Second Revision No. 6-NFPA 2001-2024 [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 4, *Standard for Integrated Fire Protection and Life Safety System Testing,* 2024 edition.

NFPA 70®, *National Electrical Code®,* 2023 edition.

NFPA 72®, *National Fire Alarm and Signaling Code®,* 2025 edition.

2.3 Other Publications.

2.3.1 ANSI Publications.

American National Standards Institute, Inc., 25 West 43rd Street, 4th Floor, New York, NY 10036.

ANSI Z535.2, *Standard for Environmental and Facility Safety Signs*, ~~2018~~ 2023 .

2.3.2 ASME Publications.

American Society of Mechanical Engineers, Two Park Avenue, New York, NY 10016-5990.

ASME B1.20.1, *Standard on Pipe Threads, General Purpose, Inch*, 2013.

ASME B31.1, *Power Piping Code*, 2022.

Boiler and Pressure Vessel Code, 2023.

2.3.3 ASTM Publications.

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

ASTM A120-84, *Specification for Pipe, Steel, Black and Hot-Dipped (Galvanized) Welded and Seamless for Ordinary Uses,* 1984 (withdrawn 1987).

IEEE/ASTM SI10, *American National Standard for Metric Practice*, 2016.

2.3.4 CGA Publications.

Compressed Gas Association, 8484 Westpark Drive, Suite 220, McLean, VA 22102.

CGA C-6, *Standard for Visual Inspection of Steel Compressed Gas Cylinders*, 2022.

2.3.5 IEEE Publications.

IEEE Operations Center, 445 Hoes Lane, Piscataway, NJ 08854-4141.

IEEE C2, *National Electrical Safety Code*, 2022.

2.3.6 IMO Publications.

International Maritime Organization, ~~4, Albert~~ 4 Albert Embankment, London, SE1 7SR, United Kingdom.

IMO MSC/Circ. 848, *Revised Guidelines for the Approval of Equivalent Fixed Gas Fire-Extinguishing Systems as Referred to in SOLAS 74, for Machinery Spaces and Cargo Pump-Rooms*, 1998.

IMO MSC.1/~~Circ.1267~~ Circ. 1267 , *Amendments to Revised Guidelines for the Approval of Equivalent Fixed Gas Fire-Extinguishing Systems, as Referred to in SOLAS 74, for Machinery Spaces and Cargo Pump-Rooms (MSC/Circ.848)*, 2008.

2.3.7 ISO Publications.

International Organization for Standardization, ISO Central Secretariat, BIBC II, Chemin de Blandonnet 8, CP 401, 1214 Vernier, Geneva, Switzerland.

ISO 7-1*, Pipe Threads Where Pressure-Tight Joints Are Made on the Threads — Part 1: Dimensions, Tolerances and Designation*, 1994 (R2020).

2.3.8 TC Publications.

Transport Canada, 330 Sparks Street, Ottawa, ON K1A 0N5, Canada.

TP 127 E, *Ship Safety Electrical Standards*, 2018.

2.3.9 UL Publications.

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

ANSI/CAN/UL/ULC 2127, *Inert Gas Clean Agent Extinguishing System Units*, ~~2021~~ 2024 .

ANSI/CAN/UL/ULC 2166, *Halocarbon Clean Agent Extinguishing System Units*, ~~2021~~ 2017 (R2021) .

2.3.10 ~~U.S. Government~~ US Government Publications.

~~U.S. Government~~ US Government Publishing Office, 732 North Capitol Street, NW, Washington, DC 20401.

OSHA, Title 29, Code of Federal Regulations, Part 1910, Subpart S~~.~~ , "Electrical."

~~U.S. Coast~~ US Coast Guard, Title 46, Code of Federal Regulations, Part 72~~.~~ , "Construction and Arrangement."

~~U.S. Coast~~ US Coast Guard, Title 46, Code of Federal Regulations, Subchapter J, "Electrical Engineering."

DOT Title 49, Code of Federal Regulations, Parts 170–190, "Transportation."

2.3.11 Other Publications.

Merriam-Webster's Collegiate Dictionary, 11th edition, Merriam-Webster, Inc., Springfield, MA, 2020.

2.4 References for Extracts in Mandatory Sections.

NFPA 12, *Standard on Carbon Dioxide Extinguishing Systems,* ~~2022~~ 2025 edition.

Submitter Information Verification

Committee: GFE-AAA
Submittal Date: Thu May 16 14:18:34 EDT 2024

Committee Statement

Committee Statement: Reference Updates
Response Message: SR-6-NFPA 2001-2024

Second Revision No. 1-NFPA 2001-2024 [Section No. 4.4.1]

4.4.1

Before system cylinders are handled or moved, the following steps shall be taken:

(1) ~~Cylinder outlets~~ Anti-recoil devices shall be ~~fitted with anti-recoil devices,~~ installed on cylinder ~~caps, or both,~~ outlets whenever the cylinder ~~outlet is not~~ outlets are not connected to the system pipe inlet.

(2) Cylinder caps, where applicable, and anti-recoil devices shall be installed before removing cylinders from the retaining devices.

(3) Actuators shall be disabled or removed before cylinders are removed from retaining ~~bracketing~~ devices .

Supplemental Information

File Name	Description	Approved
2001_SR-1_4.4.1.docx		

Submitter Information Verification

Committee: GFE-AAA

Submittal Date: Wed May 15 11:29:50 EDT 2024

Committee Statement

Committee Statement: The section was rewritten to clarify the intent of the section as follows:

Securing the cylinder caps prior to removing the cylinders from the retaining device shall provide additional safety margin for technicians working with the equipment. (1) was revised to only include anti-coil devices. (3) was updated to retaining devices to provide a more consistent terminology.

Response Message: SR-1-NFPA 2001-2024

Public Comment No. 4-NFPA 2001-2023 [Section No. 4.4.1]

Second Revision No. 5-NFPA 2001-2024 [New Section after 7.2.3.3]

7.2.3.4*

The temperature of a protected volume in which inerting halocarbons are used shall be in accordance with the manufacturer's listed installation manual.

A.7.2.3.4

Halocarbon agents have the potential to liquefy at low temperatures. Particularly in an inerting setting, protected enclosure temperature conditions outside of the manufacturer's approved temperature range can result in lower than required concentrations.

Submitter Information Verification

Committee: GFE-AAA

Submittal Date: Thu May 16 14:00:32 EDT 2024

Committee Statement

Committee Statement: Manufacturers listing halocarbon agent systems for inerting should be able to accurately state at which temperatures the agent performs. Halocarbon agents are explicitly mentioned because low protected enclosure temperatures do not pose a risk for inert gas concentrations.

Response Message: SR-5-NFPA 2001-2024

Second Revision No. 4-NFPA 2001-2024 [Section No. 9.7.2]

9.7.2*

For hazard areas ~~subject to fast-growth fires,~~ where the provision of a time delay would increase the threat to life and property, a time delay shall be permitted to be eliminated.

A.9.7.2

~~Hazards associated with fast-growth fires would include, but not be limited to, flammable liquid storage or transfer areas and aerosol filling areas.~~ Examples of hazards where a time delay might be omitted are those subject to fast growth fires, such as ignitible liquid storage or handling, aerosol fill rooms, and automated paint spray booths. Certain dust collectors might also require the elimination of a time delay.

9.7.3

Where time delays are omitted, provisions shall be made to ensure that the clean agent system is locked out by a supervised system lockout valve any time personnel are present in the protected area or space.

Submitter Information Verification

Committee: GFE-AAA

Submittal Date: Thu May 16 13:49:52 EDT 2024

Committee Statement

Committee Statement: The current text focused on fast growth fires and although fast growth fires are a reason to eliminate time delays there are other fires where rapid agent deployment is necessary. The fast-growth fires wording was moved to the appendix.

There are instances where the addition of a time delay will result in an unacceptable damage to equipment or processes so there must be a process to ensure personnel safety and allow for the omission of a time delay.

A supervised lockout valve is added because it is important that personnel not be exposed to dangerous levels of agent concentration. NFPA 12 also requires the use of a lockout valve is such circumstances.

Response Message: SR-4-NFPA 2001-2024

Public Comment No. 7-NFPA 2001-2023 [Section No. 9.7.2]

Second Revision No. 2-NFPA 2001-2024 [Section No. 11.3.4]

11.3.4*

For inert gas clean agents, if a container shows a loss in pressure (adjusted for temperature) of more than 5 percent, it shall be refilled or replaced.

~~**11.3.5**~~

~~Where container pressure gauges are used to comply with 11.3.4 , they shall be compared to a separate calibrated device at least annually.~~

Submitter Information Verification

Committee: GFE-AAA

Submittal Date: Wed May 15 13:16:27 EDT 2024

Committee Statement

Committee Statement: Pressure gauges used on inert gas systems are listed. Semiannual and annual inspections have shown that the listed gauge work as designed. Requiring annual verification of gauges accuracy introduces additional safety risks during maintenance and possibility of introducing leakage from the cylinder.

Response Message: SR-2-NFPA 2001-2024

Public Comment No. 8-NFPA 2001-2023 [Sections 11.3.4, 11.3.5]

Second Revision No. 3-NFPA 2001-2024 [Section No. A.3.3.10]

A.3.3.10 Deep-Seated Fire.

A characteristic of this type of combustion is the slow rate of heat ~~losses~~ loss from the reaction zone. Thus, the fuel remains hot enough to exothermically react with oxygen, even though the rate of reaction, which is controlled by diffusion processes, is extremely slow. Deep-seated fires can continue to burn for many weeks, for example, in bales of cotton and jute and heaps of sawdust. A deep-seated fire ceases to burn only when either all the available oxygen or fuel has been consumed or the fuel surface is at too low a temperature to react.

Deep-seated fires are usually ~~are~~ extinguished by reducing the fuel ~~temperature, either directly by~~ temperature either directly via the application of a heat-absorbing medium, such as water, or by blanketing it with an inert gas. The medium slows the reaction rate to the point where heat generated by oxidation is less than heat ~~losses to~~ loss in the surroundings. This causes the temperature to fall below the level necessary for re-ignition after removal of the inert atmosphere.

Submitter Information Verification

Committee: GFE-AAA

Submittal Date: Wed May 15 13:18:24 EDT 2024

Committee Statement

Committee Statement: The revision makes an editorial correction to the definition.

Response Message: SR-3-NFPA 2001-2024

Public Comment No. 6-NFPA 2001-2023 [Section No. A.3.3.10]

Second Revision No. 7-NFPA 2001-2024 [Chapter G]

Annex G Informational References

G.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.

G.1.1 NFPA Publications.

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

NFPA 12A, *Standard on Halon 1301 Fire Extinguishing Systems*, 2025 edition.

NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, 2023 edition.

NFPA 70®, *National Electrical Code®*, 2023 edition.

NFPA 72®, *National Fire Alarm and Signaling Code®*, 2025 edition.

NFPA 75, *Standard for the Fire Protection of Information Technology Equipment*, 2024 edition.

NFPA 77, *Recommended Practice on Static Electricity*, 2024 edition.

NFPA 90A, *Standard for the Installation of Air-Conditioning and Ventilating Systems*, 2024 edition.

NFPA 90B, *Standard for the Installation of Warm Air Heating and Air-Conditioning Systems*, 2024 edition.

G.1.2 Other Publications.

~~**G.1.2.1** ACGIH Publications.~~

~~American Conference of Governmental Industrial Hygienists, 3640 Park 42 Drive, Cincinnati, OH 45241.~~

~~*2016 TLVs and BEIs (Threshold Limit Values and Biological Exposure Indices),* 2020.~~

G.1.2.1 AIHA Publications.

American Industrial Hygiene Association, 3141 Fairview Park Drive, Suite 777, Falls Church, VA 22042.

ERPG/WEEL Handbook, 2020.

G.1.2.2 ASHRAE Publications.

ASHRAE, 180 Technology Parkway, Peachtree Corners, GA 30092.

ANSI/ASHRAE 34, *Designation and Safety Classification of Refrigerants,* 2022.

G.1.2.3 ASME Publications.

American Society of Mechanical Engineers, Two Park Avenue, New York, NY 10016-5990.

ASME B31.1, *Power Piping Code,* 2022.

G.1.2.4 ASTM Publications.

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

ASTM E176, *Standard Terminology of Fire Standards,* ~~2021a~~ 2024 .

ASTM E177, *Standard Practice for Use of the Terms Precision and Bias in ASTM Test Methods*, 2020.

ASTM E456, *Standard Terminology Relating to Quality and Statistics*, 2013 (2022).

ASTM E691, *Standard Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method*, ~~2022~~ 2023 .

ASTM E779, *Standard Test Method for Determining Air Leakage Rate by Fan Pressurization,* 2019.

ASTM E1258, *Standard Test Method for Airflow Calibration of Fan Pressurization Devices*, ~~1988 (2018)~~ 2023 .

ASTM E1354, *Standard Test Method for Heat and Visible Smoke Release Rates for Materials and Products Using an Oxygen Consumption Calorimeter,* ~~2022c~~ 2023 .

ASTM E1827, *Standard Test Methods for Determining Airtightness of Buildings Using an Orifice Blower Door*, 2022.

ASTM F1387, *Standard Specification for Performance of Piping and Tubing Mechanically Attached Fittings,* ~~2019~~ M86 .

G.1.2.5 CAN/CGSB Publications.

Canadian General Standards Board, L'Esplanade Laurier, 6th floor East Tower, 140 O'Connor Street, Ottawa, ON K1A 0R5, Canada.

CAN/CGSB-149.10-M86 ~~2019~~ , *Determination of the Airtightness of Building Envelopes by the Fan Depressurization Method*, 2019.

G.1.2.6 CGA Publications.

Compressed Gas Association, 8484 Westpark Drive, Suite 220, McLean, VA 22102.

CGA C-6, *Standard for Visual Inspection of Steel Compressed Gas Cylinders,* ~~2019~~ 2022 .

G.1.2.7 FSSA Publications.

Fire Suppression Systems Association, 3601 E. Joppa Road, Baltimore, MD 21234. www.fssa.net

FSSA *Design Guide for Use with Fire Protection Systems Inspection Forms* .

FSSA *Guide to Estimating Enclosure Pressure and Pressure Relief Vent Area for Applications Using Clean Agent Fire Extinguishing Systems* , 3rd edition.

FSSA *DCG-01, Application Guide Detection & Control for Fire Suppression Systems*, ~~November 2010~~ 1st edition .

FSSA ~~*Design Guide for Use with*~~ *IFG-01, Fire Protection Systems Inspection* ~~*Forms*~~ *Form Guidelines* , ~~January 2012~~ 1st edition .

FSSA *CAG-01, Guide to Clean Fire Extinguishing Agents and Their Use in Fixed Systems*, 1st edition~~, June 2017~~ .

FSSA ~~*Guide to Estimating Enclosure Pressure and Pressure*~~ *PRG-03, Pressure Relief Vent Area for Applications Using Clean Agent Fire Extinguishing Systems*, 3rd edition~~, October 2014~~ .

FSSA *PDH-03, Pipe Design Guide for Use with Special Hazard Fire Suppression Systems,*~~2nd~~ 3rd edition~~, 2011~~ .

FSSA *CSG-04, Test Guide for Use with Special Hazard Fire Suppression Systems Containers*, 4th edition~~, January 2017~~ .

FSSA White Paper, “Effect of Sound Waves on Data Storage Devices,” ~~Fire Suppression Systems Association, Baltimore, MD,~~ 2018.

G.1.2.8 HARC Publications.

Halon Alternatives Research Corporation, 1001 19th Street North, Suite 1200, Arlington, VA 22209. www.harc.org

HARC Code of Practice for Use of Recycled Halogenated Clean Agents, 2015.

G.1.2.9 IMO Publications.

International Maritime Organization, 4 Albert Embankment, London, SE1 7SR, United Kingdom.

International Convention for the Safety of Life at Sea (SOLAS), 1974. (Including all amendments through 2011).

IMO MSC/Circ. 776, “Guidelines for the Approval of Equivalent Fixed Gas Fire-Extinguishing Systems,” as referred to in SOLAS 74 for Machinery Spaces and Cargo Pump-Rooms, ~~12 Dec~~ December 12, 1996.

G.1.2.10 ISO Publications.

International Organization for Standardization, ISO Central Secretariat, BIBC II, Chemin de Blandonnet 8, CP 401, 1214 Vernier, Geneva, Switzerland.

ISO 14520–1, *Gaseous fire-extinguishing systems — Physical properties and system design — Part 1: General requirements*, ~~2015~~ 2023 .

G.1.2.11 MSS Publications.

Manufacturer's Standardization Society (MSS) of the Valve and Fittings Industry, 127 Park St. NE, Vienna, VA 22180-4602.

ANSI/MSS SP-58, *Pipe Hangers and Supports — Materials, Design, Manufacture, Selection, Application, and Installation,* 2018.

MSS SP-127, *Bracing for Piping Systems: Seismic — Wind — Dynamic Design, Selection, and Application,* 2014a.

G.1.2.12 SFPE Publications.

Society of Fire Protection Engineers, 9711 Washingtonian Blvd., Suite 380, Gaithersburg, MD 20878.

Hurley, Morgan (~~editors~~ editor), *SFPE Handbook of Fire Protection Engineering*, 5th edition~~,~~ ~~2016~~ .

G.1.2.13 UL Publications.

Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL ~~60062–2096~~ 60062-2096 .

ANSI/CAN/UL/~~ULC 2127~~ ULC 2127 , *Inert Gas Clean Agent Extinguishing System Units*, ~~2021~~ 2024 .

ANSI/CAN/UL/~~ULC 2166~~ ULC 2166 , *Halocarbon Clean Agent Extinguishing System Units*, ~~2021~~ 2017 (R2021) .

G.1.2.14 ~~U.S. Government~~ US Government Publications.

~~U.S. Government~~ US Government Publishing Office, 732 North Capitol Street, NW, Washington, DC 20401.

DOT, Title 49, Code of Federal Regulations.

Title 57, Code of Federal Regulations, Part 1984, *Federal Register*, “EPA SNAP Program.” January 16, 1992. [https://www.epa.gov/snap/vol-57-no-11-thursday-january-16-1992-p-1984-proposed-rule]

~~U.S. Coast~~ US Coast Guard, Title 46, Code of Federal Regulations, Part 111.59, Subchapter J, “Electrical Engineering.” ~~.~~

G.1.3 Other References.

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Eurofeu, “Fixed Extinguishing Installation Section, Guidance paper on Impact of noise on Computer hard drives,” October 2012.

FE-25™, *Fire Extinguishing Agent — Properties, Uses, Storage, and Handling*, The Chemours Company, Wilmington, DE, June 2017.

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