

SECTION 26 52 13 - EMERGENCY AND EXIT LIGHTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Emergency lighting units.
 - 2. Exit signs.
 - 3. Luminaire supports.

1.3 DEFINITIONS

- A. CCT: Correlated color temperature.
- B. CRI: Color Rendering Index.
- C. Emergency Lighting Unit: A lighting unit with internal or external emergency battery powered supply and the means for controlling and charging the battery and unit operation.
- D. Fixture: See "Luminaire" Paragraph.
- E. Lumen: Measured output of lamp and luminaire, or both.
- F. Luminaire: Complete lighting unit, including lamp, reflector, and housing.

1.4 ACTION SUBMITTALS

- A. Submittal Process
 - 1. Luminaires shall be submitted separately from lighting controls. Combined luminaire and controls submittals will be rejected without review.
 - 2. Luminaire submittals shall be complete and contain all fixtures listed in the Lighting Fixture Schedule. Partial, incomplete, or preliminary submittals for luminaires will be rejected without review.
 - 3. Luminaire submittals shall clearly indicate all equipment, features, models, accessories, and the like either by highlighting the appropriate options or by writing the manufacturer's complete model number on the product information sheet. Cutsheets without specific product characteristics indicated will be rejected without review.
 - 4. Exceptions to the above are at the discretion of the lighting designer/reviewer.

- B. Product Data: For each type of emergency lighting unit, exit sign, and emergency lighting support.
 - 1. Arrange in order as listed in Lighting Fixture Schedule.
 - 2. Include data on features, accessories, and finishes.
 - 3. Include physical description of the unit and dimensions.
 - 4. Battery and charger for light units.
 - 5. Include life, output of luminaire (lumens, CCT, and CRI), and energy-efficiency data.
 - 6. Include photometric data and adjustment factors based on laboratory tests, complying with IES LM-79 and IES LM-80.
 - a. Manufacturers' Certified Data: Photometric data certified by manufacturer's laboratory with a current accreditation under the National Voluntary Laboratory Accreditation Program for Energy Efficient Lighting Products.

1.5 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For luminaires and lighting systems to include in emergency, operation, and maintenance manuals.
 - 1. Provide a list of all lamp types used on Project; use ANSI and manufacturers' codes.

1.6 QUALITY ASSURANCE

- A. Luminaire Photometric Data Testing Laboratory Qualifications: Luminaire manufacturer's laboratory that is accredited under the National Volunteer Laboratory Accreditation Program for Energy Efficient Lighting Products.
- B. Provide luminaires from a single manufacturer for each luminaire type.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Protect finishes of exposed surfaces by applying a strippable, temporary protective covering before shipping.

1.8 WARRANTY

- A. Warranty: Manufacturer and Installer agree to repair or replace components of luminaires that fail in materials or workmanship within specified warranty period.
- B. Special Warranty for Emergency Lighting Batteries: Manufacturer's standard form in which manufacturer of battery-powered emergency lighting unit agrees to repair or replace components of rechargeable batteries that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period for Emergency Power Unit Batteries: Five years from date of Substantial Completion. Full warranty shall apply for first year and prorated warranty for the remaining four years.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS FOR EMERGENCY LIGHTING

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. NRTL Compliance: Fabricate and label emergency lighting units, exit signs, and batteries to comply with UL 924.
- C. Comply with NFPA 70 and NFPA 101.
- D. Comply with NEMA LE 4 for recessed luminaires.
- E. External Type: Self-contained, modular, battery-inverter unit, remote mounted from luminaire.
 - 1. Emergency Connection: Operate luminaire continuously. Connect unswitched circuit to battery-inverter unit and switched circuit to luminaire driver.
 - 2. Operation: Relay automatically turns luminaire on when power-supply circuit voltage drops to 80 percent of nominal voltage or below. Luminaire automatically disconnects from battery when voltage approaches deep-discharge level. When normal voltage is restored, relay disconnects luminaire from battery, and battery is automatically recharged and floated on charger.
 - 3. Battery: Sealed, maintenance-free, nickel-cadmium type.
 - 4. Charger: Fully automatic, solid-state, constant-current type.
 - 5. Housing: NEMA 250, Type 1 enclosure listed for installation inside, on top of, or remote from luminaire. Remote assembly shall be located no less than half the distance recommended by the emergency power unit manufacturer, whichever is less.
 - 6. Test Push Button: Push-to-test type, in unit housing, simulates loss of normal power and demonstrates unit operability.
 - 7. LED Indicator Light: Indicates normal power on. Normal glow indicates trickle charge; bright glow indicates charging at end of discharge cycle.
 - 8. Integral Self-Test: Factory-installed electronic device automatically initiates code-required test of unit emergency operation at required intervals. Test failure is annunciated by an integral audible alarm and a flashing red LED.

2.2 EMERGENCY LIGHTING

- A. General Requirements for Emergency Lighting Units: Self-contained units.
- B. Emergency Lighting Unit:
 - 1. Emergency Lighting Unit: As indicated on Lighting Fixture Schedule.
- C. Remote Emergency Lighting Units:
 - 1. Emergency Lighting Unit: As indicated on Lighting Fixture Schedule.

2.3 EXIT SIGNS

- A. General Requirements for Exit Signs: Comply with UL 924; for sign colors, visibility, luminance, and lettering size, comply with authorities having jurisdiction.
- B. Exit Signs: As indicated on Lighting Fixture Schedule.

2.4 MATERIALS

- A. Metal Parts:
 - 1. Free of burrs and sharp corners and edges.
 - 2. Sheet metal components shall be steel unless otherwise indicated.
 - 3. Form and support to prevent warping and sagging.
- B. Doors, Frames, and Other Internal Access:
 - 1. Smooth operating, free of light leakage under operating conditions.
 - 2. Designed to permit relamping without use of tools.
 - 3. Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position.

2.5 METAL FINISHES

- A. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.6 LUMINAIRE SUPPORT COMPONENTS

- A. Comply with requirements in Section 26 05 29 "Hangers and Supports for Electrical Systems" for channel and angle iron supports and nonmetallic channel and angle supports.
- B. Support Wires: ASTM A 641/A 641M, Class 3, soft temper, zinc-coated steel, 12 gage.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for conditions affecting performance of luminaires.
- B. Examine roughing-in for luminaire to verify actual locations of luminaire and electrical connections before luminaire installation.
- C. Examine walls, floors, roofs, and ceilings for suitable conditions where emergency lighting luminaires will be installed.

- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Comply with NECA 1.
- B. Install luminaires level, plumb, and square with ceilings and walls unless otherwise indicated.
- C. Supports:
 - 1. Sized and rated for luminaire and emergency power unit weight.
 - 2. Able to maintain luminaire position when testing emergency power unit.
 - 3. Provide support for luminaire and emergency power unit without causing deflection of ceiling or wall.
- D. Wall-Mounted Luminaire Support:
 - 1. Attached to structural members in walls.
 - 2. Do not attach luminaires directly to gypsum board.
- E. Suspended Luminaire Support:
 - 1. Pendants and Rods: Where longer than 48 inches, brace to limit swinging.
 - 2. Stem-Mounted, Single-Unit Luminaires: Suspend with twin-stem hangers. Support with approved outlet box and accessories that hold stem and provide damping of luminaire oscillations. Support outlet box vertically to building structure using approved devices.
 - 3. Do not use ceiling grid as support for pendant luminaires. Connect support wires or rods to building structure.
- F. Ceiling Grid Mounted Luminaires:
 - 1. Secure to any required outlet box.
 - 2. Secure emergency power unit using approved fasteners in a minimum of four locations, spaced near corners of emergency power unit.
 - 3. Use approved devices and support components to connect luminaire to ceiling grid and building structure in a minimum of four locations, spaced near corners of luminaire.

3.3 IDENTIFICATION

- A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 26 05 53 "Identification for Electrical Systems."

3.4 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections:
 - 1. Test for Emergency Lighting: Interrupt power supply to demonstrate proper operation. Verify transfer from normal power to battery power and retransfer to normal.
- B. Luminaire will be considered defective if it does not pass operation tests and inspections.

- C. Prepare test and inspection reports.

3.5 STARTUP SERVICE

- A. Perform startup service:

1. Charge emergency power units and batteries minimum of one hour and depress switch to conduct short-duration test.
2. Charge emergency power units and batteries minimum of 24 hours and conduct one-hour discharge test.

3.6 ADJUSTING

- A. Adjustments: Within 12 months of date of Substantial Completion, provide on-site visit to do the following:

1. Inspect all luminaires. Replace lamps, emergency power units , batteries, signs, or luminaires that are defective.
 - a. Parts and supplies shall be manufacturer's authorized replacement parts and supplies.
2. Conduct short-duration tests on all emergency lighting.

END OF SECTION