

## SECTION 16535 EMERGENCY LIGHTING

## PART 1 GENERAL

## 1.1 SUMMARY:

- A. Types of emergency luminaires in this section include the following:
  - 1. Unitized battery powered units
  - 2. Exit lights
  - 3. Emergency fluorescent lamp power supply.

## 1.2 QUALITY ASSURANCE:

- A. Manufacturer's Qualifications: Firms regularly engaged in manufacture of emergency luminaires and equipment of types and ratings required, whose products have been in satisfactory use in similar service for not less than 5 years.
- B. Installer's Qualifications: Firm with at least 3 years of successful installation experience on projects with emergency lighting work similar to that required for project.

## 1.3 SUBMITTALS:

- A. Product Data: Submit manufacturer's technical product data on emergency lighting.
- B. Shop Drawings: Submit shop drawings in booklet form with separate sheet for each luminaire, assembled in luminaire "type" alphabetical, or numerical order, with proposed luminaire and accessories clearly indicated on each sheet.
- C. Maintenance Data: Submit maintenance data and parts list for each emergency lighting and accessory including "trouble-shooting" maintenance guide. Include this data, product data, and shop drawings in maintenance manual; in accordance with requirements of Division 1.

## 1.4 DELIVERY, STORAGE AND HANDLING:

- A. Handle emergency lighting carefully to prevent damage, breaking, and scoring. Do not install damaged luminaires or components; replace with new.
- B. Store in clean dry place. Protect from weather, dirt, fumes, water, construction debris, and physical damage.

## PART 2 PRODUCTS

## 2.1 ACCEPTABLE MANUFACTURERS:

- A. Manufacturers: Subject to compliance with requirements, provide emergency lighting of one of the following (for each type of emergency luminaire):
  - 1. Unitized Battery Powered Fixtures:
    - a. Chloride Systems USA, Inc.
    - b. Dual-Lite Inc.
    - c. Emergi-Lite Co.
    - d. Exide Electronics Corp.
    - e. Mule Emergency Lighting Inc.

2. Exit Signs:
  - a. As specified in Luminaire Schedule.
3. Emergency Fluorescent Lamp Power Supplies:
  - a. Bodine
  - b. Dual-Lite Inc.
  - c. Lithonia Lighting Inc.
  - d. Siltron Illumination Inc.

## 2.2 EMERGENCY LIGHTING:

- A. General: Provide lighting of sizes, types and ratings indicated; complete with, but not limited to, housings, energy efficient lamps, lamp holders, reflectors, energy-efficient ballasts, starters and wiring.
- B. Wiring: Provide wiring within fixtures for connection to branch circuit wiring as follows:
  1. NEC Type TFN for 120 & 277 volt, minimum No. 18 AWG.
- C. Emergency Battery Powered Units: Provide battery powered, self-contained units with solid-state, fully automatic charger, unit "Ready" light, transfer/brownout circuit and low-voltage battery disconnect.
  1. Power Supplies:
    - a. Provide unit with universal (multi-tap) transformer suitable for 120 or 277 VAC operation.
    - b. Battery: Provide maintenance free lead-calcium battery for 12 VDC operation capable of supplying connected load for period of 1-1/2 hours to end voltage or 87-1/2 percent of nominal battery voltage.
  2. Charger: Provide automatic battery charger with full recharging capability in 12 hours, or less after full discharge.
  3. Enclosure: Provide enclosure constructed in accordance with NEMA 1 standards. Provide low profile brushed aluminum canopy capable of being mounted on standard 3-1/2 inch or 4 inch octagonal, or 4 inch square wall box, or being fastened directly to wall.
  4. Lamps: Provide two, unit mounted 12-volt, 7.2 watt sealed beam lamps.
 

OR

 Provide two, unit mounted 12-volt, 18 watt sealed beam lamps.
  5. Accessories: Provide following accessories mounted on unit cabinet:
    - a. Unit test switch
    - b. Voltmeter
    - c. Ammeter
    - d. AC "ON" pilot light
    - e. High Charge Pilot Light

- f. Battery life expectancy alarm
- g. Wire guard (where indicated)
- h. Heavy-duty wall mounting bracket

### 2.3 EMERGENCY FLUORESCENT LAMP POWER SUPPLY:

- A. General: Provide self-contained battery powered inverter unit for direct mounting in designated fluorescent luminaires. Provide unit with fully automatic two rate charger, nickel-cadmium battery, AC "ON" pilot light, and test switch. Unit shall automatically transfer to battery supply on loss of normal AC power and shall operate one or two rapid start F32 fluorescent lamps with minimum output of 1350 lumens. Unit shall have minimum output of 3000 lumens for single high output lamp applications.

## PART 3 EXECUTION

### 3.1 INSPECTION:

- A. Examine areas and conditions under which emergency lighting is to be installed, and substrate which will support lighting luminaires. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

### 3.2 INSTALLATION OF EMERGENCY LIGHTING UNITS:

- A. Install emergency lighting units at locations and heights as indicated, in accordance with manufacturer's written instructions, applicable requirements of NEC, NECA's "Standard of Installation", NEMA standards, and with recognized industry practices to ensure that lighting fulfills requirements.
- B. Coordinate with other electrical work as appropriate.
- C. Coordinate mounting of test switch indicator light and ballast prior to installation.

### 3.3 ADJUSTING AND CLEANING:

- A. Clean emergency lighting of dirt and debris upon completion of installation.
- B. Protect installed units from damage during remainder of construction period.

### 3.4 GROUNDING:

- A. Provide equipment grounding connections for emergency lighting as indicated. Tighten connections to comply with torque values specified in UL Std 486A to assure permanent and effective grounds.

### 3.5 FIELD QUALITY CONTROL:

- A. Upon completion of installation of emergency lighting and after building circuitry has been energized with normal power source, apply electrical energy to demonstrate capability and compliance with requirements. Test emergency lighting to demonstrate operation under emergency conditions. Where possible, correct malfunctioning units at site, then retest to demonstrate compliance; otherwise, remove and replace with new units, and proceed with retesting.

3.6 WARRANTY:

- A. The Contractor shall guarantee all equipment including ballasts, lamps, luminaires, wiring, etc. free from inherent mechanical and electrical defects for five (5) years. Warranty period shall be from date of acceptance as set forth in the general conditions.

END OF SECTION 16535