

## **SECTION 412 -- LUMINAIRES**

### **412.01 -- Description**

The Contractor shall furnish and install luminaires of the size and type indicated in the plans.

### **412.02 -- Material Requirements**

Luminaires shall conform to the requirements in Section 1073.

### **412.03 -- Construction Methods**

1. The Contractor shall install luminaires in conformance with the manufacturer's recommendations.

2. Conventional Luminaires:

a. Unless indicated otherwise, luminaires shall be installed perpendicular to the centerline of the roadway being lighted.

b. The position of the lamp socket in each luminaire must be adjusted in accordance with the manufacturer's specifications to meet the photometric requirements shown in the plans.

c. Unless otherwise indicated in the plans or directed by the Engineer, luminaires will be installed level in both horizontal axes.

d. Each luminaire shall be fused. Fuses shall be installed in each hot leg using approved disconnect type in-line fuseholders. Fuseholders shall be located in the transformer base or the base of the pole.

e. The month and year of installation shall be permanently indicated on the base of each lamp at the location provided by the manufacturer.

3. High Mast Luminaires:

a. Luminaires shall be adjusted to proper alignment and orientation with respect to the roadway as shown in the plans.

b. All connections from the portable cable to the individual ballasts shall be made in the junction box located on the luminaire support assembly. When an electrical cable passes through any metal or pulley, a bushing shall be provided.

c. Each luminaire shall be fused by installing an in-line fuseholder in each hot leg. Fuseholders shall be located inside the luminaire.

d. Night inspection by the Engineer may determine the need for adjustments to the luminaires.

e. When shielding is required, shielding methods proposed must be approved by the NDR Lighting Engineer before any materials are installed. Unless indicated otherwise, external shields will not be allowed.

4. Wall Mounted/Underdeck/Overhead Luminaires:

a. Wall mounted/underdeck/overhead luminaires shall be installed as shown in the plans. Each luminaire shall be grounded.

b. Fuses shall be installed in each hot leg using approved in-line fuseholders located inside the units or in a junction box when so indicated in the plans.

c. Wall mounted/underdeck/overhead luminaires shall be adjusted for optimum light distribution as directed by the Engineer.

5. Sign Lighting Luminaires:

a. The sign lighting luminaires shall be mounted as shown in the plans and in accordance with the manufacturer's instructions.

b. The lamps shall be 150 W high pressure sodium or as shown in the plans.

c. All conductors shall be copper and shall be installed in conduit.

d. The feeder cable shall be a minimum 3.25 mm diameter THWN with a 30 ampere circuit breaker at the service entrance.

e. Each sign structure shall be controlled by a 15 ampere, 2 pole NEMA 3R breaker at a location convenient for luminaire maintenance.

f. Each sign structure shall have a photoelectric control mounted near the sign unless the sign luminaires are tied into the roadway lighting photocells.

g. The relays for switching the line current to the lighting fixtures shall be mounted near the circuit breaker or as directed by the Engineer.

6. Luminaire Conversion:

a. The Contractor shall install new luminaires with lamps on existing poles as indicated in the plans. The Contractor shall provide new internal pole and mast arm wiring with in-line fuse holders and fuses.

b. The existing luminaires will become the property of the Contractor and shall be removed from the project site.

c. The position of the lamp socket in each luminaire must be adjusted in accordance with the manufacturer's specifications to meet the photometric requirements shown in the plans.

d. Unless otherwise indicated in the plans or directed by the Engineer, luminaires will be installed level in both horizontal axes.

e. The month and year of installation shall be permanently indicated on the base of each lamp.

#### **412.04 -- Method of Measurement**

Luminaires, luminaire conversions, and wall mounted/underdeck/overhead luminaires shall be measured by the each.

#### **412.05 -- Basis of Payment**

- | 1. | <u>Pay Item</u>                  | <u>Pay Unit</u> |
|----|----------------------------------|-----------------|
|    | Luminaire, Type _____            | Each (ea)       |
|    | Underdeck Luminaire, Type _____  | Each (ea)       |
|    | Luminaire Conversion, Type _____ | Each (ea)       |
|    | High Mast Luminaire, Type _____  | Each (ea)       |
2. Payment is full compensation for all work prescribed in this Section.