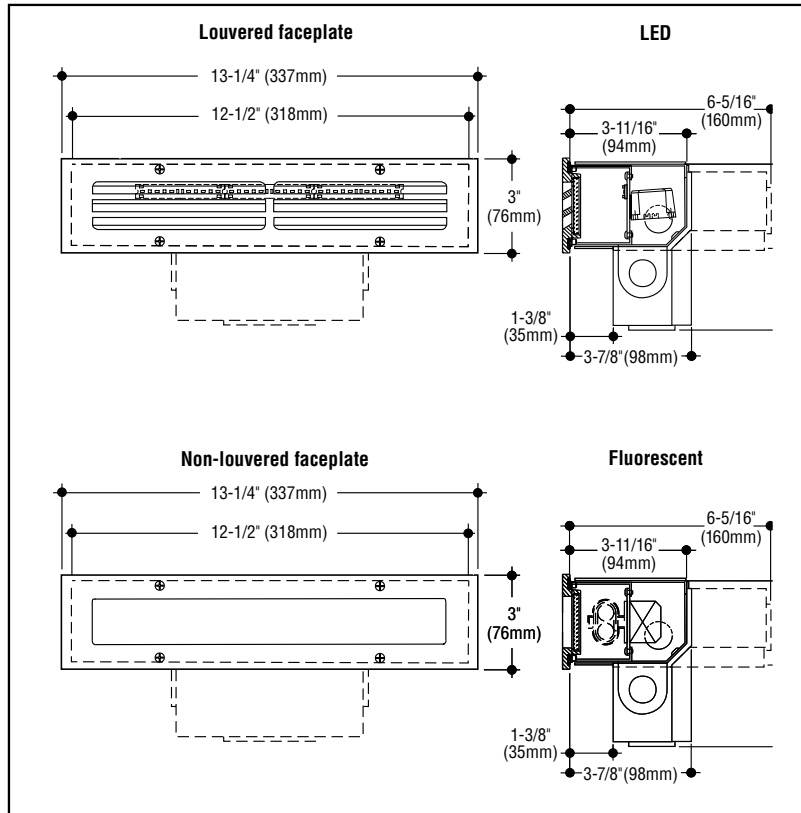


# COLE LIGHTING SUBMITTAL

**JOB NAME** \_\_\_\_\_

**Type** \_\_\_\_\_

**CATALOG NUMBER** \_\_\_\_\_

**Steplites**


## 2158 SERIES

### SPECIFICATIONS

#### Construction

- Fixture housing is constructed from die-formed 16 gauge electro-galvanized steel finished with a white polyester coating
- Faceplate is cast aluminum with metallic aluminum polyester coating or 3/16" stainless steel with brushed finish
- Faceplate is retained by stainless steel screws
- Diffuser is frosted tempered glass set in silicone sealant
- Reflector is constructed of white die-formed aluminum
- Optional junction box is cast aluminum with polyester coating
- cETLus listed, suitable for wet locations in any wall construction.

#### Electrical

- Fixture is wired with high performance LEDs or compact fluorescent lamps. Drivers and electronic ballast are universal voltage
- Housing provided with 1/2" conduit knockout on each side, suitable for 4 wire thru-wiring, 2 in 2 out
- Optional junction box allows 8 wire thru-wiring, 4 in 4 out. Provided with two 1/2" tapped conduit entrances in the bottom and one 1/2" tapped conduit entrance in each side.

#### Mounting

Housing has flange with holes for mounting.

### Catalog Numbers

#### Lamps

LED 4.5W, (377 lm @ 3000°K)  
 LED 10.8W, (645 lm @ 3000°K)  
 One 9W, (CFT9W/2G7) compact fluorescent  
 One 13W, (CFT13W/2GX7) compact fluorescent  
 One 18W, (FT18W/2G11) compact fluorescent

#### Faceplate

##### Alum. Louver

☒ L2158W  
☐ L2158W-HO  
☐ F2158W-9  
☐ F2158W-13  
☐ F2158W-18

##### Alum. Non-Louver

☐ L2158GW  
☐ L2158GW-HO  
☐ F2158GW-9  
☐ F2158GW-13  
☐ F2158GW-18

##### S.S. Louver

☐ L2158W-N  
☐ L2158W-N-HO  
☐ F2158W-N-9  
☐ F2158W-N-13  
☐ F2158W-N-18

##### S.S. Non-Louver

☐ L2158GW-N  
☐ L2158GW-N-HO  
☐ F2158GW-N-9  
☐ F2158GW-N-13  
☐ F2158GW-N-18

### Options

**Junction box:** Bottom or back mounted as required for feed-thru. Add suffix ☐ -J.

**Tamperproof screws:** Socket head faceplate screws. Add suffix ☐ -TP.

**Dimming:** Universal voltage 0-10V driver. Add suffix ☐ -DIM.

**LED colors:** 4000°K (438 lm), -HO (747 lm). Add suffix ☐ -4K.

Amber. Add suffix ☐ -AMB.

Blue. Add suffix ☐ -BLU.

**Voltage:** 277 ballast. Add suffix ☐ -277.

**Alternate faceplate color:** Black or white. Add suffix ☐ -BLK or ☐ -WHT.

**Bronze faceplate:** Satin finished, clear coated faceplate. Add suffix ☐ -B.

**Opal glass diffuser:** Tempered. Add suffix ☐ -OPL.

#### How to Specify

1. Select catalog number with desired features.
2. Add suffixes for options required to meet job conditions.

**FINISH TO BE SELECTED  
BY THE ARCHITECT.**



**C.W. Cole & Company, Inc.**  
 2560 N. Rosemead Boulevard  
 South El Monte, CA 91733-1593

Tel. (626) 443-2473

Fax (626) 443-9253

info@colelighting.com

[www.colelighting.com](http://www.colelighting.com)



## FEATURES & SPECIFICATIONS

**INTENDED USE** — Intended for low to medium mounting heights where dust, dirt, humidity or moisture are present. Ideal for canopies, dock areas, wastewater treatment, refrigerated areas, food processing and other non-hazardous environments. Certain airborne contaminants can diminish integrity of acrylic. [Click here for Acrylic Environmental Compatibility table for suitable uses.](#)

**CONSTRUCTION** — Housing formed from impact resistant, UV stabilized, fiberglass reinforced polyester with cold-rolled steel enclosed wireway. Poured in place gasketing provides a seal between housing and diffuser. Captive, corrosion-resistant cam-action latches secure the diffuser; six on 4' units, and ten on 8' units. Stainless steel latches available.

Finish: Painted parts pretreated with a five-stage iron-phosphate process to ensure superior paint adhesion and corrosion resistance, then finished with a high-gloss, baked white enamel.

**OPTICS** — High-impact acrylic diffuser with a stippled interior surface to spread lamp image.

PLEASE NOTE: The standard 4' diffuser is 2-1/4" deep, and the standard 8' or 48T8HO diffuser is 3" deep. To order the 4' diffuser so that it matches the depth of the 8' diffuser, order the ARDP option. The 8' diffuser is not available in the 2-1/4" depth.

**ELECTRICAL** — Thermally protected, resetting, Class P, HPF, non-PCB, UL Listed and CSA Certified ballast is standard.

AWM, TFN, THHN wire throughout, rated for required temperatures.

**INSTALLATION** — For unit or row installations, surface (ceiling or wall) or suspended mounting. Wall mounting; horizontal orientation only for use in damp locations. Stainless steel surface spring-mounting brackets standard (2 included).

**LISTINGS** — 120V, 277V and MVOLT are UL Listed and CSA Certified (standard). 347V is CSA Certified (see Options). NOM Certified (see Options). Listed for 25°C ambient and wet locations for covered-ceiling applications. IP65 rated. Optional IP67 rating available (supplied with 8 latches on 4' units and 14 latches for 8' units; covered ceiling not required). Compliance to FDA/USDA requirements and/or NSF splash-zone certification.

**WARRANTY** — 1-year limited warranty. Complete warranty terms located at

[www.acuitybrands.com/CustomerResources/Terms\\_and\\_conditions.aspx](http://www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx)

Actual performance may differ as a result of end-user environment and application.

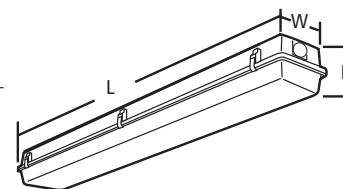
Note: Specifications subject to change without notice.

Enclosed and Gasketed Industrial



Specifications	
Length:	50 (127.0) 98 (248.9)
Width:	8-1/8 (20.6)
Fixture depth:	5-5/8 (14.3) (deep lens) 4-3/4 (12.1) (standard lens)

All dimensions are shown in inches (centimeters) unless otherwise noted.



### ORDERING INFORMATION

Lead times will vary depending on options selected. Consult with your sales representative.

**Example:** DMW 2 32 MVOLT GEB10IS

DMW	2	32		MVOLT	GEB10IS	
Series	Number of lamps	Lamp type	Diffuser	Voltage	Ballast	Options
DMW	1	28T5 28W T5 (48") <sup>3</sup>	(blank)	120	GEB10IS	ELDW Emergency battery pack (nominal 300 lumens) <sup>7</sup>
Wet location	2	32 32W T8 (48")	2-1/4" Deep high-impact acrylic (50% DR)	277		ELSDW Emergency battery pack (nominal 500 lumens) <sup>7</sup>
For tandem double-length unit, add prefix T. Example: TDMW <sup>1</sup>	3 <sup>2</sup>	48T8HO 44W T8HO (48")	3" Deep high-impact acrylic (50% DR) <sup>5</sup>	347		EL6DW Emergency battery pack (nominal 600 lumens) <sup>7</sup>
		54T5HO 54W T5HO (48") <sup>4</sup>	ARDP	MVOLT	GEB10RS	EL14DW Emergency battery pack (nominal 1400 lumens) <sup>7</sup>
		96T8 59W T8 slimline (96")		others available		GLR Internal fast-blow fusing <sup>8</sup>
		96T8HO 86W T8 380mA (96")				GMF Internal slow-blow fusing <sup>8</sup>
					GEB10PS	RIF1 Radio interference filter, one per fixture
						STSL Stainless steel latches
					GEB10PS90	WLF Wet location fittings (one pair; installed, top, for use with 1/2" rigid conduit)
						IP67 IP67 rated; requires 8 latches for 4' fixtures and 14 latches for 8' fixtures
						CSA CSA certified (only required for 347V)
						NOM NOM certified
						CS89 6' white cord, 16/3, no plug, wet location
						CS88 6' Brad Harrison 16/3 cord and straight blade plug set wet location <sup>8</sup>
						MSI_ Wet location occupancy sensor pre-wired <sup>8,9</sup>
						DL Damp location <sup>10</sup>

#### Accessories: Order as separate catalog number.

BCD	Bracket for hanger chain mounting. Two per package <sup>11</sup>
HC36	Chain hangers (1 pair, 36" long); Requires BCD
WLF	Wet location fittings (1 pair, not installed, for use with 1/2" rigid conduit)
DMW/VRISMB	Surface mounting brackets (pair) <sup>12</sup>

#### Notes

- Not available with 96T8 or 96T8HO.
- 32W T8 and 28 T5 lamps only.
- Must specify GEB10PS ballast.
- Must specify GEB10PS90 ballast.
- ARDP standard on 48T8HO and 8' fixtures.
- Available 347V T8 only.
- Must specify voltage; 120 or 277V only.
- Must specify voltage. Not available with MVOLT.
- For mounting up to 8' specify MS18; for mounting up to 20' specify MS120.
- DL option required for batty packs, sensors, and cord sets that are not wet location listed.
- For stainless steel, specify STS (ex: BCD STS).
- Brackets ship standard with fixture. For replacement purposes only.

## DMW Instant, Programmed or Rapid Start

### MOUNTING DATA

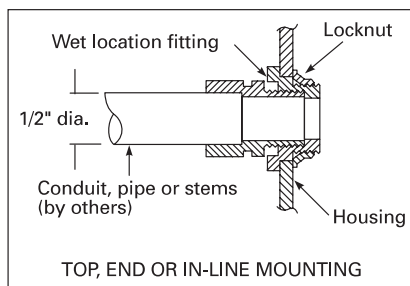
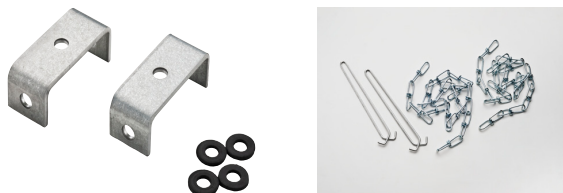
For unit or row installation, surface (ceiling or wall) or suspended mounting.

DMW — Drill holes through housing and channel at appropriate locations. Includes gasketed wet location fittings on ends for power feeding/mounting. Fitting is threaded for 1/2" rigid conduit (optional WLF for top mounting). Attach to surface using fasteners and sealing washers (by others) appropriate for ceiling materials.

Unit installation — Minimum of two hangers required.

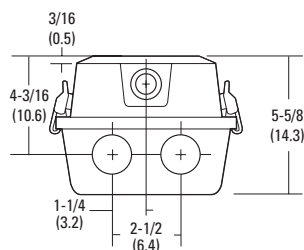
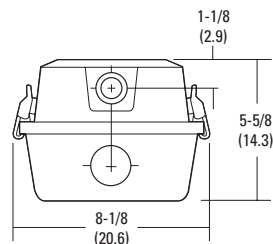
Row installation — Minimum of two hangers required. Recommended 1/2" nipple with union (by others) for DMW.

### MOUNTING ACCESSORIES

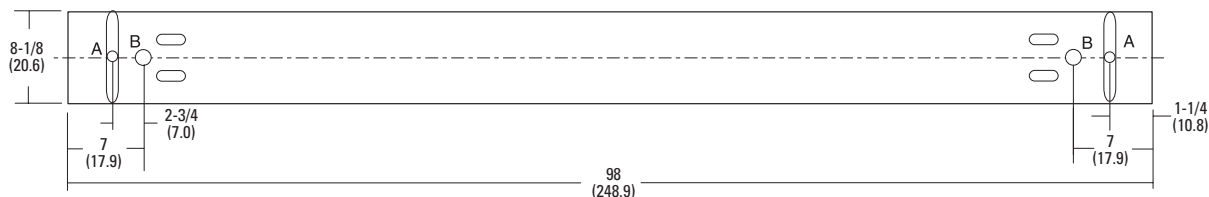
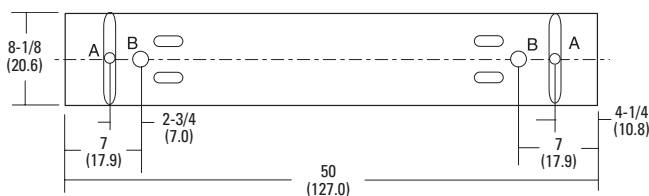


### DIMENSIONS

Inches (centimeters). Subject to change without notice.



A = 11/16 (17) Dia.  
B = 1-1/8 (29) Dia.  
Recommended mounting locations  
(field drilling required)



### PHOTOMETRICS

See [www.lithonia.com](http://www.lithonia.com).



## FEATURES & SPECIFICATIONS

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AWM, TFN, THHN wire throughout, rated for required temperatures.

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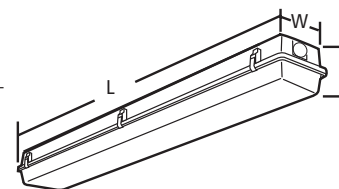
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Enclosed and Gasketed Industrial



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**Example:** DMW 2 32 MVOLT GEB10IS

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Series	Number of lamps	Lamp type	Diffuser	Voltage	Ballast	Options
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		54T5HO 54W T5HO (48") <sup>4</sup>		MVOLT	GEB10RS	EL14DW Emergency battery pack (nominal 1400 lumens) <sup>7</sup>
		96T8 59W T8 slimline (96")		others available		GLR Internal fast-blow fusing <sup>8</sup>
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					GEB10PS	RIF1 Radio interference filter, one per fixture
						STSL Stainless steel latches
					GEB10PS90	WLF Wet location fittings (one pair; installed, top, for use with 1/2" rigid conduit)
						IP67 IP67 rated; requires 8 latches for 4' fixtures and 14 latches for 8' fixtures
						CSA CSA certified (only required for 347V)
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						CS89 6' white cord, 16/3, no plug, wet location
						CS88 6' Brad Harrison 16/3 cord and straight blade plug set wet location <sup>8</sup>
						MSI_ Wet location occupancy sensor pre-wired <sup>8,9</sup>
						DL Damp location <sup>10</sup>

## Accessories: Order as separate catalog number.

BCD	Bracket for hanger chain mounting. Two per package <sup>11</sup>
HC36	Chain hangers (1 pair, 36" long); Requires BCD
WLF	Wet location fittings (1 pair, not installed, for use with 1/2" rigid conduit)
DMW/VRISMB	Surface mounting brackets (pair) <sup>12</sup>

## Notes

- Not available with 96T8 or 96T8HO.
- 32W T8 and 28 T5 lamps only.
- Must specify GEB10PS ballast.
- Must specify GEB10PS90 ballast.
- ARDP standard on 48T8HO and 8' fixtures.
- Available 347V T8 only.
- Must specify voltage; 120 or 277V only.
- Must specify voltage. Not available with MVOLT.
- For mounting up to 8' specify MSI8; for mounting up to 20' specify MSI20.
- DL option required for batty packs, sensors, and cord sets that are not wet location listed.
- For stainless steel, specify STS (ex: BCD STS).
- Brackets ship standard with fixture. For replacement purposes only.



Project 15-21288-1  
Miami U Athlete Performance Center  
Submitted By  
KING LIGHTING INC

Catalog Number  
DMW 2 32 277 GEB10IS EL14DW  
Notes

Type  
**W2E**

## DMW Instant, Programmed or Rapid Start

### MOUNTING DATA

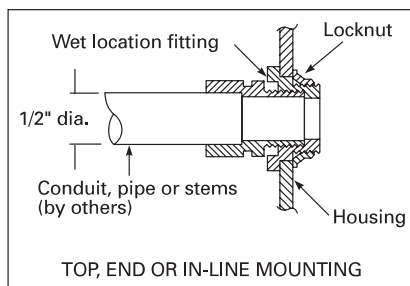
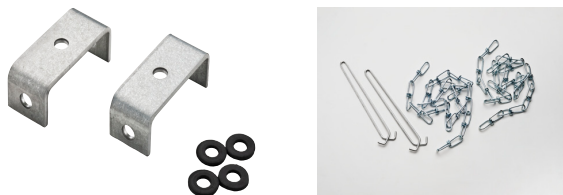
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DMW — Drill holes through housing and channel at appropriate locations. Includes gasketed wet location fittings on ends for power feeding/mounting. Fitting is threaded for 1/2" rigid conduit (optional WLF for top mounting). Attach to surface using fasteners and sealing washers (by others) appropriate for ceiling materials.

Unit installation — Minimum of two hangers required.

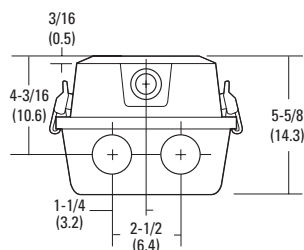
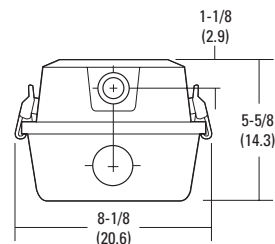
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### MOUNTING ACCESSORIES

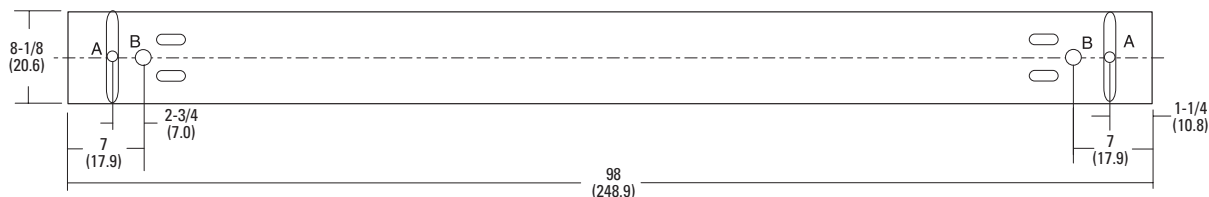
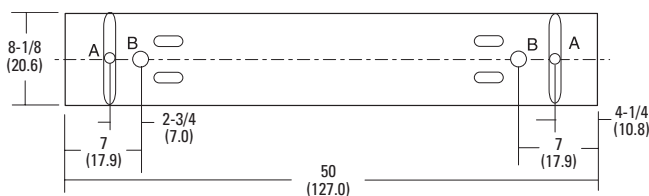


### DIMENSIONS

Inches (centimeters). Subject to change without notice.



A = 11/16 (17) Dia.  
B = 1-1/8 (29) Dia.  
Recommended mounting locations  
(field drilling required)



### PHOTOMETRICS

See [www.lithonia.com](http://www.lithonia.com).

**Job Name:**Miami U - Gunlock Family Athletic  
Performance Center - LEE16-25610-8**Catalog Number:**

AEW8070-L38.4W-277V-DML

**Notes:****Type:****W3**

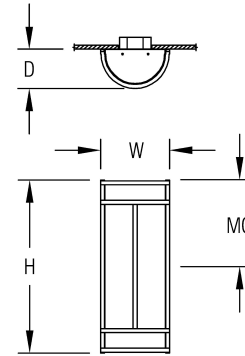
LEE16-25610

**ADVENT** SPECIFICATION SHEET**HARBOR EXTERIOR WALL  
AEW8070****WET****EMR**

Accenting the Harbor half cylinder sconce are two 1/4" x 1/2" vertical and one horizontal decorative bars. The clean lines of this exterior sconce are perfect for multiple applications including offices, retail buildings and health care facilities. Choose from a palette of both painted and metal finishes.

JOB NAME \_\_\_\_\_

TYPE \_\_\_\_\_

**Dimensions**

W	H	D	MC
9.0 in	22.0 in	5.0 in	11.0 in
229 mm	559 mm	127 mm	279 mm

**Weight**

Hanging weight: 25.0 lb (11.4 kg).

**Features**

- Opal top and bottom lens protects fixture and provides uniform illumination.
- Integral power supply included with low wattage LED lamping. Remote power supply required with high wattage LED lamping.
- VAN option provides solid end caps for a fully enclosed fixture.
- Ballast has minimum start temperature of 0° F, suitable for most exterior applications.
- Interior family fixtures available to carry a consistent lighting design throughout a project.
- Formed opal acrylic lens.

**Technical Notes****Electrical**

- ETL listed to UL standards (US and Canada) for use in wet locations.
- Fluorescent versions have integral electronic ballasts utilizing the latest energy-saving technology, providing prolonged lamp life and maintaining consistent color.
- Advent uses strict quality guidelines in LED selection to ensure the white LED's we use meet or exceed ANSI Binning Standards (ANSI C78.733).

**Lamping/lamp**


- Lamps included, with the exception of T8, T5 and incandescent.
- Published LED luminaire wattages are calculated using a typical power supply efficiency of 89%. Exact wattages may vary based on application.
- Fluorescent lamps are 3500K unless specified.
- L70 life = 50,000 + hours.

**Mounting**

- Mounts to standard 4" octagonal junction box.

**Additional Documents**


[Color Chart \(http://www.specAdvent.com/pdfs/advent\\_color\\_chart.pdf\)](http://www.specAdvent.com/pdfs/advent_color_chart.pdf)

Submitted by LEESMAN LIGHTING		<b>Catalog Number:</b> AEW8070-L38.4W-277V-DML	<b>Type:</b> <b>W3</b>
	<b>Job Name:</b> Miami U - Gunlock Family Athletic Performance Center - LEE16-25610-8	<b>Notes:</b>	LEE16-25610

## ADVENT SPECIFICATION SHEET

MODEL NUMBER	LIGHT SOURCE	FINISH	VOLTAGE	LAMP OPTIONS	OPTIONS
<b>AEW8070</b>					

Not all options are available in all configurations, consult factory for details.

Light Source		Photometry	Voltage		Options	
L21.5W	White 21.5W 3.2W/6" LED Light Engine Delivered Lumens: 1,419	22IN COLUMN WS LED LOW	120V	120 Volt	VAN01 <sup>4</sup>	Vanity Vertical Mount
			120-277V	Universal Voltage	VAN02 <sup>4</sup>	Vanity Horizontal Mount
L43.0W <sup>1</sup>	White 43.0W 6.4W/6" LED Light Engine Delivered Lumens: 2,839	22IN COLUMN WS LED HIGH	<b>277V</b>	<b>277 Volt</b>		
<b>L38.4W</b>			347V	347 Volt		
1F24	1FT24W/2G11		Lamp Options			
1F39	1FT39W/2G11	LTL04220	3000K	3000K Cct		
2F13	2CFQ13W/G24q	LTL04220	<b>DML <sup>3</sup></b>	<b>0-10V Dimming</b>		
2F26	2CFQ26W/G24q	LTL04220	3500K	3500K Cct		
3F13	3CFQ13W/G24q	LTL04220	4000K	4000K Cct		
2N25	 <sup>2</sup> 2INC25W/A19	LTL04220	EMR	Emergency Ballast Remote		

<sup>1</sup> Remote Power Supply Only.

<sup>2</sup> Incandescent/Quartz Lamp(s) Not Included

<sup>3</sup> DML with LED light engine only.

<sup>4</sup> Solid end caps standard.

**FINISH TO BE SELECTED  
BY THE ARCHITECT.**

**SELECT FINISH**

### Painted Finishes

PT01 SuperWhite	PT07 Light Taupe	PT13 Warm Gray	PT19 Blue	PT29 Red Brass	PT42 Sky Blue	PT48 Brass
PT02 White	PT08 Medium Taupe	PT14 Light Gray	PT20 Dark Green	PT31 Medium Bronze	PT43 Teal	PT49 Bronze
PT03 Morning Light	PT09 Medium Gray	PT15 Sage	PT21 Pearl White	PT32 Dark Bronze	PT44 Green	
PT04 Warm White	PT10 Dark Gray	PT16 Spruce	PT22 Platinum	PT33 Dark Blue	PT45 Purple	
PT05 Putty	PT11 Black	PT17 Red	PT27 Deep Copper	PT40 Yellow	PT46 Aluminum	
PT06 Warm Beige	PT12 Dark Chocolate	PT18 Deep Red	PT28 Dark Stainless	PT41 Orange	PT47 Deep Red Brass	

### Metal and Plated Finishes

BAL Brushed Aluminum	DTBR Dark Tint Brass	SNBR Satin Nickel Brass
BBR Brushed Brass	PBR Polished Brass	CU Natural Copper
ATBR Antique Tinted Brass	CPBR Chrome Plated Polished Brass	BCU Brushed Solid Copper



Submitted by Innovative Lighting Solutions



**Job Name:**  
MIAMI GUNLOCK FAMILY ATHLETE  
PERFORMANCE CENTER

**Catalog Number:**

AFL-300-4100K-60X135-90/305V-BL  
CTAX1

Notes:

**Type:**

**W4**

ILS16-13413



# ARCHITECTURAL FLOOD LED SERIES

300W & 400W

**SPECGRADE**  
LED



## ARCHITECTURAL FLOOD


**AVAILABLE IN  
80W TO 1000W**

**EXPECTED LIFE  
OVER 100,000 HRS.**

**REVIT & IES FILES  
AVAILABLE AT WWW.  
SPECGRADLED.COM**

**RATED IP 65**

**EASY ACCESS  
DRIVER HOUSING**

**TEMPERED  
GLASS**

**RGBW INFINITE  
COLOR RANGE**  
 call for details

**480V OPTIONAL  
AFL 100**

(Integral driver)

**AFL 200, 300, 400, 500,  
600, 800 & 1000**

(Step down transformer - as shown)

**SIX OPTICS**

Advanced LED technology and proprietary optics that distribute the light to the target area in a prescribed manner. This creates sites with incredible uniformity and visual comfort while requiring fewer lumens

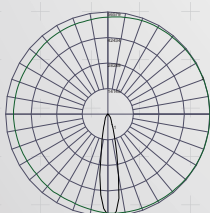
 15° x 15°  
30° x 30°

 40° x 40°  
60° x 60°

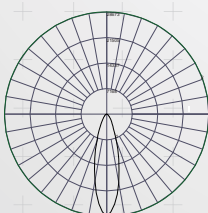
 60° x 135°  
85° x 135°

**ADJUSTABLE  
TRUNION**
**PATENTED THERMAL MANAGEMENT**

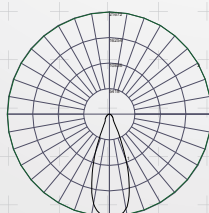
The proprietary patented thermal management design, ensures low LED junction temperature while maintaining its extremely light weight. It has become the go-to series engineers and specifiers for exterior and interior use

**PHOTOMETRICS**

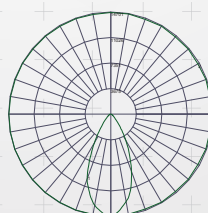
15° x 15°



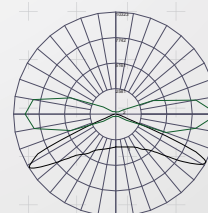
30° x 30°



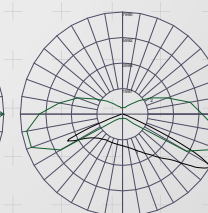
40° x 40°



60° x 60°



60° x 135°



85° x 135°

**Job Name:**MIAMI GUNLOCK FAMILY ATHLETE  
PERFORMANCE CENTER**Catalog Number:**AFL-300-4100K-60X135-90/305V-BL  
CTAX1

Notes:

**Type:****W4**

ILS16-13413

# 300W AFL FLOOD

# 400W AFL FLOOD

REPLACES UP TO A  
1000-WATT METAL HALIDE FIXTURE

**SPECIFICATIONS**

Expected life: over 100,000 hrs.

Rating: IP 65

Color Rendering Index (CRI): &gt;80

Operating temp: -22°F-122°F

Power factor: &gt;0.95%

Input line voltage: 120-277 VAC

480V available

(external step down transformer)

Input line frequency: 50/60 Hz

LED efficiency:

- warm white, 91 lm/w

- natural white, 104 lm/w

- cool white, 117 lm/w

**MISC SPECS**

LED Chips: Lumileds

Driver: UL approved Meanwell

Dimmable: 0-10V optional

Occupancy sensor: optional

Hanging weight: 38 lbs./42 lbs.

EPA: 2.9

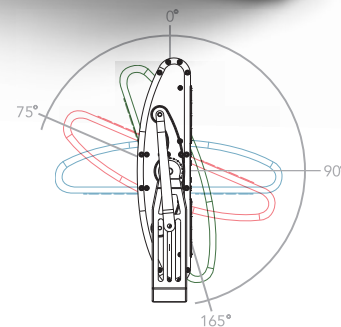
**MATERIALS**

Housing: aluminum

Gasket: neoprene

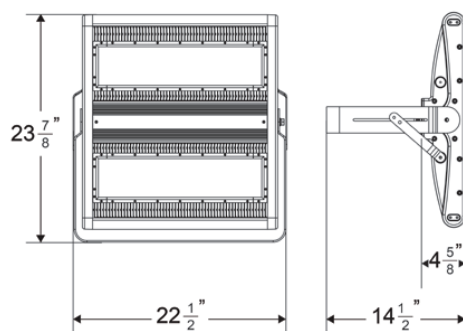
Lens: tempered glass

Finish: Powder coated

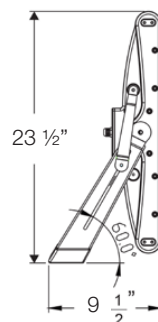


↑ STANDARD YOKE MOUNTING  
WITH ADJUSTABLE PIVOT LIMITS

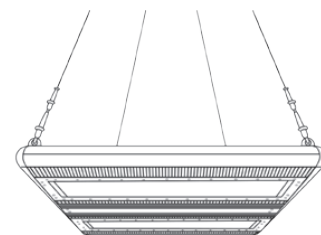
↓ DIMENSIONS



↓ OPTIONAL: TILT  
MOUNTING BRACKET



↓ OPTIONAL: CABLE MOUNT AVAILABLE



↓ AFL OPTIONAL EQUIPMENT



**OS:** Occupancy  
sensor for wet  
location (IP65)



**RGBW:**  
Wired  
Controller  
(Call us)



**RGBW:**  
Wireless  
Controllers  
(Call us)

↓ PHOTOCELLS



**APC-1:**  
110-130V  
**APC-2:**  
208-277V



Slipfitter for 2-3/8" tenon size  
**CTAX-1:** 80W, 100W, 200W  
**CTAX-2:** 300W and over



**BD:**  
Barn  
Doors



**BPC-1:**  
110-130V  
**BPC-2:**  
208-277V



**Job Name:**MIAMI GUNLOCK FAMILY ATHLETE  
PERFORMANCE CENTER**Catalog Number:**AFL-300-4100K-60X135-90/305V-BL  
CTAX1

Notes:

**Type:****W4**

ILS16-13413

AFL: 300W | 400W FLOOD

AFL 400



AFL 400



## COLOR TEMPERATURES/DELIVERED LUMENS

## PRODUCT SPECIFICATIONS

SERIES	WATTS	SYSTEM POWER [W]	WW 3500K	NW 4000K	CW 5000K	CW 6000K	BEAM	INPUT VOLT.	FINISH	OPTIONS/ACCESSORIES	
AFL	300W	330W	30318 lm	32002 lm	33681 lm	35147 lm	15°x15°	90-305V	BL BLACK	CTAX-1	SLIP FITTER
	400W	440W	39771 lm	41903 lm	44190 lm	46910 lm	30°x30°	480V (OPT) EXTERNAL STEP DOWN TRANS- FORMER	WT WHITE	OS	OCCUPANCY SENSOR
							60°x60°		RAL	BPC-1	PHOTO CELL 110-130V
							60°x135°		OTHER COLORS AVAIL. W/RAL# (OPT)	BPC-2	PHOTO CELL 208-277V
							85°x135°			APC-1	ADJ. PHOTO CELL 110-130V
										APC-2	ADJ. PHOTO CELL 208-277V
										RGBW	RGBW SYSTEM (CALL US)
										CM	CABLE MOUNT
										TL	TILT MOUNT
										BD	BARN DOOR
										DM	DIMMABLE

PROVIDE 200W FIXTURE

FINISH TO BE SELECTED  
BY THE ARCHITECT.

WW = WARM WHITE NW = NATURAL WHITE CW = COOL WHITE

REVIT & IES FILES are located at [www.SpecGradeLED.com](http://www.SpecGradeLED.com)

## PRODUCT CERTIFICATIONS, WARRANTIES &amp; APPROVALS





## MRW LED

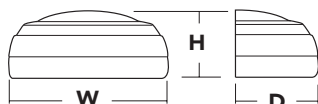
### Architectural Wall Sconce



Inverted available with  
WLU option only.

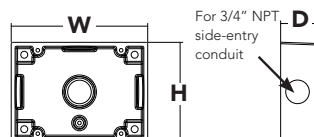
### Specifications Luminaire

**Height:** 7-1/4"  
(18.4 cm)  
**Width:** 18"  
(45.7 cm)  
**Depth:** 9"  
(22.8 cm)  
**Weight:** 18 lbs  
(8.2 kg)



### Optional Back Box (BBW)

**Height:** 4"  
(10.2 cm)  
**Width:** 5-1/2"  
(14.0 cm)  
**Depth:** 1-1/2"  
(3.8 cm)



### Introduction

The classic Architectural Wall Sconce is now available with the latest in LED technology. The result is a long-life, maintenance-free product with typical energy savings of 75% compared to metal halide versions. The integral battery backup option provides emergency egress lighting, without the use of a back-box or remote gear, so installations maintain their aesthetic integrity.

The MRW LED is ideal for replacing existing 50 – 175W metal halide wall-mounted products. The expected service life is 20+ years of nighttime use.

### Ordering Information

EXAMPLE: MRW LED 2 10A700/40K SR3 MVOLT DDBTXD

MRW LED	2	10A700/40K	SR3	277		PE	DDBXD
Series	Light Engines	Performance Package	Distribution	Voltage	Mounting	Options <sup>3</sup>	Finish (required)
MRW LED	1 One engine (10 LEDs) 2 Two engines (20 LEDs)	700 mA options: 10A700/30K 3000K 10A700/40K 4000K 10A700/50K 5000K	SR2 Type II SR3 Type III SR4 Type IV	MVOLT <sup>1</sup> 120 <sup>1</sup> 208 <sup>1</sup> 240 <sup>1</sup> 277 <sup>1</sup> 347 480	Shipped included (blank) Surface mount Shipped separately <sup>2</sup> BBW Surface-mounted back box UTS Uptilt 5 degrees	Shipped installed PE Photoelectric cell, button type <sup>4,5</sup> SF Single fuse (120, 277, 347V) <sup>4</sup> DF Double fuse (208, 240, 480V) <sup>4</sup> DMG 0-10V dimming driver (no controls) ELCW Emergency battery backup <sup>6</sup> WLU Wet location door for up orientation <sup>7</sup> PIR Motion/ambient light sensor <sup>8</sup> DS Dual switching <sup>9</sup> Shipped separately VG Vandal guard WG Wire guard	DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DSSXD Sandstone DDBTXD Textured dark bronze DBLTXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white DSSTXD Textured sandstone

**FINISH TO BE SELECTED  
BY THE ARCHITECT.**

### Emergency Battery Operation

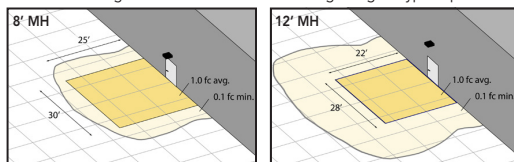
The emergency battery backup (ELCW option) is integral to the luminaire - no external housing required! This design provides reliable emergency operation while maintaining the aesthetics of the product.

All ELCW configurations include an independent secondary driver with an integral relay to immediately detect AC power loss. Dual light engines are wired in parallel so both engines operate in emergency mode and provide additional component redundancy. These design features meet various interpretations of NFPA 70/NEC 2008 - 700.16

The emergency battery will power the luminaire for a minimum duration of 90 minutes (maximum duration of three hours) from the time supply power is lost, per International Building Code Section 1006 and NFPA 101 Life Safety Code Section 7.9, provided luminaires are mounted at an appropriate height and illuminate an open space with no major obstructions.

The examples below show illuminance of 1 fc average and 0.1 fc minimum of the single-engine Type IV product in emergency mode.

WST LED 1 10A700/40K SR4  
MVOLT ELCW  
10' x 10' Gridlines  
8' and 12' Mounting Height



### NOTES

- MVOLT driver operates on any line voltage from 120-277V (50/60 Hz). Specify 120, 208, 240 or 277 options only when ordering with photocell (PE), fusing (SF, DF), or dual switching (DS).
- May also be ordered separately as an accessory. Ex: WSBBD DDBXD U. Must specify finish.
- Must be ordered with fixture; cannot be field installed.
- Not available with MVOLT option. Button photocell (PE) can be ordered with a dedicated voltage option. Single fuse (SF) requires 120, 277 or 347 voltage option. Double fuse (DF) requires 208, 240 or 480 voltage option.
- Not available with 480V option. Not available with motion/ambient light sensor (PIR).
- Integral battery pack is rated for -20° to 60°C operating temperature. ELCW warranty is 3-year period. Not available with 347V or 480V. Not available with WLU.
- WLU not available with PIR or ELCW.
- Specifies the SensorSwitch SFOD-7-ODP control (photocell included); see Motion Sensor Guide for details. Includes ambient light sensor. Not available with "PE" option (button type photocell). Dimming driver standard. Not available with WLU, VG or WG.
- Provides 50/50 luminaire operation via two independent drivers and light engines on two separate circuits. Not available with one engine, MVOLT, ELCW, WLU, SF, or DF. Must specify voltage; voltage must be the same for both drivers. When ordered with photocell (PE) or motion sensor (PIR), only the primary power source leads will be controlled.

## Performance Data

### Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts.

Light Engines	Drive Current (mA)	Performance Package	System Watts (MVOLT <sup>1</sup> )	Dist. Type	40K (4000K, 70 CRI)				
					Nominal Lumens	B	U	G	LPW
1 (10 LEDs)	700	10A700/-K	24W	SR2	2,005	1	0	1	84
				SR3	2,029	1	0	1	84
				SR4	1,959	1	0	1	82
2 (20 LEDs)	700	10A700/-K	47W	SR2	3,944	1	0	1	84
				SR3	4,028	1	0	1	86
				SR4	3,851	1	0	1	82

1 See electrical load chart for 347/480V system watts.

### Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient	Lumen Multiplier
0°C	1.10
10°C	1.06
20°C	1.02
25°C	1.00
30°C	0.98
40°C	0.92

### Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the **MRW LED 2 10A700** platform in a **25°C ambient**, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	1.0	0.94	0.88	0.77

### Electrical Load

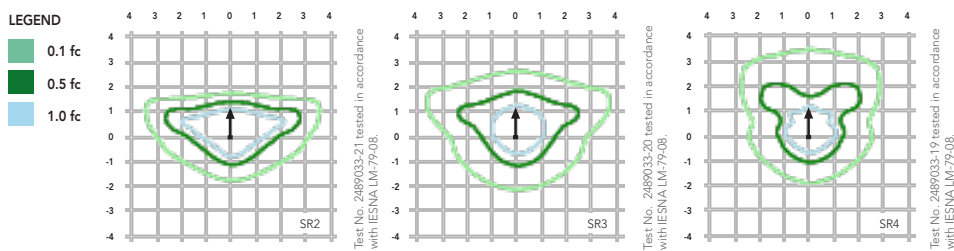
Light Engines	Drive Current (mA)	System Watts	Current (A)					
			120	208	240	277	347	480
1	700	24W	0.24	0.14	0.12	0.1	-	-
		29W <sup>1</sup>	-	-	-	-	0.09	0.07
2	700	47W	0.44	0.27	0.23	0.20	-	-
		53W <sup>1</sup>	-	-	-	-	0.17	0.12

1 Higher wattage is due to electrical losses from step-down transformer.

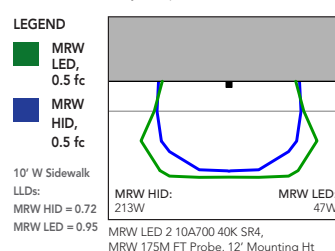
## Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's [MRW LED homepage](#).

Isofootcandle plots for the MRW LED 2 10A700/40K SR2, SR3, and SR4. Distances are in units of mounting height (12').



Distribution overlay comparison to 175W metal halide.



## FEATURES & SPECIFICATIONS

### INTENDED USE

The classic architectural shape of the MRW LED was designed for applications such as hospitals, schools, malls, restaurants, and commercial buildings. The long life LEDs and driver make this luminaire nearly maintenance-free.

### CONSTRUCTION

The single-piece die-cast aluminum housing integrates secondary heat sinks to optimize thermal transfer from the internal light engine heat sinks and promote long life. The driver is mounted in direct contact with the casting for a low operating temperature and long life. The die-cast door frame is fully gasketed with a one-piece solid silicone gasket to keep out moisture and dust, providing an IP65 rating for the luminaire.

### FINISH

Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Standard Super Durable colors include dark bronze, black, natural aluminum, sandstone and white. Available in textured and non-textured finishes.

### OPTICS

Precision-molded acrylic lenses are engineered for superior distribution, uniformity, and spacing in wall-mount applications. Light engines are 4000K (70 CRI). The MRW LED has zero uplight and qualifies as a Nighttime Friendly™ product, meaning it is consistent with the LEED® and Green Globes™ criteria for eliminating wasteful uplight.

### ELECTRICAL

Light engine(s) consist of 10 high-efficacy LEDs mounted to a metal core circuit board and integral aluminum heat sinks to maximize heat dissipation and promote long life (100,000 hrs at 25°C, L77). Class 2 electronic driver has a power factor >90%, THD <20%. Easily-serviceable surge protection device meets a minimum Category B (per ANSI/IEEE C62.41.2).

### INSTALLATION

A universal mounting plate with integral mounting support arms allows the fixture to hinge down for easy access while making wiring connections.

### LISTINGS

CSA certified to U.S. and Canadian standards. Light engines are IP66 rated; luminaire is IP65 rated and suitable for wet locations when mounted with the lenses down. WLU option offers wet location listing in "up" orientation. Rated for -30°C minimum ambient.

DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at [www.designlights.org](http://www.designlights.org) to confirm which versions are qualified.

### WARRANTY

Five year limited warranty. Full warranty terms located at [www.acuitybrands.com/CustomerResources/Terms\\_and\\_conditions.aspx](http://www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx).

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





## MRW LED

### Architectural Wall Sconce



Inverted available with  
WLU option only.

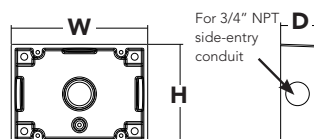
### Specifications Luminaire

**Height:** 7-1/4"  
(18.4 cm)  
**Width:** 18"  
(45.7 cm)  
**Depth:** 9"  
(22.8 cm)  
**Weight:** 18 lbs  
(8.2 kg)



### Optional Back Box (BBW)

**Height:** 4"  
(10.2 cm)  
**Width:** 5-1/2"  
(14.0 cm)  
**Depth:** 1-1/2"  
(3.8 cm)



### Introduction

The classic Architectural Wall Sconce is now available with the latest in LED technology. The result is a long-life, maintenance-free product with typical energy savings of 75% compared to metal halide versions. The integral battery backup option provides emergency egress lighting, without the use of a back-box or remote gear, so installations maintain their aesthetic integrity.

The MRW LED is ideal for replacing existing 50 – 175W metal halide wall-mounted products. The expected service life is 20+ years of nighttime use.

### Ordering Information

**EXAMPLE: MRW LED 2 10A700/40K SR3 MVOLT DDBTXD**

MRW LED	2	10A700/40K	SR3	277		ELCW	DDBXD
Series	Light Engines	Performance Package	Distribution	Voltage	Mounting	Options <sup>3</sup>	Finish (required)
MRW LED	1 One engine (10 LEDs) 2 Two engines (20 LEDs)	<b>700 mA options:</b> 10A700/30K 3000K 10A700/40K 4000K 10A700/50K 5000K	SR2 Type II SR3 Type III SR4 Type IV	MVOLT <sup>1</sup> 120 <sup>1</sup> 208 <sup>1</sup> 240 <sup>1</sup> 277 <sup>1</sup> 347 480	<b>Shipped included</b> (blank) Surface mount <b>Shipped separately<sup>2</sup></b> BBW Surface-mounted back box UTS Uptilt 5 degrees	<b>Shipped installed</b> PE Photoelectric cell, button type <sup>4,5</sup> SF Single fuse (120, 277, 347V) <sup>4</sup> DF Double fuse (208, 240, 480V) <sup>4</sup> DMG 0-10V dimming driver (no controls) ELCW Emergency battery backup <sup>6</sup> WLU Wet location door for up orientation <sup>7</sup> PIR Motion/ambient light sensor <sup>8</sup> DS Dual switching <sup>9</sup> <b>Shipped separately</b> VG Vandal guard WG Wire guard	DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DSSXD Sandstone DDBTXD Textured dark bronze DBLTXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white DSSTXD Textured sandstone

**FINISH TO BE SELECTED  
BY THE ARCHITECT.**

### Emergency Battery Operation

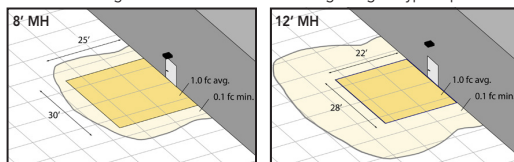
The emergency battery backup (ELCW option) is integral to the luminaire - no external housing required! This design provides reliable emergency operation while maintaining the aesthetics of the product.

All ELCW configurations include an independent secondary driver with an integral relay to immediately detect AC power loss. Dual light engines are wired in parallel so both engines operate in emergency mode and provide additional component redundancy. These design features meet various interpretations of NFPA 70/NEC 2008 - 700.16

The emergency battery will power the luminaire for a minimum duration of 90 minutes (maximum duration of three hours) from the time supply power is lost, per International Building Code Section 1006 and NFPA 101 Life Safety Code Section 7.9, provided luminaires are mounted at an appropriate height and illuminate an open space with no major obstructions.

The examples below show illuminance of 1 fc average and 0.1 fc minimum of the single-engine Type IV product in emergency mode.

WST LED 1 10A700/40K SR4  
MVOLT ELCW  
10' x 10' Gridlines  
8' and 12' Mounting Height



### NOTES

- MVOLT driver operates on any line voltage from 120-277V (50/60 Hz). Specify 120, 208, 240 or 277 options only when ordering with photocell (PE), fusing (SF, DF), or dual switching (DS).
- May also be ordered separately as an accessory. Ex: WSBBD DDBXD U. Must specify finish.
- Must be ordered with fixture; cannot be field installed.
- Not available with MVOLT option. Button photocell (PE) can be ordered with a dedicated voltage option. Single fuse (SF) requires 120, 277 or 347 voltage option. Double fuse (DF) requires 208, 240 or 480 voltage option.
- Not available with 480V option. Not available with motion/ambient light sensor (PIR).
- Integral battery pack is rated for -20° to 60°C operating temperature. ELCW warranty is 3-year period. Not available with 347V or 480V. Not available with WLU.
- WLU not available with PIR or ELCW.
- Specifies the SensorSwitch SFOD-7-ODP control (photocell included); see Motion Sensor Guide for details. Includes ambient light sensor. Not available with "PE" option (button type photocell). Dimming driver standard. Not available with WLU, VG or WG.
- Provides 50/50 luminaire operation via two independent drivers and light engines on two separate circuits. Not available with one engine, MVOLT, ELCW, WLU, SF, or DF. Must specify voltage; voltage must be the same for both drivers. When ordered with photocell (PE) or motion sensor (PIR), only the primary power source leads will be controlled.

## Performance Data

### Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts.

Light Engines	Drive Current (mA)	Performance Package	System Watts (MVOLT <sup>1</sup> )	Dist. Type	40K (4000K, 70 CRI)				
					Nominal Lumens	B	U	G	LPW
1 (10 LEDs)	700	10A700/-K	24W	SR2	2,005	1	0	1	84
				SR3	2,029	1	0	1	84
				SR4	1,959	1	0	1	82
2 (20 LEDs)	700	10A700/-K	47W	SR2	3,944	1	0	1	84
				SR3	4,028	1	0	1	86
				SR4	3,851	1	0	1	82

1 See electrical load chart for 347/480V system watts.

### Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient	Lumen Multiplier
0°C	1.10
10°C	1.06
20°C	1.02
25°C	1.00
30°C	0.98
40°C	0.92

### Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the **MRW LED 2 10A700** platform in a **25°C ambient**, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	1.0	0.94	0.88	0.77

### Electrical Load

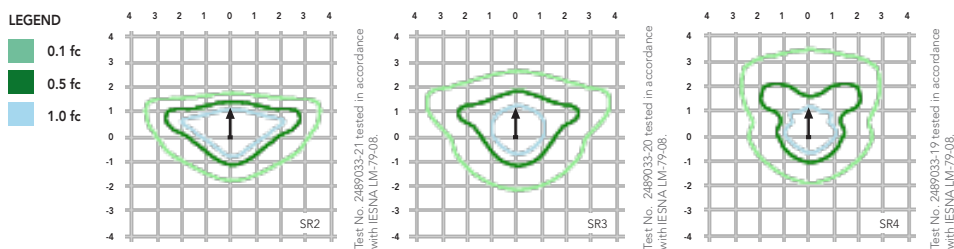
Light Engines	Drive Current (mA)	System Watts	Current (A)					
			120	208	240	277	347	480
1	700	24W	0.24	0.14	0.12	0.1	-	-
		29W <sup>1</sup>	-	-	-	-	0.09	0.07
2	700	47W	0.44	0.27	0.23	0.20	-	-
		53W <sup>1</sup>	-	-	-	-	0.17	0.12

1 Higher wattage is due to electrical losses from step-down transformer.

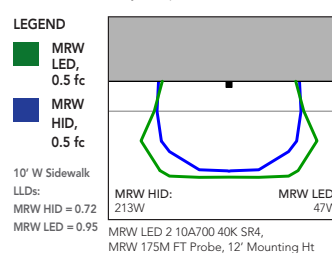
## Photometric Diagrams

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Isofootcandle plots for the MRW LED 2 10A700/40K SR2, SR3, and SR4. Distances are in units of mounting height (12').



Distribution overlay comparison to 175W metal halide.



## FEATURES & SPECIFICATIONS

### INTENDED USE

The classic architectural shape of the MRW LED was designed for applications such as hospitals, schools, malls, restaurants, and commercial buildings. The long life LEDs and driver make this luminaire nearly maintenance-free.

### CONSTRUCTION

The single-piece die-cast aluminum housing integrates secondary heat sinks to optimize thermal transfer from the internal light engine heat sinks and promote long life. The driver is mounted in direct contact with the casting for a low operating temperature and long life. The die-cast door frame is fully gasketed with a one-piece solid silicone gasket to keep out moisture and dust, providing an IP65 rating for the luminaire.

### FINISH

Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Standard Super Durable colors include dark bronze, black, natural aluminum, sandstone and white. Available in textured and non-textured finishes.

### OPTICS

Precision-molded acrylic lenses are engineered for superior distribution, uniformity, and spacing in wall-mount applications. Light engines are 4000K (70 CRI). The MRW LED has zero uplight and qualifies as a Nighttime Friendly™ product, meaning it is consistent with the LEED® and Green Globes™ criteria for eliminating wasteful uplight.

### ELECTRICAL

Light engine(s) consist of 10 high-efficacy LEDs mounted to a metal core circuit board and integral aluminum heat sinks to maximize heat dissipation and promote long life (100,000 hrs at 25°C, L77). Class 2 electronic driver has a power factor >90%, THD <20%. Easily-serviceable surge protection device meets a minimum Category B (per ANSI/IEEE C62.41.2).

### INSTALLATION

A universal mounting plate with integral mounting support arms allows the fixture to hinge down for easy access while making wiring connections.

### LISTINGS

CSA certified to U.S. and Canadian standards. Light engines are IP66 rated; luminaire is IP65 rated and suitable for wet locations when mounted with the lenses down. WLU option offers wet location listing in "up" orientation. Rated for -30°C minimum ambient.

DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at [www.designlights.org](http://www.designlights.org) to confirm which versions are qualified.

### WARRANTY

Five year limited warranty. Full warranty terms located at [www.acuitybrands.com/CustomerResources/Terms\\_and\\_conditions.aspx](http://www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx).

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



Project 15-21288-1  
Miami U Athlete Performance Center

Submitted By  
KING LIGHTING INC

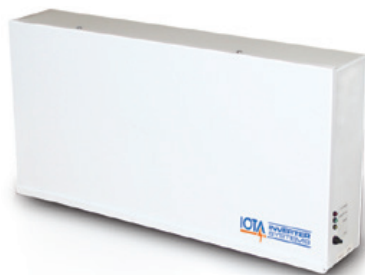
Catalog Number  
IIS-125-SM

Notes

Type  
**INV**

## PRODUCT SPECIFICATION SHEET

# → IIS-125-SM



### DESCRIPTION

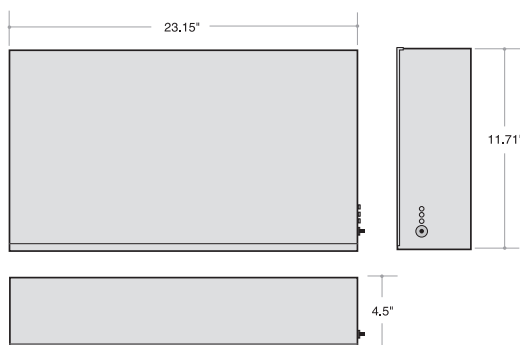
The IOTA **IIS-125-SM** is a UL Listed stand-alone modified sine wave output inverter designed to provide power to designated emergency lighting fixtures. In a power loss situation, the IOTA **IIS-125-SM** will supply **125W** of power from the onboard battery supply. The IOTA **IIS-125-SM** works in conjunction with incandescent, LED, and fluorescent lamp and fixture types and will automatically run switched, normally-on, or normally-off designated emergency fixtures. The **IIS-125-SM** is ideal for applications requiring an emergency source for lighting arrangements that utilize multiple lamp and fixture types. The **IIS-125-SM** features a surface mount design and comes with a three-year warranty and seven-year pro-rata battery warranty.

### SPECIFICATIONS

Input Voltage ..... (Dual) 120/277V, 60Hz  
Input Rating (bulk) ..... 150 Watts  
Output Voltage ..... (Dual) 120/277V, 60Hz  
Output Power ..... 125 Watts (@ .9 leading to .9 lagging PF)  
Lamps Operated ..... LED, Fluorescent, Incandescent  
Transfer Time ..... less than 50 milliseconds  
Emergency Operation ..... 90 minutes  
Voltage Regulation (emergency) ..... +/- 10%  
Frequency Regulation (emergency) ..... +/- 3%  
Load Power Factor Range ..... .9 leading to .9 lagging  
Operating Temp ..... 20° to 30° C  
Battery ..... Valve Regulated Lead Acid (VRLA)  
Weight ..... 46.0 lbs.  
Approval ..... UL 924 Listed



### DIMENSIONS



### LOAD CAPABILITY

125 Watts

### FIXTURE TYPES

LED  
Fluorescent  
Incandescent

### FEATURES

- Emergency lighting supplied from one convenient source
- Operates incandescent, LED, and fluorescent fixtures including fixtures with dimmable fluorescent ballasts
- Surface mounting design
- Includes momentary contact test switch, yellow ready indicator, green inverter-on indicator, and red charging indicator
- Dual voltage 120/277 60Hz
- Replaceable output fuse protection
- High efficiency modified sine wave inverter
- Variable-rate, temperature-compensated charger
- Valve Regulated Lead Acid (VRLA) battery provides long life and is maintenance free
- Line voltage allows for remote mounting of emergency fixtures at distances up to 1000 feet
- Low Battery Voltage Disconnect
- Line Latch Protection
- Flying Leads for operating switched fixtures
- Meets or exceeds all National Electrical Code and Life Safety Code Emergency Lighting Requirements
- Durable 18-gauge steel housing design with white semi-gloss powder-coat paint finish
- 3/7 Pro-Rata Warranty

EMERGENCY INVERTERS





Project 15-21288-1  
Miami U Athlete Performance Center  
  
Submitted By  
KING LIGHTING INC

Catalog Number  
IIS-125-SM  
  
Notes

Type  
**INV**

## IIS-125-SM

125W SURFACE MOUNT UNIT INVERTER SYSTEM

### COMPONENTS

- High-efficiency modified sine wave inverter
- Variable-rate, temperature-compensated charger
- 12V oversized Valve Regulated Lead Acid (VRLA) battery

### CONSTRUCTION

- 18-gauge steel housing

### IIS-125-SM SAMPLE SPECIFICATION

Emergency lighting shall be provided by inverter unit equipment designed to operate designated incandescent, fluorescent and LED fixtures on emergency power at their full nominal lumen rating during the full 90-minute emergency discharge cycle. System output will be rated at 125 watts for 90 minutes and provide fused output connections to the load. The system's voltage rating shall be field selectable 120 or 277 VAC input/output.

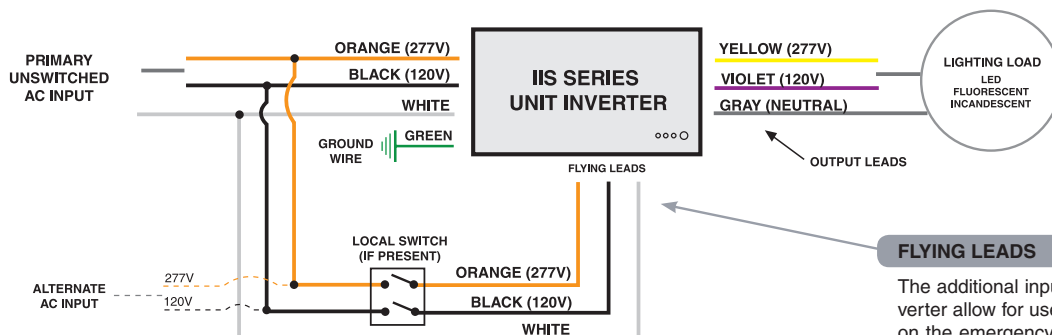
The inverter unit shall allow for connected emergency fixture(s) to be normally on, normally off, switched or dimmed without affecting lamp operation during a power failure. Upon utility power loss, the inverter unit shall deliver 100% of its rated output to the emergency fixtures regardless of the local switch or dimmer position, and will provide power to emergency fixtures at distances of up to 1000 feet.

The housing shall be designed for surface mount installation requirements and manufactured using 18-gauge steel with a white hammer semi-gloss scratch-resistant baked-on powder coat paint finish.

The unit's electronics shall include a self-contained inverter section with a fully automatic, thermal-compensating variable-rate battery charger, AC lockout feature, low battery voltage disconnect, DC overload, short circuit and brownout protection as standard. The unit shall utilize a sealed lead calcium battery with a 10-year design life. The inverter system shall be UL 924 Listed and labeled. The unit shall be covered under a 3-year warranty on the electronics and battery and a 7-year pro-rata warranty on the battery. It shall meet or exceed the requirements of UL 924, NFPA 101 Life Safety Code, NFPA 70 National Electrical Code, OSHA and State and Local codes.


The inverter unit shall be IOTA Engineering model IIS-125-SM.

## TYPICAL WIRING



### FLYING LEADS

The additional input leads of the IIS inverter allow for use of switched fixtures on the emergency circuit. When a loss of AC power occurs, the fixtures on the emergency circuit will be powered by the IIS Inverter supply, regardless of switch position.

Submitted by Innovative Lighting Solutions		<b>Catalog Number:</b> CVLWET-4-4K-1040-ADB90	<b>Type:</b>  <b>W6</b>
		<b>Job Name:</b> MIAMI GUNLOCK FAMILY ATHLETE PERFORMANCE CENTER	<b>Notes:</b>  ILS16-13413



Type:  
Fixture:  
Project:

Approved:

## COVELINE WET



The **COVELINE WET** is a powerful and versatile interior / exterior cove luminaire. **COVELINE WET** comes in a 1 ft, 4 ft or 6 ft nominal lengths and 27K, 3K, 35K or 4K color temperatures, as well as, Red, Green, Blue and Amber. The housing is constructed of extruded aluminum with tooled end caps and is IP66 rated for interior & exterior use. Features IP68 line voltage Plug N' Play connectors for easy installation. Power supply is integral, no remote driver required. Universal orientation fixture; up, down, horizontal or vertical positioning and 10 optical solutions. Flicker free dimmable to 3% full brightness with ELV trailing edge dimming.

### SPECIFICATION

color temperature	2700K	3000K	4000K	Blue	Amber
beam spread	6° - 10° - 25° - 40° - 80° - 120° - 10° x 40° - 30° x 60° - 67° x 140° - 21°x 56° Asymmetric				
lumen output	762 per foot	805 per foot	866 per foot (35K also)	360 per foot	525 per foot
LEDs per foot	9				
color consistency	3-step MacAdam Ellipse / CRI ≥ 84				
lifetime	> 70,000 hours / L70 or better				
input voltage	Universal 120-277V AC				
power consumption	10.5W				
dimensions [ L x W x H ]	12.25" x 1.77" x 1.9"	47" x 1.77" x 1.9"	70.25" x 1.77" x 1.9"		
weight	1.3 lbs. per foot				
housing	extruded aluminum housing with tooled end caps				
lens	etched polycarbonate				
mounting	surface mounting with (+/- 15°), Adjustable Bracket (80°/15° Bi-directional)				
operating temperature	-10°C to 40°C				
junction temperature	73°C @ T <sub>a</sub> 25°C				
interface	dimmable to 3% (ELV) electronic low-voltage trailing edge, synchronized w/ soft shut-off				
power supply	integral Class II, electronic high-power factor 94%				
certification	ETL / cETL or CE				
standards	UL-Class I / IES LM-79 / LM-80				
environment	wet, exterior location / IP66 (Connectors IP68)				
warranty	5 year limited warranty (refer to website for details)				

Due to continuous development and improvements, specifications are subject to change without notice.

### CATALOG NUMBER

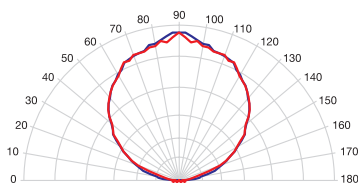
CVLWET					
model	length	temperature	optics	accessories	
<b>CVLWET</b> COVELINE WET	<b>1</b> 305 mm [ 12 in. ]	<b>27K</b> 2700K	<b>6</b> 6°x 6° beam	<b>BL</b>	Black Louvre
	<b>4</b> 1189 mm [ 46.8 in. ]	<b>3K</b> 3000K	<b>10</b> 10°x10° beam	<b>ADB</b>	Adjustable Bracket (80°/15° Bi-directional)
	<b>6</b> 1778 mm [ 70 in. ]	<b>35K</b> 3500K **	<b>25</b> 25°x 25° beam	<b>ADB90</b>	Adjustable Bracket Angle 90°
		<b>4K</b> 4000K	<b>40</b> 40°x 40° beam	<b>BEA</b>	Bracket Extension Arm (Up to 18")
		<b>RED</b> Red **	<b>80</b> 80°x 80° beam	<b>SC10W</b>	10 ft. Starter Connection Cord
		<b>GRN</b> Green **	<b>120</b> 120°x 120° beam (standard)	<b>TCAPW</b>	Terminator Cap
		<b>BLU</b> Blue **	<b>1040</b> 10° x 40° beam	<b>EC12W</b>	12 in. Extension Cord
		<b>AMB</b> Amber **	<b>3060</b> 30° x 60° beam	<b>EC24W</b>	24 in. Extension Cord
			<b>67140</b> 67° x 140° beam	<b>EC60W</b>	60 in. Extension Cord
			<b>Asym</b> 21°x 56° Asymmetric		

\*\* Consult Factory (minimum order quantity)

**REQUIRED:** Starter Cable (SC10W) and Terminator Cap (TCAPW) for every run.

**Maximum Run Length** = 60 feet



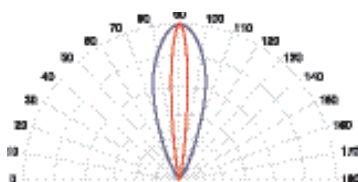

**PHOTOMETRY**
**CVLWET-1-120-4K-120°**
**Zonal Lumen Summary**
**Illuminance at a Distance**


Zone	Lumens	% Lamp	% Luminaire
0-30	220	25%	25%
0-40	363	42%	42%
0-60	655	74%	75%
60-90	208	24%	24%
0-90	862	98%	99%
90-180	11	1%	1%
0-180	866	99%	100%

Efficiency Total: 99%

	center beam fc	beam width	
8 ft	5 fc	25 ft	25 ft
4 ft	18 fc	13 ft	12 ft
1 ft	294 fc	3 ft	3 ft

— beam spread: 115°

**CVLWET-1-120-4K-10°x40°**
**Zonal Lumen Summary**
**Illuminance at a Distance**


Zone	Lumens	% Lamp	% Luminaire
0-30	462	62%	62%
0-40	537	72%	72%
0-60	672	90%	90%
60-90	60	8%	8%
0-90	732	98%	98%
90-180	14	2%	2%
0-180	744	99%	100%

Efficiency Total: 99%

	center beam fc	beam width	
8 ft	48 fc	3 ft	2 ft
4 ft	189 fc	2 ft	1 ft
1 ft	754 fc	.4 ft	.3 ft

— beam spread: 40°

**COLORS**


198 lm/ft (5.5W)



430 lm/ft (5.5W)



580 lm/ft (5.5W)



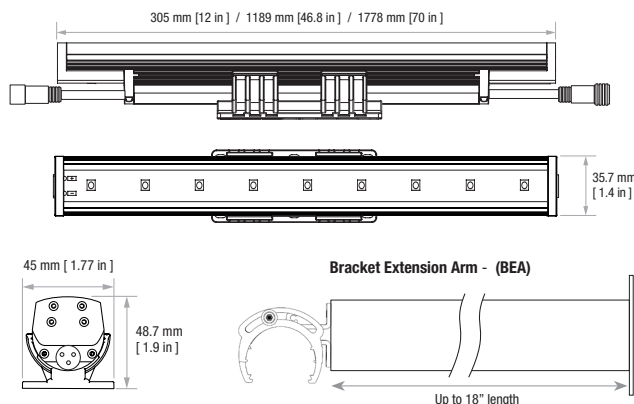
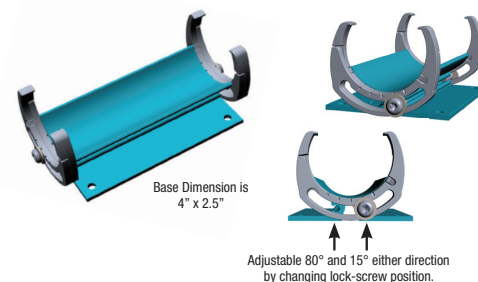
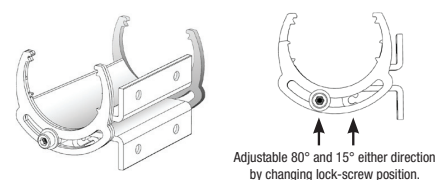
235 lm/ft (5.5W)

**PERFORMANCE**

Model	Connected Wattage	Delivered Lumens				
		2700K	3000K	4000K	Blue	Amber
CVLWET-1	10.5	762	805	866	360	525
CVLWET-4	42	3048	3220	3464	1440	2100
CVLWET-6	63	4572	4830	5196	2106	3150

**DIMENSIONS**

Available in 3 lengths


**ADJUSTABLE BRACKET (ADB)**

**ADJUSTABLE BRACKET 90° (ADB90)**


**Job Name:**MIAMI GUNLOCK FAMILY ATHLETE  
PERFORMANCE CENTER**Catalog Number:**

BE-117-UNV-ER81-U

**Notes:****Type:****W7**

ILS16-13413

**COOPER LIGHTING - METALUX®****DESCRIPTION**

The energy efficient BE Series features decorative non-luminous end caps for more direct task lighting. The BE with an acrylic prismatic refractor provides an attractive ambience without increasing brightness. BE luminaires offer up, down or combination lighting. The BE Series features wall washing upright, multi-level switching and convenience outlets as available options.

The BE Series features efficiency in a low profile wall bracket. The Series is an excellent choice for dressing rooms, lavatories, hospital and nursing homes, stairways and task lighting.

Catalog #	Type
Project	
Comments	Date
Prepared by	

**SPECIFICATION FEATURES****Construction**

Housing die formed code gauge prime cold rolled steel. Channel cover secured by quarter-turn fasteners for easy wiring access. Up, down or combination lighting with 3 or 4 foot fixtures. Decorative opaque injection molded end plates.

**Electrical**

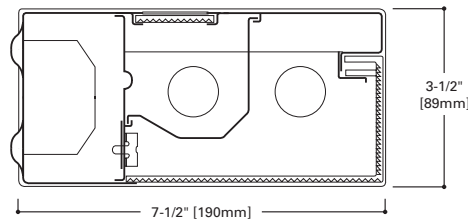
Ballast are CBM/ETL Class "P" and positively secured by mounting bolts. Pressure lock lampholders. UL/CUL listed. Suitable for damp locations.

**Finish**

Painted after fabrication. Electrostatically applied baked white polyester powder enamel finish. Multistage cleaning cycle, iron phosphate coating with rust inhibitor. ConveyORIZED application and baking timing accurately controlled at an elevated temperature.

**Frame/Shielding**

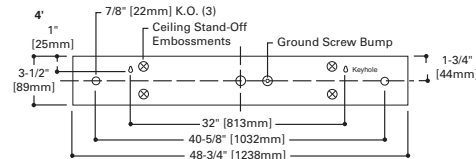
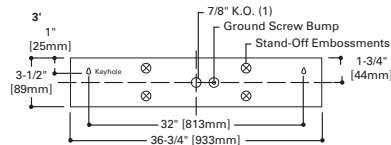
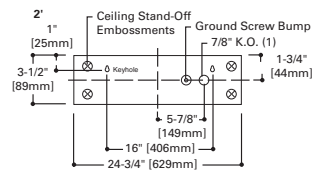
100% virgin acrylic prismatic diffuser. Front of diffuser has inside linear prisms and bottom has pyramidal prisms for low brightness control. Diffuser slides forward for easy installation and maintenance. Uplight diffuser prismatic acrylic.

**BE, BEU**

120, 117, 130  
125, 140, 132  
220, 217, 230  
225, 240  
232

2', 3' OR 4' WALL BRACKET  
1 OR 2 LAMP

Commercial Wall Bracket

**MOUNTING DATA****LAMP CONFIGURATIONS**

**Cooper Lighting**  
by **F.T.N**

**ENERGY DATA**

Input Watts:

**EB Ballast & STD Lamps**

117 (20), 130 (31), 125 (28), 140 (38),  
132 (30), 217 (36), 230 (60), 225 (47),  
240 (72), 232 (61)

**ES Ballast & STD Lamps**

120 (32), 117 (23), 130 (46), 125 (33),  
140 (38), 132 (30), 220 (58), 217 (45),  
230 (74), 225 (65), 240 (86), 232 (71)

Luminaire Efficacy Rating

**LER = FL-67****Catalog Number:** BE-232A**Yearly Cost of 1000 lumens,****3000 hrs at .08 KWH = \$3.58**

**LAMPS CONTAIN MERCURY. DISPOSE ACCORDING  
TO LOCAL, STATE OR FEDERAL LAWS**

**LINEAR DISCONNECT**

Safe and convenient means of  
disconnecting power.



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**Job Name:**Miami U - Gunlock Family Athletic  
Performance Center - LEE16-25610-8**Catalog Number:**HAI-LED-225-HLO-40-CR38'-SC-FW-  
277-EB-RAS-SC-12"

Notes:

**Type:****W8**

LEE16-25610

**BIRCHWOOD**  
lighting

www.birchwoodlighting.com

**HAILEY LED**

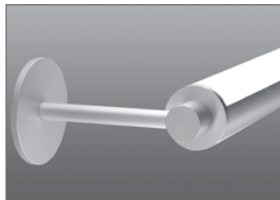
1.25", 2.25", 3.25"

Round Linear LED

RAS | STK | CSS



HAILEY 125 CSS-R



RAS



STK

HAILEY LED combines elegance and efficiency within 1.25", 2.25" and 3.25" housing profiles of heavy duty extruded aluminum.

Variable mounting orientations make HAILEY LED highly adaptable for any interior setting. Rotating functionality (combined with arm, cable or stack mounting) will allow 361° lockable aiming of the lighting optic towards any ceiling, wall or work-plane.

Continuous run installations deliver nearly seamless lines of efficient illumination. Precision-engineered connecting hardware remains invisible within the smooth extruded aluminum housing to insure a smooth, sleek appearance. Choose from a selection of Frosted White, Frosted Clear or Linear Prismatic acrylic lenses.

HAILEY LED: sophistication, versatility and efficiency combined to elevate your specification. Available in 2' to 8' nominal lengths.

 UL and c-UL listed for dry and damp locations.



Made in the USA

**FIXTURE SPECIFICATIONS****Construction**

Heavy gauge round extruded aluminum housing. 1/4" thick precision-machined aluminum end-caps. Extruded curved acrylic lenses specifically engineered to heat expand into exact position eliminating light leak.

**Finishes**

(SC) Satin Clear anodized is standard finish. Other powder coat finishes available. Consult factory for details.

**Fixture Length**

Fixtures are available in 2', 3', 4', 6' and 8' nominal lengths (6' and 8' not available for 125). Continuous run mounting available featuring internal adjoining mounting hardware enabling straight and precise rows. See installation section for more details.

**Mounting Options**

(CSS) Cable Suspension System field-adjustable 1/8" aircraft cable, (STK) Stack mount with straight or bent arm options extending as single-sided or double-sided from the stack housing. (RAS) Rotational Arm System accessory provides 361° directional and lockable aiming with all mounting styles. See ordering guide for possible configurations.

**LED Light Engine System**

LED Light Engines are available as HLO (High Lumen Output) and SLO (Standard Lumen Output) providing efficient illumination. CLO (Custom Lumen Output) allows for end user specified lumen output or tailored wattage consumption for certain models. Consult factory for details.

**Dimming**

Dimming is available with a variety of control protocols and options. Consult factory for availability and specifications.

**Acrylic Lens Options**

(FW) Frosted White, (FC) Frosted Clear and (LP) Clear Linear Prismatic.

**Custom and Mods**

We proudly specialize in manufacturing custom and modified luminaires and have the ability to modify most of our standard fixtures. Please contact factory with any inquiries.

V-1114

**Job Name:**Miami U - Gunlock Family Athletic  
Performance Center - LEE16-25610-8**Catalog Number:**HAI-LED-225-HLO-40-CR38'-SC-FW-  
277-EB-RAS-SC-12"

Notes:

**Type:****W8**

LEE16-25610

**BIRCHWOOD**  
lighting

www.birchwoodlighting.com

**HAILEY LED**

1.25", 2.25", 3.25"

Round Linear LED

Type:

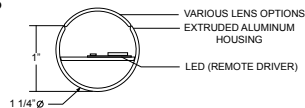
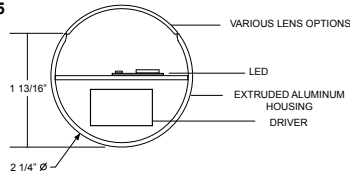
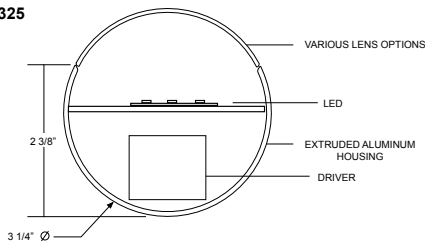
Job Name:

RAS | STK | CSS

**SPECIFICATION CODE**CSS selection options only<sup>3</sup>RAS only<sup>3</sup>STK only<sup>3</sup>

model	light engine	color temp	length	finish	lens	voltage	driver	mounting	orientation	standard cable length <sup>1</sup>	standard cord color	standard canopy	standard canopy finish	standard cover plate	cover plate finish	arm length	arm style	arm length	arm height	option
-------	--------------	------------	--------	--------	------	---------	--------	----------	-------------	------------------------------------	---------------------	-----------------	------------------------	----------------------	--------------------	------------	-----------	------------	------------	--------

Model	Light Engine	Color Temp	Nominal Length	Finish	Lens	Voltage	Driver	Mounting	Options
HAI-LED-125 - 1.25" diameter	SLO - Standard Lumen Output	27 - 2700K 30 - 3000K 35 - 3500K	2 - 2' 3 - 3' 4 - 4'	Anodized <b>SC</b> - Satin Clear	FC - Frosted Clear	<b>120</b> <b>277</b>	<b>EB</b> - Electronic (standard)	CSS - Cable Suspended (36" standard)	Orientation <sup>3</sup> Cable Length <sup>3</sup> Cord Color <sup>3</sup> Canopy <sup>3</sup> Canopy Finish <sup>4</sup>
<b>HAI-LED-225</b> - 2.25" diameter	<b>HLO</b> - High Lumen Output	<b>40 - 4000K</b>	6 - 6' <sup>1</sup> 8 - 8' <sup>1</sup>	Powder Coat <b>MW</b> - Matte White	<b>FW</b> - Frosted White		Dimming <b>D1</b> - 1% (nom.) 0-10V <b>D10</b> - 10% 0-10V <b>HLA2</b> - Lutron 2 wire mount <b>HLA3</b> - Lutron 3 wire mount <b>HLAD</b> - Lutron digital	<b>RAS</b> - Rotational Arm System	CSS RAS STK Arm Style <sup>3</sup> Arm Length <sup>3</sup> Arm Height <sup>3</sup> Custom Finish <sup>4</sup>
HAI-LED-325 - 3.25" diameter	<b>CLO</b> - Custom Lumen Output		<b>CR</b> - 2 38 Continuous Run	<b>FB</b> - Flat Black <b>CUP</b> - Custom <sup>4</sup>	<b>LP</b> - Clear Linear Prismatic			<b>STK1</b> - Stack Mount Single side arm mount <b>STK2</b> - Stack Mount Double side arm mount	<b>TB</b> - Cable Tie Back <b>EM</b> <sup>5</sup> - Emergency Battery Pack

[CLO Calculator](#)**Dimensions****125****225****325****NOTES**

- not available for 125
- specify length in nominal feet
- see HAILEY options sheet for selections
- contact factory for custom finish
- consult factory for EM options
- refer to CLO Calculator for code selection
- 120V only

\*see [lens supplement sheet](#) for lens info**LED****125 (4000K FW lens)**

**SLO** - 119.4 lm/watt delivered @ 3 w/ft fixture input watts  
**HLO** - 118.7 lm/watt delivered @ 5.9 w/ft fixture input watts  
**CLO** - refer to [CLO Calculator](#)  
 125 LED [supplement info](#)

**225 (4000K FW lens)**

**SLO** - 117.9 lm/watt delivered @ 3 w/ft fixture input watts  
**HLO** - 117.2 lm/watt delivered @ 5.9 w/ft fixture input watts  
**CLO** - refer to [CLO Calculator](#)  
 225 LED [supplement info](#)

**325 (4000K FW lens)**

**SLO** - 84.8 lm/watt delivered @ 5.2 w/ft fixture input watts  
**HLO** - 80.9 lm/watt delivered @ 10.9 w/ft fixture input watts  
**CLO** - refer to [CLO Calculator](#)  
 325 LED [supplement info](#)



**Job Name:**Miami U - Gunlock Family Athletic  
Performance Center - LEE16-25610-8**Catalog Number:**HAI-LED-225-HLO-40-CR38'-SC-FW-  
277-EB-RAS-SC-12"

Notes:

**Type:****W8**

LEE16-25610

**BIRCHWOOD**  
lighting

www.birchwoodlighting.com

**HAILEY LED**

1.25", 2.25", 3.25"

Round Linear LED

RAS | STK | CSS - Options Page

**RAS Options****Cover Plate/ Knuckle/Trim Ring****4CP - R 4"** Cover Plate with 1.25" Knuckle (std)**4CP - R2 4"** Cover Plate with 2.25" Knuckle**4CP - R3 4"** Cover Plate with 3.25" Knuckle**1TR - R 1 1/4"** Trim Ring with 1.25" knuckle**1TR - R2 1 1/4"** Trim Ring with 2.25" knuckle**1TR - R3 1 1/4"** Trim Ring with 3.25" knuckleMax arm lengths without additional support  
\*For lengths longer than max, Specify "TB" in option  
section for aircraft cable tie back.

	4'	6'	8'
<b>125</b>	18"	N/A	N/A
<b>225</b>	18"	15"	12"
<b>325</b>	12"	9"	6"

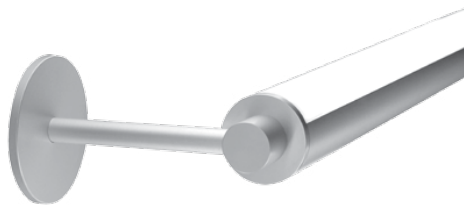
**Cover Plate Finish****SC - Satin Clear (standard)**

MW - Matte White

FB - Flat Black

**CUP - Custom Powder Coat****Arm Length****6 - 6"** (standard)**9 - 9"****12 - 12"**

18 - 18"

**CUL - Custom**  
(specify length in  
inches ex: CUL28)

HAILEY 225 RAS

**NOTE**

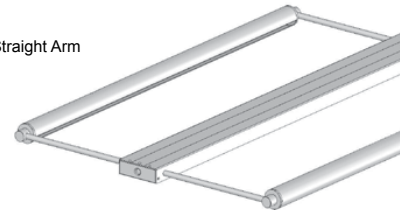
cover plates, knuckles, and arm match housing finish

**Stack Options****STK1-BA**

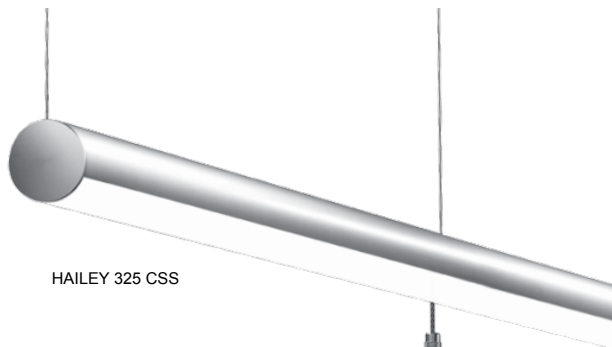
Single Stack Bent Arm

**STK2-SA**

Double Stack Straight Arm

**Arm Style****SA - Straight Arm****BA - Bent Arm****CA - Custom**

(supply drawing)

**Arm Length****6 - 6"****9 - 9"****12 - 12"****18 - 18"****CUL - Custom**  
(specify length in  
inches ex: CUL28)**Bent Arm Height****6"** (standard)**CUH - Custom Height**(specify length in  
inches ex: CUH28)**NOTE**knuckles and arm match housing finish  
stack housing standard is silver powder coat finish

HAILEY 325 CSS



HAILEY 225 CSS-R

**CSS Options****Orientation****DR - Direct****IN - Indirect****R - Rotational with 1.25" knuckle<sup>1</sup>****R2 - Rotational with 2.25" knuckle<sup>1</sup>****R3 - Rotational with 3.25" knuckle<sup>1</sup>****Cable Length Options****36 - 36"** (standard)**72 - 72"****120 - 120"****Power Cord Color Options****W - White****B - Black****G - Gray (standard)****Canopy Options****STND - Bracket bar w/5" round canopy****NC - No canopy 1/4-20 side exit cable gripper**  
(1/4-20 stud provided by others)**CU - Custom (contact factory)****Canopy Finish Options****MW - Matte White****SL - Silver (standard)****CUP - Custom (contact factory)****NOTE**<sup>1</sup> knuckles match housing finish

V-0314

**Job Name:**Miami U - Gunlock Family Athletic  
Performance Center - LEE16-25610-8**Catalog Number:**HAI-LED-225-HLO-40-CR38'-SC-FW-  
277-EB-RAS-SC-12"

Notes:

**Type:****W8**

LEE16-25610

**BIRCHWOOD**  
lighting

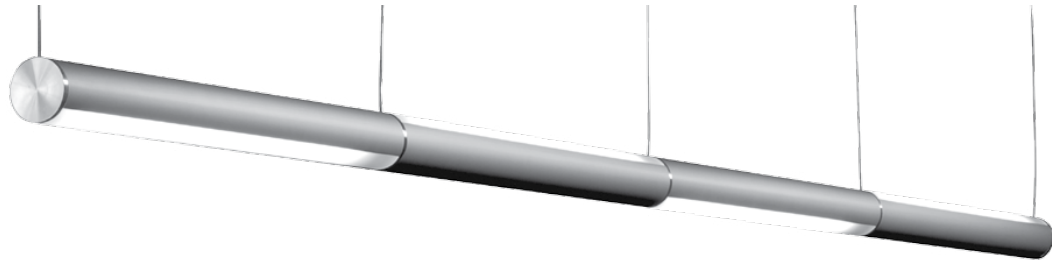
www.birchwoodlighting.com

Type:

Job Name:

**HAILEY LED**1.25", 2.25", 3.25" Round Fixture  
Round Linear LED**Custom Options**

## CUSTOM ALTERNATING DIRECT/INDIRECT FIXTURE CONFIGURATION



**Job Name:**Miami U - Gunlock Family Athletic  
Performance Center - LEE16-25610-8**Catalog Number:**HAI-LED-225-HLO-40-CR38'-SC-FW-  
277-EB-RAS-SC-12"

Notes:

**Type:****W8**

LEE16-25610

**BIRCHWOOD**  
lighting**HAILEY LED**

225

Stand Alone/Continuous Run

**Fixture Lengths**

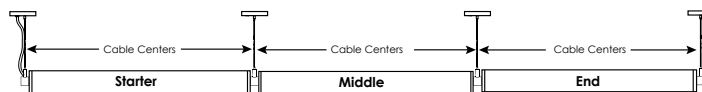
Fixture Type

MIAMI - GUNLOCK PERFORMANCE ARTS

**CSS-R | RAS**

Approval

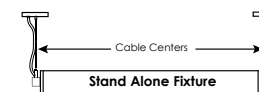
SIGN HERE

**Continuous Run Individual Cable/Arm Centers**

Fixture Length	Cable/Arm Centers (in)
2'	26.000"
3'	38.000"
4'	50.000"
5'	62.000"
6'	74.000"
7'	86.063"
8'	98.063"

Fixture Length	Cable/Arm Centers (in)
2'	26.000"
3'	38.000"
4'	50.000"
5'	62.000"
6'	74.000"
7'	86.063"
8'	98.063"

Fixture Length	Cable/Arm Centers (in)
2'	26.000"
3'	38.000"
4'	50.000"
5'	62.000"
6'	74.000"
7'	86.063"
8'	98.063"

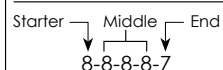
**Stand Alone Cable/Arm Centers & Overall Length**

Fixture Length	Cable/Arm Centers (in)	Overall Length (in)
2'	26.000"	27.125"
3'	38.000"	39.125"
4'	50.000"	51.125"
5'	62.000"	63.125"
6'	74.000"	75.125"
7'	86.063"	87.188"
8'	98.063"	99.188"

**Continuous Run Lengths and Fixture Length Segments**

Nominal Length (ft)	CSS-R/RAS Overall Length (in)	Fixture Length Segments	Nominal Length (ft)	CSS-R/RAS Overall Length (in)	Fixture Length Segments	Nominal Length (ft)	CSS-R/RAS Overall Length (in)	Fixture Length Segments
9	9' - 5.125"	6-3	23	22' - 7.25"	8-8-6	37	36' - 11.375"	8-8-8-8-4
10	10' - 5.188"	8-2	24	23' - 7.313"	8-8-7	38	37' - 11.375"	8-8-8-8-5
11	11' - 5.188"	8-3	25	24' - 7.313"	8-8-8	39	38' - 11.375"	8-8-8-8-6
12								
13								
14								
15	15' - 5.25"	8-7	29	28' - 9.313"	8-8-8-4	43	43' - 1.438"	8-8-8-8-8-2
16	16' - 5.25"	8-8	30	29' - 9.313"	8-8-8-5	44	44' - 1.438"	8-8-8-8-8-3
17	0' - 0"		31	30' - 9.313"	8-8-8-6	45	45' - 1.438"	8-8-8-8-8-4
18	17' - 7.25"	7-7-3	32	31' - 9.375"	8-8-8-7	46	46' - 1.438"	8-8-8-8-8-5
19	18' - 7.25"	8-8-2	33	32' - 9.375"	8-8-8-8	47	47' - 1.438"	8-8-8-8-8-6
20	19' - 7.25"	8-8-3	34	33' - 11.313"	8-8-8-6-3	48	48' - 1.5"	8-8-8-8-8-7
21	20' - 7.25"	8-8-4	35	34' - 11.375"	8-8-8-8-2	49	49' - 1.5"	8-8-8-8-8-8
22	21' - 7.25"	8-8-5	36	35' - 11.375"	8-8-8-8-3	50	50' - 3.438"	8-8-8-8-8-6-3

(1) HAI-LED-225-HLO-40-CR38-SC-FW-277-EB-RAS-SC-12" TYPE: W8  
(1) HAI-LED-225-HLO-40-CR32-SC-FW-277-EB-RAS-SC-12" TYPE: W9

**Fixture Segments**

#825-00012

V-1113

**Job Name:**Miami U - Gunlock Family Athletic  
Performance Center - LEE16-25610-8**Catalog Number:**HAI-LED-225-HLO-40-CR32'-SC-FW-  
277-EB-RAS-SC-12"

Notes:

**Type:****W9**

LEE16-25610

**BIRCHWOOD**  
lighting

www.birchwoodlighting.com

**HAILEY LED**

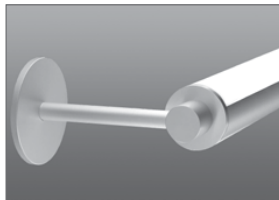
1.25", 2.25", 3.25"

Round Linear LED

RAS | STK | CSS



HAILEY 125 CSS-R



RAS



STK

HAILEY LED combines elegance and efficiency within 1.25", 2.25" and 3.25" housing profiles of heavy duty extruded aluminum.

Variable mounting orientations make HAILEY LED highly adaptable for any interior setting. Rotating functionality (combined with arm, cable or stack mounting) will allow 361° lockable aiming of the lighting optic towards any ceiling, wall or work-plane.

Continuous run installations deliver nearly seamless lines of efficient illumination. Precision-engineered connecting hardware remains invisible within the smooth extruded aluminum housing to insure a smooth, sleek appearance. Choose from a selection of Frosted White, Frosted Clear or Linear Prismatic acrylic lenses.

HAILEY LED: sophistication, versatility and efficiency combined to elevate your specification. Available in 2' to 8' nominal lengths.

 UL and c-UL listed for dry and damp locations.



Made in the USA

**FIXTURE SPECIFICATIONS****Construction**

Heavy gauge round extruded aluminum housing. 1/4" thick precision-machined aluminum end-caps. Extruded curved acrylic lenses specifically engineered to heat expand into exact position eliminating light leak.

**Finishes**

(SC) Satin Clear anodized is standard finish. Other powder coat finishes available. Consult factory for details.

**Fixture Length**

Fixtures are available in 2', 3', 4', 6' and 8' nominal lengths (6' and 8' not available for 125). Continuous run mounting available featuring internal adjoining mounting hardware enabling straight and precise rows. See installation section for more details.

**Mounting Options**

(CSS) Cable Suspension System field-adjustable 1/8" aircraft cable, (STK) Stack mount with straight or bent arm options extending as single-sided or double-sided from the stack housing. (RAS) Rotational Arm System accessory provides 361° directional and lockable aiming with all mounting styles. See ordering guide for possible configurations.

**LED Light Engine System**

LED Light Engines are available as HLO (High Lumen Output) and SLO (Standard Lumen Output) providing efficient illumination. CLO (Custom Lumen Output) allows for end user specified lumen output or tailored wattage consumption for certain models. Consult factory for details.

**Dimming**

Dimming is available with a variety of control protocols and options. Consult factory for availability and specifications.

**Acrylic Lens Options**

(FW) Frosted White, (FC) Frosted Clear and (LP) Clear Linear Prismatic.

**Custom and Mods**

We proudly specialize in manufacturing custom and modified luminaires and have the ability to modify most of our standard fixtures. Please contact factory with any inquiries.

V-1114

**Job Name:**Miami U - Gunlock Family Athletic  
Performance Center - LEE16-25610-8**Catalog Number:**HAI-LED-225-HLO-40-CR32'-SC-FW-  
277-EB-RAS-SC-12"

Notes:

**Type:****W9**

LEE16-25610

**BIRCHWOOD**  
lighting

www.birchwoodlighting.com

**HAILEY LED**

1.25", 2.25", 3.25"

Round Linear LED

Type:

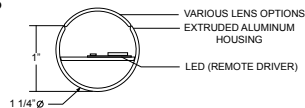
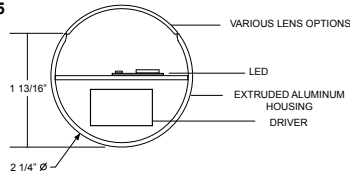
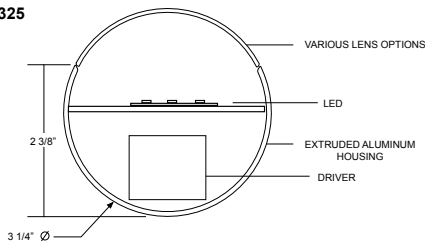
Job Name:

RAS | STK | CSS

**SPECIFICATION CODE**CSS selection options only<sup>3</sup>RAS only<sup>3</sup>STK only<sup>3</sup>

model	light engine	color temp	length	finish	lens	voltage	driver	mounting	orientation	standard cable length <sup>1</sup>	standard cord color	standard canopy	standard canopy finish	standard cover plate	cover plate finish	arm length	arm style	arm length	arm height	option

Model	Light Engine	Color Temp	Nominal Length	Finish	Lens	Voltage	Driver	Mounting	Options
HAI-LED-125 - 1.25" diameter	SLO - Standard Lumen Output	27 - 2700K 30 - 3000K 35 - 3500K	2 - 2' 3 - 3' 4 - 4'	Anodized SC - Satin Clear	FC - Frosted Clear	120 277	EB - Electronic (standard)	CSS - Cable Suspended (36" standard)	Orientation <sup>3</sup> Cable Length <sup>3</sup> Cord Color <sup>3</sup> Canopy <sup>3</sup> Canopy Finish <sup>4</sup>
HAI-LED-225 - 2.25" diameter	HLO - High Lumen Output	40 - 4000K	6 - 6' <sup>1</sup> 8 - 8' <sup>1</sup>	Powder Coat MW - Matte White FB - Flat Black CUP - Custom <sup>6</sup>	FW - Frosted White LP - Clear Linear Prismatic		Dimming D1 - 1% (nom.) 0-10V D10 - 10% 0-10V HLA2 <sup>7</sup> - Lutron 2 wire HLA3 - Lutron 3 wire HLAD - Lutron digital	RAS - Rotational Arm System	CSS RAS STK Arm Style <sup>3</sup> Arm Length <sup>3</sup> Arm Height <sup>3</sup> Custom Finish <sup>4</sup> TB - Cable Tie Back EM <sup>5</sup> - Emergency Battery Pack
HAI-LED-325 - 3.25" diameter	CLO <sup>6</sup> - Custom Lumen Output		CR <sup>2</sup> 32 Continuous Run					STK1 - Stack Mount Single side arm mount STK2 - Stack Mount Double side arm mount	

[CLO Calculator](#)**Dimensions****125****225****325****NOTES**

- not available for 125
- specify length in nominal feet
- see HAILEY options sheet for selections
- contact factory for custom finish
- consult factory for EM options
- refer to CLO Calculator for code selection
- 120V only

\*see [lens supplement sheet](#) for lens info**LED****125 (4000K FW lens)**

SLO - 119.4 lm/watt delivered @ 3 w/ft fixture input watts  
HLO - 118.7 lm/watt delivered @ 5.9 w/ft fixture input watts  
CLO - refer to [CLO Calculator](#)  
125 LED [supplement info](#)

**225 (4000K FW lens)**

SLO - 117.9 lm/watt delivered @ 3 w/ft fixture input watts  
HLO - 117.2 lm/watt delivered @ 5.9 w/ft fixture input watts  
CLO - refer to [CLO Calculator](#)  
225 LED [supplement info](#)

**325 (4000K FW lens)**

SLO - 84.8 lm/watt delivered @ 5.2 w/ft fixture input watts  
HLO - 80.9 lm/watt delivered @ 10.9 w/ft fixture input watts  
CLO - refer to [CLO Calculator](#)  
325 LED [supplement info](#)



**Job Name:**Miami U - Gunlock Family Athletic  
Performance Center - LEE16-25610-8**Catalog Number:**HAI-LED-225-HLO-40-CR32'-SC-FW-  
277-EB-RAS-SC-12"

Notes:

**Type:****W9**

LEE16-25610

**BIRCHWOOD**  
lighting

www.birchwoodlighting.com

**HAILEY LED**

1.25", 2.25", 3.25"

Round Linear LED

RAS | STK | CSS - Options Page

**RAS Options****Cover Plate/ Knuckle/Trim Ring****4CP - R** 4" Cover Plate with 1.25" Knuckle (std)**4CP - R2** 4" Cover Plate with 2.25" Knuckle**4CP - R3** 4" Cover Plate with 3.25" Knuckle**1TR - R** 1 1/4" Trim Ring with 1.25" knuckle**1TR - R2** 1 1/4" Trim Ring with 2.25" knuckle**1TR - R3** 1 1/4" Trim Ring with 3.25" knuckleMax arm lengths without additional support  
\*For lengths longer than max, Specify "TB" in option  
section for aircraft cable tie back.

	4'	6'	8'
<b>125</b>	18"	N/A	N/A
<b>225</b>	18"	15"	12"
<b>325</b>	12"	9"	6"

**Cover Plate Finish****SC - Satin Clear (standard)**

MW - Matte White

FB - Flat Black

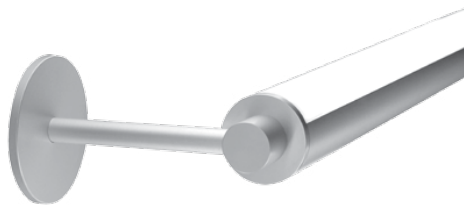
**CUP - Custom Powder Coat****Arm Length**

6 - 6" (standard)

9 - 9"

**12 - 12"**

18 - 18"

**CUL - Custom**  
(specify length in  
inches ex: CUL28)

HAILEY 225 RAS

**NOTE**

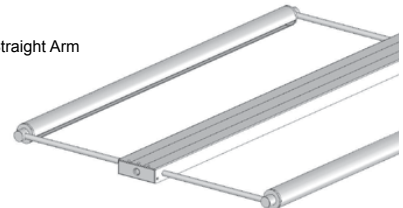
cover plates, knuckles, and arm match housing finish

**Stack Options****STK1-BA**

Single Stack Bent Arm

**STK2-SA**

Double Stack Straight Arm

**Arm Style****SA - Straight Arm****BA - Bent Arm****CA - Custom**

(supply drawing)

**Arm Length**

6 - 6"

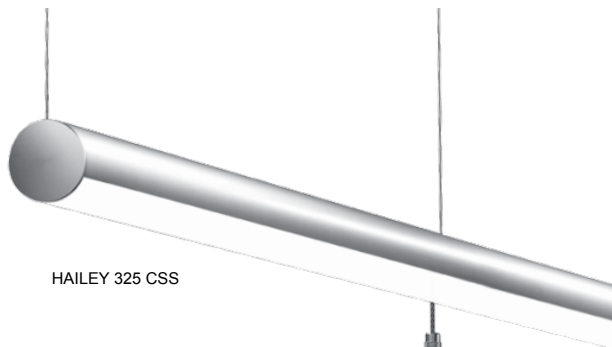
9 - 9"

12 - 12"

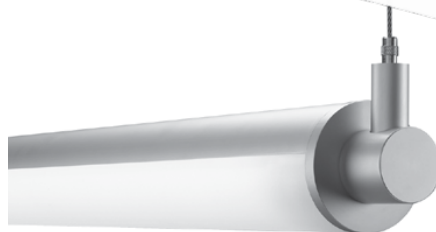
18 - 18"

**CUL - Custom**  
(specify length in  
inches ex: CUL28)**Bent Arm Height**

6" (standard)

**CUH - Custom Height**(specify length in  
inches ex: CUH28)**NOTE**knuckles and arm match housing finish  
stack housing standard is silver powder coat finish

HAILEY 325 CSS



HAILEY 225 CSS-R

**CSS Options****Orientation****DR - Direct****IN - Indirect****R - Rotational with 1.25" knuckle<sup>1</sup>****R2 - Rotational with 2.25" knuckle<sup>1</sup>****R3 - Rotational with 3.25" knuckle<sup>1</sup>****Cable Length Options**

36 - 36" (standard)

72 - 72"

120 - 120"

**Power Cord Color Options****W - White****B - Black****G - Gray (standard)****Canopy Options****STND - Bracket bar w/5" round canopy****NC - No canopy 1/4-20 side exit cable gripper**  
(1/4-20 stud provided by others)**CU - Custom (contact factory)****Canopy Finish Options****MW - Matte White****SL - Silver (standard)****CUP - Custom (contact factory)****NOTE**

1 knuckles match housing finish

V-0314

**Job Name:**Miami U - Gunlock Family Athletic  
Performance Center - LEE16-25610-8**Catalog Number:**HAI-LED-225-HLO-40-CR32'-SC-FW-  
277-EB-RAS-SC-12"

Notes:

**Type:****W9**

LEE16-25610

**BIRCHWOOD**  
lighting

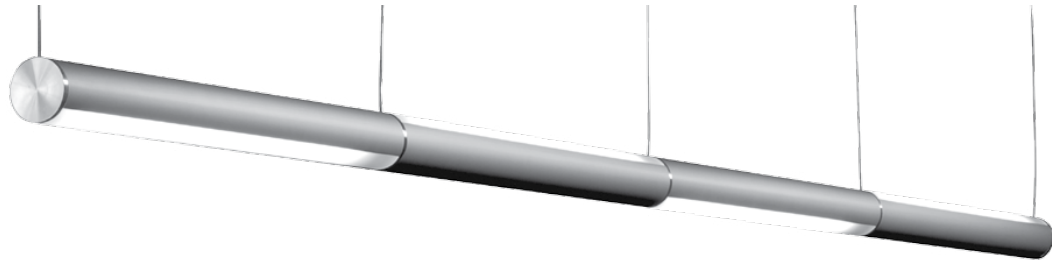
www.birchwoodlighting.com

Type:

Job Name:

**HAILEY LED**1.25", 2.25", 3.25" Round Fixture  
Round Linear LED**Custom Options**

## CUSTOM ALTERNATING DIRECT/INDIRECT FIXTURE CONFIGURATION





## HAILEY LED

225

Stand Alone/Continuous Run

### Fixture Lengths

Fixture Type

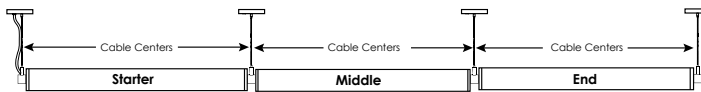
MIAMI - GUNLOCK PERFORMANCE ARTS

### CSS-R | RAS

Approval

SIGN HERE

### Continuous Run Individual Cable/Arm Centers



### Stand Alone Cable/Arm Centers & Overall Length



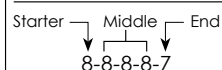
Fixture Length	Cable/Arm Centers (in)	Fixture Length	Cable/Arm Centers (in)	Fixture Length	Cable/Arm Centers (in)	Fixture Length	Cable/Arm Centers (in)	Overall Length (in)
2'	26.000"	2'	26.000"	2'	26.000"	2'	26.000"	27.125"
3'	38.000"	3'	38.000"	3'	38.000"	3'	38.000"	39.125"
4'	50.000"	4'	50.000"	4'	50.000"	4'	50.000"	51.125"
5'	62.000"	5'	62.000"	5'	62.000"	5'	62.000"	63.125"
6'	74.000"	6'	74.000"	6'	74.000"	6'	74.000"	75.125"
7'	86.063"	7'	86.063"	7'	86.063"	7'	86.063"	87.188"
8'	98.063"	8'	98.063"	8'	98.063"	8'	98.063"	99.188"

### Continuous Run Lengths and Fixture Length Segments

Nominal Length (ft)	CSS-R/RAS Overall Length (in)	Fixture Length Segments	Nominal Length (ft)	CSS-R/RAS Overall Length (in)	Fixture Length Segments	Nominal Length (ft)	CSS-R/RAS Overall Length (in)	Fixture Length Segments
9	9' - 5.125"	6-3	23	22' - 7.25"	8-8-6	37	36' - 11.375"	8-8-8-8-4
10	10' - 5.188"	8-2	24	23' - 7.313"	8-8-7	38	37' - 11.375"	8-8-8-8-5
11	11' - 5.188"	8-3	25	24' - 7.313"	8-8-8	39	38' - 11.375"	8-8-8-8-6
12								
13								
14								
15	15' - 5.25"	8-7	29	28' - 9.313"	8-8-8-4	43	43' - 1.438"	8-8-8-8-8-2
16	16' - 5.25"	8-8	30	29' - 9.313"	8-8-8-5	44	44' - 1.438"	8-8-8-8-8-3
17	0' - 0"		31	30' - 9.313"	8-8-8-6	45	45' - 1.438"	8-8-8-8-8-4
18	17' - 7.25"	7-7-3	32	31' - 9.375"	8-8-8-7	46	46' - 1.438"	8-8-8-8-8-5
19	18' - 7.25"	8-8-2	33	32' - 9.375"	8-8-8-8	47	47' - 1.438"	8-8-8-8-8-6
20	19' - 7.25"	8-8-3	34	33' - 11.313"	8-8-8-6-3	48	48' - 1.5"	8-8-8-8-8-7
21	20' - 7.25"	8-8-4	35	34' - 11.375"	8-8-8-8-2	49	49' - 1.5"	8-8-8-8-8-8
22	21' - 7.25"	8-8-5	36	35' - 11.375"	8-8-8-8-3	50	50' - 3.438"	8-8-8-8-8-6-3

(1) HAI-LED-225-HLO-40-CR38-SC-FW-277-EB-RAS-SC-12" TYPE: W8  
 (1) HAI-LED-225-HLO-40-CR32-SC-FW-277-EB-RAS-SC-12" TYPE: W9

#### Fixture Segments



#825-00012

V-1113

**Job Name:**Miami U - Gunlock Family Athletic  
Performance Center - LEE16-25610-8**Catalog Number:**140040404Y4A-D1-313-MODBASE  
2T02AC-40Q-313 317QB404B

Notes:

**Type:****PL1**

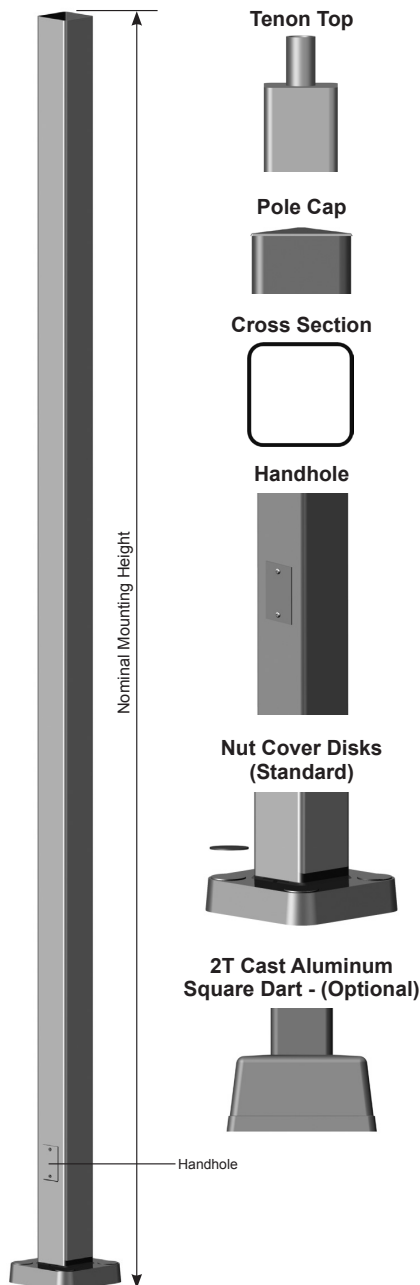
LEE16-25610

**valmont**   
STRUCTURES

# 8' to 35' SOFT SQUARE NON-TAPERED ALUMINUM 4-Bolt Anchor Base

Job Name: _____		Client Name: _____	
Job Location - City: _____	State: _____	Created By: _____	Date: _____
Product: _____	Quote: _____	Customer Approval: _____	Date: _____

## SPECIFICATIONS



**Pole** - The pole shaft is extruded from seamless alloy aluminum.

**Pole Top** - A pole top tenon is provided for top mount luminaire and/or bracket. A removable pole cap is available for poles receiving drilling patterns for side-mount luminaire arm assemblies.

**Handhole** - A covered handhole with hardware and grounding provision are provided.

**Base Cover** - Optional Dart Square - 2T cast aluminum and decorative base covers available as special order.

**Anchor Base** - The anchor base is cast from 356 alloy aluminum. The completed assembly is heat-treated to a T6 temper. Tamper resistant aluminum nut cover discs are included with anchor base unless otherwise specified.

**Anchor Bolts** - Anchor bolts conform to ASTM F1554 Grade 55 and are provided with two hex nuts and two flat washers. Bolts have an "L" bend on one end and are galvanized a minimum of 12" on the threaded end.

**Finish** - The standard finish for the pole assembly and components is satin brushed, natural anodize, duranodic or polyester powder applied coating in accordance with Valmont's Specifications. Additional finish options available upon request.

**Design Criteria** - Please reference Design Criteria Specification for appropriate design conditions.

Poles - Aluminum

SNTA / 4-Bolt Anchor Base

8' to 35'

**Job Name:**Miami U - Gunlock Family Athletic  
Performance Center - LEE16-25610-8**Catalog Number:**14004040Y4A-D1-313-MODBASE  
2T02AC-40Q-313 317QB404B

Notes:

**Type:****PL1**

LEE16-25610

Poles - Aluminum

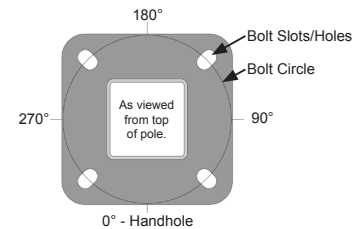
# 8' to 35' SOFT SQUARE NON-TAPERED ALUMINUM 4-Bolt Anchor Base

**valmont**  
STRUCTURES

Job Name: _____	Client Name: _____
Job Location - City: _____ State: _____	Created By: _____ Date: _____
Product: _____ Quote: _____	Customer Approval: _____ Date: _____

**ANCHORAGE DATA**

POLE BASE SQUARE OD (IN)	WALL THK (GA)	BASE PLATE		ANCHOR BOLTS				
		BOLT CIRCLE		SQUARE (IN)	THK (IN)	DIA X LENGTH X HOOK (IN)	PROJECTION (IN)	+/- (IN)
		DIA (IN)	± (IN)					
4.00	0.125	9.00	0.50	9.94	0.375	0.75 x 17.00 x 3.00	3.13	N/A
4.00	0.188	9.00	0.50	9.94	0.375	0.75 x 17.00 x 3.00	3.13	N/A
5.00	0.188	11.00	0.50	11.56	0.500	0.75 x 17.00 x 3.00	3.25	N/A
6.00	0.188	12.50	0.44	12.75	0.563	1.00 x 36.00 x 4.00	4.00	N/A
6.00	0.250	12.50	0.44	12.75	0.563	1.00 x 36.00 x 4.00	4.00	N/A
6.75	0.250	14.63	0.50	15.13	0.750	1.00 x 36.00 x 4.00	4.25	N/A

**Anchor Base Detail**

SNTA / 4-Bolt Anchor Base

8' to 35'

**LOAD AND DIMENSIONAL DATA**

DESIGN INFORMATION											POLE DIMENSIONS					
NOMINAL MOUNTING HEIGHT	70 MPH w/1.3 GUST		80 MPH w/1.3 GUST		90 MPH w/1.3 GUST		100 MPH w/1.3 GUST		110 MPH w/1.3 GUST		POLE HEIGHT	BASE SQUARE OD (IN)	TOP SQUARE OD (IN)	WALL THK (IN)	STRUCTURE WEIGHT* (LBS)	MODEL NUMBER
	MAX EPA¹ (SQ FT)	MAX WEIGHT (LBS)	MAX EPA¹ (SQ FT)	MAX WEIGHT (LBS)	MAX EPA¹ (SQ FT)	MAX WEIGHT (LBS)	MAX EPA¹ (SQ FT)	MAX WEIGHT (LBS)	MAX EPA¹ (SQ FT)	MAX WEIGHT (LBS)						
8'-0"	24.3	350	18.2	350	14.0	350	10.9	350	8.7	350	8'-0"	4.00	4.00	0.125	24	08004040Y4
10'-0"	18.9	260	13.9	260	10.5	260	8.0	260	6.2	260	10'-0"	4.00	4.00	0.125	28	10004040Y4
12'-0"	14.7	260	10.6	260	7.7	260	5.7	260	4.2	260	12'-0"	4.00	4.00	0.125	33	12004040Y4
14'-0"	11.9	200	8.3	200	5.8	200	4.1	200	2.8	200	14'-0"	4.00	4.00	0.125	37	14004040Y4
15'-0"	8.3	200	5.7	200	3.8	200	2.6	200	1.6	200	15'-0"	4.00	4.00	0.125	39	15004040Y4
16'-0"	7.3	200	4.8	200	3.1	200	1.9	200	1.0	200	16'-0"	4.00	4.00	0.125	42	16004040Y4
	12.3	200	8.6	200	6.1	200	4.3	200	3.0	200	16'-0"	4.00	4.00	0.188	59	160040406Y4
18'-0"	5.9	100	3.6	100	2.1	100	N/A	100	N/A	100	18'-0"	4.00	4.00	0.125	46	18004040Y4
	10.1	150	6.8	150	4.6	150	3.0	150	1.8	150	18'-0"	4.00	4.00	0.188	66	180040406Y4
	18.0	260	12.7	260	9.0	260	6.4	260	4.4	260	18'-0"	5.00	5.00	0.188	85	180050506Y4
20'-0"	4.1	150	2.1	150	N/A	150	N/A	150	N/A	150	20'-0"	4.00	4.00	0.125	51	20004040Y4
	8.1	150	5.2	150	3.1	150	1.7	150	N/A	150	20'-0"	4.00	4.00	0.188	73	200040406Y4
	15.4	150	10.5	150	7.1	150	4.7	150	2.9	150	20'-0"	5.00	5.00	0.188	93	200050506Y4
	24.8	150	17.4	150	12.3	150	8.7	150	6.0	150	20'-0"	6.00	6.00	0.188	114	200060606Y4
25'-0"	33.8	260	24.3	260	17.8	260	13.2	260	9.7	260	20'-0"	6.00	6.00	0.250	148	200060608Y4
	9.5	100	5.6	100	3.0	100	1.0	100	N/A	100	25'-0"	5.00	5.00	0.188	115	250050506Y4
	15.8	260	10.1	260	6.1	260	3.3	260	1.3	260	25'-0"	6.00	6.00	0.188	139	250060606Y4
30'-0"	23.3	260	15.8	260	10.7	260	7.0	260	4.3	260	25'-0"	6.00	6.00	0.250	182	250060608Y4
	14.2	260	8.6	260	4.8	260	2.0	260	N/A	260	30'-0"	6.00	6.00	0.250	216	+300060608Y4
32'-0"	20.3	260	13.0	260	8.0	260	4.4	260	1.7	260	30'-0"	6.75	6.75	0.250	250	+30006888Y4
	12.2	150	6.9	150	3.2	150	N/A	150	N/A	150	32'-0"	6.00	6.00	0.250	229	+320060608Y4
35'-0"	9.1	100	4.2	100	N/A	100	N/A	100	N/A	100	35'-0"	6.00	6.00	0.250	250	+350060608Y4
	13.6	150	7.3	150	3.0	150	N/A	150	N/A	150	35'-0"	6.75	6.75	0.250	288	+35006888Y4

- EPA represents the Effective Projected Area of each luminaire. Designs are limited to top mount or side-mount luminaires. Variations from sizes above are available upon inquiry at the factory. Satisfactory performance of poles is dependent upon the pole being properly attached to a supporting foundation of adequate design.
- Structure weight is a nominal value which includes the pole shaft and base plate.

+ Pole includes factory installed vibration damper.

**PRODUCT ORDERING CODES**

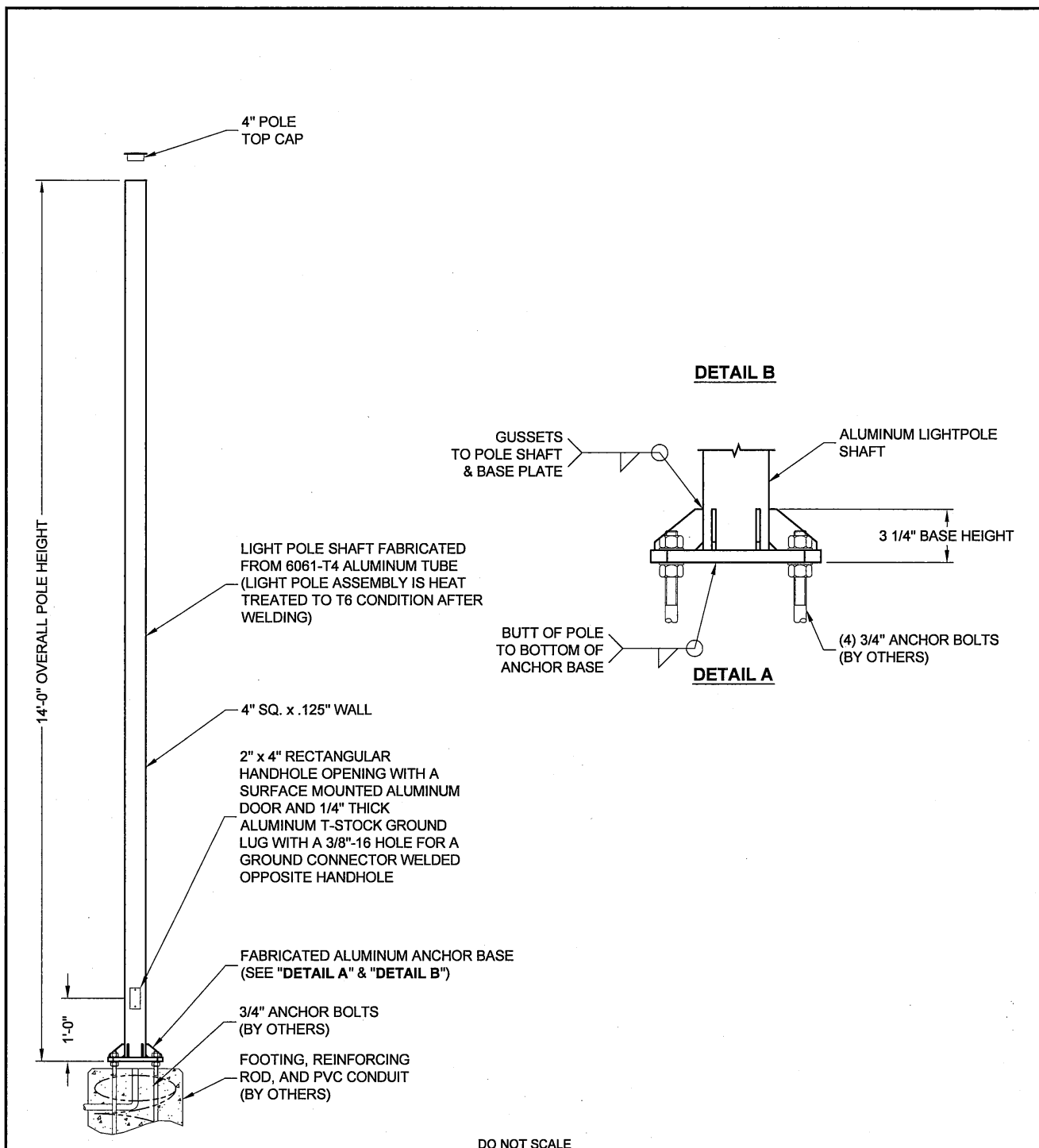
CROSS SECTION	MODEL NUMBER		FIXTURE MOUNTING	COLOR		OPTIONS
S						
S = Square						
	08004040Y4 10004040Y4 12004040Y4 14004040Y4 15004040Y4 16004040Y4 18004040Y4 18004060Y4 18005050Y4 20004040Y4 20004060Y4 20005050Y4 20006060Y4 20006080Y4 25005050Y4	25006060Y4 25006080Y4 +30006060Y4 +30006888Y4 +32006888Y4 +35006060Y4 +35006888Y4	<b>Drill Mounting</b> D1 = 1 Luminaire D2 = 2 @ 180° D4 = 4 @ 90° D5 = 2 @ 90° D6 = 3 @ 90°  <b>Tenon Mounting</b> P2 = 2.38" OD x 4.00" P3 = 3.50" OD x 6.00" P4 = 4.00" OD x 6.00" P5 = 2.88" OD x 4.00" P7 = 2.38" OD x 5.00" PQ = 2.38" OD x 12.00" PD = 3.00" OD x 3.00" -- = Plain Top P9 = Other Tenon (Contact Factory)	<b>Polyester Powder</b> DWH = White DSS = Sandstone BR = Burgundy HG = Hunter Green DNA = Natural Aluminum DCG = Charcoal Gray DMB = Medium Bronze SBN = Sanded Brown DNB = New Dark Bronze DDB = Dark Bronze SBK = Sanded Black DBL = Black DSB = Steel Blue DTG = Dark Green DBR = Red SC = Special Color (Contact Factory)	<b>Anodized</b> 204 = Clear Natural 311 = Light Bronze* 312 = Medium Bronze* 313 = Dark Bronze* 335 = Black *Duranodic Anodize  <b>Brushed</b> SBF = Satin Brushed	See Accessories at valmontstructures.com (Please Specify with Code)  <b>MODIFIED POLE - SEE ATTACHED</b>

**Job Name:**Miami U - Gunlock Family Athletic  
Performance Center - LEE16-25610-8**Catalog Number:**140040404Y4A-D1-313-MODBASE  
2T02AC-40Q-313 317QB404B

Notes:

**Type:****PL1**

LEE16-25610



DO NOT SCALE

**valmont**

Valmont Industries, Inc. Structures Division  
20805 Eaton Ave Farmington, Minnesota 55024-7932  
Phone: (651) 463-8990 (800) 899-7577  
Fax: (651) 463-3349
**\*\*CONFIDENTIAL\*\***

The information contained in this drawing is privileged and confidential, and may be protected from disclosure. Please be aware that any use or dissemination of this drawing may be subject to legal restriction or sanction.

TITLE:		QTY:	
S		1	
MODEL NO.:		DWN BY:	
MATERIAL: ALUMINUM ALLOY		PTP	
FINISH: DURO - DARK BRONZE 313		CHK'D BY:	
PROJECT: MIAMI (OH) UNIVERSITY		APPR BY:	
SOLD TO:		DATE:	
SHIP TO:		05-05-11	
P.O. NO:		DWN NO:	
REP: LEESMAN		LS24061B	
REV		PAGE:	
DATE		2 / 2	
REVISION DESCRIPTION			
BY			



# Cree Edge™ Series

LED Area/Flood Luminaire

## Product Description

The Cree Edge™ Series has a slim, low profile design. Its rugged cast aluminum housing minimizes wind load requirements and features an integral, weathertight LED driver compartment and high performance aluminum heat sinks. Various mounting choices: Adjustable Arm, Direct Arm, Direct Arm Long, or Side Arm (details on page 2). Includes a leaf/debris guard.

**Applications:** Parking lots, walkways, campuses, car dealerships, office complexes, and internal roadways

## Performance Summary

Patented NanoOptic® Product Technology

Made in the U.S.A. of U.S. and imported parts

**CRI:** Minimum 70 CRI

**CCT:** 4000K (+/- 300K), 5700K (+/- 500K) standard

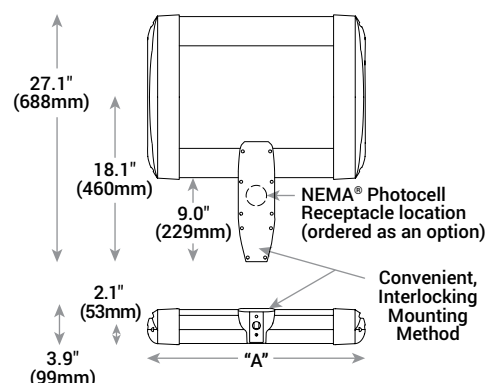
**Limited Warranty\*:** 10 years on luminaire/10 years on Colorfast DeltaGuard® finish

\*See [www.cree.com/lighting/products/warranty](http://www.cree.com/lighting/products/warranty) for warranty terms

## Accessories

Field-Installed	
<b>Bird Spikes</b> XA-BRDSBK <b>Hand-Held Remote</b> XA-SENSREM - For successful implementation of the programmable multi-level option, a minimum of one hand-held remote is required	<b>Backlight Control Shields</b> XA-20BLS-4 - Four-pack - Unpainted stainless steel

## DA Mount



LED Count (x10)	Dim. "A"	Weight
02	12.1" (306mm)	21 lbs. (10kg)
04	12.1" (306mm)	24 lbs. (11kg)
06	14.1" (357mm)	27 lbs. (12kg)
08	16.1" (408mm)	28 lbs. (13kg)
10	18.1" (459mm)	32 lbs. (15kg)
12	20.1" (510mm)	34 lbs. (15kg)
14	22.1" (560mm)	37 lbs. (17kg)
16	24.1" (611mm)	41 lbs. (19kg)

AA/DL/SA Mount - see page 22 for weight & dimensions

## Ordering Information

Example: ARE-EDG-2M-AA-12-E-UL-SV-350

Product	Optic			Mounting*	LED Count (x10)	Series	Voltage	Color Options	Drive Current	Options	
ARE-EDG	2M Type II Medium	3MB Type III Medium w/BLS	4MP Type IV Medium w/Partial BLS	AA Adjustable Arm DA Direct Arm DL Direct Long Arm SA Side Arm - Available with 20-60 LEDs	02 04 06 08 10 12 14 16	E	UL Universal 120-277V UH Universal 347-480V	BK Black BZ Bronze SV Silver WH White	350 350mA 525 525mA 700 700mA - Available with 20-60 LEDs	<b>DIM 0-10V Dimming</b> - Control by others - Refer to Dimming spec sheet for details - Can't exceed specified drive current <b>F Fuse</b> - Refer to ML spec sheet for availability with ML options - Available with UL voltage only - When code dictates fusing, use time delay fuse <b>HL Hi/Low (Dual Circuit Input)</b> - Refer to HL spec sheet for details - Sensor not included <b>ML Multi-Level</b> - Refer to ML spec sheet for details - Intended for downlight applications at 0° tilt <b>P Photocell</b> - Refer to ML spec sheet for availability with ML options - Available with UL voltage only	<b>PML Programmable Multi-Level, 20-40' Mounting Height</b> - Refer to PML spec sheet for details - Intended for downlight applications at 0° tilt <b>PML2 Programmable Multi-Level, 10-30' Mounting Height</b> - Refer to PML spec sheet for details - Intended for downlight applications at 0° tilt <b>R NEMA® Photocell Receptacle</b> - Intended for downlight applications with maximum 45° tilt - Photocell by others - Refer to ML spec sheet for availability with ML options <b>40K 4000K Color Temperature</b> - Minimum 70 CRI - Color temperature per luminaire
FLD-EDG	25 25" Flood 40 40" Flood	70 70" Flood SN Sign	N6 NEMA® 6								

\* Reference EPA and pole configuration suitability data beginning on page 19  
NOTE: Price adder may apply depending on configuration



US: [www.cree.com/lighting](http://www.cree.com/lighting)

T (800) 236-6800 F (262) 504-5415

Rev. Date: V3 10/15/2015

Canada: [www.cree.com/canada](http://www.cree.com/canada)



T (800) 473-1234 F (800) 890-7507

Product Specifications

CONSTRUCTION & MATERIALS

- Slim, low profile, minimizing wind load requirements
- Luminaire sides are rugged die cast aluminum with integral, weathertight LED driver compartment and high performance heat sinks
- DA and DL mount utilizes convenient interlocking mounting method. Mounting is rugged die cast aluminum, mounts to 3-6" (76-152mm) square or round pole and secures to pole with 5/16-18 UNC bolts spaced on 2" (51mm) centers
- AA and SA mounts are rugged die cast aluminum and mount to 2" (51mm) IP, 2.375" (60mm) O.D. tenons
- Includes leaf/debris guard
- Exclusive Colorfast DeltaGuard® finish features an E-Coat epoxy primer with an ultra-durable powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. Black, bronze, silver, and white are available
- **Weight:** See Dimensions and Weight Charts on pages 1 and 22

ELECTRICAL SYSTEM

- **Input Voltage:** 120-277V or 347-480V, 50/60Hz, Class 1 drivers
- **Power Factor:** > 0.9 at full load
- **Total Harmonic Distortion:** < 20% at full load
- DA and DL mounts designed with integral weathertight electrical box with terminal strips (12Ga-20Ga) for easy power hookup
- Integral 10kV surge suppression protection standard
- To address inrush current, slow blow fuse or type C/D breaker should be used
- **Maximum 10V Source Current:** 20 LED (350mA): 10mA; 20 LED (525 & 700mA) and 40-80 LED: 0.15mA; 100-160 LED: 0.30mA

REGULATORY & VOLUNTARY QUALIFICATIONS

- cULus Listed
- Suitable for wet locations
- Enclosure rated IP66 per IEC 60529 when ordered without P or R options
- Consult factory for CE Certified products
- Certified to ANSI C136.31-2001, 3G bridge and overpass vibration standards when ordered with AA, DA and DL mounts
- 10kV surge suppression protection tested in accordance with IEEE/ANSI C62.41.2
- Meets FCC Part 15 standards for conducted and radiated emissions
- Luminaire and finish endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117
- DLC qualified. Exceptions apply when ordered with full backlight control or 3MP optic with 20 LEDs. Please refer to [www.designlights.org/QPL](http://www.designlights.org/QPL) for most current information
- Meets Buy American requirements within ARRA

Electrical Data*							
LED Count (x10)	System Watts 120-480V	Total Current					
		120V	208V	240V	277V	347V	480V
350mA							
02	25	0.21	0.13	0.11	0.10	0.08	0.07
04	46	0.36	0.23	0.21	0.20	0.15	0.12
06	66	0.52	0.31	0.28	0.26	0.20	0.15
08	90	0.75	0.44	0.38	0.34	0.26	0.20
10	110	0.92	0.53	0.47	0.41	0.32	0.24
12	130	1.10	0.63	0.55	0.48	0.38	0.28
14	158	1.32	0.77	0.68	0.62	0.47	0.35
16	179	1.49	0.87	0.77	0.68	0.53	0.39
525mA							
02	37	0.30	0.19	0.17	0.16	0.12	0.10
04	70	0.58	0.34	0.31	0.28	0.21	0.16
06	101	0.84	0.49	0.43	0.38	0.30	0.22
08	133	1.13	0.66	0.58	0.51	0.39	0.28
10	171	1.43	0.83	0.74	0.66	0.50	0.38
12	202	1.69	0.98	0.86	0.77	0.59	0.44
14	232	1.94	1.12	0.98	0.87	0.68	0.50
16	263	2.21	1.27	1.11	0.97	0.77	0.56
700mA							
02	50	0.41	0.25	0.22	0.20	0.15	0.12
04	93	0.78	0.46	0.40	0.36	0.27	0.20
06	134	1.14	0.65	0.57	0.50	0.39	0.29

\* Electrical data at 25°C (77°F). Actual wattage may differ by +/- 10% when operating between 120-480V +/- 10%

Recommended Cree Edge™ Series Lumen Maintenance Factors (LMF) <sup>1</sup>					
Ambient	Initial LMF	25K hr Projected <sup>2</sup> LMF	50K hr Projected <sup>2</sup> LMF	75K hr Calculated <sup>3</sup> LMF	100K hr Calculated <sup>3</sup> LMF
5°C (41°F)	1.04	0.99	0.97	0.95	0.93
10°C (50°F)	1.03	0.98	0.96	0.94	0.92
15°C (59°F)	1.02	0.97	0.95	0.93	0.91
20°C (68°F)	1.01	0.96	0.94	0.92	0.90
25°C (77°F)	1.00	0.95	0.93	0.91	0.89

<sup>1</sup> Lumen maintenance values at 25°C are calculated per TM-21 based on LM-80 data and in-situ luminaire testing

<sup>2</sup> In accordance with IESNA TM-21-11, Projected Values represent interpolated value based on time durations that are within six times (6X) the IESNA LM-80-08 total test duration (in hours) for the device under testing ((DUT) i.e. the packaged LED chip)

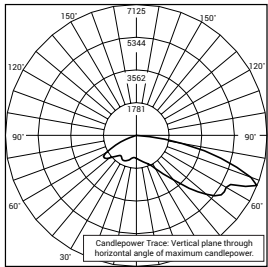
<sup>3</sup> In accordance with IESNA TM-21-11, Calculated Values represent time durations that exceed six times (6X) the IESNA LM-80-08 total test duration (in hours) for the device under testing ((DUT) i.e. the packaged LED chip)



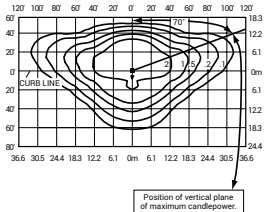
Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP accredited laboratory. To obtain an IES file specific to your project consult: [www.cree.com/Lighting/Tools-and-Support/Exterior-IES-Configuration-Tool](http://www.cree.com/Lighting/Tools-and-Support/Exterior-IES-Configuration-Tool)

2M



CSA Test Report #: 6371  
ARE-EDG-2M-\*\*-06-E-UL-700-40K  
Initial Delivered Lumens: 10,985



ARE-EDG-2M-\*\*-12-E-UL-525-40K  
Mounting Height: 25' (7.6m) A.F.G.  
Initial Delivered Lumens: 17,710  
Initial FC at grade

Type II Medium Distribution				
LED Count (x10)	4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
350mA				
02	2,138	B1 U0 G1	2,220	B1 U0 G1
04	4,276	B1 U0 G1	4,440	B1 U0 G1
06	6,340	B2 U0 G1	6,584	B2 U0 G2
08	8,454	B2 U0 G2	8,779	B2 U0 G2
10	10,542	B2 U0 G2	10,947	B2 U0 G2
12	12,650	B2 U0 G2	13,137	B3 U0 G3
14	14,665	B3 U0 G3	15,229	B3 U0 G3
16	16,760	B3 U0 G3	17,405	B3 U0 G3
525mA				
02	2,993	B1 U0 G1	3,108	B1 U0 G1
04	5,986	B2 U0 G1	6,216	B2 U0 G1
06	8,876	B2 U0 G2	9,218	B2 U0 G2
08	11,835	B2 U0 G2	12,290	B2 U0 G2
10	14,759	B3 U0 G3	15,326	B3 U0 G3
12	17,710	B3 U0 G3	18,391	B3 U0 G3
14	20,531	B3 U0 G3	21,321	B3 U0 G3
16	23,464	B3 U0 G3	24,367	B3 U0 G3
700mA				
02	3,656	B1 U0 G1	3,796	B1 U0 G1
04	7,311	B2 U0 G2	7,593	B2 U0 G2
06	10,842	B2 U0 G2	11,259	B2 U0 G2

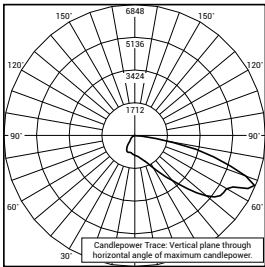
\* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens  
\*\* For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: [www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf](http://www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf).  
Valid with no tilt



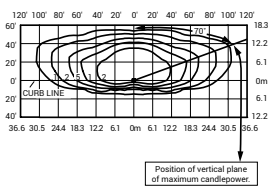
Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP accredited laboratory. To obtain an IES file specific to your project consult: [www.cree.com/Lighting/Tools-and-Support/Exterior-IES-Configuration-Tool](http://www.cree.com/Lighting/Tools-and-Support/Exterior-IES-Configuration-Tool)

2MB



CSA Test Report #: 6447  
ARE-EDG-2MB-\*\*-06-E-UL-700-40K  
Initial Delivered Lumens: 7,953



ARE-EDG-2MB-\*\*-12-E-UL-525-40K  
Mounting Height: 25' (7.6m) A.F.G.  
Initial Delivered Lumens: 13,340  
Initial FC at grade

Type II Medium Distribution w/BLS				
LED Count (x10)	4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
350mA				
02	1,610	B0 U0 G1	1,672	B0 U0 G1
04	3,221	B0 U0 G1	3,345	B0 U0 G1
06	4,776	B1 U0 G1	4,959	B1 U0 G1
08	6,368	B1 U0 G1	6,613	B1 U0 G2
10	7,941	B1 U0 G2	8,246	B1 U0 G2
12	9,529	B1 U0 G2	9,895	B1 U0 G2
14	11,046	B1 U0 G2	11,471	B1 U0 G2
16	12,624	B1 U0 G2	13,110	B1 U0 G2
525mA				
02	2,254	B0 U0 G1	2,341	B0 U0 G1
04	4,509	B1 U0 G1	4,682	B1 U0 G1
06	6,686	B1 U0 G2	6,943	B1 U0 G2
08	8,915	B1 U0 G2	9,258	B1 U0 G2
10	11,117	B1 U0 G2	11,544	B1 U0 G2
12	13,340	B1 U0 G2	13,853	B1 U0 G2
14	15,465	B2 U0 G2	16,060	B2 U0 G3
16	17,674	B2 U0 G3	18,354	B2 U0 G3
700mA				
02	2,754	B0 U0 G1	2,860	B0 U0 G1
04	5,507	B1 U0 G1	5,719	B1 U0 G1
06	8,167	B1 U0 G2	8,481	B1 U0 G2

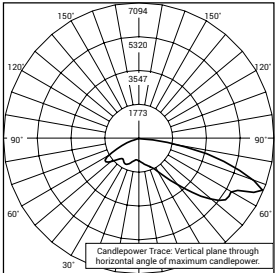
\* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens  
\*\* For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: [www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf](http://www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf). Valid with no tilt



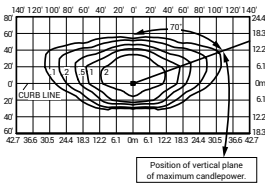
# Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP accredited laboratory. To obtain an IES file specific to your project consult: [www.cree.com/Lighting/Tools-and-Support/Exterior-IES-Configuration-Tool](http://www.cree.com/Lighting/Tools-and-Support/Exterior-IES-Configuration-Tool)

## 2MP



CSA Test Report #: 6361  
ARE-EDG-2MP-\*\*-06-E-UL-700-40K  
Initial Delivered Lumens: 9,912



ARE-EDG-2MP-\*\*-12-E-UL-525-40K  
Mounting Height: 25' (7.6m) A.F.G.  
Initial Delivered Lumens: 15,640  
Initial FC at grade

Type II Medium Distribution w/Partial BLS				
LED Count (x10)	4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
350mA				
02	1,888	B1 U0 G1	1,961	B1 U0 G1
04	3,776	B1 U0 G1	3,921	B1 U0 G1
06	5,599	B1 U0 G1	5,815	B1 U0 G1
08	7,466	B2 U0 G2	7,753	B2 U0 G2
10	9,310	B2 U0 G2	9,668	B2 U0 G2
12	11,172	B2 U0 G2	11,601	B2 U0 G2
14	12,951	B2 U0 G2	13,449	B2 U0 G2
16	14,801	B2 U0 G2	15,370	B2 U0 G3
525mA				
02	2,643	B1 U0 G1	2,745	B1 U0 G1
04	5,286	B1 U0 G1	5,490	B1 U0 G1
06	7,839	B2 U0 G2	8,140	B2 U0 G2
08	10,452	B2 U0 G2	10,854	B2 U0 G2
10	13,034	B2 U0 G2	13,535	B2 U0 G2
12	15,640	B2 U0 G3	16,242	B3 U0 G3
14	18,131	B3 U0 G3	18,829	B3 U0 G3
16	20,722	B3 U0 G3	21,519	B3 U0 G3
700mA				
02	3,228	B1 U0 G1	3,353	B1 U0 G1
04	6,457	B2 U0 G1	6,705	B2 U0 G1
06	9,575	B2 U0 G2	9,943	B2 U0 G2

\* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens  
\*\* For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: [www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf](http://www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf).  
Valid with no tilt

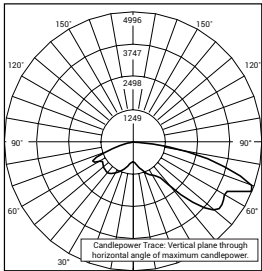




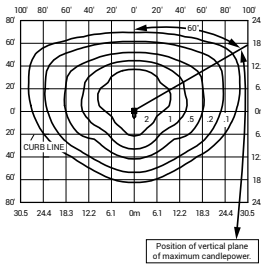
Photometry

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3M



CSA Test Report #: 6401  
ARE-EDG-3M-\*\*-06-E-UL-700-40K  
Initial Delivered Lumens: 10,657



ARE-EDG-3M-\*\*-12-E-UL-525-40K  
Mounting Height: 25' (7.6m) A.F.G.  
Initial Delivered Lumens: 16,790  
Initial FC at grade

Type III Medium Distribution				
LED Count (x10)	4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
350mA				
02	2,027	B1 U0 G1	2,105	B1 U0 G1
04	4,054	B1 U0 G1	4,209	B1 U0 G1
06	6,011	B2 U0 G2	6,242	B2 U0 G2
08	8,015	B2 U0 G2	8,323	B2 U0 G2
10	9,994	B3 U0 G3	10,379	B3 U0 G3
12	11,993	B3 U0 G3	12,454	B3 U0 G3
14	13,903	B3 U0 G3	14,438	B3 U0 G3
16	15,889	B3 U0 G3	16,501	B3 U0 G3
525mA				
02	2,837	B1 U0 G1	2,947	B1 U0 G1
04	5,675	B2 U0 G2	5,893	B2 U0 G2
06	8,415	B2 U0 G2	8,739	B2 U0 G2
08	11,220	B3 U0 G3	11,652	B3 U0 G3
10	13,992	B3 U0 G3	14,530	B3 U0 G3
12	16,790	B3 U0 G3	17,436	B3 U0 G3
14	19,465	B3 U0 G3	20,213	B3 U0 G3
16	22,245	B3 U0 G3	23,101	B3 U0 G3
700mA				
02	3,466	B1 U0 G1	3,599	B1 U0 G1
04	6,932	B2 U0 G2	7,198	B2 U0 G2
06	10,279	B3 U0 G3	10,674	B3 U0 G3

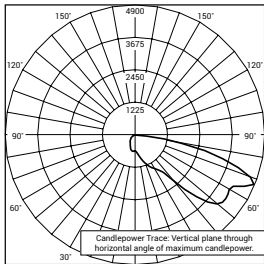
\* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens  
\*\* For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: [www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf](http://www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf). Valid with no tilt



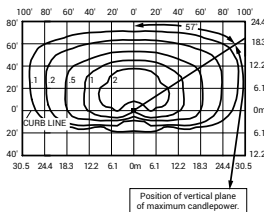
Photometry

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3MB



CSA Test Report #: 6448  
ARE-EDG-3MB-\*\*-06-E-UL-700  
Initial Delivered Lumens: 7,740



ARE-EDG-3MB-\*\*-12-E-UL-525-40K  
Mounting Height: 25' (7.6m) A.F.G.  
Initial Delivered Lumens: 12,420  
Initial FC at grade

Type III Medium Distribution w/BLS				
LED Count (x10)	4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
350mA				
02	1,499	B1 U0 G1	1,557	B1 U0 G1
04	2,999	B1 U0 G1	3,114	B1 U0 G1
06	4,446	B1 U0 G1	4,617	B1 U0 G1
08	5,929	B1 U0 G2	6,157	B1 U0 G2
10	7,393	B1 U0 G2	7,677	B1 U0 G2
12	8,872	B1 U0 G2	9,213	B1 U0 G2
14	10,285	B1 U0 G2	10,680	B1 U0 G2
16	11,754	B1 U0 G3	12,206	B1 U0 G3
525mA				
02	2,099	B1 U0 G1	2,180	B1 U0 G1
04	4,198	B1 U0 G1	4,359	B1 U0 G1
06	6,225	B1 U0 G2	6,464	B1 U0 G2
08	8,300	B1 U0 G2	8,619	B1 U0 G2
10	10,350	B1 U0 G2	10,748	B1 U0 G2
12	12,420	B1 U0 G3	12,898	B1 U0 G3
14	14,398	B1 U0 G3	14,952	B2 U0 G3
16	16,455	B2 U0 G3	17,088	B2 U0 G3
700mA				
02	2,564	B1 U0 G1	2,662	B1 U0 G1
04	5,127	B1 U0 G2	5,325	B1 U0 G2
06	7,603	B1 U0 G2	7,896	B1 U0 G2

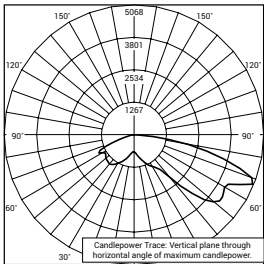
\* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens  
\*\* For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: [www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf](http://www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf).  
Valid with no tilt



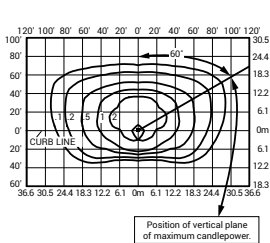
Photometry

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3MP



CSA Test Report #: 6385  
ARE-EDG-3MP-\*\*-06-E-UL-700-40K  
Initial Delivered Lumens: 9,619



ARE-EDG-3MP-\*\*-12-E-UL-525-40K  
Mounting Height: 25' (7.6m) A.F.G.  
Initial Delivered Lumens: 14,720  
Initial FC at grade

Type III Medium Distribution w/Partial BLS				
LED Count (x10)	4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
350mA				
02	1,777	B1 U0 G1	1,845	B1 U0 G1
04	3,554	B1 U0 G1	3,690	B1 U0 G1
06	5,270	B1 U0 G2	5,473	B1 U0 G2
08	7,026	B2 U0 G2	7,297	B2 U0 G2
10	8,762	B2 U0 G2	9,099	B2 U0 G2
12	10,514	B2 U0 G3	10,919	B2 U0 G3
14	12,189	B2 U0 G3	12,658	B2 U0 G3
16	13,930	B3 U0 G3	14,466	B3 U0 G3
525mA				
02	2,488	B1 U0 G1	2,583	B1 U0 G1
04	4,975	B1 U0 G2	5,167	B1 U0 G2
06	7,378	B2 U0 G2	7,662	B2 U0 G2
08	9,837	B2 U0 G2	10,215	B2 U0 G2
10	12,267	B2 U0 G3	12,739	B2 U0 G3
12	14,720	B3 U0 G3	15,286	B3 U0 G3
14	17,065	B3 U0 G3	17,721	B3 U0 G3
16	19,503	B3 U0 G3	20,253	B3 U0 G3
700mA				
02	3,039	B1 U0 G1	3,155	B1 U0 G1
04	6,077	B1 U0 G2	6,311	B1 U0 G2
06	9,011	B2 U0 G2	9,358	B2 U0 G2

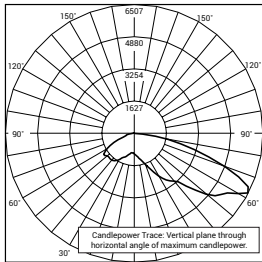
\* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens  
\*\* For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: [www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf](http://www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf).  
Valid with no tilt



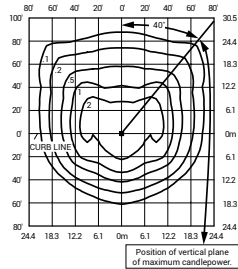
Photometry

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4M



CSA Test Report #: 6438  
ARE-EDG-4M-\*\*-06-E-UL-700-40K  
Initial Delivered Lumens: 11,367



ARE-EDG-4M-\*\*-12-E-UL-525-40K  
Mounting Height: 25' (7.6m) A.F.G.  
Initial Delivered Lumens: 17,710  
Initial FC at grade

Type IV Medium Distribution				
LED Count (x10)	4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
350mA				
02	2,138	B1 U0 G1	2,220	B1 U0 G1
04	4,276	B1 U0 G1	4,440	B1 U0 G1
06	6,340	B2 U0 G2	6,584	B2 U0 G2
08	8,454	B2 U0 G2	8,779	B2 U0 G2
10	10,542	B2 U0 G2	10,947	B2 U0 G2
12	12,650	B3 U0 G3	13,137	B3 U0 G3
14	14,665	B3 U0 G3	15,229	B3 U0 G3
16	16,760	B3 U0 G3	17,405	B3 U0 G3
525mA				
02	2,993	B1 U0 G1	3,108	B1 U0 G1
04	5,986	B2 U0 G1	6,216	B2 U0 G2
06	8,876	B2 U0 G2	9,218	B2 U0 G2
08	11,835	B2 U0 G2	12,290	B3 U0 G3
10	14,759	B3 U0 G3	15,326	B3 U0 G3
12	17,710	B3 U0 G3	18,391	B3 U0 G3
14	20,531	B3 U0 G3	21,321	B3 U0 G3
16	23,464	B3 U0 G3	24,367	B4 U0 G3
700mA				
02	3,656	B1 U0 G1	3,796	B1 U0 G1
04	7,311	B2 U0 G2	7,593	B2 U0 G2
06	10,842	B2 U0 G2	11,259	B2 U0 G2

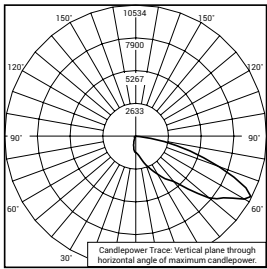
\* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens  
\*\* For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: [www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf](http://www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf).  
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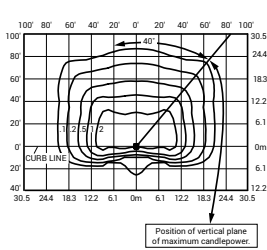
Photometry

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4MB



CSA Test Report #: 6449  
ARE-EDG-4MB-\*\*-12-E-UL-525-40K  
Initial Delivered Lumens: 13,155



ARE-EDG-4MB-\*\*-12-E-UL-525-40K  
Mounting Height: 25' (7.6m) A.F.G.  
Initial Delivered Lumens: 13,340  
Initial FC at grade

Type IV Medium Distribution w/BLS				
LED Count (x10)	4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
350mA				
02	1,610	B0 U0 G1	1,672	B0 U0 G1
04	3,221	B1 U0 G1	3,345	B1 U0 G1
06	4,776	B1 U0 G1	4,959	B1 U0 G1
08	6,368	B1 U0 G2	6,613	B1 U0 G2
10	7,941	B1 U0 G2	8,246	B1 U0 G2
12	9,529	B1 U0 G2	9,895	B1 U0 G2
14	11,046	B1 U0 G2	11,471	B1 U0 G2
16	12,624	B1 U0 G2	13,110	B1 U0 G2
525mA				
02	2,254	B0 U0 G1	2,341	B0 U0 G1
04	4,509	B1 U0 G1	4,682	B1 U0 G1
06	6,686	B1 U0 G2	6,943	B1 U0 G2
08	8,915	B1 U0 G2	9,258	B1 U0 G2
10	11,117	B1 U0 G2	11,544	B1 U0 G2
12	13,340	B1 U0 G2	13,853	B2 U0 G2
14	15,465	B2 U0 G2	16,060	B2 U0 G3
16	17,674	B2 U0 G3	18,354	B2 U0 G3
700mA				
02	2,754	B0 U0 G1	2,860	B0 U0 G1
04	5,507	B1 U0 G1	5,719	B1 U0 G2
06	8,167	B1 U0 G2	8,481	B1 U0 G2

\* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens  
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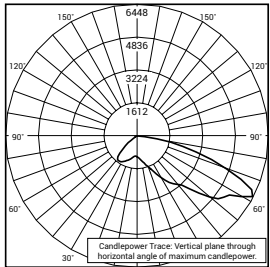




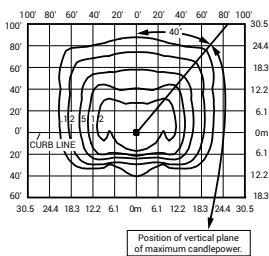
Photometry

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4MP



CSA Test Report #: 6417  
ARE-EDG-4MP-\*\*-06-E-UL-700-40K  
Initial Delivered Lumens: 9,989



ARE-EDG-4MP-\*\*-12-E-UL-525-40K  
Mounting Height: 25' (7.6m) A.F.G.  
Initial Delivered Lumens: 15,640  
Initial FC at grade

Type IV Medium Distribution w/Partial BLS				
LED Count (x10)	4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
350mA				
02	1,888	B1 U0 G1	1,961	B1 U0 G1
04	3,776	B1 U0 G1	3,921	B1 U0 G1
06	5,599	B1 U0 G1	5,815	B1 U0 G1
08	7,466	B2 U0 G2	7,753	B2 U0 G2
10	9,310	B2 U0 G2	9,668	B2 U0 G2
12	11,172	B2 U0 G2	11,601	B2 U0 G2
14	12,951	B2 U0 G2	13,449	B2 U0 G2
16	14,801	B3 U0 G2	15,370	B3 U0 G2
525mA				
02	2,643	B1 U0 G1	2,745	B1 U0 G1
04	5,286	B1 U0 G1	5,490	B1 U0 G1
06	7,839	B2 U0 G2	8,140	B2 U0 G2
08	10,452	B2 U0 G2	10,854	B2 U0 G2
10	13,034	B2 U0 G2	13,535	B2 U0 G2
12	15,640	B3 U0 G2	16,242	B3 U0 G2
14	18,131	B3 U0 G2	18,829	B3 U0 G3
16	20,722	B3 U0 G3	21,519	B3 U0 G3
700mA				
02	3,228	B1 U0 G1	3,353	B1 U0 G1
04	6,457	B2 U0 G1	6,705	B2 U0 G1
06	9,575	B2 U0 G2	9,943	B2 U0 G2

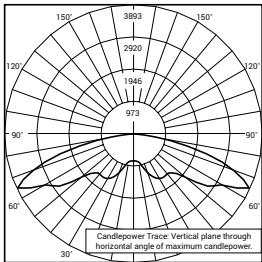
\* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens  
\*\* For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: [www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf](http://www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf). Valid with no tilt



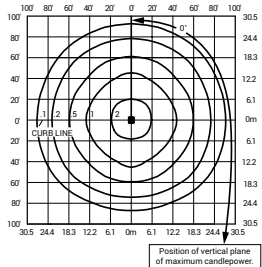
Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP accredited laboratory. To obtain an IES file specific to your project consult: [www.cree.com/Lighting/Tools-and-Support/Exterior-IES-Configuration-Tool](http://www.cree.com/Lighting/Tools-and-Support/Exterior-IES-Configuration-Tool)

5M



CSA Test Report #: 6416  
ARE-EDG-5M-\*\*-06-E-UL-700-40K  
Initial Delivered Lumens: 12,022



ARE-EDG-5M-\*\*-12-E-UL-525-40K  
Mounting Height: 25' (7.6m) A.F.G.  
Initial Delivered Lumens: 18,630  
Initial FC at grade

Type V Medium Distribution				
LED Count (x10)	4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
350mA				
02	2,249	B2 U0 G1	2,335	B2 U0 G1
04	4,498	B3 U0 G1	4,671	B3 U0 G1
06	6,670	B3 U0 G2	6,926	B3 U0 G2
08	8,893	B3 U0 G2	9,235	B3 U0 G2
10	11,089	B4 U0 G2	11,516	B4 U0 G2
12	13,307	B4 U0 G3	13,819	B4 U0 G3
14	15,427	B4 U0 G3	16,020	B4 U0 G3
16	17,631	B4 U0 G3	18,309	B4 U0 G3
525mA				
02	3,148	B2 U0 G1	3,270	B2 U0 G1
04	6,297	B3 U0 G2	6,539	B3 U0 G2
06	9,338	B3 U0 G2	9,697	B3 U0 G2
08	12,450	B4 U0 G3	12,929	B4 U0 G3
10	15,525	B4 U0 G3	16,122	B4 U0 G3
12	18,630	B4 U0 G3	19,347	B4 U0 G3
14	21,598	B5 U0 G3	22,428	B5 U0 G3
16	24,683	B5 U0 G3	25,632	B5 U0 G3
700mA				
02	3,846	B2 U0 G1	3,994	B2 U0 G1
04	7,691	B3 U0 G2	7,987	B3 U0 G2
06	11,405	B4 U0 G2	11,844	B4 U0 G3

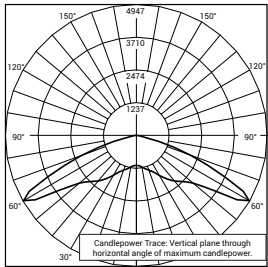
\* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens  
\*\* For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: [www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf](http://www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf). Valid with no tilt



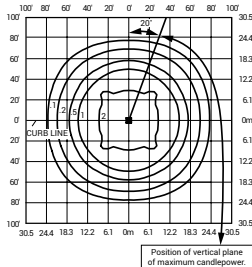
Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP accredited laboratory. To obtain an IES file specific to your project consult: [www.cree.com/Lighting/Tools-and-Support/Exterior-IES-Configuration-Tool](http://www.cree.com/Lighting/Tools-and-Support/Exterior-IES-Configuration-Tool)

5S



CSA Test Report #: 6362  
ARE-EDG-5S-\*\*-06-E-UL-700-40K  
Initial Delivered Lumens: 12,798



ARE-EDG-5S-\*\*-12-E-UL-525-40K  
Mounting Height: 25' (7.6m) A.F.G.  
Initial Delivered Lumens: 20,700  
Initial FC at grade

Type V Short Distribution				
LED Count (x10)	4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
350mA				
02	2,499	B1 U0 G0	2,595	B1 U0 G1
04	4,998	B2 U0 G1	5,190	B2 U0 G1
06	7,411	B3 U0 G1	7,696	B3 U0 G1
08	9,881	B3 U0 G2	10,261	B3 U0 G2
10	12,322	B3 U0 G2	12,796	B3 U0 G2
12	14,786	B4 U0 G2	15,355	B4 U0 G2
14	17,141	B4 U0 G2	17,800	B4 U0 G2
16	19,590	B4 U0 G2	20,343	B4 U0 G2
525mA				
02	3,498	B2 U0 G1	3,633	B2 U0 G1
04	6,997	B3 U0 G1	7,266	B3 U0 G1
06	10,375	B3 U0 G2	10,774	B3 U0 G2
08	13,833	B4 U0 G2	14,365	B4 U0 G2
10	17,250	B4 U0 G2	17,914	B4 U0 G2
12	20,700	B4 U0 G2	21,496	B4 U0 G2
14	23,997	B4 U0 G2	24,920	B4 U0 G2
16	27,426	B5 U0 G3	28,480	B5 U0 G3
700mA				
02	4,273	B2 U0 G1	4,437	B2 U0 G1
04	8,546	B3 U0 G1	8,874	B3 U0 G1
06	12,672	B3 U0 G2	13,160	B3 U0 G2

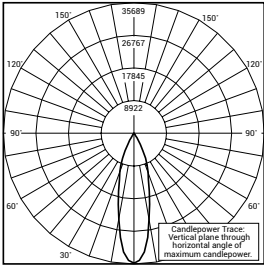
\* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens  
\*\* For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: [www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf](http://www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf).  
Valid with no tilt



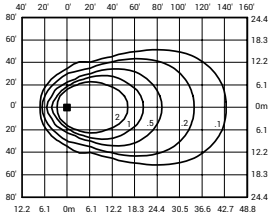
Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP accredited laboratory. To obtain an IES file specific to your project consult: [www.cree.com/Lighting/Tools-and-Support/Exterior-IES-Configuration-Tool](http://www.cree.com/Lighting/Tools-and-Support/Exterior-IES-Configuration-Tool)

25°



RESTL Test Report #: 2014-0006  
FLD-EDG-25-\*\*-06-E-UL-700-40K  
Initial Delivered Lumens: 12,924



FLD-EDG-25-\*\*-12-E-UL-525-40K  
Mounting Height: 25' (7.6m) A.F.G., 60° Tilt  
Initial Delivered Lumens: 21,160  
Initial FC at grade

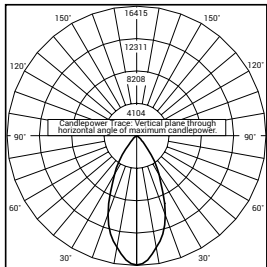
25° Flood Distribution		
LED Count (x10)	4000K	5700K
	Initial Delivered Lumens*	Initial Delivered Lumens*
350mA		
02	2,554	2,653
04	5,109	5,305
06	7,575	7,867
08	10,101	10,489
10	12,595	13,080
12	15,115	15,696
14	17,522	18,196
16	20,025	20,795
525mA		
02	3,576	3,714
04	7,152	7,427
06	10,606	11,013
08	14,141	14,685
10	17,634	18,312
12	21,160	21,974
14	24,531	25,474
16	28,035	29,113
700mA		
02	4,368	4,536
04	8,736	9,072
06	12,954	13,452

\* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

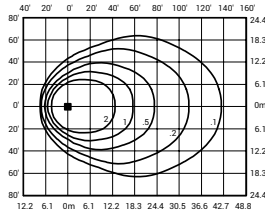
Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP accredited laboratory. To obtain an IES file specific to your project consult: [www.cree.com/Lighting/Tools-and-Support/Exterior-IES-Configuration-Tool](http://www.cree.com/Lighting/Tools-and-Support/Exterior-IES-Configuration-Tool)

40°



ITL Test Report #: 79679  
CAN-EDG-40-\*\*-06-E-UL-700-40K  
Initial Delivered Lumens: 12,889



FLD-EDG-40-\*\*-12-E-UL-525-40K  
Mounting Height: 25' (7.6m) A.F.G., 60° Tilt  
Initial Delivered Lumens: 20,700  
Initial FC at grade

40° Flood Distribution		
LED Count (x10)	4000K	5700K
	Initial Delivered Lumens*	Initial Delivered Lumens*
350mA		
02	2,499	2,595
04	4,998	5,190
06	7,411	7,696
08	9,881	10,261
10	12,322	12,796
12	14,786	15,355
14	17,141	17,800
16	19,590	20,343
525mA		
02	3,498	3,633
04	6,997	7,266
06	10,375	10,774
08	13,833	14,365
10	17,250	17,914
12	20,700	21,496
14	23,997	24,920
16	27,426	28,480
700mA		
02	4,273	4,437
04	8,546	8,874
06	12,672	13,160

\* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

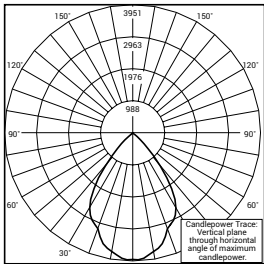




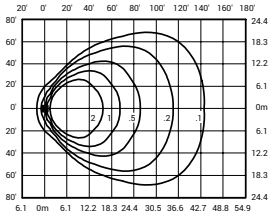
Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP accredited laboratory. To obtain an IES file specific to your project consult: [www.cree.com/Lighting/Tools-and-Support/Exterior-IES-Configuration-Tool](http://www.cree.com/Lighting/Tools-and-Support/Exterior-IES-Configuration-Tool)

70°



RESTL Test Report #: 2014-0007  
FLD-EDG-70-\*\*-04-E-UL-350-40K  
Initial Delivered Lumens: 4,734



FLD-EDG-70-\*\*-12-E-UL-525-40K  
Mounting Height: 25' (7.6m) A.F.G., 60° Tilt  
Initial Delivered Lumens: 18,860  
Initial FC at grade

70° Flood Distribution		
LED Count (x10)	4000K	5700K
	Initial Delivered Lumens*	Initial Delivered Lumens*
350mA		
02	2,277	2,364
04	4,553	4,728
06	6,752	7,012
08	9,003	9,349
10	11,226	11,658
12	13,472	13,990
14	15,617	16,218
16	17,848	18,535
525mA		
02	3,187	3,310
04	6,375	6,620
06	9,453	9,816
08	12,604	13,088
10	15,717	16,321
12	18,860	19,586
14	21,864	22,705
16	24,988	25,949
700mA		
02	3,893	4,043
04	7,786	8,086
06	11,546	11,990

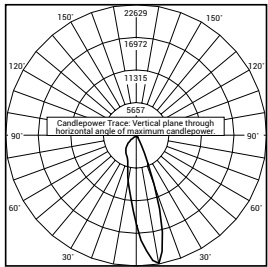
\* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens



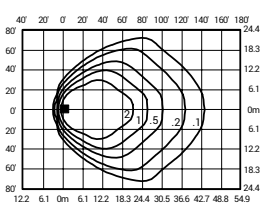
Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP accredited laboratory. To obtain an IES file specific to your project consult: [www.cree.com/Lighting/Tools-and-Support/Exterior-IES-Configuration-Tool](http://www.cree.com/Lighting/Tools-and-Support/Exterior-IES-Configuration-Tool)

SN



RESTL Test Report #: 2014-0013  
FLD-EDG-SN-\*\*-06-E-UL-700-40K  
Initial Delivered Lumens: 11,885



FLD-EDG-SN-\*\*-12-E-UL-525-40K  
Mounting Height: 25' (7.6m) A.F.G., 60° Tilt  
Initial Delivered Lumens: 19,090  
Initial FC at grade

SN Flood Distribution		
LED Count (x10)	4000K	5700K
	Initial Delivered Lumens*	Initial Delivered Lumens*
350mA		
02	2,304	2,393
04	4,609	4,786
06	6,834	7,097
08	9,112	9,463
10	11,363	11,800
12	13,636	14,160
14	15,808	16,416
16	18,066	18,761
525mA		
02	3,226	3,350
04	6,452	6,701
06	9,568	9,936
08	12,757	13,248
10	15,909	16,520
12	19,090	19,825
14	22,131	22,982
16	25,293	26,265
700mA		
02	3,941	4,092
04	7,881	8,184
06	11,687	12,136

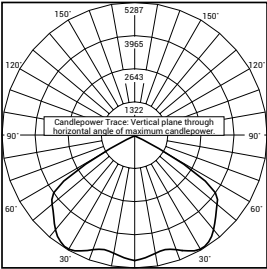
\* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens



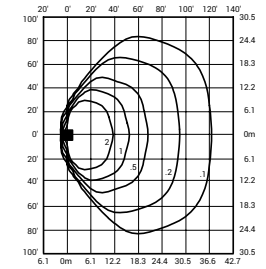
Photometry

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N6



RESTL Test Report #: 2014-0014  
FLD-EDG-N6-\*\*-06-E-UL-700-40K  
Initial Delivered Lumens: 13,253


















FLD-EDG-N6-\*\*-12-E-UL-525-40K  
Mounting Height: 25' (7.6m) A.F.G., 60° Tilt  
Initial Delivered Lumens: 21,160  
Initial FC at grade

NEMA® 6 Flood Distribution		
LED Count (x10)	4000K	5700K
	Initial Delivered Lumens*	Initial Delivered Lumens*
350mA		
02	2,554	2,653
04	5,109	5,305
06	7,575	7,867
08	10,101	10,489
10	12,595	13,080
12	15,115	15,696
14	17,522	18,196
16	20,025	20,795
525mA		
02	3,576	3,714
04	7,152	7,427
06	10,606	11,013
08	14,141	14,685
10	17,634	18,312
12	21,160	21,974
14	24,531	25,474
16	28,035	29,113
700mA		
02	4,368	4,536
04	8,736	9,072
06	12,954	13,452

\* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens










## Luminaire EPA

Fixed Arm Mount – ARE-EDG-DA						
LED Count (x10)	Single	2 @ 90°	2 @ 180°	3 @ 90°	3 @ 120°	4 @ 90°
						
02	0.60	0.87	1.20	1.47	1.47	1.75
04	0.60	0.87	1.20	1.47	1.47	1.75
06	0.60	0.92	1.20	1.51	1.51	1.83
08	0.60	0.96 N/A with 3" poles	1.20	1.55 N/A with 3" poles	1.55	1.91 N/A with 3" poles
10	0.60	1.00 N/A with 3" poles	1.20	1.60 N/A with 3" poles	1.60	2.00 N/A with 3" poles
12	0.60	1.04 N/A with 3" poles	1.20	1.64 N/A with 3" poles	1.64	2.08 N/A with 3" poles
14	0.60	1.08 N/A with 3" or 4" poles	1.20	1.68 N/A with 3" or 4" poles	1.68	2.16 N/A with 3" or 4" poles
16	0.60	1.12 N/A with 3" or 4" poles	1.20	1.72 N/A with 3" or 4" poles	1.72	2.24 N/A with 3" or 4" poles
Fixed Arm Mount – ARE-EDG-DL						
02	0.75	1.02	1.50	1.77	1.77	1.91
04	0.75	1.02	1.50	1.77	1.77	1.91
06	0.75	1.07	1.50	1.82	1.82	1.98
08	0.75	1.11	1.50	1.86	1.86	2.04
10	0.75	1.15	1.50	1.90	1.90	2.10
12	0.75	1.19	1.50	1.94	1.94	2.16
14	0.75	1.23	1.50	1.98	1.98	2.22
16	0.75	1.27	1.50	2.02	2.02	2.28

Adjustable Arm Mount – ARE-EDG-AA/FLD-EDG-AA/SA									
LED Count (x10)	Single	2 @ 90°	2 @ 180°	In-Line 2 @ 180°	3 @ 90°	3 @ 120°	In-Line 3 @ 180°	4 @ 90°	In-Line 4 @ 180°
<b>Tenon Configuration</b> If used with Cree tenons, please add tenon EPA with Luminaire EPA									
									
	Vertical: PB-1A*; PT-1; PW-1A3** Horizontal: By others	Vertical: PB-2A*; PB-2R2.375; PW-2A3** Horizontal: PD-2A4(90); PT-2(90)	Vertical: PB-2A*; PB-2R2.375; PW-2A3** Horizontal: PD-2A4(180); PT-2(180)	Vertical: PB-2A*; PB-2R2.375	Vertical: PB-3A*; PB-3R2.375 Horizontal: PD-3A4(90); PT-3(90)	Vertical: PB-3A*; PB-3R2.375 Horizontal: PT-3(120)	Vertical: PB-3A*; PB-3R2.375	Vertical: PB-4A*(90); PB-4R2.375 Horizontal: PD-4A4(90) PT-4(90)	Vertical: PB-4A*(180); PB-4R2.375
0° Tilt									
02	0.66	0.98	1.32	1.32	1.77	1.64	1.98	1.91	2.64
04	0.66	0.98	1.32	1.32	1.64	1.64	1.98	1.97	2.64
06	0.66	1.02	1.32	1.32	1.68	1.68	1.98	2.05	2.64
08	0.66	1.07	1.32	1.32	1.80	1.72	1.98	2.29	2.64
10	0.66	1.11	1.32	1.32	1.76	1.76	1.98	2.21	2.64
12	0.66	1.15	1.32	1.32	1.80	1.80	1.98	2.29	2.64
14	0.66	1.19	1.32	1.32	1.84	1.84	1.98	2.38	2.64
16	0.66	1.23	1.32	N/A	1.89	1.89	N/A	2.46	N/A

\* Specify pole size: 3 (3"), 4 (4"), 5 (5"), or 6 (6") for single, double or triple luminaire orientation or 4 (4"), 5 (5"), or 6 (6") for quad luminaire orientation  
 \*\* These EPA values must be multiplied by the following ratio: Fixture Mounting Height/Total Pole Height. Specify pole size: 3 (3"), 4 (4"), 5 (5"), or 6 (6")

## Luminaire EPA

Adjustable Arm Mount – ARE-EDG-AA/FLD-EDG-AA/SA									
LED Count (x10)	Single	2 @ 90°	2 @ 180°	In-Line 2 @ 180°	3 @ 90°	3 @ 120°	In-Line 3 @ 180°	4 @ 90°	In-Line 4 @ 180°
Tenon Configuration If used with Cree tenons, please add tenon EPA with Luminaire EPA									
									
	Vertical: PB-1A*; PT-1; PW-1A3** Horizontal: By others	Vertical: PB-2A*; PB-2R2.375; PW-2A3** Horizontal: PD-2A4(90); PT-2(90)	Vertical: PB-2A*; PB-2R2.375; PW-2A3** Horizontal: PD-2A4(180); PT-2(180)	Vertical: PB-2A*; PB-2R2.375	Vertical: PB-3A*; PB-3R2.375 Horizontal: PD-3A4(90); PT-3(90)	Vertical: PB-3A*; PB-3R2.375 Horizontal: PT-3(120)	Vertical: PB-3A*; PB-3R2.375	Vertical: PB-4A*(90); PB-4R2.375 Horizontal: PD-4A4(90) PT-4(90)	Vertical: PB-4A*(180); PB-4R2.375
30° Tilt									
02	0.71	1.37	1.42	1.42	2.08	2.08	2.13	2.73	2.84
04	0.71	1.37	1.42	1.42	2.08	2.08	2.13	2.73	2.84
06	0.82	1.48	1.64	1.64	2.30	2.30	2.46	2.95	3.28
08	0.93	1.59	1.86	1.86	2.52	2.52	2.79	3.17	3.72
10	1.04	1.70	2.08	2.08	2.74	2.74	3.12	3.40	4.16
12	1.15	1.81	2.30	2.30	2.96	2.96	3.45	3.62	4.60
14	1.26	1.92	2.52	2.52	3.18	3.18	3.78	3.84	5.04
16	1.37	2.03	2.74	N/A	3.40	3.40	N/A	4.06	N/A
45° Tilt									
02	0.89	1.55	1.78	1.78	2.45	2.45	2.67	3.10	3.56
04	0.89	1.55	1.78	1.78	2.45	2.45	2.67	3.10	3.56
06	1.03	1.69	2.06	2.06	2.72	2.72	3.09	3.38	4.12
08	1.17	1.83	2.34	2.34	3.00	3.00	3.51	3.66	4.68
10	1.31	1.97	2.62	2.62	3.28	3.28	3.93	3.94	5.24
12	1.45	2.11	2.90	2.90	3.56	3.56	4.35	4.21	5.80
14	1.59	2.25	3.18	3.18	3.83	3.83	4.77	4.49	6.36
16	1.73	2.38	3.46	N/A	4.11	4.11	N/A	4.77	N/A
60° Tilt									
02	1.20	1.86	2.40	2.40	3.06	3.06	3.60	3.72	4.80
04	1.20	1.86	2.40	2.40	3.06	3.06	3.60	3.72	4.80
06	1.39	2.05	2.78	2.78	3.44	3.44	4.17	4.10	5.56
08	1.58	2.23	3.16	3.16	3.81	3.81	4.74	4.47	6.32
10	1.77	2.42	3.54	3.54	4.19	4.19	5.31	4.84	7.08
12	1.95	2.61	3.90	3.90	4.56	4.56	5.85	5.22	7.80
14	2.14	2.80	4.28	4.28	4.94	4.94	6.42	5.59	8.56
16	2.33	2.98	4.66	N/A	5.31	5.31	N/A	5.97	N/A

\* Specify pole size: 3 (3"), 4 (4"), 5 (5"), or 6 (6") for single, double or triple luminaire orientation or 4 (4"), 5 (5"), or 6 (6") for quad luminaire orientation

\*\* These EPA values must be multiplied by the following ratio: Fixture Mounting Height/Total Pole Height. Specify pole size: 3 (3"), 4 (4"), 5 (5"), or 6 (6")



## Luminaire EPA

Adjustable Arm Mount – ARE-EDG-AA/FLD-EDG-AA/SA									
LED Count (x10)	Single	2 @ 90°	2 @ 180°	In-Line 2 @ 180°	3 @ 90°	3 @ 120°	In-Line 3 @ 180°	4 @ 90°	In-Line 4 @ 180°
<b>Tenon Configuration</b> If used with Cree tenons, please add tenon EPA with Luminaire EPA									
	Vertical: PB-1A*; PT-1; PW-1A3** Horizontal: By others	Vertical: PB-2A*; PB-2R2.375; PW-2A3** Horizontal: PD-2A4(90); PT-2(90)	Vertical: PB-2A*; PB-2R2.375; PW-2A3** Horizontal: PD-2A4(180); PT-2(180)	Vertical: PB-2A*; PB-2R2.375	Vertical: PB-3A*; PB-3R2.375 Horizontal: PD-3A4(90); PT-3(90)	Vertical: PB-3A*; PB-3R2.375 Horizontal: PT-3(120)	Vertical: PB-3A*; PB-3R2.375	Vertical: PB-4A*(90); PB-4R2.375 Horizontal: PD-4A4(90) PT-4(90)	Vertical: PB-4A*(180); PB-4R2.375
<b>90° Tilt</b>									
02	1.85	2.51	3.70	3.64	4.36	4.36	5.55	5.02	7.40
04	1.85	2.51	3.70	3.64	4.36	4.36	5.55	5.02	7.40
06	2.14	2.80	4.28	4.22	4.94	4.94	6.42	5.59	8.56
08	2.43	3.09	4.86	4.78	5.51	5.51	7.29	6.17 N/A with horizontal tenon	9.72
10	2.71	3.37	5.42	5.34	6.08	6.08	8.13	6.74 N/A with horizontal tenon	10.84
12	3.00	3.66	6.00	5.90	6.66	6.66	9.00	7.31 N/A with horizontal tenon	12.00
14	3.29	3.95 N/A with PW-2A3**	6.58	6.48	7.23	7.23	9.87	7.89 N/A with horizontal tenon	13.16
16	3.57	4.23 N/A with PW-2A3**	7.14	N/A	7.81	7.81	N/A	8.46 N/A with horizontal tenon	N/A

\* Specify pole size: 3 (3"), 4 (4"), 5 (5"), or 6 (6") for single, double or triple luminaire orientation or 4 (4"), 5 (5"), or 6 (6") for quad luminaire orientation

\*\* These EPA values must be multiplied by the following ratio: Fixture Mounting Height/Total Pole Height. Specify pole size: 3 (3"), 4 (4"), 5 (5"), or 6 (6")

## Tenon EPA

Part Number	EPA
PB-1A*	None
PB-2A*	0.82
PB-3A*	1.52
PB-4A*(180)	2.22
PB-4A*(90)	1.11
PB-2R2.375	0.92
PB-3R2.375	1.62
PB-4R2.375	2.32
PD Series Tenons	0.09
PT Series Tenons	0.10
PW-1A3**	0.47
PW-2A3**	0.94
WM-2	0.08
WM-4	0.25
WM-DM	None

\* Specify pole size: 3 (3"), 4 (4"), 5 (5"), or 6 (6") for single, double or triple luminaire orientation or 4 (4"), 5 (5"), or 6 (6") for quad luminaire orientation

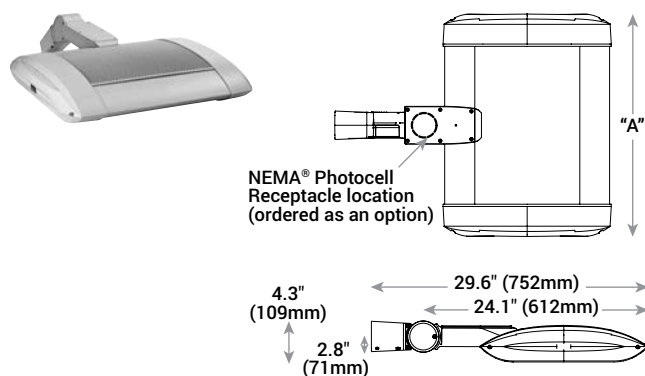
\*\* These EPA values must be multiplied by the following ratio: Fixture Mounting Height/Total Pole Height. Specify pole size: 3 (3"), 4 (4"), 5 (5"), or 6 (6")

Tenons and Brackets <sup>†</sup> (must specify color)	
<b>Square Internal Mount Vertical Tenons (Steel)</b> - Mounts to 3-6" (76-152mm) square aluminum or steel poles PB-1A* – Single PB-4A*(90) – 90° Quad PB-2A* – 180° Twin PB-4A*(180) – 180° Quad PB-3A* – 180° Triple	<b>Round External Mount Vertical Tenons (Steel)</b> - Mounts to 2.375" (60mm) O.D. round aluminum or steel poles or tenons PB-2R2.375 – Twin PB-4R2.375 – Quad PB-3R2.375 – Triple
<b>Square Internal Mount Horizontal Tenons (Aluminum)</b> - Mounts to 4" (102mm) square aluminum or steel poles PD-2A4(90) – 90° Twin PD-3A4(90) – 90° Triple PD-2A4(180) – 180° Twin PD-4A4(90) – 90° Quad	<b>Round External Mount Horizontal Tenons (Aluminum)</b> - Mounts to 2.375" (60mm) O.D. round aluminum or steel poles or tenons - Mounts to square pole with PB-1A* tenon PT-1 – Single (Vertical) PT-3(90) – 90° Triple PT-2(90) – 90° Twin PT-4(90) – 90° Quad PT-2(180) – 180° Twin
<b>Wall Mount Brackets</b> - Mounts to wall or roof WM-2 – Horizontal for AA and SA mounts WM-4 – L-Shape for AA and SA mounts WM-DM – Plate for DA and DL mounts	<b>Mid-Pole Bracket</b> - Mounts to square pole PW-1A3** – Single PW-2A3** – Double

<sup>†</sup> Refer to the [Bracket and Tenons spec sheet](#) for more details

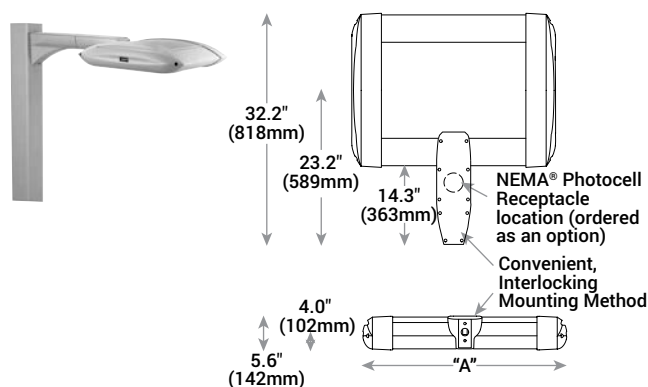


## AA Mount



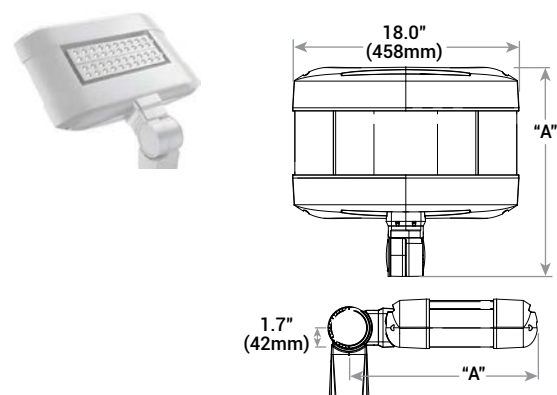
LED Count (x10)	Dim. "A"	Weight
02	12.1" (306mm)	21 lbs. (10kg)
04	12.1" (306mm)	24 lbs. (11kg)
06	14.1" (357mm)	27 lbs. (12kg)
08	16.1" (408mm)	28 lbs. (13kg)
10	18.1" (459mm)	32 lbs. (15kg)
12	20.1" (510mm)	34 lbs. (15kg)
14	22.1" (560mm)	37 lbs. (17kg)
16	24.1" (611mm)	41 lbs. (19kg)

## DL Mount



LED Count (x10)	Dim. "A"	Weight
02	12.1" (306mm)	23 lbs. (10kg)
04	12.1" (306mm)	26 lbs. (12kg)
06	14.1" (357mm)	29 lbs. (13kg)
08	16.1" (408mm)	30 lbs. (14kg)
10	18.1" (459mm)	34 lbs. (15kg)
12	20.1" (510mm)	36 lbs. (16kg)
14	22.1" (560mm)	42 lbs. (19kg)
16	24.1" (611mm)	44 lbs. (20kg)

## SA Mount



LED Count (x10)	Dim. "A"	Weight
02	16.0" (406mm)	25 lbs. (11kg)
04	18.0" (457mm)	26 lbs. (12kg)
06	20.0" (508mm)	28 lbs. (13kg)

Miami Gunlock APC				
	Proposed Design	Baseline Design	Baseline Deduct	Description of Change
Plumbing	\$1,437,000.00	\$1,437,000.00	\$0.00	N/A
Electric and Technology	\$2,475,270.00	\$2,185,860.00	\$289,410.00	Reflects use of non-LED fixtures
HVAC	\$4,441,701.00	\$771,480.00	\$3,670,221.00	Reflects use of VAV DX Rooftop Units w/ packaged VAV with reheat (ASHRAE 90.1-2007, Appendix G)
<b>Total Incremental Cost</b>			<b>\$3,959,631.00</b>	Cost increase from baseline to proposed MEP design.

\*Proposed design values taken from project GMP estimate

Gunlock APC  
DLC/Energy Star

type	#fixtures	watts
s3	10	3320
r1	150	3600
r2	288	6336

WATTS

proposed	32577
allowed	58002

ADJUSTED TOTAL WATTS

OVERALL TOTAL	32581
PERCENT NON DLC/ES	0.59

total	448	13256
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NON

w7	1	17
w2	4	224
s1	85	4760
w1	12	84
s5	18	432
s4	2	404
s2	3	126
r15	33	1386
r14	1	270
r13	4	1048
r12	4	164
r11	6	60
r10	9	747
r9	2	300
r8	2	84
r7	9	1125
r5	10	2160
r6	4	1496
r4	3	126
r3	26	2600
p4	2	348
p3	1	128
p2	16	256
p1	1	80
cv2	5	500
c1	20	200
r16	4	200

total	287	19325
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COST

proposed	2660660
baseline	2185860

ADJUSTED COST

OVERALL TOTAL	735
PERCENT NON DLC/ES	0.39

47660

.822 w/sf

2475270

# COMcheck

type	lamps/fixtu	# of fixture	fixture watt	total watts
w7	1	1	17	17
w2	2	4	56	224
s1	2	85	56	4760
w1	1	12	7	84
s5	1	18	24	432
s4	1	2	202	404
s3	1	10	332	3320
s2	1	3	42	126
r15	1	33	42	1386
r14	1	1	270	270
r13	1	4	262	1048
r12	1	4	41	164
r11	1	6	10	60
r10	1	9	83	747
r9	1	2	150	300
r8	1	2	42	84
r7	1	9	125	1125
r5	1	10	216	2160
r6	1	4	374	1496
r4	1	3	42	126
r3	1	26	100	2600
r1	1	150	24	3600
r2	1	288	22	6336
p4	1	2	174	348
p3	1	1	128	128
p2	1	16	16	256
p1	1	1	80	80
cv2	1	5	100	500
c1	1	20	10	200
r16	1	4	50	200
		735		32577

NAME \_\_\_\_\_

NAME 111A171 GUNLOCK

JOB NO.


216071-02

- 52 -

# Peck Hannaford + Briggs

4670 Chester Avenue  
Cincinnati, Ohio 45232  
513/681-4600  
Fax 513/681-4746  
Fax 513/681-4708

Office  
Estimating

No.  Place this number on your invoice and all packages.  
Invoice in triplicate

To

Date 12/18/ 2015

Ship To

TRI STATE OR' P113  
TBD

\* Case 24 Hrs Before

DeVere

BB SHAD 513-681-4600

**Terms:**

NET / 45

Ship 

Ship to: BEST Wing

When

When: Air Schedule

FOR

FOB: Dick

FREIGHT CHARGE	
----------------	--

YES OR NO

Quantity

### Description

Unit Price

Price

Quantity	Description	Unit Price	Total Price
1 Lot	<del>XXXX</del> AIR DEVICES & ALL SPECIFIED ACCESSORIES	20,000	
51	VAN BOXES, COIL'S & ALL SPECIFIED ACCESSORIES	23,000	
11	GREENHECK LOWERS & ALL SPECIFIED ACCESSORIES	17,000	
6	GREENHECK FANS & ACCESSORIES	9,000	
1 Lot	REMOTE BALANCE DAMPERS, MOTOR OPERATED DAMPERS, FIRE DAMPERS, MOD/WITH ATMS, & ALL ACCESSORIES & SERVICES.	2,000	
	TOTAL FFA	\$	70,000

ALL TO BE IN STRICT ACCORDANCE WITH THE  
PLANS & SPECS BY FRATER ENGINEERING FOR  
THE MIAMI UNIVERSITY GUNLOCK FAMILY  
ATHLETIC PERFORMANCE CENTER.

Provide 1 Set of Electronic Submittals. Hold for Approval. Provide 1 Set Electronic CM Information.

Tag: Miami Gunlock  
PO# 216071-2004  
EQUIPMENT # (12 EF-1-1)

TAXABLE Y/N

The foregoing Purchase Order is subject to the General Conditions on the reverse side hereof.

By

NAME MIAMI GUNLOCK

JOB NO. 216071-01  
- 300

**Peck  
Hannaford  
+ Briggs**

4670 Chester Avenue  
Cincinnati, Ohio 45232  
513/681-4600  
Fax 513/681-4746  
Fax 513/681-4708 Office  
Estimating

No. 8  
Place this number on your  
invoice and all package.  
Invoice in triplicate

To BLACKMORE & GLUNT

Ship To PHB Date 12/17/2015

ATTN: PETE SKELLY

ATTN: TOM BENDER  
513-702-5389  
\*Call RA HAS BEFORE DELIVER

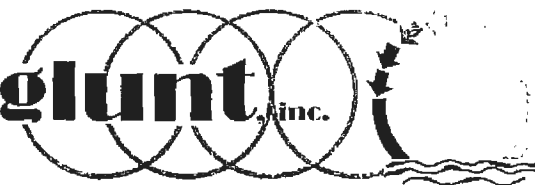
Quantity	Description	Unit Price	Price
1 Lot	HVAC EQUIPMENT Per Your Quote # 15-11608-C REV-2 DATED 10/29/15. ALL 12 STRICT ACCORDANCE WITH THE PLANS & SPECS BY PRATER ENGINEERING FOR MIAMI GUNLOCK FAMILY PERFORMANCE CENTER PROJECT.		
	TOTAL FFA	\$	58,965
	Provide 1 Set of SUBMITTALS ELECTRONICALLY. Hold For Approval.		
	TAG: MIAMI GUNLOCK PO# 216071-3007 ATTN: TOM BENDER		
	TAXABLE Y/N		

The foregoing Purchase Order is subject to the General Conditions on the reverse side hereof.

By [Signature]



# blackmore and glunt, inc.

**PROPOSAL**

**TO: Peck Hannaford & Briggs**  
**Attn: Bob Henry**

**FROM: Dan Molnar**

**FILE: 15-11608-1C Rev-2**

**DATE: October 29, 2015**

**TERMS: Net 30 Days**  
**Full Freight Allowed**  
**F.O.B. Shipping Point**

**JOB: MU Gunlock Athletic Center**  
**Oxford, OH**

**BID DATE: 10/29/2015**

**ENGINEER: Prater Engineering**

We are pleased to quote you on the following equipment for the above job subject to approval. Quantities listed are not guaranteed and should be verified. Prices will be adjusted accordingly. This quotation is subject to change without notice and void after 30 days unless otherwise stated below. All Contracts or Orders are subject to acceptance by Blackmore & Glunt, Inc. and are contingent upon non-occurrence of strikes or other delays beyond our control. In addition to prices named herein, you are to pay any applicable sales taxes. This quotation is not eligible for credit card purchase.

Pricing does not include Seismic Certifications or Centers of Gravity unless otherwise stated.

Pricing does not include Motor Starters and/or Variable Frequency Drives with any equipment unless specifically listed.

Qty	Description & Tag		
	<b>Base Bid</b>		
2	<b>Tag: GWP-1, 2 Geothermal</b> B&G Base Mounted Pump Series e-1510, Model 5 GB, SS, 60 HP, 1800 RPM, 364T Frame, DPPE, Nema Premium Efficient, w/Aegis sgr,230/460/3/60 Motor, 935 GPM, 160 FT TDH		
2	<b>Tag: For GWP-1, 2</b> B&G HG-3X Suction Diffuser Plus 8 In. Flng. X 6 In. Flng.		
4	<b>Tag: For GWP-1, 2</b> Metraflex MMCC-8 inch flanged stainless steel flex connector 12 inch OAL		
1	<b>Tag: AS-1 Geothermal Water</b> B&G R-8F Rolairtrol Air Separator 8 In. Flng w/ Strainer and air vent. <b>Quoting 8" air separator in lieu of 6" shown on drawings. Max flow for the 6" is 700 GPM.</b>		
1	<b>Tag: ET-1 Geothermal</b> B&G B400 Series B ASME Bladder Tank (106 GAL) w/TPV-1FM		

Qty	Description & Tag		
2	<b>Tag: HWP-1, 2 HTG Water</b> B&G Base Mounted Pump Series e-1510, Model 2 EB, SS, 7.5 HP, 1800 RPM, 213T Frame, DPPE, Nema Premium Efficient, w/Aegis sgr, 230/460/3/60 Motor, 125 GPM, 90 FT TDH		
2	<b>Tag: HWP-3, 4 HTG Water</b> B&G Base Mounted Pump Series e-1510, Model 2 BD, SS, 7.5 HP, 1800 RPM, 213T Frame, DPPE, Nema Premium Efficient, w/Aegis sgr, 230/460/3/60 Motor, 125 GPM, 80 FT TDH		
4	<b>Tag: For HWP-1, 2, 3, 4</b> B&G EC-3X Suction Diffuser Plus 4 In. Flng x 2.5 In. Flng		
8	<b>Tag: For HWP-1, 2, 3, 4</b> Metraflex MMCC-4 inch flanged stainless steel flex connector 9 inch OAL		
4	<b>Tag: For HWP-1, 2, 3, 4</b> Vibration Eliminator SN-OST Inertia Base Frame with 1.0 inch Deflection Housed Spring Isolators		
1	<b>Tag: AS-2 HW</b> B&G CRSN-4F Coalescing Removal Separator Standard Velocity 4 IN. Flange Non-Removable Head 150# W.P. w/purge valve		
1	<b>Tag: ET-2 HW</b> B&G B200 Series B ASME Bladder Tank (53 GAL) w/TPV-1FM		
1	<b>Tag: HX-1 Domestic Water HX</b> B&G Model - AP64 DW (Double Wall) Plate Heat Exchanger - Consisting of 1000mm frame with 65, 2 x 0.4 mm AISI316 TL heat transfer plates and NITRILE HT gaskets, STL header plates, SS carry bar, SS guide bar, OSHA approved ALUMINUM splash guard, 4" 316SS lined studded port for 150# ansi flange (Hot side). 4" 316SS lined studded port for 150# ansi flange (Cold side). ASME construction with U1 stamp for 150 design pressure. AHRI certified.		
1	<b>Tag: HX-2 Domestic Water HX</b> B&G Model - AP64 DW (Double Wall) Plate Heat Exchanger - Consisting of 1000mm frame with 81, 2 x 0.4 mm AISI316 TL heat transfer plates and NITRILE HT gaskets, STL header plates, SS carry bar, SS guide bar, OSHA approved ALUMINUM splash guard, 4" 316SS lined studded port for 150# ansi flange (Hot side). 4" 316SS lined studded port for 150# ansi flange (Cold side). ASME construction with U1 stamp for 150 design pressure. AHRI certified.		
<b>NET LOT FOR ABOVE EQUIPMENT</b>			<b>\$58,965.00</b>

	<p style="text-align: center;"><b>Turner Logistics, LLC</b></p> <p style="text-align: center;"><b>Purchase Contract Goods Data Sheet</b></p> <p>The terms and conditions of the <b>STANDARD - 6.27.08</b> shall govern this Purchase Contract Goods with the exception of those modifications listed below:</p> <p><b>Date: 01/04/2016    Purchase Contract Number: 4500003802    Project Number: 151367</b></p>
<b>Delivery Information</b>	<p>Mark and Deliver Material Specified below to:</p> <p><b>181 COLE SERVICE BUILDING, OXFORD, OH, 45056</b></p>
	<p>Mail 2 Copies of Invoices and Shipping Lists to:</p> <p><b>Turner Logistics, LLC</b>  <b>4 Skyline Drive, Hawthorne, NY 10532</b></p>
<b>Vendor Information</b>	<p><b>Seller:</b>  <b>Elitaire, Inc.</b>  <b>6155 Huntley Road Suite A,</b>  <b>Columbus, OH, 43229-1096</b></p> <p><b>Turner Logistics, LLC</b> (hereinafter called Contractor) AGREES TO PURCHASE FROM SELLER WHO AGREES TO SELL, MARK AND DELIVER TO <b>Turner Logistics, LLC F.O.B 181 COLE SERVICE BUILDING, OXFORD, OH, 45056</b> THE GOODS SPECIFIED HEREIN BELOW SUBJECTED TO THE TERMS AND CONDITIONS OF THIS PURCHASE CONTRACT.</p>
<b>Project Information</b>	<p>Project Name: <b>Miami Athletic Performance Center</b>  Project Location: <b>181 COLE SERVICE BUILDING, OXFORD, OH, 45056</b></p> <p>(Complete appropriate box)  Sales Taxes: _____ Applicable (see details below)                    <input checked="" type="checkbox"/> Exempt Project</p> <p>Payment Terms: <b>Net Due in 45 Days</b></p> <p>Retention Terms: %</p>
<b>Scope</b>	<p>Attachments: Additional Provisions/Scope of Work <b>Attachment B Scope of Work, Attachment C Coordination Matrix, Attachment D Quote, Attachment E Specification Compliance Statement</b>, annexed hereto and made a part hereof.</p>
<b>Price</b>	<p>Purchase Order Amount: <b>FIVE HUNDRED NINETY-EIGHT THOUSAND FIVE HUNDRED Dollars, \$598,500.00</b> (hereinafter called the Price)</p>
<b>Liability for Damage and Personal Injury</b>	<p>In addition to <b>Turner Logistics, LLC</b>, and the Owner, the Indemnified Parties throughout this Agreement shall include: and any of their respective officers, agents, servants, or employees, and affiliates, parents and subsidiaries. The indemnified parties shall be listed as Additional Insured on all Insurance coverages listed below with exception of Worker's Compensation.</p> <p>Before commencing the Work, the following insurance coverages from insurance companies satisfactory to <b>Turner Logistics, LLC</b> shall be in place and maintained until completion and final acceptance of the Work:</p>

	<p>1. WORKERS' COMPENSATION AND EMPLOYERS' LIABILITY INSURANCE in accordance with laws of the State in which the Work is situated.</p> <p>2. COMMERCIAL GENERAL LIABILITY INSURANCE.</p> <p style="text-align: center;"><b>\$3,000,000.00</b> / Occurrence <b>\$3,000,000.00</b> / General Aggregate</p> <p>3. COMMERCIAL AUTOMOBILE LIABILITY INSURANCE.</p> <p style="text-align: center;">Combined Single Limit <b>\$1,000,000.00</b> /accident</p>
<b>Bonds</b>	<p>Payment and Performance Bonds included: <b>NO</b></p> <p>If Payment and Performance Bonds included:</p> <p>Provide performance bond in the amount of <b>\$ 0.00</b></p> <p>Provide payment bond in the amount of <b>\$ 0.00</b></p>
<b>Entire Agreement</b>	<p><b>Elitaire, Inc. (VENDOR) ACKNOWLEDGES THAT THE ACCOMPANYING BALANCE OF TERMS AND CONDITIONS PER THE STANDARD - 6.27.08 ARE COMPLEMENTARY AND INTEGRAL TO THIS PURCHASE CONTRACT.</b></p> <p>This Purchase Order including the Terms and Conditions noted above and attached constitutes the entire agreement between the parties hereto. No oral representations or other agreements have been made by <b>Turner Logistics, LLC</b> except as stated in the Agreement</p> <p>This Purchase Order may not be changed in any way except as herein provided, and no term or provision hereof may be waived by <b>Turner Logistics, LLC</b> except in writing signed by its duly authorized officer or agent. Vendor acknowledges and represents that it completed and submitted to <b>Turner Logistics, LLC</b> a prequalification questionnaire, that all statements therein were true, accurate and complete, and remain true, accurate and complete, and that <b>Turner Logistics, LLC</b> has relied on such statements in deciding to enter into this Agreement. The marginal descriptions of any term or provision of this Purchase Order are for convenience only and shall not be deemed to limit, restrict or alter the content, meaning or effect thereof.</p> <p>The said parties, for themselves, their heirs, executors, administrators, successors and assigns, do hereby agree to the full performance of all of the terms and provisions herein contained.</p> <p><b>In Witness</b> Whereof the parties to these presents have hereunto set their hands as of the day and year first above written.</p>

Elitaire, Inc.

By: Official title: Principal

Turner Logistics, LLC

By: \_\_\_\_\_

Official Title: **Torry Guardino - General Manager**Vendor's Federal Employers Identification Number (FEIN) **26-1853003**Vendor's State Unemployment Ins. No. **DOES NOT APPLY**Vendor's State Sales Tax Registration No. **DOES NOT APPLY**

(Insert States and Register No. for State in which the Work is to be performed)

Vendor's License No. **DOES NOT APPLY**

(Insert License No., if any, for State or locality in which the Work is to be performed)

**Terms and Conditions of Purchase**

**ATTACHMENT "A"**

Rev 6/27/08

1. **INTEGRATION:** This Purchase Order (sometimes referred to as a "Purchase Contract"), including all writings attached hereto and writings incorporated herein by reference, if any, is intended by Buyer and Seller as the final, complete and exclusive statement of all of the terms of their agreement respecting the goods identified in this Purchase Order.
2. **NO MODIFICATION:** This Purchase Order may not be amended or modified except in writing signed by both the Buyer and Seller.
3. **NOTICE OF OBJECTION:** Notice is hereby given pursuant to Section 2-207 of the Uniform Commercial Code ("Code") of Buyer's objection to all terms and conditions in addition to and different from these Terms and Conditions which may be contained on the face or reverse side of any quotation, proposal, written acceptance or order confirmation which may be issued by Seller.
4. **VARIATION BY AGREEMENT:** Any of these Terms and Conditions which may conflict with any provision of the Code shall constitute a variation by agreement and take precedence over such provision.
5. **CASUALTY TO GOODS:** Should loss or damage to the goods or any part thereof occur before Buyer takes delivery and possession at the destination stated in this Purchase Order, Seller shall replace the goods or such part thereof as Buyer demands at the destination at no additional cost to the Buyer.
6. **NON-CONFORMING GOODS:** Buyer shall have the absolute right to reject any and all goods which fail in any respect to strictly conform to the requirements of this Purchase Order which right may be exercised by Buyer at any time regardless of any inspection, taking possession of, and payment for such goods by Buyer, none of which acts shall constitute acceptance of such goods by Buyer. Goods which fail to strictly conform to the requirements of this Purchase Order may be accepted by Buyer only by a writing signed by Buyer expressly stating Buyer's acceptance of such goods. Seller shall retain risk of loss for all non-conforming goods and Buyer may, at its option, remove and/or return all rejected goods at Seller's sole cost and expense.
7. **WARRANTY:** Seller warrants the goods will be as specified in the Purchase Order and/or Attachment B of this Agreement, and if no warranty is stated therein, that all goods / equipment will be free from defects in, design, materials or workmanship. Seller shall provide at its cost an in-place repair or replacement of any goods found to be nonconforming and/or defective within one (1) year from date of initial operation or eighteen (18) months from date of shipment, whichever period first expires.
8. **TIME OF ESSENCE:** Time is of the essence in this Purchase Order. All dates and times stated herein by which Seller shall ship and deliver the goods, submit samples, models, drawings and specifications to Buyer, and comply with any Special Instructions shall be strictly adhered to by Seller. Should Seller fail to so adhere to any such date and time requirement or should Buyer deem itself insecure as to Seller's ability to so adhere or otherwise perform its obligations under this Purchase Contract, Buyer shall have the right to require Seller, at Seller's sole cost and expense, to work or cause to be worked overtime or premium time hours and/or to ship the goods by the most expeditious means available as determined solely by Buyer.
9. **TERMINATION:** Buyer shall have the right to terminate this Purchase Order, in whole or in part, at any time, whether for default or without cause. In the event of default the Seller shall be entitled to three days written notice to cure such default, and failing the accomplishment of such a cure, by a second notice immediately terminating Seller's right to proceed. In the event of a non-cause termination a written termination notice shall be given to the Seller and Seller shall immediately cease work hereunder on receipt of such notice. If the goods identified in this Purchase Order are specially manufactured goods, and provided that Seller is not in breach of any duty or warranty of this Purchase Order, Buyer shall pay Seller all actual costs of manufacturing all conforming finished goods in Seller's possession or in shipment and goods in process of manufacture as of the date of Seller's receipt of notice of termination. If the goods are stock goods, rather than specially manufactured goods, and provided Seller is not in breach of any duty or warranty hereunder, Buyer shall only pay to Seller its reasonable re-stocking cost(s). In no event shall Buyer pay Seller or be liable to Seller for loss of any shop absorption, anticipated profits or consequential or incidental damages. In the event this Purchase Order is terminated for default, which shall include, but is not limited to, failure to maintain a solvent financial status, failure to perform or to maintain the ability to perform as required under this Purchase Order and failure to discharge or bond off any mechanics filed by Seller or its lower tier vendors with respect to the Seller's goods and services hereunder on any property of the Indemnified Parties, Seller shall pay all costs, expenses and attorney's fees incurred by the Buyer with respect such default and default termination.
10. **PAYMENT TERMS:** Payment terms shall be Net 45 days from date of delivery, less holdbacks as defined within the Purchase Order schedule of values for items including but not limited to check, test, startup, commissioning, and agreed retention (if any).
11. **DEPOSIT AND CANCELLATION FEES:** To be set forth within the Purchase Order and/or Attachment B of this Agreement.
12. **CHANGES:** Buyer shall have the right to order changes at any time and from time to time in and to the quantity(ies), specifications, drawings, requirements and time for delivery of and for the goods identified in this Purchase Order, and Seller shall comply with all such written orders issued by Buyer. Should any such order(s) cause an increase or decrease in the Purchase price of the goods or the time for Seller's performance of any duty or warranty hereunder, the price and/or time shall be equitably adjusted. No increase in the purchase price of the goods or the time for Seller to perform hereunder shall be binding on Buyer unless and until such change(s) is accepted by Buyer in writing.
13. **INFRINGEMENT PROTECTION:** Seller warrants that it is fully vested with the right to sell and deliver the goods identified in this Purchase Order and that neither the sale of the goods nor their use by Buyer or persons in privity with Buyer shall infringe any patent, license or copyright. Seller shall defend, save harmless and indemnify all entities listed as "Buyer" in this Purchase Order and persons in privity with all entities listed as "Buyer" in this Purchase Order from any and all claims, demands, judgments, liabilities, costs, fees and expenses, including attorneys' fees, arising out of and in connection with any breach of this warranty and any allegation that the sale and/or use of the goods identified in this Purchase Order infringes any patent.

**Turner** INTERNATIONAL  
CORPORATION  
ESTABLISHED 1958 **Logistics**  
**Terms and Conditions of Purchase**  
**ATTACHMENT "A"**

Rev 6/27/08

14. **DUTY TO COOPERATE AND INDEMNIFY:** Seller shall fully cooperate with Buyer in prosecuting or defending against any claim(s) against or by any third party(ies) the subject matter of which has to do with the goods identified in this Purchase Order. Additionally, with respect to bodily injury and property damage, the Seller shall, to the maximum extent allowed by law, defend, indemnify and hold harmless the Buyer, the Project site owner and the ultimate user of the goods and their representatives, agents and employees (collectively, the "Indemnified Parties") from and against claims, damages, losses, costs and expenses, including, but not limited to, attorneys' fees, arising out of, resulting from or connected with supply, use or operation of the goods or any defect or deficiency therein including any claim, damage, loss or expense attributable to bodily injury, sickness, disease or death, or to injury to or destruction of property.
15. **COMPLIANCE:** Seller shall fully comply with all laws, rules, ordinances and regulations applicable to and affecting the manufacture, sale, shipment and delivery of the goods identified in this Purchase Order.
16. **NO ASSIGNMENT:** Neither this Purchase Order nor any duty of Seller hereunder may be assigned or delegated without the prior written consent of the Buyer. This provision shall not preclude Seller from procuring mass-produced components and sub assemblies from its long term customary suppliers.
17. **GOVERNING LAW:** This Purchase Order shall be governed by the laws of the state in which the project for which the goods are to be installed.
18. **RIGHTS CUMULATIVE:** These Terms and Conditions are not intended and shall not in any way be construed to limit or restrict, Buyer's rights and remedies at law and in equity, all of which rights and remedies are fully reserved by Buyer. Any failure or forbearance by Buyer to enforce any of these Terms and Conditions or any of its rights and remedies at law or in equity shall not constitute and shall not be asserted by Seller as a waiver or relinquishment by Buyer of any of its rights and remedies under this Purchase Order, at law and/or in equity.
19. **ETHICS:** Buyer has a longstanding reputation for honesty and integrity in its business dealings and for its corporate policies promoting lawful and ethical behavior. Buyer is committed to upholding that reputation and has adopted a Standard of Business Conduct Policy Statement which governs the actions of all of its employees. Pursuant to that Policy Statement, Buyer's employees are prohibited from accepting bribes or kickbacks in any form and, further, are prohibited from accepting goods or services provided by a Seller for the personal benefit of the employee, his or her relatives, or any entity in which the employee or his or her relatives has a personal interest. This prohibition includes, but is not limited to, work performed on an employee's residence and applies regardless of whether the beneficiary of the goods or services pays for them. Therefore, if the Seller offers or provides a bribe or kickback to any employee, or offers or provides goods or services to any employee, his or her relatives, or any entity in which the employee or his or her relatives has a financial interest, the Seller will be considered to be in material breach of this Purchase Contract. Seller undertakes the commitment to advise Buyer of any action by any entity or person associated with the project that Seller believes violates any applicable law, rule or regulation. Seller's violation of any of the foregoing shall be considered as Seller's failure to perform its obligations under the terms and conditions of this Purchase Contract. Such failure shall be considered adequate and justifiable grounds for Buyer to effectuate its rights and remedies under the provisions of Article 9 of this Purchase Contract.

**Turner** Logistics  
**Insurance Requirements – Vendor Only**  
**ATTACHMENT “A-1”**

Before commencing Work on any Turner Logistics’ project site (including, but not limited to delivery, start-up, testing, commissioning, warranty repair, etc.) this Supplier shall procure and maintain, at its own expense, the following insurance coverages (the “Required Insurance”):

1. WORKERS’ COMPENSATION in accordance with the laws of the State in which the work is situated, and EMPLOYERS’ LIABILITY INSURANCE in the amount of \$1,000,000.
2. COMMERCIAL GENERAL LIABILITY with minimum limits of \$2,000,000 each occurrence/\$2,000,000 general aggregate/\$2,000,000 products and completed operations, subject to the following:
  - a. Limits may be satisfied by the use of a primary and excess policy if needed. All policies including excess policies shall be endorsed to provide that the coverage is primary and non-contributory to any insurance or self-insurance maintained by any additional insured.
  - b. Coverages shall be on the current ISO Occurrence Form and shall include premises operations, blanket contractual liability (for this Purchase Contract), broad form property damage, personal and advertising injury, independent contractor liability, mobile equipment, elevators, damage from explosion, collapse and under-ground hazards (No “XCU” exclusions are acceptable), and cross-liability and severability of interest clauses. This insurance shall include Products and Completed Operations coverage (including any product manufactured or assembled) which Subcontractor agrees to maintain for the period of time until claims are barred under the statute of repose in the state in which the project is located.
  - c. Additional Insured – Vendors using both CG 20 10 10 01 and CG 20 37 10 01, or equivalent naming Turner Logistics, Turner Construction Company, the owner of the project site and such other entities as may be reasonably requested by Turner Logistics, their respective officers, directors, partners, members and employees, as additional insureds. The project/job description and/or description of operations on all certificates, endorsements and other insurance documentation shall read “All Work Performed for the Additional Insureds.”
  - d. The Supplier shall be responsible for, and agrees to pay and/or reimburse Turner Logistics and/or any additional insured, any deductible or self-insured retention under the policies.
  - e. Supplier hereby waives all rights of recovery from Turner Logistics and the additional insureds, including but not limited to rights of subrogation, with respect to any matter, claim or suit that is to be covered by insurance to be maintained by Supplier.
  - f. No exclusionary language or limitations relating to: (1) residential, condominiums, multi-family or multi-unit dwellings; (2) liability arising from terrorism; (3) liability arising from pollution, mold or fungus; or (4) liability arising from the use of EIFS, or similar products.
3. AUTOMOBILE LIABILITY: \$1,000,000 combined single limit for bodily injury and property damage including Owned, non-owned and hired vehicles.

Insurance carriers must have at least a “Best Rating” of “A-” and a Financial Size Category” of VIII” or better as set forth in the most current edition of Best Key Rating Guide, and shall otherwise be acceptable to Turner Logistics. Insurance carriers must be admitted in the State of New York and admitted in the state in which the Work is being performed.

Concurrently with the execution of the Purchase Contract, Supplier shall file with Turner Logistics original certificates of insurance and endorsements showing the Required Insurance to be in force. Certificates of insurance such as “ACORD 25” alone, without the requisite endorsements, are not acceptable to satisfy the provisions of the Required Insurance. All insurance documentation evidencing the Required Insurance shall be sent to:

Turner Logistics  
4 Skyline Drive  
Hawthorne, NY 10532

SUPPLIER SHALL NOT BE PAID FOR ANY WORK UNLESS AND UNTIL INSURANCE DOCUMENTATION PROPERLY COMPLETED AND EXECUTED HAS BEEN DELIVERED TO AND APPROVED BY TURNER LOGISTICS.

The insurance requirements set forth herein shall in no way limit Supplier’s liability arising out of the work performed under the Purchase Contract or related activities including liability (a) under any indemnification provisions or (b) under any other provisions of the Contract Documents or at law). If Supplier fails to procure, maintain or pay for the Required Insurance, Turner Logistics shall have the right (but not the obligation) to secure same in the name of and for the account of Supplier, in which event, Supplier shall pay the cost thereof and shall furnish upon demand, all information that may be required to procure such insurance. Turner Logistics shall have the right to back-charge Supplier for the cost of procuring such insurance. The failure of Turner Logistics to demand certificates of insurance and endorsements evidencing the Required Insurance or to identify any deficiency in Supplier’s coverage based upon the evidence of insurance provided by Supplier shall not be construed as a waiver by Turner Logistics of Supplier’s obligation to procure, maintain and pay for the Required Insurance. The failure of Supplier to fully and strictly comply at all times with the insurance requirements set forth herein shall be deemed a material breach of the Purchase Contract, and, in addition to other remedies Turner Logistics may have, Supplier shall be liable for all amounts which would have been payable pursuant to the Required Insurance.

The Required Insurance set forth in this insurance section is independent from all other obligations of Supplier under this Purchase Contract, including, without limitation, all indemnification provisions, and shall apply whether or not required by any other provision of this Purchase Contract.

IN THE EVENT THAT THE LAW OF THE STATE IN WHICH THE PROJECT IS LOCATED (OR OTHER APPLICABLE LAW) LIMITS THE ADDITIONAL INSURED COVERAGE THAT TURNER LOGISTICS MAY REQUIRE FROM SUPPLIER, THEN SUPPLIER SHALL BE REQUIRED TO OBTAIN ADDITIONAL INSURED COVERAGE TO THE FULLEST EXTENT OF COVERAGE AND LIMITS ALLOWED BY APPLICABLE LAW AND THIS CONTRACT SHALL BE READ TO CONFORM TO SUCH LAW.





Date: 12/7/2015  
Revised Date: PO Issue Date

**SCOPE OF WORK – AHU/DOAS/PDHU  
MIAMI UNIVERSITY – Gunlock Family APC  
ATTACHMENT “B”  
Assigned PO# - 151367-4500003802**

**I. General Provisions:**

**A. Contract Documents:**

1. Drawings as prepared by the HOK, Dated: 7/31/2015 .
2. Specifications as prepared by the HOK, Dated: 7/31/2015 .
3. Portions of work as it pertains to below equipment identified within the following "Related Specification Sections":
  - a. General Divisions:
    - i. 01000 General Requirements
  - b. General Division Sections :
    - i. 230100 HVAC General Requirements
    - ii. 230105 HVAC General Provisions
    - iii. 230110 HVAC Manufacturer's Drawings
    - iv. 230593 Testing, adjusting and Balancing
  - c. Product Related Specification Sections:
    - i. 237500 Air Handling Units
    - ii. 239013 Variable Frequency Drives

Insert Supplemental Instructions such as addenda and RFI's here. **Addendum #1 as of 12-7-2015**

*Overlapping or conflicting requirements shall be submitted in writing to Turner Logistics for determination but the more restrictive will apply. The vendor shall submit overlaps or conflicts as soon as they are uncovered.*

**B. Shipping & Schedule Requirements:**

1. Equipment shall be delivered FOB Jobsite. Equipment shall be released for fabrication to meet this delivery date. Vendor shall provide notification if there is any impact to delivery date.

Equipment Tags	Qty.	Required Release Date	ROJ
AHU-1	1	12/23/2015	1 <sup>st</sup> quarter 2016
AHU-2	1	12/23/2015	1 <sup>st</sup> quarter 2016
AHU-3	1	12/23/2015	1 <sup>st</sup> quarter 2016
DOAS-1	1	12/23/2015	1 <sup>st</sup> quarter 2016
PDHU-1	1	12/23/2015	1 <sup>st</sup> quarter 2016

2. Equipment shall be shipped with firmly attached, clearly visible shipping labels that indicate:
  - name of manufacturer,
  - equipment model number,
  - equipment serial number;
  - purchase order number and
  - equipment ID as tagged in contract documents.
3. Vendor shall include the cost to properly seal and protect the equipment during shipment/transit. Exposed physical utility connections (flanges, pipe ends, etc.) shall be isolated for transport from ambient influences with appropriate blinds, caps or weatherproofing materials.
4. Vendor shall coordinate with Turner Construction Company's Project Team and installing/receiving Subcontractor the

**Turner**  **Logistics**



shipping sequence and provide all **final** weights and dimensions of any shipping splits for rigging purposes prior to shipping such equipment. Provide 14-day advance notice to Turner Construction Company Project Team.

5. Equipment manufacturer shall provide all necessary lifting eyes as required to rig equipment in place and provisions to lift into place by crane as required.
6. Provide 48-hour delivery call ahead to **Turner Logistics Manager (Ben Young, Ohio-Field Manager 513-615-0506)**. Failure to notify Turner Logistics could result in storage back charges and/or additional costs to the equipment manufacturer or vendor. Delivery hours are **Tuesday through Thursday, between 8:00AM and 2:00PM**.

### **C. Submittal/Training Requirements:**

1. Vendor shall submit an electronic copy of all factory test reports to the **Turner Logistics Manager (Ben Young, Ohio-Field Manager 513-615-0506)** prior to shipping the equipment, certifying that the units meet the specified performance.
2. Vendor shall provide one (1) copy of the following with their bid submission to the **Turner Logistics Manager (Ben Young, Ohio-Field Manager 513-615-0506, [byoung@tcco.com](mailto:byoung@tcco.com))** for pre-approval:
  - + Shop drawings/Engineering submittals.
    - General equipment layout drawings
    - Bill of Materials
  - + .pdf / .dwg drawings
  - + Sample warranty certificate.
  - + Installation checklist.
  - + A complete C/D/E document for section 237500, 239013 (see word Document)
  - + C – meaning Comply with the specifications
  - + D – Meaning Deviate from the specifications. For clarity this means that the specification can be obtained, but not to the letter of specifications. D – must be explained in the C/D/E Document
  - + E - Meaning Exception from the specifications. For clarity this means that the specification can NOT be obtained and is not included. E – must be explained in the C/D/E Document.

**120 hours after NOTICE OF INTENT TO AWARD, vendor shall provide ten (10) copies of the required submittal documents to Turner Logistics Manager (Ben Young, Ohio-Field Manager 513-615-0506, [byoung@tcco.com](mailto:byoung@tcco.com))**
3. Engineer/Architect reviewed submittals: Allow four (2) weeks (including mailing processing) for return.
4. O&M Manuals, commissioning, training and start-up schedules including all other remaining submittals shall be issued within four (2) weeks of delivery
5. Warranty certificate and/or commissioning report, as required, shall be issued within one (1) week of completion of start-up/testing/field services.
6. Training and Owner's Acceptance shall be determined upon the project schedule. This date is subject to change.



**D. Project Coordination:**

1. Equipment Supplier shall provide a single point of contact to serve as the project manager for this purchase contract.
2. Project contacts:

Title	Name	Address	Telephone	Email
Turner Project Superintendent				
Turner Project Engineer				
TL Logistics Manager	Ben Young	250 W. Court Street Suite 300 Cincinnati, OH 45202	513-615-0506	<a href="mailto:byoung@tcco.com">byoung@tcco.com</a>
TL Project Engineer	Tamecka StClair	250 W. Court Street Suite 300 Cincinnati, OH 45202	513-639-2201	<a href="mailto:lstclair@tcco.com">lstclair@tcco.com</a>
TL Supply Chain Product Manager	David Meyer	4 Skyline Drive Hawthorne, NY 10532	914-593-6540	<a href="mailto:dsmeyer@tcco.com">dsmeyer@tcco.com</a>
TL Accounting Department	Kathy Mitchell	4 Skyline Drive Hawthorne, NY 10532	914-593-6525	<a href="mailto:kmitchell@tcco.com">kmitchell@tcco.com</a>

**E. Schedule of Values:**

1. Standard schedule of values:

Confirmed Delivery of Equipment	90% net 45 days
Owner Acceptance of Equipment	10% net 45 days

2. Applications for payment shall be mailed to 4 Skyline Drive, Hawthorne NY 10532, or emailed to [tlaccounts payable@tcco.com](mailto:tlaccounts payable@tcco.com).

**F. Sales Tax:**

1. Sales and Use Tax shall not be included. A Resale certificate shall be provided by Turner Logistics.

**G. Warranty:**

1. Provide Parts Warranty for 1-year from Owner's Acceptance, 11/1/2016
2. Provide extended Compressor Parts warranty as per specifications
3. Installing contractor to provide labor warranty per specifications.

**Project Specific Scope of Work:**

Vendor shall provide equipment per plans and specifications including but not necessarily limited to the following:

1. The vendor is to provide a BAS communication interface card with this unit. The communication shall be BacNet.
2. Service disconnect (not including VFD) shall be provided by electrical contractor if required by code.
3. Multiple point power connection are required. For example, but not limited to, lights, receptacles, heat wheels, electric heat, etc.
4. All unit controls shall be factory provided. ACTUATORS are provided and installed by the temperature controls contractor.
5. Gas regulator shall be by the installing contractor. Vendor to provide gas pressure and volume requirements.
6. Vendor is required to ship TWO SETS of filters to the project at the CONCLUSION of the project. Filters shipped with the units will not be counted towards the TWO SETS required at project requirements.
7. Vendor to provide spare belts at project conclusion as indicated in the specifications.
8. Unit shall be proposed / fabricated per the contract drawing dimensions.
9. If the unit is shipped in section splits the factory wiring shall be fabricated so as to only have field connections when the unit is assembled, unless the vendor includes field labor to make final connections between shipping splits.
10. Variable frequency drives shall comply with the project specifications and shall not be substituted.
11. Vendor, upon start up is to check gas pressure and calibrate the burner and make adjustments to provide the correct



combustion rate.

**H. Negotiations and Clarifications:**

1. Addendum #2 has a cost of \$11,000 to increase motor horsepower. This is NOT INCLUDED in the base contract cost and can be accepted up until release at the stated cost.

**END OF SECTION**



# **CONTRACT COORDINATION MATRIX – AHU/DOAS/PDHU** **ATTACHMENT "C"**

## **MIAMI UNIVERSITY – Gunlock Family APC**

Work Element		L = Lead, A = Assist, F = Furnish, I = Install					
		Turner/ TL	Vendor	Mech	Elec	BATC	Other
Coordination Meetings	Attend Coordination Meeting(s)	L	A	A	A	A	A
	TL provides Turner super with Receipt Verification Form	F					
	Coordinate installation (including assembly, location and connections).		A	L	A	A	A
	Submittal review – review approved vendor submittals, coordinate with installation, sign-off.		A	L	A	A	A
Delivery	Turner to release vendor to fabricate and monitor delivery	L					
	Vendor to provide written acknowledgement to Turner & TL confirming release of fabrication including delivery dates.		L				
	Vendor to immediately notify Turner & TL if delivery date slips.		L				
	Coordinate delivery (including delivery location (jobsite, riggers yard), time, schedule)	L	A	A			
	Coordinate delivery from factory to jobsite/riggers yard (including packaging, shipping splits)	A	L	A			
	Coordinate delivery from riggers yard to jobsite (including accepting and coordinating delivery at riggers yard, receipt of equipment, tracking of equipment, offloading and rigging plan)	A		L			
	Identification on packaging (i.e. shipping labels)		F & I				
	Firmly attach label(s) to equipment indicating name of manufacturer, equipment model number, equipment serial number and tag number.		F & I				
	Protection of equipment during shipment		L				
	Upon delivery, inspect equipment and document on Receipt Verification Form with Turner.	A		L			
	Protection of equipment after receipt			L			
	Off-load, rig, final setting and care & custody.			L			
	Provide technical support for a complete installation		A	L			
	Witness installation		A				
	ALL mechanical/pneumatic piping, connections, and associated hardware and accessories			F&I			
	ALL internal power/control/communications, field wiring should be limited to terminations between shipping splits. This includes BacNet protocol controller			F&I	L		
AHU/DOAS/ PDHU	For buildings with Aluminum wire, provide approved Aluminum-to-Copper junction				F & I		



Work Element		L = Lead, A = Assist, F = Furnish, I = Install					
		Turner/ TL	Vendor	Mech	Elec	BATC	Other
AHU / DQA / PDHU	External to unit, building controls and interface with equipment, including low voltage wiring. Including connection between shipping splits. Integration of Backset controls into the BUILDING DDC system.					F&I	
	Housekeeping pad and/or inertia base and submit to A/E for approval						F&I
	Anchor bolts and brackets for installation			F&I			
	Provide maintenance if equipment is going to sit (i.e., fan rotation, grease bearing), includes temporary use maintenance.			L			
	Seismic restraints - If required			F&I			
	External vibration - If required			I			
	Internal vibration isolation - Required		F&I				
	Assemble units if shipped in sections (manufacturer to provide direction if needed)			L			
	Hardware to assemble units shipped in sections			F&I			
	Assemble components shipped loose: (i.e. filters and mixing boxes)			L			
	Isolation valves, motorized valves, gauges, and control valves			F&I		F&I	
	VFD		F&I				
	If starter / VFD is provided by others, provide coordination to ensure starter/equipment are compatible. For example, torque requirements, size...		A	A	L	A	
	Disconnect switch (Separate from Starter)				F&I		
	Smoke detectors				F&I	F&I	
	Unit Mounted Dampers		F&I				
	Bracing to building structure to stabilize and restrain unit vertically and horizontally.			F&I			
	Shims for field adjustment of fans and motors			F&I			
	Initial filters and belts		F	I			
	Spare filters and belts		F	I			I
	Motor alignment			L			
	Check belt tension (if belt driven fan)			L			
	Initial lubrication of bearings			L			
	Air balancing			L			
	Damper Actuators			F&I			
	Shimming of as required to provide a level installation			F&I			
	Field coordination of unit location and openings			L			
	Preliminary start up if required prior to final start up.			F&I			
				L			

FD





Work Element		L = Lead, A = Assist, F = Furnish, I = Install					
		Turner/ TL	Vendor	Mech	Elec	BATC	Other
Close-Out	Installation inspection		L	A	A		
	Pre-start-up checklist (to Turner and installing contractors)		F&A	L	A	A	
	Submit Start-up/commissioning procedure for approval		F&A	L			
	Start-up	A	L	A	A	A	
	Pre-commissioning meeting	L	A	A	A	A	
	Commissioning	A	A	L	A	A	
	Field testing	A	A	L	A	A	
	Owner training		L	A	A		
	O&M manuals to Turner		F				
	Provide attic stock and spare parts		F	F	F		
	Parts warranty		F				
	Equipment labor warranty			F			
	Installation labor warranty			F	F		
	Trouble shooting during warranty period	A	L	L	L	L	L
	Building controls parts / labor warranty					F	
	Temporary Use Maintenance				F&L		
	Warranty certificates		F				

### Definitions:

**LEAD** – To take charge of and provide necessary labor, materials, testing and coordination among all parties listed. Entity has first and final responsibility that the task is completed.

**Assist** – To provide support or assistance to the LEAD party. This includes, but is not limited to providing documents to allow the LEAD entity to ensure task completion.

**Furnish** – To provide materials.

**Install** – To provide labor and associated miscellaneous items required to install the item.



10/26/15

## Project: Miami U Grunlock APC (Innovent AHUs) rev1 Add # 1

ElitAire is pleased to offer the following proposal for the above-mentioned project. Specific important inclusions, exclusions, and clarifications are detailed in this proposal. All equipment includes industry standard parts warranty ending 12 months after equipment startup not to exceed 18 months after shipment.

### Important Information

Tag	Qty	Model	Unit Dimensions (inches):			Weight (lb)
			Length	Width	Height	
AHU-1	1	ERU-OU-WH-21200-FF-DX-HG-HP-460	229	116	135	15900
AHU-2	1	ERU-OU-WH-16000-FF-WH-DX-HG-HP-460	264	104	129	14800
AHU-3	1	CAHU-6700-FF-DX-HG-HP-460	364	65	68	8600
DOAS-1	1	ERU-OU-WH-9800-FF-WH-DX-HG-HP-460	278	80	119	12000
NDHU-1	1	ERU-OU-PL-2900-DX-EH-HG-FF-WC-460	274	44	100	5500

#### Net 45 days

~~Net 30 days~~ - subject to credit approval. No retainages allowed unless expressly agreed to in writing. Refer to the attached Terms and Conditions.

**Validity:** Pricing is valid for 60 days from the original date of quote. Pricing shall remain valid for equipment shipped within 120 days from date of acceptance. Refer to the attached Terms and Conditions.

**Shipment:** 12-14 weeks after release based on typical factory loading. Shipment dates are estimates only. F.O.B. Innovent factory. Refer to the attached Terms and Conditions.

For shipments OUTSIDE of the US borders including ocean freight shipments, freight is allowed to the border crossing or shipping docks closest to the manufacturing facility in which the equipment is produced. Coordination of shipment to the final destination point and any associated fees to get equipment to final destination is the responsibility of others. Shipments to mainland Canada are exempt from this policy.

#### Start-up:

Factory start up is included for all units, unless otherwise noted. Included with the factory start up is an Innovent provided labor warranty for a duration of sixty days from the date of complete mechanical equipment start up. Labor warranty will cover labor provided to diagnose, service, or repair a major mechanical failure. Not included in this labor warranty will be routine service items including, but not limited to typical wear items such as: filter replacements, sheave adjustments, belt replacements, etc.

---- A pre start up checklist shall be provided by the installing contractor to Innovent confirming major items on site are complete including, but not limited to, duct connections, electrical power, water connections, water balance for heat pump units, etc.

---- The completed pre start up checklist must be provided to Innovent a minimum of two 2 weeks prior to any requested and coordinated factory start up.

### ElitAire Responsibility Matrix

Equipment	Startup Services	Labor Warranty	VFDs	Disconnects
AHU-1 thru 3, DOAS-1, NDHU-1	YES	NO	YES	YES

## AHU-1, 2 and 3

### Construction

1. Unit shall be suitable for Indoor installation not on a curb.
2. Welded structural steel base with integral lifting lugs.
3. 2" double-wall steel casing, 22 ga. G90 Galvanized exterior walls, 22 ga. G90 Galvanized interior walls on supply, 22 ga. G90 Galvanized interior walls on exhaust..
4. Casing exterior finish not painted.
5. Floor material 18 ga. G90 Galvanized. Floor finish None.
6. 2" thick 2 lb/ft<sup>3</sup> Polyurethane foam insulation.
7. Double-wall insulated doors with stainless steel piano hinges.
8. Casing construction is per Innovent standard construction. Any questions please contact Innovent.
9. Unit to ship in one piece unless otherwise noted.

### Supply Air Stream Components

#### 1. MIXING BOX

- A. Fresh air--Inlet duct connection sleeve.
- B. Galvanized steel outside air damper, Parallel galvanized airfoil blades.
- C. Recirc air--Inlet duct connection sleeve.
- D. Galvanized steel recirc air damper, Parallel galvanized airfoil blades.
- E. Accessories:
  1. Floor duct safety grating
- F. Controls:
  1. Damper actuator - modulating with end switch
  2. Damper actuator - modulating with end switch

#### 2. MIXED AIR

#### 3. PANEL FILTER

- A. 2 inch, MERV 8, Panel panel filters, front access rack.
- B. Spare filter media sets (Quantity 2)
- C. Controls:
  1. Dirty filter indicator switch

#### 4. CARTRIDGE FILTER

- A. 12 inch, MERV 13, cartridge filters in a front access rack.
- B. Spare filter media sets (Quantity 2)
- C. Controls:
  1. Dirty filter indicator switch

## 5. FAN

- A. Plenum type blower
- B. 3 phase TEFC, Premium efficient blower motor.
- C. Blower and motor shall be mounted on a unitary base with 1" SPRING seismic isolators.
- D. Accessories:
  - 1. Tool lockable access door
  - 2. Stands to Raise Fans
  - 3. Shaft Grounding rings on motors 10 HP and larger.

## 6. FAN MOTOR HEAT

## 7. DX COIL

- A. DX coil, ARI rated, 3/8" diameter 0.016 thick copper tubes, 0.008 thick aluminum fins, 16 ga galv steel casing, and copper connections. stainless steel IAQ drain pan.

## 8. HGR COIL

- A. A hot gas reheat coil shall be provided with a three-way, modulating valve.

## 9. OUTLET

- A. Outlet duct connection sleeve.
- B.

## Exhaust Air Stream Components

## 10. HEAT PUMP SECTION

- A. Integral water source heat pump (WSHP) consisting of: hermetic scroll compressors, air-refrigerant coil, water-refrigerant coil, 4-way reversing valve, suction accumulator, liquid line filter-driers and sumpheaters.
- B. Heat pump units cannot be used for temporary heating or cooling.
- C. A DDC controller will be provided for each circuit. The controller will perform the following functions: control the head pressure valve, limit compressor cycle times, control the 4-way reversing valve, log alarms and protect the compressors.
- D. Air handling units with integral refrigeration components requiring piping splits shall be fully factory piped, charged, tested, and evacuated prior to shipping. After testing is complete, refrigeration system shall be split for shipping, provided with nitrogen charge, and lines capped. Refrigerant for field charging shall be supplied and installed by installing contractor.
- E. Factory water piping provided: Innovent will provide an inlet strainer, flow switch and P/T ports attached to each water/refrigerant HX (one provided for each circuit).

F. **Factory Water Piping:** The factory will provide and install the main header (on any unit with multiple circuits), all circuit piping, and all water piping specialties required for functional operation. **The head pressure valves (one provided for each circuit) are provided by Innovent and factory installed.** All factory water piping must be insulated in the field by the installing contractor after final water balancing and test out.

G. **Accessories:**

1. Heat Pump
2. Water Piping

11. **INLET**

A. Inlet duct connection sleeve.

12. **FAN**

- A. Plenum type blower
- B. 3 phase TEFC, Premium efficient blower motor.
- C. Blower and motor shall be mounted on a unitary base with 1" SPRING seismic isolators.
- D. **Accessories:**
  1. Tool lockable access door
  2. Shaft Grounding rings on motors 10 HP and larger.

13. **OUTLET**

- A. Outlet duct connection sleeve.
- B. Galvanized steel outlet damper, Parallel galvanized airfoil blades.
- C. **Controls:**
  1. Damper actuator - modulating with end switch

**Electrical**

1. Unit shall be suitable for 460/3/60 electrical power.
2. Non-fused disconnect, single power point connection, NEMA 3R control panel, all power wiring enclosed in conduit. Unit shall be ETL listed as a complete package under UL 1995.
3. Supply fan motor suitable for operation with VFD. VFD with manual bypass, shall be Provided by and installed by Innovent.
4. Exhaust fan motor suitable for operation with VFD. VFD with manual bypass, shall be Provided by and installed by Innovent.
5. Electrical wiring/controls shall be factory tested before shipment.

**Controls**

1. Unit manufacturer provided complete DDC system factory programmed to accomplish the specified sequence of operation.
2. DDC control system shall be Bacnet MSTP compatible.
3. Accessories:
  - A. Phase/voltage protection ( Qty 1 )

**Misc.**

1. Unit Splits: Qty (0)
2. A refrigeration safety controller is included to ensure safe operation of the refrigeration system. A sequence of operation, BOM and wiring schematic for this controller is available upon request. This controller is not customizable or optional.
3. Shrink Wrap
4. 5 Year Compressor Parts Warranty

**Comments**

1. For DDC controls provided and installed by Innovent, AFMS and CO2 devices are not included unless specifically listed.
2. This quote does not include start-up or owner training services.
3. This quotation assumes all Innovent equipment will be released for production at the same time for delivery at the same time. Partial shipments will incur extra charges.
4. Valves for coils, unless specifically stated otherwise, are not included in this quotation.
5. Casing construction is per Innovent standard construction. Any questions please contact Innovent.
6. Unit to ship in one piece unless otherwise noted.
7. Factory start-up requires 2-3 weeks notification for scheduling.
8. Innovent's standard one year PARTS ONLY warranty is included.

**DOAS-1****Construction**

1. Unit shall be suitable for Indoor installation not on a curb..
2. Welded structural steel base with integral lifting lugs.
3. 2" double-wall steel casing, 22 ga. G90 Galvanized exterior walls, 22 ga. G90 Galvanized interior walls on supply, 22 ga. G90 Galvanized interior walls on exhaust..
4. Casing exterior finish not painted.
5. Floor material 18 ga. G90 Galvanized. Floor finish None.
6. 2" thick 2 lb/ft<sup>3</sup> Polyurethane foam insulation.
7. Double-wall insulated doors with stainless steel piano hinges.
8. Casing construction is per Innovent standard construction. Any questions please contact Innovent.
9. Unit to ship in one piece unless otherwise noted.

**Supply Air Stream Components****1. INLET**

- A. Inlet duct connection sleeve.
- B. Galvanized steel inlet damper, Parallel galvanized airfoil blades.
- C. Controls:
  1. Damper actuator - 2 position

## 2. PANEL FILTER

- A. 2 inch, MERV 8, Panel panel filters, front access rack.
- B. Spare filter media sets (Quantity 2)
- C. Controls:
  - 1. Dirty filter indicator switch

## 3. CARTRIDGE FILTER

- A. 12 inch, MERV 13, cartridge filters in a front access rack.
- B. Spare filter media sets (Quantity 2)

## 4. HEAT WHEEL

- A. Aluminum heat wheel with 3A desiccant sieve coating.
- B. Heat wheel integral purge section.

## 5. WINTER WHEEL PERFORMANCE

## 6. MIXING BOX

- A. Fresh air--Inlet duct connection sleeve.
- B. Galvanized steel outside air damper, Parallel galvanized 3-V blades.
- C. Recirc air--Inlet duct connection sleeve.
- D. Galvanized steel recirc air damper, Parallel galvanized 3-V blades.
- E. Accessories:
  - 1. Floor duct safety grating
- F. Controls:
  - 1. Damper actuator - modulating with end switch
  - 2. Damper actuator - modulating with end switch

## 7. FAN

- A. Plenum type blower
- B. 3 phase TEFC, Premium efficient blower motor.
- C. Blower and motor shall be mounted on a unitary base with 1" Seismic SPRING isolators.
- D. Accessories:
  - 1. Tool lockable access door
  - 2. Shaft Grounding rings on motors 10 HP and larger.

## 8. FAN MOTOR HEAT

## 9. DX COIL

- A. DX coil, ARI rated, 3/8" diameter 0.016 thick copper tubes, 0.008 thick aluminum fins, 16 ga galv steel casing, and copper connections. stainless steel IAQ drain pan.

## 10. HGR COIL

- A. A hot gas reheat coil shall be provided with a three-way, modulating valve.

## 11. OUTLET

- A. Outlet duct connection sleeve.

## Exhaust Air Stream Components

## 12. HEAT PUMP SECTION

- A. Integral water source heat pump (WSHP) consisting of: hermetic scroll compressors, air-refrigerant coil, water-refrigerant coil, 4-way reversing valve, suction accumulator, liquid line filter-driers and sumpheaters.
- B. Heat pump units cannot be used for temporary heating or cooling.
- C. A DDC controller will be provided for each circuit. The controller will perform the following functions: control the head pressure valve, limit compressor cycle times, control the 4-way reversing valve, log alarms and protect the compressors.
- D. Air handling units with integral refrigeration components requiring piping splits shall be fully factory piped, charged, tested, and evacuated prior to shipping. After testing is complete, refrigeration system shall be split for shipping, provided with nitrogen charge, and lines capped. Refrigerant for field charging shall be supplied and installed by installing contractor.
- E. Factory water piping provided: Innovent will provide an inlet strainer, flow switch and P/T ports attached to each water/refrigerant HX (one provided for each circuit).

F. Factory Water Piping: The factory will provide and install the main header (on any unit with multiple circuits), all circuit piping, and all water piping specialties required for functional operation. The head pressure valves (one provided for each circuit) are provided by Innovent and factory installed. All factory water piping must be insulated in the field by the installing contractor after final water balancing and test out.

G. Accessories:

1. Heat Pump (3x1)
2. Water Piping

### 13. INLET

A. Inlet duct connection sleeve.

### 14. PANEL FILTER

A. 2 inch, MERV 8, Panel filters, side access rack.

B. Spare filter media sets (Quantity 2)

C. Controls:

1. Dirty filter indicator switch

### 15. OUTLET

A. Outlet duct connection sleeve.

B. Galvanized steel outlet damper, Parallel galvanized 3-V blades.

### 16. FAN

A. Plenum type blower

B. 3 phase TEFC, Premium efficient blower motor.

C. Blower and motor shall be mounted on a unitary base with 1" Seismic SPRING isolators.

D. Accessories:

1. Tool lockable access door
2. Shaft Grounding rings on motors 10 HP and larger.

### 17. OUTLET

A. Outlet duct connection sleeve.

B. Aluminum outlet gravity damper, extruded aluminum blades.



**Electrical**

1. Unit shall be suitable for 460/3/60 electrical power.
2. Non-fused disconnect, single power point connection, NEMA 3R control panel, all power wiring enclosed in conduit. Unit shall be ETL listed as a complete package under UL 1995.
3. Supply fan motor suitable for operation with VFD. VFD with manual bypass, shall be Provided by and installed by Innovent.
4. Exhaust fan motor suitable for operation with VFD. VFD with manual bypass, shall be Provided by and installed by Innovent.
5. Heat wheel motor provided with VFD. VFD shall be factory wired and installed.
6. Electrical wiring/controls shall be factory tested before shipment.

**Controls**

1. Unit manufacturer provided complete DDC system factory programmed to accomplish the specified sequence of operation.
2. DDC control system shall be Bacnet MSTP compatible.
3. Accessories:
  - A. Phase/voltage protection ( Qty 1 )

**Misc.**

1. Unit Splits: Qty (0)
2. A refrigeration safety controller is included to ensure safe operation of the refrigeration system. A sequence of operation, BOM and wiring schematic for this controller is available upon request. This controller is not customizable or optional.
3. Shrink Wrap
4. 5 Year Compressor Parts Warranty

**Comments**

1. For DDC controls provided and installed by Innovent, AFMS and CO2 devices are not included unless specifically listed.
2. This quote does not include start-up or owner training services.
3. This quotation assumes all Innovent equipment will be released for production at the same time for delivery at the same time. Partial shipments will incur extra charges.
4. Valves for coils, unless specifically stated otherwise, are not included in this quotation.
5. Casing construction is per Innovent standard construction. Any questions please contact Innovent.
6. Unit to ship in one piece unless otherwise noted.
7. Factory start-up requires 2-3 weeks notification for scheduling.
8. Innovent's standard one year PARTS ONLY warranty is included.

**NDHU-1****Construction**

1. Unit shall be suitable for Indoor installation not on a curb..
2. Welded structural steel base with integral lifting lugs.
3. 2" double-wall steel casing, 22 ga. G90 Galvanized exterior walls, 0.040" Aluminum interior walls on supply, 0.040" Aluminum interior walls on exhaust..
4. Casing exterior finish painted Innovent standard gray .
5. Floor material 0.080" Aluminum. Floor finish None.
6. 2" thick 2 lb/ft<sup>3</sup> Polyurethane foam insulation.
7. Double-wall insulated doors with stainless steel piano hinges.
8. Casing construction is per Innovent standard construction. Any questions please contact Innovent.
9. Unit to ship in one piece unless otherwise noted.

**Supply Air Stream Components****1. INLET**

- A. Inlet duct connection sleeve.

**2. PANEL FILTER**

- A. 2 inch, MERV 8, Panel panel filters, side access rack.
- B. Spare filter media sets (Quantity 2)
- C. Controls:
  - 1. Dirty filter indicator switch

**3. HEAT EXCHANGER**

- A. Cross flow flat plate aluminum heat exchanger .
- B. aluminum heat exchanger drain pans.
- C. Galvanized steel Heat exchanger face and bypass dampers with Opposed galvanized 3-V blades.
- D. Controls:
  - 1. Damper actuator - modulating with end switch
  - 2. Damper actuator - modulating with end switch

**4. DX COIL**

- A. DX coil, ARI rated, 3/8" diameter 0.016 thick copper tubes, 0.008 thick aluminum fins, 16 ga galv steel casing, and copper connections. aluminum IAQ drain pan.

**5. MIXED AIR****6. FAN**

- A. Plenum type blower
- B. 3 phase TEFC, Premium efficient blower motor.
- C. Blower and motor shall be mounted on a unitary base with 1" Seismic SPRING isolators.
- D. Accessories:
  - 1. Hi-pro polyester coating
  - 2. Tool lockable access door
  - 3. Stand to Raise Fan
  - 4. Shaft Grounding rings on motors 10 HP and larger.

**7. ELECTRIC HEAT**

- A. An finned tube electric heater shall be provided with SCR vernier control.

**8. HGR COIL**

- A. A hot gas reheat coil shall be provided with a three-way, modulating valve.
- B. Accessories:
  - 1. Epoxy Coating

**9. OUTLET**

- A. Outlet duct connection sleeve.

**Exhaust Air Stream Components****10. INLET**

- A. Inlet duct connection sleeve.

**11. V-BANK FILTER**

- A. 2 inch, Washable, Aluminium panel filters, side access rack.
- B. Controls:
  - 1. Dirty filter indicator switch

**12. INLET**

- A. Inlet duct connection sleeve.
- B. Aluminum inlet damper, Parallel aluminum airfoil blades.
- C. Accessories:
  - 1. Recirculation damper.
- D. Controls:
  - 1. Damper actuator - modulating with end switch

### 13. FAN

- A. Plenum type blower
- B. 3 phase TEFC, Premium efficient blower motor.
- C. Blower and motor shall be mounted on a unitary base with 1" Seismic SPRING isolators.
- D. Accessories:
  - 1. Hi-pro polyester coating
  - 2. Tool lockable access door
  - 3. Stand to Raise Fan
  - 4. Shaft Grounding rings on motors 10 HP and larger.

### 14. OUTLET

- A. Outlet duct connection sleeve.
- B. Aluminum outlet gravity damper, extruded aluminum blades.

### 15. WCCU SECTION

- A. Integral water cooled condensing (WCCU) section consisting of: hermetic scroll compressors with suction and discharge service valves, sight glass, anti-short cycling control, high and low pressure limits; water to refrigerant condenser coil.
- B. Air handling units with integral refrigeration components requiring piping splits shall be fully factory piped, charged, tested, and evacuated prior to shipping. After testing is complete, refrigeration system shall be split for shipping, provided with nitrogen charge, and lines capped. Refrigerant for field charging shall be supplied and installed by installing contractor.
- C. Factory water piping provided: Innovent will provide an inlet strainer, flow switch and P/T ports attached to each water to refrigerant condenser coil (one provided for each circuit).
- D. Factory Water Piping: The factory will provide and install the main header (on any unit with multiple circuits), all circuit piping, and all water piping specialties required for functional operation. The head pressure valves (one provided for each circuit) are provided by Innovent and factory installed. All factory water piping must be insulated in the field by the installing contractor after final water balancing and test out.
- E. Accessories:
  - 1. Water Piping

### POOL UNIT DATA

0.

**Electrical**

1. Unit shall be suitable for 460/3/60 electrical power.
2. Non-fused disconnect, single power point connection, NEMA 3R control panel, all power wiring enclosed in conduit. Unit shall be ETL listed as a complete package under UL 1995.
3. Supply fan motor suitable for operation with VFD. VFD with bypass, shall be Provided by and installed by Innovent.
4. Exhaust fan motor suitable for operation with VFD. VFD with bypass, shall be Provided by and installed by Innovent.
5. Electrical wiring/controls shall be factory tested before shipment.

**Controls**

1. Unit manufacturer provided complete DDC system factory programmed to accomplish the specified sequence of operation.
2. DDC control system shall be Bacnet MSTP compatible.
3. Accessories:
  - A. VFD cabinet heating and ventilation kit ( Qty 2 )
  - B. Phase/voltage protection ( Qty 1 )

**Misc.**

1. Unit Splits: Qty (0)
2. A refrigeration safety controller is included to ensure safe operation of the refrigeration system. A sequence of operation, BOM and wiring schematic for this controller is available upon request. This controller is not customizable or optional.
3. Shrink Wrap
4. 5 Year Compressor Parts Warranty
5. 10 Year Parts Warranty on Plate HX

**Comments**

1. This quote does not include start-up or owner training services.
2. This quotation assumes all Innovent equipment will be released for production at the same time for delivery at the same time. Partial shipments will incur extra charges.
3. Casing construction is per Innovent standard construction. Any questions please contact Innovent.
4. Unit to ship in one piece unless otherwise noted.
5. Valves for coils, unless specifically stated otherwise, are not included in this quotation.
6. Factory start-up requires 2-3 weeks notification for scheduling.
7. Innovent's standard one year PARTS ONLY warranty is included.

**Notes/Exclusions to spec section 237500**

- Section 2.06.A. Hi pro polyester coating and air dried Heresite coating not included. Hi pro polyester coating on pool unit fan only (NDHU-1).
- Section 2.08.A. AHU-1 and AHU-3 do not have Heat Wheels, so no RA filters are included
- Section 2.08.B. The schedule calls for MERV 13 final filters, which is what we provided before, and the scheduled pressure drops and fan BHPs are based on MERV 13. The pool unit, NDHU-1, only has MERV 8 OA filters.
- Section 2.08.C. The pool unit, NDHU-1, has washable aluminum RA filters, so no spares are included
- Section 2.09.A. The DX coils use 0.008" thick fins, not 0.006".

**Exclusions to spec section 250001**

--- none

## Pricing Information

All prices exclude sales tax

**Base bid total net cost based on Add #1 Drawings**

**\$598,500.00**

**Add for motor HP revisions required for forthcoming Add # 2 revisions**

**Add \$11,000.00**

This amount is NOT part of the BASE CONTRACT.  
It will be a PO MOD if Addendum #2 is accepted.

Purchase orders to multiple entities may be required. Please contact your ElitAire sales representative prior to order issuance for details. Pricing is valid for 60 days.

This proposal includes equipment that is to function as part of an overall mechanical system. This proposal **DOES NOT INCLUDE** services to ensure the functionality and/or warranty of the overall mechanical system.

Only those startup and labor warranty services listed will be provided. Diagnosis and/or warranty identification services are not included and will be billable if requested.

Sincerely,  
Christian Holden  
Sales Engineer  
ElitAire, Inc.  
513-600-6000



August 26, 2015

**INSTALLING SUBCONTRACTOR REQUIREMENTS  
REGARDING PRE-PURCHASED EQUIPMENT**

The Provisions/Scopes of Work that apply to the Equipment that is to be Pre-purchased and furnished by TURNER LOGISTICS/BUILDING OWNER are as follows:

The successful Contractor is responsible for the coordination, installation, and all other miscellaneous provisions including, but are not limited to the following:

- Review of all submittals for purposes of coordination with your own work as well as work of others. Notify Turner / TURNER LOGISTICS in writing of any concerns related to this coordination including, but not limited to: location of connections, interfaces with other equipment, number of splits, loose shipped components, size, weight and dimensions of equipment, power requirements, special shipping considerations for rigging, etc.
- The subcontractor must coordinate with the design engineer, field staff and Turner Logistics all concerns with regards to the submittals from the manufacturer. This requirement includes, but is not limited to: pipe size connections, pipe location connections electrical connection location and type of connection, drain routing, any cement pouring concerns, "left-hand"/"right-hand", split considerations or obstructions, etc. that will affect the later installation of Turner Logistics/Owner pre-purchased equipment, etc.
- The subcontractor must notify field staff and Engineer of their concerns and what changes will need to be made. This is necessary before release of equipment can take place. Subcontractor must review "Release to Fabrication matrix" (a one page document that lists MEP equipment and their respective required delivery dates) and must notify the job staff of any changes in required delivery dates.
- Any labor or field costs associated with improperly reviewed submittals by the subcontractor are not chargeable to TURNER LOGISTICS, TURNER, A/E or the Owner.
- Installing contractor is responsible for coordination with all notations in approved submittals that are made by the Engineer.
- Coordinate equipment in terms of piping, electrical, room layout, and clearance requirements. Prior to shipment, verify that final coordination will still accept the pre-purchased equipment that has been approved by the Engineer.
- Witness delivery of equipment to rigger's yard and / or at jobsite. Inspect all equipment prior to unloading and identify in writing and damage observed. Notify TURNER / TURNER LOGISTICS immediately upon discovery of any and all manufacturing flaws, missing components or damaged parts.
- Coordination of freight claims is the responsibility of the receiving/installing contractor; this includes documentation, pictures, and anything and all things necessary to submit and be compensated for the claim from damage during shipment. Once the equipment is removed from the transporting vehicle, any damages not reported are the responsibility of the installing contractor.

**Turner** - Logistics



- Include storage (per manufacturer's recommendations) on site for all pre-purchased items that are not installed upon arrival.
- Include insurance for equipment while stored on site. Insurance claim deductibles, if any, are the responsibility of the installing contractor.
- Include additional weather protection (in addition to any provided by manufacturer) as required when exterior yard facilities are used.
- Include cleaning of equipment as required before installation and turn-over of such equipment (i.e. - road salt, foreign debris, construction dust).
- Coordinate delivery to the jobsite. Provide hoisting and rigging of equipment into place at jobsite.
- Any installation that requires "shimming", because of installation tolerances, within the guidelines outlined by the manufacturer of the equipment supplied will be the responsibility of the installing contractor.
- Provide proper maintenance of equipment while in use during construction (i.e. - not limited to, temporary construction filters, filter replacement, greasing of bearings, maintaining belts, etc.). Provide all maintenance as required by manufacturer or per the project specification - whichever is more stringent.
- Subcontractor shall review the projects equipment specifications associated with this equipment, including all referenced sections, and include within their price, the furnishing and installing all components not provided by the equipment manufacturer that are required to provide a complete and operational equipment and/or integrated systems. These items include, but are not limited to:
  - Junction boxes, raceway, supports, seismic work, starter/disconnects, roof curbs, vibration isolators, wiring & conduit, controls, identification, insulation, spacers, fittings, gaskets, lugs, bus bar, nuts, bolts, fuses, washers, interface wiring & components, communication interfaces, etc.
- In the event that the Owner/Turner Logistics furnished equipment is not operating correctly, the subcontractor shall support all efforts to diagnose and correct any and all "issues" which may appear during construction as well as during the warranty period. Actual responsibility for paying for corrective measures shall be determined after a thorough review of the "issue" and all understanding of its causes. The subcontractor shall be expected to provide immediate action in assisting project team with establishing corrective measures; this includes providing labor on site.
- During installation and prior to startup, the installing contractor is responsible for diagnosing potential equipment related failures just as though they had purchased equipment.
- ANY vendor start-up costs required prior to the ability to perform a COMPLETE start up (i.e. temporary start up to provide heating or cooling prior to when the project is actually ready) where the building is enclosed, temperature and building controls completed and functional will be at the cost of the installing contractor.





- "It is the responsibility of this installing contractor to coordinate and provide all equipment control set points for the motor / equipment provided in this package to properly maintain, protect and control the equipment as per manufacturer specifications and project design. Vendor is to provide a complete list of coordinated settings for each external controller such as, but not limited to: VFDs, Soft Start Controllers, etc., provided by the vendor. Prior to equipment startup, the installing contractor is to have researched, coordinated and provided the physical input for ALL programmable settings within the controllers. For external controllers provided by others, a published list of programmable control points will be issued to this vendor for their use in assisting with programming the external controllers.
- During the construction period, if construction filters are needed for air handling equipment, these must be provided by the installing subcontractor. Two (2) sets of filters, provided by the vendors, are NOT to be used during construction.
- Perform work and provide assistance during balancing and start-up, commissioning and training. This includes start-up for temporary use as well as final acceptance at the end of the project. Provide documentation of these exercises.
- Installing contractor will allow a window of 8 hours for each AHU / DOAS / PDHU to arrive in full because some items are from an outside vendor supplied to the manufacturer and may ship direct from the outside vendor. Each truck shall be unloaded within 2 hour from arrival at the project site or rigging yard. Truck wait time charges past 2 hours will be the responsibility of the installing contractor. The sections that arrive prior to completion must have complete care and custody by the installing contractor. The installing contractor may, at their own cost, have the AHU / DOAS / PDHU delivered at a rigger's yard, specified and contracted to by the installing contractor.
- Coordination of replacing any "missing" or "damaged" equipment not reported to TURNER / TURNER LOGISTICS is the responsibility of the awarded electrical and mechanical installing subcontractors. Turner Logistics will provide names/contact information if needed.
- The awarded electrical and mechanical contractor will fill out all necessary freight claim forms and submit for record to trucking company/carrier of pre-purchased equipment.
- Coordination Study and Arc Flash study will be provided by the electrical equipment vendor if required by the specifications. Electrical installing contractor to provide all conductor lengths, conductor type, conduit type, utility transformer information, contributing motor load information, etc to allow the study to be performed.
- Installing contractors are responsible for assembly of ALL shipping splits and ship loose items pertaining to the pre-purchased equipment that is being provided / installed. This includes, but is not limited to, electrical connections, starters, VFD's, control circuits, flashings (if exterior), gasketing, linkages, etc.



**Parts Warranty** will be provided by the vendor for a period of one year after acceptance by owner's acknowledgement and acceptance of completed functional testing. This parts warranty is for the repair and replacement of defective parts / components factory installed in the equipment provided by the vendor. This warranty IS NOT to diagnose problems associated with the SYSTEM operation or abuse during construction.

The installing contractor shall include any and all diagnosing of potentially "failed" or deemed "not working/malfunctioning" equipment during construction and the 1 warranty period. If it is determined that there is a manufacturer's defect in the equipment, Turner Logistics will provide complete assistance with its related Vendor Partner.

**Labor Warranty** will be provided by the installing contractor for the length of time specified in the contract documents. This labor warranty shall include the removal and replacement of factory installed and field shipped loose items provided by the vendor.

# UNIFORM SALES & USE TAX CERTIFICATE—MULTIJURISDICTION

The below-listed states have indicated that this form of certificate is acceptable, subject to the notes on pages 2 - 4. The issuer and the recipient have the responsibility of determining the proper use of this certificate under applicable laws in each state, as these may change from time to time.

Issued to Seller : ElitAire, Inc.

Address: 11325 Reed Hartman Highway, Cincinnati, Ohio 45241

I certify that: \_\_\_\_\_ is engaged as a registered

Name of Firm (Buyer): <u>Turner Logistics L.L.C</u>	Wholesaler _____
Address <u>4 Skyline Drive</u>	Retailer _____
<u>Hawthorne, NY 10532</u>	Manufacturer _____
	Seller (California) _____
	Lessor (see notes on pages 2 - 4) _____
	Other (Specify) <u>Resale</u>

and is registered with the below listed states and cities within which your firm would deliver purchases to us and that any such purchases are for wholesale, resale, ingredients or components of a new product or service<sup>1</sup> to be resold, leased, or rented in the normal course of business. We are in the business of wholesaling, retailing, manufacturing, leasing (renting) the following:

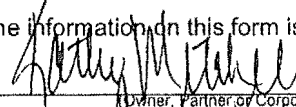
Description of Business: Purchase for Resale Engineered Mechanical & Electrical Equipment and Architectural Products

General description of tangible property or taxable services to be purchased from the seller: \_\_\_\_\_

State	State Registration, Seller's Permit, or ID Number of Purchaser	State	State Registration, Seller's Permit, or ID Number of Purchaser
AL <sup>2</sup>	68-SU-48288	MO <sup>11</sup>	20747241
AR	12098127-SLS	NE	
AZ <sup>22</sup>	07-668057-V	NV	20101512563
CA	SR Y OHA 102-724742	NJ	912-116-801
CO	26-43938-0000	NM <sup>11</sup>	
CT <sup>4</sup>	1965854-000	NC <sup>2b</sup>	600398051
DC <sup>b</sup>	350000054300	ND	
FL <sup>11</sup>	78 8012235570-8	OH <sup>2b</sup>	99044146
GA <sup>b</sup>	175-5480525	OK <sup>11</sup>	STS-10257019-02
HI <sup>11</sup>		PA <sup>27</sup>	82-586-285
ID	002684692-S	RI <sup>11</sup>	912116801-00
IL <sup>11</sup>	3454-2302	SC	99312130
IA		SD <sup>11</sup>	
KS	005-912116801F-01	TN	106739415
KY <sup>11</sup>	246468	TX <sup>19</sup>	1-91-2116801-7
ME <sup>9</sup>		UT	13441012-003-STC
MD <sup>11</sup>	10333554	VT	
MI <sup>11</sup>	912116801	WA <sup>11</sup>	602 133 576
MN <sup>11</sup>	2794366	WI <sup>21</sup>	

I further certify that if any property or service so purchased tax free is used or consumed by the firm as to make it subject to a Sales or Use Tax we will pay the tax due directly to the proper taxing authority when state law so provides or inform the seller for added tax billing. This certificate shall be a part of each order which we may hereafter give to you, unless otherwise specified, and shall be valid until canceled by us in writing or revoked by the city or state.

Under penalties of perjury, I swear or affirm that the information on this form is true and correct as to every material matter.

Authorized Signature:   
(Owner, Partner or Corporate Officer)  
 Title: Sr. Office Accountant  
 Date: 01/01/2015

## Summary - PO P0161893



PO/Reference No. P0161893

Supplier Bertram Drilling Inc

General Information		Shipping Information		Billing/Payment	
PO/Reference No.	<b>P0161893</b>	<b>Ship To</b>		<b>Bill To</b>	
Revision No.	1	ATTN: Kevin Morris		Accounts Payable	
Supplier Name	Bertram Drilling Inc	100 COLE SERVICE BLDG		Miami University (MSC1031A)	
Supplier Number	BERDRIL	PLANNING & CONSTRUCTION		501 E HIGH ST, RM 107	
Address	510 Klenck Ln Billings, MT 59101 USA	101 S FISHER DR, RM 100		Oxford, OH 45056	
Phone	+1 (406) 259-2532	OXFORD, OH 450563609		United States	
Supplier Fax No.	+1 (406) 252-2777	United States		BillTo Address BILL Code	
Purchase Order Date	2/3/2016	ShipTo 1101 Address Code		<b>Billing Options</b>	
Total	792,282.00 USD	<b>Delivery Options</b>		Accounting 2/3/2016 Date	
Requisition Number	70552922	Expedite <b>×</b>		Payment Terms 0, Net 30	
Internal PO Ref #:	55037904	Ship Via Best Carrier-Best Way		F.O.B. N/A	
Special Handling <b>×</b>		Requested Delivery Date		Pay invoice via <b>×</b> credit card	
		F.O.B. FOB MU FOB MU			
Contact Information					
Requestor Name	Kevin Morris				
Requestor Phone	+1 (513) 529-2693				
Requestor Email	morris88@miamioh.edu				
Distribution Information		Supplier Information			
<b>Distribution Methods</b>		<b>Supplier Information</b>			
The system will distribute purchase orders using the method (s) indicated below:		Contract <i>no value</i>			
Fax +1 (406) 252-2777		Quote number			
		Note to Supplier <i>no note</i>			
<b>Distribution Options</b>		PO Clauses			
		T&C PO Terms and Conditions			

Supplier Terms and Conditions		Attachments for supplier	
Order acceptance instructions	Confirm receipt of this order within 24 hours to the contact listed above.	Event Issue Date	<i>no value</i>
		Event Close Date	<i>no value</i>
		Event Award Date	<i>no value</i>
		Event Title	<i>no value</i>
		Event Name	<i>no value</i>
		Original Requisition Name	<i>no value</i>
		Original Requisition Requestor	<i>no value</i>
<b>Internal Notes (Not sent to vendor)</b>			
Internal Note	<i>no note</i>		
Internal Attachments			
Bertram Drilling.pdf (176k)			

Accounting Codes							
Chart	Index	Fund	Organization	Account	Program	Activity	Location
C	L01287	701287	000794	160103	93000	<i>no value</i>	<i>no value</i>
Miami University	Athlete Performance Center	Athlete Performance Center	Planning & Construction Specified	Equipment -Maintenance & Repair	Plant Funds		

Line Item Details						
	Product Description	Catalog No	Size / Packaging	Unit Price	Quantity	Ext. Price
1	 <b>Miami University Gunlock Athletic Center Geothermal Field work - Base Bid and Alternate 4 Per bid 1/13/16. Also Change Order 001-GF - a DEDUCT of (-\$3,485) for a reducing header and eliminating construction fence</b> 	NA	EA	792,282.00 USD	1 EA	792,282.00 USD
		Commodity Code	72000000 Building and Construction and Maintenance Services	Internal Note	<i>no note</i>	
				Requisition Number	70552922	
				Internal Attachments		
		PO Clauses	<i>no clause</i>	External Note	<i>no note</i>	
				Attachments for supplier		

Shipping, Handling, and Tax charges are calculated and charged by each supplier. Total **792,282.00 USD**  
 The values shown here are for estimation purposes, budget checking, and workflow approvals.

48880

PD 8-16-16  
CK# 46595

# Invoice

Page 1/1  
Invoice INV000023945  
Date 5/31/2016



12 KIMLER DRIVE  
MARYLAND HEIGHTS MO 63043

Shipping Tag: MU Gunlock Athletic  
Center

Bill To: DRIEKAST PIPING CORP  
11290 SEBRING DRIVE  
CINCINNATI OH 45240

Ship To: DRIEKAST PIPING CORP  
11290 SEBRING DRIVE  
CINCINNATI OH 45240

Purchase Order No.		Customer ID		Shipping Method		Payment Terms		BG Order Number		BG Job Number	
8343		DR020		BEST		NET 30		ORD0023389		15-17496	
Ordered	Shipped	B/O	Item Number	Description		Unit Price		Ext. Price			
1	1	0	104409LF	HWRP-2: ecocirc XL 65-130 BRONZE 1HP 208 42 GPM @ 20' TDH & 63 GPM @ 20' TDH		\$2,400.00		\$2,400.00			
1	1	0	104409LF	HWRP-4: ecocirc XL 65-130 BRONZE 1HP 208 42 GPM @ 25' TDH & 63 GPM @ 30' TDH		\$2,400.00		\$2,400.00			

Tracking Number: FEDEX

Comment:  
FFA

Subtotal	\$4,800.00
Misc	\$0.00
Tax	\$0.00
Freight	\$0.00
Total	\$4,800.00
Amount Received	\$0.00
Balance Due	\$4,800.00

48747

# Invoice



PD 6/23/16  
CK #46382

Page 1/1  
Invoice INV000023560  
Date 5/24/2016

12 KIMLER DRIVE  
MARYLAND HEIGHTS MO 63043

Shipping Tag: MU Gunlock Athletic  
Center

Bill To: DRIEKAST PIPING CORP  
11290 SEBRING DRIVE  
CINCINNATI OH 45240

Ship To: DRIEKAST PIPING CORP  
11290 SEBRING DRIVE  
CINCINNATI OH 45240

Purchase Order No.		Customer ID		Shipping Method	Payment Terms	BG Order Number	BG Job Number	
8343		DR020		BEST	NET 30	ORD0023389	15-17496	
Ordered	Shipped	B/O	Item Number	Description			Unit Price	Ext. Price
1	1	0	104400LF	HWRP-1: ecocirc XL 20-35 BRONZE 1/12HP 1 10 GPM @ 7' TDH			\$705.00	\$705.00
1	1	0	101209LF	HWRP-1: FLG 1 100 BRONZE LF (SET OF 2)			\$0.00	\$0.00
1	1	0	P64910	HWRP-1: P64910 Fastener Pkg			\$0.00	\$0.00
1	1	0	P64940	HWRP-2: P64940 Fastener Pkg			\$0.00	\$0.00
1	1	0	104406LF	HWRP-3: ecocirc XL 55-45 BRONZE 1/2HP 20 22 GPM @ 20' TDH			\$1,772.00	\$1,772.00
1	1	0	101211LF	HWRP-3: FLG 1 1/2 100 BRONZE LF (SET OF			\$0.00	\$0.00
1	1	0	P64910	HWRP-3: P64910 Fastener Pkg			\$0.00	\$0.00
1	1	0	P64940	HWRP-4: P64940 Fastener Pkg			\$0.00	\$0.00
1	1	0	104415LF	HWRP-5: ecocirc XL B 70-145 208-230/1/60 90 GPM @ 30' TDH			\$3,027.00	\$3,027.00
1	1	0	P64940	HWRP-5: P64940 Fastener Pkg			\$0.00	\$0.00

Tracking Number: FEDEX

Comment:  
FFA

Subtotal	\$5,504.00
Misc	\$0.00
Tax	\$0.00
Freight	\$0.00
Total	\$5,504.00
Amount Received	\$0.00
Balance Due	\$5,504.00

Environmental Comfort, LLC  
909 King Ave., Suite 200  
Columbus, OH 43212  
Ph 614-299-6464 Fax 614-299-7653

DD 7/26/16  
CL# 46547

48473

## Invoice

Date	Invoice #
4/29/2016	15476

<b>Bill To</b>
Driekast Piping Corp 11290 Sebring Drive Cincinnati OH 45240

<b>Ship To</b>
Driekast Piping Corp. c/o Miami University - Gundlock Center 11290 Sebring Dr. Cincinnati, OH 45240 Dave Miller / 513-674-9110

P.O. No.	Terms	Due Date	Rep	Ship Via	FOB
8343	Net 30	5/29/2016	DP	Ground	Factory

Item	Description	Ordered	Invoiced	Amount
Colmac-WSHP	Colmac heat pump	1	1	157,000.00

<b>Subtotal</b>		\$157,000.00
<b>Sales Tax (7.5%)</b>		\$0.00
<b>Total</b>		\$157,000.00
<b>Payments/Credits</b>		\$0.00
<b>Balance Due</b>		\$157,000.00



**LAKE ERIE ELECTRIC, INC - DAYTON OFFICE**360 INDUSTRIAL DRIVE  
FRANKLIN, OH 45005

Phone: 937-743-1220 Fax: 937-743-1227

**Purchase Order No.**

10151021-1008417

Page 1 of 1

**VENDOR COPY****TO: CARDINAL DIVERSITY GROUP INC**3622 SALEM AVENUE  
DAYTON, OH 45406  
ATTN: ED WILLIAMS/ ANDY PRESTON @ RIGHARDS  
Phone: 937-278-4941 Fax: 937-278-5410**SHIP TO: LAKE ERIE ELECTRIC, INC - DAYTON OFFICE**360 INDUSTRIAL DR.  
FRANKLIN, OH 45005  
Foreman: BRIAN BETZ  
Foreman Cell: 513-267-1493

<b>DATE ORDERED</b> 02/11/16	<b>TERMS</b> NET 30 DAYS	<b>SHIPMENT TO BE MADE</b> 04/21/16	<b>SHIP VIA</b> COMMON CARRIER	<b>FREIGHT</b> FREIGHT ALLOWED
<b>JOB NAME</b> MU GUNLOCK FAMILY APC	<b>JOB NUMBER</b> 10151021	<b>PROJECT MANAGER</b> JOEL FELLMAN	<b>HOLD CODE</b> HOLD FOR APPROVAL	

ITEM	QTY	DESCRIPTION	ECM	PRICE	AMOUNT
1	1	LIGHTING PER ATTACHED RICHARDS QUOTE DATED 2/11/16			\$315,650.24
2	1	HANDLING FEE 2.5%			\$1,511.76
3	1	DELETE, AND ADD PER ATTACHED RICHARDS QUOTE DATED 6/6/16			\$0.00
4	1	HANDLING FEE FOR CHANGE ORDER #1			\$0.00
5	1	ADD (2) R2 FIXTURES PER ATTACHED RICHARD QUOTE DATED 4/22/16			\$0.00
6	1	ADD (1) R21 FIXTURE PER ATTACHED RICHARD QUOTE DATED 4/22/16			\$0.00
7	1	HANDLING FEE FOR CHANGE ORDER #2			\$0.00
<b>Subtotal</b>					<b>\$317,162.00</b>

CHANGE ORDER #	CHANGE DATE	ITEM	CHANGE IN UNITS	DESCRIPTION	ECM	CHANGE IN UNIT COST	CHANGE IN AMOUNT
1	06/06/16	3	0	DELETE, AND ADD PER ATTACHED RICHARDS QUOTE DAT		0.00	7,188.65
	06/06/16	4	0	HANDLING FEE FOR CHANGE ORDER #1		0.00	179.72
2	06/21/16	5	0	ADD (2) R2 FIXTURES PER ATTACHED RICHARD QUOTE DA		0.00	245.50
	06/21/16	6	0	ADD (1) R21 FIXTURE PER ATTACHED RICHARD QUOTE DA		0.00	1,667.35
	06/21/16	7	0	HANDLING FEE FOR CHANGE ORDER #2		0.00	47.81
<b>CO Subtotal</b>							<b>9,329.03</b>

<b>Tax Exempt Project</b>	<b>\$0.00</b>
<b>PO TOTAL</b>	<b>\$326,491.03</b>

Confirming to: ED WILLIAMS/ ANDY PRESTON @  
RIGHARDS

Authorized By:

MICHAEL HENDRIXSON  
LAKE ERIE ELECTRIC, INC - DAYTON OFFICE

Purchasing Agent

ORDER NUMBER MUST APPEAR ON ALL INVOICES,  
PACKING LISTS AND CORRESPONDENCES FOR  
PAYMENT. TWO (2) INVOICE COPIES ARE REQUIRED.  
ALL MATERIAL TO BE UL LISTED.

Purchase Order No. 10151021-1008417

Change Order No. 2

LAKE ERIE ELECTRIC, INC - DAYTON OFFICE 360 INDUSTRIAL DRIVE, FRANKLIN, OH 45005

Phone: 937-743-1220 Fax: 937-743-1227

**LAKE ERIE ELECTRIC, INC - DAYTON OFFICE**

360 INDUSTRIAL DRIVE  
FRANKLIN, OH 45005  
Phone: 937-743-1220 Fax: 937-743-1227

**Purchase Order No.**  
**10151021-1008904**

Page 1 of 1

**VENDOR COPY**

<b>TO: RICHARDS ELECTRIC SUPPLY</b>		<b>SHIP TO: LAKE ERIE ELECTRIC, INC - DAYTON OFFICE</b>	
4620 READING ROAD CINCINNATI, OH 45229 ATTN: ANDY PRESTON Phone: Fax:		360 INDUSTRIAL DR. FRANKLIN, OH 45005 Foreman: BRIAN BETZ Foreman Cell: 513-267-1493	

<b>DATE ORDERED</b> 07/07/16	<b>TERMS</b> NET 30 DAYS	<b>SHIPMENT TO BE MADE</b> 07/08/16	<b>SHIP VIA</b> VENDOR TRUCK	<b>FREIGHT</b> FREIGHT ALLOWED
<b>JOB NAME</b> MU GUNLOCK FAMILY APC		<b>JOB NUMBER</b> 10151021	<b>PROJECT MANAGER</b> JOEL FELLMAN	<b>HOLD CODE</b>

ITEM	QTY	DESCRIPTION	ECM	PRICE	AMOUNT
1	1	R21 NULITE RM2 03 L40 277 D 1C ST F WH 13"	E	\$1,667.35	\$1,667.35
2	1	ADD (1) R14 FIXTURE PER ATTACHED QUOTE DATED 8/9/16			\$0.00
3	1	ADD (1) R21 FIXTURE PER ATTACHED QUOTE DATED 8/9/16			\$0.00
4	1	ADD (1) TYPE R12 FIXTURE QUOTE #3474867			\$0.00
5	1	ADD (4) R21 FIXTURE PER ATTACHED QUOTE #2194569-00			\$789.40
6	1	ADD (4) S1 FIXTURE PER ATTACHED QUOTE #2193885-00			\$196.00
7	1	ADD (4) S1E FIXTURE PER ATTACHED QUOTE #2193885-00			\$789.20
8	1	ADD (4) S2 FIXTURE PER ATTACHED QUOTE #2195173-00			\$502.00
9	1	FREIGHT ON ITEM#4			\$90.75
<b>Subtotal</b>					<b>\$4,034.70</b>

CHANGE ORDER #	CHANGE DATE	ITEM	CHANGE IN UNITS	DESCRIPTION	ECM	CHANGE IN UNIT COST	CHANGE IN AMOUNT
1	08/10/16	2	0	ADD (1) R14 FIXTURE PER ATTACHED QUOTE DATED 8/9/16		0.00	1,747.90
	08/10/16	3	0	ADD (1) R21 FIXTURE PER ATTACHED QUOTE DATED 8/9/16		0.00	1,667.35
2	09/23/16	4	0	ADD (1) TYPE R12 FIXTURE QUOTE #3474867		0.00	1,415.00
<b>CO Subtotal</b>							<b>4,830.25</b>
Tax Exempt Project							\$0.00
<b>PO TOTAL</b>							<b>\$8,864.95</b>

Confirming to: ANDY PRESTON

Authorized By:  Purchasing Agent  
JAMES WEAVER  
LAKE ERIE ELECTRIC, INC - DAYTON OFFICE

ORDER NUMBER MUST APPEAR ON ALL INVOICES,  
PACKING LISTS AND CORRESPONDENCES FOR  
PAYMENT. TWO (2) INVOICE COPIES ARE REQUIRED.  
ALL MATERIAL TO BE UL LISTED.

**Purchase Order No.** 10151021-1008904  
**Change Order No.** 2

LAKE ERIE ELECTRIC, INC - DAYTON OFFICE 360 INDUSTRIAL DRIVE, FRANKLIN, OH 45005

Phone: 937-743-1220 Fax: 937-743-1227

**LAKE ERIE ELECTRIC, INC - DAYTON OFFICE**

360 INDUSTRIAL DRIVE  
FRANKLIN, OH 45005  
Phone: 937-743-1220 Fax: 937-743-1227

**Purchase Order No.**  
**10151021-1009139**

Page 1 of 1

**VENDOR COPY**

<b>TO: RICHARDS ELECTRIC SUPPLY</b>		<b>SHIP TO: MU GUNLOCK FAMILY APC</b>	
4620 READING ROAD CINCINNATI, OH 45229 ATTN: ANDY PRESTON Phone: Fax:		5300 MORNING SUN ROAD OXFORD, OH 45056 US Foreman: BRIAN BETZ Foreman Cell: 513-267-1493	

<b>DATE ORDERED</b> 08/25/16	<b>TERMS</b> NET 30 DAYS	<b>SHIPMENT TO BE MADE</b> 08/25/16	<b>SHIP VIA</b> VENDOR TRUCK	<b>FREIGHT</b> FREIGHT PLUS
---------------------------------	-----------------------------	--	---------------------------------	--------------------------------

<b>JOB NAME</b> MU GUNLOCK FAMILY APC	<b>JOB NUMBER</b> 10151021	<b>PROJECT MANAGER</b> JOEL FELLMAN	<b>HOLD CODE</b>
--	-------------------------------	--	------------------

ITEM	QTY	DESCRIPTION	ECM	PRICE	AMOUNT
1	40	M-AN120SR-RP NULITE 6' NON FEED CABLE KIT TYPE S3	E	\$16.00	\$640.00
2	1	FREIGHT			\$58.84
3	1	ADDED FIXTURES PER ATTACHED ORDER# 2197831 R2,R15,R15E,R18			\$1,758.79
4	1	(2)ADDED FIXTURES PER ATTACHED ORDER# 3476166 W6			\$40.00
5	1	(3)ADDED FIXTURES PER ATTACHED ORDER# 3476434 R15			\$469.65
6	1	(3)ADDED FIXTURES PER ATTACHED ORDER# 2200863 R4E			\$2,933.25
7	1	SENSOR SWITCHES PER ATTACHED ORDER# 2205902			\$233.10
8	1	ADDED FIXTURES PER ATTACHED ORDER# 2206684 R2,R2E			\$536.00
9	1	FREIGHT ON ITEM #8			\$884.39
10	1	(4) ADDED FIXTURES PER ATTACHED ORDER# 2195173 S2			\$667.35
<b>Subtotal</b>					<b>\$8,221.37</b>
Tax Exempt Project					\$0.00
<b>PO TOTAL</b>					<b>\$8,221.37</b>

Confirming to: ANDY PRESTON

Authorized By:



MICHAEL HENDRIXSON  
LAKE ERIE ELECTRIC, INC - DAYTON OFFICE

Purchasing Agent

ORDER NUMBER MUST APPEAR ON ALL INVOICES,  
PACKING LISTS AND CORRESPONDENCES FOR  
PAYMENT. TWO (2) INVOICE COPIES ARE REQUIRED.  
ALL MATERIAL TO BE UL LISTED.

Purchase Order No. 10151021-1009139

Change Order No. \_\_\_\_\_

LAKE ERIE ELECTRIC, INC - DAYTON OFFICE 360 INDUSTRIAL DRIVE, FRANKLIN, OH 45005

Phone: 937-743-1220 Fax: 937-743-1227

**LAKE ERIE ELECTRIC, INC - DAYTON OFFICE**

360 INDUSTRIAL DRIVE  
FRANKLIN, OH 45005  
Phone: 937-743-1220 Fax: 937-743-1227

**Purchase Order No.**  
**10151021-1009412**

Page 1 of 1

**VENDOR COPY****TO: RICHARDS ELECTRIC SUPPLY**

4620 READING ROAD  
CINCINNATI, OH 45229  
ATTN: ANDY PRESTON  
Phone: Fax:

**SHIP TO: MU GUNLOCK FAMILY APC**

5300 MORNING SUN ROAD  
OXFORD, OH 45056 US  
Foreman: BRIAN BETZ  
Foreman Cell: 513-267-1493

<b>DATE ORDERED</b> 09/21/16	<b>TERMS</b> NET 30 DAYS	<b>SHIPMENT TO BE MADE</b> 09/21/16	<b>SHIP VIA</b> VENDOR TRUCK	<b>FREIGHT</b> FREIGHT ALLOWED
---------------------------------	-----------------------------	--	---------------------------------	-----------------------------------

<b>JOB NAME</b> MU GUNLOCK FAMILY APC	<b>JOB NUMBER</b> 10151021	<b>PROJECT MANAGER</b> JOEL FELLMAN	<b>HOLD CODE</b>
--	-------------------------------	--	------------------

ITEM	QTY	DESCRIPTION	ECM	PRICE	AMOUNT
1	18	SSL W6 LIGHTING FIXTURES PER ATTACHED ORDER# 4258115	E	\$650.75	\$11,713.50
2	10	BEA12 MOUNTING ARMS	E	\$40.00	\$400.00
				<b>Subtotal</b>	<b>\$12,113.50</b>

<b>Tax Exempt Project</b>	<b>\$0.00</b>
<b>PO TOTAL</b>	<b>\$12,113.50</b>

Confirming to: ANDY PRESTON

Authorized By:



Purchasing Agent

MICHAEL HENDRIXSON  
LAKE ERIE ELECTRIC, INC - DAYTON OFFICE

ORDER NUMBER MUST APPEAR ON ALL INVOICES,  
PACKING LISTS AND CORRESPONDENCES FOR  
PAYMENT. TWO (2) INVOICE COPIES ARE REQUIRED.  
ALL MATERIAL TO BE UL LISTED.

**Purchase Order No.** 10151021-1009412**Change Order No.****LAKE ERIE ELECTRIC, INC - DAYTON OFFICE** 360 INDUSTRIAL DRIVE, FRANKLIN, OH 45005

Phone: 937-743-1220 Fax: 937-743-1227