 mm) from the front and back of each vehicle platform with a maximum distance between sprinklers of 10 ft (3.7 m). Figure 9.4.3.1.1.

9.4.3.1.1.1. Flue sprinklers shall be calculated separately from the overhead sprinkler system. The two (2) most demanding levels of sprinklers shall be calculated flowing a minimum 20 gpm (76 lpm).

9.4.3.1.1.2. A total hose demand of 250 gpm (950 lpm) with a 90-minute duration shall be added to the flue sprinkler system calculations with a minimum of 100 gpm (379 lpm) of the total hose demand added for inside use.

9.4.3.1.2*. Flue sprinkler protection shall be zoned vertically.

9.4.3.1.3*. Flue sprinkler protection shall have a maximum of five (5) levels per zone.

9.5 Fully Automated Parking System

9.5.1. Fully Automated Parking systems with or without EVs and/or EV charging stations shall be in accordance with 9.5.1 through 9.5.4.

9.5.1. Occupant Safety

9.5.1.1. All vehicle occupants shall be required to enter and exit the vehicle at a designated terminal.

9.5.1.2. In parking systems that do not provide physical barriers or terminals, a parking attendant shall transport the vehicle from a designated passenger drop-off and pick-up area, prohibiting vehicle occupants from coming in contact with the parking system's equipment, machinery, energizing elements, and other moving parts of the system.

9.5.2. Terminals.

9.5.2.1. Where terminals are installed, they shall be separated from the parking system by an enclosure designed to prevent vehicle occupants and other building occupants from entering and exiting the parking system.

9.5.2.2. Terminals shall be designed in accordance with the other relevant provisions of this standard.

9.5.2.3. Terminals shall be considered an incidental use area to the entire parking system.

9.5.2.4*. Terminal doors separating the terminal from the parking system shall be constructed with safety features to prevent vehicle occupants or any other building occupants from accessing the parking system.

9.5.2.5. All other doors, except garage doors, that lead from the terminal into other areas or to the exterior, other than into the parking system, shall be subject to the relevant provisions of this standard.

9.5.2. Fire Service and Maintenance Access.

9.5.2.1. Access shall be provided in accordance with Table 9.5.2.1.

Table 9.5.2.1 Parking Equipment Access Dimensional Criteria

<u>Feature</u>	<u>Dimensional Criteria</u>
<u>Minimum horizontal dimension of any walkway, landing, or platform</u>	<u>36 in. (560 mm) clear</u>
<u>Minimum stair or ramp width</u>	<u>36 in. (560 mm) clear between</u>
<u>Minimum tread width</u>	<u>36 in. (560 mm) clear</u>
<u>Minimum tread depth</u>	<u>10 in. (255 mm)</u>
<u>Maximum riser height</u>	<u>9 in. (230 mm)</u>
<u>Handrails are permitted to terminate, at the required height, at a point directly above the top and bottom risers.</u>	
<u>Maximum height between landings</u>	<u>12 ft (3660 mm)</u>
<u>Minimum headroom</u>	<u>6 ft 8 in. (2030 mm)</u>
<u>Minimum width of door openings</u>	<u>36 in. (560 mm) clear</u>

9.5.2.2. Horizontal walkways for access shall be provided at intervals of 20 ft (6 m) vertically and 100 ft (30 m) horizontally.

9.5.2.3. Travel distance to the exterior or to an enclosed stair shall not exceed 400 ft [SS1] (122 m).

9.5.2.4. A minimum of one exterior door shall be provided at grade for every required stair.

9.5.2.5.* An automatic retrieval system shall be provided for cars that are not readily accessible to fire department operations. Cars shall be capable of being moved to approved designated locations.

A9.5.2.5. Fully Automated Parking Systems have limited accessibility to upper levels of parking and therefore are more difficult for fire department access and operations. An automatic retrieval system allows the fire department to have adequate access to the vehicle(s) involved.

9.5.2.6. A ventilation system that continuously provides a minimum of two air changes per hour shall be provided.

9.5.3. Fire Protection Systems.

9.5.3.1. An automatic sprinkler system shall be installed in a parking structure with Fully Automated Parking Systems in accordance with NFPA 13 except as modified in 9.5.3.1 (a – h).

- (1) Fire sprinkler systems may be wet, dry, single interlock preaction or deluge.**
- (2) Fire sprinkler system design density shall be 0.20 gpm/ft² (8.2 lpm/m²).**
- (3) Area of Operation shall be 1,500 ft² (139m²). Reduction in area for use of Quick Response sprinklers is not allowed.**
- (4) Maximum area of coverage per sprinkler shall be 130 ft²/spk (12 m²/spk).**
- (5) Maximum sprinkler spacing shall be 12 ft (3.7 m).**
- (6) Sprinklers shall be Quick Response.**
- (7) Sprinkler temperature shall be intermediate.**
- (8) Hose Allowance shall be 250 gpm (950 lpm) for 90 minutes when EVs are present. A minimum of 100 gpm (379 lpm) shall be applied to inside hose demand.**

A9.5.3.1 (a). Double interlock preaction systems are not allowed due to the inherent delay in actual water delivery from a sprinkler. While dry systems can also have delays in activation, typically such delays are limited to 60 seconds or less. Double interlock can have times well beyond 60 seconds based on the type of detection system(s) used which contradicts the early suppression fast response methodology for protection of this type of hazard.

9.5.3.1.1. Flue Sprinklers shall be provided at every vehicle platform level. A minimum of three (3) flue sprinklers shall be provided in each flue space on both sides of the vehicle platform. Sprinklers shall be located within 12 inches (305 mm) of the front and back of each vehicle platform with a maximum distance between sprinklers of 10 ft (3.7 m).

Figure 9.5.3.1.1.

9.5.3.1.1.1. Flue sprinklers shall be calculated separately from the overhead sprinkler system. The two (2) most demanding levels of sprinklers shall be calculated flowing a minimum 20 gpm (76 lpm).

9.5.3.1.1.2. A total hose demand of 250 gpm (950 lpm) with a 90-minute duration shall be added to the flue sprinkler system calculations with a minimum of 100 gpm (379 lpm) of the total hose demand added for inside use.

9.5.3.2*. Flue sprinkler protection shall be zoned vertically.

9.5.3.2.1*. Flue sprinkler protection shall have a maximum of five (5) levels per zone.

9.5.3.3.* Standpipes shall not be required in Fully Automated Parking Systems greater than 5 stories high or 75 ft (23 m) from the lowest point of fire department access and the highest occupied level. Standpipe design and installation shall be in accordance with NFPA 14.

9.5.3.4. Fire alarm systems shall not be required in parking structures with Fully Automated Parking Systems that are protected in accordance with NFPA 13 except as modified in 9.5.3.

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
Chapter_9_First_Draft_PI_6-4-24.docx	Chapter 9	
Table_9.5.2.1_Parking_Equipment_Access_Dimensional_Criteria.docx	Table 9.5.2.1 Parking Equipment Access Dimensional Criteria.docx	

Statement of Problem and Substantiation for Public Input

Task group 9, scope, Consider if language pertaining to fire protection and safety systems that pertain to fully automated parking systems, mechanical parking systems, and stacker parking systems, within Chapter 9 should be provided. The task group will provide a report to the technical committee at the First Draft meeting.

Our task group focused on the best methodology to protect a parking system through specific prescriptive requirements and, in some cases, the requirement for a Performance-Based Design. This methodology is based on proven engineering concepts and designs.

By combining prescriptive requirements with a performance-based design approach, the parking system will be robust, adaptable, and able to meet current and future challenges. This dual approach ensures not only compliance with established standards but also allows for flexibility in addressing unique site-specific needs and emerging threats.

Submitter Information Verification

Submitter Full Name: James Gaut
Organization: Marriott Vacations Worldwide
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jun 04 13:54:39 EDT 2024
Committee: GAR-AAA

Committee Statement

Resolution: CI-18-NFPA 88A-2024
Statement: The committee has created this CI to permit further work on this topic at Second Draft. The task group has developed the content presented in PI-71 with a significant amount of research and input from external sources including FPE's and organizations doing research on these types of systems including with electric vehicles. The task group has been reconstituted and will continue to engage with additional experts and interested parties to further develop the material prior to the Second Draft meeting. New requirements for NFPA 88A should rely on data and technical reports, including, but not limited to, the upcoming NFPA FPRF report (Phase 3, when provided), for technical

substantiation of design and installation requirements. The task group will also provide referenced figures within this submission for review during the Second Draft phase. Finally, several NFPA MOS items were noted in the PI and will require review and evaluation by the task group. The committee welcomes Public Comment on this topic.



Public Input No. 17-NFPA 88A-2024 [Section No. 9.2]

9.2 Automated-Type Parking Structures. ~~Fully Automated, Mechanical and Stacker Parking Systems~~

9.2.1 Means of Egress.

Mean of egress in accordance with Chapter 4 are not required in ~~automated-type parking structures~~ Fully Automated Parking Systems.

9.2.2 Access for Fire Service and Maintenance Personnel.

9.2.2.1

Access shall be provided in accordance with Table 40.2.5.3.1 of NFPA 101 except that the 22 in. (560 mm) minimum dimensional criteria shall be changed to 36 in. (915 mm) in all locations in the table.

~~9.2.2.1.1 Fire service access doors shall be provided in exterior wall facing fire department vehicle access roads spaced no more than 150 ft apart.~~

~~9.2.2.2~~

Horizontal walkways for access shall be provided at intervals of 19.5 ft (6 m) vertically and 98.5 ft (30 m) horizontally.

9.2.2.3

Travel distance to the exterior or to an enclosed stair shall not exceed 400 ft (122 m).

9.2.2.4

~~One~~ A minimum of one exterior door shall be provided at grade for every stair.

9.2.3 Ventilation.

An enclosed ~~automated-type parking structure shall~~ Fully Automated and Mechanical Parking System shall be provided with a ventilation system that continuously provides a minimum of two air changes per hour.

9.2.4 Fire Protection Systems.

9.2.4.1*

An automatic sprinkler system shall be ~~installed in an automated mechanical-type parking structure in~~ installed in accordance with NFPA 13.

9.2.4.2

Standpipes shall not be required in ~~automated-type parking structures~~ Fully Automated Parking Systems.

9.2.4.3

Fire alarm systems shall not be required in ~~automated-type parking structures~~ Fully Automated Parking Systems.

9.2.5 Occupant Safety.

9.2.5.1 Vehicle Occupants.

9.2.5.1.1*

~~For parking systems, all~~ All vehicle occupants shall be required to exit the vehicle at a designated location.

9.2.5.1.2

The designated exit location shall be designed to prevent vehicle drivers and passengers from coming into physical contact with the parking system's equipment, machinery, and other moving parts of the system.

9.2.5. 1.3 Remote controlled manipulation shall not be permissable.

9.2.5.2 Terminals.**9.2.5.2.1**

Where terminals are installed, they shall be separated from the parking system by an enclosure designed to prevent vehicle occupants and other building occupants from entering and exiting the parking system.

9.2.5.2.2

Terminals shall be designed in accordance with the other relevant provisions of this standard.

9.2.5.2.3

Terminals shall be considered an incidental use area to the entire parking system.

9.2.5.3* Terminal Doors.**9.2.5.3.1**

Doors separating the terminal from the parking system shall be constructed with safety features to prevent vehicle occupants or any other building occupants from accessing the parking system.

9.2.5.3.2

All other doors, except garage doors, that lead from the terminal into other areas or to the exterior, other than into the parking system, shall be subject to the relevant provisions of this standard.

9.2.6 Pay Stations.**9.2.6.1** Automated Pay Stations.

Automated pay stations that are located within a parking structure, but that are not within an enclosed room or space, shall be installed greater than 5 ft (1.52 m) from the edge of any parking space(s) or traffic lane(s).

9.2.6.2 Pay Stations Within Separate Spaces.

Pay stations located within an enclosed room or space shall be subject to all other requirements of NFPA 88A, as applicable.

9.2.6.3 Pay Station Entrance.**9.2.6.3.1**

The entrance to this pay station room or space shall be made only from a sidewalk or other pedestrian way.

9.2.6.3.2

Pedestrian access directly to a parking space or traffic lane to or from this pay station room or space shall not be permitted.

9.2.6.4 Vehicle Barriers.

A vehicle barrier system protecting an automated pay station area or pay station room or space shall be installed on all sides of the pay station area, room or space that abut a parking space(s) or traffic lane(s), and be constructed in accordance with the structural provisions of NFPA 5000.

Statement of Problem and Substantiation for Public Input

As currently written the section has fragments with clear intentions. These proposals clean up intentions and add additional needed safeguards for life safety.

Submitter Information Verification

Submitter Full Name: Chris Towski

Organization: International Association of Fire Fighters

Street Address:

City:

State:

Zip:

Submittal Date: Sat Mar 23 19:14:47 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: Because PI-71 was not incorporated as an FR, it is not appropriate to include these requirements at this time. These requirements should be addressed by the TG working on the Chapter 9 requirements for parking systems.



Public Input No. 4-NFPA 88A-2023 [Section No. 9.2.5.3.1]

9.2.5.3.1

Doors separating the terminal from the parking system shall be constructed with safety features to prevent vehicle occupants or any other building occupants from accessing the parking system.

All terminal doors to be in the open state during a fire emergency. This allows for easy evacuation of occupants and provides access for firefighters and emergency personnel.

Statement of Problem and Substantiation for Public Input

This allows for easy evacuation of occupants and provides access for firefighters and emergency personnel.

Submitter Information Verification

Submitter Full Name: Rajeev Aswal

Organization: Robotic Parking Systems Inc.

Street Address:

City:

State:

Zip:

Submittal Date: Thu Nov 02 15:24:44 EDT 2023

Committee: GAR-AAA

Committee Statement

Resolution: The committee did not agree with the submitter. The committee did not agree with all doors to be open during an emergency, as this could create a security concern, including, but not limited to, unintentional entry. Concerns about an open door allowing possible fire/smoke spread were also noted, presenting a hazard to occupants and responders.



Public Input No. 72-NFPA 88A-2024 [New Section after 9.2.6.4]

(N) CHAPTER 10 PERFORMANCE BASED DESIGN APPROACH

n Chapter 10 Performance-Based Design Approach

n 10.1* Performance-Based Design Approach for Parking Structures & Parking Systems.

The requirements of Chapter 10 shall be used to recognize a performance-based design approach where fire and life safety solutions are engineered to achieve a quantified goal for a specified use or application. This alternative approach, where specific prescriptive requirements are insufficient, or a more creative approach accomplishes the same outcome. In no case shall the alternate design allow less fire and life safety solutions than the prescriptive requirements.

—

n 10.2* Fire Risk Assessment.

n A.10.2.1 The fire risk analysis should be evaluated by the stakeholders. See NFPA 551 for additional guidance. [409:4.2.1]

n 10.2.2 The fire risk assessment shall include an evaluation of the risk management considerations outlined in 10.2.3 and involve all parking structure and parking systems stakeholders.

n 10.2.2.1 Fire risk assessment documents shall be prepared by a licensed professional with experience in all aspects of fire protection and life safety system design for parking structures and parking systems and they shall be acceptable to the AHJ.

n 10.3* Goals and Objectives. [409 :5.2]

(a) 10.3 Goals and objectives, assumptions.

Parking Structures & Parking Systems, occupants can be assumed to hear the fire alarm activation and respond appropriately. They should be awake, alert, and able to exit without assistance. Exits should be clearly marked and accessible, parking ramps are considered an exit.

Parking systems have inherent hazards compared to a parking structure; however, it is an unoccupied space and it can be assumed that the maintenance crew are familiar with the parking system because they should be considered employees, awake, alert, and mindful of how to exit the parking system without assistance. The employees should be able to hear a fire alarm activation.

n The performance-based design shall meet the following goals and objectives:

- (1) Allow an alternative means to be utilized for elements of parking structures and parking systems.
- (2) The risk assessment, design criteria, design brief, system performance, and testing criteria are developed in accordance with this section [409 :5.2.2.]
- (3) Meet the scope and purpose of the standard as detailed in Section 1.1 and Section 1.2, of NFPA 88a
- (4) The performance-based design provides an equivalent level of protection to the prescriptive requirements of this standard . [409 :5.2.4]

- (5) Ensure all applicable codes, standards and regulations are identified and complied.
- (6) Select appropriate fire , detection & s uppression systems for the hazard present. Ensure that the fire protection system will be activated in a timely manner and provide sufficient coverage to limit the fire's spread to two vehicles.
- (1) e Allowance shall be 250 gpm (950 lpm) for 90 minutes when EVs are present.
- (1) * Prepare response plan with AHJ & responding emergency services to be kept on site and reviewed on an annual basis with owner, **occupants**, and AHJ.
 - (n) 10.3.(8) The response plan should include all stakeholders, see NFPA 2800, Standard on Facility Emergency Action Plans.
- (1)
 - (a)
 - i. Perform training sessions for staff, and the responding fire department on the procedures related to a fire in parking structures and parking systems. _ AHJ's will determine the frequency of the training.
 - ii. Documentation shall be provided on site outlining the response plan as well as signage to provide direction when separate procedures are in place for alternative fuel vehicles.

n 10.4 Qualifications.

The performance-based design documents shall be prepared by a licensed professional, engineer or Certified Fire Protection Specialist (CFPS), with experience in fire protection and life safety system design and risk assessments that are acceptable to the AHJ.

n 10.5* Independent Review.

The AHJ shall be permitted to require an approved, independent third party to review the proposed design brief based and the Performance-Based Design Report and the Design Brief. [409 :5.4]

A. n 10.5 The SFPE Guidelines for Peer Review in the Fire Protection Design Process provides guidance concerning the peer review process for fire protection designs. [409 :5.4]

n 10.6 Final Determination. The authority having jurisdiction shall make the final determination as to whether the performance objectives have been met. [409 :5.5]

n 10.6.1 The authority having jurisdiction shall ensure the goals and objectives of the performance design are met, including all applicable codes, standards, and regulations.

n 10.7 Maintenance of Performance-Based Design Approach.

The design features required for parking structures and parking systems to continue to meet this standard's performance goals and objectives shall be maintained for the life of the building.

n 10.8 Performance Criteria. [409 :5.7]

n 10.8.1 General. [409 :5.7.1]

All designs shall meet the goals and objectives specified in Section 10.4 and the performance criterion of 10.8.2, and all the parking structures and parking systems stakeholders shall concur with the design and risk management considerations.

n 10.8.2 Performance Criterion.

In addition to life safety considerations, the performance criterion shall include the protection of the vehicle storage and service area from damage by fire and its associated effects, by employing active and passive fire protection features.

(a)N10.8.2 Active and passive fire protection features must ensure that all occupants can evacuate in a safe manner before the fire compartment and adjoining compartments become untenable. To accomplish this the designer should consider, early notification, fire suppression systems able to cool the area and preventing the fire from spreading to adjoining vehicles and compartments, while maintaining tenability for the occupants to evacuate. Ventilation should be a consideration because with the new fuels in vehicles that release highly toxic and dangerous gases that can cause significant immobility or death of occupants.

In addition to the life safety aspects, efforts should be made to reduce the thermal effects of the vehicle fire to the structural components of the parking garage and/or parking system. Consider the requirements in NFPA 502, chapter 7, that limits the exposure of the concrete surface not to exceed 380 °C (716 °F) to prevent structural failure. In the 2008 edition of NFPA 502, it is reported the peak temperature ranges from 444 °C (832 °F) to 1400 °C (2552°F) within ten minutes and within four feet of the roof of the vehicle on fire.

n 10.8.3 Parking structure and parking system Stakeholders.

Parking structures and parking systems stakeholders shall include, but not be limited to, the following:

- (1) Registered design professionals experienced in fire protection and life safety system design and risk assessments [409 :5.7.1]
- (2) The owner or owner's representative [409 :5.7.2]
- (3) Parking structures and parking systems insurance representatives [409 :5.7.3]
- (4) Representatives of the authority having jurisdiction [409 :5.7.4]
- (5) Representatives of emergency response entities [409 :5.7.5]
- (6) Building design professionals (architectural, structural, civil, mechanical, plumbing, and electrical design professionals) [409 :5.7.6]

n 10.8.4* The design of the fire protection elements, in parking structures and parking systems shall include the preparation of a Basis of Design (BOD), that is prepared utilizing recognized performance-based design practices.

A.10.8.4 The SFPE's Engineering Guide: Performance-Based Fire Protection is a recommended guide that should be used in the development of a Design Brief and Performance-Based Design Report. [409 :a 5.7.4]

n 10.8.4.1* Any deviation from a prescriptive requirement in this standard shall be detailed in the BOD and the Performance-Based Design Report.

A.10.8.4.1 The intent of the permitted deviation would be stated in the Design Brief or an informational annex of the Design Brief. A deviation might be permitted as long as the equivalent performance features are maintained. [409 :a5.7.4.1]

n 10.8.4.2 Design specifications and briefs used for performance-based design shall be clearly documented and proven to be realistic and sustainable. [409 :5.7.4.2]

n 10.8.4.2.1 Alterations to the Parking Structure that affect the performance-based design, the building owner or building owner's Representative is required to update the performance-based

design, if changes to the hazard are made.

n 10.8.4.2.2 Any alterations to the original performance-based design must be resubmitted for approval by the AHJ.

n 10.9.4.3* Specific inspection, testing, and maintenance requirements that are necessary to maintain the reliable performance of the fire safety features of vehicle storage and servicing area shall be stated in the Performance-Based Design Report.

A.10.9.4.3 An inspection, testing, and maintenance program is recommended to be provided to the responsible parking structures and parking systems owner or operator and made readily available.

n 10.8.4.4 The applicable items of Chapter 6 of this standard shall apply and include inspections, testing, and maintenance items and frequencies unless specified otherwise in the Performance-Based Design Report. [409 :5.7.4.4]

n 10.9 Records, Record Retention, and Record Maintenance.

n 10.9.1 A complete record of the performance-based design must be maintained by the building owner or building owner's representative for the life of the parking Structure.

n 10.9.2 A complete record of the inspection, testing, and maintenance of the systems that make up the performance-based design must be maintained by the building owner or building owner's representative.

n 10.9.3 The building owner or building owner's representative shall be responsible for maintaining and operating the parking Structure in compliance with this performance design for the life of the parking Structure.

n 10.9.4 The performance-based design, inspection, testing, and maintenance records shall be available to the code official upon request.

Annex material for Chapter 10

a-10.1 Annex materials – Guideline for Performance-Based Design of Parking Structures & Parking Systems, see chapter 10 for detailed information.

The basic form of any performance-based design is to first select the performance objectives of the design. A preliminary design is developed and then assessed against its ability to meet the objectives established. If the performance meets the objectives the performance based design is complete, if it does not meet the objectives the design is revised and reevaluated until the performance objectives are met. The main objective of a design for these types of parking systems Parking Structures & Parking Systems should be to prevent structural collapse. Research has shown that in fires in parking structures Parking Structures & Parking Systems, keeping the fire from spreading beyond the vehicle of origin provides for the best outcome with the least amount of damage. While adjacent vehicles may sustain damage via heat or smoke, active involvement of additional vehicles beyond the vehicle of origin should a primary goal for a Performance Based Design. By limiting the fire from involving multiple vehicles the structure of the building and the parking system can be protected from collapse. This can be achieved through a combination of both active and passive protection measures.

Here is an outline of the items that need to be considered when creating a Performance Based Design (PBD) for a parking system:

(1) Risk assessment

(2) Identify the potential fire hazards associated with the automated parking system and assess the level of risk. Consider proximity of vehicles to one another, potential for fire spread in any direction, impact of fire on the building and parking system structure, hazards present both from vehicles as well as components of the parking system.

- (3) Evaluate risk to adjacent structures and proposed mitigation if necessary.
- (4) Consider the unique characteristics of the parking systems and their impact on fire safety.
- (5) Regulatory Compliance
 - (6) Familiarize yourself with local building and fire codes, as well as any specific regulations related to parking systems.
 - (7) Ensure that your design adheres to relevant safety standards and guidelines.
 - (8) Identify who the Authority Having Jurisdiction will be that will provide final approval of the PBD.
- (9) Establish passive protection measures
 - (10) Prepare a plan for emergency egress of any occupants of the building. Ensure that evacuation paths are well-marked, adequately illuminated, and easily navigable
 - (11) Install reliable communication systems to facilitate emergency notifications and coordination. Integrate fire alarm systems with the parking system to trigger appropriate responses in case of emergencies.
 - (12) Consider compartmentation to limit fire spread via the means of rated construction or other measures. _ under consideration of insurance requirements
- (13) Establish active protection measures
 - (14) Select appropriate fire suppression systems for the hazard present. Ensure that sprinklers will be provided in a manner to activate in a timely manner and provide sufficient coverage to limit the fire spread to the design area only.
 - (15) Establish a minimum duration of water supply to a water-based suppression system based on the hazards present. Fire involving batteries in electric vehicles may require available water for a minimum of 2 hours. The duration should be no less than the minimum required for an Ordinary Hazard Group II occupancy. *how many hrs is this* ?
 - (16) Address how to provide for verification of final extinguishment. In cases involving ICE vehicles it may be appropriate to provide control/suppression in place with support from the responding fire department. For longer duration fires such as those involving batteries in EV's encapsulation and removal of the vehicle may be necessary in order to ensure final extinguishment has occurred.
 - (17) Design an effective smoke management system to prevent smoke accumulation
- (18) Prepare response plan with AHJ & responding emergency services to be kept on site and reviewed on an annual basis with owner and AHJ.
- (19) Conduct training sessions for occupants, staff and the responding fire department on the procedures related to a fire in the automated parking system.

Documentation shall be provided on site outlining the response plan as well as signage to provide direction when separate procedures are in place for

END OF SECTION**Additional Proposed Changes**

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
Chap_10_PBD_6-4-24_PI_Final_.docx	Chapter 10, Performance Based Design Approach	

Statement of Problem and Substantiation for Public Input

The task group felt that a performance-based design approach was necessary for NFPA 88a to provide flexibility and creativity to designers of fire protection and life safety systems. This alternative approach, where specific prescriptive requirements are insufficient, or a more creative approach accomplishes the same outcome. In no case shall the alternate design allow less fire and life safety solutions than the prescriptive requirements.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
<u>Public Input No. 73-NFPA 88A-2024 [Section No. 6.4]</u>	

Submitter Information Verification

Submitter Full Name: James Gaut
Organization: Marriott Vacations Worldwide
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jun 04 14:23:31 EDT 2024
Committee: GAR-AAA

Committee Statement

Resolution: The committee did not agree with the text of PI-72 as provided, as it contained NFPA MOS concerns, as well as questions pertaining to language as extracted from NFPA 409. PI-62 was resolved as it was a related input based on the definition, which could not be added as the term is not utilized within NFPA 88A. The task group for Chapter 9 will review this further and provide possible Public Comment, as well as provide a report to the committee at the Second Draft meeting.



Public Input No. 42-NFPA 88A-2024 [Chapter A]

Annex A Explanatory Material

Annex A is not a part of the requirements of this NFPA document but is included for informational purposes only. This annex contains explanatory material, numbered to correspond with the applicable text paragraphs.

A.1.5

Emergency plans for parking structures can assist owners, operators, and emergency service providers in the event of an emergency or fire protection system failure at the location. The most desired approach to developing these emergency plans is to include all stakeholders in the planning and development of the emergency plan. The emergency plan, depending on the size and complexity of the parking structure, can be as simple or as complex as the stakeholders feel is necessary. Vital elements of the plan should include emergency contacts, fire prevention planning, emergency response, mitigation, and recovery plans. Events such as inclement weather, fires, fuel spills, hazardous materials incidents at the location or in the vicinity, fire protection system impairments, bomb threats, active shooters, and other types of emergencies should be included in the plan. The locations and numbers of fire protection devices, automatic defibrillators, and first aid equipment should also be listed to ensure that they can be utilized in the event of an emergency and maintained properly.

Parking garages have a significant impact on business continuity of operations. Parking garages should have a business impact analysis (BIA) to determine how the interruption of access to a parking structure could impact occupants and parking garage business owners. NFPA 1600's crisis/disaster/emergency management and business continuity/continuity of operations programs should be referenced where developing an emergency plan.

A.3.2.1 Approved.

The National Fire Protection Association does not approve, inspect, or certify any installations, procedures, equipment, or materials nor does it approve or evaluate testing laboratories. In determining the acceptability of installations or procedures, equipment, or materials, the “authority having jurisdiction” may base acceptance on compliance with NFPA or other appropriate standards. In the absence of such standards, said authority may require evidence of proper installation, procedure, or use. The “authority having jurisdiction” may also refer to the listings or labeling practices of an organization that is concerned with product evaluations and is thus in a position to determine compliance with appropriate standards for the current production of listed items.

A.3.2.2 Authority Having Jurisdiction (AHJ).

The phrase “authority having jurisdiction,” or its acronym AHJ, is used in NFPA standards in a broad manner because jurisdictions and approval agencies vary, as do their responsibilities. Where public safety is primary, the authority having jurisdiction may be a federal, state, local, or other regional department or individual such as a fire chief; fire marshal; chief of a fire prevention bureau, labor department, or health department; building official; electrical inspector; or others having statutory authority. For insurance purposes, an insurance inspection department, rating bureau, or other insurance company representative may be the authority having jurisdiction. In many circumstances, the property owner or his or her designated agent assumes the role of the authority having jurisdiction; at government installations, the commanding officer or departmental official may be the authority having jurisdiction.

A.3.2.4 Listed.

The means for identifying listed equipment may vary for each organization concerned with product evaluation; some organizations do not recognize equipment as listed unless it is also labeled. The authority having jurisdiction should utilize the system employed by the listing organization to identify a listed product.

A.3.3.5 Parking Structure.

A parking structure is permitted to be enclosed or open, use ramps, and use mechanical control push-button-type elevators to transfer vehicles from one floor to another, or mechanical or stacker systems. Motor vehicles are permitted to be parked by the driver or by an attendant where a mechanical or stacker parking system is used. Motor fuel is permitted to be dispensed, and motor vehicles are permitted to be serviced in a parking structure in accordance with NFPA 30A.

A.3.3.6.1 Fully Automated Parking System.

Vehicles can be driven into terminals separated from the parking system. Typically, fully automated systems can be designed to accommodate thousands of parking spaces. Many storage and retrieval actions can occur simultaneously, which allows high peak storage and retrieval performance.

A.3.3.6.2 Mechanical Parking System.

Vehicles can be permitted to be driven into the mechanical parking system. One mechanical parking unit typically serves for up to 50 vehicles. For more than 50 vehicles, additional units will need to be added.

A.3.3.6.3 Stacker Parking System.

A stacker system can store up to 4 vehicles in a single unit. Vehicles are permitted to be driven into the stacker system and backed out at time of retrieval. For a stacker system to operate as designated at grade, the parking space must be vacant, or a pallet(s) or platform(s) must be available from the at-grade access location for both the storage and retrieval of the vehicles to take place.

A.4.1.5

Exit travel distance is measured in accordance with NFPA 101.

A.5.1.1

Building codes generally contain provisions limiting the heights and areas of parking structures of various types of construction.

A.5.1.5

The pre-incident plan should be developed by fire rescue with input from the building owners or operators of parking structures or systems.

A.5.3.4

See NFPA 220.

A.5.4.1.2

Asphalt pavement applied over earth substrates is an acceptable method of surfacing.

A.6.3.1

This ventilation requirement is also intended to address vehicles that use natural gas [compressed natural gas (CNG) or liquefied natural gas (LNG)]. A natural gas leak should pose no greater risk than leaks of conventional motor fuels.

A. 7.4.3.4

Ventilation should be provided to limit the build-up of flammable and toxic gases during normal operation. Ventilation is also intended to be utilized as a means of post-fire smoke evacuation by the responding fire department.

A. 9.2.4.1

As with the more conventional parking garages, NFPA 88A refers to other NFPA standards (NFPA 13, NFPA 14, NFPA 72, NFPA 101, and NFPA 5000) for certain fire protection features of automated-type parking structures. Also, see the NFPA FPRF report, *Modern Vehicle Hazards in Parking Structures and Vehicle Carriers*.

A.9.2.5.1.1

In parking systems that do not provide physical barriers or terminals, a parking attendant can transport the vehicle from a passenger drop-off and pick-up area, so vehicle occupants do not come in contact with the parking system's equipment, machinery, and other moving parts of the system. Operators of the parking system should be the only ones that move a vehicle into stacker and mechanical parking systems.

A.9.2.5.3

The door to the outside must be open so that a vehicle can drive into the terminal. The door must also stay open until all passengers are out of the terminal. The outside kiosk only allows the system to activate if and when it is secured and all passengers are out of the terminal, which can be confirmed secondarily by sensors and motion cameras, as well as by the driver initiating the process on the outside kiosk. Because of that fact, which is common with all fully automated systems, the requirement of these doors complying with the 'relevant provisions of this standard' is not applicable.

Statement of Problem and Substantiation for Public Input

Annex language is added to provide additional guidance and intent to support the associated code change proposal.

Submitter Information Verification

Submitter Full Name: Jennifer Hoyt

Organization: Code Red Consultants

Street Address:

City:**State:****Zip:****Submittal Date:** Sun Jun 02 23:10:16 EDT 2024**Committee:** GAR-AAA**Committee Statement**

Resolution: The submitter requested that this PI be resolved. This will be reviewed via the task group per CI-15. Any changes will be addressed by possible Public Comment.



Public Input No. 30-NFPA 88A-2024 [Section No. A.1.5]

A.1.5



Emergency plans for parking structures can assist owners, operators, and emergency service providers in the event of an emergency or fire protection system failure at the location. The most desired approach to developing these emergency plans is to include all stakeholders in the planning and development of the emergency plan. The emergency plan, depending on the size and complexity of the parking structure, can be as simple or as complex as the stakeholders feel is necessary. Vital elements of the plan should include emergency contacts, fire prevention planning, emergency response, mitigation, ~~and~~ recovery plans and considerations for people with disabilities and functional needs. Events such as inclement weather, fires, fuel spills, hazardous materials incidents at the location or in the vicinity, fire protection system impairments, bomb threats, active shooters, and other types of emergencies should be included in the plan. The locations and numbers of fire protection devices, automatic defibrillators, emergency stair travel devices, and first aid equipment should also be listed to ensure that they can be utilized in the event of an emergency and maintained properly.

Parking garages have a significant impact on business continuity of operations. Parking garages should have a business impact analysis (BIA) to determine how the interruption of access to a parking structure could impact occupants and parking garage business owners. NFPA 1600's crisis/disaster/emergency management and business continuity/continuity of operations programs should be referenced ~~where~~ when developing an emergency plan.

Emergency plans must include considerations for persons with disabilities and access and functional needs. Stakeholders with lived experiences and individuals from disability advocacy organizations must be part of the planning process. FEMA strongly encourages input into emergency planning should include these stakeholders. NFPA's *Emergency Evacuation Planning Guide for People with Disabilities* should be referenced for guidance.

Statement of Problem and Substantiation for Public Input

The NFPA Disability Access Review and Advisory Committee (DARAC) requests changes to this annex to include people with disabilities within the emergency planning process. The referenced publication cited has been authored by DARAC, published by NFPA, and available for free download. The document guides the reader on specific considerations for people with disabilities and includes a checklist of key points for review. Finally, a note regarding emergency stair travel devices is pertinent, as these units, if found within the parking structure, should be carefully placed, inspected and utilized according to the manufacturer's written instructions and applicable guidance.

Submitter Information Verification

Submitter Full Name:	Jessica Hubert
Organization:	Guardian Services Inc.
Affiliation:	Representing Disabilities Access Review Advisory Committee
Street Address:	
City:	
State:	
Zip:	
Submittal Date:	Wed May 08 12:28:53 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: The committee did not agree with adding this language, as the reference to FEMA, as a US-only organization, might limit use of this annex to other countries. Further, the use of the term "must" in the the last paragraph creates enforcement concerns. Finally, NFPA 1600 already includes some of this material within its document.



Public Input No. 40-NFPA 88A-2024 [New Section after A.3.3.6.3]

Light electric vehicle (LEV)

The following are examples of LEVs: electric bicycles; electric scooters; electric wheelchairs; golf carts; all-terrain vehicles; non-ride-on industrial material handling equipment; unmanned aerial vehicles (UAVs); ride-on floor care machines; and personal e-mobility devices.

Statement of Problem and Substantiation for Public Input

The proposed annex language provides anecdotal examples to support the definition.

Submitter Information Verification

Submitter Full Name: Jennifer Hoyt

Organization: Code Red Consultants

Street Address:

City:

State:

Zip:

Submittal Date: Sun Jun 02 23:07:04 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: CI-15-NFPA 88A-2024

Statement: The committee created this committee input to permit further work on this topic at Second Draft. During the discussion on these PI's it was determined that NFPA 1 has requirements on this topic via the 2024 edition. Further, requirements pertaining to golf carts were not included in the PI submissions, but was deemed to be an important topic for review. Finally, definitions on this topic require review to determine if coordination with other NFPA documents is warranted. A task group will continue work on this topic and provide a report to the technical committee at Second Draft.



Public Input No. 41-NFPA 88A-2024 [New Section after A.3.3.6.3]

Safety-certified light electric vehicle (SCLEV)

Examples of standards that can help determine compliance include, but may not be limited to, the following:

- (1) Underwriters Laboratories (UL) standards UL 2849 or UL 2272;
- (2) European (EN) standards EN 15194 or EN 17128; or
- (3) Other safety standard of an accredited laboratory, approved by the authority having jurisdiction.

Statement of Problem and Substantiation for Public Input

The proposed annex language provides anecdotal examples to support the definition.

Submitter Information Verification

Submitter Full Name: Jennifer Hoyt

Organization: Code Red Consultants

Street Address:

City:

State:

Zip:

Submittal Date: Sun Jun 02 23:07:58 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: CI-15-NFPA 88A-2024

Statement: The committee created this committee input to permit further work on this topic at Second Draft. During the discussion on these PI's it was determined that NFPA 1 has requirements on this topic via the 2024 edition. Further, requirements pertaining to golf carts were not included in the PI submissions, but was deemed to be an important topic for review. Finally, definitions on this topic require review to determine if coordination with other NFPA documents is warranted. A task group will continue work on this topic and provide a report to the technical committee at Second Draft.

**Public Input No. 27-NFPA 88A-2024 [Section No. A.6.3.1]****A.6.3.1**

This ventilation requirement is also intended to address vehicles that use natural gas [compressed natural gas (CNG) or liquefied natural gas (LNG)]. A natural gas leak should pose no greater risk than leaks of conventional motor fuels.

In the absence of specific criteria per the listing or the manufacturer's written instructions, the following should be considered for CO/NO2 BMS/Self-contained system tie in with Fire Alarm Sequence:

CO:

Fans run at minimum speed.

25 PPM for 90 seconds starts ventilation sequence (per approved sequence). Signal stays in BMS/Self-contained system.

50 PPM for 5 minutes send Alarm Signal to BMS/Self-contained system.

200 PPM for 10 minutes send Alarm Signal to BMS and Supervisory Trouble to Fire Alarm.

NO2:

Fans run at minimum speed.

> (Greater Than) 1 PPM for 90 seconds starts ventilation. Signal stays in BMS/Self-contained system.

> (Greater Than) 1 PPM for 10 minutes send Alarm Signal to BMS and Supervisory Trouble to Fire Alarm.

Sequence to be reviewed and approved by fire department.

Statement of Problem and Substantiation for Public Input

TG 8 believes this information is necessary to explain the requirements in detail.

Submitter Information Verification

Submitter Full Name: Chris Towski

Organization: International Association of Fire Fighters

Street Address:

City:

State:

Zip:

Submittal Date: Thu Apr 18 10:40:08 EDT 2024

Committee: GAR-AAA

Committee Statement

Resolution: FR-22-NFPA 88A-2024

Statement: The requirements for CO and NO2 detectors were added as those are an allowable option when the mechanical ventilation system is activated automatically. The requirement to provide mechanical ventilation was clarified to apply to any parking structure that does not comply with Section 5.6 which provides the requirements for open parking structures. Additionally, the requirement to provide standby power for mechanical

ventilation systems is necessary as the ventilation system functions as a life safety system.