

## SECTION 26 50 00 – LIGHTING

### PART 1 - GENERAL

#### 1.1 THE REQUIREMENT

- A. The CONTRACTOR shall provide lighting fixtures, supports, and lamps, and accessories, complete and operable, in accordance with the Contract Documents.

#### 1.2 CONTRACTOR SUBMITTALS

- A. If the CONTRACTOR proposes to install equivalent equipment to that suggested, then he shall furnish the following product information in accordance with MASS Section 10.05 Article 5.6.
  - 1. Interior luminaires
    - a. Catalog data sheets and pictures.
    - b. Luminaire finish and metal gauge.
    - c. Lens material, pattern, and thickness.
    - d. Candle power distribution curves in two or more planes.
    - e. Candle power chart 0 to 90 degrees.
    - f. Lumen output chart.
    - g. Average maximum brightness data in foot lamberts.
    - h. Coefficients of utilization for zonal cavity calculations.
    - i. Mounting or suspension details.
    - j. Heat exchange and air handling data.
  - 2. Exterior luminaires
    - a. Catalog data sheets and pictures.
    - b. Luminaire finish and metal gauge.
    - c. Lens material, pattern, and thickness.
    - d. IES lighting classification and isolux diagram.
    - e. Fastening details to wall or pole.
    - f. Ballast type, location, and method of fastening.
    - g. For light poles, submit wind loading, complete dimensions, and finish.
  - 3. Lamps
    - a. Voltages (120V Only).
    - b. Colors.
    - c. Approximate life (in hours).
    - d. Approximate initial lumens.
    - e. Lumen maintenance curve.
    - f. Lamp type and base.
  - 4. Ballasts
    - a. Type.
    - b. Wiring diagram
    - c. Nominal watts and input watts.

- d. Input voltage (120V unless with special permission) and power factor.
- e. Starting current, line current, and restrike current values.
- f. Sound rating.
- g. Temperature rating.
- h. Efficiency ratings.
- i. Low temperature characteristics.
- j. Emergency ballasts rating and capacity data.

## **PART 2 - PRODUCTS**

### **2.1 FIXTURES - GENERAL**

- A. Luminaires: Specific requirements relative to execution of WORK of this Section are located in the Luminaire Schedule on Contract Drawings.
- B. All fixtures shall be pre-wired with leads of 18-AWG, minimum, for connection to building circuits.

### **2.2 EXTERIOR FIXTURES**

- A. Exterior fixtures in combination with their mounting pole and bracket shall be capable of withstanding 100 MPH winds without damage. Exterior fixtures shall have corrosion-resistant hardware and hinged doors or lens retainer. Fixtures specified to be furnished with integral photo-electrical control shall be of the fixture manufacturer's standard design.

### **2.3 INTERIOR FIXTURES**

- A. Interior fluorescent fixtures without diffusers shall be furnished with end plates. Where diffusers are required, they shall be of high molecular strength acrylic. Minimum thickness of the acrylic shall be 0.125 inches for all diffusers, except that those on 4-foot square fixtures shall be 0.187 inches thick.
- B. Emergency Exit Signs
  - 1. Internally illuminated.
  - 2. Universal mounting type.
  - 3. Internal 6-volt nickel cadmium battery, 90 minutes capacity to emergency lamps.
  - 4. Two-rate regulated battery charger to minimize energy consumption. Filtered charger output to minimize voltage ripple and extend battery life. Thermal protection and current-limiting charger circuitry to prevent overheating and charger failure.
  - 5. 19,000 hours expected lamp life.
  - 6. Press to test button.
  - 7. Directional arrows.
  - 8. Red letters on a white panel, 6 inches high.

## 2.4 LAMPS

- A. Lamps shall be first-line **General Electric, Cutler-Hammer, Sylvania**, or equal.
- B. Fluorescent lamps shall be cool/white unless otherwise indicated. Incandescent lamps shall be frosted unless a specified fixture lighting control system requires clear globe lamps. High-pressure sodium lamps shall be "color corrected." Unless otherwise indicated in the Contract Documents, lamps shall be suitable for operation in any burning position.

## 2.5 PHOTO-ELECTRIC CELLS

- A. Photoelectric cells for control of multiple fixtures shall be self-contained, weatherproof type, rated for 1800 va 120-volt, single pole, single throw, and shall be provided with time-delay features. Photoelectric cell shall be **Tork Model 2101**, or equal.

## 2.6 LIGHT FIXTURE CONTROL RELAYS

- A. Relays for light fixtures control shall be mechanically held. Such relays shall be based-mounted, single-purpose units, i.e., not attachments to a multi-purpose solenoid operator.
- B. If not indicated otherwise, coil voltage shall be 115 VAC with contacts rated at 20 amps. Relays shall be **ASCO Series 166, Zenith Series MSC**, or equal.

## 2.7 BALLASTS

- A. Ballasts for fluorescent fixtures in indoor areas shall have a Class "A" sound rating. Such ballasts shall be of the low loss type. All ballasts shall be high power factor, Class P. Primary ballast voltage shall be suitable for use in the branch circuits indicated in the Contract Documents. All ballasts shall be UL-listed.

## 2.8 FIXTURE TYPES

- A. Specific requirements are located in the Lighting Fixture Schedule on the Contract Drawings.

## PART 3 - EXECUTION

### 3.1 LUMINAIRES

- A. Install in accordance with manufacturer's recommendations.
- B. Provide necessary hangers, pendants, and canopies.

- C. Provide additional ceiling bracing, hanger supports, and other structural reinforcements to building required to safely mount.
- D. Install plumb and level.
- E. Locate luminaires to avoid both conflict with other building systems and blockage of luminaire light output.

### **3.2 LAMPS**

- A. Provide in each fixture, the number and type for which the fixture is designed, unless otherwise indicated.

### **3.3 BALLASTS**

- A. Install in accordance with manufacturer's recommendations.
- B. Utilize all ballast mounting holes to fasten securely within luminaire.
- C. Replace noisy or defective ballasts.

### **3.4 CLEANING FOLLOWING INSTALLATION**

- A. Remove all labels and other markings, except UL listing mark.
- B. Wipe luminaires inside and out to remove construction dust.
- C. Clean luminaire plastic lenses with antistatic cleaners only.
- D. Touch up all painted surfaces of luminaires and poles with matching paint ordered from manufacturer.
- E. Replace all defective lamps at time of Substantial Completion.

**END OF SECTION 26 50 00**