

**MMC St. John Street Parking Garage**  
Portland, Maine

Page 1 of 4  
July 24, 2018

## **PROPOSED SITE LIGHTING**

Requirements for site lighting are addressed by the City of Portland in two documents: The City of Portland, Maine - Code of Ordinances, and the City of Portland - Technical Manual. Listed below are the issues pertaining to the proposed IMT site lighting as relates to the two city documents.

### **The City of Portland, Maine - Code of Ordinances**

Chapter 14 – Land Use

Article III Zoning

Division 16.1 Institutional Overlay Zone

14-280 (a) Purpose

*Any use conducted by an Eligible Institution and any construction by an Eligible Institution in an Institutional Overlay Zone shall be consistent with an Institutional Development Plan (IDP) approved by the planning Board in accordance with this ordinance..*

**RESPONSE:** The proposed MMC St. John Garage site lighting has been designed to be in conformance with the approved IDP.

### **The City of Portland - Maine Code of Ordinances**

Chapter 14 – Land Use

Article V Site Plan

14-526.6 Exterior Lighting

a. Site Lighting

(i) *All exterior site lighting, including lighting of building entrances, shall be full cut-off with no light emitted above the horizontal plane or spilled onto adjacent properties and streets. Illumination levels shall be adequate but not excessive for safety, comfort and convenience of occupants and users of the site, and shall conform to applicable standards of Section 12 of the Technical Manual.*

**RESPONSE:** All of the exterior site lighting has been selected to utilize full-cut-off optics with no light emitted above the horizontal plane. The *Illuminating Engineering Society of North America (IESNA)* classifies exterior luminaires according to their potential for producing uplight in the publication *IESNA TM-15-11*. The rating system is a numeric index that ranges from zero (no uplight) to five (greater than 5000 lumens direct upward). All of the proposed site lighting luminaires are classified as having a zero uplight rating.

14-526.6 Exterior Lighting

a. Site Lighting

(ii) *For major or minor site plans within or abutting a residential use or zone where light from the proposed development may adversely impact adjacent residential properties, exterior lighting shall employ house-side shielding.*

**RESPONSE:** See the Response included on page 4 for 12.2 Standards, 12.2.5 Light Trespass.

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### 14-526.6 Exterior Lighting

#### c. Street Lighting

- (i) *Municipal street lighting shall be adequate for the safety and comfort of pedestrians and motorists and, where applicable, shall conform to specific lighting district requirements, as specified in Section 10 of the Technical Manual.*

**RESPONSE:** At the garage entrance and exit drives that are adjacent to the intersections of St. John Street and D Street, and St. John Street and C Street, additional 50-watt, LED street lights to be supplied by the *City of Portland* have been added to utility poles to meet the *IESNA* recommendations published in *IESNA RP-8-14 Roadway Lighting*. For intersections that are classified as connecting Collector streets and Local streets, and that have a high potential of pedestrian activity, the *IESNA* recommends an average of 2.1 footcandles and an average-to-minimum illuminance uniformity of 4-to-1, or better. The illuminance at the improved lighting at the intersections at St. John Street and D Street has been calculated to be as follows:

Minimum:	0.7 footcandles	Maximum:	4.9 footcandles
Average:	2.2 footcandles	Average-to-Minimum Uniformity:	3.1-to-1

The illuminance at the improved lighting at the intersection at St. John Street and C Street has been calculated to be as follows:

Minimum:	0.9 footcandles	Maximum:	3.8 footcandles
Average:	2.1 footcandles	Average-to-Minimum Uniformity:	2.4-to-1

A new sidewalk is proposed along D Street between St. John Street and Valley Street. The *American Association of State Highway and Transportation Officials (AASHTO)* recommends illuminance levels for streets in *Roadway Lighting Guide-1984*. The recommended standard for D Street, which is classified as a Local/Commercial street, is an average of 0.8 footcandles, and an average-to minimum uniformity of 6-to-1, or better. Additional 30-watt, LED street lights to be supplied by the *City of Portland* have been added to utility poles to meet the *AASHTO* recommendations. The illuminance at the improved lighting along D Street has been calculated to be as follows:

Minimum:	0.6 footcandles	Maximum:	1.1 footcandles
Average:	0.9 footcandles	Average-to-Minimum Uniformity:	1.5-to-1

New crosswalks are proposed at the intersection of D Street and Valley Street, and at the intersection of C Street and Valley Street. The *IESNA* recommends an average of 1.4 footcandles and an average-to-minimum illuminance uniformity of 6-to-1, or better, for intersections that are classified as connecting two Local streets, and that have a medium potential of pedestrian. Additional 30-watt, LED street lights to be supplied by the *City of Portland* have been added to utility poles to meet the *IESNA* recommendations. The illuminance at the D Street and Valley Street intersection has been calculated to be as follows:

Minimum:	0.6 footcandles	Maximum:	2.4 footcandles
Average:	1.5 footcandles	Average-to-Minimum Uniformity:	2.4-to-1

The illuminance at the C Street and Valley Street intersection has been calculated to be as follows:

Minimum:	0.8 footcandles	Maximum:	2.1 footcandles
Average:	1.6 footcandles	Average-to-Minimum Uniformity:	1.9-to-1

# MMC St. John Street Parking Garage

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Portland, Maine

## The City of Portland Technical Manual

### Section 12 Site Lighting Standards

#### 12.2 Standards

12.2.1. *Unless otherwise specified below, exterior lighting shall conform to the recommendations put forth in Lighting for Exterior Environments RP-33-99, or its successor, published by the Illuminating Engineering Society of North America (IESNA). Proposed uses that demonstrate a need to exceed the specific site lighting limits shown below for safe and reasonable exercise of the proposed use must provide a professionally produced lighting plan which adheres to the current Illuminating Engineering Society of North America (IESNA) recommendations for the proposed use.*

**RESPONSE:** The proposed lighting meets the recommendations of *IESNA RP-33-99*.

### Section 12 Site Lighting Standards

#### 12.2 Standards

12.2.2. *Uniformity: As measured in foot candles at grade, maximum-to-minimum illumination levels shall not exceed a ratio of twenty (20) to one (1.).*

**RESPONSE:** The north parking lot has a calculated maximum-to-minimum uniformity of 4.3-to-1. The top deck of the parking garage has a calculated maximum-to-minimum uniformity of 10.7-to-1.

#### 12.2 Standards

##### 12.2.3. *Illumination Levels:*

<b>Minimum</b>	0.2 footcandles (fc)
<b>Maximum</b>	5.0 footcandles (fc)
<b>Average</b>	1.25 footcandles (fc)

**RESPONSE:** *IESNA RP-20-14 Lighting for Parking Facilities* recommendations for surface parking lots a minimum illuminance level at grade of 0.5 footcandles, an average-to-minimum uniformity of 4-to-1, or better, and a maximum-to-minimum uniformity of 15-to-1, or better. The illuminance at the north parking lot has been calculated to be as follows:

Minimum: 0.6 footcandles                      Maximum: 2.6 footcandles  
Average: 1.9 footcandles                      Average-to-Minimum Uniformity: 3.1-to-1

The illuminance at the top deck of the parking garage has been calculated to be as follows:

Minimum: 0.6 footcandles                      Maximum: 6.4 footcandles  
Average: 2.4 footcandles                      Average-to-Minimum Uniformity: 4.0-to-1

The lighting poles at the roof deck have been limited in height to 18 feet, and are located only within the center zone of the parking deck to minimize the visual impact as might be viewed off-site. This design restriction requires a somewhat higher maximum illuminance level at center of the roof deck than is listed in the City's design criteria, however, the design meets all of the *IESNA* lighting recommendations.

#### 12.2 Standards

12.2.4. *Wattage: No fixture shall exceed 250 watts, except in industrial areas.*

**RESPONSE:** The maximum wattage of any of the proposed luminaires is 129.5 watts.

## MMC St. John Street Parking Garage

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### 12.2 Standards

12.2.5. Light Trespass: *The maximum illumination level at a property line shall not exceed 0.1 foot candle, as measured at grade, except where abutting industrial, or other non-sensitive uses. All residential uses and natural resource protection areas are to be considered sensitive to light trespass. In certain instances where a proposed development is adjacent to a sensitive use, house-side shielding may be necessary to comply with this standard.*

RESPONSE: The only residential property that abuts the project are the residences at 210 and 214/214 St. John Street. The proposed lighting has been selected and located to avoid any point of illuminance at grade across the residential property lines that exceeds 0.1 footcandle.

### 12.2 Standards

12.2.6. Luminaire Types: *All fixtures, including pole mounted and wall mounted luminaires, shall be a "cut-off" type where lenses, refractors or lamp sources do not extend below the surface of the fixture housing and no direct light shall be directed at or above the horizontal plane. Sites which are part of an historic district or require specific decorative lighting fixtures as means to achieve compatibility within an existing architectural context may propose non-cutoff fixtures providing that they have built in reflectors to mitigate uplighting and that photometrics fall within IESNA guidelines. Low pressure sodium bulbs are prohibited.*

RESPONSE: See the Response included on page 1 for Chapter 14 – Land use, Article V Site Plan, 14-526.6 Exterior Lighting, (a) Site Lighting. All proposed luminaires are classified as having “cut-off” optical distribution with no light being emitted above the horizontal plane.

### 12.2 Standards

12.2.7. Fixture Height: *Fixtures shall be mounted at the lowest height necessary with no fixture height to exceed twenty (20) feet above grade, except in sites proposed for large industrial and/or commercial uses, where the fixture height shall not exceed thirty (30) feet above grade. For the purposes of this standard only, a large industrial and/or commercial use is defined to have greater than fifty thousand (50,000) gross square feet of building space.*

RESPONSE: The luminaire mounting height at the lighting poles in the north parking lot is 20 feet. The luminaire mounting height at the lighting poles at the top deck of the parking garage is 18 feet.

### 12.2 Standards

12.2.8. Lighting Curfew: *For non-residential uses, lighting in vehicle parking areas containing twenty (20) or more parking spaces shall be reduced to 50% of permitted levels from one hour after the business closing to one hour before business opening. If lighting levels are already below 50% of permitted levels, no curfew adjustment is required. Motion sensor activated lighting shall be permitted during closed hours to activate additional lighting above the 50%permitted, for the purposes of public safety.*

RESPONSE: The parking garage will be in continuous use (at all hours), and therefore, reducing lighting levels after business closing is not applicable.

**MMC St. John Street Parking Garage**  
Portland, Maine

July 16, 2018

**PROPOSED SITE LIGHTING LUMINAIRES  
AND LIGHTING POLES**

- TYPE S1 & S1a:** 12-FOOT TALL POST LIGHTS
- TYPE S4:** WALL MOUNTED LIGHTS ABOVE WALKWAY  
INSTALLED WITH BOTTOM OF LUMINAIRE AT 10 FEET  
ABOVE GRADE
- TYPE S5:** LIGHTS MOUNTED ON UNDERSIDE OF FRONT CANOPY
- TYPE S6 & 6a:** WALL MOUNTED SECURITY LIGHTS INSTALLED  
WITH BOTTOM OF LUMINAIRE AT 10 FEET ABOVE  
GRADE
- TYPE S7:** WALL MOUNTED LIGHTS ABOVE GARAGE ENTRANCE  
AND EXIT INSTALLED WITH BOTTOM OF LUMINAIRE AT  
24 FEET ABOVE GRADE
- TYPE S8, S9 & 9a** 20 FOOT TALL PARKING LOT LIGHTING POLES
- TYPE S10** 18 FOOT TALL TOP GARAGE DECK LIGHTING POLES
- TYPE G1:** GARAGE INSIDE LIGHTS.

# TYPES S1 and S1a

landscapeforms®

# ALCOTT

Product Data Sheet



The Alcott pedestrian light is a contemporary interpretation of a traditional lamppost. Its gently curved posts are topped by a domed energy-efficient LED luminaire sealed with thermoformed lens. Proprietary AWEN™ optics combined with multiple aiming angles provide directional lighting, reducing light pollution and wasted energy.

## General Description

- Offered in 3 standard mounting heights (12', 14', and 16')
- Asymmetrical and symmetrical distribution types available
- Mounting template and anchor hardware included
- Alcott ships completely assembled and ready for installation
- Zero up-light, International Dark-Sky approved
- UL Listed, suitable for wet locations

## Electrical

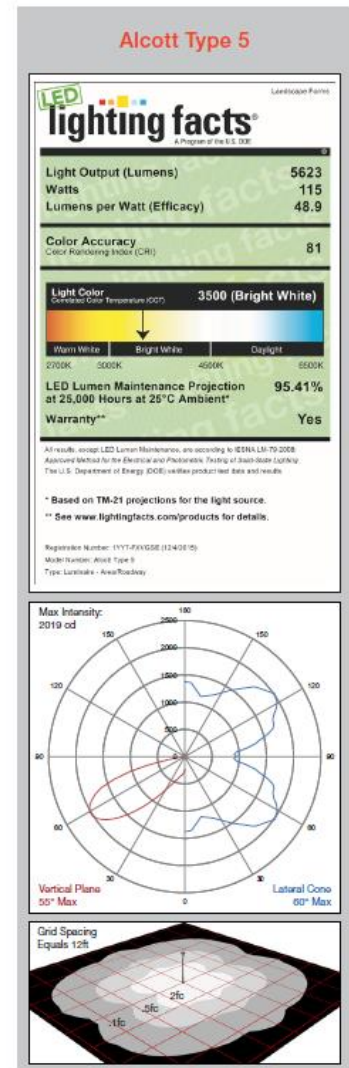
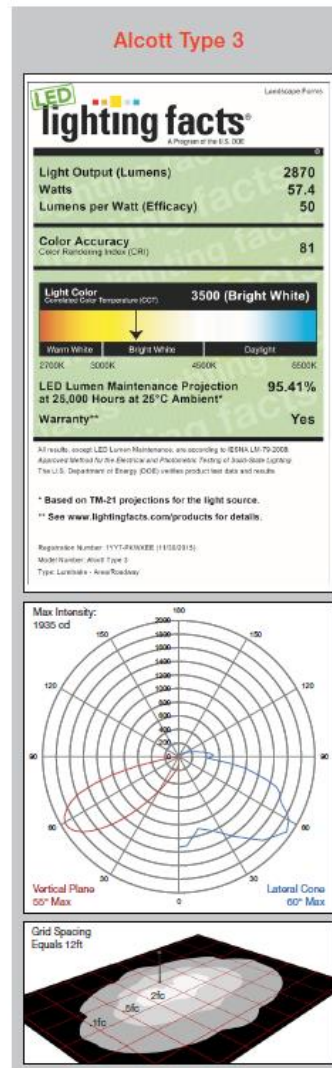
Surge protected 100V-277V 50/60 Hz, Class 2 dimmable driver mounted within integrated cast aluminum base cabinet. LED cartridge with weatherproof quick-disconnect provides ease of serviceability. Alcott ships prewired and fully assembled.

### Alcott Type 3

**Type 3 Distribution**  
 Structure: Housing, LED cartridge and cabinet are cast aluminum, pole is aluminum extrusion.  
 Lamp: 48 Cree XP-E2 LEDs  
 CCT: 3000K, 3500K, 4000K  
 L70: >100,000 hrs  
 Drive Current: 350mA  
 Optic: AWEN™ Optic  
 Lens: Diffused Acrylite®  
 Power Supply: 100V-277V  
 LED Driver: TRP PLED-75W  
 Dimmable: 0-10V  
 BUG Rating: B0 U0 G1  
 IP Rating: IP66 for LED Cartridge

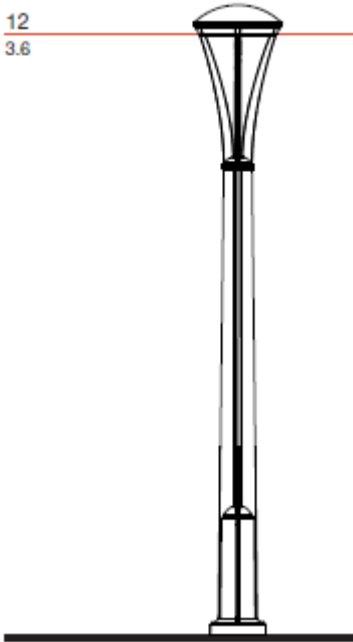
### Alcott Type 5

**Type 5 Distribution**  
 Structure: Housing, LED cartridge and cabinet are cast aluminum, pole is aluminum extrusion.  
 Lamp: 96 Cree XP-E2 LEDs  
 CCT: 3000K, 3500K, 4000K  
 L70: >100,000 hrs  
 Drive Current: 350mA  
 Optic: AWEN™ Optic  
 Lens: Diffused Acrylite®  
 Power Supply: 100V-277V  
 LED Driver: (2) TRP PLED-75W  
 Dimmable: 0-10V  
 BUG Rating: B3 U0 G1  
 IP Rating: IP66 for LED Cartridge



**Type S1:** Alcott Type 3  
**Type S1a:** Alcott Type 5

# TYPES S1 and S1a



## Finish

Pangard II®, offered exclusively by Landscape Forms, is a 19 step program of cleaning, priming, and powdercoating that resists rusting, chipping, peeling and fading to produce the finest metal finish available for site furniture and outdoor lighting. In addition, Pangard II® contains no heavy metals and is free of Hazardous Air Pollutants.

Product	Lamp	Drive Current	Color Temp.	Input Voltage	Mounting
<b>AC</b> Alcott	<b>048L3</b> ( 48 LED, Type 3 )	<b>035F</b> ( 350 mA )	<b>40K</b> ( 4000K )	<b>UV1</b> ( 100-277VAC )	<b>12</b> ( 144in )
	<hr/> <b>096L5</b> ( 96 LED, Type 5 )		35K ( 3500K )		14 ( 168in )
			30K ( 3000K )		16 ( 192in )



# TYPE S4



	A	B	C
AEL 12	20.79	5.40	3.60

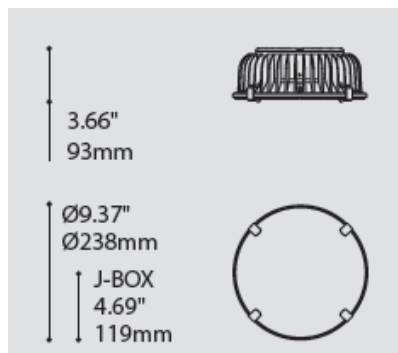
<b>Description</b>	The Architectural Egress Luminaire combines a unique, patented design shaped with high performance, full cut-off optics to achieve completely unobtrusive illumination of a space or path of egress. When mounted over a doorway, the fixture is perceived as an element of the building structure and, additionally, provides water protection in the form of a drip cap over the doorway. Multiple lengths are available to match a given door opening and our unique quick mount system facilitates installation and maintenance.
<b>Housing</b>	Marine grade heat treated extruded aluminum. Chemically primed and finished with robotically applied polyester powder coat.
<b>Wall Mount</b>	Marine grade heat treated extruded aluminum. Chemically primed and finished with robotically applied polyester powder coat. Designed to provide quick mounting to housing and secured with (2) captive stainless steel TORX® head screws.
<b>Lens Frame</b>	Marine grade heat treated extruded aluminum, clear anodized. Secured to fixture via integral concealed hinge and (3) captive stainless steel TORX® head screws.
<b>Lens</b>	UV stabilized diffused extruded polycarbonate.
<b>End Caps</b>	Die-cast marine grade aluminum continuously welded to housing. All welds ground smooth.
<b>Reflector</b>	Electrostatically brightened anodized aluminum PVD coated and absolutely color-free of iridescence. Shaped to provide full cutoff, LED point dispersion and maximum efficiency.
<b>Drivers</b>	Constant current drivers at 350mA. High output version utilizes 700mA.
<b>LED</b>	Samsung LM561B+ Series @ 3000K, 3500K, 4000K, or 5000K and 82 CRI wired in parallel-series. L <sub>70</sub> projected life of 130,000 hours at 50°C. Tested in accordance with LM-80. Ten year warranty on LED boards against operational defects.
<b>Gaskets</b>	Closed cell self-adhesive neoprene to provide watertight seal between fixture and wall and between fixture and lens frame.

SERIES	LED	CCT	VOLTS	LENS	COLOR
DP					
AEL 12	12" - 10W	3000K	120-277	DP	BKH
AEL 24	24" - 10W	3500K	347		BZH
AEL 36	24" - 20W	4000K			SVH



LUMINAIRES TO BE INSTALLED ON WALL WITH BOTTOM OF FIXTURE AT 10'-0" ABOVE GRADE



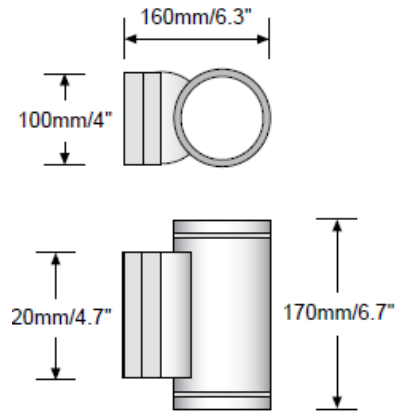
## TYPE S5



<b>DESIGN:</b>	Coupé is an industrial-looking shallow fixture that can be installed on low ceilings. Add a conical metal shade for a modern look and you have the Turbo.
<b>INSTALLATION:</b>	These fixtures are perfect for indoor surface mounted applications and are easy to install due to an integrated connection box. Also designed for outdoor projects, Coupé & Turbo can be used in wet locations.
<b>LIGHT SOURCE:</b>	13W or 26W LED Chip-on-board (COB) emitter. Electronic dimming available on all models.
<b>STRUCTURE:</b>	Durable die cast aluminum enclosure with stainless steel spring clips. Turbo has an additional spun aluminum shade with exterior grade fine texture powder coat finish.
<b>DIFFUSER:</b>	Compound lens structured around layers of diffusing and conical deglaring prismatic sheet PMMA.
<b>CERTIFIED:</b>	CSA Listed to US and Canadian safety standards; 25°C ambient and wet-locations. IP64 rated

MODEL MODÈLE	
<b>4766-SIJ</b>	COUPÉ
LIGHT SOURCE SOURCE LUMINEUSE	
(WATTAGE, LAMP TYPE, OTHER INFO)	
<b>LED.13</b>	 13W, LED
<b>LED.26</b>	 26W, LED
COLOR TEMPERATURE TEMPÉRATURE DE COULEUR	
<b>30</b>	3000K
<b>35</b>	3500K
<b>40</b>	4000K
VOLTAGE VOLTAGE	
<b>120V</b>	120 VOLT
<b>277V</b>	277 VOLT
DIMMING OPTION OPTION DE GRADATION	
<b>DV</b>	0-10V DIMMING (120-277V)
<b>DP</b>	PHASE DIMMING (120V ONLY)
LED DIMMING DRIVER IS STANDARD IN THESE PRODUCTS, PLEASE SPECIFY YOUR DIMMING TYPE.	
HEATSINK FINISH FINI RADIATEUR	
<b>BLKA</b>	BLACK ANODISED
INTERIOR DIFFUSER FINISH FINI DIFFUSEUR INTÉRIEUR	
<b>CDP</b>	CONICAL DEGLARING PRISM

LUMINAIRES TO BE INSTALLED ON UNDERSIDE OF CANOPY



## GENERAL SPECIFICATION

**Housing:** Die-cast and extruded aluminium.

**External Screws:** Stainless steel.

**Lens:** Clear glass.

**Gaskets:** One piece silicone.

**Reflector:** High purity aluminium, silver anodised. 14° and 40° reflectors may be adjusted to -12° from vertical.

**Finish:** Silver powder coated light gray or black coated as standard.

**Drivers:** HPF, electronic for 120-277V. Dimming 0-10V or Trailing edge 120V.

**Minimum Starting Temperature:** -20°C.

**Weight:** Maximum 8.8lb.

**Approvals:** ETL. Wet location, IP65.

Code:	Power:	*Delivered lms:	Distribution:
26 6033	2 x 6W LED	932lm	10°up + 35° down
26 6013	2 x 6W LED	932lm	10°up + 10° down
26 6023	2 x 6W LED	932lm	35°up + 35° down
26 6113	6W LED	466lm	10°down
26 6123	6W LED	466lm	35° down

### **B** SPECIFY CCT

30 3000K (min 80 CRI)

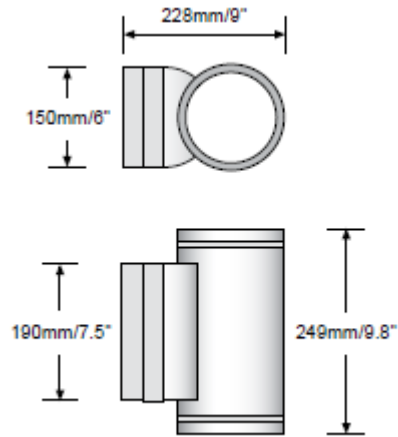
40 4000K (min 80 CRI)

### **C** SPECIFY FINISH

BL Black

GR Light Gray

**LUMINAIRES TO BE INSTALLED ON WALL WITH BOTTOM OF FIXTURE AT 10'-0" ABOVE GRADE**



## GENERAL SPECIFICATION

**Housing:** Die-cast and extruded aluminium.

**External Screws:** Stainless steel.

**Lens:** Clear glass.

**Gaskets:** One piece silicone.

**Reflector:** High purity aluminium, silver anodised. 14° and 40° reflectors may be adjusted to -12° from vertical.

**Finish:** Silver powder coated light gray or black coated as standard.

**Drivers:** HPF, electronic for 120-277V. Dimming 0-10V or Trailing edge 120V.

**Minimum Starting Temperature:** -20°C.

**Weight:** Maximum 8.8lb.

**Approvals:** ETL. Wet location, IP65.

Code:	Power:	*Delivered lms:	Distribution:
26 7033	2 x 14W LED	2098	10°up + 35° down
26 7013	2 x 14W LED	2098	10°up + 10° down
26 7023	2 x 14W LED	2098	35°up + 35° down
26 7113	14W LED	1049	10°down
26 7123	14W LED	1049	35° down

### **B** SPECIFY CCT

30 3000K (min 80 CRI)

40 4000K (min 80 CRI)

### **C** SPECIFY FINISH

BL Black

GR Light Gray

**LUMINAIRES TO BE INSTALLED ON WALL WITH BOTTOM OF FIXTURE AT 10'-0" ABOVE GRADE**

# TYPE S7



**HUBBELL**  
Outdoor Lighting

### SPECIFICATIONS

#### Intended Use:

Slender wallpack/floodlight available in two sizes for a variety of applications including building perimeter/security lighting, entrances, stairways, loading docks or facades for schools, apartments or commercial buildings.

#### Construction:

Rugged die-cast aluminum housing with corrosion resistant powder coat finish both protects and provides architectural appearance. Heat dissipating fins provide superior thermal performance extending the life of the electronic components.

#### Electrical:

- 120-277V, 50/60Hz electronic drivers
- 347V and 480V available in larger SG2 housing
- 10KA surge protection included

#### LED(s) Optics, CCT:

- 3000K, 4000K and 5000K CCT nominal with 70 CRI
- Smaller SG1 housing has 2 LEDs, larger SG2 housing has 3 LEDs, see page 2 for electrical and photometric data

#### Lenses:

- Impact resistant tempered glass offers zero uplight
- Comfort lens available as an option or accessory to reduce glare (7-10% lumen reduction) and provide better uniformity

#### Options/Controls

- Button photocontrol for dusk to dawn energy savings. Stock versions include 120V-277V PC with a cover which provides a choice to engage photocontrol or not. PC is installed in top hub.
- Occupancy sensor available for on/off and dimming control in larger SG2 housing.
- SiteSync™ wireless lighting control delivers flexible control strategies for reducing power consumption and minimizing maintenance costs while delivering the right light levels with a simple and affordable wireless solution. See ordering information or visit [www.hubbellighting.com/sitesync](http://www.hubbellighting.com/sitesync) for more details.
- Battery backup options available in larger SG2 housing rated for either 0° C or -30° C. Performance exceeds NEC requirement providing 1 fc minimum over 10'x10' at 11' mounting height
- Diffused comfort lens provides glare control and improved uniformity. Available as an option or accessory

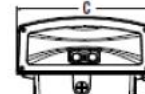
#### Listings

- DesignLights Consortium® (DLC) qualified. Please refer to the DLC website for specific product qualifications at [www.designlights.org](http://www.designlights.org)
- Listed to UL1598 for use in wet location, listed for -40C to 40C applications
- IDA approved with zero uplight for 3000K and warmer CCTs
- IP65



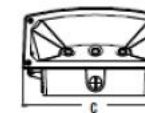
### DIMENSIONS

SG1



A	B	C	Weight
4.19"	7.80"	6.61"	4.4 lbs.
106.5 mm	198 mm	168 mm	2 kg

SG2



A	B	C	Weight
5.80"	11.14"	9.52"	11 lbs.
147 mm	283 mm	242 mm	5 kg

FAMILY	CCT/CRI	DISTRIBUTION	VOLTAGE	COLOR/FINISH
SG1-20 Size 1, 20w	3K7 3000K, 70 CRI	FT Fwd Throw	UNV 120V-277V	DB Textured Dark Bronze
SG1-30 Size 1, 30w	4K7 4000K, 70 CRI		120' 120V	BL Textured Black
SG2-50 Size 2, 50w	5K7 5000K, 70 CRI		277' 277V	WH Textured White
SG2-80 Size 2, 80w			UHV' 347V-480V	GYS Smooth Gray
				PS Smooth Plat. Silver
				CC Custom Color

LUMINAIRES TO BE INSTALLED ON WALL WITH BOTTOM OF FIXTURE AT 20'-0" ABOVE GRADE



## VIPER S SERIES

SMALL VIPER LUMINAIRE

Cat.#

Job

Type



Approvals

### SPECIFICATIONS

#### Intended Use:

The Beacon Viper luminaire is available with a wide choice of different LED Wattage configurations and optical distributions designed to replace HID lighting up to 400W MH or HPS.

#### Construction:

- Manufactured with die cast aluminum.
- Coated with a polyester finish that meets ASTM B117 corrosion test requirements and ASTM D522 cracking and loss of adhesion test requirements.
- External hardware is corrosion resistant.
- One piece optical cartridge system consisting of an LED engine, LED lamps, optics, gasket and stainless steel bezel.
- Cartridge is held together with internal brass standoffs soldered to the board so that it can be field replaced as a one piece optical system.
- Two-piece silicone and micro-cellular polyurethane foam gasket ensures a weather-proof seal around each individual LED.

#### Electrical:

- 100V through 277V, 50 Hz to 60 Hz (UNV), or 347V or 480V input.
- Power factor is  $\geq 0.90$  at full load.
- All electrical components are rated at 50,000 hours at full load and 25°C ambient conditions per MIL- 217F Notice 2.
- Dimming drivers are standard, but must contact factory to request wiring leads for purpose of external dimming controls.
- Component-to-component wiring within the luminaire may carry no more than 80% of rated load and is certified by UL for use at 600VAC at 90°C or higher.
- Plug disconnects are certified by UL for use at 600 VAC, 13A or higher. 13A rating applies to primary (AC) side only.
- Fixture electrical compartment shall contain all LED driver components and shall be provided with a push-button terminal block for AC power connections.
- The housing is designed for an optional twist lock photo control receptacle.
- Ambient operating temperature -40°C to 40°C
- Surge protection - 20KA.
- Optional 7-pin ANSI C136.41-2013 twist-lock photo control receptacle available. Compatible with ANSI C136.41 external wireless control devices.
- Lifeshield™ Circuit - protects luminaire from excessive temperature. The device shall activate at a specific, factory-preset temperature, and progressively reduce power over a finite temperature range. Operation shall be smooth and undetectable to the eye. Thermal circuit is designed to "fail on", allowing the luminaire to revert to full power in the event of an interruption of its power supply, or faulty wiring connection to the drivers. The device shall be able to co-exist with other 0-10V control devices (occupancy sensors, external dimmers, etc.).

#### Controls/Options:

- Available with an optional passive infrared (PIR) motion sensor capable of detecting motion 360° around the luminaire. When no motion is detected for the specified time, the Motion Response system reduces the wattage to factory preset level, reducing the light level accordingly. When motion is detected by the PIR sensor, the luminaire returns to full wattage and full light output. Please contact Beacon Products if project requirements vary from standard configuration.
- Available with Energeni for optional set dimming, timed dimming with simple delay, or timed dimming based on time of night (see [www.beaconproducts.com/products/energeni](http://www.beaconproducts.com/products/energeni)).
- In addition, Viper can be specified with SiteSync™ wireless control system for reduction in energy and maintenance cost while optimizing light quality 24/7. See ordering information or visit [www.hubbellighting.com/sitesync](http://www.hubbellighting.com/sitesync) for more details.

#### Installation:

- Mounting options for horizontal arm, vertical tenon or traditional arm mounting available. Mounting hardware included.

#### Finish:

- IFS polyester powder-coat electrostatically applied and thermocured.
- IFS finish consists of a five stage pretreatment regimen with a polymer primer sealer and top coated with a thermoset super TGIC polyester powder coat finish.
- The finish meets the AAMA 605.2 performance specification which includes passing a 3000 hour salt spray test for corrosion resistance and resists cracking or loss of adhesion per ASTM D522 and resists surface impacts of up to 160 inch-pounds.

#### Listings:

- DesignLights Consortium (DLC) qualified, consult DLC website for more details: <http://www.designlights.org/QPL>
- Listed to UL1598 and CSA22.2#250.0-24 for wet locations and 40°C ambient temperatures
- 3G rated for ANSI C136.31 high vibration applications with SF2 mounting
- IDA approved

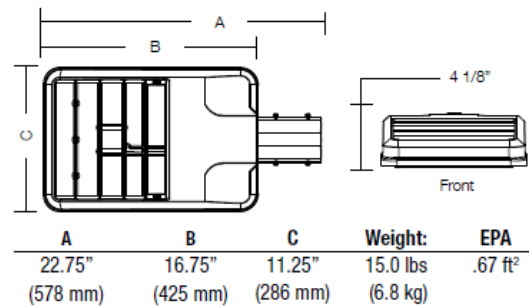
#### Warranty:

Five year limited warranty for more information visit: [www.hubbellighting.com/resources/warranty](http://www.hubbellighting.com/resources/warranty)

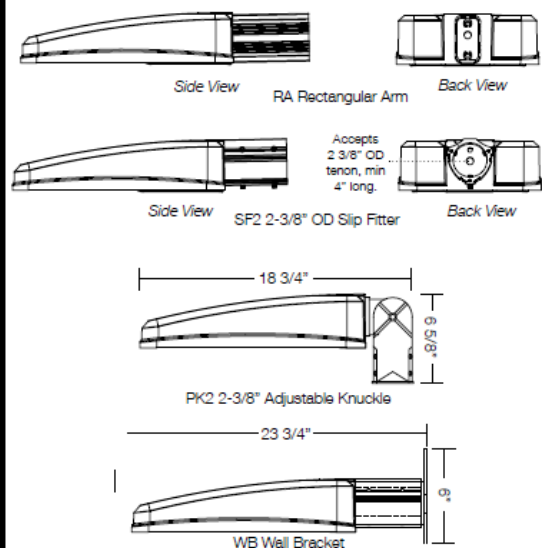
### PRODUCT IMAGE(S)



### DIMENSIONS



### MOUNTING OPTIONS





# TYPES S8, S9 & 9a



SERIES	ENGINE-WATTS	LED COLOR	VOLTAGE	ELECTRICAL OPTIONS	HOUSE SIDE SHIELD OPTIONS	FINISH
<b>VPS</b> viper-small	<b>24NB-55</b> 55W, LED array	<b>3K</b> 3000K	<b>UNV</b> 120-277V	<b>PCR-TL</b> Twist lock receptacle with photo control	<b>HSS-90</b> house side shield 90°	<b>BBT</b> basic black textured
	<b>30NB-70</b> 70W, LED array	<b>4K</b> 4000K	<b>347V</b> 347V	<b>PCR-SC</b> Twist lock receptacle with shorting cap	<b>HSS-180</b> house side shield 180°	<b>BMT</b> black matte textured
	<b>36NB-80</b> 80W, LED array	<b>5K</b> 5000K	<b>480V</b> 480V	<b>PCR-U</b> Twist lock receptacle dual power feed	<b>BLC<sup>3</sup></b> backlight control	<b>WHT</b> white textured
	<b>48NB-110</b> 110W, LED array	<b>OPTICS<sup>4</sup></b>				<b>MBT</b> metallic bronze textured
	<b>60NB-136</b> 136W, LED array	<b>T1</b> type I				<b>BZT</b> bronze textured
		<b>T2</b> type II				<b>DBT</b> dark bronze textured
		<b>T3</b> type III				<b>GYS</b> gray smooth
		<b>T4</b> type IV				<b>DPS</b> dark platinum smooth
		<b>T5R</b> type V, rectangular				<b>GNT</b> green textured
		<b>T5QM</b> type V, square medium				<b>MST</b> metallic silver textured
		<b>T5W</b> type V, round wide				<b>MTT</b> metallic titanium textured
		<b>FR</b> front row auto optic				<b>OWI</b> old world iron
			<b>CONTROL OPTIONS</b>		<b>BIRD DETERRENT</b>	
			<b>GENI-XX<sup>9</sup></b> Energeni		<b>BSP</b> bird spike	
					<b>MOUNTING OPTIONS</b>	
					<b>RA</b> rectangular arm for round or square pole mount. RPA included.	

### APPLICATIONS

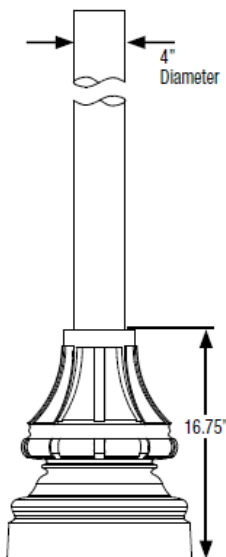
- Lighting installations for side and top mounting of luminaires with effective projected area (EPA) not exceeding maximum allowable loading of the specified pole in its installed geographic location

### CONSTRUCTION

- SHAFT:** One-piece straight aluminum with fluted or smooth cross section; Extruded shafts of 6061-T6 aluminum in 1/8", 3/16", or 1/4" thickness. Decorative base of 356 cast aluminum.
- POLE CAP OR FINALS:** Cap or decorative finials available for side mounted luminaires. Open top or tenons provided for post top mounted luminaires.
- HAND HOLE:** Hand hole provided in cast base; Mounting provisions for grounding lug located behind cover
- ANCHOR BOLTS:** Four galvanized anchor bolts provided per pole with minimum yield of 55,000 psi (ASTM F1554). Galvanized hardware with two washers and two nuts per bolt for leveling

### FINISH

- Durable thermoset polyester powder coat paint finish with nominal 3.0 mil thickness
- Powder paint finish coat available in twelve standard colors; Custom colors available; RAL number preferable.



**POLE HEIGHT = 20'-0"**

Catalog Number	Height		Nominal Shaft Dimensions	Wall Thickness	Bolt Circle (suggested)	Bolt Square	Base Plate Size	Anchor Bolt Size	Bolt Projection	Pole weight (lbs)
	Feet	Meters								
<b>RSA-B-CENA-S-20-40-B</b>	<b>20</b>	<b>6.1</b>	<b>4" Round</b>	<b>0.188"</b>	<b>9.50"</b>	<b>6.72"</b>	<b>13-1/2" dia. X 16-3/4" Tall</b>	<b>5/8 x 24 x 3</b>	<b>3-1/4"</b>	<b>83</b>

**Type S8:** TYPE T5W OPTICAL DISTRIBUTION – 110 WATT

**Type S9:** TYPE II OPTICAL DISTRIBUTION – 55 WATT

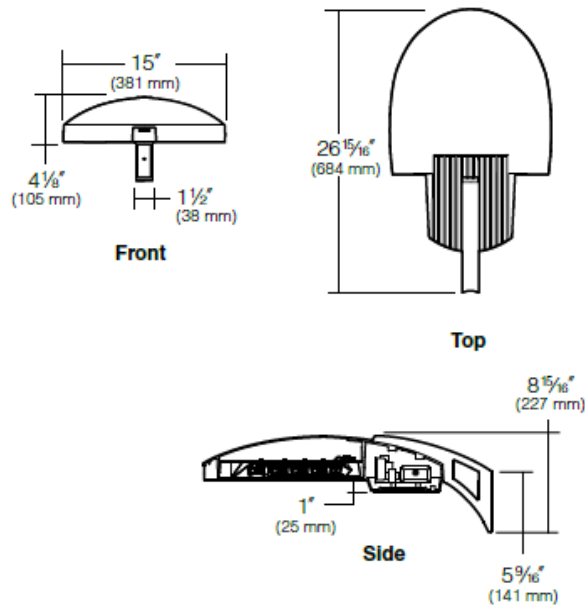
**Type S9a:** TYPE III OPTICAL DISTRIBUTION – 55 WATT

# TYPE S10



**KIM LIGHTING**

## WARP9® Small PicoEmitter® LED



### Housing:

- One-piece die-cast, low copper (<0.6% Cu) aluminum alloy with integral cooling ribs over the optical chamber and electrical compartment.
- Solid barrier wall separates optical and electrical compartments.
- Double-thick wall with gussets on the support-arm mounting end.
- Housing forms a half cylinder with 55° front face plane providing a recess to allow a flush single-latch detail.
- All hardware is stainless steel or electro-zinc plated steel.

### Lens Frame:

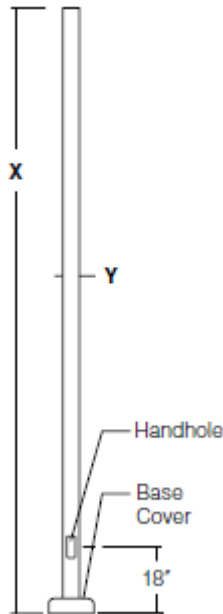
- Integral hinges with stainless steel pins provide no-tool mounting and removal from housing.
- Single die-cast aluminum cam-latch provides positive locking and sealing of the optical chamber by a one-piece extruded and vulcanized silicone gasket to provide an IP66 rating for the optical module.
- Clear 3/8" thick tempered glass lens retained by eight steel clips with full silicone gasketing around the perimeter.

### Optical Module:

- Precision, replaceable PicoEmitters are positioned to achieve directional control toward desired task.
- The entire EmitterDeck fastens to the housing as a one-piece module.
- Type I, II, III, IV, V, L (left), and R (right) standard distributions. Custom available.
- 3000K, 4000K, 5000K standard CCT. Amber and custom available.
- IP66 certified
- Die-cast, low copper aluminum heat sink modules provide thermal transfer at PCB level.
- Anodized aluminum carrier plate and heat sink modules.

Configuration		EPA	Fixture			Electrical Module			Fixture Finish	Photocell Options
			Housing	Distribution	Drive Current	Source	Color Temperature <sup>2</sup>	Voltages		
1SA	1 Arm Side Mt.	.52	WP9S Small, 60 LEDs	1 Type I	E35 350mA PicoEmitter	60L 60 LEDs, 66W	2K <sup>3</sup> 580nm 3K 3000K 4K 4000K 5K 5000K	120 120V 208 208V 240 240V 277 277V 347 <sup>4</sup> 347V 480 <sup>4</sup> 480V	BL	A25-7 <sup>1</sup> 7-pin Photocell Receptacle
2SB	2 Arm Side Mt.	1.0		2 Type II					A30	120V Button Photocell
2SL	2 Arm Side Mt.	.82		3 Type III					A31	208V Button Photocell
3ST	3 Arm Side Mt.	1.3		4 Type IV					A32	240V Button Photocell
3SY <sup>*</sup>	3 Arm Side Mt.	1.3		5 Type V					A33	277V Button Photocell
4SC	4 Arm Side Mt.	1.5		R Type R, Right					A34	480V Button Photocell
1W	Single Wall Mt.	n/a						WH	A354 347V Button Photocell	

**E70 700mA PicoEmitter**



Pole Height	Pole Diameter	Bolt Circle Dia.	Anchor Bolt Projection	Anchor Bolts Size	Base Cover Size	Conduit Opening
8'-14'	4"	8½"	3½"	¾" x 15" + 3"	11½"	3" dia.
8'-14'	5"	8½"	3½"	¾" x 30" + 4"	11½"	3" dia.
10'-14'	3¾"	7"	3½"	¾" x 15" + 3"	10½"	2½" dia.
12'	6"	10½"	3½"	¾" x 30" + 4"	11½"	3" dia.
14'	6"	10½"	3½"	¾" x 30" + 4"	11½"	3" dia.
16'-20'	4"-5"	8½"	3½"	¾" x 30" + 4"	11½"	3" dia.
16'-20'	6"	10½"	3½"	¾" x 30" + 4"	14"	5" dia.
25'-30'	6"	10½"	3½"	¾" x 30" + 4"	14"	5" dia.

15'-6"-Foot Pole Height on a Raised 2'-6" Base

**Pole Construction:** Seamless round extruded aluminum tube of alloy 6061-T6, welded to top and bottom of aluminum base casting of alloy 356.

**Base Cover:** Base has a two-piece cast aluminum full cover of 319 alloy, secured by stainless steel screws.

**Pole Cap:** A flush-sided cast aluminum pole cap is provided for side arm mounted luminaires.

**Handhole:** 18" up from base, with a gasketed cover and ground lug. Poles with a 3¾" O.D. include a handhole reinforcement casting welded in place.

**Anchor Bolts:** Four galvanized anchor bolts provided, complete with eight nuts, eight flat washers, and a presswood template.

**Vibration Dampener:** All poles 25' and above include an internally mounted, factory installed pendulum vibration dampener, with flush stainless steel socket head fasteners finished to match pole.

**Strength:** Poles will withstand wind loads as listed in chart (See page 2) when luminaires are mounted per fixture installation instructions.

**Finish:** Super TGIC thermoset polyester powder coat paint applied over a titanated zirconium conversion coating. Standard colors are Black, Dark Bronze, Light Gray, Graphite Platinum Silver, Titanium and White. Custom colors are available.

Pole - Pole Catalog Number	X	Y	Wind Map Steady Wind							
			85	90	100	110	120	130	140	150
□ PRA20-4188	19.5'	4" x .188	5.33	4.37	3.74	2.48	1.52	0.91	0.63	0.42

# TYPE G1 (GARAGE LUMINAIRE)

<h2 style="margin: 0;">ENDURA SERIES</h2> <p style="margin: 0;">WALL/BUILDING MOUNT</p>	Cat.#		
	Job		

### SPECIFICATIONS

#### Intended Use:

The Endura is a ceiling surface mounted or pendant mounted parking structure luminaire with a field replaceable LED light-engine & optical bezel system. Internal components are totally enclosed in a rain-tight and corrosion-resistant die cast aluminum housing. The Endura Luminaire is CSA listed and suitable for damp locations (wet location available on request).

#### Construction:

- Die cast aluminum two-piece housing
- Shape of the top housing is designed as a bird nesting deterrent
- Die cast main (thermal) housing provides direct-heat exchange between the LED light engine and the cool outdoor air by drawing heat through integral heat channels and out to the sculptured and functional luminaire surface.
- LED drivers are thermally isolated from the main housing, mechanically attached and heat-sunk to the top housing.
- Main housing is designed with heat dissipating fins for LED thermal management without the use of metallic screens, cages, or fans
- Main and top housings are designed to hinge open for easy mounting and easy access

#### LED/Optics:

- Endura luminaire is supplied with an Optical one piece cartridge system consisting of an LED engine, LED lamps, optics, gasket and stainless steel bezel
- Cartridge is held together with internal brass standoffs soldered to the board so that it can be field replaced as a one piece optical system.
- Two-piece silicone and polycarbonate foam gasket ensures a weather-proof seal around each individual LED and allows the Endura luminaire to be rated for high-pressure hose down applications.
- Optical cartridge is secured to the extruded housing with fasteners and a heat pad to ensure thermal conductivity. The optics are held in place without the use of adhesives and the complete assemble is gasketed for high pressure hose down cleaning.
- Cartridge assembly is available in various lighting distributions using TIR designed Acrylic optical lenses over each LED.

#### Electrical:

- 120V through 277V, 50 Hz to 60 Hz.
- Endura comes standard with 70 CRI.
- Power factor is min 0.92 at full load.
- Optional 0 to 10 volt dimming drivers are available upon request.
- Component-to-component wiring within the luminaire may carry no more than 80% of rated load and is listed by UL for use at 600VAC at 50°C or higher.
- Plug disconnects are listed by UL for use at 600 VAC, 15A or higher. 15A rating applies to primary (AC) side only.
- Surge protection - 20KA

#### Controls/Options:

- Endura is available with an optional passive infrared (PIR) motion sensor capable of detecting motion 360° around the luminaire. When no motion is detected for the specified time, the Motion Response system reduces the wattage down to a factory preset level, reducing light level accordingly. When motion is detected, the luminaire returns to full wattage and full light output. Please contact Beacon Products if project requirements vary from the standard configurations.
- Available with Energeni for optional set dimming with simple delay, or timed dimming based on hours of operation or time of night (see Energeni product page for more details [www.beaconproducts.com/products/energeni](http://www.beaconproducts.com/products/energeni))
- In addition, Endura can be specified with **SiteSync™** wireless control system for reduction in energy and maintenance cost while optimizing light quality 24/7. See ordering information or visit: [www.hubbellighting.com/sitesync/](http://www.hubbellighting.com/sitesync/) for more details

#### Installation:

- Top housing is designed with various bolt patterns for mounting to a recessed, surface or rigid-pendant hung 4" junction box and rigid stem provided by others)
- After mounting the top housing to the junction box, the main housing is designed to hang and hinge closed after connecting the male and female quick connectors
- Mounting design permits a simple retrofit to existing parking structure luminaires that utilize surface mount or recessed junction boxes

#### Finish

- IFS polyester powder-coat electrostatically applied and thermocured.
- IFS finish consists of a five stage iron phosphate chemical pretreatment regimen with a polymer primer sealer, oven dry off, and top coated with a thermoset super TGIC polyester powder coat finish.
- The finish meets the AAMA 605.2 performance specification which includes passing a 3000 hour salt spray test for corrosion resistance and resists cracking or loss of adhesion per ASTM D522 and resists surface impacts of up to 160 inch-pounds.

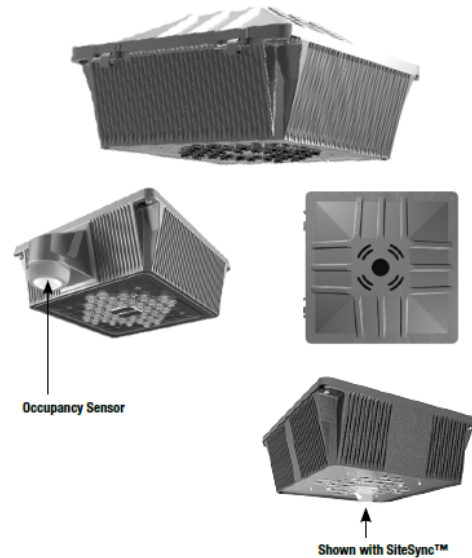
#### Listings:

- The luminaire shall bear a CSA label and be marked suitable for clamp locations (standard). Luminaire may be specified for wet locations.
- This product is approved by the Florida Fish and Wildlife Conservation Commission. Separate spec available at: <http://www.beaconproducts.com/products/endura>

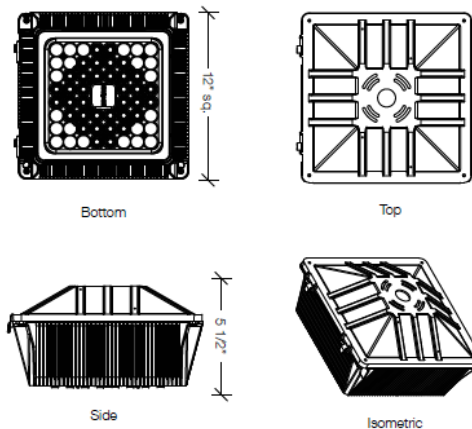
#### Warranty:

Five year limited warranty for more information visit: [www.hubbellighting.com/resources/warranty](http://www.hubbellighting.com/resources/warranty)

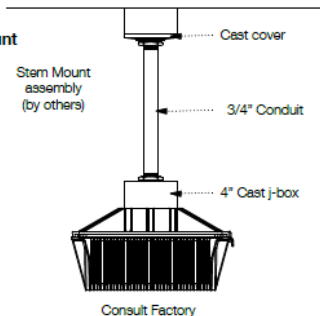
### PRODUCT IMAGE(S)



### DIMENSIONS



### Ceiling Mount



### CERTIFICATIONS/LISTINGS

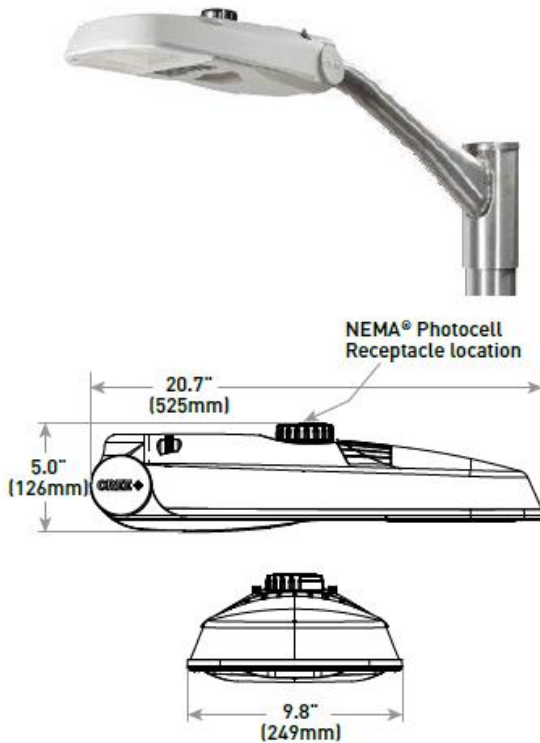


# TYPE G1 (GARAGE LUMINAIRE)

SERIES	ENGINE-WATTS	LED COLOR <sup>11</sup>	OPTICS	VOLTAGE	ELECTRICAL OPTIONS	FINISH
<b>EDR</b> Endura	<b>24NB-27</b>	27 Watts - LED array	<b>3K</b> 3000K	<b>UNV</b> 120-277V <b>347</b> 347V <b>480</b> 480V	<b>PEC</b> Photocell, button <b>2PF</b> <sup>1,2,8</sup> Dual power feed <b>BPC</b> <sup>4,8</sup> Cold weather battery pack <b>BP</b> <sup>4,8</sup> 0° C battery pack	<b>BBT</b> basic black textured <b>BMT</b> black matte textured <b>WHT</b> white textured <b>MBT</b> metallic bronze textured <b>BZT</b> bronze textured <b>DBT</b> dark bronze textured <b>GYS</b> gray smooth
	<b>24NB-55</b>	55 Watts - LED array	<b>4K</b> 4000K			
	<b>36NB-80</b>	80 Watts - LED array	<b>5K</b> 5000K (std.)			
	<b>48NB-110</b>	110 Watts - LED array	<b>T5R</b> Type V, rectangular <b>T5W</b> Type V, wide <b>T5QM</b> Type V, square medium <b>T5QN</b> Type V, square narrow <b>T5QW</b> Type V, square wide			
			<b>HIGHER MOUNTING APPLICATIONS</b>	<b>CONTROL OPTIONS</b>	<b>SENSOR OPTIONS</b>	
			<b>2X2</b> Type V Concentrated Spot	<b>GENI-XX</b> <sup>5,9</sup> Energeni	<b>MOB</b> <sup>3,7,9</sup> Occupancy Sensor (33% or 50% dimming)	<b>DPS</b> dark platinum smooth
			<b>4X4</b> Type V Concentrated Narrow	<b>SWP</b> <sup>6,9</sup> SiteSync Wireless Pre-Commission	<b>OCS</b> <sup>8,10</sup> Occupancy Sensor (on/off)	<b>GNT</b> green textured
			<b>5X5</b> Type V Concentrated Medium	<b>SWPM</b> <sup>6,7,9</sup> SiteSync Wireless Pre-Commission w/ Motion Detection		<b>MST</b> metallic silver textured
						<b>MTT</b> metallic titanium textured
						<b>OWI</b> old world iron
						<b>RAL</b> _____

LUMINAIRES THAT ARE IMMEDIATELY ADJACENT TO THE PERIMETER WALLS SHALL BE CONTROLLED WITH DAYLIGHT SENSORS





## Product Specifications

### CREE WAVEMAX® TECHNOLOGY

Featuring up to 90% optical efficiency and precise control, Cree WaveMax® Technology provides unmatched comfort and decreased LED source luminance by smoothly spreading brightness over a broader area. When integrated with luminous surfaces made of a polymer medium engineered with DiamondFacet™ optical elements, extremely high efficacy luminaires are the result – ultimately creating more visually comfortable and appealing environments while exceeding illumination performance.

### CONSTRUCTION & MATERIALS

- Housing constructed of high strength, lightweight bulk molding compound for long weathering and durability
- UV stabilized polymeric door with handle pocket for tool-less entry
- Straight in wiring to terminal block for power input (#6-#14 AWG)
- IP66 rated optic box and driver enclosure inside optic box
- Mounts on 1.25" (32mm) IP, 1.66" (42mm) O.D. or 2" (51mm) IP, 2.375" (60mm) O.D. horizontal tenon (minimum 8" [203mm] in length) and is adjustable +/- 5° in 2.5° increments to allow for fixture leveling (two axis T-level included)
- Luminaire secures with two mounting bolts
- Comes standard with Utility Label per ANSI C136.15 and 7-pin NEMA® Photocell Receptacle per ANSI C136.41
- **Weight:** 8.45 lbs. (3.8kg); add 0.4 lbs. (0.2kg) for RSW-BLSS accessory

### ELECTRICAL SYSTEM

- **Input Voltage:** 120-277V, 50/60Hz
- **Power Factor:** > 0.9 at full load
- **Total Harmonic Distortion:** < 20% at full load
- Integral 10kV surge suppression protection standard
- When code dictates fusing, a slow blow fuse or type C/D breaker should be used to address inrush current
- **10V Source Current:** 0.25mA
- **Operating Temperature Range:** -40°C - +50°C (-40°F - + 122°F)

### REGULATORY & VOLUNTARY QUALIFICATIONS

- cULus Listed
- Suitable for wet locations
- Certified to ANSI C136.31-2001, 3G bridge and overpass vibration standards
- Meets CALTrans 611 Vibration testing
- 10kV surge suppression protection tested in accordance with IEEE/ANSI C62.41.2
- Meets FCC Part 15, Subpart B, Class A standards for conducted and radiated emissions
- RoHS compliant. Consult factory for additional details
- Dark Sky Friendly, IDA Approved when ordered with 27K or 30K CCT
- DLC and DLC Premium qualified versions available. Please refer to <https://www.designlights.org/search/> for most current information