

SECTION 26 51 00 - INTERIOR LIGHTING

PART 1 GENERAL

1.1 REFERENCES

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

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI C78.377 (2017; R2022) American National Standard for Electric Lamps—Specifications for the Chromaticity of Solid State Lighting (SSL) Products

ILLUMINATING ENGINEERING SOCIETY OF NORTH AMERICA (IESNA)

IES HB-10-11 (2011; Errata 1 & 2: 2015) IES Lighting Handbook, Tenth Edition

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

NEMA SSL 1 (2016) Electronic Drivers for LED Devices Arrays, or Systems

NEMA SSL 6 (2010) Solid State Lighting for Incandescent Replacement—Dimming

NEMA SSL 7A (2015) Phase Cut Dimming for Solid State Lighting for Incandescent Replacement

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70 (2020) National Electrical Code

NFPA 101 (2021) Life Safety Code

UNDERWRITERS LABORATORIES INC. (UL)

UL 20 (2018; Reprint Oct 2020) General-Use Snap Switches

UL 924 (2016; Reprint May 2020) Emergency Lighting and Power Equipment

UL 1598 (2021; Reprint Mar 2021) Luminaires

1.2 RELATED REQUIREMENTS

Section 26 00 00, "Basic Electrical Materials and Methods," applies to this section, with the additions and modifications specified herein. Materials not considered to be lighting equipment or lighting fixture accessories are specified in Section 26 20 00, "Interior Distribution System." Lighting fixtures and accessories mounted on exterior surfaces of buildings are specified in this section.

1.3 DEFINITIONS

- A. Average Life: Time after which 50 percent will have failed and 50 percent will have survived under normal conditions.
- B. Total Harmonic Distortion (THD): The root mean square (RMS) of all the harmonic components divided by the total fundamental current.

1.4 SUBMITTALS

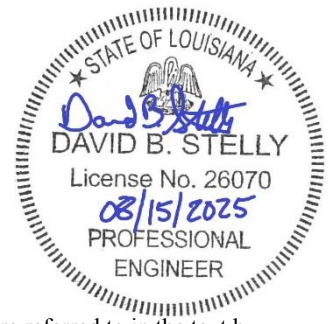
Submit the following: Data, drawings, and reports shall employ the terminology, classifications, and methods prescribed by the IESNA HB-10-11, as applicable, for the lighting system specified.

A. Manufacturer's Catalog Data

1. Solid State (LED) lighting fixtures

Joe Webb Memorial Branch Library
Haynesville, Louisiana
Coco & Company
Project #0524
8.8.25

INTERIOR LIGHTING-1



2. Dimmer switch
3. Photocell switch
4. Exit signs
5. Emergency lighting equipment
6. Occupancy sensors

PART 2 PRODUCTS

2.1 SOLID STATE (LED) LIGHTING FIXTURES: ANSI C78.377A, NEMA SSL 1, UL 1598.

- A. Provide the lumen output, wattage, and color temperature indicated.
- B. Dimmer Switch: 0 -10 volt type for use with LED drivers.

2.2 PHOTOCELL SWITCH

UL 773A, hermetically sealed cadmium-sulfide or silicon diode type cell rated 120 volts ac, 60 Hz with single-throw contacts. Switch shall turn on at or below 3 footcandles and off at 2 to 10 footcandles. A time delay shall prevent accidental switching from transient light sources. Provide switch is a cast weatherproof aluminum housing with adjustable window slide, rated 1800 VA, minimum.

2.3 EXIT SIGNS

UL 924, NFPA 70, and NFPA 101. Exit signs shall be self-powered type.

- A. Self-Powered LED Type Exit Signs (Battery Backup): Provide with automatic power failure device, integral self-testing module and fully automatic high/low trickle charger in a self-contained power pack. Battery shall be sealed electrolyte type, shall operate unattended, and require no maintenance, including no additional water, for a period of not less than five years. LED exit sign shall have emergency run time of 1 1/2 hours (minimum).

2.4 EMERGENCY LIGHTING EQUIPMENT

UL 924, NFPA 70, and NFPA 101. Provide lamps in wattage indicated.

- A. Emergency Lighting Unit: Provide as indicated. Emergency lighting units shall be rated for 6 volts. Provide integral self-testing module.

2.5 SELF-TESTING MODULE

Self-testing module for exit signs and emergency lighting equipment shall perform the following functions:

- A. Continuous monitoring of charger operation and battery voltage with visual indication of normal operation and of malfunction.
- B. Monthly discharge cycling of battery with monitoring of transfer circuit function, battery capacity and emergency lamp operation with visual indication of malfunction. The battery capacity test may be conducted by using a synthetic load.
- C. Manual test switch to simulate a discharge test cycle.
- D. Module shall have low voltage battery disconnect (LVD) and brown-out protection circuit.

2.6 OCCUPANCY SENSORS

UL listed. Occupancy sensors and power packs shall be designed to operate on the voltage indicated. Sensors and power packs shall have circuitry that only allows load switching at or near zero current crossing of supply voltage. Occupancy sensor mounting as indicated. Sensor shall have an LED occupant detection indicator. Sensor shall have adjustable sensitivity and adjustable delayed-off time range of five minutes to fifteen minutes, minimum. Wall mounted sensors shall be ivory, ceiling mounted sensors shall be white. Ceiling mounted sensors shall have 360 degree coverage unless otherwise indicated. Wall mounted sensors shall have integral manual "off" switch.

- A. Ultrasonic sensor shall be crystal controlled and shall not cause detection interference between adjacent sensors.
- B. Infrared sensors shall have a daylight filter. Sensor shall have a fresnel lens that is applicable for indicated usage.
- C. Ultrasonic/Infrared Combination Sensor

Occupancy detection to turn lights on required both ultrasonic and infrared sensor detection. Lights shall remain on if either the ultrasonic or infrared sensor detects movement. Infrared sensor shall have lens selected for indicated usage and daylight filter to prevent short wavelength infrared interference. Ultrasonic sensor frequency shall be crystal controlled.

PART 3 EXECUTION

3.1 INSTALLATION

Set lighting fixtures plumb, square, and level with ceiling and walls, in alignment with adjacent lighting fixtures, and secure in accordance with manufacturers' directions and approved drawings. Installation shall meet requirements of NFPA 70. Mounting heights specified or indicated shall be to the bottom of fixture for ceiling-mounted fixtures and to center of fixture for wall-mounted fixtures. Obtain approval of the exact mounting for lighting fixtures on the job before commencing installation and, where applicable, after coordinating with the type, style, and pattern of the ceiling being installed.

- A. Exit Signs and Emergency Lighting Units: Wire exit signs and emergency lighting units ahead of the switch to the normal lighting circuit located in the same room or area.
- B. Occupancy Sensor: Provide quantity of sensor units indicated as a minimum, provide additional units to have full coverage over controlled area. Full coverage shall provide hand and arm motion detection for office and administration type areas and walking motion for industrial areas, warehouses, storage rooms and hallways. Locate the sensor(s) as indicated and in accordance with the manufacturer's recommendations to maximize energy savings to avoid nuisance activation and deactivation due to sudden temperature or airflow changes and usage.

3.2 FIELD QUALITY CONTROL

Upon completion of installation, conduct an operating test to show that equipment operates in accordance with requirements of this section.

- A. Electronic Dimming Driver: Test for full range of dimming capability. Observe for visually detectable flicker over full dimming range.
- B. Occupancy Sensor: Test sensors for proper operation. Observe light control over entire area being covered.

END OF SECTION 26 51 00