

**Montgomery Township
Street Lighting Specification**
As referenced by Chapter §A237-1

Effective: December 2003
Updated: April 2020

**This specification supersedes all previous standards found
within the Montgomery Township Street Lighting Specification**

Updated by:
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Questions pertaining to the specifications themselves, or the interpretation of the specifications to a particular job site, should be referred to:

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Section 1: Lighting Criteria

1. Illumination Levels

- a. Lighting, where required or permitted by Ordinance, shall have intensities and uniformity ratios in accordance with the current recommended practices of the Illuminating Engineering Society of North America (IESNA) as contained in the IESNA Lighting Handbook or separately in IESNA Recommended Practices.
- b. Future amendments to said recommended practices shall become a part of Township Outdoor Lighting Ordinance without further action of the Municipality.
- c. *Examples* of intensities for typical outdoor applications, as extracted from the ANSI/IES Recommended Practice for Design and Maintenance of Roadway Parking and Facility Lighting (RP-8-18, and Addendum 01), Guideline for Security Lighting for People, Property, Public Spaces (IES-G-1-16), and The Lighting Handbook (Tenth Edition) presented in Table 1, below.

TABLE 1 – Examples of Intensities for Typical Outdoor Applications

The information contained in the table below is only an example of typical intensities and uniformities, the Final Lighting Design and Analysis shall adhere to current industry recommendations and guidance.

Use/Task	Maintained Average Horizontal Intensity	Uniformity Ratio
Streets, <ul style="list-style-type: none"> • Local, Medium Pedestrian Activity 	0.5 cd/m ² Min.	6:1 Avg./Min.
Parking Lots, Drive Aisles <ul style="list-style-type: none"> • All Activity Levels 	0.2 fc Min.	20:1 Max./Min.
ATM Areas	2.0 fc Min.	4:1 Avg./Min.
Bikeways	0.5 fc Min.	4:1 Avg./Min.
Crosswalks (see note 3)	≥Roadway Requirement	
Sidewalks <ul style="list-style-type: none"> • Commercial (Pedestrian Only) • Residential (Pedestrian Only) 	0.9 fc Min. 0.5 fc Min.	4:1 Avg./Min. 4:1 Avg./Min.
Building Entries – Canopied, Medium Activity, High Ambient Lighting	2.0 fc Avg.	2:1 Avg./Min.
Service Station Pump Islands (Medium Activity) <ul style="list-style-type: none"> • No Ambient Lighting • High Ambient Lighting 	4.0 fc Avg. 15.0 fc Avg.	4:1 Avg./Min. 2:1 Max./Min.

- Notes:
1. Illumination levels are maintained horizontal footcandles on the task, e.g., pavement or area surface.
 2. Uniformity ratios may be expressed as the ratio of the average level (of either illuminance or luminance) to the minimum level. An alternative specification may be the maximum-to-minimum ratio.
 3. Vertical Illuminance and average uniformity are recommended to be equal to the required horizontal illuminance and uniformity for the same use/task.

2. Lighting Fixture Design

- a. Fixtures shall be of a type and design appropriate to the lighting application and aesthetically acceptable to the Municipality.
- b. For lighting horizontal tasks such as roadways, sidewalks, paths, entrances, and parking areas, fixtures shall be aimed straight down, shall have flat lenses and shall meet IESNA full-cutoff criteria, and have a BUG (Backlight, Uplight, Glare) rating with a “U” value no greater than 0.
- c. The use of floodlighting, spotlighting, wall-mounted fixtures, internally illuminated decorative globes and spheres and other fixtures not meeting IESNA full-cutoff criteria and having a BUG rating with a “U” value greater than 0, shall be permitted only with the approval of the Municipality, based upon acceptable justification and achievement of adequate glare control.
- d. When requested by the Municipality, fixtures shall be equipped with light directing and/or shielding devices such as shields, visors, skirts, or hoods to redirect offending light distribution and/or to reduce direct or reflect glare.
- e. For residential applications, fixtures with an aggregate per fixture output in excess of 1,000 lumens shall meet IESNA full-cutoff criteria and have a BUG rating with a “U” value no greater than 0.
- f. NEMA-head fixtures, a.k.a. “barn lights” or “dusk-to-dawn lights,” shall not be permitted where they are visible from other uses, unless fitted with a reflector or shield to render them full-cutoff and restricting the BUG rating “U” value to 0.

3. Control of Nuisance and Disabling Glare

- a. All outdoor lighting, whether or not required by Township Ordinance, on private, residential, commercial, industrial, municipal, recreational, or institutional property; shall be aimed, located, designed, fitted, and maintained so as not to present a hazard to drivers or pedestrians by impairing their ability to safely traverse and so as not to create nuisance by projecting or reflecting objectionable light onto a neighboring use or property. All outdoor light fixtures shall be shielded in such a manner that no light is emitted above a horizontal plane passing through the lowest point of the light-emitting element, so that direct light emitted above the horizontal plane is eliminated, and shall meet IESNA full-cutoff criteria, with BUG rating “U” value of 0. Any light fixtures that have less than a total 800 lumen output are exempt from this requirement.
- b. All outdoor lighting fixtures that light the area under outdoor canopies shall be shielded in such a manner that no light is emitted above a horizontal plane passing through the lowest point of the light-emitting element, so that direct light emitted above the horizontal plane is eliminated. Outdoor canopies include, but are not limited to, the following applications:
 - i. Fuel island canopies associated with service stations and convenience stores.
 - ii. Exterior canopies above storefronts in shopping centers and malls.

- iii. Exterior canopies above driveways and building entrances.
- iv. Pavilions and gazebos.
- c. Floodlights and spotlights, when specifically approved by the Municipality for use, shall be so installed or aimed that they do not project their output into the windows of neighboring residences, adjacent uses, skyward or onto a public roadway or pedestrian way.
- d. Unless otherwise permitted by the appropriate officers or agents of the Municipality, e.g., for safety or security or businesses that operate all night, lighting for commercial, industrial, public recreational, and institutional applications shall be controlled by automatic switching devices such as time clocks or combination motion detectors and photocells, to extinguish or dim outdoor lighting fixtures between 10 P.M. and dawn, to reduce energy waste and mitigate nuisance glare and sky-lighting consequences.
- e. Lighting proposed for use after 10 P.M., or after normal hours of operation of a business, **whichever is earlier**, for commercial, industrial, institutional, or municipal application, shall be dimmed by at least 50% from then until dawn, unless supporting a specific purpose and approved by the appropriate officers or agents of the Municipality.
 - i. Hours of operation must be clearly annotated on the lighting plan for a proposed non-residential development.
- f. Externally illuminated signs and billboards shall be lighted by fixtures mounted at the top of the sign and aimed downward. Such lighting shall be automatically extinguished between the hours of 10 P.M. and dawn except as specifically approved by appropriate officers or agents of the Municipality for sign lighting on the premises of all-night commercial operations. All such fixtures shall be so designed or fitted to concentrate the light output onto and not beyond the sign or billboard.
- g. All illumination for advertising signs, building, and/or surrounding landscapes for decorative, advertising, or aesthetic purposes is prohibited between 10 P.M. and dawn, except that such lighting situated on the premises of a commercial establishment may remain illuminated while the establishment is open for business, and until one hour after closing. Businesses with 24-hour operations may illuminate the premises throughout the night.
- h. Flagpole lighting sources shall be mounted on top of the flagpole except as specifically approved by appropriate officers or agents of the Municipality. In all cases light sources shall not exceed 10,000 lumens per flagpole.
- i. Vegetation screen shall not be employed to serve as the primary means for controlling glare and light trespass. Glare control and elimination of light trespass shall be achieved by the appropriate selection of fixtures, implementation of

shields and baffles, and appropriate application of fixture mounting height, wattage, aiming angle, and fixture placement.

- j. In no case shall the illumination cast by a source or sources onto an adjacent property zoned for or in residential use exceed 0.1 *vertical* foot-candle measured line-of-sight, from any location on the adjacent residential property line.
 - k. Except as specifically approved by appropriate officers or agents of the Municipality, fixtures meeting IESNA full-cutoff criteria and having a BUG rating “U” value of 0, shall not exceed a mounting height of twenty (20) feet above the paved surface. Mounting height is the vertical distance between finished grade or paving surface within 6 feet (measured horizontally) of luminaire, whichever is greater, and the center of the apparent light source of the luminaire. Fixtures not meeting the above criteria, less than 16 feet in height, may be permitted by appropriate officers or agents of the Municipality.
 - l. Directional fixtures, e.g., floodlights or spotlights, for such applications as façade, fountain, feature, recreational, and landscape illumination shall be aimed so as not to project their output beyond the objects intended to be illuminated and shall be extinguished between the hours of 10 P.M. and dawn.
 - m. The use of white strobe lighting for tall structures such as smokestacks, chimneys, and radio/communications/television towers is prohibited during hours of darkness, except as specifically required by FAA.
4. Installation
- a. Electrical feeds for fixtures mounted on poles shall be run underground, not overhead.
 - b. Poles supporting lighting fixtures for the illumination of parking, pedestrian areas and drive aisle pavement areas, shall be placed a minimum of five (5) feet outside paved area and/or curbing, or on concrete pedestals at least thirty (30) inches high above the pavement, or suitably protected by other approved means (e.g. bollards).
 - c. Maximum light fixture height is 20 feet.
 - i. The final mounting height is to be within 1’-0” of the mounting height specified on the approved plans.
5. Maintenance
- a. Lighting fixtures and ancillary equipment shall be maintained so as always to meet the requirements of the Township Ordinances, applicable codes, manufacturer recommendations, and this document.

Section 2: Wiring and Conduit Specifications

The general approach in this Specification is to specify equipment and wiring techniques familiar to Township personnel for the purposes of reduced hardware inventories and minimal overall installation cost.

Utility service applications must be filed for the locations specific to a particular job. Should there be any discrepancies between planned and actual locations for stub ups, coordinate with Municipal Street Lighting Engineer and the Montgomery Township Department of Public Works for acceptable repositioning prior to installation.

Power wiring shall be #6 Type USE copper cable. The equipment grounding conductor shall be #10 Type USE copper cable. Power wiring and the equipment grounding conductor shall be run in two inch (2") Rigid Non-metallic Conduit (PVC Schedule 80).

Service connections at Township street lighting poles shall be made in "PC" Style Gasketed boxes manufactured by Hubbell Quazite, catalog number PC1118BG18. Box covers measuring 11 1/2 x 18 1/2 inches shall be a minimum tier 8 load rating and distinctively marked "STREET LIGHTING". Gasketed covers and bolt grommets must be used. Bolts shall be 3/8 Stainless Steel Hex Head Bolt with washer.

PECO terminations shall be made in 14" PenCell PE boxes manufactured by Hubbell PenCell Plastics, catalog number PE14HDH00084 flush mounted with finish grade. Box covers measuring 12 1/8 x 16 5/8 inches shall be distinctively marked "POWER." Bolts shall be 3/8-16 UNC Stainless Steel Hex Head Bolt with washer.

Service wire from junction boxes to streetlights shall be installed in one inch (1") Rigid Non-metallic Conduit (PVC Schedule 40). Power wiring shall be #10 Type USE copper cable. The equipment grounding conductor run from the ground lug in the pole to the ground lug in the junction box shall be #10 Type USE copper cable. An extra 24 inches of slack wire shall be coiled and left in all junction boxes, interconnecting and pole service wire included. An extra 12 inches of slack wire shall be left in the luminaires' fixture head and coiled in the bottom of the luminaire.

UL listed in line fuse systems for each streetlight are required. System shall include two (2) Buss Type HEB fuse holders and four (4) 15 AMP in line fuses. All LED luminaires shall be protected by minimum 10kV/10kA surge protection. Both supply and return power wires feeding the luminaires shall be fused at both the junction box and at the fixture. All luminaires shall be purchased with built in internal fuses. Fixtures shall be manufactured by Acuity Brands, catalog number 247L-P40-AS-30K-R2-AY (Type II Distribution) or 247L-P40-AS-30K-R5-AY (Type V Distribution), depending upon the application.

Rubber insulated boots shall be installed on all fuse holders.

Fuses shall be crimped in place with heat shrunk insulation rather than taped.

All conduit joints shall be purple primed and glued with PVC Conduit Solvent Cement.

The entire assembly shall be UL listed for the application, certificates certifying UL listing shall be provided.

There shall be no deviations to the installation techniques described above, without the prior, written approval from the Municipal Street Lighting Engineer and the Montgomery Township Department of Public Works.

Section 3: Conduit & Service Box Installation

The Developer shall arrange for the coordinated inspection of the Municipal Street Lighting Engineer and an authorized Montgomery Township Electrical Underwriter for the underground conduit, junction box, and pole base installation of the street lighting system. The Montgomery Township Lighting Engineer (Traffic Planning and Design, Inc.) can be reached by phone at (610) 326-3100. A listing of the approved Electrical Underwriter Inspection agencies is obtainable at the Township Code Enforcement Office.

Fort-eight (48) hours notification is required for Montgomery Township Public Works Department and the Municipal Lighting Engineer and the Inspection Agency to allow for coordinated inspection activities of conduit installation and backfill. The approval of all is required for the installation to proceed.

Trenching shall be to a depth that will provide at least 24” of cover to the 2” schedule 80 PVC conduit. Underground electrical warning tape shall be used on top of the 6” conduit cover (see attached specifications).

Installation of Hubbell Quazite and Hubbell Pencil service boxes shall be provided with a minimum of 18 inches of #2 Clean Stone below such service box, along with an 18 inch deep, J-M Pipe, four (4) inch nominal diameter, perforated, polyvinyl chloride (PVC) sewer pipe with holes, or approved equivalent. The pipe shall extend three (3) inches above stone, in order to draw off surface water. Pipe shall meet or exceed ASTM D2729, latest revision. All conduit in junction boxes must extend six (6) inches above stone level.

Complete backfill with clean backfill material.

It is imperative that the Developer coordinate inspection activities with the Municipal Lighting Engineer and the Inspection Agency at each phase of the installation. A successful job depends on the mutual agreement that both parties approve of the installation as meeting all Township and current National Electric Code Requirements.

Section 4: Luminaire Specifications

Luminaires shall be manufactured by Acuity Brands, 247L LED-American Revolution luminaire, Catalog Number 247L-P40-AS-30K-R2-AY (Type II Distribution) or 247L-P40-AS-30K-R5-AY (Type V Distribution), depending on the application. Fixture shall be factory pre-wired and suitable for operation in temperature to -20 degrees Fahrenheit. Luminaire shall have cast aluminum housing and canopy. All luminaires shall be equipped with standard 3 pin NEMA photocontrol. Photocells shall be Sunrise Technologies, Inc. model number ES-124-WPF-1.5-T (8542) or Township approved equal Photocells shall be warrantied for twelve (12) years. Luminaire shall be designed with colonial styling, using two-piece die cast housing consisting of a lower tenon adapter for up to three (3) inch O.D. pipe and die cast housing. The luminaire shall be equipped with four acrylic lenses. The unit shall be painted black in a four-step powder coat epoxy process. The unit shall include an injection molded thermoplastic photoelectric control receptacle for rugged service. The fixture voltage shall be 120-277V.

Light fixture shall be installed to provide minimum 6" clearance from front of light fixture to front of curb.

NOTE: All wiring connections to fixtures must provide no less than 12" slack for ease of head removal for future maintenance.

Section 5: Pole Specifications

Poles shall be laminated wood posts treated with pentachlorophenol in light hydro-carbon solvents of Douglas Fir or Hemlock. All lumber to be kiln dried before surfacing and bonding. Poles to be designed to resist 77 MPH steady winds. Poles to be similar or equivalent to J.H. Baxter & Co. 12PV for 12'-0" poles. Poles to use metal base plate for installation to concrete foundation. Install colonial fixtures on side mounted torch tenon 18" bracket by J.H. Baxter & Co. Catalog Number W25 or approved equivalent. Poles shall be oriented to provide the 5 1/8" as the street side of the pole.

Light pole shall be positioned and installed to provide minimum 6" clearance from front of light fixture to front of curb.

Section 6: Marking Tape

Provide and install six (6) inches above the buried electrical conduit a high-quality pigmented polyethylene film with the following printed message on one side:

“CAUTION – ELECTRICAL LINE BURIED BELOW.”

The tape shall be as follows:

1. Composition	Polyethylene
2. Thickness	4.0 mil nominal
3. Width	3.0 inches
4. *Tensile Strength	8.5 lbs./inch + 2,100 PSI
5. *Elongation MD	430.0%
6. Color	Red

*Three (3) Inch Tensile: The maximum amount of weight that a three-inch-wide sample of material can lift without breaking.

*Three (3) Inch Elongation: The percentage of the original length that a material can stretch without breaking.

Manufacturer shall be Allen Systems, or equal.

NOTE: All marking tape must be RED in color. Should this color not be available, DO NOT install any other color tape without the expressed written permission of the Montgomery Township Public Works Department.

Section 7: Connection Specifications

All terminations shall require a terminal device which allows for one conductor under termination point, preferably with a manual connection.

Section 8: Inspection and Commissioning Process Steps

Upon completion of the street lighting installation, the Developer or his designated representative shall notify the Municipal Street Lighting Engineer by letter and must include a copy of the Electrical Underwriter's Certificate for the project. Upon receipt of both letter and certificate, the project will be inspected to check for conformity with the municipal specifications previously provided. Developer will be notified if specifications are not met. Electrical Underwriter's Inspection Certificate shall specifically state, in writing, the Electrical Underwriter's inspection and acceptance of:

- 1. All underground conduit and wire have been observed and inspected to be in conformance with the current National Electric Code.**
- 2. All connections and terminations have been observed and inspected to be in conformance with the current National Electric Code.**
- 3. All equipment has been observed and found to be U.L. listed and accepted.**
- 4. The specific number of luminaires and the locations which were observed and inspected.**

Electrical connection for street lighting under Rate SLE is only available to municipalities and such request for connection shall be made only by Municipal Street Lighting Engineer. Municipality shall request connection by local utility, but Developer is responsible for all utility service connection charges. Such charges shall be deducted from Developers' escrow accounts held by Municipality.

When streetlights are operable, municipality will bill Developer for electrical service provided, since utility will bill Municipality directly for same. Such Developer payments will continue until dedication has been completed.

Developer shall provide a system warranty for 18 months after development dedication and the beginning of the maintenance period.

Section 9: Fiberglass Base Cover Specifications

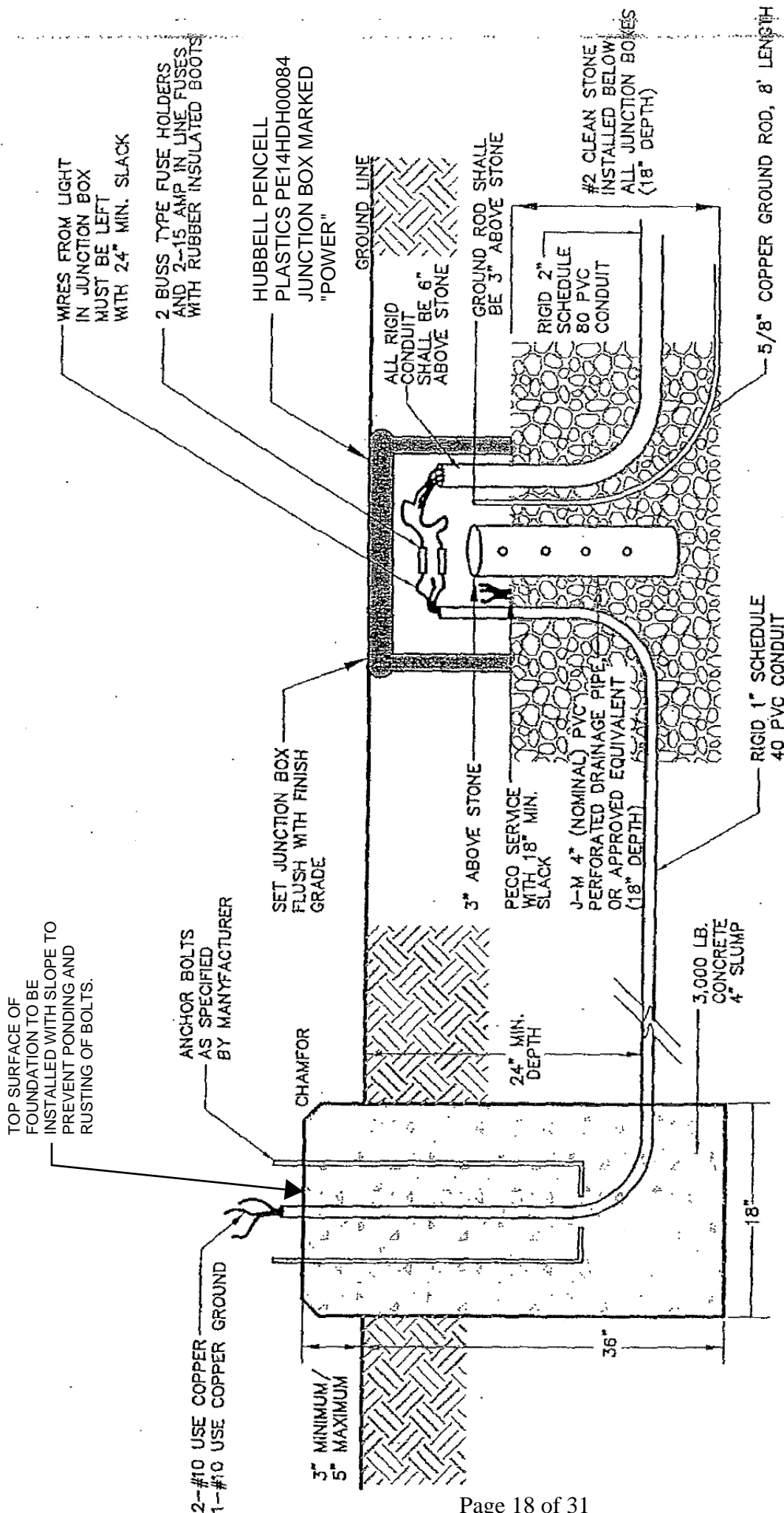
Pole base covers shall be heavy-duty two-piece interlocking ABS plastic. Base cover shall be black in color and manufactured to permit complete covering of the base plate cover, which is made to support the standard decorative wood pole manufactured by J.H. Baxter & Co. Height of supplied base cover to be five (5) inches.

Section 10: Street Lighting System Warranty

The Developer shall warrant all parts and associated labor for the Street Lighting System for a period of eighteen (18) months beginning from the date of Development dedication. **In addition, the Developer shall provide the Township with one (1) complete streetlight setup which shall consist of a pole base cover, pole, mounting bracket arm, photocell, and fixture for every fifteen (15) street lights and one (1) complete setup for every ten (10) street lights thereafter.** The Developer shall continue to provide maintenance service and pay for energy use until the Street Lighting System is accepted by and deeded to the Municipality.

NOTE: As-built street lighting plans must be provided by the developer to the Municipal Street Lighting Engineer prior to any dedication acceptance. Two sets of approved as-built drawings shall be provided to the Township Public Works Department.

Section 11: Drawings

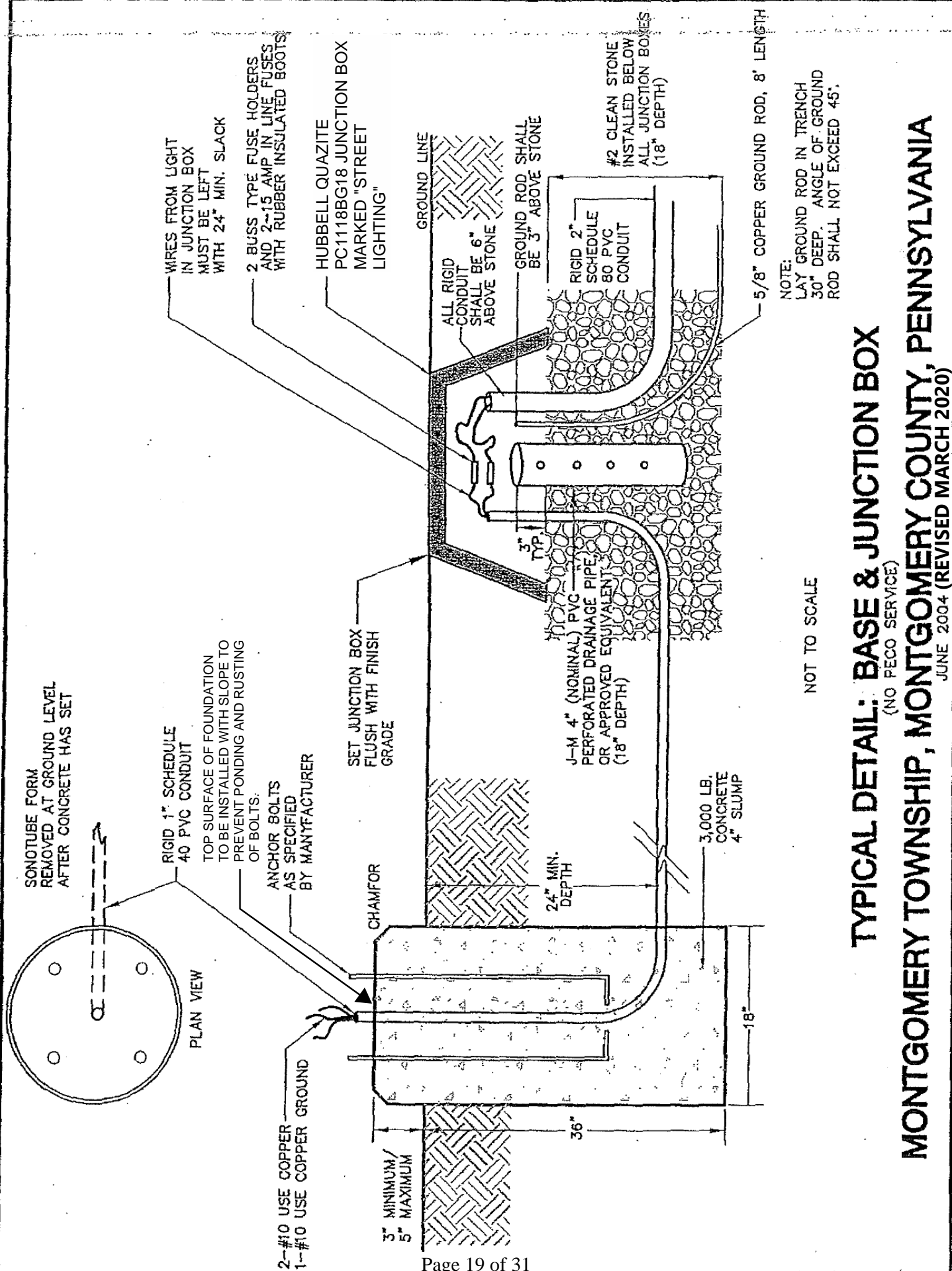


Wires from light in junction box must be left with 24" min. slack.
 2 Buss type fuse holders and 2-15 amp in line fuses with rubber insulated boots.
 HUBBELL PENCELL PLASTICS PE14HDH00084 JUNCTION BOX MARKED "POWER"
 ALL RIGID CONDUIT SHALL BE 6" ABOVE STONE.
 RIGID 2" SCHEDULE 80 PVC CONDUIT
 GROUND ROD SHALL BE 3" ABOVE STONE.
 #2 CLEAN STONE INSTALLED BELOW ALL JUNCTION BOXES (18" DEPTH)
 5/8" COPPER GROUND ROD, 8' LENGTH
 NOTE: LAY GROUND ROD IN TRENCH 30" DEEP. ANGLE OF GROUND ROD SHALL NOT EXCEED 45°.

NOT TO SCALE

TYPICAL DETAIL: BASE & JUNCTION BOX
(WITH PECO SERVICE)

MONTGOMERY TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA
JUNE 2004 (REVISED MARCH 2020)



SONOTUBE FORM
REMOVED AT GROUND LEVEL
AFTER CONCRETE HAS SET

RIGID 1" SCHEDULE
40 PVC CONDUIT

TOP SURFACE OF FOUNDATION
TO BE INSTALLED WITH SLOPE TO
PREVENT PONDING AND RUSTING
OF BOLTS.

ANCHOR BOLTS
AS SPECIFIED
BY MANUFACTURER

2-#10 USE COPPER GROUND
1-#10 USE COPPER GROUND

CHAMFOR

SET JUNCTION BOX
FLUSH WITH FINISH
GRADE

3" MINIMUM/
5" MAXIMUM

GROUND LINE

ALL RIGID
CONDUIT
SHALL BE 6"
ABOVE STONE

GROUND ROD SHALL
BE 3" ABOVE STONE

3" TYP.

J-M 4" (NOMINAL) PVC
PERFORATED DRAINAGE PIPE
OR APPROVED EQUIVALENT
(18" DEPTH)

24" MIN.
DEPTH

RIGID 2"
SCHEDULE
80 PVC
CONDUIT

#2 CLEAN STONE
INSTALLED BELOW
ALL JUNCTION BOXES
(18" DEPTH)

3,000 LB.
CONCRETE
4" SLUMP

18"

5/8" COPPER GROUND ROD, 8' LENGTH

NOTE:
LAY GROUND ROD IN TRENCH
30" DEEP. ANGLE OF GROUND
ROD SHALL NOT EXCEED 45°.

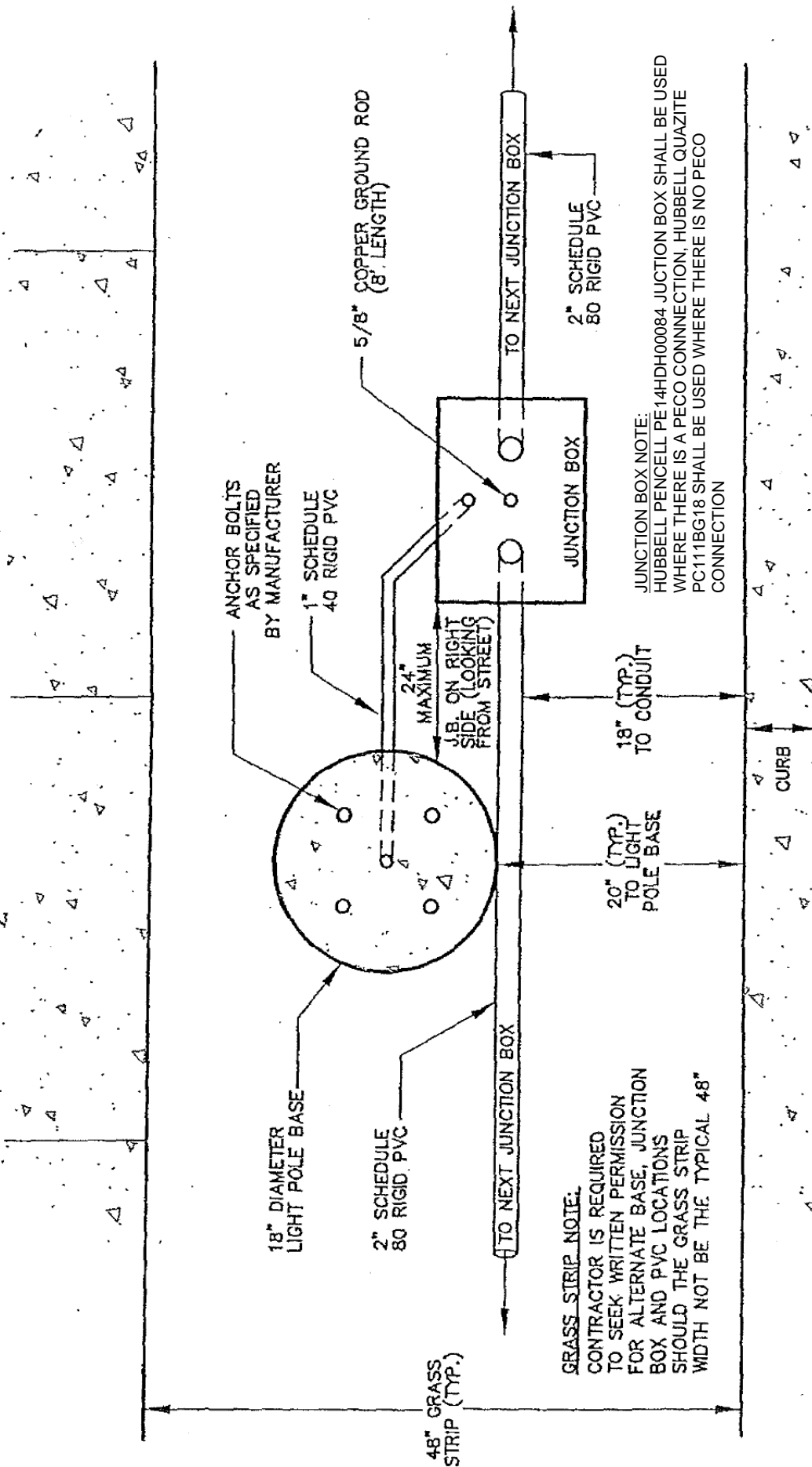
NOT TO SCALE

TYPICAL DETAIL: BASE & JUNCTION BOX
(NO PECCO SERVICE)

MONTGOMERY TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA
JUNE 2004 (REVISED MARCH 2020)

PLAN VIEW

SIDEWALK
(NO PVC PERMITTED UNDER SIDEWALK)



GRASS STRIP NOTE:
CONTRACTOR IS REQUIRED TO SEEK WRITTEN PERMISSION FOR ALTERNATE BASE, JUNCTION BOX AND PVC LOCATIONS SHOULD THE GRASS STRIP WIDTH NOT BE THE TYPICAL 48"

JUNCTION BOX NOTE:
HUBBELL PENCELL PE14HDH0084 JUNCTION BOX SHALL BE USED WHERE THERE IS A PECO CONNECTION, HUBBELL QUAZITE PC111BG18 SHALL BE USED WHERE THERE IS NO PECO CONNECTION

NOT TO SCALE

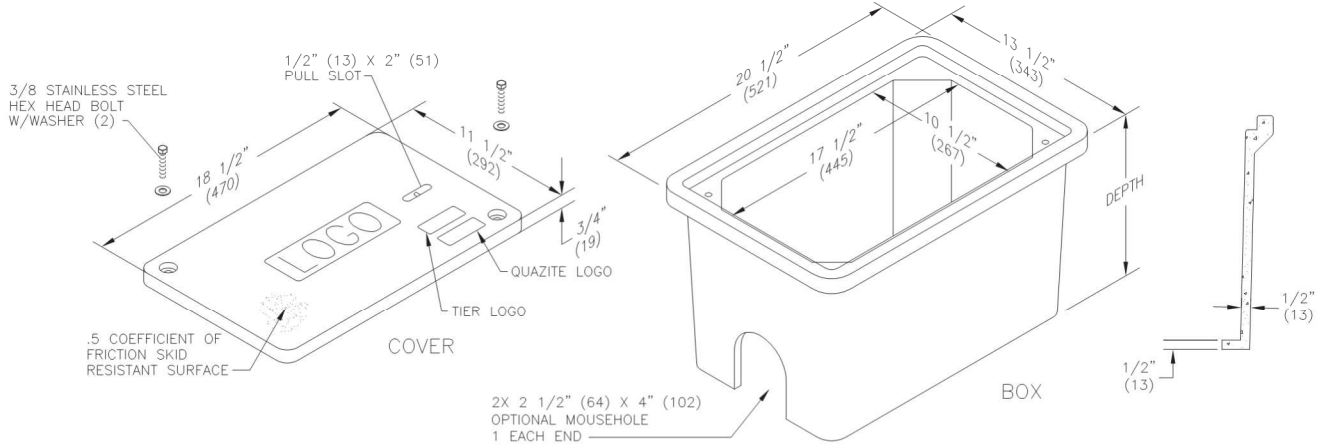
**TYPICAL DETAIL: BASE/CONDUIT/JUNCTION BOX INTERCONNECTION
MONTGOMERY TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA**

OCTOBER 2003 (REVISED MARCH 2020)

Dimensions / Data

11" x 18" PC Style Polymer Concrete (Stackable) Assembly

Hex Head Bolts are Standard



Covers

	DESCRIPTION	TIER	DESIGN / TEST LOAD #	WEIGHT #	PALLET QTY	PART NO.
UL	W/ 2 Bolts	8	8,000 / 12,000	13	40	PC1118CA00**
UL	Gasketed W/ 4 Bolts	8	8,000 / 12,000	13	40	PC1118CG00**
UL	No Bolts	8	8,000 / 12,000	13	40	PC1118WA00**

Replace ** with a logo code found on page 62.

NOTE: Gasketed covers and bolt grommets must be used with a gasketed box. Gaskets reduce the inflow of fluids but do not make the enclosure water tight.

Boxes

	DESCRIPTION	DEPTH	TIER	DESIGN / TEST LOAD #	WEIGHT #	PALLET QTY	PART NO.
UL	Std. Open Bottom	12"	8	8,000 / 12,000	37	24	PC1118BA12
UL		18"		8,000 / 12,000	53	30	PC1118BA18
UL	Solid Bottom	12 1/2"	8	8,000 / 12,000	45	24	PC1118DA12
UL		18 1/2"		8,000 / 12,000	60	30	PC1118DA18
UL	Footed Box	12 1/2"	8	8,000 / 12,000	37	24	PC1118JA12
UL		18 1/2"		8,000 / 12,000	56	30	PC1118JA18

To order boxes with 2 standard mouseholes, replace the letter "A" with the letter "B".

To order gasketed boxes, replace the letter "A" with the letter "G".

NOTE: Gasketed covers and bolt grommets must be used with a gasketed box. Gaskets reduce the inflow of fluids but do not make the enclosure water tight.



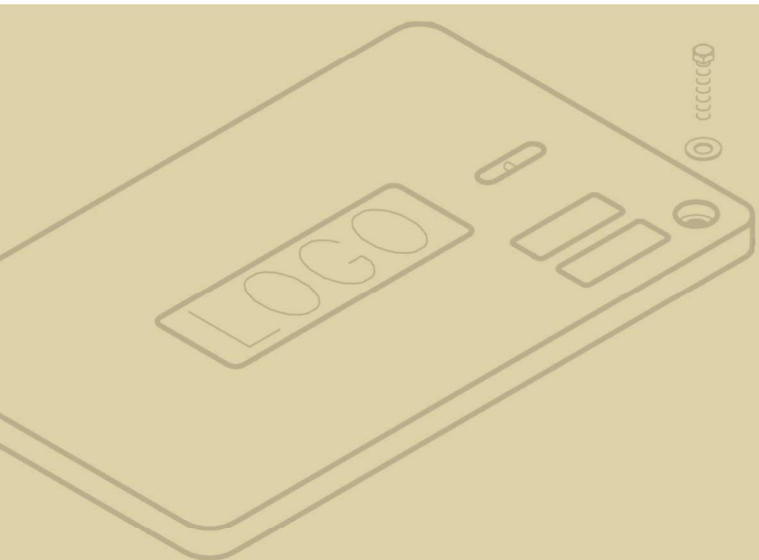
Most commonly used cover logos are shown below.
 Custom Logos are available. Contact your Quazite/Hubbell Representative.

QUAZITE® COVER OPTIONS



POLYMER CONCRETE LOGO CODES	DESCRIPTION
09	BLANK
10	CATV
12	COMMUNICATIONS
14	CONTROLS
17	ELECTRIC
21	FIBER OPTICS
22	FIRE ALARM
23	GAS
24	GROUND
26	HIGH VOLTAGE
29	LIGHTING
36	SECURITY
38	SIGNAL
40	STATE TRAFFIC SIGNAL
41	STREET LIGHTING
42	TELECOM
43	TELEPHONE
44	TRAFFIC
45	TRAFFIC CONTROL
46	TRAFFIC SIGNAL
48	TV
50	WATER
57	EMERGENCY
65	ILLUMINATION
81	DANGER HIGH VOLTAGE
84	POWER
92	TELECOMMUNICATIONS
3A	DOT
6B	INSTRUMENTATION
ZA	IRRIGATION
K91	RECLAIMED WATER
KH1	FIBEROPTIC

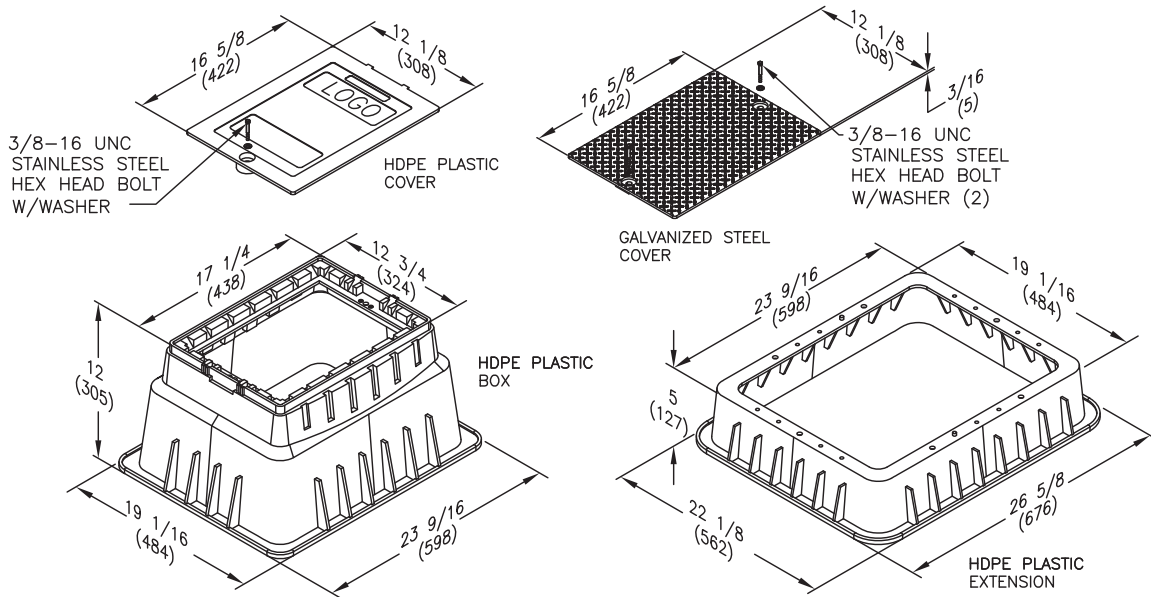
QUAZITE



Dimensions / Data

14" PenCell PE

Hex Head Bolts are Standard



Assemblies

DESCRIPTION	DEPTH	TIER	DESIGN / TEST LOAD	WEIGHT	PALLET QTY	OLD PART NO.	NEW PART NO.
Box & HDPE Cover	12"	N/A	N/A / 5,000	13	96	PE-14HDH	PE14HDH00***
W/ Penta Bolt/Crimp	12"	N/A	N/A / 5,000	13	96	PE-14DXCL	PE14DXCL***
Box & Steel Cover	12"	N/A	N/A / 10,000	21	48	PE-14-UH	PE14UPH00***
With Ground Lug	12"	N/A	N/A / 10,000	21	48	PE-14-UHG	PE14UPHGR***
Box & HDPE Cover	15"	N/A	N/A / 5,000	16	30	PE-14HDH-5	PE14H5H00***
With 5" Bottom Ext	15"	N/A	N/A / 5,000	24	30	PE-14-UH-5	PE14S5H00***

Covers

DESCRIPTION	TIER	DESIGN / TEST LOAD #	WEIGHT #	MATERIAL	OLD PART NO.	NEW PART NO.
HDPE	N/A	N/A / 5,000	3	HDPE	PE-14-PLH	PE14PLI12***
Steel	N/A	N/A / 10,000	12	Steel	PE-14-SLH	PE14SLH00***

Replace *** with a logo code found on page 194.

Boxes

DESCRIPTION	DEPTH	TIER	DESIGN / TEST LOAD #	WEIGHT #	PALLET QTY	OLD PART NO.	NEW PART NO.
Green Open Bottom	12"	N/A	N/A / 5,000	10	96	PE-14-GS	PE14GSI01

Extension

DESCRIPTION	DEPTH	TIER	DESIGN / TEST LOAD #	WEIGHT #	PALLET QTY	OLD PART NO.	NEW PART NO.
5" Bottom	5"	N/A	N/A / 5,000	3	60	PE-14-5	PE1405EXN



Most commonly used cover logos are shown below.
 Custom Logos are available. Contact your Quazite/Hubbell Representative.

PenCell COVER OPTIONS

LOGOS

PenCell LOGO CODES	DESCRIPTION
009	BLANK
010	CATV
012	COMMUNICATIONS
014	CONTROLS
01W	FIBER OPTIC CABLE
022	FIRE ALARM
023	GAS
024	GROUND
026	HIGH VOLTAGE
029	LIGHTING
036	SECURITY
038	SIGNAL
040	STATE TRAFFIC SIGNAL
041	STREET LIGHTING
042	TELECOM
043	TELEPHONE
044	TRAFFIC
045	TRAFFIC CONTROL
046	TRAFFIC SIGNAL
048	TV
050	WATER
057	EMERGENCY
065	ILLUMINATION
081	DANGER HIGH VOLTAGE
084	POWER
092	TELECOMMUNICATIONS
03A	DOT
06B	INSTRUMENTATION
0ZA	IRRIGATION
K91	RECLAIMED WATER
KH1	FIBEROPTIC
5P3	ELECTRIC WARNING DO NOT OPEN

PENCELL



American Revolution LED

Series 247L

PRODUCT OVERVIEW



Features:

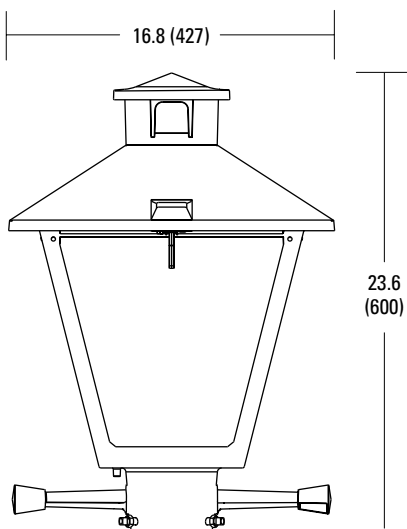
- Colonial LED lantern, replaces HID models up to 150W HPS for street and area lighting applications
- Ten (10) LED performance packages deliver just the right amount of light for any given application up to 8300 lumens
- Available in color temperature choices of 2700K, 3000K, 4000K, and 5000K
- Four (4) distinct light distribution options provide design flexibility, available in Type II, Type III, Type IV, and Type V
- Available with acrylic or polycarbonate lens
- Die-cast aluminum housing, engineered for sturdy lifelong performance
- Die-cast aluminum hood features a trigger latch (TL) option and captive thumb screws for fast, easy electrical and optical chamber access
- Standard paint finish is smooth / gloss
- Housing is tenon pole-mounted and designed for use with a 3" tall by 2-3/8" to 3" diameter tenon, and secured by three set screws
- Rated L70, LED life greater than 100,000 hours at 25°C
- Complies with all applicable ANSI C136 standards.
- CSA listed and suitable for up to 40° C ambient
- Surge protection device (standard) exceeds ANSI/IEEE C62.41-2002 Category C High (10kV/10kA) and ANSI C136.2-2015 Enhanced (10kV/5kA). 20KV Option exceeds ANSI/IEEE C62.41-2002 Category C High (10kV/10kA) and ANSI C136.2-2015 Extreme (20kV/10kA)
- Equipped with LED electronic 0-10V dimmable driver

Applications:

Streetscapes
Walkways
Pathways
Parks

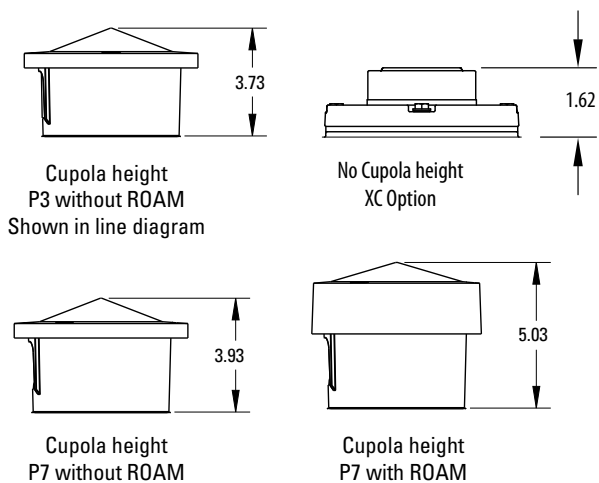


DIMENSIONS



Effective Projected Area (EPA)

The EPA for the American Revolution Series 247 is 1.6 sq. ft.
P7 option total height is 24.9 (633).
Approx. Wt. = 36 lbs.



All dimensions are inches (millimeters) unless otherwise noted.

American Revolution LED

Series 247L

ORDERING INFORMATION

Example: 247L P30 AS 40K R3 AY

Series	Performance Package	Voltage	Color Temperature (CCT)																																													
247L American Revolution LED	<table border="1"> <thead> <tr> <th>Package</th> <th>Input Watts</th> <th>Lumens (nominal)</th> </tr> </thead> <tbody> <tr><td>P10</td><td>12</td><td>1,400</td></tr> <tr><td>P15</td><td>18</td><td>2,000</td></tr> <tr><td>P20</td><td>23</td><td>2,500</td></tr> <tr><td>P25</td><td>33</td><td>3,400</td></tr> <tr><td>P30</td><td>40</td><td>3,800</td></tr> <tr><td>P35</td><td>33</td><td>3,700</td></tr> <tr><td>P40</td><td>39</td><td>4,400</td></tr> <tr><td>P45</td><td>46</td><td>5,000</td></tr> <tr><td>P50</td><td>64</td><td>6,600</td></tr> <tr><td>P55</td><td>77</td><td>7,500</td></tr> </tbody> </table>	Package	Input Watts	Lumens (nominal)	P10	12	1,400	P15	18	2,000	P20	23	2,500	P25	33	3,400	P30	40	3,800	P35	33	3,700	P40	39	4,400	P45	46	5,000	P50	64	6,600	P55	77	7,500	<table border="1"> <thead> <tr> <th>AS</th> <th>120-277V</th> </tr> </thead> <tbody> <tr> <td>AH</td> <td>347V; 480V</td> </tr> </tbody> </table>	AS	120-277V	AH	347V; 480V	<table border="1"> <thead> <tr> <th>27K</th> <th>2700K</th> </tr> </thead> <tbody> <tr> <td>30K</td> <td>3000K</td> </tr> <tr> <td>40K</td> <td>4000K</td> </tr> <tr> <td>50K</td> <td>5000K</td> </tr> </tbody> </table>	27K	2700K	30K	3000K	40K	4000K	50K	5000K
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Controls

(blank)	3 pin NEMA photocontrol (standard)
NR	No photocontrol receptacle
P7²	7 pin NEMA photocontrol
PCLL^{3,4}	(Solid State Long Life Photocontrol, 120-277V)
P34^{3,4}	(Solid State Long Life Photocontrol, 347V)
P48^{3,4}	(Solid State Long Life Photocontrol, 480V)
PCSS^{3,4,7}	Solid state photocontrol, 120-277V (Not CSA Listed)
AO	Field adjustable output module
DALI	DALI driver (special request)
PND	Part night dimming
SH	Shorting cap
SHX⁷	Shorting cap (not CSA listed)

Miscellaneous

SS	Stainless steel hardware
TL	Tool-less latch
NL1X1	1" x 1" NEMA label
NL2X2	2" x 2" NEMA label
XL	Not CSA Listed
LDR⁵	Ladder Rest
RCC^{6,8}	ROAM Cupola Cap
XC⁸	No Cupola
CR	Epoxy Pre-Coat Finish
20kV	20kV/10kA surge protection device
FPDxx	Factory programmable driver

House-Side Shields

HSB	House Side Black
HSW	House Side White

Prewired leads

L1H	1FT prewire leads
L03	3Ft prewire leads
L10	10FT prewired leads
L20	20ft prewire leads
L25	25ft prewire leads
L30	30ft prewire leads

Special Packaging

SSP	Sample pack (UPS)
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Note: Check the OPTIONS MATRIX on Page 3 for compatibility & restrictions



AEL Headquarters, 3825 Columbus Road, Granville, OH 43023
www.americanelectriclighting.com

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Warranty Five-year limited warranty. Complete warranty terms located at:
www.acuitybrands.com/resources/terms-and-conditions

Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

Please contact your sales representative for the latest product information.

ES-124-WPF-1.5-T (8542) Electronic Twistlock Photocontrol

Meets or exceeds ANSI C136.10

Electrical

<u>Model Number:</u> <u>Operating Voltage Range</u>	ES-124-WPF-1.5-T (8542) 105-305 VAC, 50/60 Hz - Nominal 120/208/240/277V (Fail On)	
<u>Load Rating</u>	1,000W/1,800 VA	<u>Triac Assisted</u> 15 Amp relay tested to 15,000 operations on maximum available LED or Induction load
<u>Operating Temperature</u>	-40°C to +70°C	(-40°F to +158°)
<u>Surge Protection:</u>	40,000 Amps	1520 Joule
<u>Power Consumption</u>	<0.5 Watts	@ 120 V
<u>Dielectric Strength</u>	5,000 Volts	Between current carrying parts

Mechanical

<u>Photocell</u>	Proprietary Bat Eye Technology circuit eliminating unintentional operation of LED fixtures	<0.5% Drift over 10 Years
<u>Printed Circuit Board</u>	Plated Thru-hole Glass Epoxy	0.35 Maximum Moisture
<u>Cover</u>	Polypropylene	Long Life <u>Blue Cover</u> Formula with UV Inhibitor and Antioxidant Additives
<u>Base & Window</u>	Polycarbonate	140°C, UL94HB Flame Class Rating
<u>Gasket</u>	Neoprene	ASTM D 1056
<u>Operating Light Levels</u>	Turn-on 1.5 +/- 0.2 foot candles Off light level 2.25 foot candle Turn-off to turn-on ratio of 1.5:1	2-5 Sec Turn-off Delay

ES-124-WPF-1.5-T (8542)

Warranty Long Life Photocontrol

Standard warranty of Sun-Tech / FP Outdoor Lighting Controls electronic photocontrol products is 12 years. The warranty is 1 for 1 replacement for units with factory defects. Units ordered improperly will be accepted, possibly with a negotiated restocking charge. This warranty covers factory defects and does not apply to units abused, vandalized, installed on the incorrect voltage, damaged by faulty luminaires, or direct hits by lightning. Sun-Tech assumes no further liability in the use of the products. This warranty is in lieu of any other warranties expressed or implied.

It can be expected that Sun-Tech / FP Outdoor Lighting Controls and its management will stand behind the performance of its product and treat its users as partners in its success.

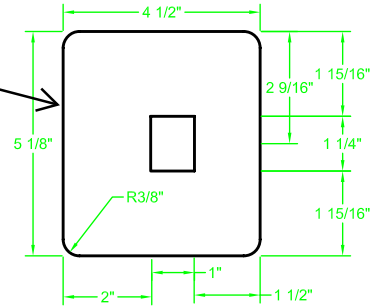
Note:

This warranty is designated to Model ES-124-WPF-1.5-T (8542) was per RSLPP business agreement.

54 Commercial St. * Raynham, MA 02767 USA

Ph:(508) 821-1597 * Fax:(508) 822-0593 * email: info@sun-tech.biz * www.sun-tech.biz * www.fpolc.com

STREET SIDE



SCALE: 3" = 1'

Specifications

1.0 General: Timber Wood Lighting Standards shall be of materials, sizes, styles, patterns and fabrication as specified herein and as shown on JH Baxter detail drawings.

2.0 Lumber: Coast region Douglas fir only. L1 laminating grade for strength and appearance is used for manufacturing. Construction grade on all exposed wide faces. Grades are described in current WCLIB Grading Rules.

3.0 Laminating Requirements: Light Standards shall be laminated with adhesives meeting or exceeding the exterior durability performance requirements of most recent revision of U.S. Commercial Standard ANSI / AITC A190.1-1983.

4.0 Surface Finish, Appearance & Tolerance: Open defects such as knot holes exceeding 1/2" in diameter or wane exceeding 1/4" x 12" shall be filled with woodfiller. Sides shall be surfaced four faces with edges eased to 3/8" radius. Tolerances shall be from +0 to -1/8" for width and thickness and +/- 1/4" in length.

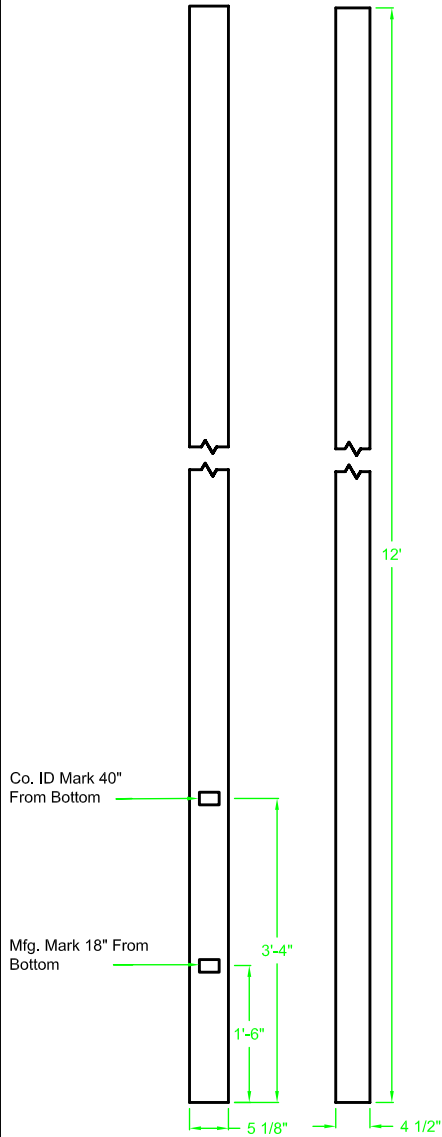
5.0 Preservative Treatment: Standards will be treated with 6% pentachlorophenol borne in light hydrocarbon solvent in conformance with AWPA Standards to a minimum net retention of 0.30 pounds per cubic foot of penta.

6.0 Trademark: Each standard shall be branded to indicate Manufacturer-Month-Year at 18" above intended ground line.

7.0 Wrapping: Lighting standards will be individually wrapped.

8.0 Embedment: As required by local codes and soil conditions. Designed by others. Refer to form no. SL-1281 for recommendations.

9.0 Top Protection: Metal cap must be installed unless fixture is top mounted.

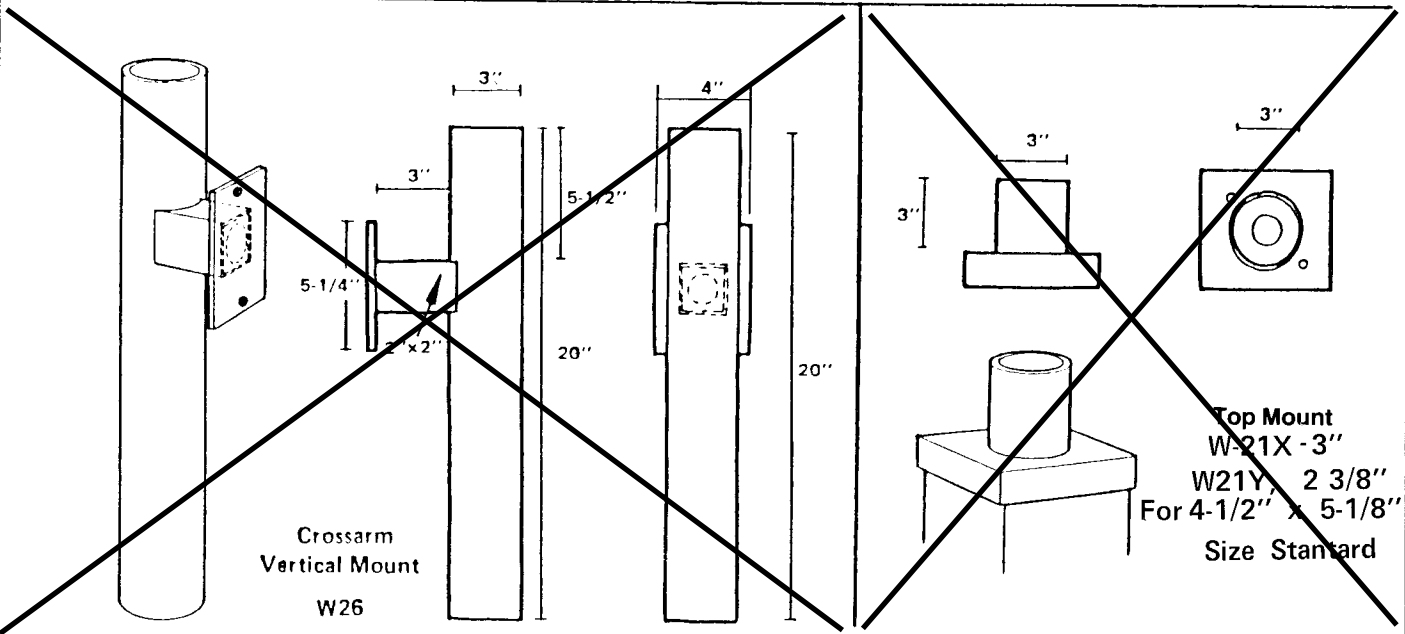
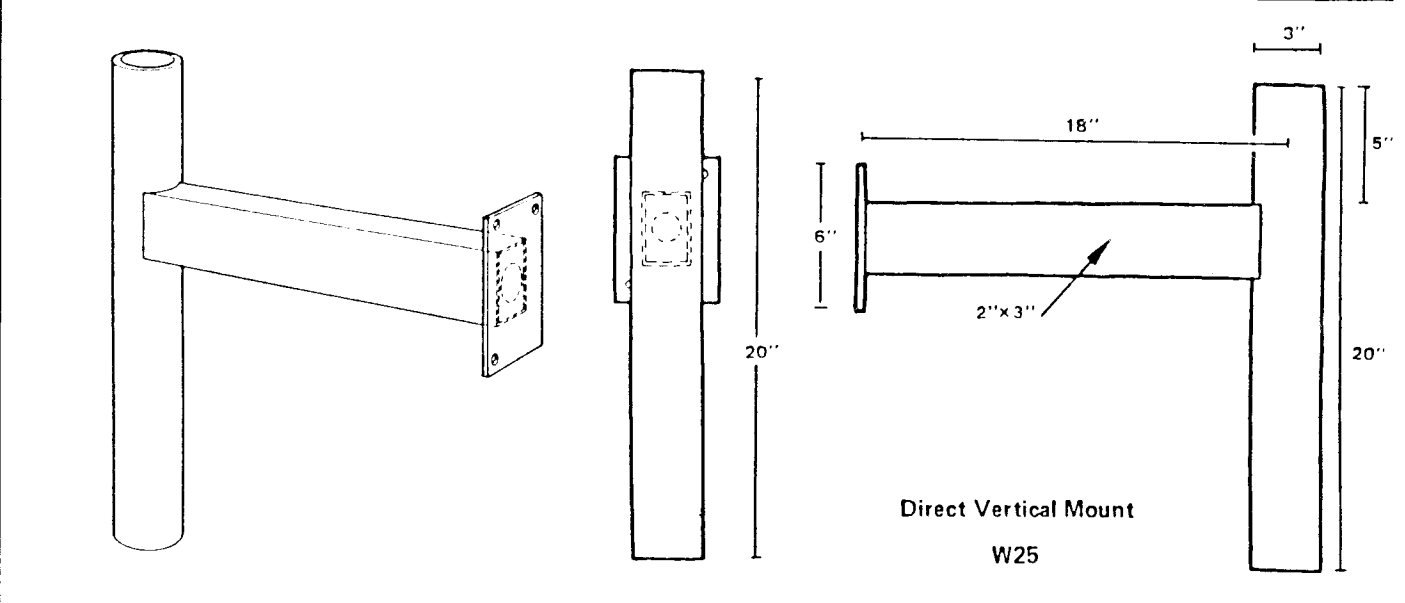
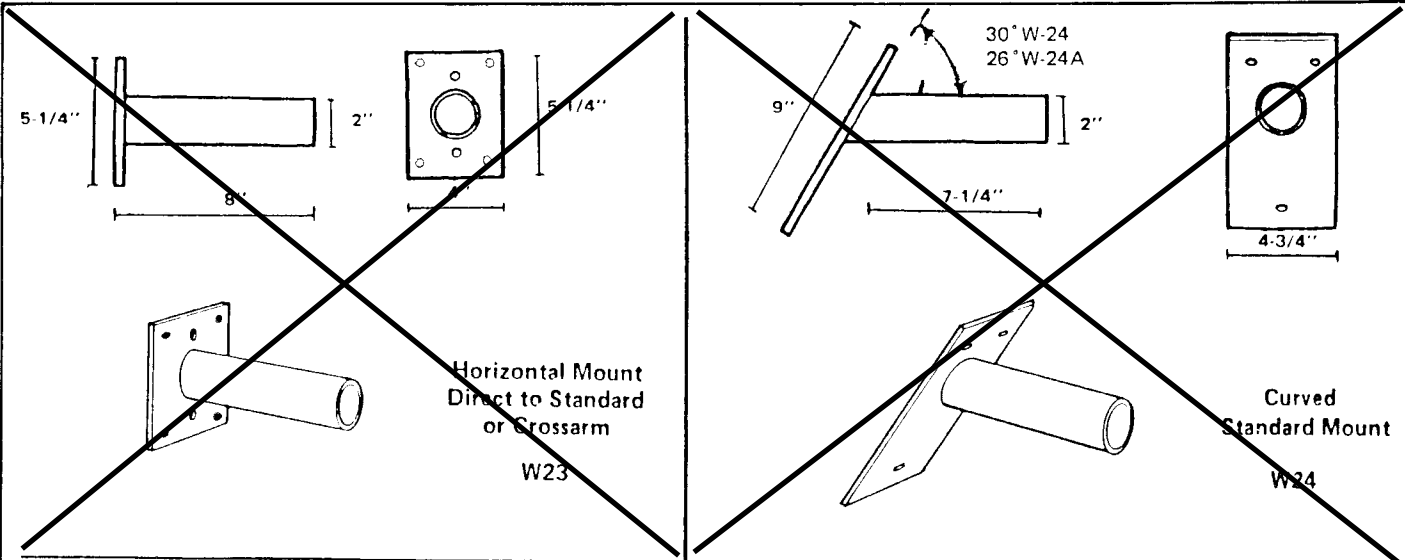


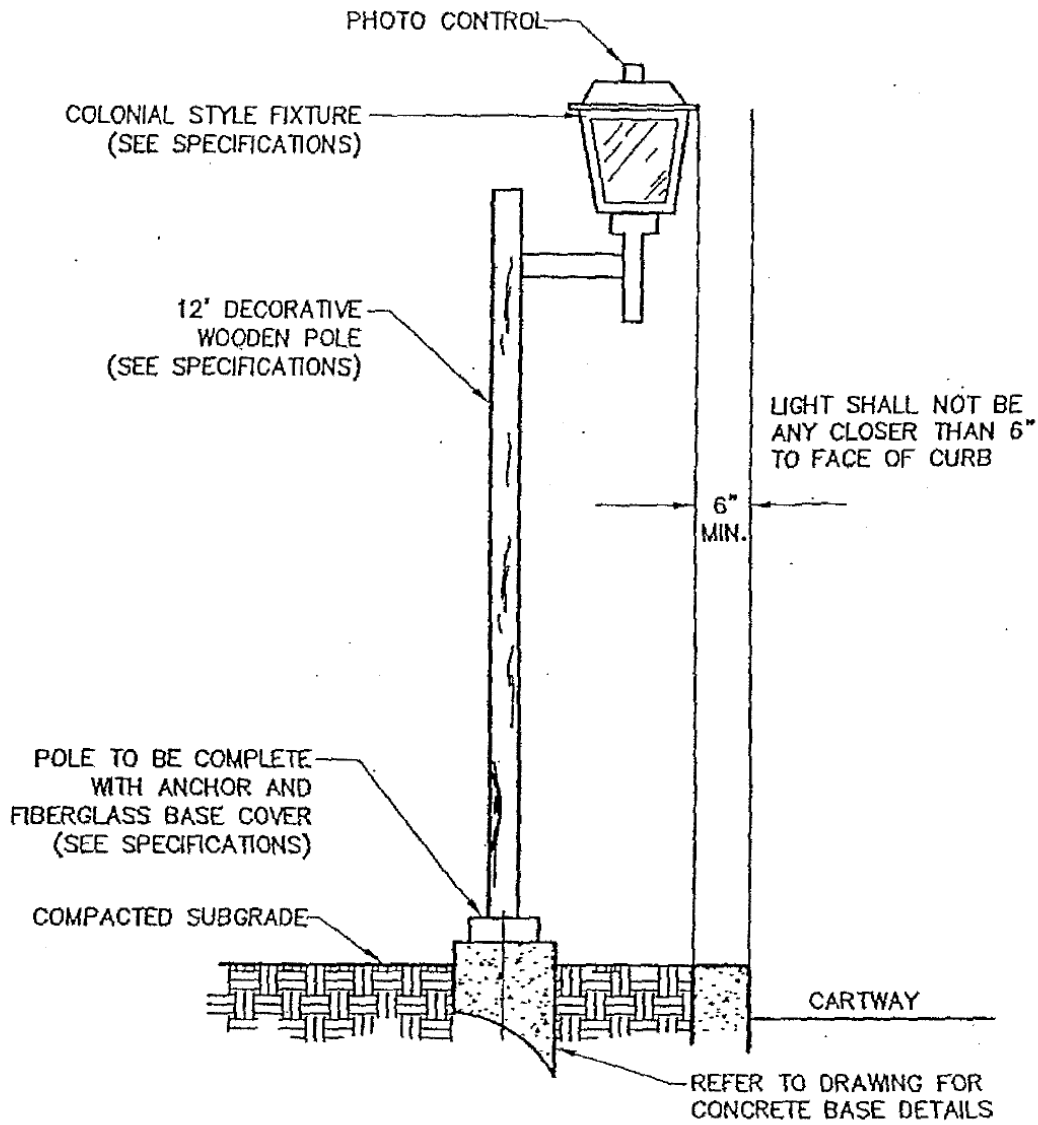
Pole Details

SCALE: 1/2" = 1'

12PV Straight Configuration







NOT TO SCALE

TYPICAL COLONIAL STYLE FIXTURE LOCATION

**MONTGOMERY TOWNSHIP, MONTGOMERY COUNTY
PENNSYLVANIA**

JUNE 2003