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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

UFGS-26 53 00.00 40 (August 2023)

Preparing Activity: NASA

Superseding
UFGS-26 53 00.00 40 (November 2015)

UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated October 2023

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DIVISION 26 - ELECTRICAL

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EXIT SIGNS

08/23

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SECTION 26 53 00.00 40

EXIT SIGNS
08/23

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NOTE: This guide specification covers the requirements for exit lighting fixtures and lamps.

Drawings should show a three-dimensional detail of each fixture with letter designation keyed to the drawings and electrical symbols describing the type, style, class, kind, and size of fixture.

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).

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PART 1 GENERAL

1.1 REFERENCES

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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.

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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.

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 101	(2021; TIA 21-1) Life Safety Code

U.S. DEPARTMENT OF ENERGY (DOE)

DOE LT-4	(2005) How to Buy Energy-Efficient Exit Signs

UNDERWRITERS LABORATORIES (UL)

UL 924	(2016; Reprint Dec 2022) UL Standard for Safety Emergency Lighting and Power Equipment

1.2 ADMINISTRATIVE REQUIREMENTS

1.2.1 Pre-Installation Meetings

No more than [30] [_____] days after Contract Award, the Contracting Officer will schedule a Pre-Installation Meeting. Submit material, equipment, and fixture lists for the following showing manufacturer's product data, including style or catalog numbers, specification and drawing reference numbers, warranty information, and fabrication site:

a. Exit Lighting Units

b. Contemporary Fixtures

c. Accessories

Submit exit lighting units outline drawings indicating overall physical features, dimensions, ratings, service requirements, and weights of equipment.

Submit certificates clearly indicating the energy efficiencies of each fixture type[.][,] and conformance with 42 U.S.C. 8253(f) "Use of Energy and Water Efficiency in Federal Buildings, September 2012", and DOE's Facility Energy Management Guidelines and Criteria for Energy and Water Evaluations in Covered Facilities, http://www1.eere.energy.gov/femp/technologies/procuring_eeproducts.html

1.3 SUBMITTALS

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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.

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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-01 Preconstruction Submittals

Material, Equipment, and Fixture Lists[; G[, [____]]]

SD-02 Shop Drawings

Exit Lighting Units[; G[, [____]]]

Exit Lighting Units Outline Drawings[; G[, [____]]]

SD-03 Product Data

Exit Lighting Units[; G[, [_____]]]

Contemporary Fixtures[; G[, [_____]]]

Accessories[; G[, [_____]]]

Light Emitting Diodes (Leds) Exit Lighting Fixtures[; G[, [_____]]]

Photoluminescent Exit Signs[; G[, [_____]]]

Combination Exit And Emergency Light Units[; G[, [_____]]]

Exit Light Self Test Function[; G[, [_____]]]

Computer Reporting Of Self Test Results[; G[, [_____]]]

SD-06 Test Reports

Operational Tests[; G[, [_____]]]

SD-07 Certificates

Energy Efficiencies[; G[, [_____]]]

SD-11 Closeout Submittals

Operational Exit Light Test Report[; G[, [_____]]]

Operational Exit Light Test[; G[, [_____]]]

1.4 WARRANTY

Provide a [five] [_____] year warranty for all components.

PART 2 PRODUCTS

2.1 SYSTEM DESCRIPTION

Provide emergency exit lighting fixtures conforming to UL 924, NFPA 101, and as specified.

Provide exit lighting fixtures completely assembled with wiring and mounting devices, ready for installation at the locations indicated. Provide ceiling-mounted fixtures that are designed to be supported independent of the ceiling and equipped with lamps.

Provide exit lighting fixtures having efficiencies in accordance with the recommended levels specified in DOE LT-4.

2.2 COMPONENTS

2.2.1 Incandescent Exit Light Fixtures

Provide exit lighting fixtures with incandescent lamps having a fixture body with edge-lit plastic exit-sign panels, face trims, lamps, lampholders, and mounting brackets for top, back, and end mounting to walls and ceilings in accordance with NFPA 101, as indicated.

Provide [single] [double] face fixtures as indicated by location in the

drawings.

Provide plastic sign panels with [green] [_____] translucent letters and directional arrows, as required. Provide signs with letters that are [150] [_____] millimeter [6] [_____]-inches high with stroke not less than [30] [_____] millimeter [3/4] [_____]-inch wide.

Provide [anodized sheet aluminum with a matte finish] [_____] wireway cover and plastic sign backup plate [that are manufacturer's standard product.] [, with face trims formed from [sheet aluminum and a brushed-satin finish] [_____]. [Provide units with fixture bodies formed from sheet steel are not less than [1] [_____] millimeter[20] [_____] gage and painted.]]

Provide plastic sign panels which are edge-lighted from the top with at least two low-voltage miniature incandescent lamps that will illuminate the plastic sign panels and floor. Wire exit signs for two-circuit service at [120] [277] volts and include a diode circuit that provides a minimum of [50,000] [_____] hours of lamp life.

Provide mounting plates and brackets[that are manufacturer's standard products for the unit being installed.] [formed from sheet aluminum or plate with a brushed-satin finish, not less than [115] [_____] millimeter [4-1/2] [_____]-inches square and designed to secure the fixture to a [100] [_____] millimeter [4] [_____]-inch square outlet box.]

2.2.2 Emergency Power Loss Exit Lighting Units

Provide exit light units that have an automatic power failure detection device, test switch, pilot light, and fully automatic high/low solid-state trickle charger in a self-contained power pack. Provide with [sealed-wet] [gelled-electrolyte] [lithium ion] type battery, maintenance-free for a period of not less than [5] [10] [_____]-years under normal operating conditions. Provide units that operate at [120] [277]-volts AC. [Connect to Emergency lighting panel.]

[2.2.3 Light Emitting Diodes (LEDs) Exit Lighting Fixtures

Provide [single] [double] faced exit lighting fixtures with [sheet metal] [manufacturer's standard] enclosures, including frames, battery charger, batteries, [green] [red] light emitting diodes (LEDs), and mounting brackets with mounting plates suitable for securing the fixture to a 100 millimeter 4-inch outlet box. Fixture features include:

a. Continuous charging

b. Automatic switching to standby batteries upon loss of power

c. Overload protection

d. Short circuit protection

e. Test switch

f. Low voltage disconnect

g. Switch controlled left and right LED directional arrows

h. Field connectable to operate from [115] [277] volts

i. Brightness not less than ten (10) candela candlepower

Provide unit battery system with minimum operating time of three (3) hours for double faced fixtures and seven (7) hours for single faced fixtures.

][2.2.4 Photoluminescent Exit Signs

Provide photoluminescent exit signs where indicated in the drawings. Provide current driven, internally lighted exit signs. The LED lamps are to be rated for [120] [277] VAC operation. LEDs must be rated for 50,000 hours minimum lamp life. Provide units with exit sign face, frames, and mounting brackets of polycarbonate material.

Exit sign face to be photoluminescent, injection molded .080 inch minium thickness polypropylene with 45% photoluminescent pigment. The photoluminescent plate must be non-radioactive, absorb and store energy from internal white LED's, and must not need a battery backup system to provide exit text illumintation during power outages. LEDs must have Energy Star Rating. Unit must be UL approved for use in interior and unconditioned space applications, and must be tested and listed to UL 924.

Provide units with exit text lettering color that is [Green.] [Red.] [Black.] Units must have Photoluminescent Plate Service life of a minimum twenty (20) years for interior installations. LED Service Life must be five (5) year minimum manufacturer's guarantee for interior installations.

][2.2.5 Combination Exit and Emergency Light Units

Where indicated in the drawings provide combination Exit and Emergecncy Light units. Provide units with [incandescent] [LED] light source for both exit light illumination and emergency lighting. The emergency light portion of the unit must meet the reqirements of 26 52 00.00 40 EMERGENCY LIGHTING. The exit light portion of the unit must meet the requirements of this section.

]2.2.6 Exit Light Self Test Function

Provide exit light fixtures with a built-in self test function to perform both the 30 second monthly test and the annual 90 minute test.

2.2.6.1 Thirty Second Self Test

Provide exit light units that have a "push-to-test" button to intitiate self testing and a diagnostic LED that illuminates to convey test results. The push-to-test button must have a function to manually initiate the monthly 30 second test. In addition to the above manual test process, provide units that have the capability to automatically perform a 30 second battery self-test once every 30 days.

2.2.6.2 Ninety Minute Self Test

Provide exit light units that have a "push-to-test" button to intitiate self testing and a diagnostic LED that illuminates to convey test results. The push-to-test button must have a function to manually initiate the annual 90 minute self test. In addition to the above manual test process, provide units that have the capability to automatically perform a 90 minute battery self-test once once annually.

[2.2.6.3 Computer Reporting of Self Test Results

Provide exit light units that have the capability to wirelessly report self test results to a monitoring station in the facility. Provide all equipment required for a complete wireless monitoring system, including exit light units, monitoring station, and all hardware and software.

]PART 3 EXECUTION

3.1 INSTALLATION

Connect fixtures to the main panel bus through overcurrent protection. [Conncet emergency lights to emergency lighting panel where indicated in the drawings].[Connect to the emergency light circuit indicated in the panel schedule in the electrical drawings.]

3.2 FIELD QUALITY CONTROL

3.2.1 Tests

Field test exit lighting to demonstrate satisfactory operation in the presence of the Contracting Officer or their designated representative..Generate a written Test Plan for performing Operational Exit Light Tests. The system operational tests must demonstrate each indivdual exit light meets the requirements of the referenced standards in this section. Prior to performing the Operational Tests submit the Test Plan to the Contracting Officer for review and approval by the Goverment. The Test PLan must be submitted a minimum of [30] [_____] calendar days before the test is planned to be conducted. Do not conduct the test without Government approval.

Perform and submit Operational Exit Light Test in accordance with referenced standards in this section. Record test results in writing on the Test Plan and submit to the Goverment as the Operational Exit Light Test Report

-- End of Section --