

**SECTION 02762****LUMINAIRES****02762.01 GENERAL****A. Description**

Luminaires shall include, but not necessarily be limited to, furnishing and installing luminaires and the necessary mounting hardware of the type and size shown on the Plans and in accordance with the Contract Documents or as directed by the Engineer.

**B. Related Work Included Elsewhere**

1. General electrical work; Section 02730.
2. Electrical cable; Section 02735.
3. Steel lighting standards; Section 02760.
4. Aluminum lighting standards; Section 02761.

**C. Quality Assurance**

1. Inspection

The Engineer will inspect all materials and work to ensure compliance with the Contract Documents.

2. Illumination Testing

Prior to aiming the luminaires, the Contractor shall energize all units for a 12 hour "burn-in" period. All defective lamps, ballasts, and luminaires shall be replaced.

The average minimum horizontal foot-candles measured at ground level and the uniformity ratio shall be as specified in the "Special Provisions". The Contractor shall provide all services and perform all tests which are specified or required to demonstrate that the luminaires are installed and operating properly in the presence of the Engineer.

The Contractor shall provide the services of the lighting fixtures manufacturer's field representative to test and demonstrate that the lighting installation is in compliance with the Contract Documents.

Testing shall consist of ground-level measurement of lighting intensities at locations selected by the Engineer based on the computer printout. All test results shall be recorded in red ink on an approved copy of the computer printout.

**D. Submittals**

## 1. Shop Drawings

Shop drawings shall be submitted as specified in the "General Provisions" for all luminaires. The shop drawings shall include general product information, dimensional data, mounting procedures, wiring diagrams, parts list, and such other information as is specified in Section 02730.01 or as may be required to verify compliance with these Specifications.

The lighting system manufacturer shall provide a computer derived lighting layout showing point-by-point foot candle levels for the luminaire assembly at the locations specified in the "Special Provisions" or as shown on the Plans. The manufacturer shall also supply drawings showing the aiming point location of each luminaire.

## 2. Certificates of Compliance

Certificates of compliance shall be submitted as specified in the "General Provisions" for all luminaires stating that the materials furnished meet the requirements specified in Section 02762.02, the National Electrical Code, and NEMA Publication FL-1.

## 3. Manufacturer's Guarantee

## a. Luminaires

Luminaire assemblies shall be warranted in writing by the manufacturer for a period of 2 years. Any parts that are defective shall be replaced free of any material or labor charges to the County.

## b. Aiming Alignment

Aiming alignment of luminaire assemblies shall be warranted in writing for a period of 5 years.

**02762.02 MATERIALS****A. Materials Furnished by the County**

The County will not furnish any materials for luminaires.

**B. Contractor's Options**

Not applicable.

**C. Detailed Material Requirements**

## 1. General

All hardware shall be corrosion resistant and compatible with the item being installed. Luminaires and all necessary mounting hardware shall be produced by the same manufacturer.

## 2. Luminaire Assemblies

- a. Luminaire assemblies shall consist of lamp, lamp socket, reflector, lens, bulb cone, reinforcing retaining ring, adjustable aiming mounting device, ballast, integral wiring, and crossarms and pole clamps when required.
- b. The luminaire assembly shall be capable of withstanding forces equal to 125 mile per hour wind levels with a 1.3 gust factor without structural damages or misalignment of the luminaires.
- c. The reflector shall be fastened to the bulb cone with a reinforcing retaining ring containing an asbestos ring that centers and stabilizes the lamp in the reflector and provides a heat shield to protect the lamp socket from heat.
- d. A removable lens with silicone gasket shall be attached to the reflector and shall be impact and thermal resistant glass. The lens rim shall be stainless steel or equal and shall be attached to the reflector with hinged cable or chain.
- e. Each luminaire shall have an individual ballast located remote from the lamp.
- f. A Light Emitting Diode (LED) Roadway Luminaire shall be a complete lighting device consisting of a cast aluminum housing, LED arrays, LED drivers, terminal blocks, integral transformer, associated hardware, all necessary wiring, and an optical assembly. Each LED Roadway Luminaire shall have a NEMA 3-prong twist lock photo control receptacle and shall be furnished with a shorting cap.

**02762.03 EXECUTION****A. General**

Luminaires shall be installed as shown on the Plans or as directed by the Engineer. Luminaires shall be adjusted for maximum illumination and uniform dispersion on the pavement or sidewalk as directed by the Engineer.

**B. Wiring and Overcurrent Protection**

All wiring on the luminaire assemblies shall meet the requirements specified in Section 02730.03. Each luminaire shall have individual fuses or circuit breakers for overcurrent protection that shall be located in ballast boxes or in adjacent metal enclosures.

**C. Aiming**

The manufacturer shall factory-set each luminaire on the assembly based upon the computer calculated aiming information such that each assembly is delivered to the project site as one composite light source.

**D. Mounting**

The luminaires and/or luminaire assemblies shall be mounted as indicated in the Contract Documents and in accordance with the manufacturer's instructions.

**02762.04 METHOD OF MEASUREMENT**

Measurement for luminaires and luminaire assemblies will be made of the number of luminaires and/or luminaire assemblies furnished and satisfactorily installed in accordance with the Contract Documents.

**02762.05 BASIS OF PAYMENT**

Payment for luminaires and luminaire assemblies will be made at the price bid per each for the various types furnished and installed complete in place. The price bid shall include furnishing all materials, labor, equipment, and incidentals necessary to complete this item of work as shown and specified in strict accordance with the Contract Document.

END OF SECTION