

SECTION 26 56 00**EXTERIOR LIGHTING****PART 1 - GENERAL****1.1 DESCRIPTION**

- A. This section specifies the furnishing, installation, and connection of exterior luminaries, controls, poles and supports.

1.2 RELATED WORK

- A. Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS: General electrical requirements and items that are common to more than one section of Division 26.
- B. Section 26 05 33, RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS: Conduits, fittings, and boxes for raceway systems.
- C. Section 26 05 21, LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES (600 VOLTS AND BELOW): Low voltage power and lighting wiring.
- D. Section 26 05 41, UNDERGROUND ELECTRICAL CONSTRUCTION: Underground handholes and conduits.
- E. Section 26 05 26, GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS: Requirements for personnel safety and to provide a low impedance path for possible ground fault currents.

1.3 SUBMITTALS

- A. Submit in accordance with Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS.
- B. Shop Drawings:
 - 1. Sufficient information, clearly presented, shall be included to determine compliance with drawings and specifications.
 - 2. Include electrical ratings, dimensions, mounting, details, materials, required clearances, terminations, wiring and connection diagrams, photometric data, ballasts, poles, luminaries, lamps and controls.
- C. Manuals: Two weeks prior to final inspection, submit four copies of operating and maintenance manuals to the VA. Include technical data sheets, wiring and connection diagrams, and information for ordering replacement parts.

1.4 APPLICABLE PUBLICATIONS

- A. Publications listed below (including amendments, addenda, revisions, supplements and errata) form a part of this specification to the extent referenced. Publications are referenced in the text by the basic designation only.
- B. Aluminum Association Inc. (AA):
 - 1. AAH35.1-2006 Alloy and Temper Designation Systems for Aluminum
- C. American Association of State Highway and Transportation Officials (AASHTO):
 - 1. LTS-4-2003 Structural Supports for Highway Signs, Luminaries and Traffic Signals
- D. American Concrete Institute (ACI):
 - 1. 318-2005 Building Code Requirements for Structural Concrete
- E. American National Standards Institute (ANSI):
 - 1. C57.12-2000 General Requirements For Liquid-Immersed Distribution, Power, and Regulating Transformers
 - 2. C81.61-2005 Electrical Lamp Bases
- F. American Society for Testing and Materials (ASTM):
 - 1. A123/A123M-2002 Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
 - 2. A153/A153M-2001 Zinc Coating (Hot-Dip) on Iron and Steel Hardware - AASHTO No.: M232
 - 3. B108-03a -2003 Aluminum-Alloy Permanent Mold Castings
 - 4. D3487-2000 Mineral Insulating Oil Used in Electrical Apparatus
- G. Federal Aviation Administration (FAA):
 - 1. AC 70/7460-IK CHG 1-2000 Obstruction Lighting and Marking
 - 2. AC 150/5345-43E-1995 Specification for Obstruction Lighting Equipment
- H. Illuminating Engineering Society of North America (IESNA)
 - 1. HB-9-2000 Lighting Handbook
 - 2. RP-8-2000 (R-2005) Roadway Lighting
- I. National Electrical Manufacturers Association (NEMA):
 - 1. C78.41-2001 Electric Lamps - Guidelines for Low-Pressure Sodium Lamps
 - 2. C78.42-2004 Electric Lamps - Guidelines for High-Pressure Sodium Lamps
 - 3. C78.43-2005 Electric Lamps - Single-Ended Metal-Halide Lamps

4. C78.1381-1998 (R 1997) Electric Lamps - 70-Watt M85 Metal-Halide Lamps
 5. C82.4-2002 Ballasts for High-Intensity-Discharge and Low-Pressure Sodium Lamps (Multiple-Supply Type)
 6. C136.17-2005 Roadway Lighting Equipment - Enclosed Side-Mounted Luminaires for Horizontal-Burning High-Intensity-Discharge Lamps
 7. ICS 2-2005 Industrial Control and Systems Controllers, Contactors and Overload Relays Rated 600 Volts
 8. ICS 6-2001 Industrial Control and Systems Enclosures
- J. National Fire Protection Association (NFPA):
1. 70-2005 National Electrical Code (NEC)
- K. Underwriters Laboratories, Inc. (UL):
1. 496-2004 Edison-Base Lamp holders
 2. 773-1995 Plug-in, Locking Type Photo controls, for Use with Area Lighting
 3. 773A-2006 Non-industrial Photoelectric Switches for Lighting Control
 4. 1029-1994 High-Intensity-Discharge Lamp Ballasts
 5. 1598-2004 Luminaires

PART 2 - PRODUCTS

2.1 MATERIALS AND EQUIPMENT

- A. Materials and equipment shall be in accordance with NEC, UL, ANSI, and as shown on the drawings and specified.

2.2 LUMINAIRES

- A. UL 1598 and NEMA C136.17. Luminaires shall be weatherproof, heavy duty, outdoor types designed for efficient light utilization, adequate dissipation of lamp and ballast heat and safe cleaning and relamping.
- B. IESNA HB-9 and RP-8 light distribution pattern types shall be as shown on the drawings.
- C. Incorporate ballasts in the luminaire housing except where otherwise shown on the drawings.
- D. Lenses shall be frame-mounted heat-resistant, borosilicate glass, prismatic refractors. Attach the frame to the luminaire housing by hinges or chain. Use heat and aging resistant resilient gaskets to seal and cushion lenses and refractors in luminary doors.
- E. Lamp sockets for high intensity discharge (H.I.D) fixture shall have locking type porcelain enclosures in conformance to the applicable

requirements of ANSI C81.61 and UL 496.

- F. Pre-wire internal components to terminal strips at the factory.
- G. Bracket mounted luminaries shall have leveling provisions and clamp type adjustable slip-fitters with locking screws.
- H. Materials shall be rustproof. Latches and fittings shall be non-ferrous metal.

2.3 LAMPS

- A. Install the proper lamps in every luminaire installed and every luminaire relocated or reinstalled .
- B. Lamps to be general-service, outdoor lighting types.

2.4 EXISTING LIGHTING SYSTEMS

- A. For modifications or additions to existing lighting systems, the new components shall be compatible with the existing systems.
- B. New poles and luminaries shall have approximately the same configurations and dimensions as the existing poles and luminaries except where otherwise shown on the drawings.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install lighting in accordance with the NEC, as shown on the drawings, and in accordance with manufacturer's recommendations.
- B. Photocell Switch Aiming: Aim switch according to manufacturer's recommendations. Mount switch on or beside each luminaire when switch is provided in cast weatherproof aluminum housing with swivel arm.

3.2 GROUNDING

- A. Ground noncurrent-carrying parts of equipment including metal poles, luminaries, mounting arms, brackets, and metallic enclosures as specified in Section 26 05 26, GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS. Where copper grounding conductor is connected to a metal other than copper, provide specially treated or lined connectors suitable and listed for this purpose.

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