## Public Input No. 29-NFPA 804-2023 [ Section No. 2.2 ]

**2.2** NFPA Publications.

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

NFPA 10, *Standard for Portable Fire Extinguishers,* 2018 edition.

NFPA 11, *Standard for Low-, Medium-, and High-Expansion Foam,* 2016 edition.

NFPA 12, *Standard on Carbon Dioxide Extinguishing Systems,* 2018 edition.

NFPA 13, *Standard for the Installation of Sprinkler Systems,* 2019 edition.

NFPA 14, *Standard for the Installation of Standpipe and Hose Systems,* 2019 edition.

NFPA 15, *Standard for Water Spray Fixed Systems for Fire Protection,* 2017 edition.

NFPA 16, *Standard for the Installation of Foam-Water Sprinkler and Foam-Water Spray Systems,* 2019 edition.

NFPA 17, *Standard for Dry Chemical Extinguishing Systems,* 2017 edition.

NFPA 20, *Standard for the Installation of Stationary Pumps for Fire Protection,* 2019 edition.

NFPA 22, *Standard for Water Tanks for Private Fire Protection,* 2018 edition.

NFPA 24, *Standard for the Installation of Private Fire Service Mains and Their Appurtenances,* 2019 edition.

NFPA 30, *Flammable and Combustible Liquids Code,* 2018 edition.

NFPA 30A, *Code for Motor Fuel Dispensing Facilities and Repair Garages,* 2018 edition.

NFPA 31, *Standard for the Installation of Oil-Burning Equipment,* 2020 edition.

NFPA 37, *Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines,* 2018 edition.

NFPA 51B, *Standard for Fire Prevention During Welding, Cutting, and Other Hot Work,* 2019 edition.

NFPA 54, *National Fuel Gas Code,* 2018 edition.

NFPA 55, *Compressed Gases and Cryogenic Fluids Code,* 2020 edition.

NFPA 58, *Liquefied Petroleum Gas Code,* 2020 edition.

*NFPA 70®*, *National Electrical Code®,* 2020 edition.

*NFPA 72®*, *National Fire Alarm and Signaling Code®,* 2019 edition.

NFPA 75, *Standard for the Fire Protection of Information Technology Equipment,* 2020 edition.

NFPA 80, *Standard for Fire Doors and Other Opening Protectives,* 2019 edition.

NFPA 85, *Boiler and Combustion Systems Hazards Code,* 2019 edition.

NFPA 90A, *Standard for the Installation of Air-Conditioning and Ventilating Systems,* 2018 edition.

NFPA *101®*, *Life Safety Code®,* 2018 edition.

NFPA 211, *Standard for Chimneys, Fireplaces, Vents, and Solid Fuel–Burning Appliances,* 2019 edition.

NFPA 214, *Standard on Water-Cooling Towers,* 2016 edition.

NFPA 220, *Standard on Types of Building Construction,* 2018 edition.

NFPA 232, *Standard for the Protection of Records,* 2017 edition.

NFPA 241, *Standard for Safeguarding Construction, Alteration, and Demolition Operations,* 2019 edition.

NFPA 252, *Standard Methods of Fire Tests of Door Assemblies,* 2017 edition.

NFPA 253, *Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source,* 2019 edition.

NFPA 259, *Standard Test Method for Potential Heat of Building Materials,* 2018 edition.

NFPA 600, *Standard on Facility Fire Brigades,* 2020 edition.

NFPA 601, *Standard for Security Services in Fire Loss Prevention,* 2020 edition.

NFPA 701, *Standard Methods of Fire Tests for Flame Propagation of Textiles and Films,* 2019 edition.

NFPA 750, *Standard on Water Mist Fire Protection Systems,* 2019 edition.

NFPA 770, *Standard on Hybrid (Water and Inert Gas) Fire-Extinguishing Systems,* 2021 edition.

NFPA 780, *Standard for the Installation of Lightning Protection Systems,* 2020 edition.

NFPA 806, *Performance-Based Standard for Fire Protection for Advanced Nuclear Reactor Electric Generating Plants Change Process,* 2020 edition.

NFPA 1143, *Standard for Wildland Fire Management,* 2018 edition.

NFPA 1500™, *Standard on Fire Department Occupational Safety, Health, and Wellness Program,* 2020 edition.

NFPA 2001, *Standard on Clean Agent Fire Extinguishing Systems,* 2018 edition.

NFPA 2010, *Standard for Fixed Aerosol Fire-Extinguishing Systems,* 2020 edition.

## Statement of Problem and Substantiation for Public Input

Adding NFPA 770 to the reference publications based on the substantiation in public comment 28

## Related Public Inputs for This Document

| Related Input | Relationship |
|---|---|
| Public Input No. 28-NFPA 804-2023 [Section No. 9.6.2] | |

## Submitter Information Verification

**Submitter Full Name:** Ryan Smale
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**Street Address:**
**City:**
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**Submittal Date:** Mon Jan 02 11:44:22 EST 2023
**Committee:** FIF-AAA

## Committee Statement

**Resolution:** FR-24-NFPA 804-2023

**Statement:** Update publication to most current editions. NFPA 16 was removed since it has been withdrawn and incorporated into NFPA 11. NFPA 1143 has been removed since it was consolidated into NFPA 1140. NFPA 1500 has been removed since it was consolidated into NFPA 1550.

## Public Input No. 17-NFPA 804-2022 [ Section No. 2.3.2 ]

**2.3.2** ASTM Publications.

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

ASTM D92, *Standard Test Method for Flash and Fire Points by Cleveland Open Cup*, ~~2016~~ 2018 .

ASTM E84, *Standard Test Method for Surface Burning Characteristics of Building Materials*, ~~2018~~ 2022 .

ASTM E119, *Standard Test Methods for Fire Tests of Building Construction and Materials*, ~~2018~~ 2022 .

ASTM E136, *Standard Test Method for ~~Behavior~~ Assessing Combustibility of Materials ~~in a~~ Using a Vertical Tube Furnace at 750°C*, ~~2016~~ 2022 .

ASTM E814, *Standard Method for Fire Tests of Penetration Firestop Systems*, 2013a (2017).

ASTM E2652, *Standard Test Method for ~~Behavior of~~ Assessing Combustibility of Materials ~~in~~ Using a Tube Furnace with a Cone-Shaped Airflow Stabilizer, at 750°C,* ~~2016~~ 2022 .

ASTM E2965, *Standard Test Method for Determination of Low Levels of Heat Release Rate for Materials and Products Using an Oxygen Consumption Calorimeter,* ~~2016.~~ 2022

## Statement of Problem and Substantiation for Public Input

date and title updates

## Submitter Information Verification

**Submitter Full Name:** Marcelo Hirschler
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**State:**
**Zip:**
**Submittal Date:** Thu Dec 22 14:16:22 EST 2022
**Committee:** FIF-AAA

## Committee Statement

**Resolution:** FR-23-NFPA 804-2023
**Statement:** Update the publication references to the most current editions.

## Public Input No. 27-NFPA 804-2022 [ Section No. 2.3.2 ]

**2.3.2** ASTM Publications.

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

ASTM D92, *Standard Test Method for Flash and Fire Points by Cleveland Open Cup*, 2016.

ASTM E84, *Standard Test Method for Surface Burning Characteristics of Building Materials*, 2018.

ASTM E108, Standard Test Meathod for Fire Tests of Roof Coverings, 2020.

ASTM E119, *Standard Test Methods for Fire Tests of Building Construction and Materials*, 2018.

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

ASTM E814, *Standard Method for Fire Tests of Penetration Firestop Systems*, 2013a (2017).

ASTM E2652, *Standard Test Method for Behavior of Materials in a Tube Furnace with a Cone-Shaped Airflow Stabilizer, at 750°C,* 2016.

ASTM E2965, *Standard Test Method for Determination of Low Levels of Heat Release Rate for Materials and Products Using an Oxygen Consumption Calorimeter,* 2016.

### Statement of Problem and Substantiation for Public Input

ASTM E108 is one of the standards used to establish Class A ratings for roof coverings and is referenced in NFPA 5000.

### Related Public Inputs for This Document

| Related Input | Relationship |
|---|---|
| Public Input No. 26-NFPA 804-2022 [Section No. 8.3.6] | |
| Public Input No. 24-NFPA 804-2022 [Section No. 2.3.5] | |

### Submitter Information Verification

**Submitter Full Name:** Kelly Nicolello
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**Submittal Date:** Mon Dec 26 16:18:29 EST 2022
**Committee:** FIF-AAA

### Committee Statement

**Resolution:** FR-23-NFPA 804-2023

**Statement:** Update the publication references to the most current editions.

## Public Input No. 24-NFPA 804-2022 [ Section No. 2.3.5 ]

**2.3.5** UL Publications.

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

UL 263, *Fire Tests of Building Construction and Materials, 2011, revised 2021.*

UL 586, ~~*Standard for*~~ *Test Performance of High-Efficiency Particulate Air Filter Units*, 2009, revised ~~2014~~ 2017 .

UL 723, ~~*Standard for*~~ *Test for Surface Burning Characteristics of Building Materials*, 2008, revised ~~2013~~ 2018 .

UL 790, Fire Tests for Roof Coverings, 2022.

UL 1479, ~~*Standard for*~~ *Safety Fire Tests of Through-Penetration Firestops*, 2015, rewvised 2021 .

UL 2196, ~~*Standard for*~~ *Tests of Fire Resistive Cables*, 2017, revised 2020 .

### Statement of Problem and Substantiation for Public Input

The term “Standard for” is redundant and unnecessary. All references to UL are standards. This PI updates current UL references and UL 263 has been added to chapter 2 in support of the UL 263 standard being referenced in Chapter 8.3.1 as part of a PI. UL 790 is the standard used to establish Class A ratings for roof coverings and is referenced in NFPA 5000.

### Related Public Inputs for This Document

| Related Input | Relationship |
|---|---|
| Public Input No. 26-NFPA 804-2022 [Section No. 8.3.6] | |
| Public Input No. 25-NFPA 804-2022 [Section No. 8.3.1] | |
| Public Input No. 26-NFPA 804-2022 [Section No. 8.3.6] | |
| Public Input No. 27-NFPA 804-2022 [Section No. 2.3.2] | |

### Submitter Information Verification

**Submitter Full Name:** Kelly Nicolello
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**Submittal Date:** Mon Dec 26 16:04:47 EST 2022
**Committee:** FIF-AAA

### Committee Statement

**Resolution:** FR-23-NFPA 804-2023
**Statement:** Update the publication references to the most current editions.

## Public Input No. 19-NFPA 804-2022 [ Sections 5.3.3.4, 5.3.3.5 ]

**Sections 5.3.3.4, 5.3.3.5**

**5.3.3.4***

~~Only noncombustible panels or flame-retardant tarpaulins or approved materials of equivalent fire-retardant characteristics shall be used.~~ Panels, fabrics, including tarpaulins, and plastic films shall be certified as being constructed of materials that comply with one of the following fire safety requirements.

5.3.3.4.1

The materials shall be noncombustible materials by complying with 8.3.4.1.

5.3.3.

~~5~~

~~Any fabrics or plastic films used, other than those complying with~~ 4.2

The materials shall be limited combustible materials by complying with 8.3.4.2

5.3.3.4 .3

The materials shall exhibit a flame spread index not exceeding 25 when tested in accordance with ASTM E84.

5.3.3.4.4

The materials shall exhibit a peak rate of heat release not exceeding 300 kW/m $^2$ when tested in accordance with ASTM E1354 , ~~shall be certified to conform to the large-scale fire test described in NFPA 701.~~ Standard Test Method for Heat and Visible Smoke Release Rates for Materials and Products Using an Oxygen Consumption Calorimeter, at an incident heat flux of 50 kW/m $^2$ , in the horizontal orientation.

5.3.3.4.5

Fabrics and plastic films shall be permitted to comply with the flame propagation performance criteria of test method 2 of NFPA 701.

*(Also, add ASTM E1354, Standard Test Method for Heat and Visible Smoke Release Rates for Materials and Products Using an Oxygen Consumption Calorimeter (2022c) into section 2 on referenced ASTM standards)*

## Statement of Problem and Substantiation for Public Input

This is an update on the intent of this section. The requirements are consistent with what is being required in the existing standard but with additional options and updated language. This provides the necessary options (and flexibility for manufacturers and users) without lowering fire safety.
1. Section 8.3.4.1 of NFPA 804 provides the requirements for a material to be noncombustible and that is proposed to be referenced.
2. Section 8.3.4.2 of NFPA 804 provides the requirements for a material to be limited combustible and that is proposed to be referenced. Limited combustible materials are materials that contribute very little to a fire but that fail to meet the requirements to be noncombustible. Many NFPA codes and standards allow the use of limited combustible materials in many areas where noncombustible materials are otherwise required.
3. Materials that comply with a Class A in ASTM E84 (flame spread index only, since the existing criteria do not regulate smoke emissions) have been shown to perform well in terms of fire safety and should be permitted. ASTM E84 is a more severe test than NFPA 701 and if materials meeting NFPA

701 are permitted, those meeting a flame spread index of 25 or less should be allowed also.
4. Materials that comply with the proposed heat release requirements based on ASTM E1354 (known as the cone calorimeter and equivalent to ISO 5660 internationally) have been permitted in codes and standards for a variety of uses and have been shown to exhibit very good fire performance.
5. NFPA 701 has eliminated the "small scale test" many years ago and the two tests in it are test method 1 and test method 2. Test method 2 is the one that applies to heavyweight fabrics and films, including tarpaulins and tents and so on. NFPA 701 does not describe a "passing" material in any way other than that it complies with its flame propagation performance criteria. Materials that comply are not described as "flame retardant" or "having flame retardant characteristics" because those terms are relative to the fire exposure. Also, NFPA 701 is a test method for fabrics and films and decorative materials and should not be used for other products, such as panels. For that reason, the last section is restricted to fabrics and plastic films.

## Related Public Inputs for This Document

| Related Input | Relationship |
|---|---|
| Public Input No. 20-NFPA 804-2022 [Section No. A.5.3.3.4] | |

## Submitter Information Verification

**Submitter Full Name:** Marcelo Hirschler
**Organization:** GBH International
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**Zip:**
**Submittal Date:** Thu Dec 22 18:10:52 EST 2022
**Committee:** FIF-AAA

## Committee Statement

**Resolution:** FR-19-NFPA 804-2023

**Statement:** This change provides flexibility for manufacturers and users to follow section 8.3.4 for noncombustible and limited-combustible material. The reference to ASTM E1354 was not adopted since it is a small scale test that is not typically representative of fire risk of materials of this nature in the use of nuclear facilities. The annex section A.5.3.3.4 has been removed since it is redundant to section A.8.3.2.

## Public Input No. 16-NFPA 804-2022 [ Section No. 8.2.2 ]

**8.2.2***

The majority of the areas involved in the transfer of nuclear energy to electrical energy shall be considered as special-purpose industrial occupancies and special-structure ~~windowless~~ limited access buildings, as defined in NFPA *101*.

## Statement of Problem and Substantiation for Public Input

The term "windowless" is no longer used or defined in NFPA 101. The term has been changed to "limited access"

## Submitter Information Verification

**Submitter Full Name:** Donald Birchler
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**Submittal Date:** Thu Oct 20 16:26:40 EDT 2022
**Committee:** FIF-AAA

## Committee Statement

**Resolution:** FR-11-NFPA 804-2023

**Statement:** The language has been revised to provide more clarity to the user and better align with NFPA 101 as it applies to special-purpose industrial occupancy, which is a defined term in NFPA 101. The FHA has been introduced as a method to evaluate unique facility considerations. Sections 8.2.2, 8.2.4, 8.2.5 and 8.2.6 have been moved to the annex to focus on the FHA for occupancy identification. Additionally the sections moved to the annex were redundant to requirements in NFPA 101 and potentially more restrictive due to the mandatory language that existed in NFPA 804.

# Public Input No. 25-NFPA 804-2022 [ Section No. 8.3.1 ]

**8.3.1**

Construction materials for the ALWR plant shall be classified by at least one of the following test methods appropriate to the end-use configuration of the material:

(1) NFPA 220, *Standard on Types of Building Construction*

(2) ASTM E136, *Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C*

(3) ASTM E119*, Standard Test Methods for Fire Tests of Building Construction and Materials*

(4) NFPA 253, *Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source*

(5) NFPA 259, *Standard Test Method for Potential Heat of Building Materials*

(6) UL 263, Fire Tests of Building Construction and Materials

(7) UL 723, *Standard for Test for Surface Burning Characteristics of Building Materials*

## Statement of Problem and Substantiation for Public Input

Adds the reference to UL 263 as a testing/certification option for fire resistance testing of building construction elements as an equivalent to ASTM E119. UL 263 is referenced in 38 different NFPA codes and standards, including NFPA 5000 and 101, as an alternate to ASTM E119.

## Related Public Inputs for This Document

| Related Input | Relationship |
|---|---|
| Public Input No. 24-NFPA 804-2022 [Section No. 2.3.5] | |

## Submitter Information Verification

**Submitter Full Name:** Kelly Nicolello
**Organization:** UL LLC
**Street Address:**
**City:**
**State:**
**Zip:**
**Submittal Date:** Mon Dec 26 16:07:50 EST 2022
**Committee:** FIF-AAA

## Committee Statement

**Resolution:** FR-12-NFPA 804-2023

**Statement:** This section has been revised to clarify the original intent that construction types are to be Type I or Type II. Though previously listed, this change makes clear that NFPA 220 is the document that needs to be followed to determine where Type I or Type II construction is required. The other references have been removed since they are already incorporated in NFPA 220 and section 8.3.4 which covers limited-combustible construction.

## Public Input No. 22-NFPA 804-2022 [ Section No. 8.3.5 ]

**8.3.5** Electrical.

Wiring above suspended ceilings shall be one of the following.

8.3.5.1 wiring listed for plenum use, ~~routed in armored cable, routed in metallic conduits, or routed in cable~~ in accordance with NFPA 90A,

8.3.5.2 wiring totally enclosed in nonventilated, insulated busways having no provisions for plug-in connections,

8.3.5.3 wiring totally enclosed in cable trays with solid metal top and bottom covers,

8 .3.5.4 Type MI cable without an overall nonmetallic covering,

8.3.5.5 Type MC cable without an overall nonmetallic covering,

8.3.5.6 Type AC cable.

## Statement of Problem and Substantiation for Public Input

This brings in the requirements from the National Electrical Code (NEC, NFPA 70). If wiring is simply said to be "routed" in a metal conduit that does not mean that it is fully enclosed. Cables that are armored cables are a type of cable and not an enclosure. The other options are as shown in the NEC. Plenum-rated cables are described in NFPA 90A.

## Submitter Information Verification

**Submitter Full Name:** Marcelo Hirschler
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**City:**
**State:**
**Zip:**
**Submittal Date:** Thu Dec 22 19:33:18 EST 2022
**Committee:** FIF-AAA

## Committee Statement

**Resolution:** The current requirement encompasses the concerns raised with the recommended change to the section and reference to NFPA 90A is not needed. The proposed change does not provide any added safety and makes the requirement more convoluted.

## Public Input No. 23-NFPA 804-2022 [ Section No. 8.3.6 ]

**8.3.6**

Roof coverings shall be Class A as determined by ~~tests.~~ testing in accordance with ASTM E108.

(Also add ASTM E108, Standard Test Methods for Fire Tests of Roof Coverings, 2020a, to chapter 2 on referenced standards)

## Statement of Problem and Substantiation for Public Input

This simply adds the appropriate fire test to classify a roof covering as Class A.

## Submitter Information Verification

**Submitter Full Name:** Marcelo Hirschler
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**Submittal Date:** Thu Dec 22 19:44:42 EST 2022
**Committee:** FIF-AAA

## Committee Statement

**Resolution:** FR-13-NFPA 804-2023
**Statement:** The recommendations were adopted as annex material so that the requirement would not be overly limiting.

## Public Input No. 26-NFPA 804-2022 [ Section No. 8.3.6 ]

**8.3.6**

Roof coverings shall be Class A as determined by ~~tests~~ tests in accordance with ASTM E108 or UL 790 .

## Statement of Problem and Substantiation for Public Input

ASTM E108 and UL 790 are the standards used to establish Class A ratings for roof coverings and are both referenced in NFPA 5000.

## Related Public Inputs for This Document

| Related Input | Relationship |
|---|---|
| Public Input No. 24-NFPA 804-2022 [Section No. 2.3.5] | |
| Public Input No. 24-NFPA 804-2022 [Section No. 2.3.5] | |
| Public Input No. 27-NFPA 804-2022 [Section No. 2.3.2] | |

## Submitter Information Verification

**Submitter Full Name:** Kelly Nicolello
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**Submittal Date:** Mon Dec 26 16:10:14 EST 2022
**Committee:** FIF-AAA

## Committee Statement

**Resolution:** FR-13-NFPA 804-2023
**Statement:** The recommendations were adopted as annex material so that the requirement would not be overly limiting.

## Public Input No. 21-NFPA 804-2022 [ Sections 8.8.1, 8.8.2, 8.8.3 ]

**Sections 8.8.1, 8.8.2, 8.8.3**

**8.8.1**

~~As a minimum, combustible cable insulation and jacketing material shall meet the fire and flame test requirements of IEEE 1202, Standard for Flame Testing of Cables for Use in Cable Tray in Industrial and Commercial Occupancies~~ Wires and cables, including optical fiber cables, shall comply with the requirements for char height less than 1.5 m (5 ft) when measured from the lower edge of the burner face when tested to the cable tray fire test in IEEE 1202 or the FT4/IEEE 1202 cable tray fire test exposure in UL 2556 .

8.8.2

~~Meeting the requirements of IEEE 383, *Standard for Type Test of Class IE Electric Cables, Field Splices and Connections for Nuclear Power Generating Stations,*~~

Wires and cables, including optical fiber cables, that are listed as having adequate fire-resistant and low-smoke-producing characteristics, by having a flame travel distance that does not exceed 1.5 m (5 ft) and generating a maximum peak optical density of smoke of 0.50 and a maximum average optical density of smoke of 0.15 when tested in accordance with NFPA 262 , shall be permitted for use instead of the wires and cables specified in 8.8.1.

8.8.3

The fact that wires and cables meet the criteria in sections 8.8.1 or 8.8.2 shall not eliminate the need for protection as specified in this standard and the fire hazards analysis.

~~**8.8.3**~~

~~Fiber optic cable insulation and jacketing material shall meet the fire and flame test requirements of IEEE 383, *Standard for Type Test of Class IE Electric Cables, Field Splices and Connections for Nuclear Power Generating Stations* .~~ *(also add a reference to UL 2556, Wire and Cable Test Methods (2021), and NFPA 262 (Standard Method of Test for Flame Travel and Smoke of Wires and Cables for Use in Air-Handling Spaces, 2023) to the section on referenced standards)*

## Statement of Problem and Substantiation for Public Input

IEEE 383 does not have a fire test in it any more. It refers to the fire test in IEEE 1202. In fact, the fire test in IEEE 1202 (which is a vertical cable tray fire test) is the exact same test as in UL 2556 and the UL standard is more often referenced (see for example NFPA 130 and NFPA 70, National Electrical Code or NEC). Therefore the reference to IEEE 383 is proposed to be deleted.

The NEC allows any cable tested to NFPA 262 (and meeting the acceptance criteria shown) to be used wherever a cable meeting the requirements of IEEE 1202 are needed. Therefore, if a cable that meets the requirements based on NFPA 262 is presented for use, it makes no sense to require it to be tested again.

All of the tests referenced are tests on wires or cables and not on the individual materials (insulation or jacket). Also, the requirements apply to any wires or cables, whether electrical (i.e. those that transmit electricity and not just data) or fiber optic (or both), which is why the requirements for both have been placed in the same section.

IEEE 383 used to have a cable tray fire test many years ago but it has long been superseded.

## Submitter Information Verification

**Submitter Full Name:** Marcelo Hirschler
**Organization:** GBH International
**Street Address:**
**City:**
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**Zip:**
**Submittal Date:** Thu Dec 22 19:00:21 EST 2022
**Committee:** FIF-AAA

## Committee Statement

**Resolution:** Test standards should be used to determine what is acceptable test criteria. Since NFPA 804 is not a test document, this revision has not been adopted.

## Public Input No. 28-NFPA 804-2023 [ Section No. 9.6.2 ]

**9.6.2**

Except as modified in this chapter, the following NFPA standards shall be used:

(1) NFPA 11
(2) NFPA 12
(3) NFPA 13
(4) NFPA 14
(5) NFPA 15
(6) NFPA 16
(7) NFPA 17
(8) NFPA 750
(9) NFPA 770
(10) NFPA 2001
(11) ~~NFPA 2010NFPA 2010~~ NFPA 2010

## Statement of Problem and Substantiation for Public Input

NFPA 770, Standard on Hybrid (Water and Inert Gas) Fire-Extinguishing Systems is a new standard that was published by NFPA in 2021. Hybrid fire-extinguishing systems can be used to protect the hazards defined in this standard.

Removing the duplicated NFPA 2010.

## Related Public Inputs for This Document

| Related Input | Relationship |
|---|---|
| Public Input No. 29-NFPA 804-2023 [Section No. 2.2] | |

## Submitter Information Verification

**Submitter Full Name:** Ryan Smale
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**Zip:**
**Submittal Date:** Mon Jan 02 11:30:14 EST 2023
**Committee:** FIF-AAA

## Committee Statement

**Resolution:** FR-15-NFPA 804-2023

**Statement:** NFPA 770, Standard on Hybrid (Water and Inert Gas) Fire-Extinguishing Systems is a new standard that was published by NFPA in 2021. Hybrid fire-extinguishing systems can be used to protect the hazards defined in this standard.

Removing the duplicated NFPA 2010.

NFPA 16 has also been removed since it has been incorporated into NFPA 11.

## Public Input No. 15-NFPA 804-2021 [ Section No. 10.4.1.4 ]

**10.4.1.4**

Cable spreading rooms shall be provided with all of the following:

(1) At least two remote and separate entrances for access by the fire brigade personnel

(2) Aisle separation between tray stacks at least 3 ft (0.9 m) wide and 8 ft (~~24 m~~ 2.4 m ) high

(3) Hose stations and portable fire extinguishers installed outside the room

(4)* Area smoke detection

### Statement of Problem and Substantiation for Public Input

Error in conversion. 8 ft is 2.4 m, not 24 m.

### Submitter Information Verification

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**City:**
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**Zip:**
**Submittal Date:** Thu Jul 01 05:30:19 EDT 2021
**Committee:** FIF-AAA

### Committee Statement

**Resolution:** FR-16-NFPA 804-2023
**Statement:** Corrects an error in conversion of 8 ft to 2.4 m.

## Public Input No. 1-NFPA 804-2020 [ Section No. 10.7.1 ]

**10.7.1***

Battery rooms shall be provided with ventilation to limit the concentration of hydrogen to ~~2 percent~~ 1 percent by volume, and loss of ventilation shall alarm in the control room.

## Statement of Problem and Substantiation for Public Input

This proposal is to be consistent with NFPA 850 (Recommended practice for fire protection for electrical generating plants and high voltage direct current converter stations) § 9.2.8, NFPA 805 §E.2.12.1 and NFPA 497.
Good practice is to have a limitation at 25% of the LEL, i.e. 1% for hydrogen as the LEL is at 4%.)

## Submitter Information Verification

| | |
|---|---|
| **Submitter Full Name:** | Franck Orset |
| **Organization:** | EMANI (European Mutual Association for Nuclear Insurance) |
| **Street Address:** | |
| **City:** | |
| **State:** | |
| **Zip:** | |
| **Submittal Date:** | Fri Mar 13 08:54:32 EDT 2020 |
| **Committee:** | FIF-AAA |

## Committee Statement

**Resolution:** FR-17-NFPA 804-2023

**Statement:** This change is to be consistent with NFPA 850, NFPA 69, and NFPA 497.

It is good practice to have a limitation at 25% of the LEL (i.e., 1% for hydrogen as the LEL is at 4%).

## Public Input No. 7-NFPA 804-2020 [ New Section after 10.7.2 ]

**10.7.3**

Large battery rooms shall be protected in accordance with NFPA 855.

If automatic sprinkler systems are provided for battery rooms, they shall be designed for a minimum density of 0.30 gpm/ft$^2$ (12.2 L/min·m$^2$) over the entire area of the room or 2,500 sq ft (232 m2), whichever is smaller.

## Statement of Problem and Substantiation for Public Input

This proposal is to be consistent with the new development of NFPA 855 (Standard for the Installation of Stationary Energy Storage Systems)

## Submitter Information Verification

| | |
|---|---|
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| **City:** | |
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| **Zip:** | |
| **Submittal Date:** | Fri Mar 13 09:28:08 EDT 2020 |
| **Committee:** | FIF-AAA |

## Committee Statement

**Resolution:** FR-18-NFPA 804-2023

**Statement:** NFPA 855 was not adopted as recommended since it is not applicable to the use of this section. However, it is important to highlight in the annex that batteries containing reactive metals should be considered in the FHA to avoid any unforeseen hazards not already accounted for.

## Public Input No. 2-NFPA 804-2020 [ Section No. 10.8.3.2 ]

**10.8.3.2**

If closed-head water spray systems utilizing directional nozzles in accordance with NFPA 15 are provided, bearing protection shall be provided for a minimum density of 0.~~30 gpm~~ 25 gpm /ft$^2$ (~~12~~ 10 .2 L/min·m$^2$) over the protected area.

## Statement of Problem and Substantiation for Public Input

This proposal is to be consistent with NFPA 850 (Recommended practice for fire protection for electrical generating plants and high voltage direct current converter stations) § 7.7.4.2.2
Note that the density recommended by Factory Mutual for bearings is also 0.25 gpm/sq ft (Data Sheet 7-101 - FIRE PROTECTION FOR STEAM TURBINES AND ELECTRIC GENERATORS)

## Submitter Information Verification

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|---|---|
| **Submitter Full Name:** | Franck Orset |
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| **Submittal Date:** | Fri Mar 13 08:56:55 EDT 2020 |
| **Committee:** | FIF-AAA |

## Committee Statement

**Resolution:** The 0.3 gpm/ft2 density originated in Electric Power Research Institute (EPRI) Document – EPRI NP-4144, Turbine Generator Fire Protection by Sprinkler System, Project No.1843-2, 1985 (page 6-10). The change is not being adopted since 0.3 gpm/ft2 is more conservative and evidence will need to be provided that changing 0.25 gpm/ft2 per the FM report (FM 7-101) maintains the same level of safety.

## Public Input No. 5-NFPA 804-2020 [ New Section after 10.8.3.3 ]

**10.8.3.4 Exciter housing**

The area inside a directly connected exciter housing shall be protected with a total flooding automatic carbon dioxide system designed to deliver a minimum concentration of 34% during at least 20 min (or during the total coast down period of the machine if longer than 20 min).

## Statement of Problem and Substantiation for Public Input

This proposal is to be consistent with NFPA 850 (Recommended practice for fire protection for electrical generating plants and high voltage direct current converter stations) § 7.7.4.2.2 and NFPA 805 E.2.13.3 (3)
Note that this is also a requirement from Factory Mutual (Data Sheet 7-101 - FIRE PROTECTION FOR STEAM TURBINES AND ELECTRIC GENERATORS) and the benefit of such a protection inside the exciter housing has been proven by the EPRI NP-4144 study.

The concentration design and duration are indicated as this is a rotating equipment and the duration should be more than just 10 minutes.

## Submitter Information Verification

| | |
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| **Submittal Date:** | Fri Mar 13 09:22:34 EDT 2020 |
| **Committee:** | FIF-AAA |

## Committee Statement

**Resolution:** The current standard provides fire suppression systems requirement in 10.8.7(1) and is not appropriate to duplicate here.

## Public Input No. 8-NFPA 804-2020 [ New Section after 10.8.9.2.4 ]

**10.8.9.2.5**

When seal oil systems are automatically fed by the main lubricating oil system (by gravity or via the lube oil pumps), a specific study shall be performed to ensure that in case of fire involving the hydrogen seal oil pump system, there is a specific procedure to close the oil supply coming from the lubricating oil system (to avoid a continuous flow of oil, far beyond the expected quantity of oil present at the seal oil pump area), once the turbine has been adequately stopped.

## Statement of Problem and Substantiation for Public Input

This configuration is not found on all Nuclear Power Plants, but many seal oil systems, which are provided with limited retention means, are fed directly from the main lube oil tank to avoid a loss of oil in the system and loose the proper oil sealing on the generator, which would release hydrogen in the building. When the connection exists, there is a sectional valve on the feed main, but in many cases, this is not identified for firefighting purposes and could lead to a severe oil spill exposure as, if it is fed by gravity, the quantity of oil is not the one inside the seal oil system, the total quantity of the seal oil system and the main lubricating oil tank.

## Submitter Information Verification

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| **Submittal Date:** | Fri Mar 13 09:32:34 EDT 2020 |
| **Committee:** | FIF-AAA |

## Committee Statement

**Resolution:** The specific study and emergency procedure as proposed by the submitter are already part of the standard. The study would be performed as part of the Fire Hazard Analysis (FHA) and the response to an emergency scenario would be captured as part of the Pre Fire Plan.

## Public Input No. 6-NFPA 804-2020 [ Section No. 10.8.11.4 ]

**10.8.11.4**

Piping design and installation shall include all of the following measures:

(1) Welded construction

(2)* Guard pipe construction with the pressure feed line located inside the return line or in a separate shield pipe drained to the oil ~~reservoir~~ reservoir and sized to handle the flow from all oil pumps operating at the same time.

(3) Routing oil piping clear of or below steam piping or metal parts

(4) Insulating with impervious lagging for steam piping or hot metal parts under or near oil piping or turbine bearing points

(5) Noncombustible coverings (flange guards) around the flange to reduce the possibility of oil spraying onto a hot surface (when oil pressure exceeds 50 psi – 3.4 bars).

## Statement of Problem and Substantiation for Public Input

This proposal is to be consistent with NFPA 850 (Recommended practice for fire protection for electrical generating plants and high voltage direct current converter stations) § 7.7.3.6

## Submitter Information Verification

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| **Submittal Date:** | Fri Mar 13 09:26:09 EDT 2020 |
| **Committee:** | FIF-AAA |

## Committee Statement

**Resolution:** The current requirements stated with 10.8.11.4 provides adequate protection, anything beyond would be covered by the Fire Hazard Analysis.

# Public Input No. 13-NFPA 804-2020 [ Section No. 10.22.1 ]

**10.22.1**

~~Rooms~~ Buildings and rooms housing diesel-driven ~~fire~~ and electrical-driven fire pumps shall be protected by automatic sprinkler, water spray, or foam-water sprinkler systems.

## Statement of Problem and Substantiation for Public Input

The added section regarding the protection requirements for electrical driven fire pumps would require that this section be adjusted to capture both the protection requirements for both diesel driven and electrical driven fire pumps from NFPA 20.

## Related Public Inputs for This Document

| Related Input | Relationship |
|---|---|
| Public Input No. 12-NFPA 804-2020 [New Section after 10.22.2] | |
| Public Input No. 12-NFPA 804-2020 [New Section after 10.22.2] | |

## Submitter Information Verification

**Submitter Full Name:** Stephen Jaskolka
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**Submittal Date:** Thu Apr 09 16:00:03 EDT 2020
**Committee:** FIF-AAA

## Committee Statement

**Resolution:** FR-33-NFPA 804-2023

**Statement:** NFPA 20 provides requirements on protection for fire pump(s) rooms and/or buildings and is the appropriate document to use for these requirements. Also see FR-21 & FR-22 for NFPA 805. With 10.22 now directing users to NFPA 20 for fire pump room or building fire protection, the minimum density of 10.22.2 is no longer needed and the section has been deleted.

## Public Input No. 12-NFPA 804-2020 [ New Section after 10.22.2 ]

**10.22.3**

For buildings that are required to be sprinklered, fire pump buildings or rooms enclosing electric fire pump drivers shall be protected with an automatic sprinkler system installed in accordance with NFPA 13 as an Ordinary Hazard Group 1 occupancy. [20:4.14.1.4]

## Statement of Problem and Substantiation for Public Input

New language was introduced into NFPA 20 regarding the protection of fire pump buildings and rooms housing electrical driven fire pumps. This cross referenced section should be helpful to ensure compliance NFPA 20 while installing electrical driven fire pumps in Advanced Light Water Reactor Electric Generating Plants.

## Related Public Inputs for This Document

| Related Input | Relationship |
|---|---|
| Public Input No. 13-NFPA 804-2020 [Section No. 10.22.1] | |
| Public Input No. 13-NFPA 804-2020 [Section No. 10.22.1] | |

## Submitter Information Verification

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**Submittal Date:** Thu Apr 09 15:40:40 EDT 2020
**Committee:** FIF-AAA

## Committee Statement

**Resolution:** FR-33-NFPA 804-2023

**Statement:** NFPA 20 provides requirements on protection for fire pump(s) rooms and/or buildings and is the appropriate document to use for these requirements. Also see FR-21 & FR-22 for NFPA 805. With 10.22 now directing users to NFPA 20 for fire pump room or building fire protection, the minimum density of 10.22.2 is no longer needed and the section has been deleted.

## Public Input No. 11-NFPA 804-2020 [ Section No. 10.22.2 ]

**10.22.2**

~~If sprinkler and water spray systems are provided for fire pump houses, they shall be designed for a minimum density of 0.25 gpm/ft$^2$ (10.19 L/min·m$^2$) over the entire fire area.~~
Fire pump buildings or rooms enclosing diesel engine pump drivers and day tanks shall be protected with an automatic sprinkler system installed in accordance with NFPA 13 as an Extra Hazard Group 2 occupancy. [20:4.14.1.3]

## Statement of Problem and Substantiation for Public Input

The application rate of 0.25 gpm/ft^2 in the current language conflicts with the language from NFPA 20 for Fire Pump buildings or rooms with diesel fire pumps. According to NFPA 20 there is a requirement for an automatic sprinklers sprinkler system designed to an Extra Hazard Group 2 design per NFPA 13. The current language is cross referenced in NFPA 13 and is providing a little confusion to designers when designing the sprinkler systems for protecting diesel fire pumps. Why should there be a difference in sprinkler design criteria for diesel fire pump rooms in Advanced Light Water Reactor Electric Generating Plants versus every other diesel fire pump room.

## Submitter Information Verification

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**Submittal Date:** Thu Apr 09 15:08:25 EDT 2020
**Committee:** FIF-AAA

## Committee Statement

**Resolution:** FR-33-NFPA 804-2023
**Statement:** NFPA 20 provides requirements on protection for fire pump(s) rooms and/or buildings and is the appropriate document to use for these requirements. Also see FR-21 & FR-22 for NFPA 805. With 10.22 now directing users to NFPA 20 for fire pump room or building fire protection, the minimum density of 10.22.2 is no longer needed and the section has been deleted.

## Public Input No. 14-NFPA 804-2021 [ Section No. 10.22.2 ]

**10.22.2**

~~If sprinkler and water spray systems are provided for fire pump houses, they shall be designed for a minimum density of 0.25 gpm/ft $^2$ (10.19 L/min·m $^2$ ) over the entire fire area.~~ Fire pump buildings or rooms enclosing diesel engine pump drivers and day tanks shall be protected with an automatic sprinkler system installed in accordance with NFPA 13 as an Extra Hazard Group 2 occupancy.

## Statement of Problem and Substantiation for Public Input

In the 2019 Edition of NFPA 20, it is indicated § 4.14.1.3 (Fire Pump Buildings or Rooms with Diesel Engines):
Fire pump buildings or rooms enclosing diesel engine pump drivers and day tanks shall be protected with an automatic sprinkler system installed in accordance with NFPA 13 as an Extra Hazard Group 2 occupancy.

In previous editions, it was allowed for a density of 0.25 gpm/sq ft (10.19 l/min/m2) over the entire fire area, but not anymore.

This modification is proposed for consistency between the standards.

If we would like a density/area approach, we could indicate:
If sprinkler and water spray systems are provided for fire pump houses, they shall be designed for a minimum density of 0.40 gpm/ft2 (16.3 L/min·m2) over the entire room or the most remote 2500 ft2 (232.2 m2), whichever is smaller

## Submitter Information Verification

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**Submittal Date:** Thu Mar 11 11:27:56 EST 2021
**Committee:** FIF-AAA

## Committee Statement

**Resolution:** FR-33-NFPA 804-2023

**Statement:** NFPA 20 provides requirements on protection for fire pump(s) rooms and/or buildings and is the appropriate document to use for these requirements. Also see FR-21 & FR-22 for NFPA 805. With 10.22 now directing users to NFPA 20 for fire pump room or building fire protection, the minimum density of 10.22.2 is no longer needed and the section has been deleted.

## Public Input No. 4-NFPA 804-2020 [ Section No. 10.23.1 [Excluding any Sub-Sections] ]

Buildings shall be protected from exposure fires involving oil-filled transformers by one of the following means:

(1) Locating the transformer casing, conservator tank, and cooling radiators ~~at least 50 ft (15.2 m) from buildings~~

~~Providing a minimum 2-hour fire barrier between transformers as required in~~

(2) from buildings at a safe distance in compliance with Table 10.23.1 *[See Figure 10.23.1(a)*

~~and~~

(3) *and Figure 10.23.1(b)*

~~and exposed buildingsComplying with Table 10.23.1 [See~~

(4) *.]*

(5) Providing a minimum 2-hour fire barrier between transformers as required in Figure 10.23.1(a) and Figure 10.23.1(b)

~~.]~~

(6) and exposed buildings

(7)

**Figure 10.23.1(a) Transformer Spacing.**

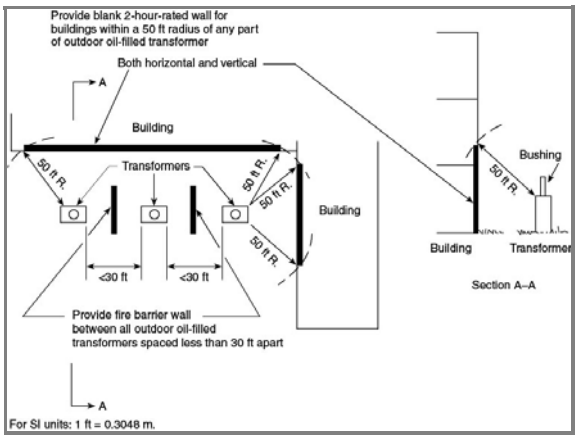
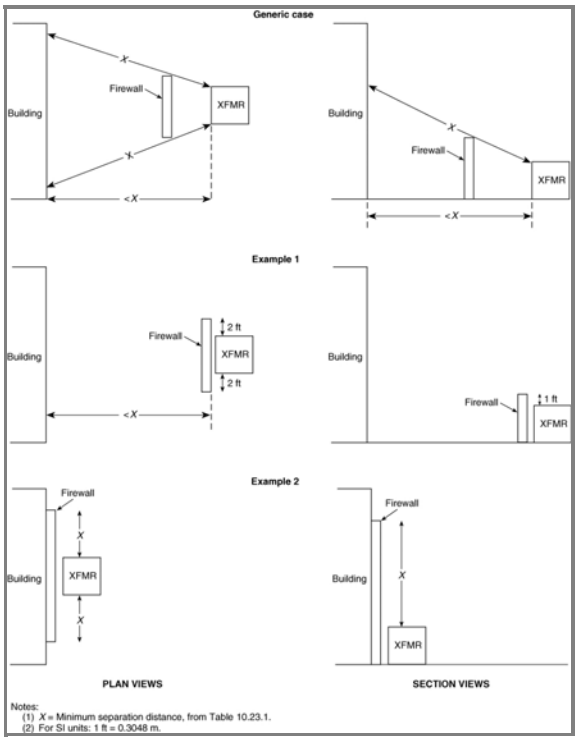



**Figure 10.23.1(b) Transformer Spacing — Minimum Separation Distance.**




In figure 10.23.1 (a), replace 30 ft with X to be in line with proposed change on 10.23.1.1 and 50 ft R. with X R. to be in line with Table 10.23.1.

Table 10.23.1 Transformer Spacing Separation Distances

| Transformer Oil Capacity | | - | Minimum (Line-of-Sight) Separation Without Firewall | |
|---|---|---|---|---|
| gal | L | - | ft | m |
| ≤5000 | ≤18.925 | - | 25 | 7.6 |
| >5000 | >18.925 | - | 50 | 15.2 |

## Statement of Problem and Substantiation for Public Input

This is to be consistent with NFPA 850
Note that the layout of the text has been modified (for unknwon reasons) and only point (1) has been modified and point (3) has been removed.

## Submitter Information Verification

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|---|---|
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| **Submittal Date:** | Fri Mar 13 09:19:02 EDT 2020 |
| **Committee:** | FIF-AAA |

## Committee Statement

**Resolution:** The current standard adequately addresses protection for the transformers.

## Public Input No. 3-NFPA 804-2020 [ Section No. 10.23.1.1 ]

**10.23.1.1**

A minimum ~~1~~ 2 -hour fire barrier or a distance ~~of 30 ft (9.1 m)~~ in compliance with Table 10.23.1 *[See Figure 10.23.1(a) and Figure 10.23.1(b).]* shall be provided between adjacent transformers.

## Statement of Problem and Substantiation for Public Input

This is not consistent with 10.23.1.3 and NFPA 850 that requires the same safe separation distance and same fire rating as for separation distance with buildings.

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| **Submittal Date:** | Fri Mar 13 08:58:44 EDT 2020 |
| **Committee:** | FIF-AAA |

## Committee Statement

**Resolution:** The current standard adequately addresses protection for the transformers.

# Public Input No. 10-NFPA 804-2020 [ New Section after 10.28 ]

**10.30 Overhead cranes**

**10.30.1** Overhead cranes shall not be positioned above critical equipment (turbine…) when not in operation.

**10.30.2*** Smoke detection systems shall be provided, as well as provision of portable fire extinguishers, for the electric cabinets of the main overhead cranes (turbine hall, spent fuel pool and reactor building as a minimum).

Smoke detection shall be provided in the battery room, machinery room, elevator shaft, elevator machine room, transformer room, transformer blower room, near main electrical disconnect and group cable trays, and in any similar areas not having fixed protection.

***10.30.2** The needs to provide an automatic fixed gas protection system should be considered if the access is deemed too difficult (or delayed) in case of fire for manual firefighting means.

In that case, an automatic gaseous fire protection system should be provided in the control room, cable room and cabinets, switchgear cabinets and other similar areas where combustibles are present.

If a time-delay interlock needs to be provided on the system set it to the minimum required for safe evacuation of personnel.

Note that situations where electrical cabinets are located inside of the beam of the crane (bridge beam) is more problematic than when the electrical cabinets are located outside (in terms of fire damages)

When electrical cabinets are located inside the following disadvantages are present:

- Smoke is not easily detected by operators (remains inside the beam)
- Even with a limited amount combustible material involved in a fire inside the beam, the heat released can have serious adverse effects on the steel structure of the crane (phenomenon similar to a “baker stove” effect).

**10.30.3** The alarm must sound in the control cab and at the base of the crane. The alarm should also be transmitted to the Main Control Room.

## Statement of Problem and Substantiation for Public Input

Cranes are not considered as a critical equipment as they are not used on a continuous basis for the process and have no nuclear safety related issue.
But should a crane be impaired (due to a fire) just prior or during an outage and the associated downtime to replace or repair it could be very important.

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**Submittal Date:** Fri Mar 13 09:35:46 EDT 2020
**Committee:** FIF-AAA

## Committee Statement

**Resolution:** No overhead crane specific fire loss data was submitted demonstrating loss of operation due to current protection schemes. Fire Hazard Analysis should adequately analyze the importance of equipment to operation and should disposition accordingly.

## Public Input No. 9-NFPA 804-2020 [ New Section after 10.28 ]

### 10.29 Filters

#### 10.29.1 High Efficiency Particulate Air (HEPA) Filters

**10.29.1.1** Rate compensated type heat detectors or pilot sprinkler heads shall be provided inside ducts prior to final filter enclosures. Airflow should be considered when determining detector or pilot head location.

**10.29.1.2** Detectors should be of the 190°F (90°C) temperature range unless operations require higher temperature air flows.

**10.29.1.3** Heat detectors or pilot sprinkler heads shall also be provided in the final filter enclosures.*

***10.29.1.3** If filter plenum automatic deluge spray systems are actuated by pilot sprinkler heads, heat detectors are not required in the ducting or the filter enclosure

**10.29.1.4** Automatic and manual water deluge spray systems should be provided inside all final filter plenums for protection of the filters where they have a leading filter surface area greater than 16 sq ft (1.4 m2).

Automatic water deluge spray systems should be provided inside all final filter plenums having a leading surface area of 16 sq ft (1.4 m2) or less when the filter plenum is not separated by fire rated construction.

**10.29.1.5** Deluge sprinkler systems or deluge spray systems shall meet the following criteria:

(1) Water spray density should be 0.25 gpm/sq ft (10.2 L/min/m2) over the entire filter area or 1 gpm per 500 cfm air flow (1 L/min per 3.75 m3/min air flow), whichever is greater.

(2) The spray pattern of the deluge sprinkler head should be in the form of a downward vertical water curtain approximately 6 inches (150 mm) in front of the prefilter or demister. In addition, deluge sprinkler heads should be spaced so that each sprinkler head does not exceed 4 lineal feet of curtain coverage (1.2 lineal meter of curtain coverage).

(3) Deluge spray sprinkler system should operate upon activation of fire alarm system heat detectors or pilot sprinkler heads located in either the final ducting or filter plenum housing. Manual activation should be provided as well.

(4) If the system is only manually activated, the minimum water spray density should be 0.25 gpm/sq ft (10.2 L/min/$m^2$) over the entire filter area. Activation should be by manually activating deluge valve or opening a normally closed Outside Screw & Yoke gate valve. Control devices to activate the spray nozzle deluge valve should be provided in the process operators control room or other locations accessible to fire fighters.

#### 10.29.2 Activated Charcoal Filters

**10.29.2.1*** Smoke detectors should be installed in the duct on the inlet air side of the first ventilation flap. The alarms shall be displayed in the Main Control Room.

***10.29.2.1** In order to be able to detect a fire in the activated charcoal filters, alarm devices (e.g. thermal detection in close proximity to the charcoal to indicate incipient ignition at a temperature 10°C (18°F) below the ignition temperature of the filter medium, CO measuring devices installed after the filters and before the ventilation dampers...).

**10.29.2.2** Suppression shall be provided for charcoal absorber beds by either an automatic or manual water deluge system to cool the outside of the filter vessel and provision of water spray system inside the charcoal vessel.

Deluge sprinkler systems or deluge spray systems shall meet the following criteria:

(1) A hydraulically designed automatic water spray system, utilizing directional solid-cone spray nozzles controlled by an approved deluge valve, with remote suitably located manual actuation stations, shall be provided for charcoal filters. It is acceptable to have a manual system activated through a manual sectional valve accessible in case of fire, if an appropriate procedure is in place.

(2) The spray nozzles for horizontal beds or drawers should be oriented above each bed or drawer and be of such design to distribute water evenly across the top of each bed or drawer at a minimum density of 0.25 gpm/sq ft (10.2 L/min/$m^2$ ).

(3) The spray nozzles for vertical beds should be oriented at the top of the bed and be of such design to distribute water evenly across the top of the bed at the rate of 3.2 gallons per minute per cubic foot (428 l/min per cubic meter) of charcoal bed.

(4) The air flow should terminate (fan shut off) upon water activation.

## Statement of Problem and Substantiation for Public Input

The protection of filters (HEPA and charcoal filters) is addressed in DOE 1066-97– Appendix A – Nuclear Filtration and Air Cleaning Systems.
Note that a fire already occurred in an activated charcoal filter in a NPP in the UK: Sizewell B (UK) - July 5, 2010. It is believed a component of the heater was faulty, causing it to malfunction and the charcoal to burn. A little flame was seen coming from the filter as it began smouldering. Around 45 firefighters were sent to the power station, including retained crews from the surrounding areas. Water was put through pipes to extinguish the blaze, but initially it did not seem to make any difference. The effort to put the fire out and cool down the charcoal was hampered as engineers were needed to clamp the cabinet doors shut as the water was pumped in.

## Submitter Information Verification

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| **Submitter Full Name:** | Franck Orset |
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| **Street Address:** | |
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| **State:** | |
| **Zip:** | |
| **Submittal Date:** | Fri Mar 13 09:34:27 EDT 2020 |
| **Committee:** | FIF-AAA |

## Committee Statement

**Resolution:** No HEPA filter and charcoal filter specific fire loss data was submitted demonstrating loss of operation due to current protection schemes. NRC has published Information Notice(s) associated with inadvertent dumping of water on charcoal beds making them obsolete. NRC's Reg Guide 1.189 Section 4.1.4.1 Combustibility of Filter Media adequately dispositions HEPA and charcoal filters. Fire Hazard Analysis should adequately analyze the risk associated with fire hazards and should disposition accordingly.

## Public Input No. 20-NFPA 804-2022 [ Section No. A.5.3.3.4 ]

~~**A.5.3.3.4** —~~

~~Particular attention should be given to the control of halogenated plastics.~~

### Statement of Problem and Substantiation for Public Input

This section is being proposed to be deleted because there is no technical basis for dealing with "halogenated plastics" in particular. In fact, some of the better performing plastic films and fabrics are halogenated, because they exhibit low ignitability and low heat release. The critical issue (as required by the PI No. 19) is that the adequate fire performance be met.

### Related Public Inputs for This Document

| Related Input | Relationship |
|---|---|
| Public Input No. 19-NFPA 804-2022 [Sections 5.3.3.4, 5.3.3.5] | |

### Submitter Information Verification

**Submitter Full Name:** Marcelo Hirschler
**Organization:** GBH International
**Street Address:**
**City:**
**State:**
**Zip:**
**Submittal Date:** Thu Dec 22 18:54:41 EST 2022
**Committee:** FIF-AAA

### Committee Statement

**Resolution:** FR-19-NFPA 804-2023

**Statement:** This change provides flexibility for manufacturers and users to follow section 8.3.4 for noncombustible and limited-combustible material. The reference to ASTM E1354 was not adopted since it is a small scale test that is not typically representative of fire risk of materials of this nature in the use of nuclear facilities. The annex section A.5.3.3.4 has been removed since it is redundant to section A.8.3.2.

## Public Input No. 18-NFPA 804-2022 [ Section No. C.1.2.2 ]

**C.1.2.2** ASTM Publications.

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

ASTM E119, *Standard Test Methods for Fire Tests of Building Construction and Materials*, ~~2012~~ 2022 .

## Statement of Problem and Substantiation for Public Input

date update

## Submitter Information Verification

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**Submittal Date:** Thu Dec 22 14:19:41 EST 2022
**Committee:** FIF-AAA

## Committee Statement

**Resolution:** FR-25-NFPA 804-2023
**Statement:** Update to most current publication references. FM Approval 4470 and UL 790 have been added due to action taken by the committee with FR-13.