



ACENTECH

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July 6, 2016

Anthony Vivirito  
The Architectural Team  
50 Commandant's Way at Admiral's Hill  
Chelsea, MA 02150  
[AVivirito@architecturalteam.com](mailto:AVivirito@architecturalteam.com)

**Subject** Outdoor Noise Emissions – Introduction and Plan  
Dover Road Residences, Millis, MA  
Acentech Project No. 627912

Dear Anthony:

This letter explains our role and methods regarding outdoor noise emissions from the planned senior living facility on Dover Road in Millis to the community that surrounds it. Acentech is headquartered in Cambridge, MA, and provides consulting services in acoustics, noise and vibration, audiovisual systems design, and related disciplines nationwide and internationally. As the direct descendent of the acoustics practice of Bolt, Beranek, and Newman (BBN), our firm's experience reaches back more than 65 years. My expertise is focused in architectural acoustics, including assessment and control of noise from mechanical systems. You and I have worked together on many projects similar to this one.

We are familiar with the Town of Millis Noise Regulation,<sup>1</sup> which is quite protective of the noise environment of Millis residents, and which we understand applies to this project. Our consulting contract for this project includes an assessment of noise from the planned outdoor mechanical equipment and, if necessary, recommendations for whatever mitigation might be needed to achieve the noise limits set by the regulation. We understand the project currently plans to locate all outdoor mechanical equipment within a rooftop mechanical well, surrounded by roof edge that is 12 feet taller than the floor of the well. This feature will attenuate mechanical noise to the community quite significantly, and we will account for this in our analysis.

We welcome any questions you, your client, or town personnel may have about our process. Please feel free to contact me at [jsacks@acentech.com](mailto:jsacks@acentech.com) or 617-499-8079.

Sincerely,

Jonah Sacks  
Senior Consultant

CC: Robert Connick, Acentech

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<sup>1</sup> Town of Millis Zoning By-Law, Section XIV.A.10.

<b>FRESNO SERIES</b>	Cat.#		 <b>SPAUDING LIGHTING</b>
	Job	Type	

**INTENDED USE:**

- Fresno series bollards are designed to illuminate walkways and courtyards

**CONSTRUCTION:**

- Extruded aluminum square or round housing, with tamper resistant hardware; Flat top, for round FN2. Single screw access for top relamping
- Sealed one-piece, clear acrylic lens; Specular, anodized aluminum optical systems; dual reflector, tube optics, or internal louvers (HID or CFL)
- Concealed, galvanized steel anchor base; Four 1/2" x 10" anchor bolts
- Durable Lektrocote® TGIC thermoset polyester powder coat paint finish assures long life and maintenance-free service

**ELECTRICAL:**

**HID**

- HPF ballast, starting rated at -20°F (-40°F for HPS); Pulse Start Metal Halide is CWA or Super CWA type HPS is CWA, HR, or Reactor type
- Medium porcelain socket, pulse rated, with spring-loaded, nickel-plated center contact and reinforced lamp grip screw shell

**FLUORESCENT**

- Programmed Start electronic ballast with end of life protection and universal voltage: 26/32/42w
- One Lamp – CFTR/GX24Q – Triple Tube 4-Pin LED
- Universal voltage (120-277V) drivers with +/- 10% tolerance, starting temperature rated at -20°F
- Optional continuous dimming to 10% (0-10V)
- Rotatable LED assembly adjustment for ideal placement and aiming of asymmetric light pattern
- 24 high brightness LEDs at 500 mA deliver symmetric distribution at 46w
- 12 high brightness LEDs at 700 mA deliver asymmetric distribution at 31w
- Available in two color correlated temperatures (3500K and 5000K)
- Long life 50,000 hour L70 rated at 25°C

**LISTINGS:**

- Listed to UL1598 for use in wet locations

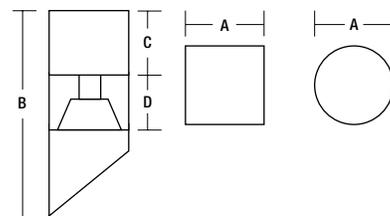
**WARRANTY**

- 5 year limited warranty for LED system, visit <http://www.spauldinglighting.com/resources/warranty/>

**PRODUCT IMAGE(S)**



**DIMENSIONS**



	A	B	C	D	Weight
<b>FN1</b>	6.75" sq. 171 mm	42.0" 1067 mm	6.0" 152 mm	4.0" 102 mm	41 lbs 19 kg
<b>FN2</b>	7.0" dia 178 mm	42.0" 1067 mm	6.0" 152 mm	4.0" 102 mm	41 lbs 19 kg

**CERTIFICATIONS/LISTINGS**



**ORDERING INFORMATION**

ORDERING EXAMPLES: FN1-P50-DO-Q-DB-L, FN2-24LU-3K-U-DB

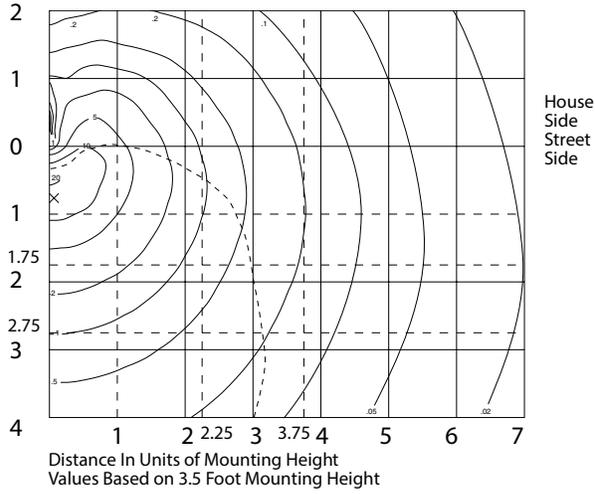
SERIES	SOURCE/WATTAGE/LED	OPTICS	VOLTAGE	COLOR	OPTIONS
FN1 Fresno Square	<b>PULSE START METAL HALIDE</b>	DO <sup>7</sup> Dual reflector with cone (standard)	Q <sup>1</sup> Quad-Tap® 120/208/240/277V	DB Dark Bronze	F(X) Fusing (replace X with voltage: 1-120V, 2-208V, 3-240V, 4-277V
<b>FN2 Fresno Round</b>	P50 50w (ED-17)	TO <sup>3,7</sup> Tube optics	T <sup>1,4</sup> Tri-Tap® 120/277/347V (CSA)	WH White	F5 <sup>6,7</sup> Fusing 480V
	P70 70w (ED-17)	IL <sup>7</sup> Internal horizontal louvers	U <sup>5</sup> Universal 120 - 277V, 50/60 Hz	GR Gray	F6 <sup>6,7</sup> Fusing 347V
	P10 100w (ED-17)		1 120V	PS Platinum Silver	P(X) Photo button (replace X with voltage: 1-120V, 2-208V, 3-240V, 4-277V
	<b>HIGH PRESSURE SODIUM</b>		5 <sup>6,7</sup> 480V	RD Red (premium color)	P6 <sup>6,7</sup> Photo button - 347V
	S35 <sup>2</sup> 35w (ED-17)			FG Forest Green (premium color)	24 24" luminaire height
	S50 50w (ED-17)			CC Custom Color (consult factory)	30 30" luminaire height
	S70 70w (ED-17)				36 36" luminaire height
	S10 100w (ED-17)				HS90 <sup>7</sup> Internal shield - 90° (FN1 Only)
	<b>FLUORESCENT</b>				HS160 <sup>7</sup> Internal shield - 160°
	F26 26w CFL (G24q Base)				HS180 <sup>7</sup> Internal shield - 180° (FN2 only)
	F32 32w CFL (G24q Base)				L <sup>7</sup> Lamp
	F42 42w CFL (G24q Base)				CD <sup>8</sup> Continuous dimming
	<b>LED</b>				
	<b>12LU-3K</b> 12 LEDs, 31w, asymmetric distribution, 3500K, 120-277V, 50/60 Hz				
	<b>12LU-5K</b> 12 LEDs, 31w, asymmetric distribution, 5000K, 120-277V, 50/60 Hz				
	<b>24LU-3K</b> 24 LEDs, 46w, symmetric distribution, 3500K, 120-277V, 50/60 Hz				
	<b>24LU-5K</b> 24 LEDs, 46w, symmetric distribution, 5000K, 120-277V, 50/60 Hz				

- Factory wired for highest voltage unless specified, HID only
- 120V only
- Upper reflector with no lower cone
- 70 or 100w system only
- CFL or LED only
- Not available with CFL
- Not available with LED units
- LED only

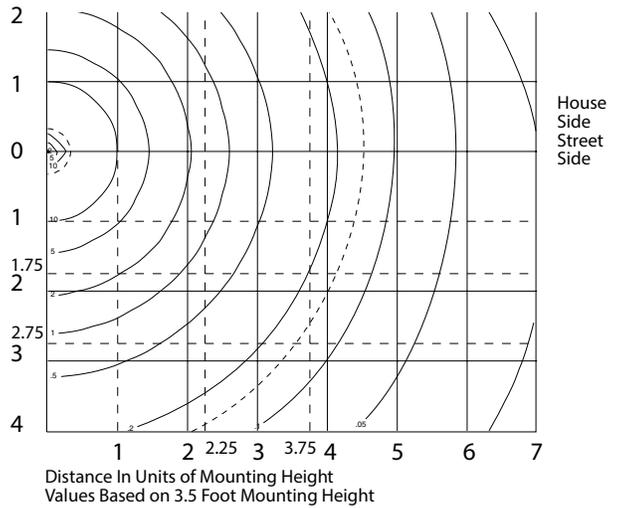


**PHOTOMETRIC DATA**

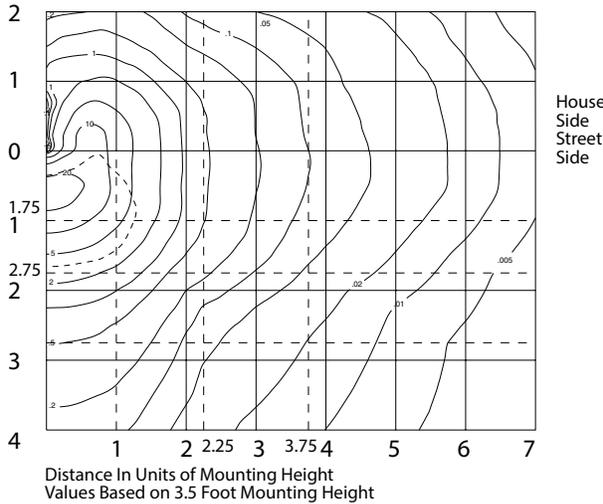
**FN2-12LU-3K: 12 LEDS**  
**ASYMMETRIC DISTRIBUTION, 3500K**



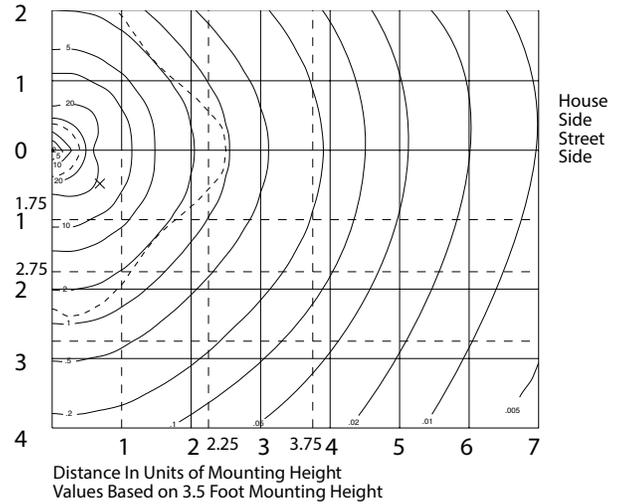
**FN2-24LU-3K: 24 LEDS**  
**SYMMETRIC DISTRIBUTION, 3500K**



**FN1-12LU-5K: 12 LEDS**  
**ASYMMETRIC DISTRIBUTION, 5000K**



**FN1-24LU-5K: 24 LEDS**  
**SYMMETRIC DISTRIBUTION, 5000K**

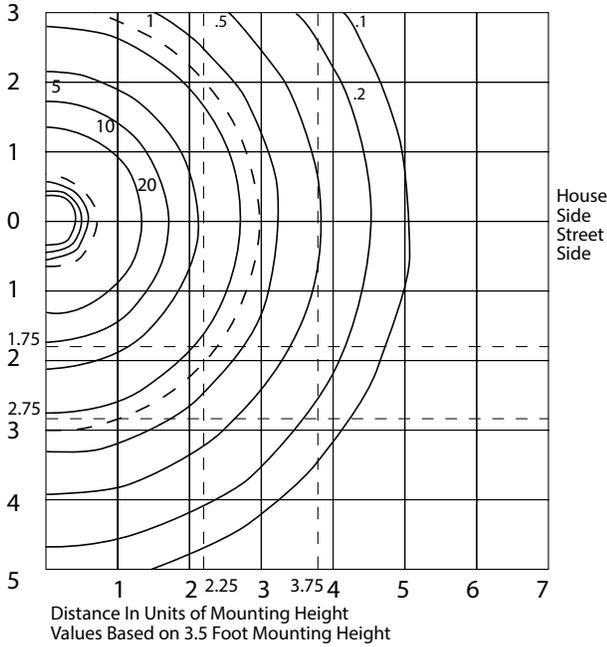


# TECHNICAL DATA

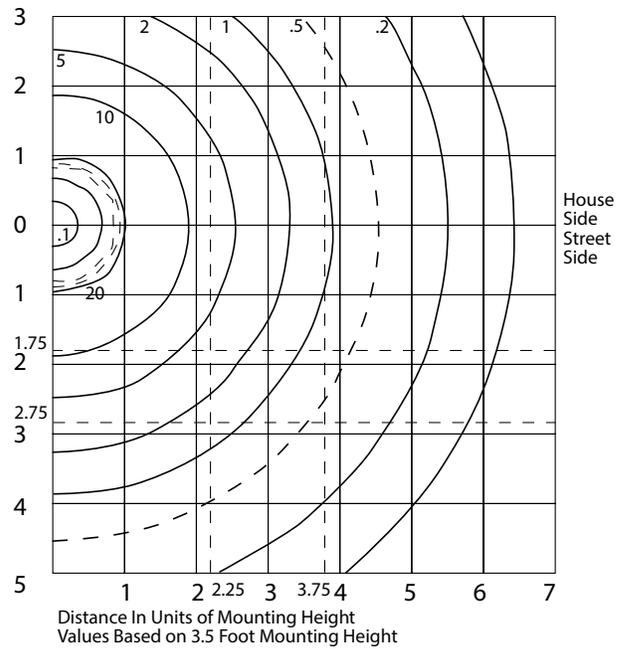
FRESNO BOLLARD ELECTRICAL DATA		Input Current (amps)					
Lamp/Watts	Input Wattage	120V	208V	240V	277V	347V	480V
P50	69	1.20	0.68	0.59	0.51	NA	NA
P70	94	1.90	1.00	0.90	0.80	0.70	NA
P10	129	2.30	1.40	1.20	1.00	1.00	0.60
S35	46	1.40	NA	NA	NA	NA	NA
S50	62	1.00	0.57	0.50	0.45	NA	NA
S70	86	1.40	0.90	0.80	0.70	0.60	NA
S10	115	2.20	1.30	1.10	0.90	0.70	0.60
F42	46	.38	.22	.13	.11	NA	NA

## PHOTOMETRIC DATA

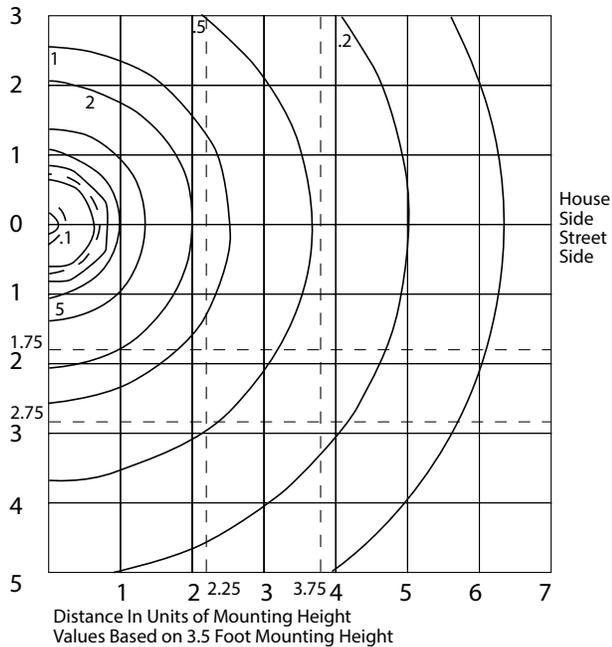
**100w PSMH with tube optics**



**100w PSMH with dual reflector optics**



**100w PSMH with louvered optics**





2.5W Bollard

# L92

## SPEC SHEET

**Application:** Outdoor walkway and area illumination.

**Electrical:** 2.5W, 700mA LED.

Power Consumption: 3W

Power Supply:

**DC** - Powered by integral 120V primary, 3W 700mA non-dimmable driver. LED3W700i (included). Dimmable with dimming controller, 0-10V dimming (not included).

**AC** - Recommended TLW120MT050-01 magnetic transformer (not included). Consult factory for dimming option.

**Weight:** 7.15lbs (3.245kg) based on 24" (610mm) post.

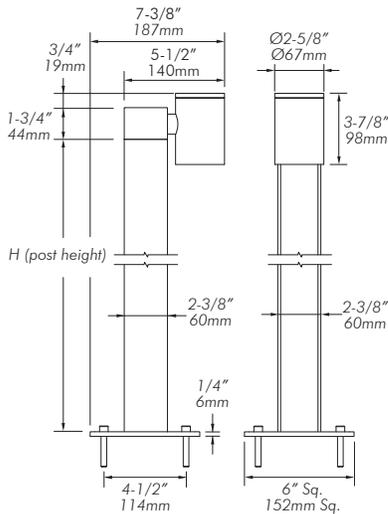
**Material:** Anodized aluminum, insert trim with 1/4" (6mm) thick tempered glass lens. RoHS compliant.

**Mounting:** Mounts to 24" (610mm), 36" (614mm) or 48" (1219mm) anodized aluminum post. Comes with 24" (610mm) Cabtire lead inside post.

**Approval:** Wet and dry locations. Approved to US and Canadian standards by CSA.



**Note:** Can be used as emergency backup lighting in conjunction with Bodine emergency LED driver (sold separately). Consult factory.



Emergency Driver options (remote):



**MP Lighting Emergency Backup Unit**

Input: 100-277V, 50/60HZ  
Output: 11-36V, 16W



**Bodine Emergency Micro Inverter**

Input: 120/ 277V, 50/ 60Hz  
Output: 120/ 277V, 60Hz, 20W

Type:

Project:

Modified:

Quantity:

Notes:

CODE	WATTAGE	COLOR	BEAM	LENS	ANGLE BRACKET	INPUT VOLTAGE	POST HEIGHT (H)	FINISH
L92	2							
	2 = 2.5W	W20 = 2000K W30 = 3000K	S = spot (12°) N = narrow flood (30°) W = wide flood (120°)	C = clear F = frosted	0 = no angle 30 = 30° angle X = custom (30° max.)	A = 12V AV D = DC	24 = 24" (610mm) 36 = 36" (914mm) 48 = 48" (1219mm)	MA = matte clear anodized WH = white

**Note:** W20H has consistent binning that falls within 1.5 MacAdam ellipse.



t 1.877.708.1184 f 604.708.1185 www.mplighting.com  
16 West 4th Avenue, Vancouver BC V5Y 1G3, Canada

# L92

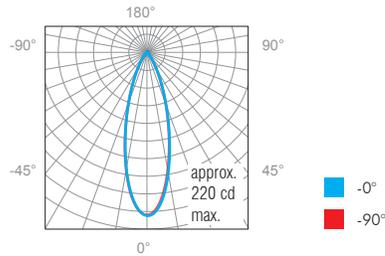
## SPEC SHEET

Lumen test results provided by  
MP Lighting integrating sphere

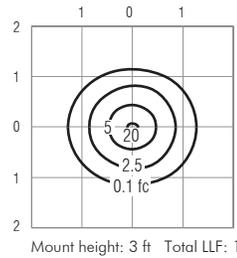
### Photometric Data

**L92**  
30°, clear lens  
3000K Std  
86 lm

**Polar Candela Distribution**



**Isofootcandle Plot**



### Height Conversion Formula

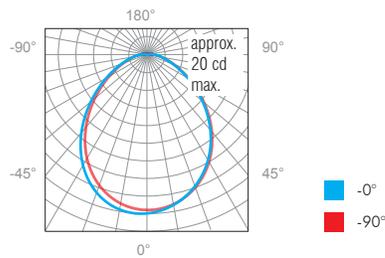
**Step 1**  $\frac{\text{Existing Mounting Height}^2}{\text{New Mounting Height}^2} = \text{Correction Factor (CF)}$

**Step 2**  $\text{CF} \times \text{Footcandle} = \text{New Mounting Height FC}$

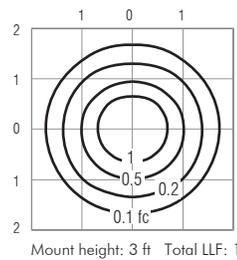
**Note:** Information is based on the most current data available; however, various operating factors such as reflectances and application type may cause differences between lab and field results. Due to continuous improvements, specifications may change without notice. Consult [www.mplighting.com](http://www.mplighting.com) for the most current information.

**L92**  
120°, clear lens  
3000K Std  
33 lm

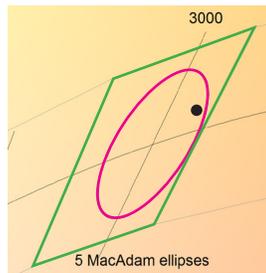
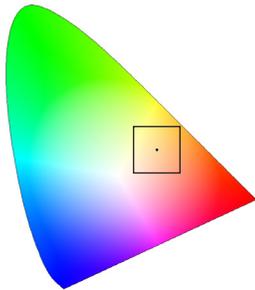
**Polar Candela Distribution**



**Isofootcandle Plot**



### Chromaticity Diagram



■ ANSI Bin ■ MacAdam Ellipse

**[✓] MPLIGHTING®**

t 1.877.708.1184 f 604.708.1185 [www.mplighting.com](http://www.mplighting.com)  
16 West 4th Avenue, Vancouver BC V5Y 1G3, Canada

**Note:** Various operating factors may cause differences between lab and field results. As specifications may change without notice, please refer to the LED Lamp Index located in the "Downloads" section of each product webpage for the most current information.



Type:

Job:

Page: 2 of 3



## Standard Features

<p><b>Mounting:</b></p>	<p>Plan View:     </p> <p>EPA: 1.0 1.0 3.0 4.5 n/a          Cat. No.: <input type="checkbox"/> <b>FM</b> <input type="checkbox"/> <b>PT</b> <input type="checkbox"/> <b>2B</b> <input type="checkbox"/> <b>4C</b> <input type="checkbox"/> <b>1W</b></p> <p align="center">Flush Mount Tenon Mount Twin Mount Quad Mount Wall Mount</p>												
<p><b>Electrical Module</b></p>	<p>Cat. Nos. for Electrical Modules available:</p> <table border="1"> <tr> <td></td> <td align="center">                 LED  <input type="checkbox"/> <b>18L3KUV</b><sup>1</sup>  <input type="checkbox"/> <b>18L4KUV</b><sup>1</sup>  <input type="checkbox"/> <b>18L5KUV</b><sup>1</sup>                    IES Type 1             </td> <td align="center"> <input type="checkbox"/> <b>27L3KUV</b><sup>1</sup>  <input type="checkbox"/> <b>27L4KUV</b><sup>1</sup>  <input type="checkbox"/> <b>27L5KUV</b><sup>1</sup>                    IES Type 3             </td> <td align="center"> <input type="checkbox"/> <b>36L3KUV</b><sup>1</sup>  <input type="checkbox"/> <b>36L4KUV</b><sup>1</sup>  <input type="checkbox"/> <b>36L5KUV</b><sup>1</sup>                    IES Type 5             </td> </tr> <tr> <td>Lamp</td> <td>LED</td> <td>LED</td> <td>LED</td> </tr> <tr> <td>Socket</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> </tr> </table> <p><b>WARNING:</b> Fixtures must be installed and grounded in accordance with national, state and/or local electrical codes. Failure to do so may result in serious personal injury. For lamp/ballast information outside of the U.S.A. and Canada, please consult our local Kim representative. Lamps by others.</p> <p><sup>1</sup>18L = 18 LED Emitters; 36L = 36 LED Emitters; 3K = 3000K color temperature; 4K = 4200K color temperature; 5K = 5100K color temperature; UV = Universal Voltage from 120 to 277V with a ± 10% tolerance.</p>		LED <input type="checkbox"/> <b>18L3KUV</b> <sup>1</sup> <input type="checkbox"/> <b>18L4KUV</b> <sup>1</sup> <input type="checkbox"/> <b>18L5KUV</b> <sup>1</sup>  IES Type 1	<input type="checkbox"/> <b>27L3KUV</b> <sup>1</sup> <input type="checkbox"/> <b>27L4KUV</b> <sup>1</sup> <input type="checkbox"/> <b>27L5KUV</b> <sup>1</sup>  IES Type 3	<input type="checkbox"/> <b>36L3KUV</b> <sup>1</sup> <input type="checkbox"/> <b>36L4KUV</b> <sup>1</sup> <input type="checkbox"/> <b>36L5KUV</b> <sup>1</sup>  IES Type 5	Lamp	LED	LED	LED	Socket	N/A	N/A	N/A
	LED <input type="checkbox"/> <b>18L3KUV</b> <sup>1</sup> <input type="checkbox"/> <b>18L4KUV</b> <sup>1</sup> <input type="checkbox"/> <b>18L5KUV</b> <sup>1</sup>  IES Type 1	<input type="checkbox"/> <b>27L3KUV</b> <sup>1</sup> <input type="checkbox"/> <b>27L4KUV</b> <sup>1</sup> <input type="checkbox"/> <b>27L5KUV</b> <sup>1</sup>  IES Type 3	<input type="checkbox"/> <b>36L3KUV</b> <sup>1</sup> <input type="checkbox"/> <b>36L4KUV</b> <sup>1</sup> <input type="checkbox"/> <b>36L5KUV</b> <sup>1</sup>  IES Type 5										
Lamp	LED	LED	LED										
Socket	N/A	N/A	N/A										
<p><b>Finish</b> TGIC powder coat</p>	<p>Color: Black Dark Bronze Light Gray Stealth Gray Platinum Silver White Custom Color<sup>2</sup>          Cat. No.: <input type="checkbox"/> <b>BL</b> <input type="checkbox"/> <b>DB</b> <input type="checkbox"/> <b>LG</b> <input type="checkbox"/> <b>SG</b> <input type="checkbox"/> <b>PS</b> <input type="checkbox"/> <b>WH</b> <input type="checkbox"/> <b>CC</b></p> <p><sup>2</sup>Custom colors subject to additional charges, minimum quantities and extended lead times. Consult representative. Custom color description: _____</p>												

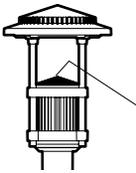
Type:

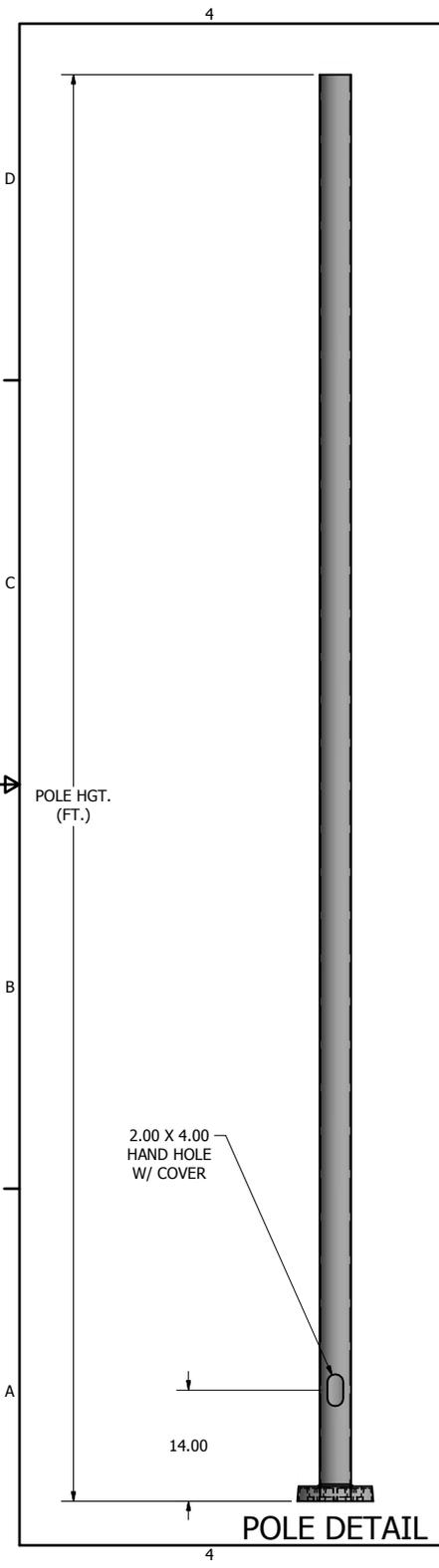
Job:

Page: 3 of 3

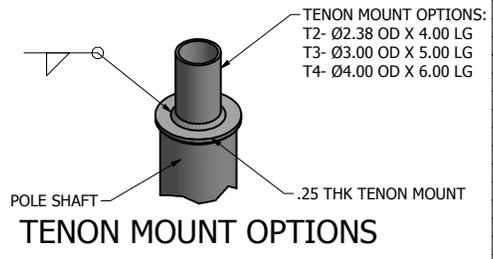


## Optional Features

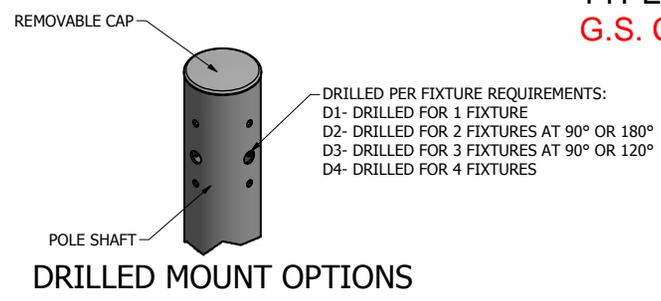
<p><b>Textured Glass Lens</b>          Cat. No. <input type="checkbox"/> <b>TG</b>  <input type="checkbox"/> <b>No Option</b></p>	<p>Unique textured glass reduces LED glare and improves visual comfort.</p>												
<p><b>Fusing</b>          Cat. No. <b>(see right)</b>  <input type="checkbox"/> <b>No Option</b></p>	<p>High temperature fuse holders factory installed inside the fixture housing. Fuse is included.</p> <table border="0"> <tr> <td>Line Volts:</td> <td>120V</td> <td>208V</td> <td>240V</td> <td>277V</td> <td>347V</td> </tr> <tr> <td>Cat. No.:</td> <td><input type="checkbox"/> <b>SF</b></td> <td><input type="checkbox"/> <b>DF</b></td> <td><input type="checkbox"/> <b>DF</b></td> <td><input type="checkbox"/> <b>SF</b></td> <td><input type="checkbox"/> <b>SF</b></td> </tr> </table>	Line Volts:	120V	208V	240V	277V	347V	Cat. No.:	<input type="checkbox"/> <b>SF</b>	<input type="checkbox"/> <b>DF</b>	<input type="checkbox"/> <b>DF</b>	<input type="checkbox"/> <b>SF</b>	<input type="checkbox"/> <b>SF</b>
Line Volts:	120V	208V	240V	277V	347V								
Cat. No.:	<input type="checkbox"/> <b>SF</b>	<input type="checkbox"/> <b>DF</b>	<input type="checkbox"/> <b>DF</b>	<input type="checkbox"/> <b>SF</b>	<input type="checkbox"/> <b>SF</b>								
<p><b>StarView™          Black Ballast Cover</b>          Cat. No. <input type="checkbox"/> <b>BBC</b>  <input type="checkbox"/> <b>No Option</b></p>	<p>For locations where complete cutoff optical control is desired, Kim's StarView™ optional matte black ballast cover can be specified. This option reduces the indirect uplight distribution for use in areas where light pollution and trespass is a concern and to promote celestial visibility at night.</p> <div style="display: flex; align-items: center;">  <p>Black Ballast Cover</p> </div>												



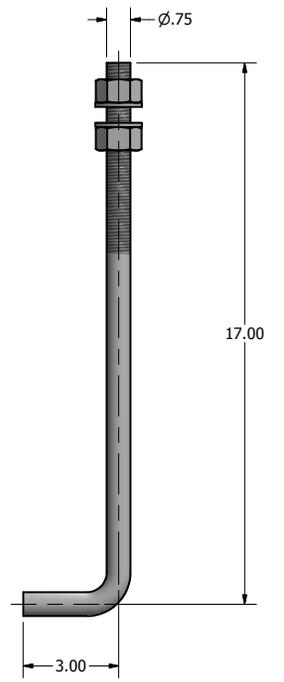
POLE DETAIL



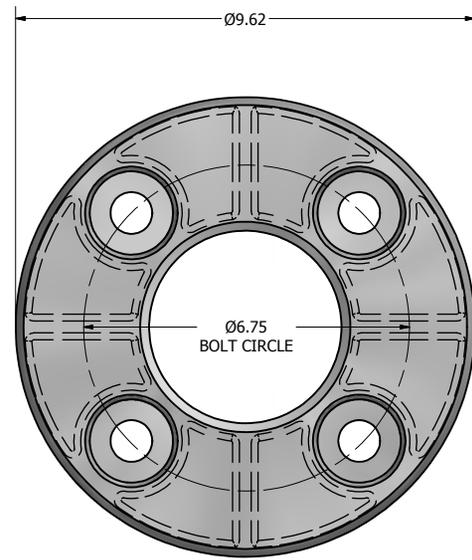
TENON MOUNT OPTIONS



DRILLED MOUNT OPTIONS



Ø.75 X 20.00 ANCHOR BOLT

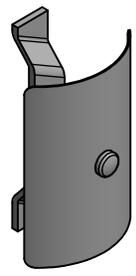


Ø9.62 X 1.88 THK. BASE CASTING

POLE SPECIFICATIONS				
NO.	COMPONENT	MAT'L DESIGNATION		
1.	POLE SHAFT	6063-T6		
2.	BASE PLATE	A356-T6		
3.	ANCHOR BOLTS	F1554 GR. 55		
4.	GALVANIZED HARDWARE	A153		
FINISH SPECIFICATIONS				
POLES SHALL HAVE A POLYESTER POWDER COAT FINISH IN A STANDARD COLOR.				
POLE DIMENSIONS				
POLE HGT. (FT.)	TOP DIA. (IN.)	BOTTOM DIA. (IN.)	GAGE	MTG. HGT. (FT.)
8'	4.00	4.00	.125	8'
BASE PLATE DIMENSIONS				
BOLT CIRCLE (IN.)	BASE PLATE DIM. (IN.)	BOLT HOLE (IN.)	PLATE THK. (IN.)	
6.75	9.62 DIA	.88	.75	
ANCHOR BOLT DIMENSIONS				
ANCHOR BOLT DIA. (IN.)		ANCHOR BOLT LENGTH (IN.)		
.75		20.00		
ALLOWABLE WIND LOADING (SQ. FT.)				
WIND*	80 MPH	90 MPH	100 MPH	120 MPH
EPA	11.1	8.7	6.7	4.5

\*WITH 1.3 GUST FACTOR

**TYPE B4 POLE**  
**G.S. CPA-4012-10**



2.00 X 4.00 HAND HOLE COVER



**GENERAL STRUCTURES INC.**  
A DIV. COMPANY

23171 Groesbeck Hwy.  
Warren, MI 48089

P: (586) 774-6105 | F: (586) 774-5706  
www.generalstructuresinc.com

SOME GEOGRAPHICAL AREAS HAVE SPECIAL WIND CONDITIONS THAT CAN CREATE WIND INDUCED VIBRATIONS CAUSING A FATIGUE PROBLEM. NO METHOD HAS YET BEEN FOUND FOR PREVENTING OR REDUCING DESTRUCTIVE LIGHTNING. POLE FABRICATION CONDITIONS ARE REQUIRED. CANNOT BE GUARANTEED AGAINST, AND ARE THE RESPONSIBILITY OF A LOCAL SITE ENGINEER.

TITLE:

CATALOG:

DWG NO: CPA-4-4012-8

SIZE: C

SHEET 1 OF 1

DRAWN: M. HARVALA 2/18/2015

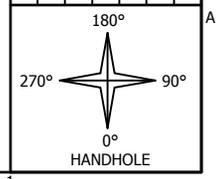
CHECKED: DATE:

REVISION: DATE:

APPROVED: QUOTE:

S.O.# REF:

SCALE: NONE



<h1>LED ALF FLOOD FAMILY</h1>	Cat.#		 <b>HUBBELL Outdoor Lighting</b>
	Job	Type	

**SPECIFICATIONS**

**Intended Use:**

ALF is excellent for small floodlighting applications such as signs, façade, landscape accent or small area illumination. The compact, low profile size allows the flood to be easily hidden or blend into the landscape environment.

**Construction:**

- Low copper extruded aluminum construction provides long life in outdoor ground mounted applications. Ribbed design adds styling while dissipating LED and driver heat, providing longer component life.
- Tempered and impact resistant glass lens with decorative silk screen seals to housing with silicone gasket
- Dark Bronze powder paint finish provides durable and lasting appearance

**Optics/Electrical**

**LED:**

- Six or twelve LEDs produce 905 or 1913 lumens at 5000K
- Wide 6 x 5 beam spread covers three times the set back distance with uniform light
- Universal voltage driver is 120-277V\*, 50/60hz, with 10.1 input watts (ALF-6LU) 21.4 input watts (ALF-12LU)

\*In Canada, ALF should be used for voltages 120-240 only

**Installation:**

- Knuckle mount: Universal ½” swivel knuckle has serrated teeth for sure aiming. Knuckle threads are brass insuring quality installation and corrosion resistance
- Wall mount: Cast aluminum cover/quick mount plate and universal adapter allows easy installation to 3-½ or 4” standard junction boxes

**Listings:**

Listed to UL 1598 for use in wet locations

- ALF-6 IP65 • ALF-12 IP64

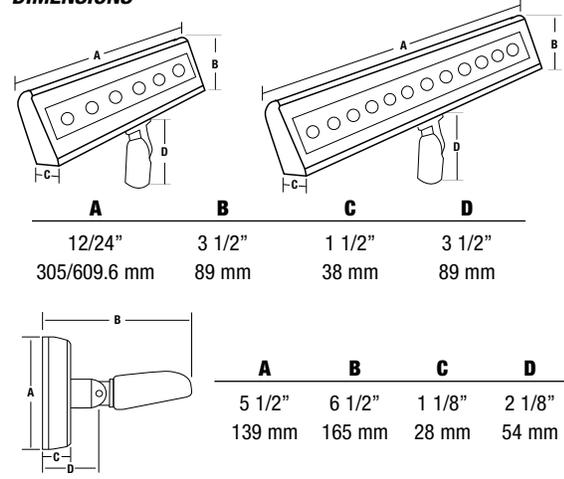
**Warranty:**

Five year limited warranty (for more information visit: <http://www.hubbelloutdoor.com/resources/warranty/>)

**PRODUCT IMAGE(S)**



**DIMENSIONS**



**CERTIFICATIONS/ LISTINGS**



**IP64  
IP65**

**SHIPPING INFORMATION**

Catalog Number	G.W(kg)/CTN	Carton Dimensions			Carton Qty. per Master Pack
		Length Inch (cm)	Width Inch (cm)	Height Inch (cm)	
<b>ALF-6LU</b>	9.7 (4.4)	18.5 (47)	14.3 (36.5)	5.7 (14.5)	2
<b>ALFW-6LU</b>	11.4 (5.2)	18.5 (47)	14.3 (36.5)	5.7 (14.5)	2
<b>ALF-12LU</b>	6.5 (2.97)	24.8 (63)	8.8 (22.5)	3.14 (8)	1

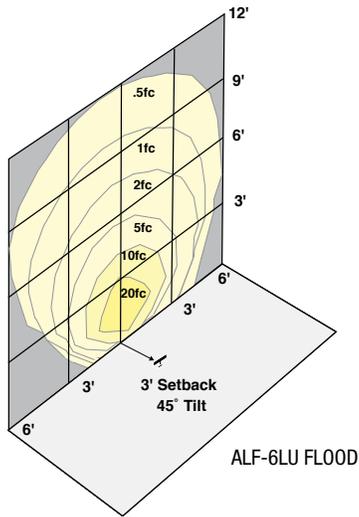
**ORDERING INFORMATION**

ORDERING EXAMPLE: ALF-6LU-5K-BZ

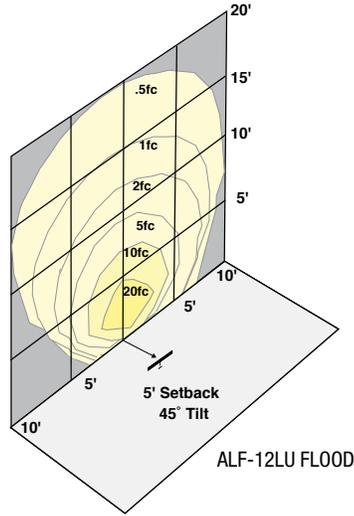
Catalog Number	Wattage	Number of LEDs	Voltage <sup>1</sup>	Lumens	Life	LPW	CCT	Weight lbs. (kg)
<b>1/2" KNUCKLE MOUNT</b>								
<b>ALF-6LU-5K-BZ</b>	10.1	6	120-277V	905	50,000 hrs	90	5000K	4.0 (1.8)
<b>ALF-12LU-5K-BZ</b>	21.4	12	120-277V	1913	50,000 hrs	89	5000K	8.0 (3.6)
<b>WALLMOUNT</b>								
<b>ALFW-6LU-5K-BZ-PC</b>	10.7	6	120V	510	50,000 hrs	48	5000K	4.5 (2.0)

<sup>1</sup> Unit should not be used above 240V in Canada

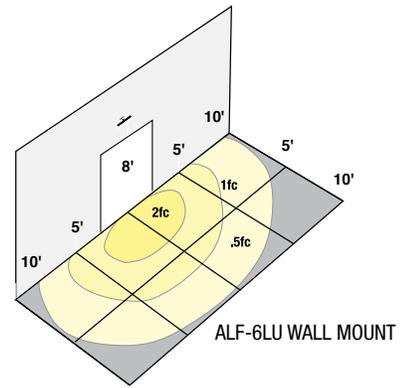
**PHOTOMETRICS**



ALF-6LU FLOOD



ALF-12LU FLOOD



ALF-6LU WALL MOUNT

**PERFORMANCE DATA**

# OF LEDS	DRIVE CURRENT (mA)	CCT	LUMENS	BEAM (H X V)	LPW <sup>1</sup>
6	STD. (470mA)	5K	905	6 x 5	90
12	STD. (470mA)	5K	1913	6 x 5	89

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown. Actual performance may differ as a result of end-user environment and application.

**ELECTRICAL DATA**

# OF LEDS	DRIVE CURRENT (mA)	INPUT VOLTAGE (V)	SYSTEM POWER (w)	CURRENT (Amps)	POWER FACTOR
6	STD. (470mA)	120	10.1	.09	.97
		277	12.5	.06	.78
12	STD. (470mA)	120	21.0	.18	.98
		277	25.5	.12	.78



**HUBBELL**  
Outdoor Lighting

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ALF-SPEC 2/16

<h1>LED ALF FLOOD FAMILY</h1>	Cat.#		 <b>HUBBELL Outdoor Lighting</b>
	Job	Type	

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**Listings:**

Listed to UL 1598 for use in wet locations

- ALF-6 IP65 • ALF-12 IP64

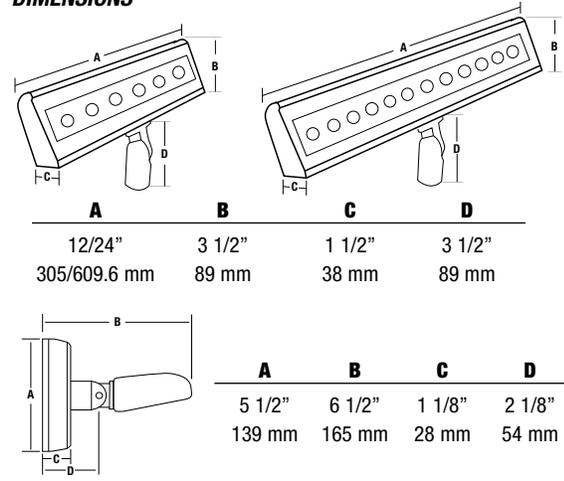
**Warranty:**

Five year limited warranty (for more information visit: <http://www.hubbelloutdoor.com/resources/warranty/>)

**PRODUCT IMAGE(S)**



**DIMENSIONS**



**CERTIFICATIONS/ LISTINGS**



**IP64  
IP65**

**SHIPPING INFORMATION**

Catalog Number	G.W(kg)/CTN	Carton Dimensions			Carton Qty. per Master Pack
		Length Inch (cm)	Width Inch (cm)	Height Inch (cm)	
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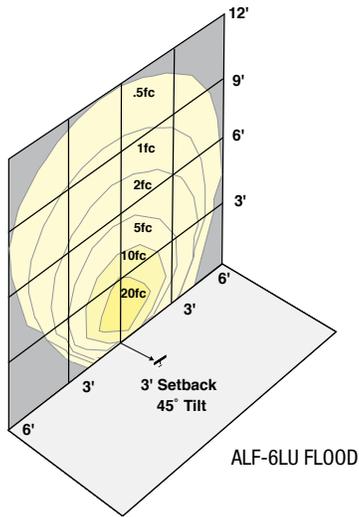
**ORDERING INFORMATION**

ORDERING EXAMPLE: ALF-6LU-5K-BZ

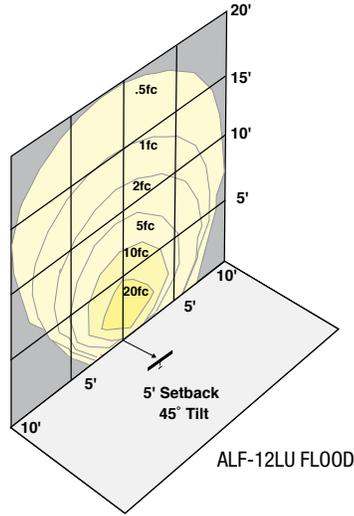
Catalog Number	Wattage	Number of LEDs	Voltage <sup>1</sup>	Lumens	Life	LPW	CCT	Weight lbs. (kg)
<b>1/2" KNUCKLE MOUNT</b>								
<b>ALF-6LU-5K-BZ</b>	10.1	6	120-277V	905	50,000 hrs	90	5000K	4.0 (1.8)
<b>ALF-12LU-5K-BZ</b>	21.4	12	120-277V	1913	50,000 hrs	89	5000K	8.0 (3.6)
<b>WALLMOUNT</b>								
<b>ALFW-6LU-5K-BZ-PC</b>	10.7	6	120V	510	50,000 hrs	48	5000K	4.5 (2.0)

<sup>1</sup> Unit should not be used above 240V in Canada

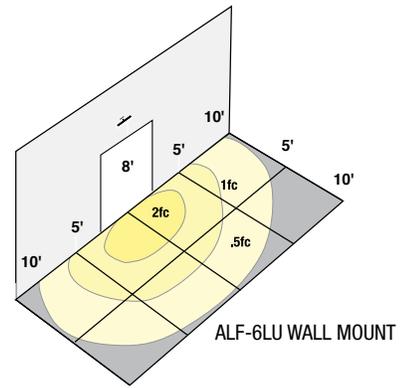
**PHOTOMETRICS**



ALF-6LU FLOOD



ALF-12LU FLOOD



ALF-6LU WALL MOUNT

**PERFORMANCE DATA**

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Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown. Actual performance may differ as a result of end-user environment and application.

**ELECTRICAL DATA**

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		277	12.5	.06	.78
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		277	25.5	.12	.78



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ALF-SPEC 2/16

**Universe® Collection Medium LED – UCM**

TYPE

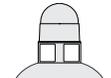
**FEATURES**

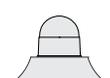
- DLC qualified
- Up to 1000' wireless communication
- Motion sensing up to 40' mounting height
- Superior BUG ratings
- Types II, III, IV, V and custom distributions
- IP66, 3G vibration housing
- 20kV/10kA surge suppression
- 2700 – 5000K CCT
- >560 nm Amber
- Custom lumen packages
- Integral thermal protection
- 0-10V dimmable
- 13 standard powder coat finishes

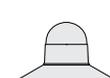
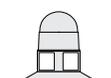


**SPECIFICATIONS**

					
ANGLED HOOD CONFIGURATION	UCM-ANG	UCM-WND-ANG	UCM-SR-ANG	UCM-VSL-ANG	UCM-LUM-ANG
DIAMETER	20"/508mm	20"/508mm	20"/508mm	20"/508mm	20"/508mm
HEIGHT	14.7"/373mm	20.5"/520mm	20.7"/526mm	20.5"/521mm	20.6"/523mm
WEIGHT	18.25 lbs/8.28kg	21.75 lbs/9.86kg	25 lbs/11.3kg	22.25 lbs/10.1kg	24.25 lbs/11kg
EPA	.60	.72	.74	.72	.74

					
BELL HOOD CONFIGURATION	UCM-BEL	UCM-WND-BEL	UCM-SR-BEL	UCM-VSL-BEL	UCM-LUM-BEL
DIAMETER	24"/610mm	24"/610mm	24"/610mm	24"/610mm	24"/610mm
HEIGHT	15.8"/401mm	21.4"/543mm	21.6"/549mm	19.37"/492mm	21.5"/546mm
WEIGHT	20.25 lbs/9.2kg	23.5 lbs/10.6kg	27 lbs/12.25kg	24.25 lbs/11kg	26 lbs/11.8kg
EPA	.73	.85	.87	.85	.85

					
FLARE HOOD CONFIGURATION	UCM-FLR	UCM-WND-FLR	UCM-SR-FLR	UCM-VSL-FLR	UCM-LUM-FLR
DIAMETER	22"/559mm	22"/559mm	22"/559mm	22"/559mm	22"/559mm
HEIGHT	14.5"/368mm	19.8"/503mm	20.1"/510mm	19.8"/503mm	20"/508mm
WEIGHT	18.5 lbs/8.4kg	21.75 lbs/9.87kg	25.25 lbs/10.1kg	21.75 lbs/9.86kg	24.25 lbs/11kg
EPA	.53	.65	.67	.65	.67

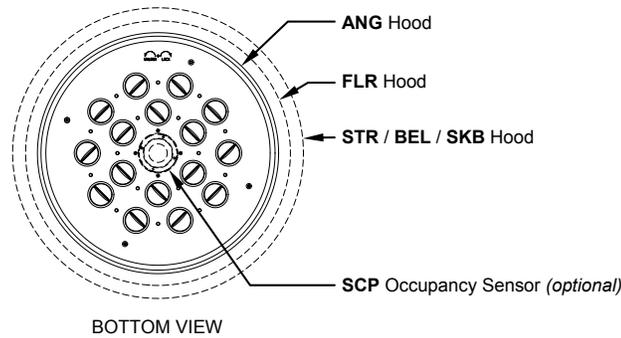
					
STRAIGHT HOOD CONFIGURATION	UCM-STR	UCM-WND-STR	UCM-SR-STR	UCM-VSL-STR	UCM-LUM-STR
DIAMETER	24"/610mm	24"/610mm	24"/610mm	24"/610mm	24"/610mm
HEIGHT	14"/355mm	19.8"/503mm	20"/508mm	19.8"/503mm	19.9"/505mm
WEIGHT	20 lbs/9.07kg	23.25 lbs/10.55kg	26.75 lbs/12.13kg	23.75 lbs/10.77kg	25.75 lbs/11.68kg
EPA	.59	.71	.73	.71	.73

					
SKIRTED BELL HOOD CONFIGURATION	UCM-SKB	UCM-WND-SKB	UCM-SR-SKB	UCM-VSL-SKB	UCM-LUM-SKB
DIAMETER	24"/610mm	24"/610mm	24"/610mm	24"/610mm	24"/610mm
HEIGHT	19.7"/500mm	23.9"/607mm	24.2"/615mm	23.9"/607mm	24.1"/612mm
WEIGHT	20.5 lbs/9.3kg	23.75 lbs/10.77kg	27 lbs/12.25kg	24.25 lbs/11kg	26.25 lbs/11.9kg
EPA	.90	1.03	1.05	1.03	1.05

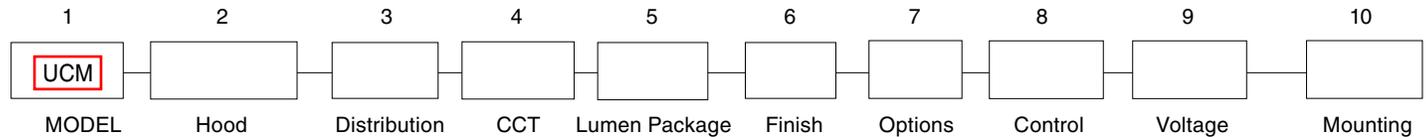


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JOB	_____
TYPE	_____
NOTES	_____



**ORDERING INFORMATION**



**1. MODEL**

- UCM *Universe medium without luminous element*
- UCM-WND *Universe medium with luminous window*
- UCM-SR *Universe medium with luminous solid rings*
- UCM-VSL *Universe medium with luminous vertical slots*
- UCM-LUM *Universe medium with luminous rings*

**2. HOOD (May choose one)**

- FLR *Flared hood*
- FLR-STSS *Flared hood in natural brushed stainless steel*
- FLR-COP *Flared hood in natural brushed copper*
- ANG *Angled hood*
- ANG-STSS *Angled hood in natural brushed stainless steel*
- ANG-COP *Angled hood in natural brushed copper*
- STR *Straight hood*
- STR-STSS *Straight hood in natural brushed stainless steel*
- STR-COP *Straight hood in natural brushed copper*
- BEL *Bell hood*
- BEL-STSS *Bell hood in natural brushed stainless steel*
- BEL-COP *Bell hood in natural brushed copper*
- SKB *Skirted bell hood*
- SKB-STSS *Skirted bell hood in natural brushed stainless steel*
- SKB-COP *Skirted bell hood in natural brushed copper*

**3. DISTRIBUTION**

- MicroCore *Precision aimed optics*
- T2-32LED *Type 2*
- T3-32LED *Type 3*
- T4-32LED *Type 4*
- T5-32LED *Type 5*
- TX-32LED *Custom<sup>1</sup>*

**4. COLOR TEMPERATURE**

- 3K *3000K*
- 4K *4000K*
- 5K *5000K*
- 27K *2700K<sup>1</sup>*
- 35K *3500K<sup>1</sup>*
- AM *>560 nm monochromatic amber<sup>1</sup>*

**5. LUMEN PACKAGE**

- 700 *71 watts*
- 450 *48 watts*
- XMA *Custom wattage or drive current<sup>1</sup>*

**6. FINISH**

- WH *Arctic White*
- BL *Black*
- BLT *Matte Black*
- DB *Dark Bronze*
- DGN *Dark Green*
- TT *Titanium*
- WDB *Weathered Bronze*
- MDB *Bronze Metallic*
- VBU *Verde Blue*
- CRT *Corten*
- MAL *Matte Aluminum*
- MG *Medium Grey*
- AGN *Antique Green*
- LG *Light Grey*
- RAL *Premium Color*
- CUSTOM \*\* *Contact Factory*

**7. OPTIONS (May choose as noted)**

- FTG *Flat clear glass lens<sup>2</sup>*
- FLD *Flat diffused glass lens<sup>3</sup>*
- SAG *Sag clear glass lens<sup>1,3</sup>*
- HSS *House Side shield for Type 4*
- SLC *Unlit (luminous) element*
- R80 *80 CRI minimum<sup>1</sup>*
- BL *Blue inner lens*
- RD *Red inner lens*
- GRN *Green inner lens*

**8. CONTROLS – (May choose as noted)**

- WIR *wiScape connectivity*
- WIRSC *wiScape connectivity, integral motion sensor*
- SCP *Integral photo-control and motion sensor<sup>4</sup>*
- SCPREMOTE *Handheld commissioning tool<sup>4</sup>*

**9. VOLTAGE**

- 120-277 *120-277 VAC input*
- 347 *347 VAC input*
- 480 *480 VAC input*

**9. MOUNTING POLE MOUNT**

- SLA2 *SLA3*
- SLA4 *SLA4-2*
- SLA7 *SLA7-2*
- SLA7(5) *SLA7(5)-2*
- SLA8D *SLA9*
- SLA9-2 *SLA10*
- SLA10-2 *SLA16*
- SLA16-2 *SLA17*
- SLA17-2 *SLA17(5)*
- SLA17(5)-2 *SLA18*
- SLA18-2 *SLA20*
- SLA20-2 *SLA20A*
- SLA20A-2 *SLA20B*
- SLA20B-2 *SLA20C*
- SLA20C-2 *SLA20D*
- SLA20D-2 *SLA22D*
- SLA24 *SLA24-2*
- SLA24(5) *SLA24(5)-2*
- TRA4 *TRA7*
- TRA7-2 *TRA8*
- TRA8-2 *TRA9*
- TRA9-2

**WALL MOUNT**

- WMA4 *WMA5*
- WMA6 *WMA8*
- WMA9D *WMA10*
- WMA11 *WMA12*
- WMA16 *WMA17*
- WMA18 *WMA20*
- WMA22D *WMA24*
- WMA37 *WMA38*
- WMA39

<sup>1</sup> Contact factory

<sup>2</sup> Not for AM color temperature

<sup>3</sup> Not for WIR, WIRSC or SCP control options

<sup>4</sup> Handheld commissioning tool is required to separately configure or adjust any number of SCP sensors.



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JOB \_\_\_\_\_  
 TYPE \_\_\_\_\_  
 NOTES \_\_\_\_\_

LUMINAIRE PERFORMANCE

Optical System	Secondary Lens or Shield	Distribution	Light Engine	Ordering Code												Drive Current (ma)	System Watts			
				3K			4K			5K										
				Delivered Lumens	Efficacy (lm/w)	Bug Rating	Delivered Lumens	Efficacy (lm/w)	Bug Rating	Delivered Lumens	Efficacy (lm/w)	Bug Rating								
MicroCore	No Lens (Standard)	TYPE 2	T2-32LED	6186	87	2	0	2	6561	92	2	0	2	6579	92	2	0	2	650	71
		TYPE 3	T3-32LED	6168	87	1	0	2	6542	92	1	0	2	6560	92	1	0	2		
		TYPE 4	T4-32LED	6081	86	1	0	2	6449	91	1	0	2	6467	91	1	0	2		
		TYPE 5	T5-32LED	6227	88	3	0	2	6505	93	3	0	2	6623	93	3	0	2		
	House Side Shield	TYPE 4	T4-32LED-...-HSS	4495	63	0	0	2	4768	67	0	0	2	4781	67	0	0	2	450	47
	No Lens (Standard)	TYPE 2	T2-32LED	4607	98	2	0	2	4830	103	2	0	2	4844	101	2	0	2		
		TYPE 3	T3-32LED	4570	95	1	0	1	4791	100	1	0	2	4805	101	1	0	2		
		TYPE 4	T4-32LED	4570	97	1	0	2	4791	102	1	0	2	4805	100	1	0	2		
	TYPE 5	T5-32LED	4602	98	3	0	1	4825	103	3	0	1	4839	101	3	0	1			
	House Side Shield	TYPE 4	T4-32LED-...-HSS	3366	72	0	0	2	3529	75	0	0	2	3539	74	0	0	2		

\* DesignLights Consortium® Qualified Product



ELECTRICAL CHARACTERISTICS

Optical System	Ordering Code		Driver										Dimming						
			LED Drive mA	System Watts	Line Voltage		Amps AC				Min. Power Factor	Max THD (%)	Operating Temp. Range	Dimming Range	Source current out of 0-10V purple wire		Absolute voltage range on 0-10V (+) purple wire		
					VAC	HZ	120	277	347	480					Min	Max	Min	Max	
MicroCore	Without Luminous Element	32LED	700	650	71	120	50/60	0.6	0.3	0.2	0.1	≥9	20	-30°C TO +40°C	10% TO 100%	0mA	1mA	0mA	1mA
			450	450	47			0.4	0.2	0.1	0.1								
	700		650	73	0.6			0.3	0.2	0.2									
	450		450	49	0.4			0.2	0.1	0.1									
	WND/SR/VSL/LUM																		

SENSOR DETECTION RANGE

		SENSOR MOUNTING HEIGHT											RATIO
		8'	10'	12'	14'	16'	18'	20'	25'	30'	35'	40'	
COVERAGE	SCP	20'	25'	30'	35'	40'	45'	50'	62.5'	75'	87.5'	100'	1:2.5
DIAMETER	WIRSC	16'	20'	24'	28'	32'	36'	40'	N/A	N/A	N/A	N/A	1:2

LED COLOR

	Ordering Code		
	3K	4K	5K
CCT Average	3000K	4000K	5000K
CRI Minimum	70	70	70
S/P Ratio	1.2	1.5	1.8

Consult factory for Amber, Turtle Friendly, Gulf Coast and Observatory applications.

TM-21 LIFETIME CALCULATION

Optical System	Ordering Code	Ambient Environment °C	Projected Lumen Maintenance (% vs. Khrs)					Reported L70
			15	25	50	60	100	
MicroCore	32LED	15	98	98	97	96	94	>96Khrs
		25	98	97	96	96	93	
		40	96	95	93	92	89	



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JOB \_\_\_\_\_  
 TYPE \_\_\_\_\_  
 NOTES \_\_\_\_\_

**SPECIFICATIONS**

**HOUSING**

- All housing components shall be die-cast aluminum, sealed with continuous silicone rubber gaskets.
- Hood and spacers shall be heavy gauge spun aluminum with hemmed edges for added rigidity.
- Luminous rings shall be clear acrylic with an internal lens.
- Standard configurations do not require a flat lens, optional lenses shall be tempered glass
- All internal and external hardware shall be stainless steel.
- Optical bezel finish shall match the luminaire housing.

**OPTICAL**

- Patent pending MicroCore™ LED modules shall independently aim each light emitting diode (LED) in both horizontal rotation and vertical tilt angle.
- LEDs shall be mounted to a metal printed circuit board assembly (PCBA) with a uniform conformal coating over the panel surface and electrical features.
- LED optics shall be clear injection molded PMMA acrylic.
- MicroCore™ PCBA and optic shall be sealed to a die-cast anodized aluminum heat sink with an injection molded silicone rubber gasket. IP66.
- Type 4 distribution with optional House Side Shield not available with clear or diffused glass lenses. Factory installed House Side Shield is optimized for Type 4 distribution and not recommended for use with Type 2 or 3 distribution and not available with type 5 distribution.

**ELECTRICAL**

- Luminaires shall have integral surge protection that shall be U.L. recognized and have a surge current rating of 10,000 Amps using the industry standard 8/20uSec wave and surge rating of 372J.
- Drivers shall be U.L. recognized with an inrush current maximum of <20.0 Amps maximum at 230VAC.
- Drivers shall not be compatible with current sourcing dimmers, consult factory for current list of known compatible dimming systems, approved dimmers include Lutron Diva AVTV, Lutron Nova NFTV and NTFTV.

**CONTROLS**

- Wireless enabled fixtures shall support bi-directional radio frequency (RF) communications utilizing IEEE 802.15.4 operating in the 2.4GHZ ISM band.
- Up to 1000' wireless range may be reduced by physical obstructions between fixtures.
- Motion sensor shall be flame retardant, UV resistant, impact resistant, recyclable polycarbonate.
- Motion Sensor shall use passive infrared (PIR) sensing technology that reacts to changes in infrared energy (moving body heat) within the coverage area. Careful consideration must be given to obstructions that may block the sensor's line of sight.
- Factory default settings for SCP option shall be:
  - High mode: 10V
  - Low mode: 1V
  - Ramp-up rate: disabled
  - Fade-down rate: disabled
  - Photocell: Off
  - Sensitivity: Full
  - Time Delay: Fade to low: 5 minutes
  - Time Delay: Fade to off: 1 hour

**PHOTOCELL / EGRESS ADAPTERS**

- Adapter(s) shall slip over a 4"/100mm DIA. pole with the luminaire or arm slipping over the adapter to add a total of 4.5"/114mm to the overall height. Adapter(s) shall be prewired, independently rotatable 359°, and have a cast access cover with an integral lens and lanyard.
- Photocell adapter shall include an internal twist lock receptacle. Photocell by others.
- Egress adapter shall require an auxiliary 120 volt supply for operation of an integral MR16 lamp in the event of emergency. The lamp may be aimed and locked into position with an adjustment range of 15°-45°. Adapter shall have a socket that accepts miniature bi-pin MR16 lamps up to 50 watts, lamp by others.

**SERVICING**

- Luminaire shall have tool-less service access to the gear compartment. Driver and surge suppressor shall be mounted to a prewired tray with quick disconnects that may be removed from the gear compartment.

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- Luminaire shall be attached to the arm assembly with three stainless steel bolts. The connection shall be sealed with a silicone compression gasket.
- Post top arms and brackets shall slip over a 4"/100mm O.D. or a 5"/127mm as configured and secured with six stainless steel set screws.
- Wall mounted arms and brackets shall require mounting hardware by others.

**FINISH**

- Luminaire finish shall consist of a five stage pretreatment regimen with a polymer primer sealer, oven dry off, and top coated with a thermoset super TGIC polyester powder coat finish.
- Luminaire finish shall meet the AAMA 605.2 performance specification which includes passing a 3000 hour salt spray test for corrosion resistance.

**CERTIFICATION**

- Luminaire shall be listed with ETL for outdoor, wet location use, UL1598, UL 8750 and Canadian CSA Std. C22.2 no.250.

**WARRANTY / TERMS AND CONDITIONS OF SALE**

Download: <http://www.hubbelling.com/resources/warranty/>



JOB	_____
TYPE	_____
NOTES	_____

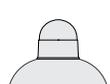
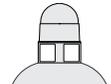
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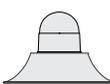
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- Motion sensing up to 40' mounting height
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- Types II, III, IV, V and custom distributions
- IP66, 3G vibration housing
- 20kV/10kA surge suppression
- 2700 – 5000K CCT
- >560 nm Amber
- Custom lumen packages
- Integral thermal protection
- 0-10V dimmable
- 13 standard powder coat finishes

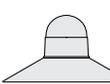
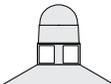


SPECIFICATIONS

					
ANGLED HOOD CONFIGURATION	UCM-ANG	UCM-WND-ANG	UCM-SR-ANG	UCM-VSL-ANG	UCM-LUM-ANG
DIAMETER	20"/508mm	20"/508mm	20"/508mm	20"/508mm	20"/508mm
HEIGHT	14.7"/373mm	20.5"/520mm	20.7"/526mm	20.5"/521mm	20.6"/523mm
WEIGHT	18.25 lbs/8.28kg	21.75 lbs/9.86kg	25 lbs/11.3kg	22.25 lbs/10.1kg	24.25 lbs/11kg
EPA	.60	.72	.74	.72	.74

					
BELL HOOD CONFIGURATION	UCM-BEL	UCM-WND-BEL	UCM-SR-BEL	UCM-VSL-BEL	UCM-LUM-BEL
DIAMETER	24"/610mm	24"/610mm	24"/610mm	24"/610mm	24"/610mm
HEIGHT	15.8"/401mm	21.4"/543mm	21.6"/549mm	19.37"/492mm	21.5"/546mm
WEIGHT	20.25 lbs/9.2kg	23.5 lbs/10.6kg	27 lbs/12.25kg	24.25 lbs/11kg	26 lbs/11.8kg
EPA	.73	.85	.87	.85	.85

					
FLARE HOOD CONFIGURATION	UCM-FLR	UCM-WND-FLR	UCM-SR-FLR	UCM-VSL-FLR	UCM-LUM-FLR
DIAMETER	22"/559mm	22"/559mm	22"/559mm	22"/559mm	22"/559mm
HEIGHT	14.5"/368mm	19.8"/503mm	20.1"/510mm	19.8"/503mm	20"/508mm
WEIGHT	18.5 lbs/8.4kg	21.75 lbs/9.87kg	25.25 lbs/10.1kg	21.75 lbs/9.86kg	24.25 lbs/11kg
EPA	.53	.65	.67	.65	.67

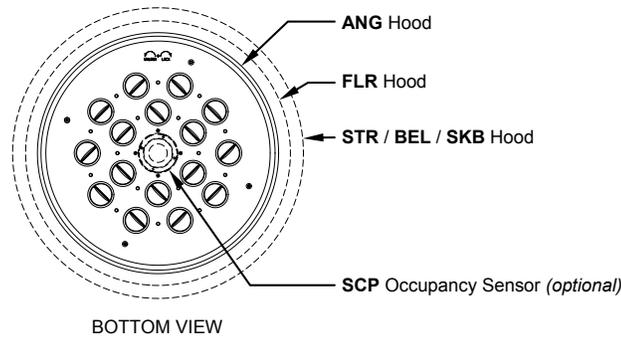
					
STRAIGHT HOOD CONFIGURATION	UCM-STR	UCM-WND-STR	UCM-SR-STR	UCM-VSL-STR	UCM-LUM-STR
DIAMETER	24"/610mm	24"/610mm	24"/610mm	24"/610mm	24"/610mm
HEIGHT	14"/355mm	19.8"/503mm	20"/508mm	19.8"/503mm	19.9"/505mm
WEIGHT	20 lbs/9.07kg	23.25 lbs/10.55kg	26.75 lbs/12.13kg	23.75 lbs/10.77kg	25.75 lbs/11.68kg
EPA	.59	.71	.73	.71	.73

					
SKIRTED BELL HOOD CONFIGURATION	UCM-SKB	UCM-WND-SKB	UCM-SR-SKB	UCM-VSL-SKB	UCM-LUM-SKB
DIAMETER	24"/610mm	24"/610mm	24"/610mm	24"/610mm	24"/610mm
HEIGHT	19.7"/500mm	23.9"/607mm	24.2"/615mm	23.9"/607mm	24.1"/612mm
WEIGHT	20.5 lbs/9.3kg	23.75 lbs/10.77kg	27 lbs/12.25kg	24.25 lbs/11kg	26.25 lbs/11.9kg
EPA	.90	1.03	1.05	1.03	1.05

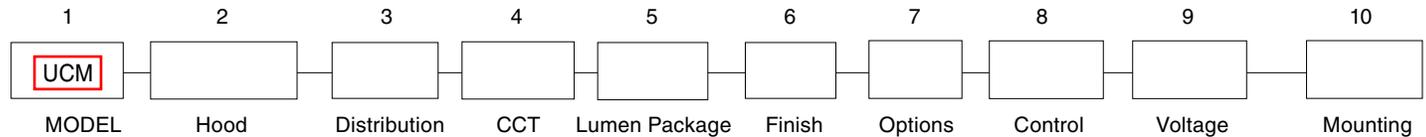


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JOB	_____
TYPE	_____
NOTES	_____



**ORDERING INFORMATION**



**1. MODEL**

- UCM *Universe medium without luminous element*
- UCM-WND *Universe medium with luminous window*
- UCM-SR *Universe medium with luminous solid rings*
- UCM-VSL *Universe medium with luminous vertical slots*
- UCM-LUM *Universe medium with luminous rings*

**2. HOOD (May choose one)**

- FLR *Flared hood*
- FLR-STSS *Flared hood in natural brushed stainless steel*
- FLR-COP *Flared hood in natural brushed copper*
- ANG *Angled hood*
- ANG-STSS *Angled hood in natural brushed stainless steel*
- ANG-COP *Angled hood in natural brushed copper*
- STR *Straight hood*
- STR-STSS *Straight hood in natural brushed stainless steel*
- STR-COP *Straight hood in natural brushed copper*
- BEL *Bell hood*
- BEL-STSS *Bell hood in natural brushed stainless steel*
- BEL-COP *Bell hood in natural brushed copper*
- SKB *Skirted bell hood*
- SKB-STSS *Skirted bell hood in natural brushed stainless steel*
- SKB-COP *Skirted bell hood in natural brushed copper*

**3. DISTRIBUTION**

- MicroCore Precision aimed optics
- T2-32LED *Type 2*
- T3-32LED *Type 3*
- T4-32LED *Type 4*
- T5-32LED *Type 5*
- TX-32LED *Custom 1*

**4. COLOR TEMPERATURE**

- 3K *3000K*
- 4K *4000K*
- 5K *5000K*
- 27K *2700K 1*
- 35K *3500K 1*
- AM *>560 nm monochromatic amber 1*

**5. LUMEN PACKAGE**

- 700 *71 watts*
- 450 *48 watts*
- XMA *Custom wattage or drive current 1*

**6. FINISH**

- WH *Arctic White*
- BL *Black*
- BLT *Matte Black*
- DB *Dark Bronze*
- DGN *Dark Green*
- TT *Titanium*
- WDB *Weathered Bronze*
- MDB *Bronze Metallic*
- VBU *Verde Blue*
- CRT *Corten*
- MAL *Matte Aluminum*
- MG *Medium Grey*
- AGN *Antique Green*
- LG *Light Grey*
- RAL *Premium Color*
- CUSTOM \*\* *Contact Factory*

**7. OPTIONS (May choose as noted)**

- FTG *Flat clear glass lens<sup>2</sup>*
- FLD *Flat diffused glass lens<sup>3</sup>*
- SAG *Sag clear glass lens<sup>1,3</sup>*
- HSS *House Side shield for Type 4*
- SLC *Unlit (luminous) element*
- R80 *80 CRI minimum<sup>1</sup>*
- BL *Blue inner lens*
- RD *Red inner lens*
- GRN *Green inner lens*

**8. CONTROLS – (May choose as noted)**

- WIR *wiScape connectivity*
- WIRSC *wiScape connectivity, integral motion sensor*
- SCP *Integral photo-control and motion sensor<sup>4</sup>*
- SCPREMOTE *Handheld commissioning tool<sup>4</sup>*

**9. VOLTAGE**

- 120-277 *120-277 VAC input*
- 347 *347 VAC input*
- 480 *480 VAC input*

**9. MOUNTING POLE MOUNT**

- SLA2 *SLA3*
- SLA4 *SLA4-2*
- SLA7 *SLA7-2*
- SLA7(5) *SLA7(5)-2*
- SLA8D *SLA9*
- SLA9-2 *SLA10*
- SLA10-2 *SLA16*
- SLA16-2 *SLA17*
- SLA17-2 *SLA17(5)*
- SLA17(5)-2 *SLA18*
- SLA18-2 *SLA20*
- SLA20-2 *SLA20A*
- SLA20A-2 *SLA20B*
- SLA20B-2 *SLA20C*
- SLA20C-2 *SLA20D*
- SLA20D-2 *SLA22D*
- SLA24 *SLA24-2*
- SLA24(5) *SLA24(5)-2*
- TRA4 *TRA7*
- TRA7-2 *TRA8*
- TRA8-2 *TRA9*
- TRA9-2

**WALL MOUNT**

- WMA4 *WMA5*
- WMA6 *WMA8*
- WMA9D *WMA10*
- WMA11 *WMA12*
- WMA16 *WMA17*
- WMA18 *WMA20*
- WMA22D *WMA24*
- WMA37 *WMA38*
- WMA39

<sup>1</sup> Contact factory

<sup>2</sup> Not for AM color temperature

<sup>3</sup> Not for WIR, WIRSC or SCP control options

<sup>4</sup> Handheld commissioning tool is required to separately configure or adjust any number of SCP sensors.



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JOB \_\_\_\_\_  
 TYPE \_\_\_\_\_  
 NOTES \_\_\_\_\_

LUMINAIRE PERFORMANCE

Optical System	Secondary Lens or Shield	Distribution	Light Engine	Ordering Code												Drive Current (ma)	System Watts			
				3K			4K			5K										
				Delivered Lumens	Efficacy (lm/w)	Bug Rating	Delivered Lumens	Efficacy (lm/w)	Bug Rating	Delivered Lumens	Efficacy (lm/w)	Bug Rating								
MicroCore	No Lens (Standard)	TYPE 2	T2-32LED	6186	87	2	0	2	6561	92	2	0	2	6579	92	2	0	2	650	71
		TYPE 3	T3-32LED	6168	87	1	0	2	6542	92	1	0	2	6560	92	1	0	2		
		TYPE 4	T4-32LED	6081	86	1	0	2	6449	91	1	0	2	6467	91	1	0	2		
		TYPE 5	T5-32LED	6227	88	3	0	2	6505	93	3	0	2	6623	93	3	0	2		
	House Side Shield	TYPE 4	T4-32LED-...-HSS	4495	63	0	0	2	4768	67	0	0	2	4781	67	0	0	2	450	47
	No Lens (Standard)	TYPE 2	T2-32LED	4607	98	2	0	2	4830	103	2	0	2	4844	101	2	0	2		
		TYPE 3	T3-32LED	4570	95	1	0	1	4791	100	1	0	2	4805	101	1	0	2		
		TYPE 4	T4-32LED	4570	97	1	0	2	4791	102	1	0	2	4805	100	1	0	2		
	TYPE 5	T5-32LED	4602	98	3	0	1	4825	103	3	0	1	4839	101	3	0	1			
	House Side Shield	TYPE 4	T4-32LED-...-HSS	3366	72	0	0	2	3529	75	0	0	2	3539	74	0	0	2		

\* DesignLights Consortium® Qualified Product



ELECTRICAL CHARACTERISTICS

Optical System	Ordering Code		Driver										Dimming						
			LED Drive mA	System Watts	Line Voltage		Amps AC				Min. Power Factor	Max THD (%)	Operating Temp. Range	Dimming Range	Source current out of 0-10V purple wire		Absolute voltage range on 0-10V (+) purple wire		
					VAC	HZ	120	277	347	480					Min	Max	Min	Max	
MicroCore	Without Luminous Element	32LED	700	650	71	120	50/60	0.6	0.3	0.2	0.1	≥9	20	-30°C TO +40°C	10% TO 100%	0mA	1mA	0mA	1mA
			450	450	47			0.4	0.2	0.1	0.1								
	700		650	73	0.6			0.3	0.2	0.2									
	450		450	49	0.4			0.2	0.1	0.1									
	WND/SR/VSL/LUM																		

SENSOR DETECTION RANGE

		SENSOR MOUNTING HEIGHT											RATIO
		8'	10'	12'	14'	16'	18'	20'	25'	30'	35'	40'	
COVERAGE	SCP	20'	25'	30'	35'	40'	45'	50'	62.5'	75'	87.5'	100'	1:2.5
DIAMETER	WIRSC	16'	20'	24'	28'	32'	36'	40'	N/A	N/A	N/A	N/A	1:2

LED COLOR

	Ordering Code		
	3K	4K	5K
CCT Average	3000K	4000K	5000K
CRI Minimum	70	70	70
S/P Ratio	1.2	1.5	1.8

Consult factory for Amber, Turtle Friendly, Gulf Coast and Observatory applications.

TM-21 LIFETIME CALCULATION

Optical System	Ordering Code	Ambient Environment °C	Projected Lumen Maintenance (% vs. Khrs)					Reported L70
			15	25	50	60	100	
MicroCore	32LED	15	98	98	97	96	94	>96Khrs
		25	98	97	96	96	93	
		40	96	95	93	92	89	



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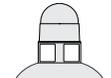
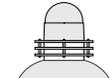
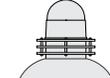
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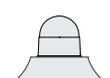
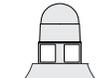
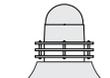
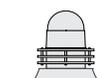
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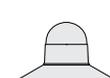
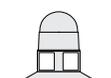
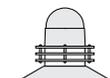
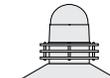


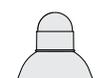
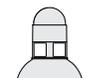
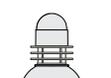
SPECIFICATIONS

					
ANGLED HOOD CONFIGURATION	UCM-ANG	UCM-WND-ANG	UCM-SR-ANG	UCM-VSL-ANG	UCM-LUM-ANG
DIAMETER	20"/508mm	20"/508mm	20"/508mm	20"/508mm	20"/508mm
HEIGHT	14.7"/373mm	20.5"/520mm	20.7"/526mm	20.5"/521mm	20.6"/523mm
WEIGHT	18.25 lbs/8.28kg	21.75 lbs/9.86kg	25 lbs/11.3kg	22.25 lbs/10.1kg	24.25 lbs/11kg
EPA	.60	.72	.74	.72	.74

					
BELL HOOD CONFIGURATION	UCM-BEL	UCM-WND-BEL	UCM-SR-BEL	UCM-VSL-BEL	UCM-LUM-BEL
DIAMETER	24"/610mm	24"/610mm	24"/610mm	24"/610mm	24"/610mm
HEIGHT	15.8"/401mm	21.4"/543mm	21.6"/549mm	19.37"/492mm	21.5"/546mm
WEIGHT	20.25 lbs/9.2kg	23.5 lbs/10.6kg	27 lbs/12.25kg	24.25 lbs/11kg	26 lbs/11.8kg
EPA	.73	.85	.87	.85	.85

					
FLARE HOOD CONFIGURATION	UCM-FLR	UCM-WND-FLR	UCM-SR-FLR	UCM-VSL-FLR	UCM-LUM-FLR
DIAMETER	22"/559mm	22"/559mm	22"/559mm	22"/559mm	22"/559mm
HEIGHT	14.5"/368mm	19.8"/503mm	20.1"/510mm	19.8"/503mm	20"/508mm
WEIGHT	18.5 lbs/8.4kg	21.75 lbs/9.87kg	25.25 lbs/10.1kg	21.75 lbs/9.86kg	24.25 lbs/11kg
EPA	.53	.65	.67	.65	.67

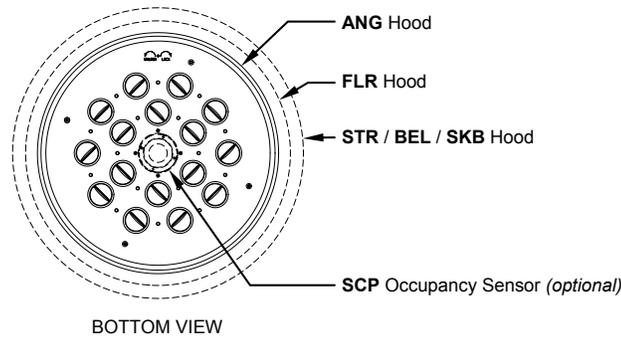
					
STRAIGHT HOOD CONFIGURATION	UCM-STR	UCM-WND-STR	UCM-SR-STR	UCM-VSL-STR	UCM-LUM-STR
DIAMETER	24"/610mm	24"/610mm	24"/610mm	24"/610mm	24"/610mm
HEIGHT	14"/355mm	19.8"/503mm	20"/508mm	19.8"/503mm	19.9"/505mm
WEIGHT	20 lbs/9.07kg	23.25 lbs/10.55kg	26.75 lbs/12.13kg	23.75 lbs/10.77kg	25.75 lbs/11.68kg
EPA	.59	.71	.73	.71	.73

					
SKIRTED BELL HOOD CONFIGURATION	UCM-SKB	UCM-WND-SKB	UCM-SR-SKB	UCM-VSL-SKB	UCM-LUM-SKB
DIAMETER	24"/610mm	24"/610mm	24"/610mm	24"/610mm	24"/610mm
HEIGHT	19.7"/500mm	23.9"/607mm	24.2"/615mm	23.9"/607mm	24.1"/612mm
WEIGHT	20.5 lbs/9.3kg	23.75 lbs/10.77kg	27 lbs/12.25kg	24.25 lbs/11kg	26.25 lbs/11.9kg
EPA	.90	1.03	1.05	1.03	1.05

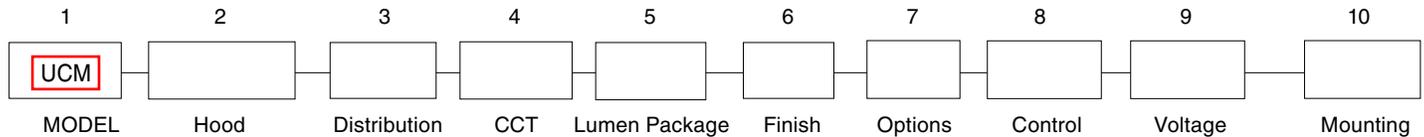


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JOB	_____
TYPE	_____
NOTES	_____



**ORDERING INFORMATION**



**1. MODEL**

- UCM *Universe medium without luminous element*
- UCM-WND *Universe medium with luminous window*
- UCM-SR *Universe medium with luminous solid rings*
- UCM-VSL *Universe medium with luminous vertical slots*
- UCM-LUM *Universe medium with luminous rings*

**2. HOOD (May choose one)**

- FLR *Flared hood*
- FLR-STSS *Flared hood in natural brushed stainless steel*
- FLR-COP *Flared hood in natural brushed copper*
- ANG *Angled hood*
- ANG-STSS *Angled hood in natural brushed stainless steel*
- ANG-COP *Angled hood in natural brushed copper*
- STR *Straight hood*
- STR-STSS *Straight hood in natural brushed stainless steel*
- STR-COP *Straight hood in natural brushed copper*
- BEL *Bell hood*
- BEL-STSS *Bell hood in natural brushed stainless steel*
- BEL-COP *Bell hood in natural brushed copper*
- SKB *Skirted bell hood*
- SKB-STSS *Skirted bell hood in natural brushed stainless steel*
- SKB-COP *Skirted bell hood in natural brushed copper*

**3. DISTRIBUTION**

- MicroCore Precision aimed optics
- T2-32LED *Type 2*
- T3-32LED *Type 3*
- T4-32LED *Type 4*
- T5-32LED *Type 5*
- TX-32LED *Custom 1*

**4. COLOR TEMPERATURE**

- 3K *3000K*
- 4K *4000K*
- 5K *5000K*
- 27K *2700K 1*
- 35K *3500K 1*
- AM *>560 nm monochromatic amber 1*

**5. LUMEN PACKAGE**

- 700 *71 watts*
- 450 *48 watts*
- XMA *Custom wattage or drive current 1*

**6. FINISH**

- WH *Arctic White*
- BL *Black*
- BLT *Matte Black*
- DB *Dark Bronze*
- DGN *Dark Green*
- TT *Titanium*
- WDB *Weathered Bronze*
- MDB *Bronze Metallic*
- VBU *Verde Blue*
- CRT *Corten*
- MAL *Matte Aluminum*
- MG *Medium Grey*
- AGN *Antique Green*
- LG *Light Grey*
- RAL *Premium Color*
- CUSTOM \*\* *Contact Factory*

**7. OPTIONS (May choose as noted)**

- FTG *Flat clear glass lens<sup>2</sup>*
- FLD *Flat diffused glass lens<sup>3</sup>*
- SAG *Sag clear glass lens<sup>1,3</sup>*
- HSS *House Side shield for Type 4*
- SLC *Unlit (luminous) element*
- R80 *80 CRI minimum<sup>1</sup>*
- BL *Blue inner lens*
- RD *Red inner lens*
- GRN *Green inner lens*

**8. CONTROLS – (May choose as noted)**

- WIR *wiScape connectivity*
- WIRSC *wiScape connectivity, integral motion sensor*
- SCP *Integral photo-control and motion sensor<sup>4</sup>*
- SCPREMOTE *Handheld commissioning tool<sup>4</sup>*

**9. VOLTAGE**

- 120-277 *120-277 VAC input*
- 347 *347 VAC input*
- 480 *480 VAC input*

**9. MOUNTING POLE MOUNT**

- SLA2 *SLA3*
- SLA4 *SLA4-2*
- SLA7 *SLA7-2*
- SLA7(5) *SLA7(5)-2*
- SLA8D *SLA9*
- SLA9-2 *SLA10*
- SLA10-2 *SLA16*
- SLA16-2 *SLA17*
- SLA17-2 *SLA17(5)*
- SLA17(5)-2 *SLA18*
- SLA18-2 *SLA20*
- SLA20-2 *SLA20A*
- SLA20A-2 *SLA20B*
- SLA20B-2 *SLA20C*
- SLA20C-2 *SLA20D*
- SLA20D-2 *SLA22D*
- SLA24 *SLA24-2*
- SLA24(5) *SLA24(5)-2*
- TRA4 *TRA7*
- TRA7-2 *TRA8*
- TRA8-2 *TRA9*
- TRA9-2

**WALL MOUNT**

- WMA4 *WMA5*
- WMA6 *WMA8*
- WMA9D *WMA10*
- WMA11 *WMA12*
- WMA16 *WMA17*
- WMA18 *WMA20*
- WMA22D *WMA24*
- WMA37 *WMA38*
- WMA39

<sup>1</sup> Contact factory

<sup>2</sup> Not for AM color temperature

<sup>3</sup> Not for WIR, WIRSC or SCP control options

<sup>4</sup> Handheld commissioning tool is required to separately configure or adjust any number of SCP sensors.



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JOB \_\_\_\_\_  
 TYPE \_\_\_\_\_  
 NOTES \_\_\_\_\_

LUMINAIRE PERFORMANCE

Optical System	Secondary Lens or Shield	Distribution	Light Engine	Ordering Code												Drive Current (ma)	System Watts			
				3K			4K			5K										
				Delivered Lumens	Efficacy (lm/w)	Bug Rating	Delivered Lumens	Efficacy (lm/w)	Bug Rating	Delivered Lumens	Efficacy (lm/w)	Bug Rating								
MicroCore	No Lens (Standard)	TYPE 2	T2-32LED	6186	87	2	0	2	6561	92	2	0	2	6579	92	2	0	2	650	71
		TYPE 3	T3-32LED	6168	87	1	0	2	6542	92	1	0	2	6560	92	1	0	2		
		TYPE 4	T4-32LED	6081	86	1	0	2	6449	91	1	0	2	6467	91	1	0	2		
		TYPE 5	T5-32LED	6227	88	3	0	2	6505	93	3	0	2	6623	93	3	0	2		
	House Side Shield	TYPE 4	T4-32LED-...-HSS	4495	63	0	0	2	4768	67	0	0	2	4781	67	0	0	2	450	47
	No Lens (Standard)	TYPE 2	T2-32LED	4607	98	2	0	2	4830	103	2	0	2	4844	101	2	0	2		
		TYPE 3	T3-32LED	4570	95	1	0	1	4791	100	1	0	2	4805	101	1	0	2		
		TYPE 4	T4-32LED	4570	97	1	0	2	4791	102	1	0	2	4805	100	1	0	2		
	TYPE 5	T5-32LED	4602	98	3	0	1	4825	103	3	0	1	4839	101	3	0	1			
	House Side Shield	TYPE 4	T4-32LED-...-HSS	3366	72	0	0	2	3529	75	0	0	2	3539	74	0	0	2		

\* DesignLights Consortium® Qualified Product



ELECTRICAL CHARACTERISTICS

Optical System	Ordering Code		Driver										Dimming						
			LED Drive mA	System Watts	Line Voltage		Amps AC				Min. Power Factor	Max THD (%)	Operating Temp. Range	Dimming Range	Source current out of 0-10V purple wire		Absolute voltage range on 0-10V (+) purple wire		
					VAC	HZ	120	277	347	480					Min	Max	Min	Max	
MicroCore	Without Luminous Element	32LED	700	650	71	120	50/60	0.6	0.3	0.2	0.1	≥9	20	-30°C TO +40°C	10% TO 100%	0mA	1mA	0mA	1mA
			450	450	47			0.4	0.2	0.1	0.1								
	700		650	73	0.6			0.3	0.2	0.2									
	450		450	49	0.4			0.2	0.1	0.1									
	WND/SR/VSL/LUM																		

SENSOR DETECTION RANGE

		SENSOR MOUNTING HEIGHT											RATIO
		8'	10'	12'	14'	16'	18'	20'	25'	30'	35'	40'	
COVERAGE	SCP	20'	25'	30'	35'	40'	45'	50'	62.5'	75'	87.5'	100'	1:2.5
DIAMETER	WIRSC	16'	20'	24'	28'	32'	36'	40'	N/A	N/A	N/A	N/A	1:2

LED COLOR

	Ordering Code		
	3K	4K	5K
CCT Average	3000K	4000K	5000K
CRI Minimum	70	70	70
S/P Ratio	1.2	1.5	1.8

Consult factory for Amber, Turtle Friendly, Gulf Coast and Observatory applications.

TM-21 LIFETIME CALCULATION

Optical System	Ordering Code	Ambient Environment °C	Projected Lumen Maintenance (% vs. Khrs)					Reported L70
			15	25	50	60	100	
MicroCore	32LED	15	98	98	97	96	94	>96Khrs
		25	98	97	96	96	93	
		40	96	95	93	92	89	



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JOB \_\_\_\_\_  
 TYPE \_\_\_\_\_  
 NOTES \_\_\_\_\_

**SPECIFICATIONS**

**HOUSING**

- All housing components shall be die-cast aluminum, sealed with continuous silicone rubber gaskets.
- Hood and spacers shall be heavy gauge spun aluminum with hemmed edges for added rigidity.
- Luminous rings shall be clear acrylic with an internal lens.
- Standard configurations do not require a flat lens, optional lenses shall be tempered glass
- All internal and external hardware shall be stainless steel.
- Optical bezel finish shall match the luminaire housing.

**OPTICAL**

- Patent pending MicroCore™ LED modules shall independently aim each light emitting diode (LED) in both horizontal rotation and vertical tilt angle.
- LEDs shall be mounted to a metal printed circuit board assembly (PCBA) with a uniform conformal coating over the panel surface and electrical features.
- LED optics shall be clear injection molded PMMA acrylic.
- MicroCore™ PCBA and optic shall be sealed to a die-cast anodized aluminum heat sink with an injection molded silicone rubber gasket. IP66.
- Type 4 distribution with optional House Side Shield not available with clear or diffused glass lenses. Factory installed House Side Shield is optimized for Type 4 distribution and not recommended for use with Type 2 or 3 distribution and not available with type 5 distribution.

**ELECTRICAL**

- Luminaires shall have integral surge protection that shall be U.L. recognized and have a surge current rating of 10,000 Amps using the industry standard 8/20uSec wave and surge rating of 372J.
- Drivers shall be U.L. recognized with an inrush current maximum of <20.0 Amps maximum at 230VAC.
- Drivers shall not be compatible with current sourcing dimmers, consult factory for current list of known compatible dimming systems, approved dimmers include Lutron Diva AVTV, Lutron Nova NFTV and NTFTV.

**CONTROLS**

- Wireless enabled fixtures shall support bi-directional radio frequency (RF) communications utilizing IEEE 802.15.4 operating in the 2.4GHZ ISM band.
- Up to 1000' wireless range may be reduced by physical obstructions between fixtures.
- Motion sensor shall be flame retardant, UV resistant, impact resistant, recyclable polycarbonate.
- Motion Sensor shall use passive infrared (PIR) sensing technology that reacts to changes in infrared energy (moving body heat) within the coverage area. Careful consideration must be given to obstructions that may block the sensor's line of sight.
- Factory default settings for SCP option shall be:
  - High mode: 10V
  - Low mode: 1V
  - Ramp-up rate: disabled
  - Fade-down rate: disabled
  - Photocell: Off
  - Sensitivity: Full
  - Time Delay: Fade to low: 5 minutes
  - Time Delay: Fade to off: 1 hour

**PHOTOCELL / EGRESS ADAPTERS**

- Adapter(s) shall slip over a 4"/100mm DIA. pole with the luminaire or arm slipping over the adapter to add a total of 4.5"/114mm to the overall height. Adapter(s) shall be prewired, independently rotatable 359°, and have a cast access cover with an integral lens and lanyard.
- Photocell adapter shall include an internal twist lock receptacle. Photocell by others.
- Egress adapter shall require an auxiliary 120 volt supply for operation of an integral MR16 lamp in the event of emergency. The lamp may be aimed and locked into position with an adjustment range of 15°-45°. Adapter shall have a socket that accepts miniature bi-pin MR16 lamps up to 50 watts, lamp by others.

**SERVICING**

- Luminaire shall have tool-less service access to the gear compartment. Driver and surge suppressor shall be mounted to a prewired tray with quick disconnects that may be removed from the gear compartment.

**ARM MOUNTING**

- Luminaire shall be attached to the arm assembly with three stainless steel bolts. The connection shall be sealed with a silicone compression gasket.
- Post top arms and brackets shall slip over a 4"/100mm O.D. or a 5"/127mm as configured and secured with six stainless steel set screws.
- Wall mounted arms and brackets shall require mounting hardware by others.

**FINISH**

- Luminaire finish shall consist of a five stage pretreatment regimen with a polymer primer sealer, oven dry off, and top coated with a thermoset super TGIC polyester powder coat finish.
- Luminaire finish shall meet the AAMA 605.2 performance specification which includes passing a 3000 hour salt spray test for corrosion resistance.

**CERTIFICATION**

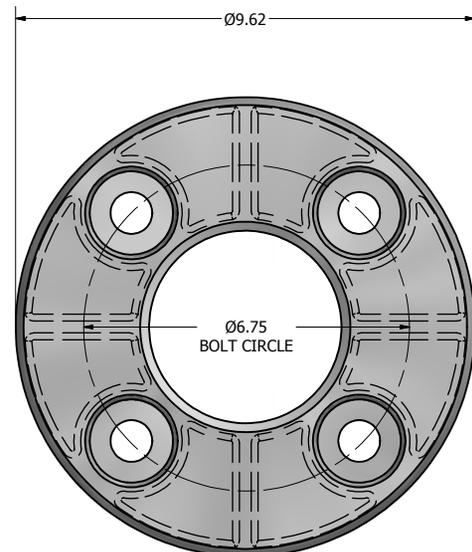
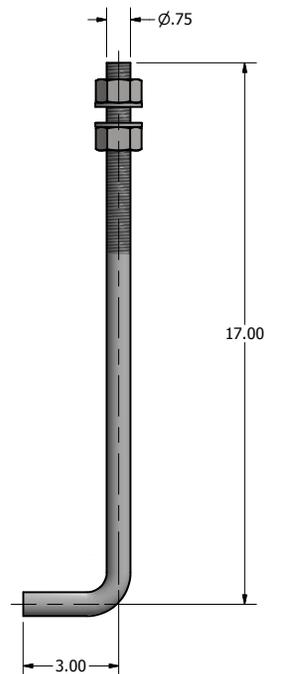
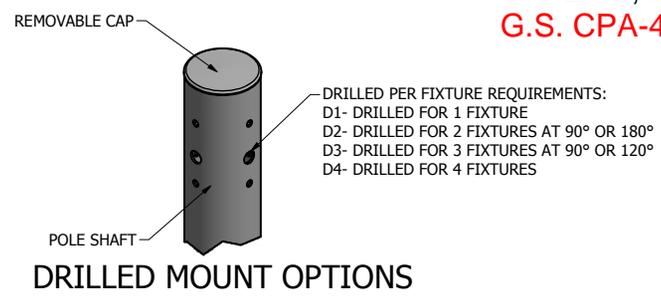
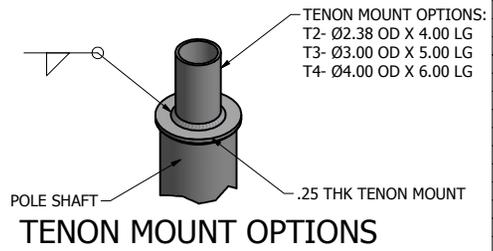
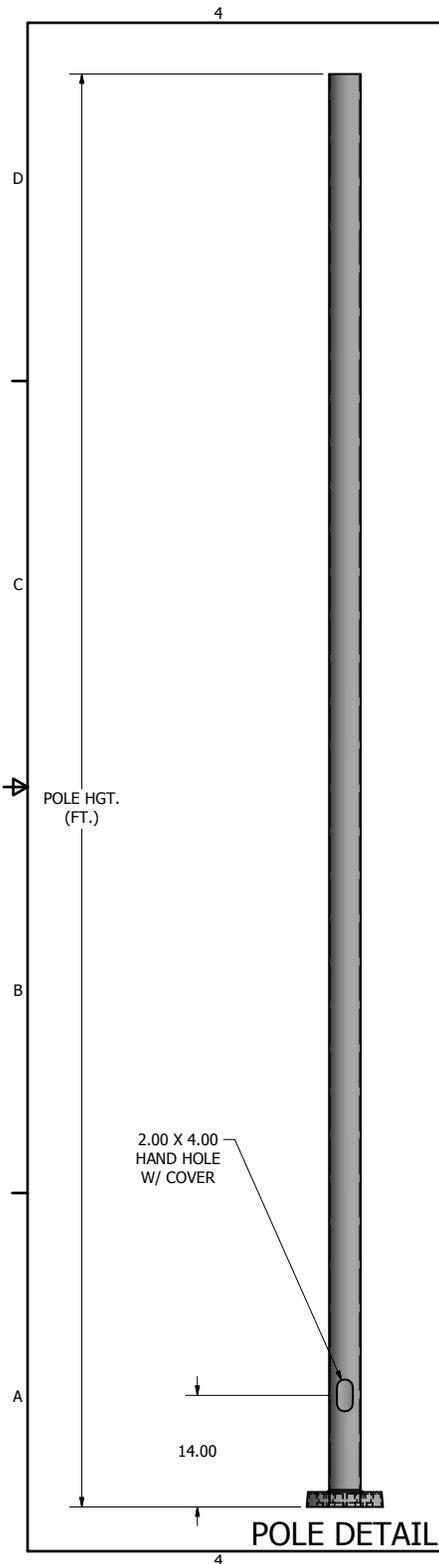
- Luminaire shall be listed with ETL for outdoor, wet location use, UL1598, UL 8750 and Canadian CSA Std. C22.2 no.250.

**WARRANTY / TERMS AND CONDITIONS OF SALE**

Download: <http://www.hubbellighting.com/resources/warranty/>



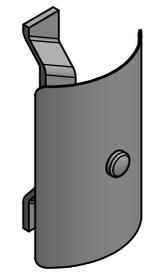
JOB	_____
TYPE	_____
NOTES	_____



POLE SPECIFICATIONS				
NO.	COMPONENT	MAT'L DESIGNATION		
1.	POLE SHAFT	6063-T6		
2.	BASE PLATE	A356-T6		
3.	ANCHOR BOLTS	F1554 GR. 55		
4.	GALVANIZED HARDWARE	A153		
FINISH SPECIFICATIONS				
POLES SHALL HAVE A POLYESTER POWDER COAT FINISH IN A STANDARD COLOR.				
POLE DIMENSIONS				
POLE HGT. (FT.)	TOP DIA. (IN.)	BOTTOM DIA. (IN.)	GAGE	MTG. HGT. (FT.)
12'	4.00	4.00	.125	12'
BASE PLATE DIMENSIONS				
BOLT CIRCLE (IN.)	BASE PLATE DIM. (IN.)	BOLT HOLE (IN.)	PLATE THK. (IN.)	
6.75	9.62 DIA	.88	.75	
ANCHOR BOLT DIMENSIONS				
ANCHOR BOLT DIA. (IN.)		ANCHOR BOLT LENGTH (IN.)		
.75		20.00		
ALLOWABLE WIND LOADING (SQ. FT.)				
WIND*	80 MPH	90 MPH	100 MPH	120 MPH
EPA	6.6	5.0	3.7	2.3

\*WITH 1.3 GUST FACTOR

**TYPE P2, P4, P5 POLE**  
**G.S. CPA-4-4012-12**



SOME GEOGRAPHICAL AREAS HAVE SPECIAL WIND CONDITIONS THAT CAN CREATE WIND INDUCED VIBRATIONS CAUSING A FATIGUE PROBLEM. NO METHOD HAS YET BEEN FOUND FOR PREVENTING OR REDUCING Destructive LIGHTNING POLE FAILURE CONDITIONS ARE REQUIRED. CANNOT BE GUARANTEED AGAINST, AND ARE THE RESPONSIBILITY OF A LOCAL SITE ENGINEER.

TITLE:

CATALOG:

DWG NO: CPA-4-4012-12

SIZE: C

SHEET 1 OF 1

---

23171 Groesbeck Hwy.  
 Warren, MI 48089  
 P: (586) 774-6105 | F: (586) 774-5706  
 www.generalstructuresinc.com

**GENERAL STRUCTURES INC.**  
 A DOW COMPANY

---

DRAWN: M. HARVALA

CHECKED:

REVISION:

APPROVED:

QUOTE:

S.O.#

REF:

DATE:

SCALE: NONE

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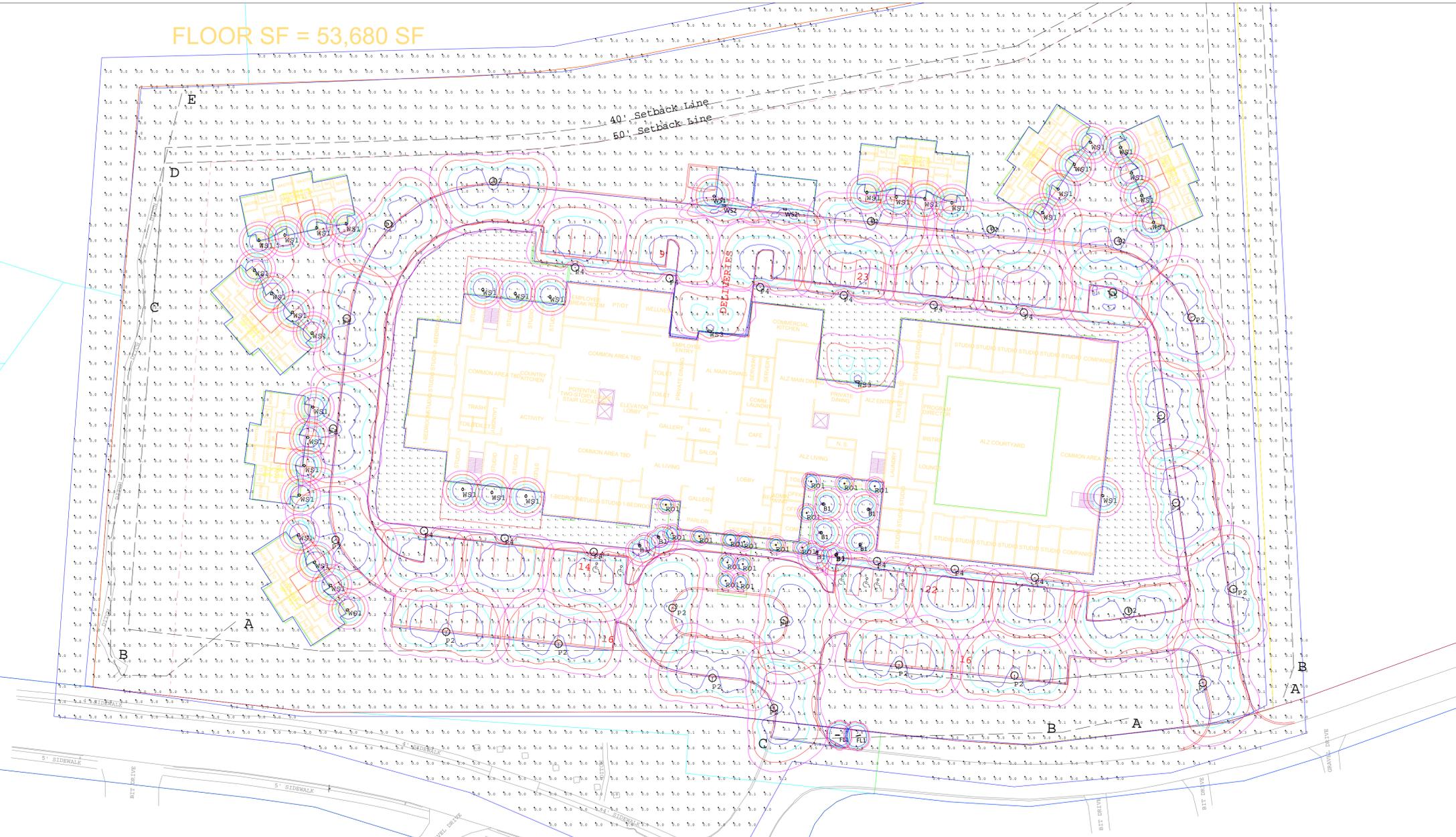
270°

180°

90°

0° HANDHOLE

FLOOR SF = 53,680 SF



a YUSEN company  
 www.vanguardlighting.com  
 44 sixth road  
 woburn, ma 01801  
 tel: 781 935 8500  
 fax: 781 569 0051

#	Date	Comments
Rev 1	with greenhouse	

#	Date	Comments

Drawn By: RK  
 Date: 6/14/2016  
 Scale:   
**Millis Preliminary**

Symbol	Qty	Label	Total Lamp Lumens	LLF	Description
⊙	10	B1	N.A.	0.900	Spaulding FN2-12LU-3K-DB
⊞	2	WS3	N.A.	0.880	HUBBELL LNC2-12LU-3K-4-BZ
⊖	22	P2	N.A.	0.880	Architectural Area Lighting UCM-ANG-T2-32LED-3K-700-DB/SLA8D-DB/PR4-R14-125-DB
⊙	12	P4	N.A.	0.880	Architectural Area Lighting UCM-ANG-T4-32LED-3K-700-HSS-DB/SLA8D-DB/PR4-R14-125-
⊖	1	P5	N.A.	0.880	Architectural Area Lighting UCM-ANG-T5-32LED-3K-450--DB/SLA8D-DB/PR4-R14-125-DB
⊙	15	RO1	533	0.880	Liton LRLDH402W-B25/LHLDH4
⊙	36	WS1	942.9	1.000	Modern Forms WS-W9201-WT
⊞	2	WS2	N.A.	0.900	HUBBELL LNC-5LU-3K-2-BZ
⊞	2	FL1	N.A.	1.000	Beacon Products FL-1-12NB-25-3K-5x3-UNV-GS-VS-BZ

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
lawns_Planar	Illuminance	Fc	0.18	2.2	0.0	N.A.	N.A.
Roadways and parking_Planar	Illuminance	Fc	0.58	2.3	0.1	5.80	23.00
Site_Planar	Illuminance	Fc	0.16	2.1	0.0	N.A.	N.A.
Spill plane_Planar	Illuminance	Fc	0.04	3.7	0.0	N.A.	N.A.
walkways inner_Planar	Illuminance	Fc	0.32	1.3	0.0	N.A.	N.A.