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June 20, 2016

Dr. Vakani Orthodontist Office 2196 Gatlin Blvd

RFI RESPONSE #4

Please find attached the Site Lighting Plan and Lighting Specs.

All questions shall be addressed thru the Architect in *writing* using the following contact information:

Stewart Granfield - NCARB President - Managing Architect **Granfield Architects PLLC** 1683 NE Jensen Beach Blvd. Jensen Beach, Fl. 34957 (772)283-6032 office (772)283-8150 fax stewart@granarch.comcastbiz.net

DESCRIPTION

The McGraw-Edison BSL / BRL Bollard Series, available in heights from 24" to 42", has crisp, clean lines which blend with any architectural setting. Constructed of seamless, heavy-duty aluminum and finished with a tough polyester powder coat finish, the McGraw-Edison Louvered Bollard Series is gasketed to seal out external contaminants. U.L. 1598 listed and CSA certified for wet locations.

Bollards are designed for walkways, entranceways, drives and other small-area lighting applications where low mounting heights are desirable.

SPECIFICATION FEATURES

Construction

TOP: Rugged, minimum 5/32" thick cast aluminum top cap secured via a concealed stainless steel allen screw with twist removal mechanism for lamp access. Flow through ventilation assure cool to the touch top. LOUVERS: Cast Aluminum Louver blades provide sharp cutoff delivering no direct light above 90°. Louvers are secured to the shaft via tamper stainless steel rods and fasteners. LOWER HOUSING: Nominal 1/8" thick aluminum extruded housing. Bollard housing is secured to the base with flathead, counter-sunk screws for smooth, uncluttered appearance. BASE: Rugged cast aluminum. Completely concealed.

Electrical

HID High Power Factor ballast for -20°F starting. CFL Electronic ballast for 0°F starting. Product is factory mounted to the base. Quick disconnects provided between lamp and electrical assembly. Metal Halide and High Pressure Sodium lamp sources up to 100W and up to 42W Compact Fluorescent sources.

Optical

LAMP ENCLOSURE: One piece tempered glass with internal flutes for even disbursement of illumination. Decorative colored glass optional. Globe is fully gasketed via EPDM material. Socket is porcelain, medium-base for HID lamp sources and

McGRAW-EDISON®



Catalog #	Туре
Project	
Comments	Date

polycarbonate/PBT GX24q-3/q-4 base for compact fluorescent lamps.

Mounting

Base mounts onto foundation with three (3) $1/2" \times 12 1/2"$ anchor bolts on a 5" Dia. bolt circle (a centrally located 2 7/8" x 3 1/2" wire entrance opening provided).

Finish

Premium fade and abrasion resistant, TGIC Polyester Powder Coat Finish. Standard colors are Black, Grey, Bronze, White, Dark Platinum and Graphite Metallic. Other finish colors available including all RAL matches.



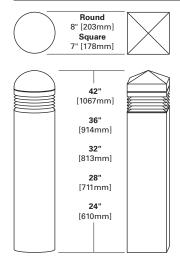
BSL/BRL BOLLARD

26 - 100W Pulse Start Metal Halide High Pressure Sodium Compact Fluorescent Incandescent

PATHWAY LUMINAIRE



DIMENSIONS





Lamp Type	Wattage
Pulse Start Metal Halide (MP)	50, 70, 100W
High Pressure Sodium (HPS)	35, 50, 70, 100W
Compact Fluorescent (CF)	(1) 26, (1) 32, (1) 42W
Incandescent (IN)	100W

Energy Data Reactor Ballast Input Watts 35W HPS NPF (46 Watts)

High Reactance Ballast Input Watts

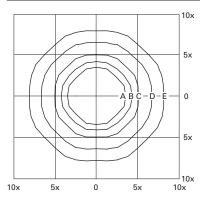
50W HPS HPF (62 Watts) 50W MP HPF (69 Watts) 70W HPS HPF (86 Watts) 70W MP HPF (94 Watts) 100W HPS HPF (115 Watts) 100W MP HPF (129 Watts) 150W HPS HPF (170 Watts) 150W MP HPF (185 Watts)

SHIPPING DATA Approximate Net Weight: 26 lbs. (12 kgs.)



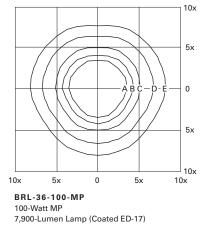


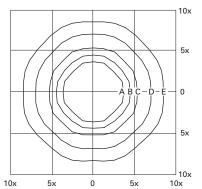






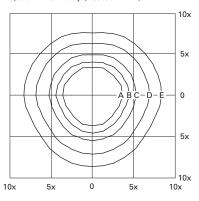
7,900-Lumen Lamp (Coated ED-17)





BSI -36-100-HPS

100-Watt HPS 8.800-Lumen Lamp (Coated ED-17)



BRL-36-100-HPS 100-Watt HPS 8,800-Lumen Lamp (Coated ED-17)

Footcandle Table

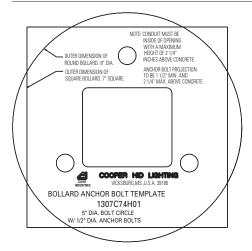
Select mounting height and read across for footcandle values of each isofootcandle line. Distance in units of

mounting height.
Mounting Footcandle Values for

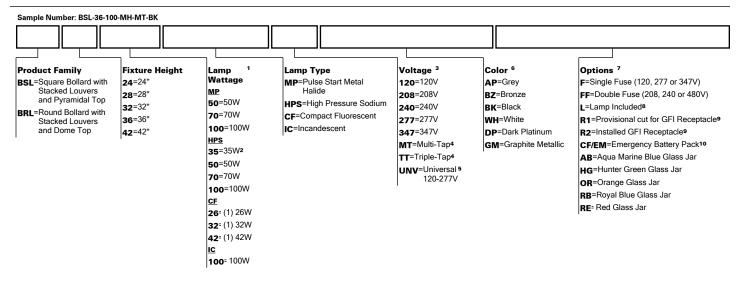
Height Isofootcandle Lines

	А	в	С	D	Е
42"	1.20	0.60	0.30	0.12	0.06
36"	2.00	1.00	0.50	0.20	0.10
32"	2.40	1.20	0.60	0.24	0.12
28"	3.20	1.60	0.80	0.32	0.16
24"	4.40	2.20	1.10	0.44	0.22

ANCHOR BOLT TEMPLATE (NOT TO SCALE)



ORDERING INFORMATION



Notes: 1 HID lamps are medium base. 175W MH is available for non-U.S. markets only.

- 2 35W HPS available in 120V only.
- Products also available in non-US voltages and 50Hz for international markets. Consult factory for availability and ordering information.
- 4 Multi-Tap ballast is 120/208/240/277V wired 277V. Triple-Tap ballast is 120/277/347V wired 347V.
- 5 Compact Fluorescent only Electronic ballast universal voltage 120-277V.
- 6 Other finish colors available, including a full line of RAL color matches. Consult your Cooper Lighting Representative.
- 7 Add as suffix in the order shown.
- 8 Coated lamp standard. Must specify clear lamp if desired.
- 9 Location of R1 and R2 option on housing subject to height of luminaire.
- CF lamps only, rated minimum operating temperature 32° F (0° C).



Galleon[™] LED Area and Site Luminaire





Cooper Lighting

Innovation you can rely on[™]



Area and Site Lighting Redefined

A New Benchmark in Performance and Features

The Galleon LED luminaire delivers a new level of performance and versatility for commercial area, site and roadway applications. Incorporating industry-leading, patented optics, the Galleon LED luminaire offers a choice of 16 specialized optical distributions that deliver superior control and maximize light levels. With a choice of 30 lumen packages, the Galleon LED luminaire allows scalability from 3,000 to over 53,000 delivered lumens. The 4000K/70 CRI is standard, with 6000K/70 CRI and 3000K/70 CRI options available.

Long Life with Low Maintenance Costs

In addition to delivering superior performance, the Galleon LED Luminaire is designed for low maintenance, long life and low cost of ownership. These are key benefits that provide compelling justification to retrofit traditional HID solutions, or allow end users to capitalize on these advantages in new construction applications. The Galleon LED luminaire can be tailored to meet your most important needs without compromising on specification features. The LED components and fixture housing are IP66 rated, which provides years of reliable operation with minimal service requirements.



Engineered for Reliability

At Eaton's Cooper Lighting business we believe credibility is the key to our success. We are committed to providing LED solutions that meet the highest standards of reliability and performance. Our deep-rooted understanding of outdoor product markets and application needs have been resulted through decades of supplying quality products, service and support.

Galleon LED Design Excellence

Stepping Up to the Challenge

The Galleon LED luminaire delivers exceptional performance in a highly scalable, low-profile design. The patented, high-efficiency AccuLED Optics™ system provides uniform and energy-conscious illumination to walkways, parking lots, roadways, building areas and security lighting applications. With HID equivalents ranging from 100W up to 1000W, the Galleon LED luminaire is designed to meet the toughest lighting challenges.

Construction

- Extruded aluminum driver enclosure
- Heavy-wall die-cast aluminum end caps
- 3G vibration rated
- IP66-rated housing and LED Light Squares
- Optional tool-less entry

Electrical

- Operates in -40°C to 40°C ambient with optional high ambient 50°C ambient configuration
- Proprietary circuit module designed to withstand 10kV of transient line surge
- >L90 60,000 hours at 40°C, compliant with IESNA TM-21
- 120V-277V 50/60Hz, 347V 60Hz or 480V 60Hz operation

Controls

- Standard with 0-10V dimming driver(s)
- Optional occupancy sensor
- Optional wireless control and monitoring system

Finish

• Five-stage, super durable TGIC paint resists extreme weather conditions while providing optimal color and gloss retention. It's available in standard grey or optional bronze, black, dark platinum, graphite metallic or white.

Grey	Bronze	Black
Dark Platinum	Graphite Metallic	White

Dark Platinum

Warranty

• Five-year warranty



Surge Protection A 10kV common surge (line-to-ground) and differential surge (line-to-line) mode protection is standard.



NEMA Twistlock Photocontrol Receptacle

An optional gasketed receptacle allows for mounting the standard NEMA photocontrol (order separately).



Light Square Trim Plate Finish An optional finish to match LED trim plates to the housings exterior allows luminaire to blend seamlessly in any site lighting application.

. . Die-cast Aluminum Heat Sinks

Scalable Lumen Packages : from 3,000 to 53,000 Lumens . . :

IP66-Rated Housing and LED Light Squares. .



Occupancy Sensor The optional motion sensor reduces energy use for site lighting applications. **Mounting Options**



Mast Arm Adapter An optional cast aluminum mast arm adapter secures fixture head to nominal 2" (2-3/8" O.D. pipe size) horizontal steel tenon arm.



Wall Mount Bracket An optional wall-mount plate is secured to wall by four lag bolts (supplied by others).

Scalable Illumination with LED Light Squares

Energy Savings and Environmental Stewardship

The simplest and most effective way to reduce a lighting fixture's impact on the environment is to minimize its energy consumption. By incorporating Light Squares from Eaton's Cooper Lighting business, the Galleon LED luminaire provides energy savings up to 75 percent compared to standard HID solutions.

Long Life

With a 60,000+ hour rated life (at greater than 90 percent lumen maintenance), the Galleon LED Luminaire operates six times longer than traditional metal halide fixtures.

Low Maintenance

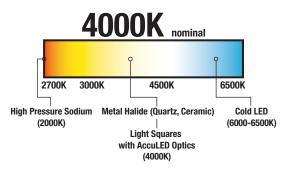
With simple quick disconnects, the Light Squares are easily removed in the field for replacement or for the rotation of the optics.



NOTE: Compliant with IESNA TM-21

Warm White Color

Lighting designers, architects and specifying engineers have long preferred light sources that provide a balanced spectral power distribution and warm white light. Many LED solutions standardize on a cold blue 6000-6500K correlated color temperature (CCT) to maximize lumen output. The Galleon LED luminaire provides warm white light at a standard 4000K CCT with no sacrifice in lumen output.



Superior Efficiency and Control

With efficiencies as high as 95 percent, the patented AccuLED Optics™ system is up to 30 percent more efficient than traditional HID optical systems. Available in 16 optional distributions, this system provides the flexibility and performance required for outdoor applications.



House Side Shield

For stringent light trespass requirements and the ultimate level of backlight control, a house side shield accessory is available for factory or field installation. Designed to seamlessly integrate with the SL2, SL3, SL4 and AFL distributions, the house side shield virtually eliminates backlight and also enhances visual comfort.



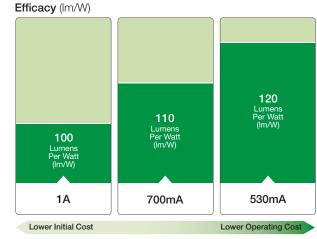
Optical Performance Redefined

Performance and Scalability

The Galleon LED luminaire is designed around superior optical performance and scalability. With a choice of 30 lumen packages and 16 optical distributions, the optimal configuration can be used to maximize light levels while minimizing operating costs.

Power Consumption (Watts)

Number of	Drive Current			
Light Squares	530mA	700mA	1A	
1	30	38	56	
2	54	72	107	
3	80	105	157	
4	105	138	213	
5	130	176	264	
6	159	210	315	
7	184	243	370	
8	209	276	421	
9	234	314	475	
10	259	348	528	

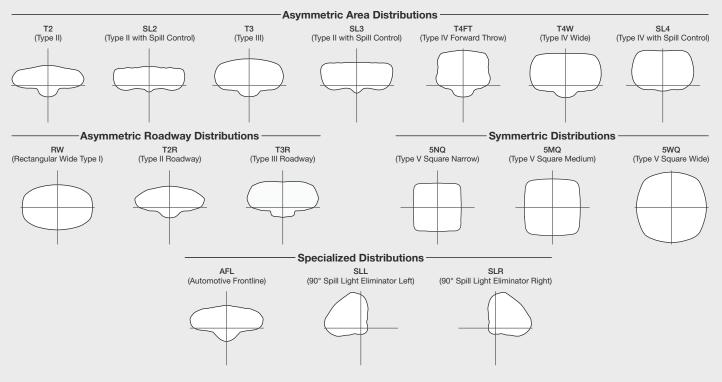


NOTE: Nominal efficacy at 4000K CCT



Optical Distributions

The Galleon luminaire has a choice of seven asymmetric area, three asymmetric roadway, three symmetric and three specialized distributions.



Occupancy Sensing

Accelerate Payback on your Investment

To further enhance energy savings, the Galleon luminaire offers an optional occupancy sensor that is integral to each individual luminaire. When the area surrounding the luminaire is unoccupied, the sensor has the ability to reduce light levels and power consumption. In addition to financial benefits, all the control options for the Galleon luminaire are designed to be simple and cost-effective ASHRAE and Title 24 compliant solutions.

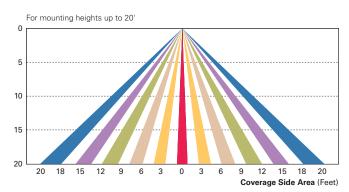
Dimming Occupancy Sensor (DOS)

When the DOS option is selected, the occupancy sensor is connected to a dimming driver and the entire luminaire dims when there is no activity detected. When activity is detected, the luminaire returns to full light output. The sensor is factory preset to dim down to approximately 50 percent lumen output with a time delay of five minutes. To change these settings, a FSIR-100 accessory can be purchased. The FSIR-100 is a wireless configuration tool that allows the dimming level, time delay, sensitivity and other parameters to be changed. Consult a representative from Eaton's Cooper Lighting business for additional details.

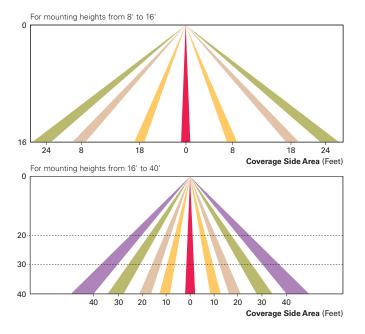
LumaWatt Wireless Control and Monitoring System (DIMRF-LW and DIMRF-LN)

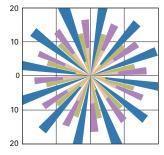
The LumaWatt system is best described as a peer-to-peer wireless network of luminaire-integral sensors that operate in accordance with programmable profiles. The end user can create and manage sensor profiles with browser-based management software and broadcast to the sensors as necessary via wireless gateways. Each sensor is capable of motion and photo sensing, metering power consumption and wireless communication. For additional details, refer to www.cooperlighting.com.

Dimming Occupancy Sensor (DOS)

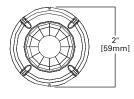


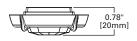
LumaWatt (DIMRF-LW and DIMRF-LN)

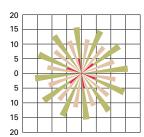




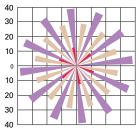
Coverage Top Area (Feet)



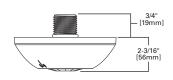




Coverage Top Area (Feet)



3-1/2" [89mm]



Coverage Top Area (Feet)

Scheduled Dimming and Occupancy Detection

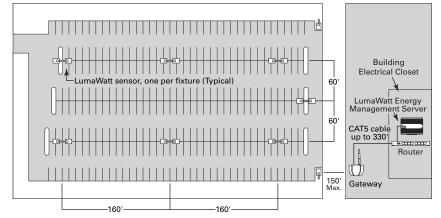


For outdoor parking area applications, lighting should be dimmed or turned off within one hour of business closing. Scheduled dimming and occupancy detection can be combined to reduce maximum lighting levels outside business hours. Egress and security lighting is available on occupancy detection.

Sides of Drive Fixture Location

Fixture Spacing = 160' x 120' on center

20 fixtures per 60' wide drive lane; 40 fixtures total for 420' x 120' parking deck



Energy Savings Calculations

Configuration	Daily Hours of Operation	Control Event	Annual Load (KWh)	
14 Sensor Integrated Luminaires 35' on Mounting Height, Cente	red at 120' x 160'			
Bill-of-Material (BOM)				
(1) RF-EM1, (1) RF-ROUT1, (1) RF-GW1 (14) GAN-AE10-LED-E1-T2-BZ-DIMRF-LN (515W)	11	100% On	28,948	
Control Schedule				
7:30 PM-11:30 AM	4	100% On	10,526	
11:30 PM-6:30 AM	7	40% On, On Occupancy 70%	7,268	
Total Controlled Load	17,895			
Energy Saving			38%	

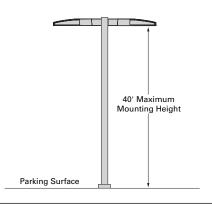
IESNA Lighting Handbook 10th Edition Illuminance Values for Area and Site Applications

Parking Lot Design Guide						
Illuminance	Minimum Horizontal Illuminance ¹	Minimum Vertical Illuminance ²				
		lux/fc				
Basic	2.0 / 0.2	20:1	1.0/0.1			
Basic Enhanced Security	5.0 / 0.5	15:1	2.5 / 0.25			
Security	10.0 / 1.0	15:1	5.8-8.0 / 0.5-0.5			
High Security	30.0-60.0 / 3.0-6.0	4:1	12-60 / 1.2-6.0			

NOTES:

1 Measured on parking surface without shadowing from any object

2 For facial recognition measured at 5' above the parking surface at the point of lowest horizontal illuminance



Configuration Flexibility

A New Level of Scalable Solutions

The Galleon LED luminaire is available in one to 10 Light Squares. As the number of Light Squares increases, the luminaire width increases proportionally.



1 - 4 Light Squares



5 - 6 Light Squares



7 - 8 Light Squares



9 - 10 Light Squares

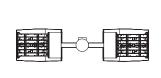
Pole Mounting Configurations

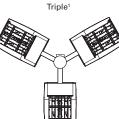
The standard Galleon LED luminaire configuration is designed to mount to a round or square pole. When mounting two or more fixtures at 90° or 120° apart, a longer Extended Arm (EA) may be required. Please reference the table below to determine when the Extended Arm is required and designate "EA" in the catalog logic.

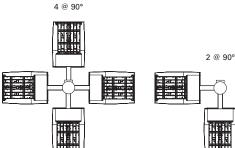
Arm Mounting Requirements

Configuration	90° Apart	120° Apart
GAN-AE-01	7" Arm (Standard)	7" Arm (Standard)
GAN-AE-02	7" Arm (Standard)	7" Arm (Standard)
GAN-AE-03	7" Arm (Standard)	7" Arm (Standard)
GAN-AE-04	7" Arm (Standard)	7" Arm (Standard)
GAN-AE-05	10" Extended Arm (Required)	7" Arm (Standard)
GAN-AE-06	10" Extended Arm (Required)	7" Arm (Standard)
GAN-AE-07	13" Extended Arm (Required)	13" Extended Arm (Required)
GAN-AE-08	13" Extended Arm (Required)	13" Extended Arm (Required)
GAN-AE-09	16" Extended Arm (Required)	16" Extended Arm (Required)
GAN-AE-10	16" Extended Arm (Required)	16" Extended Arm (Required)

2 @ 180°





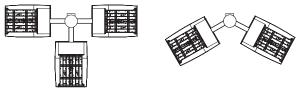






Triple²

2 @ 120°



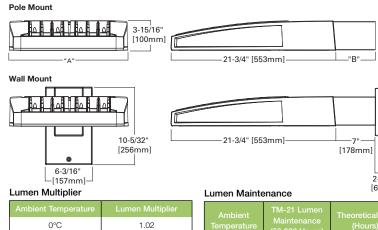
Ordering Information

Sample Number: GAN-AE-04-LED-U-T3A-AP

Family	Light Engine	of Light Squares ¹	Lamp Type	Voltage	Distribution			Color	Mounting
GAN=Galleon	AE=1A Drive Current	01=1 02=2 03=3 04=4 05=5 06=6 07=7 08=8 09=9 10=10	LED=Solid State Light Emitting Diodes	U=Universal (120-277V) 9=347V ² 8=480V ²	T2=Type II T2R=Type II Roadway T3Type III Roadway T3R=Type III Roadway T4FT=Type IV Forward Throw T4W=Type IV Wide 5NQ=Type V Square Narrow 5MQ=Type V Square Medium 5WQ=Type V Square Wide		//Spill Control //Spill Control Light Eliminator Left Light Eliminator Right Iar Wide Type I	AP=Grey BZ=Bronze BK=Black DP=Dark Platinum GM=Graphite Metallic WH=White	[BLANK]=Arm for Round or Square Pole EA=Extended Arm ³ MA=Mast Arm Adapter ⁴ WM=Wall Mount
Options (Add a	as Suffix)				·				
700=Drive Curre 3=Three-Positio P=Button Type (120, 208, 24	000K ⁷ 000K ⁷ ent Factory Set t ent Factory Set t on Terminal Block Photocontrol	o 700mA [®]	MS/DIM-L20= MS/DIM-L40= MS/X-L08=Bi- MS/X-L20=Bi- MS/X-L40=Bi- DIMRF-LW=Lu	Motion Sensor for Motion Sensor for Level Motion Sens Level Motion Sens Level Motion Sens Level Motion Sens JanaWatt Wireless	stion Sensor for Dimming Operation, Maximum 8' Mounting Height 9.10.11.12 R90=Optic: tion Sensor for Dimming Operation, 9' - 20' Mounting Height 9.10.11.12 MT=Factor tion Sensor for Dimming Operation, 21'- 40' Mounting Height 9.10.11.12 TH=Tool-le uel Motion Sensor, Maximum 8' Mounting Height 11.12.13.14 LCF=Light		is Rotated 90° Left is Rotated 90° Right ny Installed Mesh Top ess Door Hardware t Square Trim Plate Pair ory Installed House Sid		
Accessories (C									
OA/RA1027=NEMA Photocontrol - 480V SA1188-XX=4 @ OA/RA1201=NEMA Photocontrol - 347V SA1189-XX=2 @ OA/RA1013=Photocontrol Shoring Cap SA1190-XX=3 @ OA/RA1014=120V Photocontrol SA1190-XX=2 @ SA1252=10kV Surge Module Replacement SA1038-XX=Sing SA1036-XX=Single Tenon Adapter for 2-3/8" O.D. Tenon SA1039-XX=2 @ SA1037-XX=2 @ 180° Tenon Adapter for 2-3/8" O.D. Tenon SA1192-XX=3 @		 2120° Tenon Adapter for 2-3/8" (2) 200° Tenon Adapter for 2-3/8" (2) 200° Tenon Adapter for 2-3/8" (2) 200° Tenon Adapter for 2-3/8" (2) 2120° Tenon Adapter for 2-3/8" (2) 2120° Tenon Adapter for 3-1/2" (2) 2180° Tenon Adapter for 3-1/2" (2) 2120° Tenon Adapter for 3-1/2" (2) 200° Tenon Adapter for 3-1/2" (2) 200° Tenon Adapter for 3-1/2" (2) 	D. TenonSD. TenonFD. TenonGD. TenonGD. TenonGD. TenonGD. TenonGD.D. TenonGD.D. TenonGD.D. TenonL	SA1195-XX=3 @ 90° T SIR-100=Wireless Co GAN-MT1=Field Install GAN-MT2=Field Install GAN-MT3=Field Install GAN-MT4=Field Install	enon Adapter for 3-1/2 enon Adapter for 3-1/2 nfiguration Tool for Occ ad Mesh Top for 1-4 Lig ad Mesh Top for 5-6 Lig ad Mesh Top for 7-8 Lig ad Mesh Top for 9-10 L House Side Shield ^{15, 17}	" O.D. Tenon upancy Sensor ¹⁶ ght Squares ght Squares ght Squares ight Squares			

Note: 1 started volume to the provide the second started in the second started started

Dimensions



25°C

40°C

50°C

> 94%

> 93%

> 90%

1.01

1.00

0.99

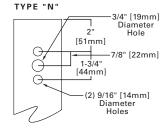
0.97

Dimensional Data

Number of Light Squares	"A" Width	"B" Standard Arm Length	"B" Optional Arm Length ¹
1-4	15-1/2" (394mm)	7" (178mm)	10" (254mm)
5-6	21-5/8" (549mm)	7" (178mm)	10" (254mm)
7-8	27-5/8" (702mm)	7" (178mm)	13" (330mm)
9-10	33-3/4" (857mm)	7" (178mm)	16" (406mm)

NOTES: 1 Optional arm length to be used when mounting two fixtures at 90° on a single pole. 2 EPA calculated with optional arm length.

Drilling Pattern



50°C

10°C

25°C

40°C

Additional Information						
Compliances	Technical Data (Electronic LED Driver)	Approximate Weight	EPA (Effective Projected Area - Square Feet)			
UL and cUL Wet Location Listed IP66 Light Squares 3G Vibration Rated ARRA Compliant ISO 9001	+40°C (104°F) Ambient Temperature Rating -40°C (-40°F) Ambient Temperature Rating Optional 50°F (HA) Ambient Temperature Rating >0.9 Power Factor <20% Total Harmonic Distortion 120V-277V/50 and 60 Hz 347V/60 Hz, 480V/60 Hz	1-4 Light Squares 33 lbs. (15.0 kgs.) 5-6 Light Squares 44 lbs. (20.0 kgs.) 7-8 Light Squares 54 lbs. (24.5 kgs.) 9-10 Light Squares 63 lbs. (28.6 kgs.)	1-4 Light Squares 0.96 5-6 Light Squares 1.00 7-8 Light Squares 1.07 9-10 Light Squares 1.12			

> 350.000

> 250,000

> 170.000

2-7/16" [61mm]





Eaton's Cooper Lighting Business

Headquarters 1121 Highway 74 South Peachtree City, GA 30269 P: 770-486-4800 www.cooperlighting.com

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Our Lighting Product Brands Halo Halo Commercial Portfolio IRiS

RSA

Metalux

Corelite

Neo-Ray

Fail-Safe

Ametrix Shaper io Lumark

McGraw-Edison

MWS

Invue Lumière Streetworks AtLite Sure-Lites Our Controls Product Brands Greengate

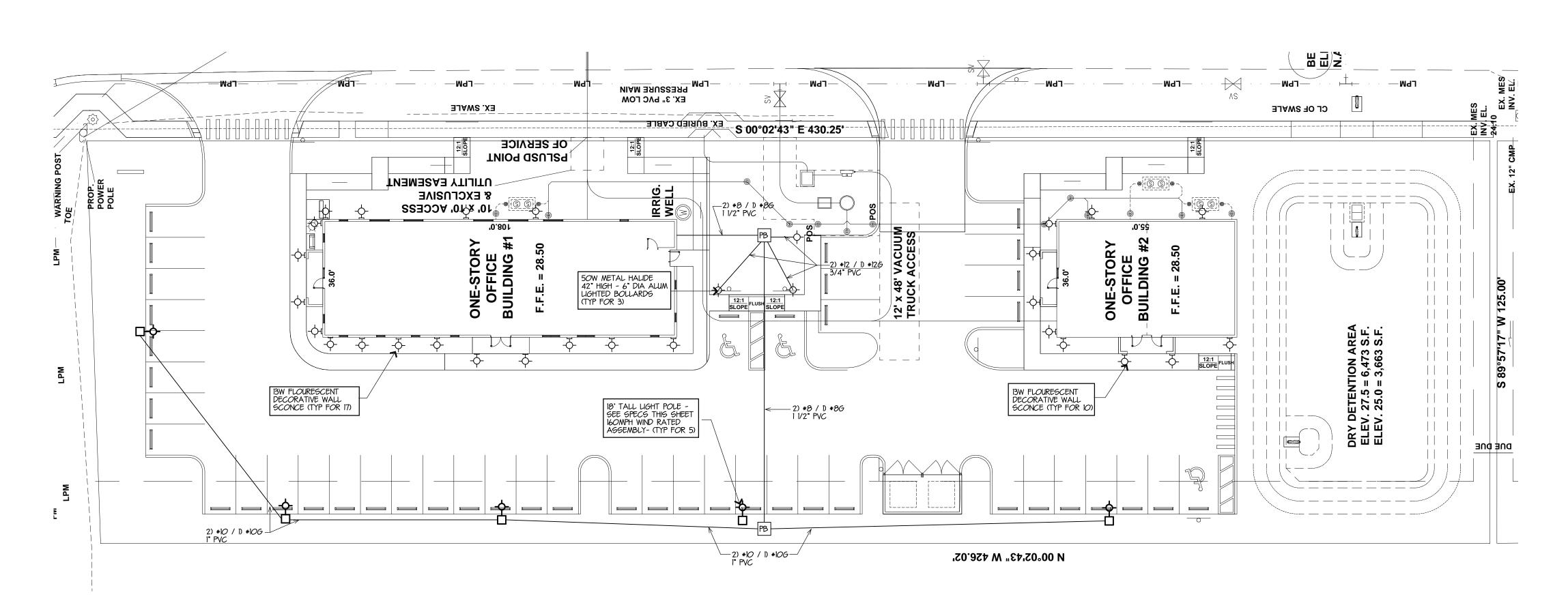
iLumin Zero 88 Fifth Light Technology iLight (International Only)

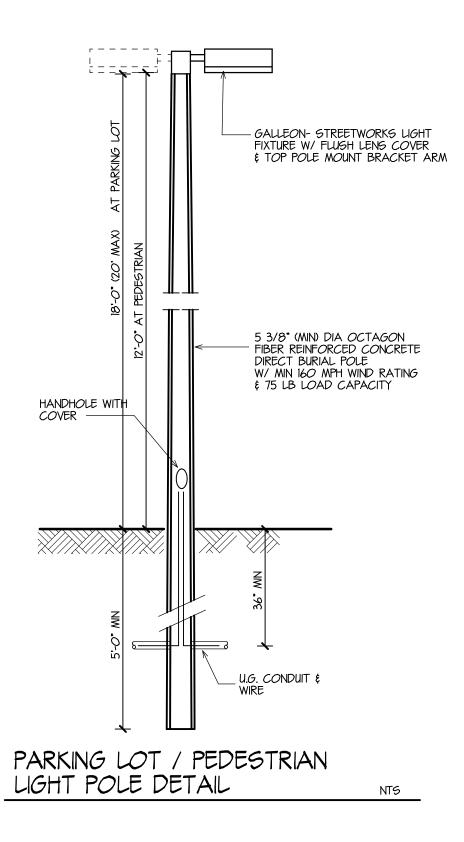


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SITE LIGHTING PLAN

1° = 20'-0"

