UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated January 2021
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11/19

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USACE / NAVFAC / AFCEC / NASA | **UFGS-10 44 16 (November 2019)**

Preparing Activity: NASA | **Superseding UFGS-10 44 16 (May 2015)**

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SECTION 10 44 16

FIRE EXTINGUISHERS
11/19

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NOTE: This guide specification covers the requirements for portable fire extinguishers, including wall brackets, accessories, maintenance servicing and inspection tagging requirements.

Portable fire extinguishers cannot be purchased by military construction contracts.

Associated work found in other sections includes non-portable fire protection systems, alarms and related accessories.

Consult with the local AHJ (Authority Having Jurisdiction) during design stage. Indicate on drawings the locations for proper placement and each type of portable extinguisher located within the installation.

Adhere to UFC 1-300-02 Unified Facilities Guide Specifications (UFGS) Format Standard when editing this guide specification or preparing new project specification sections. Edit this guide specification for project specific requirements by adding, deleting, or revising text. For bracketed items, choose applicable item(s) or insert appropriate information.

Remove information and requirements not required in respective project, whether or not brackets are present.

Comments, suggestions and recommended changes for this guide specification are welcome and should be submitted as a Criteria Change Request (CCR).

****

PART 1 GENERAL

1.1 REFERENCES

****

NOTE: This paragraph is used to list the publications cited in the text of the guide specification. The publications are referred to in the text by basic designation only and listed in this paragraph by organization, designation, date, and title.

Use the Reference Wizard's Check Reference feature when you add a Reference Identifier (RID) outside of the Section's Reference Article to automatically place the reference in the Reference Article. Also use the Reference Wizard's Check Reference feature to update the issue dates.

References not used in the text will automatically be deleted from this section of the project specification when you choose to reconcile references in the publish print process.
****

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM E814	(2013a; R 2017) Standard Test Method for Fire Tests of Penetration Firestop Systems

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 1	(2021) Fire Code
NFPA 10	(2018; ERTA 1-2 2018) Standard for Portable Fire Extinguishers
NFPA 99	(2021) Health Care Facilities Code
NFPA 101	(2021) Life Safety Code
NFPA 241	(2019) Standard for Safeguarding Construction, Alteration, and Demolition Operations
NFPA 303	(2021) Fire Protection Standards for Marinas and Boatyards
NFPA 385	(2012) Standard for Tank Vehicles for Flammable and Combustible Liquids
NFPA 409	(2016; ERTA 2016) Standard on Aircraft Hangars
NFPA 418	(2016) Standard for Heliports
NFPA 505	(2018) Fire Safety Standard for Powered Industrial Trucks Including Type Designations, Areas of Use, Conversions, Maintenance, and Operations

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910.106	Flammable Liquids
29 CFR 1910.157	(2003) Portable Fire Extinguishers

UNDERWRITERS LABORATORIES (UL)

UL 8	(2016) UL Standard for Safety Water Based Agent Fire Extinguishers
UL 154	(2005; Reprint Mar 2019) UL Standard for Safety Carbon-Dioxide Fire Extinguishers
UL 299	(2012) Dry Chemical Fire Extinguishers
UL 626	(2005; Reprint Mar 2012) 2-1/2 Gallon Stored-Pressure, Water-Type Fire Extinguishers
UL 2129	(2017) UL Standard for Safety Halocarbon Clean Agent Fire Extinguishers

1.2 SUBMITTALS

****

NOTE: Review Submittal Description (SD) definitions in Section 01 33 00 SUBMITTAL PROCEDURES and edit the following list, and corresponding submittal items in the text, to reflect only the submittals required for the project. The Guide Specification technical editors have classified those items that require Government approval, due to their complexity or criticality, with a "G." Generally, other submittal items can be reviewed by the Contractor's Quality Control System. Only add a “G” to an item, if the submittal is sufficiently important or complex in context of the project.

For Army projects, fill in the empty brackets following the "G" classification, with a code of up to three characters to indicate the approving authority. Codes for Army projects using the Resident Management System (RMS) are: "AE" for Architect-Engineer; "DO" for District Office (Engineering Division or other organization in the District Office); "AO" for Area Office; "RO" for Resident Office; and "PO" for Project Office. Codes following the "G" typically are not used for Navy, Air Force, and NASA projects.

The "S" classification indicates submittals required as proof of compliance for sustainability Guiding Principles Validation or Third Party Certification and as described in Section 01 33 00 SUBMITTAL PROCEDURES.

Choose the first bracketed item for Navy, Air Force

and NASA projects, or choose the second bracketed item for Army projects.
****

Government approval is required for submittals with a "G" or "S" classification. Submittals not having a "G" or "S" classification are [for Contractor Quality Control approval.][for information only. When used, a code following the "G" classification identifies the office that will review the submittal for the Government.] Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Fire Extinguishers[; G[, [____]]]

Accessories[; G[, [____]]]

Cabinets[; G[, [____]]]

Wall Brackets[; G[, [____]]]

Schedule[; G[, [____]]]

SD-03 Product Data

Fire Extinguishers[; G[, [____]]]

Accessories[; G[, [____]]]

Cabinets[; G[, [____]]]

Wall Brackets[; G[, [____]]]

Replacement Parts List[; G[, [____]]]

SD-04 Samples

Equipment Samples[; G[, [____]]]

SD-07 Certificates

Fire Extinguishers Certifications[; G[, [____]]]

Manufacturer's Warranty with Inspection Tag[; G[, [____]]]

1.3 DELIVERY, STORAGE, AND HANDLING

Protect materials from weather, soil, and damage during delivery, storage, and construction.

Deliver materials in their original packages, containers, or bundles bearing the brand name and the name and type of the material.

[Provide portable fire extinguishers in compliance with NFPA 505 for all ancillary vehicles where Fire Safety Standard for Powered Industrial Trucks, including type designations, special conditions relating to areas of use, conversions, maintenance, or specific operations apply.

]1.3.1 Samples

****
NOTE: Consider requesting the samples that are critical only.
****

Provide the following equipment samples: One of each type of fire extinguisher being installed; one full-sized sample of each type of cabinet being installed; three samples of wall brackets and accessories of each type being used.

Use approved samples for installation, with proper identification and storage.

1.4 WARRANTY

****
NOTE: Warranties for fire extinguishers are typically 6 years.
****

Guarantee that Fire Extinguishers are free of defects in materials, fabrication, finish, and installation and that they will remain so for a period of not less than [_____] years after completion.

Submit the manufacturer's warranty with inspection tag.

1.5 PROJECT SCHEDULE

For fire extinguishers. Coordinate final fire extinguisher schedule with fire protection cabinet schedule to ensure proper fit and function. Use same designations indicated on Drawings.

PART 2 PRODUCTS

Submit fabrication drawings consisting of fabrication and assembly details performed in the factory and product data for the following items: Fire Extinguishers; Accessories, cabinets, Wall Brackets.

2.1 SYSTEM DESCRIPTION

2.1.1 Types

****
NOTE: Select one or more of the following types of pressurized fire extinguishers, as required:

Water and Foam - Water extinguishers are for Class A fires only (paper, wood, cloth).

Foam extinguishers are for Class A and B fires only (common combustibles, flammable liquids and gases).

Carbon Dioxide - Carbon Dioxide extinguishers can be used on Class B and C fires (flammable liquids and gases, live electrical equipment).

Dry Chemical - Dry Chemical extinguishers can be

used on Class A, B, and C fires (all the above elements) (not recommended for computers or sensitive electrical equipment - use clean agent or Carbon Dioxide).

Wet Chemical - Wet Chemical extinguishers are primarily for cooking media fires (high temperature oils and fats) (some may also be used on Class A fires in commercial kitchens).

Clean Agent - Newer Clean Agent extinguishers have replaced former halogenated extinguishers with less ozone depleting halocarbon agents, for Class B and C fires, with some larger units available for use on Class A, B, and C fires.

Dry Powder - Dry Powder extinguishers are for Class D or combustible metal fires only.

Water Mist - Water Mist extinguishers are primarily for Class A fires, although they are also safe for use in Class C fires.

The International Fire Code is a good source for explanations of the various fire extinguishers requirements.

****

Submit fire extinguishers certifications showing compliance with local codes and regulations.

Provide fire extinguishers conforming to NFPA 10. Provide quantity and placement in compliance with the applicable sections of NFPA 1, NFPA 101, [NFPA 99], [NFPA 241], [NFPA 303], [NFPA 385], [NFPA 409], [NFPA 418],[29 CFR 1910.106] and 29 CFR 1910.157.

[Provide [stored-pressure] [cartridge] [hand-pump] water type fire extinguishers.

][Provide [foam] type fire extinguishers.

][Provide carbon-dioxide type fire extinguishers compliant with UL 154.

][Provide dry chemical type fire extinguishers compliant with UL 299.

][Provide wet chemical type fire extinguishers compliant with UL 8.

][Provide clean agent type fire extinguishers compliant with UL 2129.

][Provide dry powder type fire extinguishers.

][Provide water mist type fire extinguishers compliant with UL 626.

]2.1.2 Material

****

NOTE: Select one or more of the following for the shell material. Check manufacturers to ensure that the material and extinguisher type are compatible.

****

Provide [corrosion-resistant steel] [aluminum] [enameled steel] [_____] extinguisher shell.

2.1.3 Size

****
NOTE: Select one or more of the following for the size of the extinguisher. Size as indicated. The heavier the extinguisher, the more difficult it will be to lift and carry.
****

[9.5 liter 2 1/2 gallons extinguishers.

][1.1 kilogram 2 1/2 pounds extinguishers.

][[2.3] [4.5] [6.8] [9] [13.6] kilogram [5] [10] [15] [20] [30] pounds extinguishers.

]2.1.4 Accessories

****
NOTE: Select items as applicable. Indicate appropriate UL rating.
****

[Forged brass valve

][Fusible plug

][Safety release

][Antifreeze

][Pressure gage

]2.2 EQUIPMENT

2.2.1 Cabinets

****
NOTE: Include the following paragraphs if fire extinguishers are designated as cabinet mounted. If fire extinguishers are to be hung on wall brackets only, then delete cabinet requirements.
****

2.2.1.1 Material

****
NOTE: Select one of the following materials for cabinets.
****

Provide [enameled steel] [corrosion-resistant steel] [aluminum] cabinets.

2.2.1.2 Type

****
NOTE: Select one of the following types.
****

[Provide [recessed] [trimless] [surface] type cabinets.

] [Provide semi-recessed cabinet for a [150] [100] millimeter [6 inch] [4 inch] wall.

][Provide [recessed] [trimless] [surface] bubble type cabinets.

][Provide a fire rated cabinet, listed and labeled to comply with ASTM E814 for fire resistance wall rating.]

****
NOTE: Coordinate type and capacity of fire extinguishers with fire protection cabinets to ensure fit and function. According to NFPA 10, maximum mounting height for fire extinguishers weighing 18 kg40 lb or less is 1.5 meters60 inches from finished floor to top of extinguisher; for those weighing more, it is 1 meter42 inches from finished floor to top of extinguisher.
****

2.2.1.3 Size

Dimension cabinets to accommodate the specified fire extinguishers.

2.2.2 Wall Brackets

****
NOTE: Delete the paragraph heading and the following paragraphs if cabinets are specified. Select one of the following.
****

Provide[running-board][spring-clip][wall-hook] fire extinguisher wall brackets.

Provide wall bracket and accessories as approved.

2.2.2.1 Identification

Provide lettering complying with authorities having jurisdiction for letter style, size, spacing, and location. Locate as indicated by the drawings.

Identify bracket-mounted fire extinguishers with the words "FIRE EXTINGUISHER" in red letter decals applied to mounting surface.

Orientation: [Vertical][Horizontal].

PART 3 EXECUTION

3.1 INSTALLATION

****

NOTE: For Class A light-hazard occupancies, such as office buildings, use a Class A extinguisher within a 25 meter75 foot travel distance with one unit of 1A rating for every 280 square meter 3,000 square feet of floor area; ordinary hazard occupancies such as warehouses and department stores: 25 meter 75 foot travel distance with one unit of 2A rating for every 280 square meter 3,000 square feet; and extra hazard occupancies such as woodworking and spray painting locations: 25 meter 75 foot travel distance with one unit of 3A rating for every 280 square meter 3,000 square feet.

For Class B light-hazard occupancies, use a Class B extinguisher within 15 meter 50 foot travel distance with one unit of 4B rating; ordinary hazard occupancies: 15 meter 50 foot travel distance with one unit of 8B rating; extra hazard occupancies: 15 meter 50 foot travel distance with one unit of 12B rating. For deep-layer flammable-liquid fire hazards such as dip tanks, one unit of Class B extinguishing potential is required for each 0.1 square meter square foot of the largest individual hazard unless an approved automatic system is installed.

Class C extinguishers, where there are electrical hazards, are distributed on the same basis as Class B extinguishers.

Coordinate types and locations with the Life Safety Drawings. Comply with ADA-ABA Guidelines, mounting height for fire extinguishers is not to exceed 1.2 meters48 inches to the handle.

****

Install Fire Extinguishers where indicated on the drawings. Verify exact locations prior to installation.

Provide extinguishers which are fully charged and ready for operation upon installation. Provide extinguishers complete with Manufacturer's Warranty with Inspection Tag attached.

Install fire extinguishers in locations indicated and in compliance with requirements of authorities having jurisdiction.

Comply with the manufacturer's recommendations for all installations.

3.2 PROTECTION

3.2.1 Repairing

Remove and replace damaged and unacceptable portions of completed work with new work at no additional cost to the Government.

Submit replacement parts list indicating specified items replacement part, replacement cost, and name, address and contact for replacement parts distributor.

3.2.2 Cleaning

Clean all surfaces of the work, and adjacent surfaces which are soiled as a result of the work. Remove from the site all construction equipment, tools, surplus materials and rubbish resulting from the work.

-- End of Section --