

SECTION 265600 - EXTERIOR LIGHTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Furnishing exterior luminaires with lamps and ballasts, material only, to replace existing high pressure sodium luminaires in parking garages.

1.2 DEFINITIONS

- A. CCT: Correlated color temperature.
- B. CRI: Color-rendering index.
- C. ARRA: American Recovery and Reinvestment Act.
- D. LER: Luminaire efficacy rating.
- E. Luminaire: Complete lighting fixture, including ballast housing if provided.
- F. NRTL: Nationally Recognized Testing Laboratory.

1.3 ACTION SUBMITTALS

- A. Product Data: Include with bid, for each luminaire, arranged in order of lighting unit designation. Include data on features, accessories, finishes, and the following:
1. Physical description of luminaire, including materials, dimensions, effective projected area, and verification of indicated parameters.
 2. Details of attaching luminaires and accessories.
 3. Details of installation and construction.
 4. Photometric data based on laboratory tests of each luminaire type, complete with indicated lamps, ballasts, and accessories.
 - a. Testing Agency Certified Data: For indicated luminaires, photometric data shall be certified by a qualified independent testing agency. Photometric data for remaining luminaires shall be certified by manufacturer.
 - b. Manufacturer Certified Data: Photometric data shall be certified by manufacturer's laboratory with a current accreditation under the National Voluntary Laboratory Accreditation Program for Energy Efficient Lighting Products.
 5. Ballasts, including energy-efficiency data.
 6. Lamps, including life, output, CCT, CRI, lumens, and energy-efficiency data.

7. Means of attaching luminaires to supports, and indication that attachment is suitable for components involved.

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.

1.4 INFORMATIONAL SUBMITTALS

A. ARRA Compliance Statement (include with bid).

B. Qualification Data: For qualified agencies providing photometric data for lighting fixtures.

C. Warranty: Sample of special warranty.

1.5 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For luminaires to include in emergency, operation, and maintenance manuals.

1.6 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish unit prices for extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Lamps: Of each type and rating installed.
2. Glass and Plastic Lenses, Covers, and Other Optical Parts: Of each type and rating installed.
3. Ballasts: of each type and rating installed.

1.7 QUALITY ASSURANCE

A. Luminaire Photometric Data Testing Laboratory Qualifications: Provided by manufacturers' laboratories that are accredited under the National Volunteer Laboratory Accreditation Program for Energy Efficient Lighting Products.

B. Luminaire Photometric Data Testing Laboratory Qualifications: Provided by an independent agency, with the experience and capability to conduct the testing indicated, that is an NRTL as defined by OSHA in 29 CFR 1910.

C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

D. Comply with IEEE C2, "National Electrical Safety Code."

E. Comply with NFPA 70.

1.8 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace products that fail in materials or workmanship; that corrode; or that fade, stain, perforate, erode, or chalk due to effects of weather or solar radiation within specified warranty period. Manufacturer may exclude lightning damage, hail damage, vandalism, abuse, or unauthorized repairs or alterations from special warranty coverage.
1. Warranty Period for Luminaires: Five years from date of Substantial Completion.
 2. Warranty Period for Metal Corrosion: Five years from date of Substantial Completion.
 3. Warranty Period for Color Retention: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide products indicated in this specification.
1. ECO Lighting.
 2. Precision Paragon Lighting.
 3. MHT Lighting.
 4. Approved equal meeting specification requirements.

2.2 GENERAL REQUIREMENTS FOR LUMINAIRES

- A. Luminaires shall comply with UL 1598 and be listed and labeled for installation in wet locations by an NRTL acceptable to authorities having jurisdiction.
- B. Luminaires shall be ARRA compliant.
- C. Metal Parts: Free of burrs and sharp corners and edges.
- D. Sheet Metal Components: Corrosion-resistant aluminum unless otherwise indicated. Form and support to prevent warping and sagging.
- E. Housings: Rigidly formed, weather- and light-tight enclosures that will not warp, sag, or deform in use.
- F. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions. Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position. Doors shall be removable for cleaning or replacing lenses.
- G. Exposed Hardware Material: Stainless steel.
- H. Plastic Parts: High resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.

- I. Reflecting surfaces shall have minimum reflectance as follows unless otherwise indicated:
 - 1. White Surfaces: 85 percent.
 - 2. Specular Surfaces: 83 percent.
 - 3. Diffusing Specular Surfaces: 75 percent.
- J. Lenses and Refractors Gaskets: Use heat- and aging-resistant resilient gaskets to seal and cushion lenses and refractors in luminaire doors.
- K. Luminaire Finish: Manufacturer's standard paint applied to factory-assembled and -tested luminaire before shipping. Finish shall be dark bronze, chip resistant, TGIC powder polyester coating, electrostatically applied and baked.
- L. Factory-Applied Labels: Comply with UL 1598. Include recommended lamps and ballasts. Labels shall be located where they will be readily visible to service personnel, but not seen from normal viewing angles when lamps are in place.
 - 1. Label shall include the following lamp and ballast characteristics:
 - a. "USES ONLY" and include specific lamp type.
 - b. Lamp diameter code (T-4, T-5, T-8, T-12), tube configuration (twin, quad, triple), base type, and nominal wattage for fluorescent and compact fluorescent luminaires.

2.3 INDUCTION TYPE FLUORESCENT BALLASTS AND LAMPS

- A. Ballasts for Low-Temperature Environments:
 - 1. Temperatures minus 20 Deg F and Higher: Electronic type rated for minus 20 Deg F starting and operating temperature with indicated lamp types.
- B. Ballast Characteristics:
 - 1. Power Factor: 90 percent, minimum.
 - 2. Sound Rating: Class A.
 - 3. Total Harmonic Distortion Rating: Less than 20 percent.
 - 4. Transient-Voltage Protection: Comply with IEEE C62.41.1 and IEEE C62.41.2, Category A or better.
 - 5. Voltage: 120-277 volts, AC.
- C. Low-Temperature Lamp Capability: Rated for reliable starting and operation with ballast provided at temperatures minus 20 deg F and higher.
 - 1. Lamp Life: 100,000 hours at 10 hours per start average.
 - 2. Lamp CRI: 80 minimum.
 - 3. Lamp Color Temperature: 4000 – 4100K

D. Nominal System Wattages:

1. Luminaires shall be lamped with nominal wattages per the following chart to replace existing high pressure sodium fixtures.

| High Pressure Sodium Lamp Wattage | Induction Lamp Wattage |
|--------------------------------------|---------------------------|
| 250 W | 150 W |
| 150 W | 100 W |
| 100 W | 70 W |

2.4 LUMINAIRE TYPES

- A. Ceiling mounted type with pendant mount option, hardwired, vandal resistant polycarbonate, prismatic refractor, IP43 rated minimum. Lamp wattage shall be per Lamp Wattage Table in this specification.
- B. Wall mounted, wall pack style, vandal resistant polycarbonate, prismatic refractor, IP54 rated minimum. Lamp wattage shall be per Lamp Wattage Table in this specification.
- C. Pole mount style, cut off type area light with pole mount bracket, tempered glass lens, IP65 rated minimum. Lamp wattage shall be per Lamp Wattage Table in this specification.
- D. Provide unit prices for each type and wattage of luminaires.
- E. Provide a unit price for a pole mount type area light minimum 21000 lamp lumen output for evaluation.

PART 3 - EXECUTION

Not Applicable

END OF SECTION 265600