

SECTION 4400 LIGHTING

1.00 GENERAL

1.01 Scope. Provide lighting in accordance with the Contract Documents.

1.02 Submittals.

A. Shop Drawings: Provide shop drawings as specified of the following items:

1. Each lighting fixture.
2. All poles.

2.00 PRODUCTS

2.01 Exterior Lighting Fixtures.

A. General

1. The Contractor shall provide a complete lighting system using the luminaries detailed in the plans or approved substitutes. Luminaries shall bear the UL label. All metal parts shall be continuously grounded. At the time of final inspection, the lighting system shall be clean and in "first-class" condition. Repair or replace damaged luminaries at the Architect's discretion.
2. Exterior lighting fixtures, raceways, equipment, etc. shall be weatherproof and suitable for temperatures down to -20°F.

B. Luminaire (Type "A1")

1. General: The luminaire shall consist of three basic elements; enclosure, ballast/support assembly and refractor assembly. The elements shall be designed for expedient field assembly and maintenance with common tools and shall be individually and securely packaged such that they are resistant to rough handling in transit.
2. Prismatic Refractor: The refractor shall consist of one piece of Borosilicate glass so as to provide lamp obscuration, and precise control of cutoff and light distribution (see photometric specification for details). The total assembly shall be assembled and held in position by means of a fabricated coated steel support assembly. The refractor assembly shall attach to the ballast/support assembly by means of a fitter base.
3. Enclosure: The enclosure shall be 14" seamless, smoked UV stabilized, polycarbonate cube with a minimum wall thickness of 0.100 to 0.125" uniform. The enclosure shall be designed so that it can be securely attached to the ballast/support assembly.
4. Optical Assembly: The optical system shall consist of the refractor assembly described above. In addition to servicing the light control function, the

refractor itself shall serve as an intrinsic visual element of the luminaire design.

5. **Ballast/Support Assembly:** The ballast/support assembly shall consist of a cast aluminum support bowl and neck welded to a cast aluminum slipfitter designed to accommodate either a 2-3/8" O.D. or 3" O.D. x 4" high pole tenon. Recessed allen head set screws, oriented 120° apart, shall be included to securely fasten the assembly to the pole tenon. The cast aluminum slipfitter shall have a 4" O.D. and shall be designed for aesthetically clean integration with a 4" O.D. pole.

The support bowl shall contain a cast aluminum clamping ring working in conjunction with a gasketed supporting surface within the bowl to provide a secure, weatherproof, bug-resistant seal when assembled to the enclosure. The clamping mechanism shall be operated by means of recessed allen head screws located at 180° extending through the support bowl into the clamping ring.

The support bowl shall also contain the ballast and socket. The ballasts components shall be mounted within the support bowl and shall be concealed by means of a two-piece fabricated aluminum housing, painted a natural aluminum color for appearance. The lamp socket shall be affixed to the assembly.

6. **Photometric Performance:** The lighting system when installed shall meet the requirements specified herein. Individual luminaries comprising the system shall perform in accordance with the candlepower table referenced below. Also, the individual luminaries are to specifically meet the following critical performance criteria.

<u>Angle</u>	<u>Candlepower</u>	<u>Angle</u>	<u>Candlepower</u>
0°	209	50°	200
5°	191	55°	238
10°	200	60°	298
15°	191	65°	334
20°	155	70°	343
25°	128	75°	325
30°	113	80°	277
35°	113	85°	218
40°	131	90°	140
45°	167	85°	218
50°	200		
55°	238	90°	140
60°	298		

7. **Electrical:** The luminaire shall be UL listed and carry a label suitable for outdoor wet locations.

The luminaire ballast support assembly shall be prewired with three Type SFF-2 silicon insulated stranded wires rated for 150°C. Leads shall be

brought out through the slipfitter with at least 12" extending to facilitate line connection.

8. Finish: The luminaire shall be finished with a premium, abrasion and fade-resistant, electrostatically applied, oven cured, polyester powder coating. The color of the powder coating shall be bronze. All hardware shall be stainless steel or coated for corrosion resistance.
- C. Lamps: Lamps shall be of the size and type indicated on the plans and the luminaire schedule. Lamp codes listed are ANSI.
- D. Ballasts: High intensity discharge ballasts shall be high power factor, constant wattage autotransformer type suitable for -20°F. HPS ballasts with $\pm 5\%$ line voltage regulation shall provide lamp wattage within the ANSI C78.1354 trapezoidal limitations. Ballasts shall be manufactured by Universal or an approved equivalent (General Electric or Advance).
- E. Poles and Standards:
1. General: Contractor shall provide extruded aluminum poles as herein specified and as detailed on the plans.
 2. Pole: Square straight extruded aluminum poles shall be anodized in dark bronze to match the luminaire. Pole shall contain a hand hole at the base, with an accessible ground lug capable of accepting up to #4 AWG stranded wire. Pole shall be furnished complete with base, anchor bolts, template and any other hardware necessary for the interface of the pole/luminaire or pole/base. Pole shall have two single weatherproof receptacles, one at the top of the pole, the other directly above the hand hole shall be mounted flush in the pole (see plans for mounting detail).

3.00 EXECUTION

3.01 Exterior Lighting.

- A. Concrete base shall be by General Contractor. The electrical contractor shall be responsible for the coordination of conduit and anchor bolts associated with the bases. An anchor bolt template shall be furnished to the Architect within 30 days of the signing of the contract. Provide conduit in and out of the base to a point 5'0" beyond the base.
- B. The entire assembly (base, pole, brackets and luminaries) shall be designed to withstand 100 MPH winds.

End of Section