



Meeting Agenda

Technical Committee on Garages and Parking Structures

First Draft Meeting A2018 edition of NFPA 88A

November 7, 2016

Via

Face to Face at NFPA and conference call and online Adobe "Connect"

1. **Call to Order.** Call meeting to order by Chair Mike Carsillo at 8:00 a.m. Eastern Time on Monday, November 7, 2016 at NFPA headquarters and via Conference call and online Adobe "Connect"
2. **Introduction of the Attendees.** *(For a current committee roster see page 2.)*
3. **Chair's remarks** – Mike Carsillo
4. **Staff Comments** (NFPA Procedural, etc.) - Allan Fraser
5. **Approval of Minutes**- September 30, 2013. *(See page 4).*
6. **Review of Public Inputs for the 2018 edition of NFPA 88A**
 - a. Thirty (30) public inputs. *(See page 6).*
 - b. Committee generated First Revisions or Inputs (if needed.)
7. **Other Business.**
8. **Date and location of next meeting** (TBD after May 17, 2017 Public Comment Closing Date).
9. **Adjournment.**

Attachments

Address List No Phone

09/12/2016

Allan Fraser

GAR-AAA

Garages and Parking Structures

Michael E. Carsillo Chair Stuart Fire Rescue 800 SE Martin Luther King, Jr. Blvd. Stuart, FL 34994	E 07/14/2004 GAR-AAA	Cecil Bilbo, Jr. Principal Academy of Fire Sprinkler Technology, Inc. 301 North Neil Street, Suite 426 Champaign, IL 61820-3170 National Fire Sprinkler Association Alternate: Peter T. Schwab	M 07/29/2013 GAR-AAA
Joseph E. Caldwell Principal AECOM 10 South Jefferson Street, Suite 1600 Roanoke, VA 24011-1333 Alternate: John M. Breen	SE 03/05/2012 GAR-AAA	Daniel A. Dahl Principal Morrison Hershfield Corporation 1455 Lincoln Parkway, Suite 500 Atlanta, GA 30346	SE 7/19/2002 GAR-AAA
Victor L. Dubrowski Principal Code Consultants, Inc. 2043 Woodland Parkway St. Louis, MO 63146-4235	SE 3/1/2011 GAR-AAA	Thomas J. Forsythe Principal JENSEN HUGHES 2950 Buskirk Avenue Suite 225 Walnut Creek, CA 94597-8862 Alternate: Patrick C. Ward	SE 1/1/1995 GAR-AAA
James W. Gaut Principal Marriott Vacations Worldwide 11667 Acosta Avenue Orlando, FL 32836-8821	U 12/08/2015 GAR-AAA	Gerhard Haag Principal Robotic Parking Systems Inc. 12812 North 60th Street Clearwater, FL 33760	M 3/21/2006 GAR-AAA
Todd W. Haines Principal Dallas/Fort Worth International Airport PO Box 610687 DFW Airport, TX 75261	U 7/23/2008 GAR-AAA	Eric J. Hall Principal City of Des Peres Department of Public Safety 1000 North Ballas Road Des Peres, MO 63131	E 1/14/2005 GAR-AAA
Jonathan Humble Principal American Iron and Steel Institute 45 South Main Street, Suite 312 West Hartford, CT 06107-2402 American Iron and Steel Institute Alternate: Farid Alfawakhiri	M 12/08/2015 GAR-AAA	Marshall A. Klein Principal Marshall A. Klein & Associates, Inc. 6815 Autumn View Drive Eldersburg, MD 21784-6304 Alternate: David M. Hammerman	U 1/1/1991 GAR-AAA

Address List No Phone

09/12/2016

Allan Fraser

GAR-AAA

Garages and Parking Structures

Jeffery P. McBride Principal EBL Engineers, LLC EBL Fire Engineering 8005 Harford Road Baltimore, MD 21234-5701 Alternate: Edward M. Fraczkowski	SE 9/30/2004 GAR-AAA	Donald R. Monahan Principal Walker Parking Consultants, Inc. 5350 South Roslyn Street, Suite 220 Greenwood Village, CO 80111 National Parking Association	U 7/12/2001 GAR-AAA
David A. Moore, Jr. Principal Glendale Fire Department 30 Village Square Glendale, OH 45246	E 10/3/2002 GAR-AAA	Somnath Mukherjee Principal Port Authority of New York & New Jersey Two Gateway Center, 16SW 100 Mulberry Street Newark, NJ 07102	U 7/29/2005 GAR-AAA
John Anthony Whaling Principal Protectowire Company, Inc. 60 Washington Street Pembroke, MA 02359	M 08/03/2016 GAR-AAA	Farid Alfawakhiri Alternate American Iron and Steel Institute 380 Cottonwood Lane Naperville, IL 60540-5020 American Iron and Steel Institute Principal: Jonathan Humble	M 12/08/2015 GAR-AAA
John M. Breen Alternate AECOM 10 South Jefferson Street Suite 1600 Roanoke, VA 24011-1333 Principal: Joseph E. Caldwell	SE 04/08/2015 GAR-AAA	Edward M. Fraczkowski Alternate EBL Engineers, LLC EBL Fire Engineering 8005 Harford Road Baltimore, MD 21234-5701 Principal: Jeffery P. McBride	SE 9/30/2004 GAR-AAA
David M. Hammerman Alternate Marshall A. Klein and Associates, Inc. 3950 Chaffey Road Randallstown, MD 21133 Principal: Marshall A. Klein	U 4/5/2001 GAR-AAA	Peter T. Schwab Alternate Wayne Automatic Fire Sprinklers, Inc. 222 Capitol Court Ocoee, FL 34761-3033 National Fire Sprinkler Association Principal: Cecil Bilbo, Jr.	M 08/03/2016 GAR-AAA
Patrick C. Ward Alternate Jensen Hughes/AON Fire Protection Engineering 5000 Executive Parkway, Suite 340 San Ramon, CA 94583 JENSEN HUGHES Principal: Thomas J. Forsythe	SE 7/19/2002 GAR-AAA	Allan Fraser Staff Liaison National Fire Protection Association 1 Batterymarch Park Quincy, MA 02169-7471	6/9/2003 GAR-AAA



**DRAFT MEETING MINUTES
OF
THE TECHNICAL COMMITTEE ON
GARAGES & PARKING STRUCTURES
September 30, 2013
Second Draft Meeting via Hybrid Meeting**

Item 1, Call to Order

The Second Draft Meeting of the Technical Committee on Garages & Parking Structures via Adobe “Connect” and conference call was convened by the Chair, Thomas Forsythe at 2:05 p.m. EDT on Monday, September 30, 2013.

Item 2, Introduction of Members and Guests

Chair, Thomas Forsythe opened the meeting with welcoming remarks, and a roll call of meeting participants and guests was conducted.

The following Technical Committee Principal and Alternate members participated:

NAME	COMPANY
Thomas J. Forsythe, Principal, Chair	Hughes Associates., Inc.
Daniel Dahl, Principal	Morrison Hershfield Corporation
Mike Carsillo, Principal	West Palm Beach Fire Rescue
Victor Dubrowski, Principal	Code Consultants, Inc.
Todd Haines, Principal	Dallas/Fort Worth International Airport
David M. Hammerman, Alternate. to M. Klein	Marshall A. Klein & Associates, Inc
Jeannene Y. Meismen, Principal	Reedy Creek Fire Department
Patrick C. Ward, Principal	Aon Fire Protection Engineering Corporation

The following Technical Committee Principals did not participate:

NAME	COMPANY
James Golinveaux, Principal	Tyco Fire Suppression & Building Products/Representing National Fire Sprinkler Association
Gerhard Haag, Principal	Robotic Parking Systems, Inc.
Eric J. Hall, Principal	City of Des Peres, MO Department of Public Safety
Juan Carlos Hernandez, Principal	AECOM
Jeffery P. McBride, Principal	EBL Engineers, LLC
Donald R. Monahan, Principal	Walker Parking Consultants, Inc./Representing National Parking Association

David A. Moore, Jr., Principal	Glendale Fire Department
Somnath Mukherjee, Principal	Port Authority of New York & New Jersey
Robert Wills, Principal	American Iron and Steel Institute

The following NFPA staff participated:

Allan Fraser

The Chair provided a general overview of the agenda.

Item 3, New Process

Staff Liaison, Allan Fraser reviewed the new process under the new regulations.

Item 4, Review of Public Comments for NFPA 88A

The Committee reviewed nine (9) Public Comments and generated six (6) Second Revisions.

Item 5, Next Meeting Date and Location

Staff and the Chair will poll the committee for the First Draft meeting date for the next cycle once the Public Input closing date has passed.

Item 7, Adjournment

On Monday, September 30, 2013, the meeting was adjourned at 3:30 p.m. by the Chair, Thomas Forsythe.

Minutes prepared by Allan B. Fraser, CBI, CPCA, NFPA Staff Liaison



Public Input No. 9-NFPA 88A-2015 [Global Input]

Remove the "Exception" text to be consistent with direction provided in the MOS.

Statement of Problem and Substantiation for Public Input

The current language in 88A has numerous section that contain text written with an "Exception" type format. This is inconsistent with the direction provided by the Manual of Style. These sections should be rewritten as modifiers to the core section rather than exception text.

Submitter Information Verification

Submitter Full Name: ANTHONY APFELBECK

Organization: ALTAMONTE SPRINGS BUILDING/FIRE SAFETY DIVISION

Street Address:

City:

State:

Zip:

Submittal Date: Fri Jul 10 15:00:29 EDT 2015



Public Input No. 12-NFPA 88A-2015 [Chapter 2]

Chapter 2 Referenced Publications

2.1 General.

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

2.2 NFPA Publications.

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

NFPA 13, *Standard for the Installation of Sprinkler Systems*, 2013 edition.

NFPA 14, *Standard for the Installation of Standpipe and Hose Systems*, 2013 edition.

NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, 2014 edition.

NFPA 30, *Flammable and Combustible Liquids Code*, 2015 edition.

NFPA 30A, *Code for Motor Fuel Dispensing Facilities and Repair Garages*, 2015 edition.

NFPA 31, *Standard for the Installation of Oil-Burning Equipment*, 2011 edition.

NFPA 52, *Vehicular Gaseous Fuel Systems Code*, 2013 edition.

NFPA 54, *National Fuel Gas Code*, 2015 edition.

NFPA 58, *Liquefied Petroleum Gas Code*, 2014 edition.

NFPA 70[®], *National Electrical Code*[®], 2014 edition.

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

NFPA 80, *Standard for Fire Doors and Other Opening Protectives*, 2013 edition.

NFPA 90A, *Standard for the Installation of Air-Conditioning and Ventilating Systems*, 2015 edition.

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

NFPA 211, *Standard for Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances*, 2013 edition.

NFPA 220, *Standard on Types of Building Construction*, 2015 edition.

NFPA 5000[®], *Building Construction and Safety Code*[®], 2015 edition.

2.3 Other Publications.

2.3.1 ACI Publications.

American Concrete Institute, 38800 Country Club Dr., Farmington Hills, MI 48331-3439.

ACI 362.1R Guide for the Design and Construction of Durable Concrete Parking Structures, 2012.

ACI 362.2R Guide for Structural Maintenance of Parking Structures, 2000, reapproved 2013.

548.8 Specification for Type EM (Epoxy Multi-Layer) Polymer Overlay for Bridge and Parking Garage Decks, 2007.

ACI 548.9 Specification for Type ES (Epoxy Slurry) Polymer Overlays for Bridge and Parking Garage Decks, 2008.

ACI 548.10 Specification for Type MMS (Methyl Methacrylate Slurry) Polymer Overlays for Bridge and Parking Garage Decks, 2010.

2.3.2 _ ASTM Publications.

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

ASTM E 436 E136 , *Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C,- 2004* _ **2016** .

2.3. 2 3 IAPMO Publications.

International Association of Plumbing and Mechanical Officials,- 5004 _ **4755** _ E. Philadelphia Street, Ontario, CA 91761.

Uniform Mechanical Code,- 2003 _ **2015** .

2.3. 4 IES Publications.

Illuminating Engineering Society (IES), 120 Wall Street, FL 17, New York, NY 10005-4001.

IES RP 14, Lighting for Parking Facilities, 2014.

2. 3 .5 Other Publications.

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

2.4 References for Extracts in Mandatory Sections.

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

Statement of Problem and Substantiation for Public Input

Referenced current SDO standard names, and editions.

The added references to ACI and IES standards and recommended practices are just recommendations for addition to the standard.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
<u>Public Input No. 13-NFPA 88A-2015 [Chapter B]</u>	

Submitter Information Verification

Submitter Full Name: Aaron Adamczyk

Organization: [Not Specified]
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jul 21 18:08:57 EDT 2015



Public Input No. 2-NFPA 88A-2015 [Section No. 2.2]

2.2 NFPA Publications.

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

NFPA 2, [Hydrogen Technologies Code, 2016 edition](#)

NFPA 13, [Standard for the Installation of Sprinkler Systems, 2013 edition.](#)

NFPA 14, [Standard for the Installation of Standpipe and Hose Systems, 2013 edition.](#)

NFPA 25, [Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, 2014 edition.](#)

NFPA 30, [Flammable and Combustible Liquids Code, 2015 edition.](#)

NFPA 30A, [Code for Motor Fuel Dispensing Facilities and Repair Garages, 2015 edition.](#)

NFPA 31, [Standard for the Installation of Oil-Burning Equipment, 2011 edition.](#)

NFPA 52, [Vehicular Gaseous Fuel Systems Code, 2013 edition.](#)

NFPA 54, [National Fuel Gas Code, 2015 edition.](#)

NFPA 58, [Liquefied Petroleum Gas Code, 2014 edition.](#)

NFPA 70[®], [National Electrical Code[®], 2014 edition.](#)

NFPA 72[®], [National Fire Alarm and Signaling Code, 2013 edition.](#)

NFPA 80, [Standard for Fire Doors and Other Opening Protectives, 2013 edition.](#)

NFPA 90A, [Standard for the Installation of Air-Conditioning and Ventilating Systems, 2015 edition.](#)

NFPA 101[®], [Life Safety Code[®], 2015 edition.](#)

NFPA 211, [Standard for Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances, 2013 edition.](#)

NFPA 220, [Standard on Types of Building Construction, 2015 edition.](#)

NFPA 5000[®], [Building Construction and Safety Code[®], 2015 edition.](#)

Statement of Problem and Substantiation for Public Input

NFPA 2, Hydrogen Technologies Code, is proposed to be reference in Chapter 7 under PI 1. The NFPA Standards committee decided that the requirements for hydrogen storage, use, and fueling in parking structures and all other buildings. are contained only in NFPA 2 and nowhere else. . Therefore, the proposed text provides a reference to NFPA2 for the storage.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 1-NFPA 88A-2015 [Chapter 7]	

Submitter Information Verification

Submitter Full Name: SPENCER QUONG
Organization: QUONG ASSOCIATES INC
Affiliation: TOYOTA
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jun 29 13:47:48 EDT 2015



Public Input No. 3-NFPA 88A-2015 [Section No. 2.2]

2.2 NFPA Publications.

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

NFPA 1, *Fire Code*, 2018 [edition](#).

NFPA 2, *Hydrogen Technologies Code*, 2016 [edition](#).

NFPA 13, *Standard for the Installation of Sprinkler Systems*, 2013 [edition](#).

NFPA 14, *Standard for the Installation of Standpipe and Hose Systems*, 2013 [edition](#).

NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, 2014 [edition](#).

NFPA 30, *Flammable and Combustible Liquids Code*, 2015 [edition](#).

NFPA 30A, *Code for Motor Fuel Dispensing Facilities and Repair Garages*, 2015 [edition](#).

NFPA 31, *Standard for the Installation of Oil-Burning Equipment*, 2011 [edition](#).

NFPA 52, *Vehicular Gaseous Fuel Systems Code*, 2013 [edition](#).

NFPA 54, *National Fuel Gas Code*, 2015 [edition](#).

NFPA 58, *Liquefied Petroleum Gas Code*, 2014 [edition](#).

NFPA 70[®], *National Electrical Code*[®], 2014 [edition](#).

NFPA 72[®], *National Fire Alarm and Signaling Code*, 2013 [edition](#).

NFPA 80, *Standard for Fire Doors and Other Opening Protectives*, 2013 [edition](#).

NFPA 90A, *Standard for the Installation of Air-Conditioning and Ventilating Systems*, 2015 [edition](#).

NFPA 101[®], *Life Safety Code*[®], 2015 [edition](#).

NFPA 211, *Standard for Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances*, 2013 [edition](#).

NFPA 220, *Standard on Types of Building Construction*, 2015 [edition](#).

NFPA 5000[®], *Building Construction and Safety Code*[®], 2015 [edition](#).

Statement of Problem and Substantiation for Public Input

This proposed change add a reference to NFPA 1 and NFPA 2.

NFPA 1 - This is the Fire Code and provides the needed regulatory flowdown needed to enforce NFPA 88A. Jurisdictions that adopt NFPA 1 will enforce NFPA 88A as required by NFPA 1 Chapter 29. Jurisdictions are unlikely to adopt NFPA 88A directly but the flowdown through NFPA 1 makes NFPA 88A enforceable where NFPA 1 is enforced. Adding the reference to NFPA 1 makes this section complete.

NFPA 2 - This is the Hydrogen Technologies Code and is referred to in Chapter 7 of NFPA 88A (by a separately submitted PI). NFPA 2 addresses the parking of hydrogen fuel cell vehicles in parking garages and confirms that no additional requirements beyond those needed for gasoline or diesel fueled cars are needed. Adding this reference improves correlation.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 4-NFPA 88A-2015 [Section No. 7.1.1]	
Public Input No. 5-NFPA 88A-2015 [Section No. 7.1.2]	
Public Input No. 6-NFPA 88A-2015 [Section No. 7.1.3]	
Public Input No. 7-NFPA 88A-2015 [New Section after 7.1]	
Public Input No. 8-NFPA 88A-2015 [New Section after 7.1]	

Submitter Information Verification

Submitter Full Name: MARTIN GRESHO

Organization: FP2 FIRE INC

Street Address:

City:

State:

Zip:

Submittal Date: Mon Jun 29 14:48:00 EDT 2015



Public Input No. 16-NFPA 88A-2016 [Section No. 2.3.1]

2.3.1 ASTM Publications.

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

ASTM E 136, *Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at
750°C,- 2004 _ 2015* .

Statement of Problem and Substantiation for Public Input

Date updates

Submitter Information Verification

Submitter Full Name: Timothy Earl

Organization: GBH International

Street Address:

City:

State:

Zip:

Submittal Date: Mon Jan 04 13:30:21 EST 2016



Public Input No. 36-NFPA 88A-2016 [New Section after 3.3]

Building Code.

The building code enforced by the jurisdiction or agency enforcing this standard.

Statement of Problem and Substantiation for Public Input

Add a definition of building code and related Annex material similar to that used in the Life Safety Code.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
<u>Public Input No. 37-NFPA 88A-2016 [New Section after A.3.2.4]</u>	
<u>Public Input No. 38-NFPA 88A-2016 [Section No. 5.2.1]</u>	

Submitter Information Verification

Submitter Full Name: Victor Dubrowski
Organization: Code Consultants, Inc.
Street Address:
City:
State:
Zip:
Submittal Date: Thu May 26 14:55:15 EDT 2016



Public Input No. 38-NFPA 88A-2016 [Section No. 5.2.1]

5.2.1

Those parts of parking structures located within, immediately below, attached to, or less than 3 m (10 ft) from a building used for any other purpose shall be separated by walls, partitions, floors, or floor–ceiling assemblies having fire resistance ratings of not less than 2 hours, unless otherwise permitted by [5.2.2](#) or the building code .

Statement of Problem and Substantiation for Public Input

NFPA 5000, as well as other nationally-recognized building codes, all have well established requirements for the protection of multiple occupancies within a structure. These include both separated occupancy approaches, with fire resistive barriers between the uses, as well as nonseparated or mixed occupancy approaches, where the entire building is essentially designed to the most restrictive requirements of the occupancies involved. NFPA 88A should not prohibit any of these approaches to multiple occupancies.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 36-NFPA 88A-2016 [New Section after 3.3]	Adds required definition for building code.
Public Input No. 37-NFPA 88A-2016 [New Section after A.3.2.4]	Adds Annex material for definition of building code.

Submitter Information Verification

Submitter Full Name: Victor Dubrowski
Organization: Code Consultants, Inc.
Street Address:
City:
State:
Zip:
Submittal Date: Thu May 26 15:09:56 EDT 2016



Public Input No. 17-NFPA 88A-2016 [Section No. 5.5.1]

5.5.1

Each parking level shall have wall openings open to the atmosphere, for an area of not less than 0.4 m² for each linear meter (1.4 ft² for each linear foot) of its exterior perimeter.

DELETE.

PROPOSED SUBSTITUTION: 5.5.1 For natural ventilation purposes, the exterior side of the structure shall have uniformly distributed openings on two or more sides. The area of such openings in exterior walls on a tier shall be not less than 20 percent of the total perimeter wall area of each tier.

Statement of Problem and Substantiation for Public Input

Glenwood Springs, Colorado has a newly constructed two-tier parking structure. The City specified an open parking structure. The architect provided sufficient wall openings to meet NFPA No 88A, but not sufficient openings to comply with the IBC. The structure now has \$235,000 in a sprinkler system, a dry standpipe, and a ventilation system.

The IBC and the IFC require approximately 50 percent larger area of wall openings than NFPA.

The IFC and the IBC Section 406.5.2 Openings and the NFPA No 88A must use identical language in the definition of an open parking structure to avoid confusion.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 18-NFPA 88A-2016 [Section No. 5.5.2]	
Public Input No. 18-NFPA 88A-2016 [Section No. 5.5.2]	

Submitter Information Verification

Submitter Full Name: BARNEY MULLIGAN
Organization: CITY OF DENVER, Department of Fire
Street Address:
City:
State:
Zip:
Submittal Date: Fri Jan 22 15:57:34 EST 2016



Public Input No. 18-NFPA 88A-2016 [Section No. 5.5.2]

5.5.2

Such openings shall be distributed over 40 percent of the building perimeter or uniformly over two opposing sides.

DELETE.

PROPOSED SUBSTITUTION: **5.5.2** The aggregate length (total of widths) of the openings considered to be providing natural ventilation shall be not less than 40 percent of the perimeter of the tier.

Exception: Openings are not required to be distributed over 40 percent of the building perimeter where the required openings are uniformly distributed over two opposing sides of the building.

Statement of Problem and Substantiation for Public Input

Glenwood Springs, Colorado, has a newly constructed two-tier parking structure. The City specified an open parking structure. The architect provided sufficient wall openings to meet NFPA No 88A, but not sufficient openings to comply with the IBC. The structure now has \$235,000 in a sprinkler system, a dry standpipe, and a ventilation system.

The IBC and the IFC require approximately 40 percent greater aggregate length (total of widths) of wall openings.

The IFC and the IBC Section 406.5.2 Openings and the NFPA No 88A must use identical language in the definition of an open parking structure to avoid confusion.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
<u>Public Input No. 17-NFPA 88A-2016 [Section No. 5.5.1]</u>	
<u>Public Input No. 17-NFPA 88A-2016 [Section No. 5.5.1]</u>	

Submitter Information Verification

Submitter Full Name: BARNEY MULLIGAN
Organization: CITY OF DENVER, Department of Fire
Street Address:
City:
State:
Zip:
Submission Date: Fri Jan 22 16:04:21 EST 2016



Public Input No. 30-NFPA 88A-2016 [Section No. 5.5.3]

5.5.3

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

Statement of Problem and Substantiation for Public Input

The intent of the section is to provide openness for ventilation in walls, not wall lines or column lines.

Submitter Information Verification

Submitter Full Name: Jim Muir

Organization: Building Safety Division, Clark County, Washington

Affiliation: NFPA's Building Code Development Committee (BCDC)

Street Address:

City:

State:

Zip:

Submittal Date: Wed May 11 11:07:08 EDT 2016



Public Input No. 10-NFPA 88A-2015 [Section No. 6.4.3]

6.4.3

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.

Exception: Enclosed parking structures described above, having an approved, supervised, automatic fire detection and alarm system installed throughout the parking area in accordance with NFPA 72 and a mechanical ventilation system in accordance with ~~5~~ 6.3.2.

Statement of Problem and Substantiation for Public Input

The current 5.3.2 references a section related for floor drains. It appears the intent is to reference section 6.3 but that is unclear as that section does not provide justification for the elimination of the fire sprinkler system. Regardless, the reference citation needs to be corrected.

Submitter Information Verification

Submitter Full Name: ANTHONY APFELBECK

Organization: ALTAMONTE SPRINGS BUILDING/FIRE SAFETY DIVISION

Street Address:

City:

State:

Zip:

Submittal Date: Fri Jul 10 15:09:56 EDT 2015



Public Input No. 11-NFPA 88A-2015 [Section No. 6.4.3]

6.4.3

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.

~~Exception: Enclosed parking structures described above, having an approved, supervised, automatic fire detection and alarm system installed throughout the parking area in accordance with NFPA 72 and a mechanical ventilation system in accordance with 5.3.2 .~~

Statement of Problem and Substantiation for Public Input

The exception does not appear to have any technical basis for the specified protection package in lieu of the presence of fire sprinkler protection. An equivalency or technical justification for an equivalency is not provided by the detection and mechanical reference.

Submitter Information Verification

Submitter Full Name: ANTHONY APFELBECK

Organization: ALTAMONTE SPRINGS BUILDING/FIRE SAFETY DIVISION

Street Address:

City:

State:

Zip:

Submittal Date: Fri Jul 10 15:16:02 EDT 2015



Public Input No. 19-NFPA 88A-2016 [Section No. 6.4.3]

6.4.3

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.

Exception: Enclosed parking structures described above, having an approved, supervised, automatic fire detection and alarm system installed throughout the parking area in accordance with NFPA 72 and a mechanical ventilation system in accordance with 5.3.2 . [\(Errata 6.3\)](#).

PROPOSED: DELETE the *Exception* .

Statement of Problem and Substantiation for Public Input

An automatic fire detection and alarm system should not be a substitution for a sprinkler system, especially under these circumstances.

Submitter Information Verification

Submitter Full Name: BARNEY MULLIGAN

Organization: CITY OF DENVER, Department of Fire

Street Address:

City:

State:

Zip:

Submittal Date: Fri Jan 22 16:20:18 EST 2016



Public Input No. 21-NFPA 88A-2016 [Section No. 6.6.1]

6.6.1

Where provided, fire detection and alarm systems shall conform to *NFPA 72*.

PROPOSED: Remove italics from NFPA 72.

Statement of Problem and Substantiation for Public Input

ERRATA

Submitter Information Verification

Submitter Full Name: BARNEY MULLIGAN

Organization: CITY OF DENVER, Department of Fire

Street Address:

City:

State:

Zip:

Submittal Date: Fri Jan 22 16:43:56 EST 2016



Public Input No. 20-NFPA 88A-2016 [Section No. 6.6.2]

6.6.2

An approved, supervised, automatic fire detection and alarm system shall be installed in enclosed parking structures having a mechanical ventilation system, located at or above grade, or within or immediately below a building used for another occupancy.

Exception: Enclosed parking structures described above in 6.6.2, having an approved automatic sprinkler system installed throughout in accordance with NFPA 13.

PROPOSED SUBSTITUTION: 6.6.2 _Exception: _ Enclosed parking structures described above, having a sprinkler system installed in accordance with NFPA 13.

Statement of Problem and Substantiation for Public Input

Simpler wording. All sprinkler systems shall conform to NFPA No 13, and are automatic.

Submitter Information Verification

Submitter Full Name: BARNEY MULLIGAN

Organization: CITY OF DENVER, Department of Fire

Street Address:

City:

State:

Zip:

Submittal Date: Fri Jan 22 16:35:25 EST 2016



Public Input No. 31-NFPA 88A-2016 [Section No. 6.6.2]

6.6.2

An approved, supervised, automatic fire detection and alarm system shall be installed in enclosed parking structures having a mechanical ventilation system, ~~located at or above grade, or within or immediately below a building used for another occupancy.~~

Exception: Enclosed parking structures described above in 6.6.2, having an approved automatic sprinkler system installed throughout in accordance with NFPA 13.

Statement of Problem and Substantiation for Public Input

These systems should be installed in all enclosed parking structures.

Submitter Information Verification

Submitter Full Name: Jim Muir

Organization: Building Safety Division, Clark County, Washington

Affiliation: NFPA's Building Code Development Committee (BCDC)

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City:

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Submittal Date: Wed May 11 11:10:01 EDT 2016



Public Input No. 22-NFPA 88A-2016 [Section No. 6.6.4]

6.6.4 Maintenance.

Fire alarm systems shall be regularly inspected, tested, and maintained in accordance with *NFPA 72*.

PROPOSED: Remove italics from NFPA 72.

Statement of Problem and Substantiation for Public Input

ERRATA

Submitter Information Verification

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Submittal Date: Fri Jan 22 16:45:53 EST 2016



Public Input No. 1-NFPA 88A-2015 [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 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.

Statement of Problem and Substantiation for Public Input

The NFPA Standards committee decided that the requirements for hydrogen storage, use, and fueling in parking structures and all other buildings. are contained only in NFPA 2 and nowhere else. . Therefore, the proposed text provides a reference to NFPA2 for the storage.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
<u>Public Input No. 2-NFPA 88A-2015 [Section No. 2.2]</u>	

Submitter Information Verification

Submitter Full Name: SPENCER QUONG
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Zip:
Submittal Date: Mon Jun 29 13:43:30 EDT 2015



Public Input No. 7-NFPA 88A-2015 [New Section after 7.1]

7.1.4

The storage, use, handling, and dispensing of hydrogen fuels shall conform to NFPA 1 and NFPA 2.

Statement of Problem and Substantiation for Public Input

Because hydrogen is also a fuel this adds NFPA 2 which contains the requirements for dispensing of hydrogen as a fuel. Also adds NFPA 1 to the list of requirements for this new section. This is needed because adding fueling of any type to a parking garage (typically a storage occupancy) can have an impact on the occupancy classification, required operational permits, and needed protection measures that are best invoked, enforced, administered and inspected through a fire prevention code. Adding NFPA 1 to the list of required documents invokes these requirements.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
<u>Public Input No. 3-NFPA 88A-2015 [Section No. 2.2]</u>	

Submitter Information Verification

Submitter Full Name: MARTIN GRESHO
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City:
State:
Zip:
Submittal Date: Mon Jun 29 15:17:44 EDT 2015



Public Input No. 8-NFPA 88A-2015 [New Section after 7.1]

7.2 Hydrogen Fuel Cell Electric Vehicles

The storage of self-propelled vehicles powered by [gaseous or liquid hydrogen] in parking garages [] shall be subject to the same requirements applicable to vehicles powered by traditional fuels [2016 NFPA 2 17.2.1].

A.7.2 - The use of brackets in this extract shows where text from NFPA 2 that is not applicable to NFPA 88A was revised or removed. The balance of the extracted text as well as its intent are un-changed.

Statement of Problem and Substantiation for Public Input

NFPA 2 addressed the issue of parking FCEVs in parking garages in the 2016 edition and concluded that no additional requirements are needed. This text clarifies that conclusion. The text from the 2016 editions of NFPA 2 is extracted. The new proposed Annex note explains the practice of using brackets [] in the extracted text. This is the approach taken for extracts in NFPA 2 where not all of the extract is applicable but the benefit of retaining the extract tag outweighs the option of dropping the extract tag and revising the text to fit better with NFPA 88A scope.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
<u>Public Input No. 3-NFPA 88A-2015 [Section No. 2.2]</u>	

Submitter Information Verification

Submitter Full Name: MARTIN GRESHO
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Submission Date: Mon Jun 29 15:24:48 EDT 2015



Public Input No. 4-NFPA 88A-2015 [Section No. 7.1.1]

7.1.1

The storage, use, handling, and dispensing of flammable or combustible liquids shall conform to NFPA [1](#), [NFPA 30](#) and NFPA 30A.

Statement of Problem and Substantiation for Public Input

Adds NFPA 1 to the list of requirements for NFPA 88A 7.1.1. Not sure Terra did legislative format correctly.

This is needed because adding fueling of any type to a parking garage (typically a storage occupancy) can have an impact on the occupancy classification, required operational permits, and needed protection measures that are best invoked, enforced, administered and inspected through a fire prevention code. Adding NFPA 1 to the list of required documents invokes these requirements.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 3-NFPA 88A-2015 [Section No. 2.2]	Creates requirement for NFPA 1 compliance as well

Submitter Information Verification

Submitter Full Name: MARTIN GRESHO
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City:
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Submittal Date: Mon Jun 29 15:01:39 EDT 2015



Public Input No. 5-NFPA 88A-2015 [Section No. 7.1.2]

7.1.2

The storage, use, handling, and dispensing of liquefied petroleum gas shall conform to NFPA 1 and NFPA 58.

Statement of Problem and Substantiation for Public Input

Adds NFPA 1 to the list of requirements for NFPA 88A 7.1.2. Not sure Terra did legislative format correctly.

This is needed because adding fueling of any type to a parking garage (typically a storage occupancy) can have an impact on the occupancy classification, required operational permits, and needed protection measures that are best invoked, enforced, administered and inspected through a fire prevention code. Adding NFPA 1 to the list of required documents invokes these requirements.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
<u>Public Input No. 3-NFPA 88A-2015 [Section No. 2.2]</u>	

Submitter Information Verification

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State:
Zip:
Submittal Date: Mon Jun 29 15:11:56 EDT 2015



Public Input No. 6-NFPA 88A-2015 [Section No. 7.1.3]

7.1.3

The storage, use, handling, and dispensing of natural gas fuels shall conform to NFPA 1 and NFPA 52.

Statement of Problem and Substantiation for Public Input

Adds NFPA 1 to the list of requirements for NFPA 88A 7.1.3. Not sure Terra did legislative format correctly.

This is needed because adding fueling of any type to a parking garage (typically a storage occupancy) can have an impact on the occupancy classification, required operational permits, and needed protection measures that are best invoked, enforced, administered and inspected through a fire prevention code. Adding NFPA 1 to the list of required documents invokes these requirements.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
<u>Public Input No. 3-NFPA 88A-2015 [Section No. 2.2]</u>	

Submitter Information Verification

Submitter Full Name: MARTIN GRESHO
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Zip:
Submittal Date: Mon Jun 29 15:14:55 EDT 2015



Public Input No. 23-NFPA 88A-2016 [Section No. 9.2.2.1]

9.2.2.1

Access shall be provided in accordance with Table 40.2.5.2.1 of NFPA 101 except that the 560 mm (22 in.) minimum dimensional criteria shall be changed to 915 mm (36 in.) in all locations in the table.

PROPOSED: Remove italics from 101.

Statement of Problem and Substantiation for Public Input

ERRATA

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City:

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Submittal Date: Fri Jan 22 16:48:08 EST 2016



Public Input No. 32-NFPA 88A-2016 [Section No. 9.2.2.3]

9.2.2.3

Travel distance to the exterior or to an enclosed stair shall ~~not exceed 122 m (400 ft)~~ comply with NFPA 101 or NFPA 5000 .

Statement of Problem and Substantiation for Public Input

The provisions would be consistent with other NFPA documents by referencing the provision in NFPA 101 or NFPA 5000 for travel distances.

Submitter Information Verification

Submitter Full Name: Jim Muir

Organization: Building Safety Division, Clark County, Washington

Affiliation: NFPA's Building Code Development Committee (BCDC)

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City:

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Submittal Date: Wed May 11 11:12:39 EDT 2016



Public Input No. 37-NFPA 88A-2016 [New Section after A.3.2.4]

Building Code.

Where no building code has been adopted, *NFPA 5000, Building Construction and Safety Code*, should be used where the building code is referenced in this standard.

Statement of Problem and Substantiation for Public Input

Add Annex material to reference NFPA 5000 if no other building code is adopted.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
<u>Public Input No. 36-NFPA 88A-2016 [New Section after 3.3]</u>	Annex material for definition.
<u>Public Input No. 38-NFPA 88A-2016 [Section No. 5.2.1]</u>	

Submitter Information Verification

Submitter Full Name: Victor Dubrowski
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City:
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Submittal Date: Thu May 26 15:00:02 EDT 2016



Public Input No. 28-NFPA 88A-2016 [Section No. A.4.1.5]

A.4.1.5

Exit travel distance is measured in accordance with NFPA 101- and includes the distance measured along the plane of the tread nosings in open stairs .

Statement of Problem and Substantiation for Public Input

The current Annex note is not consistent with NFPA 101. Note that NFPA 101-2015, Paragraph 42.8.2.6.2 (2) states that the travel distance along an open stair in an open parking structure is not limited.

Submitter Information Verification

Submitter Full Name: William Koffel

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Zip:

Submittal Date: Thu Apr 28 02:43:54 EDT 2016



Public Input No. 33-NFPA 88A-2016 [Section No. A.4.1.5]

A.4.1.5

Exit travel distance is measured in accordance with NFPA 101- ~~and includes the distance measured along the plane of the tread nosings in open stairs.~~ To be deleted to be consistent with NFPA 101:42.8.2.6.2(2).

Statement of Problem and Substantiation for Public Input

The travel distance measurement in open parking structure will be in consistent with both NFPA 101: 42.8.2.6.2(2) and NFPA: 88A: A.4.1.5.

Submitter Information Verification

Submitter Full Name: Zainul Abedeen

Organization: WSP Parsons Brinckerhoff

Affiliation: WSP Parsons Brinckerhoff

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Submittal Date: Thu May 19 00:18:30 EDT 2016



Public Input No. 39-NFPA 88A-2016 [Section No. A.4.1.5]

A.4.1.5

Exit travel distance is measured in accordance with NFPA 101 and includes ~~the~~ unlimited travel distance ~~measured~~ along the ~~plane of the tread nosings in~~ open stairs.

Statement of Problem and Substantiation for Public Input

The Annex material is no longer accurate. Since 2009, NFPA 101 has allowed unlimited travel distance on the open stairways within open parking structures.

Submitter Information Verification

Submitter Full Name: Victor Dubrowski

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Submittal Date: Thu May 26 15:30:39 EDT 2016



Public Input No. 13-NFPA 88A-2015 [Chapter B]

Annex B Informational References

B.1 Referenced Publications.

The documents or portions thereof listed in this annex are referenced within the informational sections of this standard and are not part of the requirements of this document unless also listed in Chapter 2 for other reasons.

B.1.1 NFPA Publications.

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

NFPA 13, *Standard for the Installation of Sprinkler Systems*, 2013 edition.

NFPA 14, *Standard for the Installation of Standpipe and Hose Systems*, 2013 edition.

NFPA 30A, *Code for Motor Fuel Dispensing Facilities and Repair Garages*, 2015 edition.

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

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

NFPA 220, *Standard on Types of Building Construction*, 2015 edition.

NFPA 5000[®], *Building Construction and Safety Code*[®], 2015 edition.

B.1.2 Other Publications. (Reserved)

B.2 Informational References.

The following documents or portions thereof are listed here as informational resources only. They are not a part of the requirements of this document.

B.2.1 ASME Publications.

~~American Society of Mechanical Engineers, Three~~ **ASME International**, **Two** Park Avenue, New York, NY 10016-5990.

ASME B30.13, *Storage/Retrieval Machines and Associated Equipment*, ~~2003~~ **2011**.

B.2.2 RMI Publications.

Rack Manufacturers Institute, An Affiliated Trade Association of Material Handling Industry of America, 8720 Red Oak Boulevard, Suite 201, Charlotte, NC 28217-3992.

~~MHI~~ **MHI** MH16.1, *Specification for the Design, Testing and Utilization of Industrial Steel Storage Racks*, ~~2004~~ **2012**.

B.3 References for Extracts in Informational Sections. (Reserved)

Statement of Problem and Substantiation for Public Input

Referenced current SDO names, addresses, standard names, and editions.

Related Public Inputs for This Document

Related Input

Relationship

Public Input No. 12-NFPA
88A-2015 [Chapter 2]

Referenced current SDO names, addresses, standard names, numbers, and editions.

Submitter Information Verification

Submitter Full Name: Aaron Adamczyk

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Submittal Date: Thu Jul 23 15:15:29 EDT 2015