

LUMINAIRES

MONTGOMERY COUNTY, MARYLAND
DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING AND OPERATIONS
JUNE 2016
BETHESDA LANTERN LUMINAIRE

1) PURPOSE

The purpose of these specifications is to prescribe the minimum requirements for the design, manufacture, fabrication, finishing and delivery of Bethesda Lantern luminaire. The Bethesda Lantern luminaires are intended for use in urban streetscape areas. Any manufacturer, distributor or vendor who submits a bid shall agree to comply with these specifications and attached drawings.

2) DESCRIPTION

This luminaire shall be an outdoor decorative post top fixture, cylindrical in shape with and overall height of 45.75 inches and a maximum width of 19.25 inches at top and bottom (see attached drawings). All exterior and structural parts shall be cast of aluminum alloy. Exterior castings shall be cast in one piece, have a smooth surface finish, and be free of mold lines. All components shall fit together snugly so as to provide weather-proof joints in the luminaire top. Weep holes shall be drilled in the casting around the top floral crown and in the cable trim molding around the base of the acrylic cylindrical lens. All visible metal components shall have raised surface decorations or ribs, as shown on the attached drawings, that are molded integrally with the base piece. Likewise, the hinges between the top and main body as well as between the ballast cover and the base shall be cast integrally with the piece or bolted through the base piece. All metal parts shall be corrosion-proof. The luminaire shall come ready for quick and easy field assembly or fully assembled and shall include the following components:

- a) Lamp;
- b) Button type photoelectric cell installed on the ballast cover;
- c) All necessary hardware and fasteners to assemble and secure on a 2 7/8 inch nominal diameter cast iron or aluminum tenon.

The luminaire must be able to accommodate lamps and ballast for High Pressure Sodium Vapor (HPSV) from 150 watt to 250 watt.

3) LENS

The lens shall consist of a seamless clear acrylic extrusion, not subject to deterioration by natural, HPSV light. The lens shall be 16 inches in diameter and 0.25 inches thick with continuous neoprene waterproof gaskets at both top and bottom. The gaskets shall fit into grooves molded into both top and bottom or over retaining rings molded inside the top and bottom plates.

4) TOP FLORAL CROWN

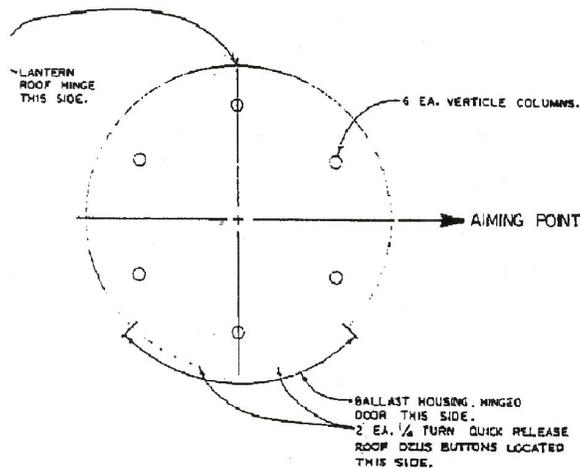
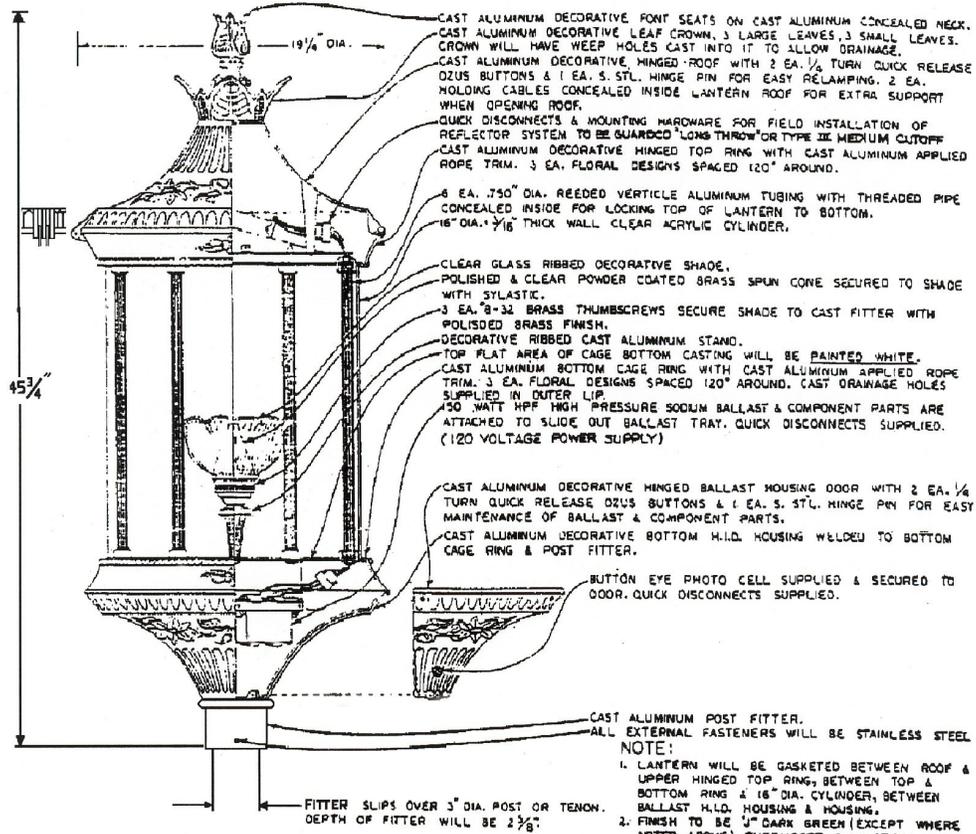
Refer to the attached drawings.

5) INTERIOR SUPPORT COLUMNS

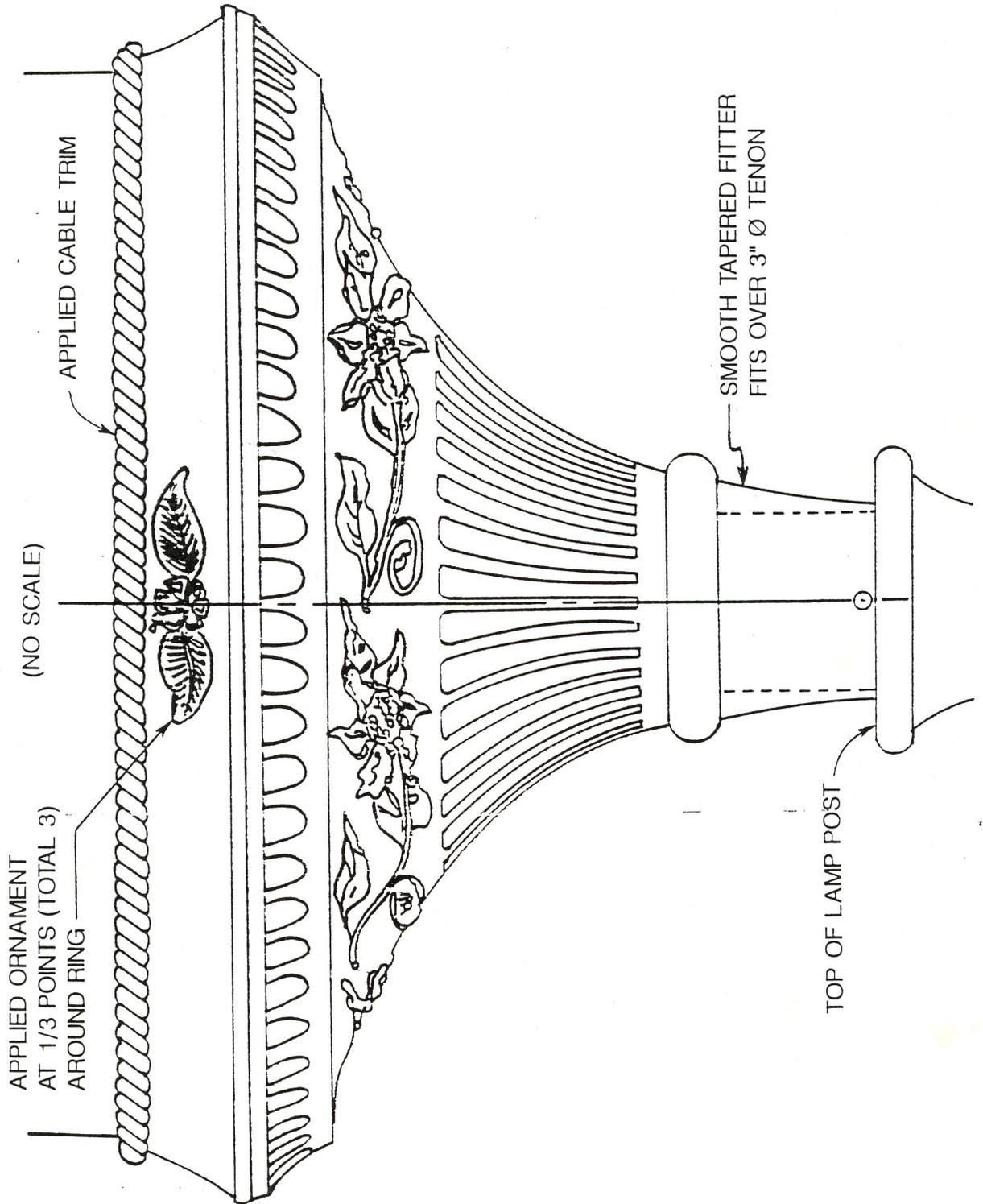
- The interior support columns shall consist of six (6) in number, 0.75 inch in diameter with ribbed surfaces. Plain circular rings shall be visible at both top and bottom.
- 6) INTERIOR ORNAMENT
The interior ornament shall be four pieces consisting of a ribbed, molded support column, a molded clear glass shade, a brass finished cup supporting the shade, and a conical brass colored center reflector, as per the attached drawings.
- 7) BALLAST COVER
The ballast cover shall be either hinged and removable or attached to the ballast carrier or frame. The cover shall be fastened by two (2) quarter-turn captive fasteners.
- 8) BALLAST
The ballast shall be an auto regulator type, 120 volt supply for 150 watt HPSV. The ballast shall be fastened by two captive fasteners and have polarized quick disconnect electrical connections. Ballast carrier shall be capable of accommodating up to 250 watt HPSV ballast.
- 9) HINGED LUMINAIRE TOP
The hinged luminaire top shall consist of the reflector/lamp assembly and all exterior components visible in plain view above the lens. The hinge must have a minimum of five (5) lugs and be semi-concealed. The top shall be fully removable and have two (2) captive quarter turn fasteners. The top must have an attached, removable brace to support the top when open.
- 10) REFLECTOR ASSEMBLY
The reflector assembly shall be interchangeable between a "GARDCO long throw" or a type III medium cutoff. Reflectors shall have polarized quick-disconnect connections. The reflector shall be positively retained in the top with captive fasteners. Reflective surfaces must be "ALGLAS" or equivalent aluminum. The reflector must be rotatable to 360 degrees.
- 11) LAMP
The lamp shall be 150 watt or 250 watt High Pressure Sodium Vapor (HPSV). Refer to ANSI Code 555SC-150.
- 12) PHOTOCELL
The photocell shall be a "Button" type: 3,000 tork or equal, mounted on the ballast cover.
- 13) EXTERIOR FINISH
The exterior finish shall be "Federal Green" Federal Standard 595B Color # 14036 or equal electrostatically-applied thermoset polyester powder coat with the following exceptions:
1. The surround of the lamp's reflector shall be painted white.
 2. The interior ornament's support cup and reflecting cone shall have a brass-toned electrostatically applied polyester powder coat.

SPECIFICATIONS FOR STREETLIGHT HARDWARE

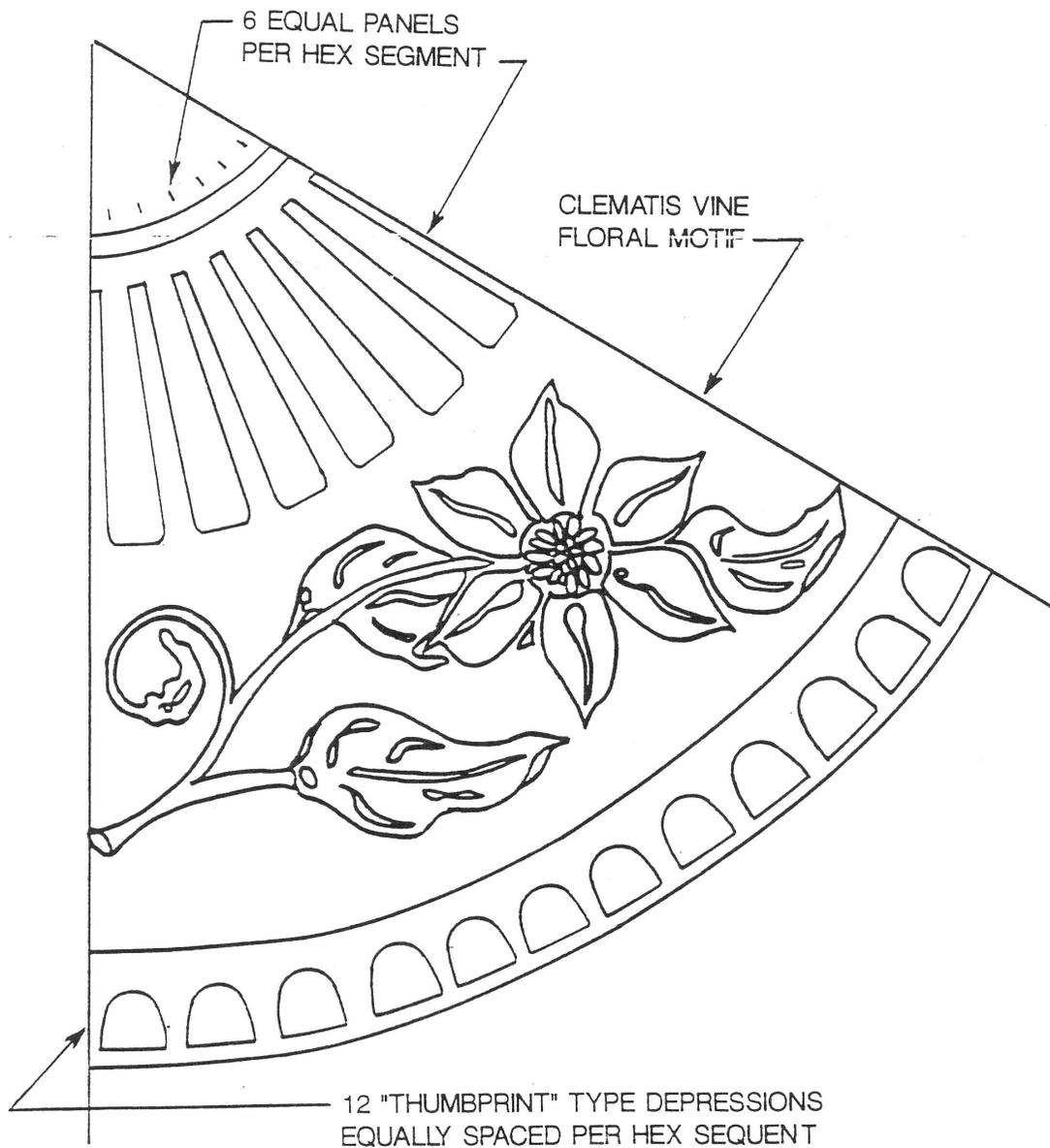
IFB # 1063092



CASTING PATTERN
BETHESDA LANTERN
ELEVATION OF BOTTOM



CASTING PATTERN
TYPICAL HEX SEQUENT
BETHESDA LANTERN
(NO SCALE)



MONTGOMERY COUNTY, MARYLAND
DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING AND OPERATIONS

JUNE 2016

RECESSED OR SURFACE MOUNTED
DIRECTIONAL LUMINAIRE SPECIFICATIONS

1) PURPOSE

The purpose of these specifications is to prescribe the minimum requirements for the design, manufacture, fabrication, finishing and delivery of recessed/surface mounted luminaire. The recessed/surface mounted directional luminaires are intended for use in areas that require low level lighting with elongated symmetrical distribution and shallow forward lighting (i.e. high pedestrian traffic areas, streetscape areas) mounted in or on concrete walls. Any manufacturer, distributor or vendor who submits a bid shall agree to comply with these specifications and attached drawings.

2) DESCRIPTION

This luminaire shall be an outdoor fixture, rectangular in shape with an overall height of 11 ¼ inches, a width of 12 ¼ inches and a depth of 6 ¼ inches. All exterior and structural parts shall be of cast aluminum alloy. All components shall fit together snugly so as to provide a weatherproof joint between the luminaire and the molded acrylic lens. All metal parts shall be corrosion-proof. The luminaire shall come ready for quick and easy field assembly or fully assembled and shall include the following components:

- a) Lamp
- b) Multi-tap ballast
- c) All necessary hardware and fasteners to assemble and install on and/or into walls concrete prior to concrete placement.

The luminaire housing must be able to accommodate lamps and ballast for 35, 50, 70, 100 watt High Pressure Sodium Vapor (HPSV) or 35, 50, 70 or 100 watt Metal Halide.

3) HOUSING

The housing shall be a one-piece die cast aluminum and include apertures for access the electrical connections in all mounting positions. The housing shall be U.L. and C.S.A. listed and approved for use in "Outdoor Wet Areas". Flush cover plates and gaskets shall be provided to seal unused aperture. The housing shall not exceed 11¼ inches by 12¼ inches by 6¼ inches.

4) LENS

The lens shall be a vandal resistant one-piece injection molded clear acrylic not subject to deterioration by UV light with a masked upper portion to shield the lamp at normal viewing angles. The lens shall be secure by four tamper resistant stainless steel screws, retained by a drop hinge when opened. The lens shall have a continuous neoprene waterproof gasket. The gasket shall fit into groves molded into the housing plate.

5) BALLAST

The ballast shall be an auto regulator or multi-tap style to accept a 120-volt power supply. The ballast shall be fastened by two captive fasteners and have polarized quick disconnect electrical connections. Ballast carrier shall be capable of accommodating up to 100 watt HPSV or MH ballast.

6) REFLECTOR ASSEMBLY

The reflector assembly shall be a two-piece assembly a primary reflector and a secondary reflector consisting of the following items:

6.1) The primary reflector shall be a hydroformed, reflector mounted to the aluminum housing by four screws.

6.2) The secondary reflector shall be mounted to the acrylic lens by four permanent anchor clips.

7) LAMP

The luminaire may be used with wattage as follows:

ANSI Code – 35, 50, 70, 100 watt High Pressure Sodium Vapor (HPSV), with medium base ED-17 socket;

ANSI Code – 35, 50, 70, 100 watt Metal Halide (MH), with medium base ED-17 socket, as specified

8) PHOTOCELL

The photocell shall be NEMA twist lock for a surface mounted luminaire or mounted on the light adjacent to a recessed mounted luminaire.

9) EXTERIOR FINISH

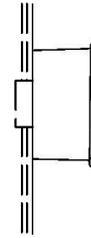
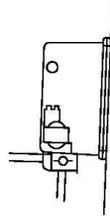
The finish shall consist of a primary protective polymer primer, deionized water rinse, oven dry off and final coating with a exterior electrostatically-applied thermoset polyester powder coat finish or equal. The luminaire shall be "Federal Semi-Gloss Black" Federal Standard 595B Color # 27040.

SPECIFICATIONS FOR STREETLIGHT HARDWARE

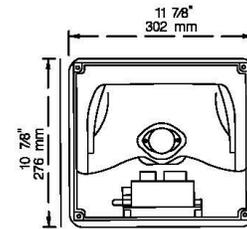
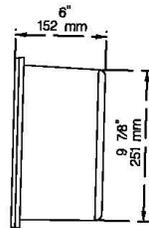
IFB # 1063092

SPECIFICATIONS FOR STREETLIGHT HARDWARE

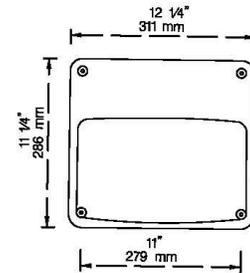
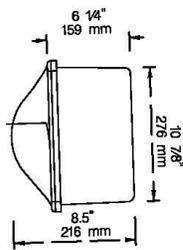
MOUNTING OPTIONS



HOUSING



LENS



MONTGOMERY COUNTY
DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING AND OPERATIONS
JUNE 2016

COLONIAL POST-TOP, RESIDENTIAL,
SEMI CUT-OFF, TYPE III DISTRIBUTION, STYLE LUMINAIRE

1) PURPOSE

The purpose of these specifications is to prescribe the minimum requirements for the design, manufacture, fabrication, finishing and delivery of colonial post-top, semi cut-off, type III distribution, style luminaire. This luminaire is intended for use on or with the black fiberglass pole. These colonial post-tops, semi cut-off, type III distribution, style luminaires are intended for use along residential roadways, walkways, and tunnels throughout Montgomery County. Any manufacturer, distributor or vendor who submits a bid shall agree to comply with these specifications and attached drawings.

2) DESCRIPTION

The residential, colonial post-top, type III distribution, style luminaire is made of a cast aluminum base with an aluminum reflector installed in the canopy.

Each streetlight luminaire shall include the following:

- a) Cast aluminum housing and hinged top canopy;
- b) 120 volt ballast;
- c) Lamp with Mogul style base socket;
- d) NEMA standard photoelectric control receptacle on the top cover of the luminaire;
- e) NEMA multi-volt standard photocell;
- f) Acrylic or Polycarbonate resin refractor side panels (lens);
- g) Internal aluminum reflector (Type III);
- h) All necessary hardware required for mounting on fiberglass poles, as specified.

3) DESIGN CRITERIA

3.1) AASHTO Standards

The luminaire shall meet the requirements of American Association of State Highway and Transportation Officials (AASHTO) Standard, "Specification for Structural supports for Highway Signs, Luminaires and Traffic Signals," latest edition.

3.2) Shape and Minimum Size

- a) The luminaire shall be of a trapezoidal shape. The minimum size for the luminaire shall 40.0 inches (sum of the length plus height), when viewed from the side.

- b) The luminaire shall be suitable to accommodate either 70 watt, 100 watt, or 150 watt, High Pressure Sodium Vapor (HPSV) ballast and lamp.

3.3 Effective Projected Area (EPA)

The luminaire shall have a maximum estimated allowable EPA for the luminaire of three (3) +/- square feet.

3.4 Finish

The luminaire shall have a black polyester powder coat finish. During the finishing process, all critical openings shall be plugged to prevent contamination of the threads or reduction of other critical openings.

4) MATERIALS

4.1 Housing

The luminaire shall consist of a water tight housing fabricated from die-cast aluminum with a gasketed die-cast aluminum canopy. The canopy shall be hinged on one side and secured on the opposite side with a captive stainless steel screw. All castings used to fabricate the luminaire housing shall be clean and smooth with details defined and true to pattern. The housing shall be suitable to accommodate 70 watt, 100 watt, or 150 watt High Pressure Sodium Vapor (HPSV) ballast and lamp.

4.2 Ballast

The ballast shall be mounted to facilitate easy removal for maintenance or conversion to a different ballast. All electrical connections shall be polarized and of plug-in design. The ballast shall be wired to receive 120 volt AC current. The ballast shall reliably start and operate the lamp in ambient temperatures down to minus 30 degrees.

4.3 Lamp

The luminaire may be used with any of three (3) lamp wattages as follows:

ANSI Code - 70 watt (HPSV), with Mogul base socket;

ANSI Code - 100 watt (HPSV), with Mogul base socket;

ANSI Code - 150 watt (HPSV), with Mogul base socket; or as specified.

4.4 Photoelectric Cell

The photocell receptacle shall be mounted on the top of the hinged canopy. The photocell shall be of the NEMA twist-lock type and shall include a cover for the photocell.

4.5 Side refractor panels

The luminaire shall be equipped with acrylic or polycarbonate resin refractor panels, with spring loaded retainer clips to hold refractor panels.

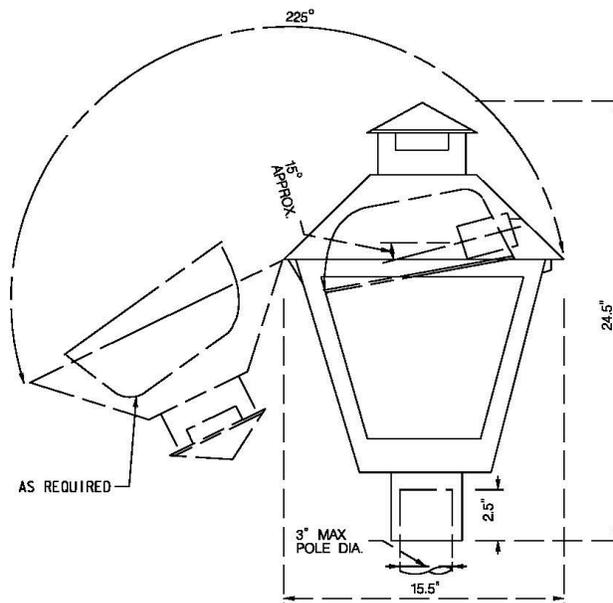
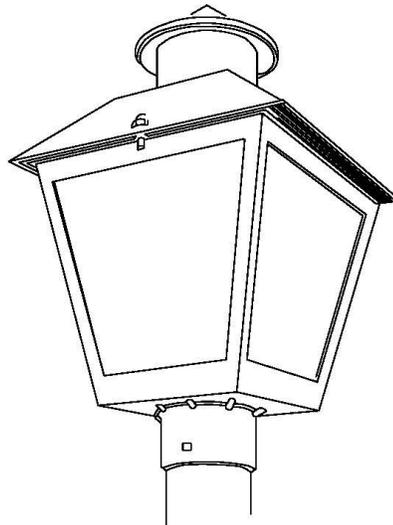
4.6 Reflector

The luminaire shall contain a one-piece aluminum sheet reflector, mounted in the canopy. The reflector shall have a type III distribution pattern, with a anodized process finish ("Alzak" or equivalent type anodic process).

SPECIFICATIONS FOR STREETLIGHT HARDWARE

IFB # 1063092

SPECIFICATIONS FOR STREETLIGHT HARDWARE



MONTGOMERY COUNTY
DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING AND OPERATIONS
JUNE 2016

CONTEMPORARY POST-TOP, RESIDENTIAL,
TYPE III DISTRIBUTION, STYLE LUMINAIRE

1) PURPOSE

The purpose of these specifications is to prescribe the minimum requirements for the design, manufacture, fabrication, finishing and delivery of the contemporary post-top, type III distribution style luminaire. This luminaire is intended for use with the gray fiberglass pole. These contemporary post-top, type III distribution style luminaires are intended for use along residential roadways, walkways, and tunnels throughout Montgomery County. Any manufacturer, distributor or vendor who submits a bid shall agree to comply with these specifications and attached drawings.

2) DESCRIPTION

The residential, contemporary post-top, type III distribution style luminaire is made of a die-cast aluminum base with a cover canopy and prismatic reflector lens.

Each streetlight luminaire shall include the following:

- a) Cast aluminum base and stainless steel or spun aluminum canopy;
- b) 120 volt ballast;
- c) Lamp with Mogul style base socket;
- d) NEMA standard photoelectric control receptacle in the canopy of the luminaire;
- e) NEMA multi-volt standard photocell;
- f) Acrylic or Polycarbonate resin prismatic refractor panel (lens);
- g) All necessary hardware required for mounting on poles, as specified.

3) DESIGN CRITERIA

3.1 AASHTO Standards

The luminaire shall meet the requirements of American Association of State Highway and Transportation Officials (AASHTO) Standard, "Specification for Structural supports for Highway Signs, Luminaires and Traffic Signals," latest edition.

3.2 Shape and Minimum Size

- a) The luminaire shall be of a trapezoidal shape. The minimum size for the luminaire shall be 42.0 inches \pm 1 inch (sum of the length plus height), when viewed from the side.
- b) The luminaire shall be suitable to accommodate either 70 watt, 100 watt, or 150 watt, High Pressure Sodium Vapor (HPSV) ballast and lamp.

3.3 Effective Projected Area (EPA)

The luminaire shall have a maximum allowable EPA for the luminaire of three (3) square feet.

3.4 Finish

The luminaire shall have a spun aluminum or stainless steel finish or a gray polyester powder coat finish. During the finishing process, all critical openings shall be plugged to prevent contamination of the threads or reduction of other critical openings.

4) MATERIALS

4.1 Housing

The luminaire shall consist of a water tight housing fabricated from cast aluminum, heavy gauge gasketed spun aluminum canopy, and stainless steel latches or set screws. All castings used to fabricate the luminaire housing shall be clean and smooth, with details defined and true to pattern. The housing shall be suitable to accommodate 70 watt, 100 watt, or 150 watt High Pressure Sodium Vapor (HPSV) ballast and lamp.

4.2 Ballast

The ballast shall be mounted to facilitate easy removal for maintenance or conversion to a different ballast. All electrical connections shall be polarized and of a plug-in design. The ballast shall be wired to receive 120 volt AC current. The ballast shall reliably start and operate the lamp in ambient temperatures down to minus 30 degrees.

4.3 Lamp

The luminaire may be used with any of three (3) lamp wattages as follows

ANSI Code - 70 watt (HPSV), with Mogul base socket;

ANSI Code - 100 watt (HPSV), with Mogul base socket;

ANSI Code - 150 watt (HPSV), with Mogul base socket; or as specified.

4.4 Photoelectric Cell

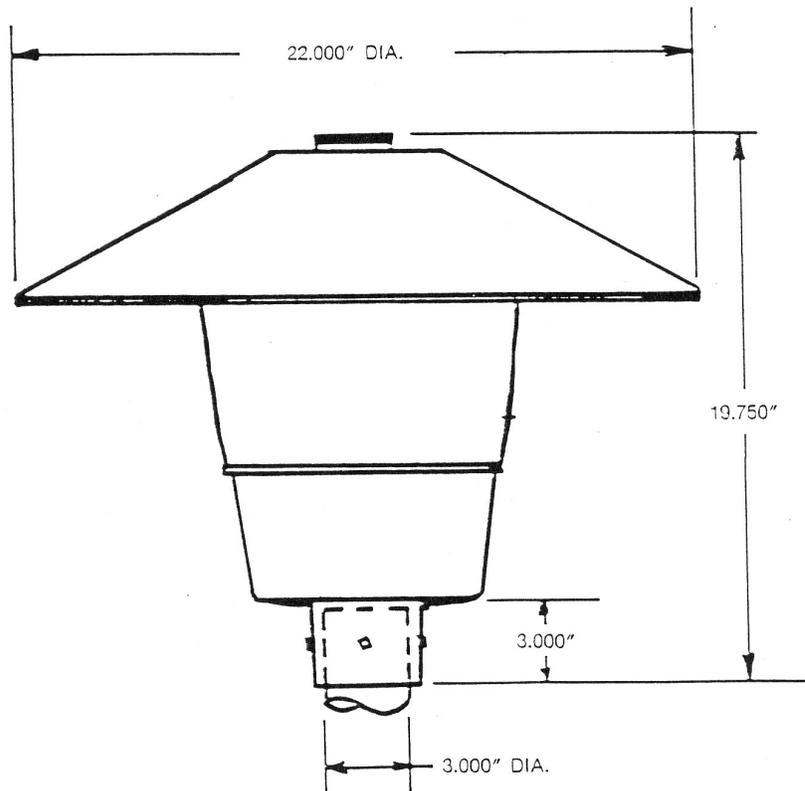
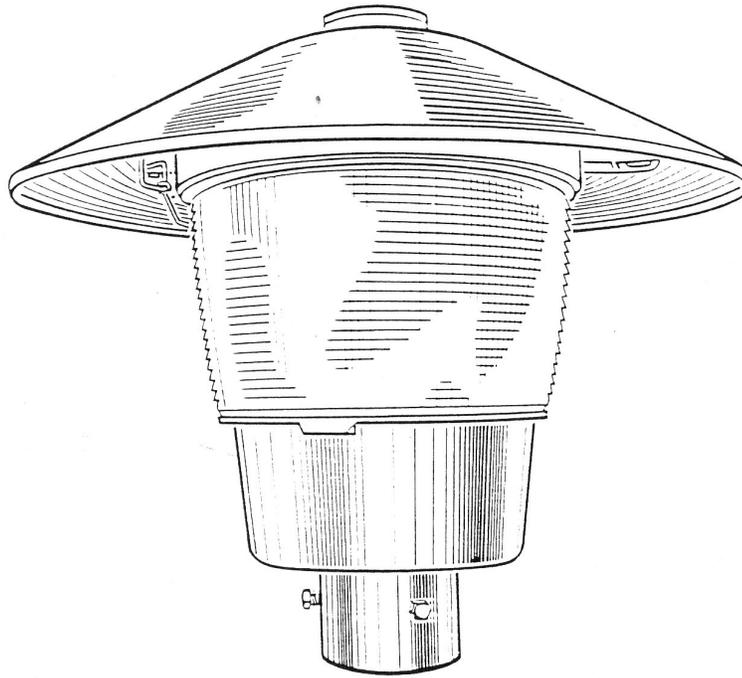
The luminaires photocell receptacle shall be mounted on the top of the canopy. The photocell shall be of the NEMA twist-lock type and shall include a cover for the photocell.

4.5 Prismatic refractor panel

The luminaire shall be equipped with a one or two piece acrylic or polycarbonate resin prismatic refractor panel.

SPECIFICATIONS FOR STREETLIGHT HARDWARE

IFB # 1063092



MONTGOMERY COUNTY
DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING AND OPERATIONS
JUNE 2016

DAMASCUS PEDESTRIAN LUMINAIRES
IN THE DAMASCUS COMMERCIAL AREA

1) PURPOSE

The purpose of these specifications is to prescribe the minimum requirements for the design, manufacture, fabrication, finishing and delivery of Damascus pedestrian luminaire. This luminaire is intended for use in the urban streetscaped areas. Any manufacturer, distributor or vendor who submits a bid shall agree to comply with these specifications and attached drawings.

2) PEDESTRIAN LUMINAIRE

2.1) Luminaire

The luminaire shall consist of a 413F, Low-Copper cast aluminum 0.090" thick spun aluminum. It shall be easy to access the lamp, and the hinged lens frame should be a cast aluminum with stainless steel spring latch for tool-less lamp access. This luminaire should also have a weatherproof ballast assembly that isolates the ballast from water and heat for longer life. All of the fasteners should be non-ferrous to prevent corrosion and ensure longer life. The entire fixture should be UL listed to U.S. Safety standards for wet location. This fixture should be manufactured to ISO 9001:2000 Standards. This luminaire shall be a Hadco C1918 luminaire. See attached drawing, the entire assembly shall be U.L. or C.S.A. listed suitable for wet location.

2.2) Optical Assemble

The optical assembly shall consist of a Type III Precision formed, segmented specular aluminum internal cutoff reflector with horizontal lamp mounting. The reflector should be rotatable in 90 degree increments and should be symmetric. The lens shall be clear tempered flat glass.

2.3) Lamp

The luminaire shall be compatible with MH and HPS medium base: E17 lamps. Specifically a 150W HPS. Relamping of the luminaire shall be accomplished by a maximum of one screwdriver.

2.4) Ballast

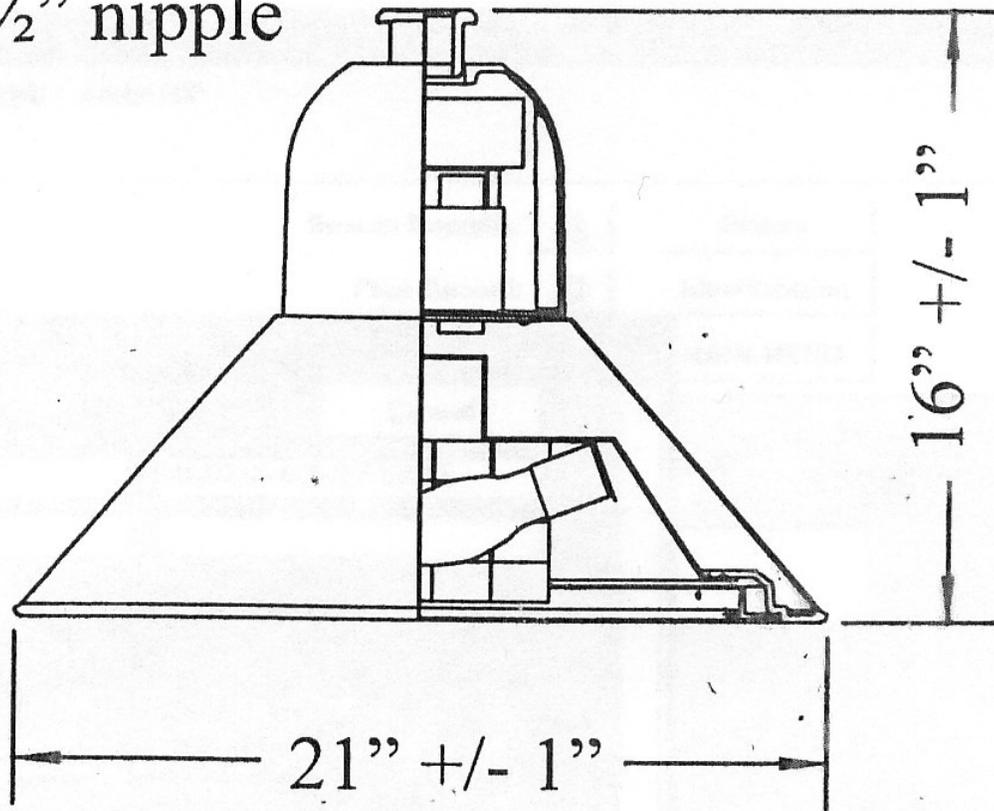
The luminaire ballast shall be HID core and coil and regulated with power factors better than 90% (HFP). The ballast should provide a +/-5% lamp power regulation with a ±10% input voltage regulation. The ballast should be factory pre-wired and tested. The luminaire ballast should be EISA/Title 20 and Title 24 compliant. This luminaire should have a key-slotted ballast assembly with quick disconnects that are mounted to the cast aluminum bracket for easy maintenance. The socket should be a 4kv rated medium socket with a nickel-plated screw shell with center

contact. The ballast shall be a constant wattage autotransformer type and be high power factor.

2.5) Finish (interior and exterior)

The interior of the luminaire shall be finished white. The exterior of the luminaire shall be finished in a hunter green custom color to be matched to color samples supplied by the County to the successful bidder. The finish of the luminaire shall be Thermoset polyester powdercoat that is electrostatically applied after a five-stage conversion cleaning process and bonded by heat fusion thermosetting. This finish should be laboratory tested for superior weatherability and fade resistance in accordance with ASTM B-117-64 and ANSI/ASTM G53-77 specifications.

1 1/2" nipple



MONTGOMERY COUNTY
DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING AND OPERATIONS
JUNE 2016
DAMASCUS VEHICULAR LUMINAIRES
IN THE COMMERCIAL AREA

1) PURPOSE

The purpose of these specifications is to provide minimum requirements for the design, manufacture, fabrication, finishing and delivery of the Damascus vehicular luminaire. This luminaire is intended for use in the urban streetscaped areas. Any manufacturer, distributor or vendor who submits a bid shall agree to comply with these Specification and attached drawings.

2) DESCRIPTION

The luminaire shall be UL/CUL listed, Type III, wide, cutoff fixture, the luminaire shall be 36.8 inches in length and 16.7 inches in width with a maximum EPA of 2.05, designed to be used as an outdoor streetlight. Each luminaire (Holophane catalog number G15AHP12LWFKRF1 or approved equal) shall be complete with:

- a) Lamp;
- b) NEMA Twist-lock photoelectric cell receptacle to be installed atop the luminaire;
- c) All the necessary hardware for installation over a 2.375 inch OD tenon;
- d) Finish color shall match semi-gloss black Thermo-setting, Polyester Powder Coating (fusion bonded coating);
- e) Clear Flat-Glass
- f) Die cast aluminum housing and fitter assembly.

The luminaire must be a suitable size to accommodate a 150 watt HPSV bulb and ballast.

3) OPTICAL ASSEMBLY

The reflector shall consist of high purity (#3002 alloy) aluminum of minimum .08 inch thick sheet. Flat lens shall be 1/8 inch tempered glass. A type III distribution patterns shall be provided in full cutoff depending on tilt angle. These shall include a wide roadway. A clear flat glass lens to mount on the door frame.

4) HOUSING

The housing door and fitter shall be die cast aluminum. The housing shall have an electrostatically applied 2 to 4 mil coat of TGIC polyester powder paint cured @ 425 degree F. It shall have passed a 1000 hour salt spray test as specified by ASTM B-117. It shall be available in brown and gloss black paint finishes. All external hardware shall be corrosion resistant. Housing access shall not require not tools and be a hinged latching system. All electrical components shall be on the door for ease of maintenance. The fitter shall be integral to the luminaire and accommodate a 2 inch tenon or arm. The luminaire shall be capable of being tilted between 0 and 18 degrees. Electrical connection shall be inside the fitter assembly and not require fixture entry.

5) BALLAST

The ballast shall be for a 150 Watt, High Pressure Sodium Vapor (HPSV) lamp with a

120 volt power supply. The ballast shall be copper wound high power factor type as specified. It shall reliably start the luminaire to minus 40 degree F. The plug in starter shall be fully encapsulated with a material that electrically and thermally insulates all components from lamp and ballast heat. The capacitor shall be 90 degree C rated with a rated life of 60,000 hours. The luminaire shall have a range of 100 to 400 watt high pressure sodium and metal halide lamping options. Fusing shall be provided inside the luminaire. The ballast shall be tray mounted to allow easy removal of ballast assembly with all connections polarized for quick disconnect. The ballast shall provide lamp wattage within $\pm 5\%$ with $\pm 12\%$ primary line voltage fluctuations.

5.1 Testing results

Test results from an authorized testing facility showing power factor ratings through 24,000 hours at 3,000 hour interval shall be submitted along with a volt watt trace curve of the typical ballast performance to ANSI standards.

6) LAMP

The lamp shall be ANCI code - S55SC-150 (150 watt HPSV). The operating voltage of the lamp and the output voltage of the ballast shall be the same.

7) PHOTOELECTRIC CELL

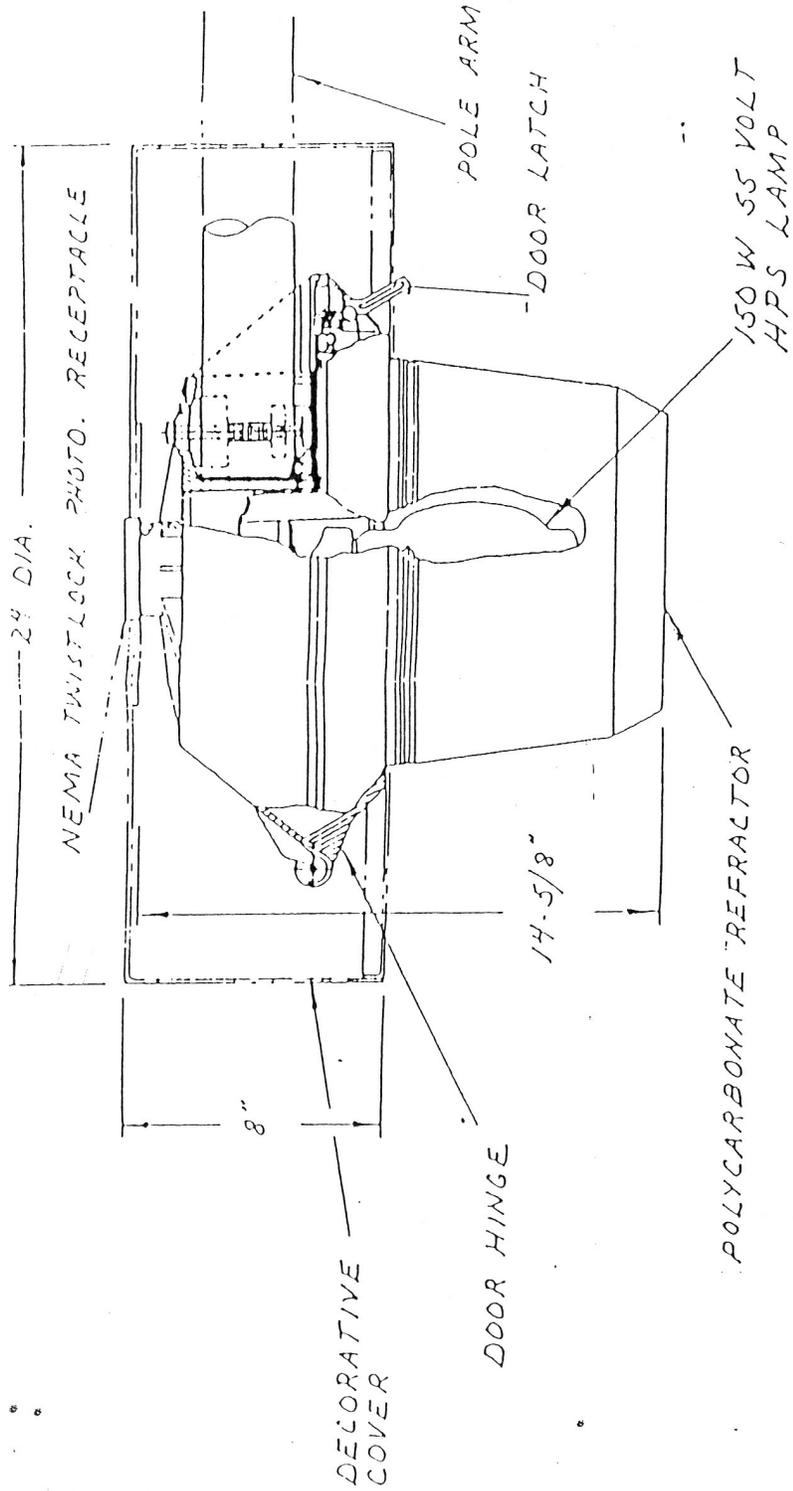
The photocell shall be a NEMA twist-lock type or equal

8) CORROSION PROTECTION

The complete luminaire assembly must be U.L. listed as "Suitable for Wet Locations." The U.L. listing number shall be submitted with the bid. All exposed metal parts of the luminaire shall be protected against corrosive environments by alkaline cleaning, zinc phosphate pretreatment and Triglycidyl Isocyanate polyester powder paint.

SPECIFICATIONS FOR STREETLIGHT HARDWARE

IFB # 1063092



FINISH: LUMINAIRE AND COVER, BRONZE
POWDER PAINT
POLE, BRONZE WET PAINT TO
MATCH POWDER PAINT.

MONTGOMERY COUNTY, MARYLAND
DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING AND OPERATIONS
JUNE 2016
PEDESTRIAN UNDERPASS LUMINAIRE

1) PURPOSE

The purpose of these specifications is to provide minimum requirements for the design, manufacture, fabrication, finishing and delivery of ceiling mounted, pedestrian underpass luminaires. These luminaires are intended for use in tunnels throughout Montgomery County. Any manufacturer, distributor or vendor who submits a bid shall agree to comply with these specifications and the attached drawings.

2) DESCRIPTION

Each streetlight luminaire shall include the following:

- a) Lamp, as specified;
- b) Dropped polycarbonate refractor;
- c) All necessary hardware for ceiling mounting;
- d) “National Park Service Brown” finishing as per these specifications and attachment entitled “Finishing Galvanized Steel and Aluminum Metals.”

3) DESIGN CRITERIA

3.1) AASHTO Standards

The luminaire shall meet the requirements of the American Association of State Highway and Transportation Officials (AASHTO), “Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals,” latest edition.

3.2) Shape and Minimum Size

The luminaire shall be square in shape. The minimum size for the luminaire shall be 22 inches (sum of the luminaire’s length plus width), when viewed from the side. The luminaire shall be of a suitable size to accommodate a 50 watt high pressure sodium vapor (HPSV) ballast and lamp.

3.3) Finish

All Visible components shall be finished to produce the appearance of a decorative “National Park Service Brown” color, as described in the attachment entitled “Finishing Galvanized Steel and Aluminum Metals.” During the finishing process, all critical openings shall be plugged to prevent contamination of the threads or reduction of critical openings.

4) MATERIALS

4.1) Design Uniformity

These Specifications are intended to produce a uniform system of hardware, that will minimize the number of stock items that the County or its contractor(s) must maintain.

4.2) Housing

The housing shall consist of a water tight shell fabricated with either welded, overlapped seams, or with extrusions sealed with silicon seals. The unit shall be completely sealed by a rubber gasket. The reflector shall be held closed with a minimum of two captive fasteners.

4.3) Material

The luminaire housing shall be completely waterproof and constructed of formed aluminum.

4.4) Castings

All castings used to complete the luminaire shall be cleaned and smooth, with all details well defined and true pattern.

4.5) Ballast

The ballast shall be mounted to facilitate easy removal and maintenance. All electrical connections shall be polarized and of plug-in design. The ballast shall be for a 50 watt HPSV bulb and shall be regulator or auto-regulator design. The ballast shall be delivered to receive nominal 120 volt AC current.

4.6) Lamp

The lamp shall be a ANSI code - S55SC-50 shall be provided (Medium Base Socket).

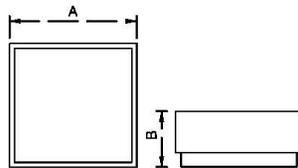
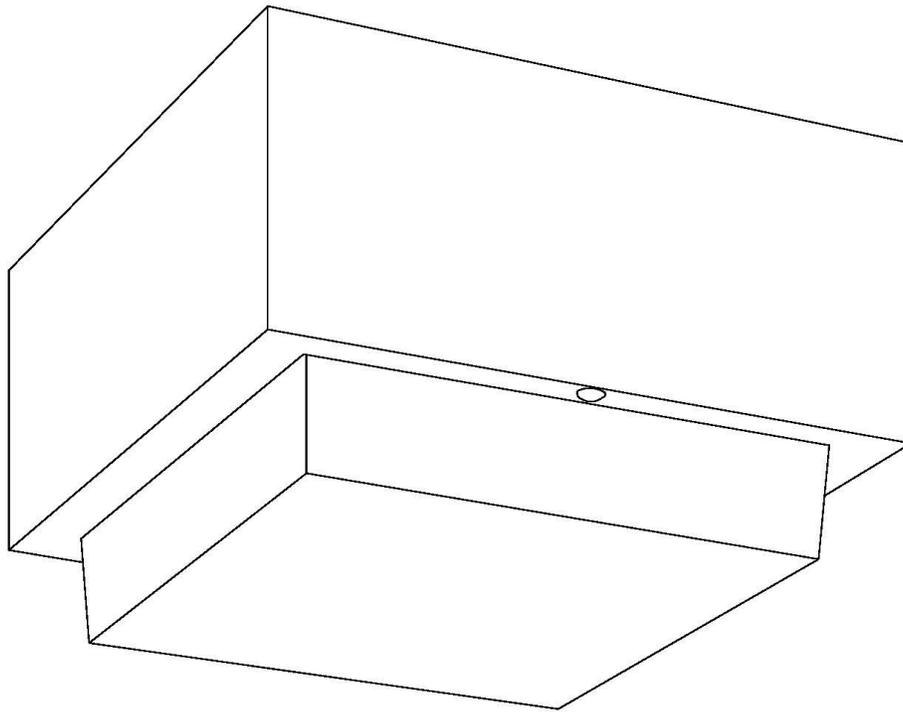
4.7) Reflector

The reflector shall be a one-piece dropped formed polycarbonate.

SPECIFICATIONS FOR STREETLIGHT HARDWARE

IFB # 1063092

SPECIFICATIONS FOR STREETLIGHT HARDWARE



A	B	WEIGHT
14" SQ.	8"	20 lbs.
356 mm	203 mm	20 lbs.

MONTGOMERY COUNTY
DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING AND OPERATIONS
JUNE 2016
ROADWAY (PENDANT), CUT-OFF OPTICS (FLAT GLASS),
STYLE LUMINAIRE WITH TYPE III DISTRIBUTION

1) PURPOSE

The purpose of these specifications is to provide minimum requirements for the design, manufacture, fabrication, finishing and delivery of a roadway, cut-off optics (flat glass) style luminaire with Type III distribution shall be made of a die-cast aluminum housing. The roadway, cut-off, style luminaire is intended for use along roadways in Montgomery County. Any manufacturer, distributor or vendor who submits a bid shall agree to comply with these specifications and the attached drawings.

2) DESCRIPTION

Each streetlight luminaire include the following:

- a) Die-cast aluminum housing and drop style door;
- b) 120 volt ballast;
- c) Lamp with adjustable Mogul style base socket;
- d) NEMA standard photoelectric control receptacle on the top of the luminaire;
- e) NEMA multi-volt standard photocell;
- f) Internal aluminum reflector (Type III);
- g) Removable flat glass lens;
- h) All necessary hardware required for mounting on bracket arm, as specified.

3) DESIGN CRITERIA

3.1) AASHTO Standards

The luminaire shall meet the requirements of AASHTO Standard, "Specification for Structural supports for Highway Signs, Luminaires and Traffic Signals," latest edition.

3.2) Shape and Minimum Size

- a) The luminaire shall be of a rounded rectangular shape. The minimum size for the luminaire shall 34.0 inches (sum of the length plus height), when viewed from the side.
- b) The luminaire shall be suitable to accommodate either 70 watt, 100 watt, 150 watt, or 250 watt, High Pressure Sodium Vapor (HPSV) ballast and lamp.

3.3) Effective Projected Area (EPA)

The luminaire shall have a maximum estimated allowable EPA for luminaire of two (2) square feet.

3.4) Finish

The luminaire have a gray polyester powder coat finish. During the finishing process, all critical openings shall be plugged to prevent contamination of the threads or reduction of other critical openings.

4) MATERIALS

4.1 Housing

The luminaire shall consist of a water tight housing fabricated from die-cast aluminum housing, with die-cast aluminum drop-style doors. The drop-style doors shall be hinged on one side and secured on the opposite side with a captive stainless steel latch or captive stainless steel screw. All castings used to fabricate the luminaire housing shall be clean and smooth, with details defined and true to pattern. The housing shall be suitable to accommodate 70 watt, 100 watt, 150 watt or 250 watt High Pressure Sodium Vapor (HPSV) ballast and lamp.

4.2) Ballast

The luminaire shall be mounted to facilitate easy removal for maintenance or conversion to a different ballast. All electrical connections shall be polarized and of plug-in design. The ballast shall be wired to receive 120 volt AC current. The ballast shall reliably start and operate the lamp in ambient temperatures down to minus 30 degrees.

4.3) Lamp

The luminaire may be used with any of four (4) lamp wattages as follows:

ANSI Code - 70 watt (HPSV), with Mogul base socket;

ANSI Code - 100 watt (HPSV), with Mogul base socket;

ANSI Code - 150 watt (HPSV), with Mogul base socket;

ANSI Code - 250 watt (HPSV), with Mogul base socket, or as specified.

4.4) Photoelectric Cell

The luminaire photocell receptacle shall be mounted on the die-cast aluminum housing. The photocell shall be of the NEMA twist-lock type.

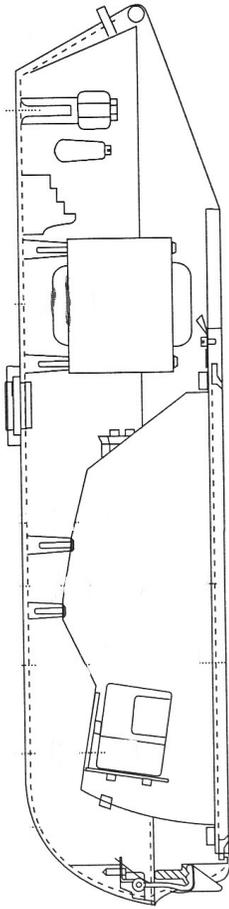
4.5) Reflector

The luminaire shall contain a one-piece aluminum sheet reflector, on the die-cast aluminum housing. The reflector shall have a type III distribution pattern, with a anodized process finish ("Alzak" or equivalent type anodic process).

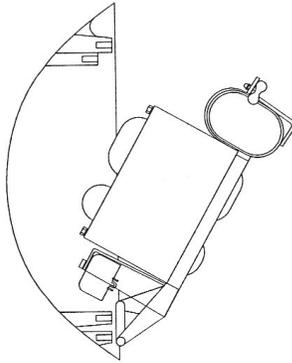
4.6) Mounting Bracket Arm

The luminaire shall be able to be mounted on bracket arms with 1 ½ or 2 inch slipfitter tenons. This may include two (2) or four (4) bolt slipfitter bracket assemblies. The mounting bracket area shall be protected with a bird-guard type gasket.

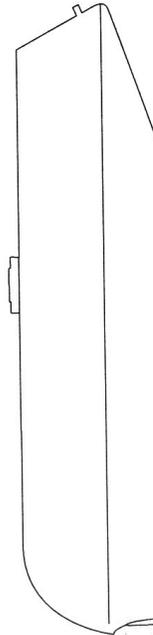
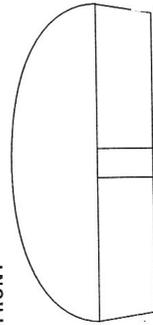
SPECIFICATIONS FOR STREETLIGHT HARDWARE
IFB # 1063092



SWING-DOWN BALLAST MODULE

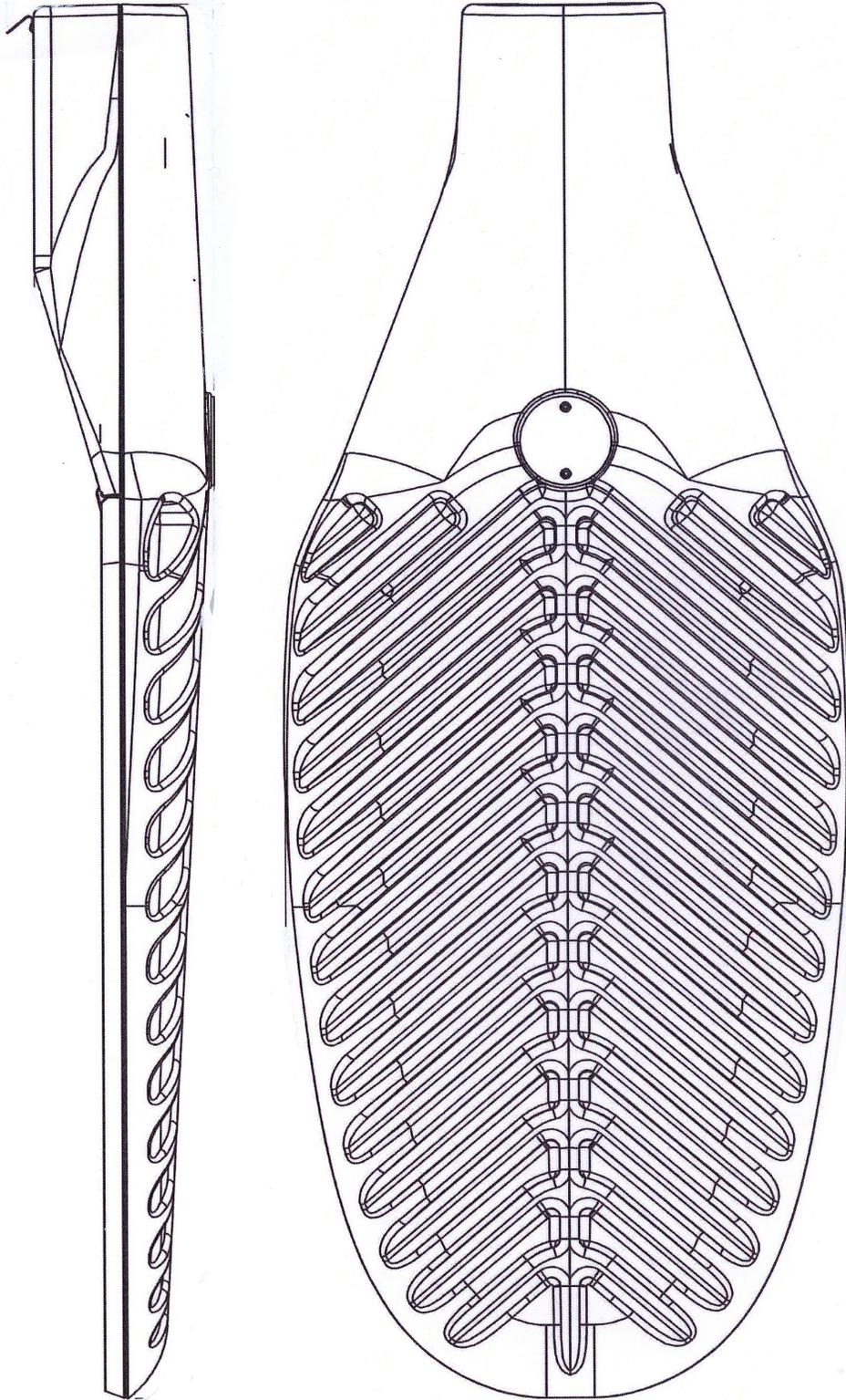


FRONT



SPECIFICATIONS FOR STREETLIGHT HARDWARE

IFB # 1063092



MONTGOMERY COUNTY, MARYLAND
DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING AND OPERATIONS
JUNE 2016
RECTILINEAR, BRONZE-COLORED,
MEDIUM-CUTOFF, TYPE III, LUMINAIRES

1) PURPOSE

The purpose of these specifications is to provide minimum requirements for the design, manufacture, fabrication, finishing and delivery of decorative bronze-colored, Type III, medium-cutoff rectilinear streetlight luminaires. These luminaires are intended for use on a variety of streetlight poles at a mounting height of 25 feet in urban streetscape and rural areas. Any manufacturer, distributor or vendor who submits a bid shall agree to comply with these specifications and the attached drawings.

2) DESCRIPTION

Each street light luminaire include the following.

- a) Lamp, as specified;
- b) NEMA standard photoelectric control receptacle on the top cover of the luminaire with NEMA standard photocell;
- c) All necessary hardware for side mounting on specified pole;
- d) Side-mounting bracket are eight (8) to twelve (12) inches long and rectangular in cross section as specified under quantities required;
- e) Flat, hard tempered glass lens;
- f) Finish color shall be "National Park Service Brown", as per attachment entitled "Finishing Galvanized Steel and Aluminum Metals."

3) DESIGN CRITERIA

3.1) AASHTO Standards

The luminaire shall meet the requirements of the American Association of State Highway and Transportation Official (AASHTO), "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals," latest edition.

3.2 Shape and Minimum Size

The luminaire shall be rectangular in shape. The minimum size for the luminaire shall be 36.0 inches (sum of the luminaire's length plus width), when viewed from the side. The maximum allowable Effective Projected Area (EPA) for the luminaire and bracket arm shall be three (3.0) or less square feet.

The luminaire shall be of a suitable size to accommodate either a 150 watt or 250 watt high pressure sodium vapor (HPSV) ballast and lamp.

3.3 Wind Load

All components of the luminaires shall be designed to resist (at yield strength of the materials without permanent deflection or destruction), test loads equivalent to the calculated loads developed by the velocity pressure of at least an 80 MPH wind. A minimum safety factor of 1.82 on the yield strength shall be maintained.

3.4 Finish

All Visible components shall be finished to produce the appearance of a decorative "National Park Service Brown" color, as described in the attachment entitled "Finishing Galvanized Steel and Aluminum Metals." During the finishing process, all critical openings shall be plugged to prevent contamination of the threads or reduction of critical openings.

Other finishing techniques may be considered by Montgomery County. Complete documentation and specifications for any alternate finish must be submitted with the bid documents together with the results of an accelerated life-testing by an independent laboratory which certifies a minimum expected life of the alternate finish of twenty (20) years.

4) MATERIALS

4.1) Design Uniformity

These specifications are intended to produce a uniform system of hardware that will minimize the number of stock items that the County or its contractor(s) must maintain.

4.2) Housing

The housing shall consist of a water tight shell fabricated with either welded, overlapped seams, or with extrusions sealed with silicon seals. Cast aluminum door frames, to hold the flat tempered prismatic glass lens or a cover concealing the ballast, shall be affixed to the housing with full length aluminum piano hinges incorporating removable stainless steel hinge pins. All doors shall be fully gasketed with closed cell or solid neoprene gaskets. All doors shall be held closed with two quarter-turn captive fasteners and shall be restrained by captive stainless steel or brass chains.

4.3) Material

The luminaire housing shall be constructed of cast, extruded or 0.051 inch minimum sheet aluminum.

4.4) Castings

All castings used to complete the luminaire shall be clean and smooth with all details well defined and true to pattern.

4.5) Ballast

The ballast shall be tray mounted to facilitate easy removal and maintenance or conversion to a different ballast. All electrical connections shall be polarized and of plug-in design. The ballast shall be for a 150 watt HPSV bulb and shall be of a regulator or auto-regulator design. The ballast shall be delivered to receive nominal 120 volt AC current. The ballast assembly shall be completely accessible and removable without requiring access through the reflector assembly.

4.6) Lamp

The lamp shall be a ANSI code - S55SC-150 shall be provided (Mogul Base Socket).

4.7) Photoelectric Cell

The photoelectric cell shall be of the NEMA twist-lock type and shall be mounted in the top of the luminaire housing.

4.8) Reflector

The reflector shall be a one-piece formed aluminum sheet, finished with a "Alzak*R-5: or equivalent anodic process.

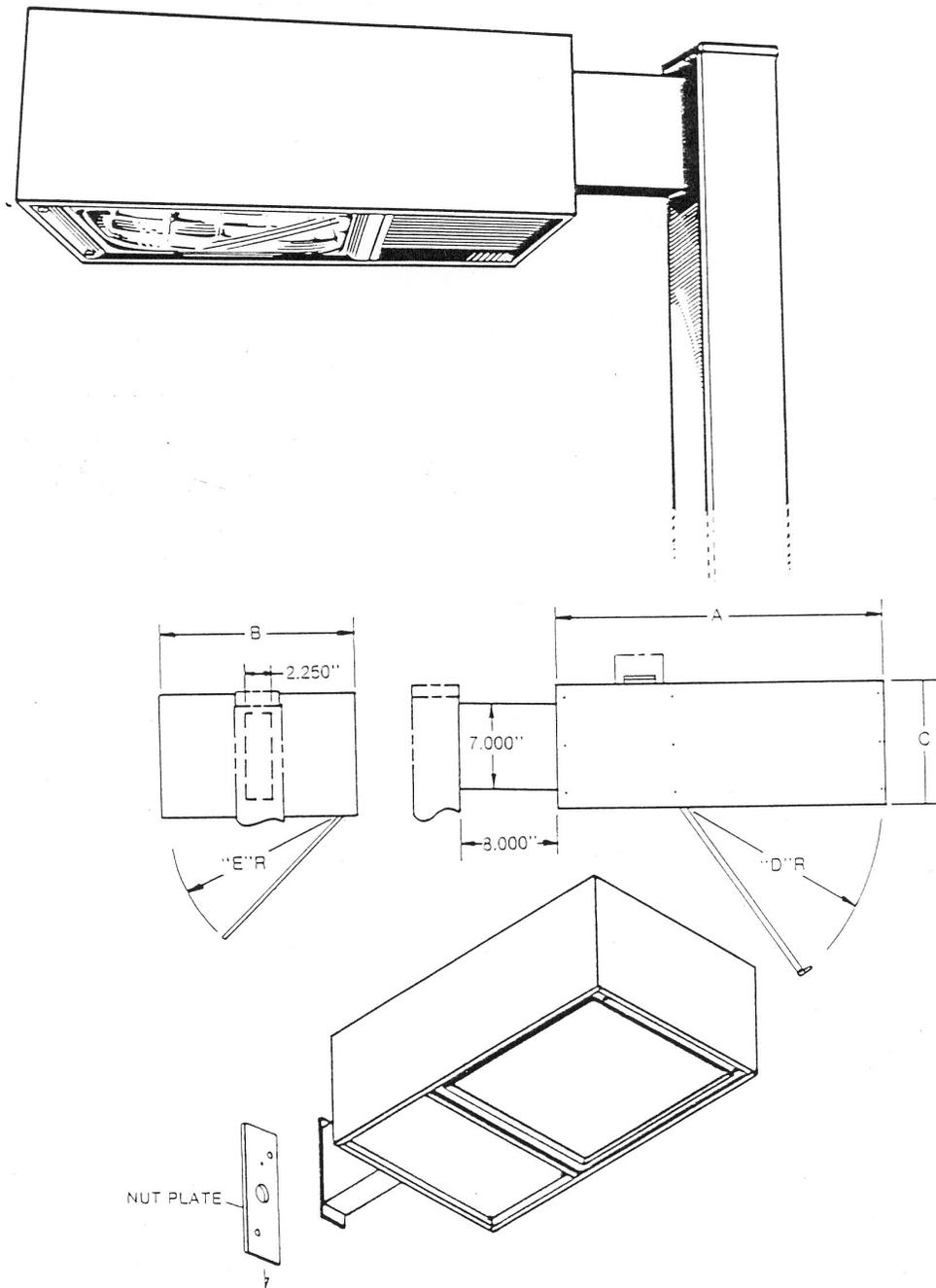
4.9) Bracket Arm

The bracket shall consist of an extruded rectangular aluminum section, 8.0 to 12.0 inches in length and long enough to permit mounting two luminaires at a 90° angle on any of the following types of poles:

- a) The "Tall-Post Streetlight Pole" with an approximate diameter of 3.5 inches at a nominal 25 +/- feet mounting height (drawing attached)
- b) A traffic signal pole with an approximate diameter of 9.5 inches at a 25 +/- feet mounting height.
- c) A traffic signal pole with an approximate diameter of 5.25 inches at a 25 +/- feet mounting height.
- d) A square tapered pole with an approximate dimension of 4.5 inches at a 25 +/- feet street light mounting height. Predrilled mounting bolt holes in poles are 9/16 inches large and 3.0 inches between centers. A 3/4 inch hole for wires is located between the bolt holes.
- e) A rectangular tapered wood pole with approximate dimensions of 5 inches x 6 inches at a 25 +/- feet mounting height.

SPECIFICATIONS FOR STREETLIGHT HARDWARE

IFB # 1063092



MONTGOMERY COUNTY, MARYLAND
DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING AND OPERATIONS
JUNE 2016
SILVER SPRING DECORATIVE BRONZE COLORED
PEDESTRIAN CUBICAL STYLE LUMINAIRE

1) PURPOSE

The purpose of these specifications is to provide minimum requirements for the design, manufacture, fabrication, finishing and delivery of a Silver Spring decorative bronze colored cubical, one piece, smoked bronze, acrylic globe luminaire. These luminaires are intended for use on the square or dovetail streetlight poles. On the 30 feet poles, they will be mounted at a height of 11 feet 5 inches on the side opposite the rectilinear luminaire, and on the 12 feet poles, they will be mounted at 11 feet 5 inches on pole on sidewalk side in the dovetail. The luminaire shall be Spaulding Sculptura, Series No. 845-100-HPS, Model No. 39106-752 or approved equal. Any manufacturer, distributor or vendor who submits bid shall agree to comply with these specifications.

2) DESCRIPTION

Each streetlight luminaire shall include the following:

- a) Lamp as specified with borasilicate glass reflector;
- b) Photocell mounted on fixture to operate without interference from rectilinear luminaire on a 30 foot pole;
- c) All necessary hardware for side mounting on specified 12 feet and 30 feet poles;
- d) Side mounted bracket arm, rectangular in cross section, 9 to 12 inches in length, 3 to 4 inches in wide, 5 to 7 inches in height;
- e) Acrylic cube globe (smoked bronze);
- f) "National Park Service Brown" finishing as per these specifications and attachment entitles "Finishing Galvanized Steel and Aluminum Metals."

3) DESIGN CRITERIA

3.1) AASHTO Standards

The luminaire shall meet the requirements of the American Association of State Highway and Transportation Officials (AASHTO), "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals," latest edition.

3.2) Shape and Size

The luminaire shall be cubical in shape. The globe shall be 14 _ inches square by 15 inches high with 6 _ inches +/- housing opening, constructed of one-piece acrylic. The luminaire shall be of a suitable size to accommodate a 100 watt, High Pressure Sodium Vapor (HPSV) ballast and bulb.

3.3) Wind Load

All components of the luminaire shall be designed to resist (at yield strength of the materials without permanent deflection or destruction), test loads equivalent to the calculated loads developed by the velocity pressure of at least an 80 MPH wind. A minimum safety factor of 1.82 on the yield strength shall be maintained.

3.4) Finish

All visible components shall then be finished to produce the appearance of a decorative "Dark Brown" color, as described in the attachment entitled "Finishing Galvanized Steel and Aluminum Metals." During the finishing process, all critical openings shall be plugged to prevent contamination of the threads or reduction of critical openings.

Other finishing techniques may be considered for the luminaire by Montgomery County. Complete documentation and specifications for any alternate finish must be submitted with the bid documents together with the results of an accelerated life-testing by an independent laboratory which certified an expected life of the alternate finish of at least twenty (20) years.

4) MATERIALS

4.1) Design Uniformity

These specifications are intended to produce a uniform system of hardware that will minimize the number of stock items that the County or its contractor(s) must maintain.

4.2) Housing

The luminaire shall have a water and bug-tight gasket seal between cube and aluminum support plate. A spring loaded retaining device shall securely fasten the cube to the support assembly. The cube can be removed easily by loosening two flush mounted stainless steel retainers. The acrylic globe shall have a top opening of 5 3/16 inch diameter with a 3/4 inch raised lip, allowing easy access for relamping. A gasketed aluminum cover with captive spring-loaded retainers provides a positive, locking water and bug-tight top seal.

A cast aluminum support assembly shall slip inside a 3 inch O.D. post, having a wall thickness of 0.125 inch. There shall be no visible transition between the post and acrylic cube.

4.3) Globe Materials

The globe shall be constructed of a one-piece casting of smoked bronze acrylic material. The support assembly shall be cast aluminum.

4.4) Castings

All castings used to complete the luminaire shall be clean and smooth with all details well defined and true to pattern.

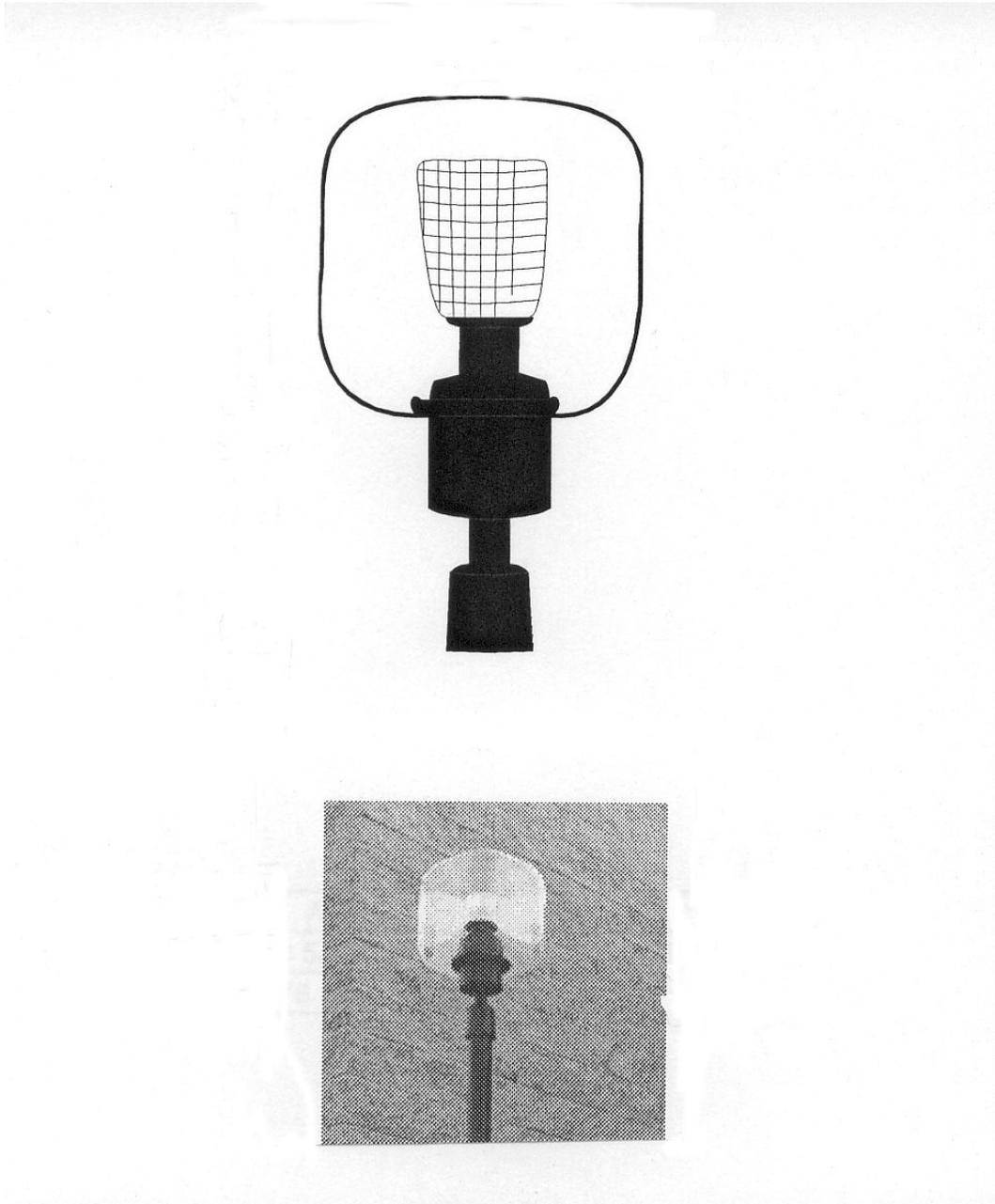
4.5) Ballast

The ballast shall be input, normal power factor, high reactance encapsulated for 120 volt, rated minus 20 degrees starting temperature. The ballast shall be for a 100 watt, high-pressure sodium bulb.

- 4.6) Lamp
The lamp shall be ANSI Code - S55SC - 100, and shall be provided.
 - 4.7) Photoelectric Cell
The photocell shall be installed at the factory inside the retainer ring, pointing downward on the support assembly.
 - 4.8) Lampholder
The lampholder shall be a mogul base socket with an enclosed glazed porcelain, spring-loaded socket with lamp grip. The socket shall be pulse rated.
 - 4.9) Refractor
Each luminaire shall include one IES Type V, round borasilicate glass refractor.
 - 4.10) Bracket Arm
The bracket arm shall consist of an extruded rectangular aluminum section 9 inch to 12 inch in length and shall be compatible with and capable of being mounted on the square or dovetail poles.
 - 4.11) Hardware
Mounting bolts, nuts, and washers shall be galvanized steel in accordance with ASTM - A-153. All other hardware and fasteners shall be stainless steel.
- 5) LABELS
All fixtures shall bear U.L. wet location and I.B.E.W. labels.

SPECIFICATIONS FOR STREETLIGHT HARDWARE

IFB # 1063092



MONTGOMERY COUNTY, MARYLAND
DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING AND OPERATIONS

JUNE 2016

SILVER SPRING DECORATIVE PEDESTRIAN,
TEARDROP STYLE LUMINAIRE

1) PURPOSE

The purpose of these specifications is to provide minimum requirements for the design, manufacture, finishing and delivery of the Silver Spring Pedestrian Teardrop style luminaires. The Silver Spring Pedestrian Teardrop is intended to be mounted on a decorative post as specified, along roadways in the Silver Spring Central Business District. Any manufacturer, distributor or vendor who submits a bid shall agree to comply with these specifications, or submit specifications for approval that match these specifications.

2) DESCRIPTION

The luminaire shall be an outdoor decorative fixture, cylindrical in shape with an overall height of 25 5/8 inches and an overall width of 14 1/2 inches for the globe (see attached drawing). All exterior and structural parts shall consist of aluminum alloy. Exterior castings shall be cast in three pieces having a smooth surface finish and free of mold lines. A separate section for the ballast is permitted if the ballast casting is secured to the luminaire body with stainless steel captive fasteners. All components shall fit together snugly and shall be fitted with continuous neoprene gaskets so as to weatherproof the joints between metal interfaces. Visible metal surfaces shall be integrally molded as to appear to be a single unit. All metal parts shall be corrosion resistant. The luminaire shall come ready for quick and easy field assembly or be fully assembled and include the following components:

Each luminaire shall include the following:

- 1) Lamp, as specified;
- 2) 120 volt ballast;
- 3) NEMA twist-lock type photocell installed on the metal body of the decorative post;
- 4) All necessary hardware and fasteners to assemble and secure the luminaire onto the post arm.

The luminaire must be able to accommodate 70, 100, or 150, watt, High Pressure Sodium Vapor (HPSV) lamp or 175 watt, Metal Halide (MH) lamp and ballast. The luminaire shall be "Holophane ALP(175MH)12N3" without a metal upright shield, or an approved equal.

3) DESIGN CRITERIA

- 3.1) AASHTO Standards
The luminaire shall meet the requirements of the American Association of State Highway and Transportation Officials (AASHTO), "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals," latest edition.
- 3.2) Wind Load
All components of the luminaire shall be designed to resist (at yield strength of the materials without permanent deflection or destruction), test loads equivalent to the calculated loads developed by the velocity pressure of at least an 80 MPH wind. A minimum safety factor of 1.82 on the yield strength shall be maintained.
- 4) GLOBE AND REFRACTOR
The globe shall be of the traditional "Atlanta" (teardrop) shape, thermal resistant borosilicate glass refractor that controls the light, and provide an IES Type III cutoff distribution. The combination of reflector, refractor and vertical burning lamp shall maximize efficiency and uniformity of illumination while controlling the luminaire brightness. The entire globe shall be luminous with shielding of the top section. The top surface of the globe shall interface closely with the metal body of the fixture so as to provide a weather, dust, and insect proof protection.
- 5) BALLAST
The ballast shall be securely fastened into the top of the luminaire and have quick release electrical connections. The ballast shall be high power factor refractor type ballast of at least 90% to supply power for the specified HPSV or MH lamp from a 120 volt power supply. The space for the ballast shall have sufficient space to accommodate a ballast for 70, 100, or 150 watt HPSV or 175 watt Medial Halide lamps.
- 6) LAMP
The luminaire may be used with wattage as follows:
ANSI Code - 70 watt (HPSV), with Mogul base socket;
ANSI Code - 100 watt (HPSV), with Mogul base socket;
ANSI Code - 150 watt (HPSV), with Mogul base socket;
ANSI Code - 175 watt (MH), with Mogul base socket; or as specified.
- 7) PHOTOCELL
The photocell shall be a NEMA twist-lock type or equal, mounted on the metal body of the decorative post.
- 8) METAL BODY
The body shall be cast in two pieces and shall have raised surface ridges. The body shall taper smoothly from the slip fitter to the top of the globe. The body shall be constructed to prevent rainwater collecting on the body.
- 9) TOP ENTRY THREADED SLIPFITTER
The top entry threaded slipfitter shall have a nominal inside diameter of 1 ½ inches and

shall be secured to the pole slipfitter with three or four evenly spaced setscrews.

10) SOCKET

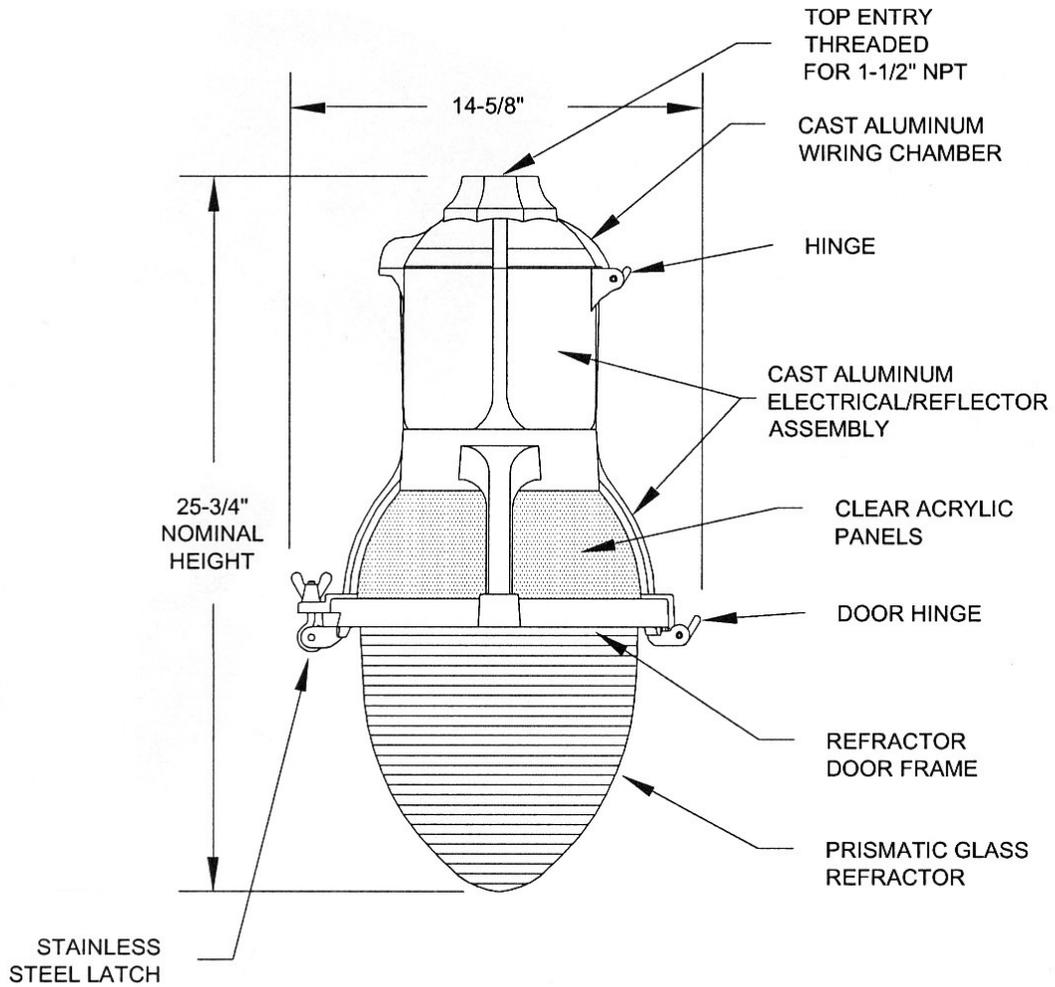
The lamp socket shall be a four K.V. pulse rated porcelain mogul base socket.

11) FINISH

The exterior surface of the luminaire body shall be factory finished with a dark green electrostatically applied polyester powder coat. The color shall be "Federal Green", federal color 595B, #14036

SPECIFICATIONS FOR STREETLIGHT HARDWARE

IFB # 1063092



MONTGOMERY COUNTY, MARYLAND
DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING AND OPERATIONS

JUNE 2016

SILVER SPRING DECORATIVE BRONZE COLORED
RECTILINEAR, TYPE III MEDIUM CUTOFF LUMINAIRE

1) PURPOSE

The purpose of these specifications is to provide minimum requirements for the design, manufacture, fabrication, finishing and delivery of decorative bronze colored, type III, medium cutoff rectilinear streetlight luminaires. These luminaires are intended for use on the square and dovetail streetlight poles at a 29 feet 5 inch mounting height in urban streetscape areas. The luminaire should be Gardco Form Ten No. EH 1913-120-250 HPS, BRA, CD, PC or approved equal. Any manufacturer, distributor, or vendor who submits a bid shall agree to comply with these specifications.

Each streetlight luminaire shall include the following:

- a) Lamp, as specified;
- b) NEMA standard photoelectric control receptacle on the top cover of the luminaire with NEMA standard photocell;
- c) All necessary hardware for side mounting on specified pole;
- d) Side-mounting bracket arm, eight (8) to twelve (12) inches long and rectangular in cross section as specified under Section 3.9;
- e) Flat, hard tempered glass lens;
- f) "National Park Service Brown" finishing as per these specifications and attachment entitles "Finishing Galvanized Steel and Aluminum Metals."

2) DESIGN CRITERIA

2.1) AASHTO Standards

The luminaire shall meet the requirements of the American Association of State Highway and Transportation Officials (AASHTO), "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals," latest edition.

2.2) Shape and Minimum Size

The luminaire shall be rectangular in shape. The minimum size for the luminaire shall be 36.0 inches (sum of the luminaire's length plus width), when viewed from side.

The maximum allowable Effective Projected Area (EPA) for the luminaire and bracket arm shall be three (3.0) or less square feet. The luminaire shall be of a

suitable size to accommodate up to and including a 400 watt High Pressure Sodium Vapor (HPSV) ballast.

2.3) Wind Load

All components of the luminaire shall be designed to resist (at yield strength of the materials without permanent deflection or destruction), test loads equivalent to the calculated loads developed by the velocity pressure of at least an 80 MPH wind. A minimum safety factor of 1.82 on the yield strength shall be maintained.

2.4) Finish

All visible components shall then be finished to produce the appearance of a decorative "Dark Brown" color, as described in the attachment entitled "Finishing Galvanized Steel and Aluminum Metals." During the finishing process, all critical openings shall be plugged to prevent contamination of the threads or reduction of critical openings.

Other finishing techniques may be considered for the luminaire by Montgomery County. Complete documentation and specifications for any alternate finish must be submitted with the bid documents together with the results of an accelerated life-testing by an independent laboratory which certified an expected life of the alternate finish of at least twenty (20) years.

3) MATERIALS

3.1) Design Uniformity

These specifications are intended to produce a uniform system of hardware that will minimize the number of stock items that the County or its contractor(s) must maintain.

3.2) Housing

The housing shall consist of a water tight shell fabricated with either welded, overlapped seams or with extrusions sealed with silicon seals. Cast aluminum door frames, to hold the flat tempered prismatic glass lens or a cover concealing the ballast, shall be affixed to the housing with full length aluminum piano hinges incorporating removable stainless steel hinge pins. All doors shall be fully gasketed with closed cell or solid neoprene gaskets. All doors shall be closed with two quarter-turn captive fasteners and shall be restrained by captive stainless steel or brass chains.

3.3) Material

The luminaire housing shall be constructed of cast, extruded or 0.051 inch minimum sheet aluminum.

3.4) Castings

All casting used to complete the luminaire shall be clean and smooth, with all details well defined and true to pattern.

3.5) Ballast

The ballast shall be tray mounted to facilitate easy removal and maintenance. All electrical connections shall be for a 250 watt high pressure sodium vapor (HPSV) bulb and shall be of a regulator or auto-regulator design. The ballast shall be delivered to receive nominal 120 volt AC current. The ballast assembly shall be completely accessible and removable without requiring access through the reflector assembly.

3.6) Lamp

The lamp shall be ANSI Code - S55SC-250 and shall be provided.

3.7) Photoelectric Cell

The photoelectric cell shall be of the NEMA twist-lock type and shall be mounted in the top of the luminaire housing.

3.8) Reflector

The reflector shall be a one-piece formed aluminum sheet, finished with an "Alzak*R-5" or equivalent anodic process. The segmented reflectors shall be set in a faceted arc image duplicator pattern to achieve a type III distribution. Reflector assemblies shall be equipped with quick disconnects. Lamp holders shall be attached to the reflector assembly.

3.9) Bracket Arm

The bracket shall consist of an extruded rectangular aluminum section 8.0 to 12.0 inch in length, and long enough to permit mounting two luminaires at a 90 degree angle on the a square or dovetail pole.

3.10) Hardware

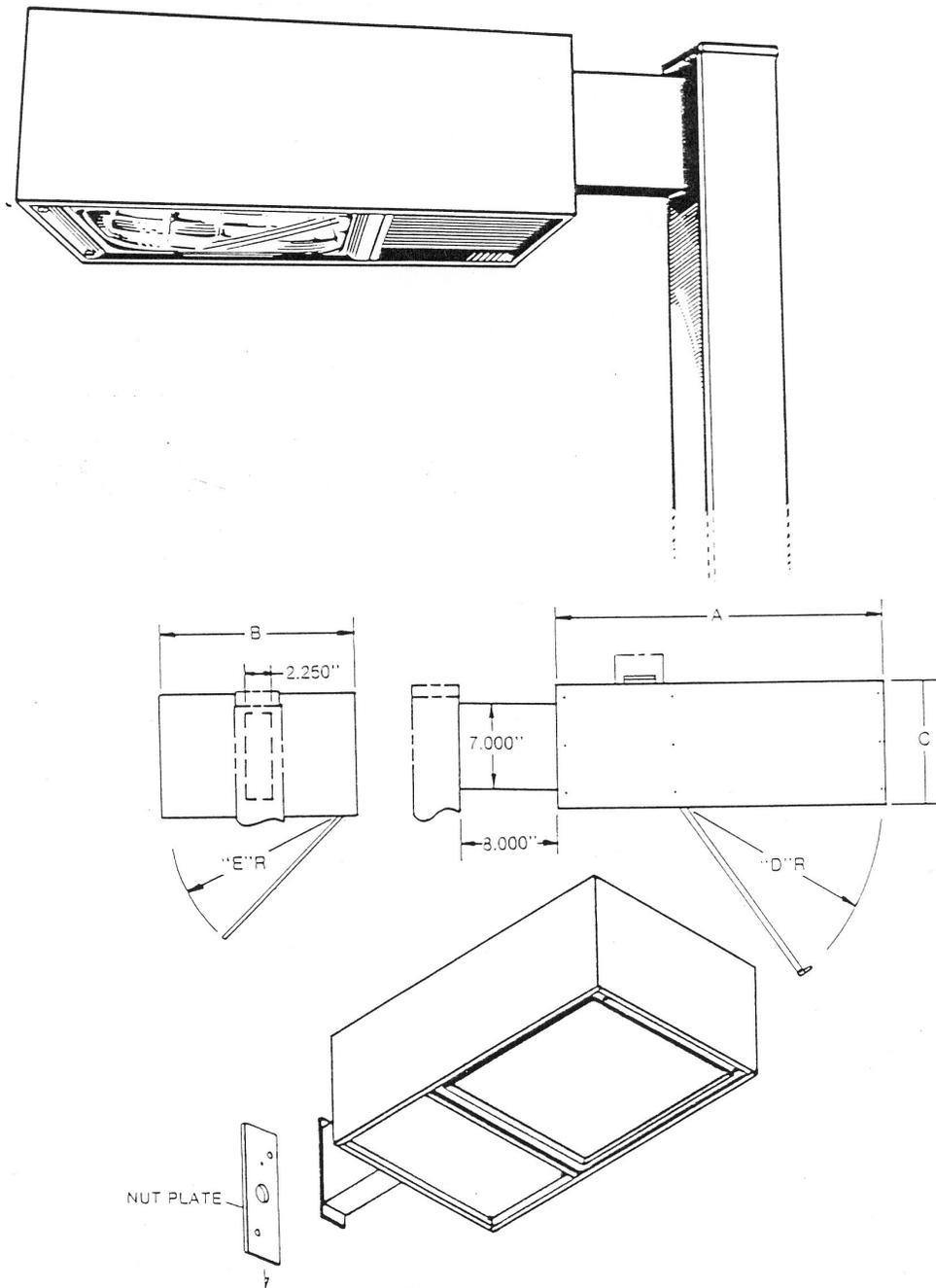
Mounting bolts, nuts and washers shall be galvanized steel in accordance with ASTM-A-153. All other hardware and fasteners shall be stainless steel.

4) LABELS

All fixtures shall bear U.L. wet location and I.B.E.W. labels.

SPECIFICATIONS FOR STREETLIGHT HARDWARE

IFB # 1063092



MONTGOMERY COUNTY, MARYLAND
DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING AND OPERATIONS

JUNE 2016

SILVER SPRING DECORATIVE VEHICULAR,
TEARDROP STYLE LUMINAIRE

1) PURPOSE

The purpose of these specifications is to provide minimum requirements for the design, manufacture, finishing and delivery of the Silver Spring Vehicular Teardrop style luminaires. The Silver Spring Vehicular Teardrop is intended to be mounted on a decorative post as specified, along roadways in the Silver Spring Central Business District. Any manufacturer, distributor or vendor who submits a bid shall agree to comply with these specifications, or submit specifications for approval that match these specifications.

2) DESCRIPTION

The luminaire shall be an outdoor decorative fixture, cylindrical in shape with an overall height of 34 3/8 inches and an overall width of 16 5/8 inches for the globe (see attached drawing). All exterior and structural parts shall consist of aluminum alloy. Exterior castings shall be cast in three pieces having a smooth surface finish and free of mold lines. A separate section for the ballast is permitted if the ballast casting is secured to the luminaire body with captive fasteners. All components shall fit together snugly and shall be fitted with continuous neoprene gaskets so as to weatherproof the joints between metal interfaces. Visible metal surfaces shall be integrally molded as to appear to be a single unit. All metal parts shall be corrosion resistant. The luminaire shall come ready for quick and easy field assembly or be fully assembled and include the following components:

Each luminaire shall include the following:

- 1) Lamp, as specified;
- 2) 120 volt ballast;
- 3) NEMA twist-lock type photocell installed on the metal body of the decorative post;
- 4) All necessary hardware and fasteners to assemble and secure the luminaire onto the post arm.

The luminaire must be able to accommodate 70, 100, 150, or 250 watt, High Pressure Sodium Vapor (HPSV) lamp or 175, or 250 watt, Metal Halide (MH) lamp and ballast. The luminaire shall be "Holophane AL250MH12N4" with metal upright shield, or an

approved equal.

3) DESIGN CRITERIA

3.1) AASHTO Standards

The luminaire shall meet the requirements of the American Association of State Highway and Transportation Officials (AASHTO), "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals," latest edition.

3.2) Wind Load

All components of the luminaire shall be designed to resist (at yield strength of the materials without permanent deflection or destruction), test loads equivalent to the calculated loads developed by the velocity pressure of at least an 80 MPH wind. A minimum safety factor of 1.82 on the yield strength shall be maintained.

4) GLOBE AND REFRACTOR

The globe shall be of the traditional "Atlanta" (teardrop) shape, thermal resistant borosilicate glass refractor that controls the light, and provide an IES Type III cutoff distribution. The combination of reflector, refractor and vertical burning lamp shall maximize efficiency and uniformity of illumination while controlling the luminaire brightness. The entire globe shall be luminous with shielding of the top section. The top surface of the globe shall interface closely with the metal body of the fixture so as to provide a weather, dust, and insect proof protection.

5) BALLAST

The ballast shall be securely fastened into the top of the luminaire and have quick release electrical connections. The ballast shall be a high power factor reactor type ballast of at least 90% to supply power for the specified HPSV or MH lamp from a 120 volt power supply. The space for the ballast shall have sufficient space to accommodate the ballast for 70, 100, 150 or 250 watt HPSV or 175, or 250 watt Metal Halide lamps.

6) LAMP

The luminaire may be used with wattage as follows:

- ANSI Code - 70 watt (HPSV), with Mogul base socket;
- ANSI Code - 100 watt (HPSV), with Mogul base socket;
- ANSI Code - 150 watt (HPSV), with Mogul base socket;
- ANSI Code - 250 watt (HPSV), with Mogul base socket;
- ANSI Code - 175 watt (MH), with Mogul base socket;
- ANSI Code - 250 watt (MH), with Mogul base socket, or as specified.

7) PHOTOCELL

The photocell shall be a NEMA twist-lock type or equal, mounted on the metal body of the decorative pendant post.

8) METAL BODY

The body shall be cast in two pieces and shall have raised surface ridges. The body shall taper smoothly from the slip fitter to the top of the globe. The body shall be constructed to prevent rainwater collecting on the luminaire.

9) TOP ENTRY THREADED SLIPFITTER

The top entry threaded slipfitter shall have a nominal inside diameter of 1 ½ inches +/- 0.05 inches and shall be secured to the pole slipfitter with three or four evenly spaced setscrews.

10) SOCKET

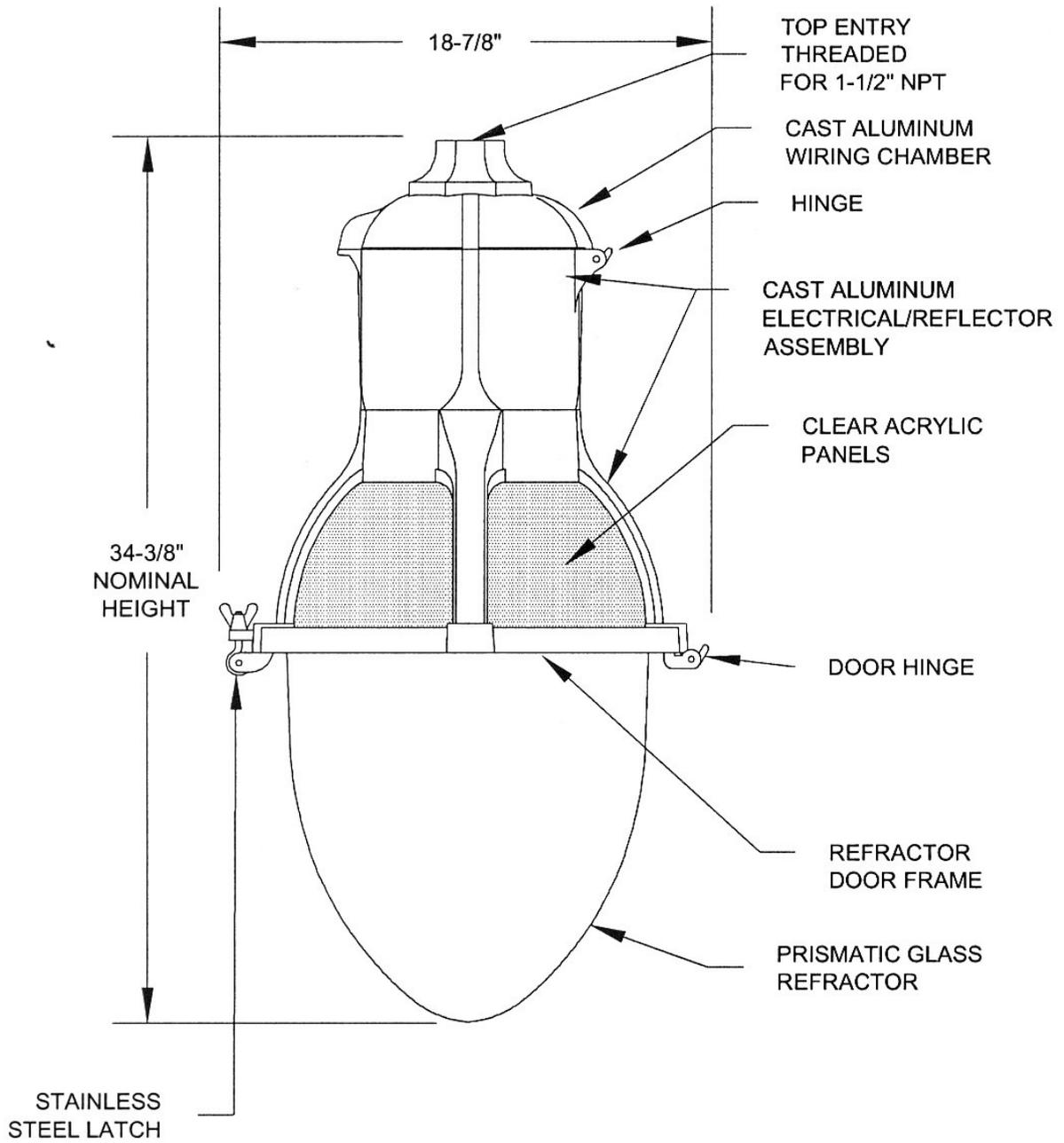
The lamp socket shall be a four K.V. pulse rated porcelain mogul base socket.

11) FINISH

The exterior surface of the luminaire body shall be factory finished with a dark green electrostatically applied polyester powder coat. The color shall be "Federal Green", federal color 595B, #14036

SPECIFICATIONS FOR STREETLIGHT HARDWARE

IFB # 1063092



MONTGOMERY COUNTY, MARYLAND
DEPARTMENT OF TRANSPORTATION
DIVISION OF TRAFFIC AND PARKING SERVICES

JUNE 2016

WASHINGTON GLOBE DECORATIVE STYLE
SEMI CUT-OFF LUMINAIRE

2) PURPOSE

The purpose of these specifications is to provide minimum requirements for the design, manufacture, finishing and delivery of the Washington Globe luminaire. The Washington Globe is intended to be mounted on decorative pole as specified, along roadways throughout Montgomery County. Any manufacturer, distributor or vendor who submits bid shall agree with these specifications

2) DESCRIPTION

The luminaire shall be an outdoor decorative post top fixture, cylindrical in shape with an overall height between 42.5 +/- 2.0 inches and a overall width between 16.5 +/- 0.5 inches for the globe (see attached drawing). All exterior and structural parts shall consist of aluminum alloy or cast iron. Exterior castings shall be cast in one piece having a smooth surface finish and free of mold lines. A separate cover for a ballast drawer/tray is permitted if the ballast drawer cover is secured to the luminaire body with captive fasteners. All components shall fit together snugly and shall be fitted with continuous neoprene gaskets so as to weather proof joints between metal interfaces. Visible metal surfaces shall have raised decorations integrally molded in the base piece. All metal parts shall be corrosion resistant. The luminaire shall come ready for quick an easy field assembly or fully assembled:

Each luminaire shall include the following components:

- 1) Lamp and ballast, as specified;
- 2) 120 volt ballast
- 3) Button type photocell installed on the metal body of the luminaire or ballast tray cover;
- 4) All necessary hardware and fasteners to assemble and secure on post tenon.

The luminaire must be able to accommodate 70, 100, and 150 watt, High Pressure Sodium Vapor (HPSV) or 100, 175, and 250 watt Metal Halide (MH) lamps and ballast's. The luminaire shall be either Antique "W" Series, Model WA25F, Spring City Washington 118 Globe with finial, King "Washington Globe," or an approved equal.

3) DESIGN CRITERIA

3.3) AASHTO Standards

The luminaire shall meet the requirements of the American Association of State Highway and Transportation Officials (AASHTO), Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals” latest edition.

3.4) Wind Load

All components of the luminaire shall be designed to resist (at yield strength of the materials without permanent deflection or destruction), test loads equivalent to the calculated loads developed by the velocity pressure of at least an 80 MPH wind. A minimum safety factor of 1.82 on the yield strength shall be maintained.

4) GLOBE AND REFRACTOR

The globe should be supplied in one piece, or may be made of a maximum of two pieces, of optically and chemically matching material as a unit and permanently sealed together with a chemical bonding process. The globe shall be alabaster rippled and made of UV stabilized acrylic. The globe shall be of a traditional “Washington Globe” (acorn) shape and shall contain an internal IES Type III metal louver assembly reflector designed to achieve the photometric performance specified by Illumination Engineering Society (IES). The entire globe shall be luminous without evident darkening of the top section. The bottom surface of the globe shall interface closely with the metal body of the fixture so as to provide a weather, dust, and insect proof interface. The globe or its mounting ring shall be fastened with three or more recessed set screws to the body of the fixture.

5) BALLAST

The ballast shall be securely fastened into the base of the luminaire and have quick release electrical connections. The ballast shall be a high power factor ballast of at least 90% to supply power for the specified HPSV lamp from 120 volt power supply. The space for the ballast shall have sufficient space to accommodate ballasts for 70, 100, or 150 watt HPSV and 100, 175, or 250 watt Metal Halide lamps.

6) LAMP

The luminaire may be used with wattage of lamps and are as follows:

- ANSI Code - 70 watt (HPSV), with Mogul base socket
- ANSI Code - 100 watt (HPSV), with Mogul base socket
- ANSI Code - 150 watt (HPSV), with Mogul base socket
- ANSI Code – 100 watt (MH), with Mogal base socket
- ANSI Code – 175 watt (MH), with Mogal base socket
- ANSI Code – 250 watt (MH), with Mogal base socket

7) PHOTOCELL

The photocell shall be a "Button type", 3,000 tork or equal, mounted on the metal body of the luminaire or the cover of the ballast tray drawer.

9) METAL BODY

The body shall be cast in one piece and shall have raised surface decorations. The body shall taper smoothly between the slip fitter to the base of the globe. The body shall be constructed with weep holes or channels to prevent rainwater from collecting at the top of the body.

9) SLIP FITTER

The slip fitter shall have a nominal inside diameter of 3.375 inches +/- 0.25 and shall be secured to the lamp post tenon with three of four evenly spaced set screws. The slip fitter shall accommodate a tenon 3.0 inches long.

10) FINIAL

The finial shall be made of cast aluminum, and securely fastened to the top of the globe.

11) SOCKET

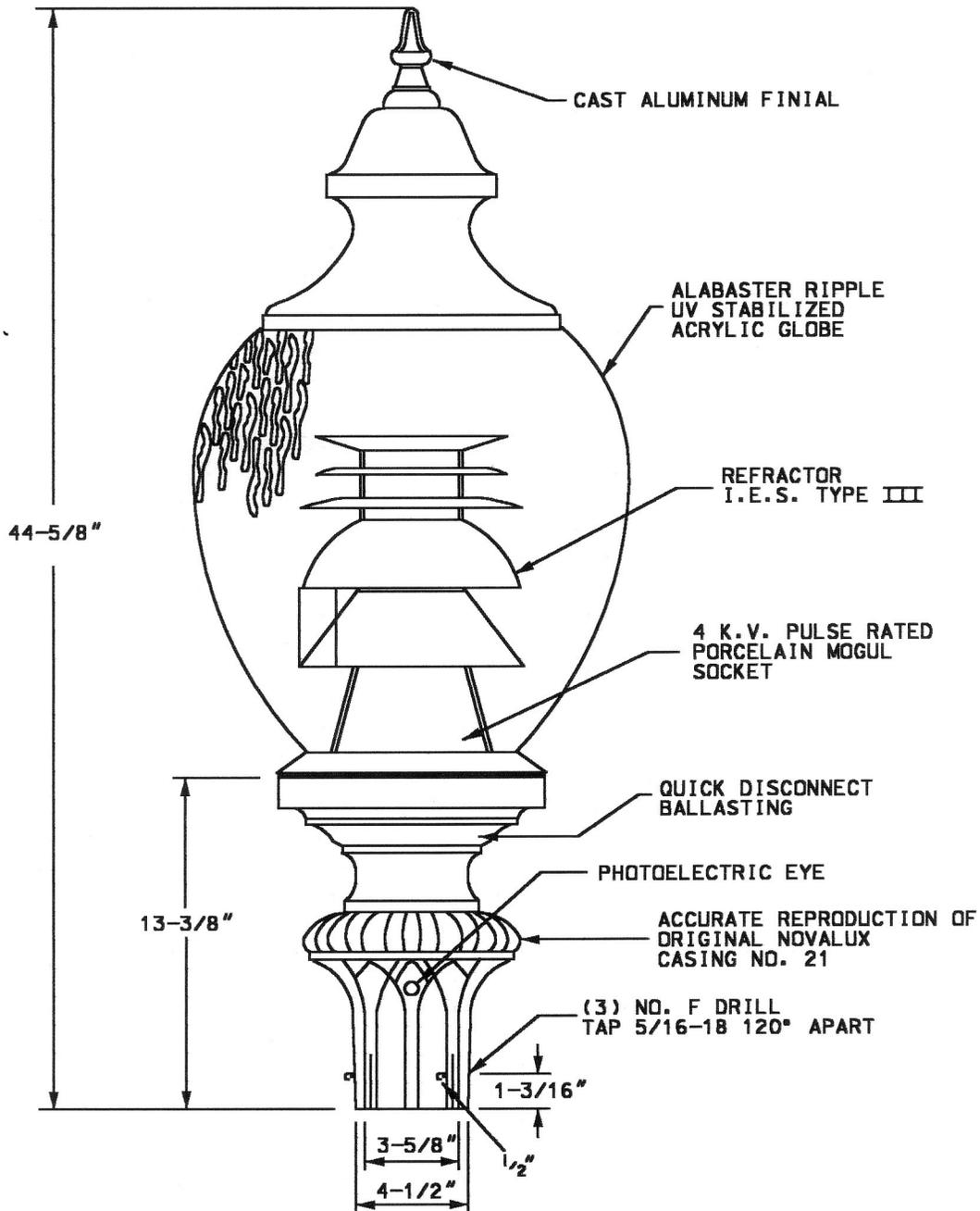
The lamp socket shall be a four K.V. pulse rated porcelain mogul socket.

12) FINISH

The exterior surface of the finial and luminaire body shall be factory finished with a dark green electrostatically applied polyester powder coat. The color shall be "Federal Green", federal color 595a, #14036.

SPECIFICATIONS FOR STREETLIGHT HARDWARE

IFB # 1063092



MONTGOMERY COUNTY, MARYLAND
DEPARTMENT OF TRANSPORTATION
DIVISION OF TRAFFIC AND PARKING SERVICES

JUNE 2016

WASHINGTON GLOBE DECORATIVE STYLE LUMINAIRE
SEMI CUT-OFF HARD TOP

3) PURPOSE

The purpose of these specifications is to provide minimum requirements for the design, manufacture, finishing and delivery of the Washington Globe (hard top) luminaire. The Washington Globe is intended to be mounted on decorative pole as specified, along roadways throughout Montgomery County. Any manufacturer, distributor or vendor who submits bid shall agree with these specifications

2) DESCRIPTION

The luminaire shall be an outdoor decorative post top fixture, cylindrical in shape with an overall height between 42.5 +/- 2.0 inches and a overall width between 16.5 +/- 0.5 inches for the globe (see attached drawing). All exterior and structural parts shall consist of aluminum alloy or cast iron. Exterior castings shall be cast in one piece having a smooth surface finish and free of mold lines. A separate cover for a ballast drawer/tray is permitted if the ballast drawer cover is secured to the luminaire body with captive fasteners. All components shall fit together snugly and shall be fitted with continuous neoprene gaskets so as to weather proof joints between metal interfaces. Visible metal surfaces shall have raised decorations integrally molded in the base piece. All metal parts shall be corrosion resistant. The luminaire shall come ready for quick an easy field assembly or fully assembled:

Each luminaire shall include the following components:

- 5) Lamp and ballast, as specified;
 - 6) 120 volt ballast
 - 7) Button type photocell installed on the metal body of the luminaire or ballast tray cover;
 - 8) All necessary hardware and fasteners to assemble and secure on post tenon.
- The luminaire must be able to accommodate 70, 100, and 150 watt, High Pressure Sodium Vapor (HPSV) or 100, 175, and 250 watt Metal Halide (MH) lamps and ballast's. The luminaire shall be either Antique "W" Series, Model WA25F, Spring City Washington 118 Globe with finial, King "Washington Globe," or an approved equal.

3) DESIGN CRITERIA

3.5) AASHTO Standards

The luminaire shall meet the requirements of the American Association of State Highway and Transportation Officials (AASHTO), Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals” latest edition.

3.6) Wind Load

All components of the luminaire shall be designed to resist (at yield strength of the materials without permanent deflection or destruction), test loads equivalent to the calculated loads developed by the velocity pressure of at least an 80 MPH wind. A minimum safety factor of 1.82 on the yield strength shall be maintained.

4) GLOBE AND REFRACTOR

The globe should be supplied as two pieces, chemically matching material as a unit and permanently sealed together with a chemical bonding process. The globe bottom shall be alabaster rippled and made of UV stabilized acrylic. The globe roof shall be of a spun aluminum design. The roof and bottom globe sections are secured in a slip-fit, 1/2" overlap design and providing a mechanical lock and enabling easy future replacement of either the roof or bottom globe section if required. The roof finish shall be polyester thermoset powdercoat. The globe shall be of a traditional “Washington Globe” (acorn) shape and shall contain an internal IES Type III metal louver assembly reflector designed to achieve the photometric performance specified by Illumination Engineering Society (IES). The bottom surface of the globe shall interface closely with the metal body of the fixture so as to provide a weather, dust, and insect proof interface. The globe or its mounting ring shall be fastened with three or more recessed set screws to the body of the fixture.

5) BALLAST

The ballast shall be securely fastened into the base of the luminaire and have quick release electrical connections. The ballast shall be a high power factor ballast of at least 90% to supply power for the specified HPSV lamp from 120 volt power supply. The space for the ballast shall have sufficient space to accommodate ballasts for 70, 100, or 150 watt HPSV and 100, 175, or 250 watt Metal Halide lamps.

6) LAMP

The luminaire may be used with wattage of lamps and are as follows:

- ANSI Code - 70 watt (HPSV), with Mogul base socket
- ANSI Code - 100 watt (HPSV), with Mogul base socket
- ANSI Code - 150 watt (HPSV), with Mogul base socket
- ANSI Code – 100 watt (MH), with Mogal base socket
- ANSI Code – 175 watt (MH), with Mogal base socket
- ANSI Code – 250 watt (MH), with Mogal base socket

7) PHOTOCELL

The photocell shall be a "Button type", 3,000 tork or equal, mounted on the metal body of the luminaire or the cover of the ballast tray drawer.

10) METAL BODY

The body shall be cast in one piece and shall have raised surface decorations. The body shall taper smoothly between the slip fitter to the base of the globe. The body shall be constructed with weep holes or channels to prevent rainwater from collecting at the top of the body.

9) SLIP FITTER

The slip fitter shall have a nominal inside diameter of 3.375 inches +/- 0.25 and shall be secured to the lamp post tenon with three of four evenly spaced set screws. The slip fitter shall accommodate a tenon 3.0 inches long.

10) FINIAL

The finial shall be made of cast aluminum, and securely fastened to the top of the globe.

11) SOCKET

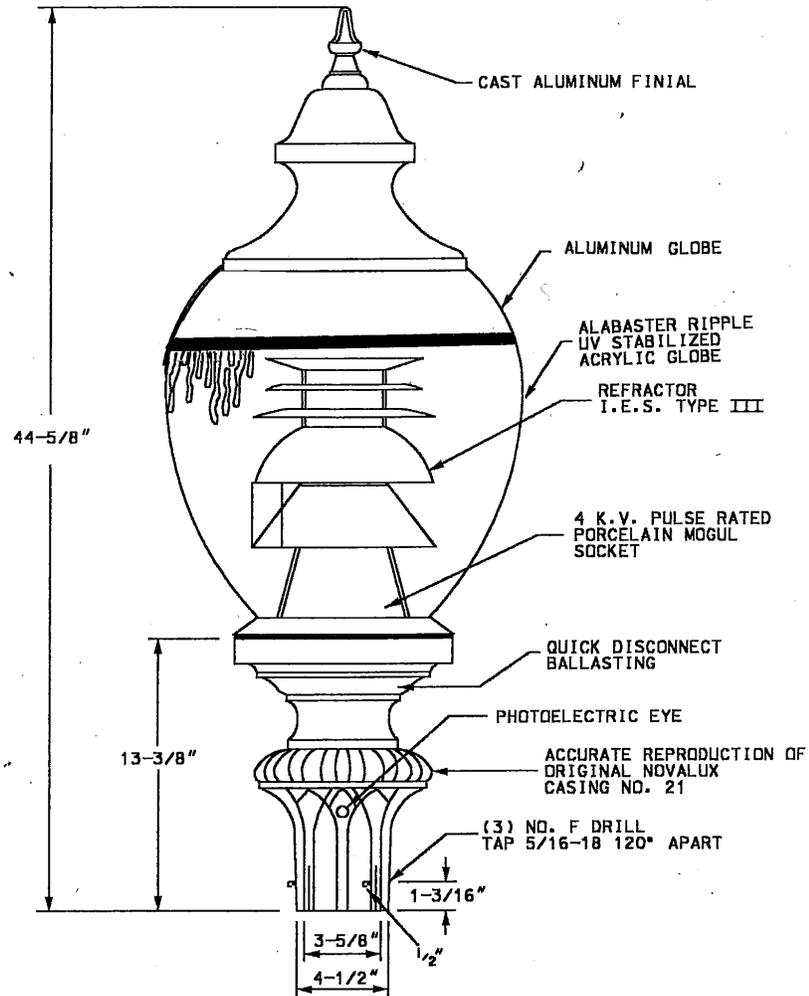
The lamp socket shall be a four K.V. pulse rated porcelain mogul socket.

12) FINISH

The exterior surface of the finial and luminaire body shall be factory finished with a dark green electrostatically applied polyester powder coat. The color shall be "Federal Green", federal color 595a, #14036.

SPECIFICATIONS FOR STREETLIGHT HARDWARE

IFB # 1063092



MONTGOMERY COUNTY, MARYLAND
DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING AND OPERATIONS

JUNE 2016

WHEATON DECORATIVE PEDESTRIAN LUMINAIRE

1) PURPOSE

The purpose of these specifications is to provide minimum requirements for the design, manufacture, finishing and delivery of the Wheaton decorative pedestrian luminaires. The Wheaton pedestrian luminaire is intended to be mounted on decorative pole in urban streetscaped areas in Montgomery County. Any manufacturer, distributor or vendor who submits bid shall agree to comply with these specifications.

2) DESCRIPTION

The U.L. approved luminaire is spherical in shape with a clear acrylic globe 18.0 inches in diameter, designed to be used as an outdoor streetlight. The luminaire shall provide a Type II distribution.

Each luminaire shall include the following:

- a) Lamp;
- b) Finish color shall match semi-gloss black thermosetting, polyester powder coating.;
- c) Spherical clear, seamless acrylic optical assembly;
- d) Prismatic borosilicate molded glass refractor;
- e) Heavy duty cast aluminum fitter assembly which supports the refractor and the spherical optical assembly;
- f) Button type photoelectric cell to be installed in the base of the luminaire fixture (see attached detail).

The luminaire must be of suitable size to accommodate a 100 watt HPSV bulb and ballast.

3) OPTICAL ASSEMBLY

The optical assembly shall consist of a spun aluminum reflector/refractor support finished with high temperature gloss black oven cured enamel. The cylindrical prismatic refractor of borosilicate glass with precisely formed prisms shall produce a long and narrow distribution. The assembly shall be secured to the luminaire socket with a three position internal latching system.

4) HOUSING

The housing shall include a watertight shell consisting of a fitter, twist-lock fitter and a spherical acrylic optical assembly with captive fasteners. The acrylic optical assembly shall be attached to the fitter assembly by means of "twistlock" fasteners, 18.0 inches sphere diameter.

5) BALLAST

The ballast shall be equipped for a 100 watt High Pressure Sodium Vapor (HPSV) lamp with a 120 volt power supply. All connections shall be polarized for quick disconnect with a minimum starting temperature of minus 20 degrees F. The ballast shall be contained within the luminaire. The ballast shall provides lamp wattage within \pm -5%, with \pm 12% primary line voltage fluctuations.

6) LAMP

The lamp shall be a ANCI code - S55SC-100 (100 watt HPSV). The operating voltage of the lamp and the output voltage of the ballast shall be the same.

7) PHOTOELECTRIC CELL

The photocell shall be a "U.L. approved" "Button type" Tork Model 3000 or equal. The photoelectric cell shall be located in the base of the luminaire fixture. (See attached detail.)

8) CORROSION PROTECTION

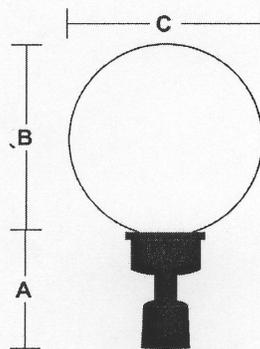
The complete luminaire assembly must be U.L. listed as "Suitable for Wet Locations." The U.L. listing number shall be submitted with the bid. All exposed metal parts of the luminaire shall be protected against corrosive environments by alkaline cleaning, zinc phosphate pretreatment and Triglycidyl Isocyanurate polyester powder paint.

9) COMPATIBILITY

The pedestrian luminaires shall be supplied by the same manufacturer as the vehicular luminaire to assure architectural compatibility.

SPECIFICATIONS FOR STREETLIGHT HARDWARE

IFB # 1063092



NTS

A	B	C
10 5/16"	17"	18"
278 mm	432 mm	457 mm

DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING AND OPERATIONS

JUNE 2016

WHEATON DECORATIVE VEHICULAR LUMINAIRE

1) PURPOSE

The purpose of these specifications is to provide minimum requirements for the design, manufacture, finishing and delivery of the Wheaton decorative vehicular luminaire. The Wheaton vehicular luminaire is intended to be mounted on decorative pole in urban streetscape areas in Montgomery County. Any manufacturer, distributor or vendor who submits bid shall agree to comply with these specifications.

2) DESCRIPTION

The luminaire shall be UL/CUL listed, Type III, wide, cutoff fixture, the luminaire shall be 36.8 inches in length and 16.7 inches in width with a maximum EPA of 2.05, designed to be used as an outdoor streetlight. Each luminaire (Holophane catalog number G15AHP12LWFKRF1 or approved equal) shall be complete with:

- a) Lamp;
- b) NEMA Twist-lock photoelectric cell receptacle to be installed atop the luminaire;
- c) All the necessary hardware for installation over a 2.375 inch OD tenon;
- d) Finish color shall match semi-gloss black Thermo-setting, Polyester Powder Coating (fusion bonded coating);
- e) Clear Flat-Glass
- f) Die cast aluminum housing and fitter assembly.

The luminaire must be a suitable size to accommodate a 150 watt HPSV bulb and ballast.

3) OPTICAL ASSEMBLY

The reflector shall consist of high purity (#3002 alloy) aluminum of minimum .08 inch thick sheet. Flat lens shall be 1/8 inch tempered glass. A type III distribution patterns shall be provided in full cutoff depending on tilt angle. These shall include a wide roadway. A clear flat glass lens to mount on the door frame.

4) HOUSING

The housing door and fitter shall be die cast aluminum. The housing shall have an electrostatically applied 2 to 4 mil coat of TGIC polyester powder paint cured @ 425 degree F. It shall have passed a 1000 hour salt spray test as specified by ASTM B-117. It shall be available in brown and gloss black paint finishes. All external hardware shall be corrosion resistant. Housing access shall not require not tools and be a hinged latching system. All electrical components shall be on the door for ease of maintenance. The fitter shall be integral to the luminaire and accommodate a 2 inch tenon or arm. The luminaire

shall be capable of being tilted between 0 and 18 degrees. Electrical connection shall be inside the fitter assembly and not require fixture entry.

5) BALLAST

The ballast shall be for a 150 Watt, High Pressure Sodium Vapor (HPSV) lamp with a 120 volt power supply. The ballast shall be copper wound high power factor type as specified. It shall reliably start the luminaire to minus 40 degree F. The plug in starter shall be fully encapsulated with a material that electrically and thermally insulates all components from lamp and ballast heat. The capacitor shall be 90 degree C rated with a rated life of 60,000 hours. The luminaire shall have a range of 100 to 400 watt high pressure sodium and metal halide lamping options. Fusing shall be provided inside the luminaire. The ballast shall be tray mounted to allow easy removal of ballast assembly with all connections polarized for quick disconnect. The ballast shall provide lamp wattage within $\pm 5\%$ with $\pm 12\%$ primary line voltage fluctuations.

5.1 Testing results

Test results from an authorized testing facility showing power factor ratings through 24,000 hours at 3,000 hour interval shall be submitted along with a volt watt trace curve of the typical ballast performance to ANSI standards.

6) LAMP

The lamp shall be ANCI code - S55SC-150 (150 watt HPSV). The operating voltage of the lamp and the output voltage of the ballast shall be the same.

7) PHOTOELECTRIC CELL

The photocell shall be a NEMA twist-lock type or equal

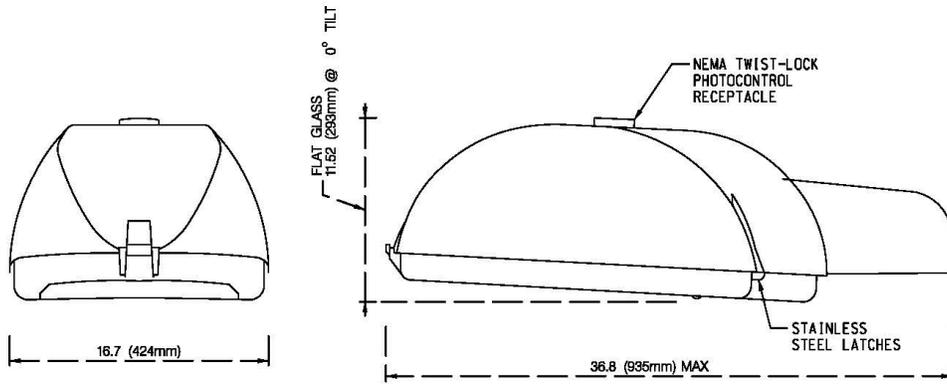
8) CORROSION PROTECTION

The complete luminaire assembly must be U.L. listed as "Suitable for Wet Locations." The U.L. listing number shall be submitted with the bid. All exposed metal parts of the luminaire shall be protected against corrosive environments by alkaline cleaning, zinc phosphate pretreatment and Triglycidyl Isocyanurate polyester powder paint.

SPECIFICATIONS FOR STREETLIGHT HARDWARE

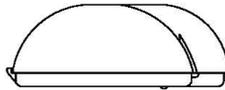
IFB # 1063092

SPECIFICATIONS FOR STREETLIGHT HARDWARE

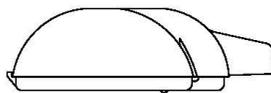


G15AHP12LWFKRF 1

CATALOG NUMBER



OPTIC TILT RANGE
WF LOW



"H" MOUNTING
ATTACHES TO A
HORIZONTAL TENON