Attachment M

Appendix 5-2. Lighting Plan Manufacturer’s Cut Sheets

Evolve® EFH Series

LED Flood Light

CUSTOMER NAME _____

Project Name _____

Date _____ Type _____

Catalog Number _____

The Evolve® LED High Output Flood Light is our high-lumen solution to efficiently illuminate building facade, flag poles, billboard signage and many more traditional flood applications. Designed to replace 250W-400W HPS and 400W-1000W Metal Halide Flood Lights

CONSTRUCTION

Housing:	Aluminum die cast enclosure. Integral heat sink for maximum heat transfer
Lens:	Impact resistant tempered glass
Paint:	Corrosion resistant polyester powder paint, minimum 2.0 mil thickness Standard = Black, Dark Bronze Gray, White (RAL & custom colors available) Optional = Coastal Finish
Weight:	35 lbs (15.9 kgs)

OPTICAL SYSTEM

Lumens:	18,000 - 39,000
Distribution:	6x5, 6x6, 7x6, 7x7
Efficacy:	115 -140 LPW
CCT:	3000K, 4000K, 5000K
CRI:	≥70

ELECTRICAL

Input Voltage:	120-277V, 277-480V & 347-480V
Input Frequency:	50/60 Hz
Power Factor (PH):	> 90% at rated watts
Total Harmonic Distortion (THD):	< 20% at rated watts

SURGE PROTECTION

TYPICAL (120 STRIKES)		
6kV/3kA*	10kV/5kA*	20kV/10kA*

*Per ANSI C136.2-2015

LUMEN MAINTENANCE

Projected Lxx per IES TM-21-11 at 25°C

Lumen Codes	Distribution	LXX(10K) @ Hours		
		25,000 HR	50,000 HR	60,000 HR
AA, BB, CC, DD, EE	65, 66, 76, & 77	L95	L91	L90

Note: Projected Lxx based on LM80 (= 10,000 hour testing). Accepted Industry tolerances apply to initial luminous flux and lumen maintenance measurements

LUMINAIRE AMBIENT TEMPERATURE FACTOR

Ambient Temp (°C)	Initial Flux Factor	Ambient Temp (°C)	Initial Flux Factor
10	1.02	30	0.99
20	1.01	40	0.98
25	1.00	50	0.97

RATINGS

Operating Temperature:	-40° C to 50° C
Vibration:	3G - Trunnion Mount per Per ANSI C136.31-2010:
LM-79:	Testing in accordance with IESNA Standards

CONTROLS

Dimming:	Standard - 0-10V Optional - DALI (Option U)
Sensors:	Photo Electric Sensors (PE) available LightGrid and Daintree Compatible

WARRANTY

☐ 5 Year (Standard)

UL 1598 for WET LOCATIONS

IP66

IK08

GE current
a Daintree company

Evolve® EFH Series

LED Flood Light

Catalog Logic

CUSTOMER NAME

Project Name _____

Date _____ Type _____

Catalog Number _____

Ordering Information

EFH1 01 7

_ _

PRODUCT ID	GEN	VOLTAGE	OPTIC CODE	DISTRIBUTION[3]	CRI (MIN)	CCT	DIMMING	CONTROLS	MOUNTING	COLOR	OPTIONS
E= EVOLVE	01	0=120-277[1]	AA= 20,000lm	65 = NEMA 6x5	7 = 70 (min)	30= 3000K	A = ANS 136.41 7-Pin Receptacle[4]	A = No Control	K1 = Knuckle Slipfitter: For 1.9 in. - 2.3 in OD Tenon[6]	BLCK = Black	F= Fusing
F = Flood		H = 347-480V[1]	BB= 27,000lm	66 = NEMA 6x6		40= 4000K	D = No receptacle, with external dimming 18/2 3 ft cable	D = Shorting Cap[5]	K2 = Knuckle Slipfitter: For 1.9 in. - 2.3 in OD Tenon[2]	DKBZ = Dark Bronze	H = Motion Sensor [9]
H1 = High Output			CC= 30,000lm	76 = NEMA 7x6		50= 5000K	N = No PE Receptacle & Non Dimmable	E = ANSI C136.41 7-pin with non-Dimming PE Control[5]	S1 = Knuckle Slipfitter: For 2.3 in - 3.0 in OD Tenon[6]	GRAY = Gray	H2 = Daintree enabled motion sensor[8,9]
		1 = 120	DD= 35,000	77 = NEMA 7x7			P = ANSI 7-Pin Receptacle with external dimming 18/2 3 ft cable[4]		S2 = Knuckle Slipfitter: For 2.3 in. - 3.0 in OD Tenon[2]	WHTE = White	L = Tool-Less Entry
		2 = 208	EE= 39,000						T1 =Trunnion[2]		M = NOM31[15]
		3 =240							V1 = Knuckle Wall Mount[6]		P = Prewired with 6 ft #14/3 cable
		4 = 277									R = Optional Secondary Enhanced SPD
		D = 347									T = Optional Secondary Extreme SPD
		5=480									U = DALI Programmable[7,8]
											V = 3 Position Terminal Block
											V1 = Variable output via Field Adjustable Module
											Y = Coastal Finish[10]
											XXX = Special Options

[1] Not Available with Fusing
[2] Supplied with 14/3 3ft power cable
[3] Nominal IES Type classing subject to typical variation, individual units may differ.
[4] Restricted aiming angle of 0-45°
[5] Can only be ordered with "A" or "P" Dimming Options
[6] Supplied with leads
[7] Compatiable with LightGrid System
[8] Not available in 347V, 480V OR 347-480V
[9] Only available in K1 or S1 mount
[10] Recommended for installations within 750 feet from coast. Lead time varies, check with factory.
[15] Contact Manufacturer

For additional information on EFH files, please click one of the following links:

Non-Shielded Shielded

GE current
a Daintree company

Evolve® EFH Series

LED Flood Light

Spec Tables

CUSTOMER NAME

Project Name _____

Date _____ Type _____

Catalog Number _____

OPTIC CODE	DIST CODE	CLASSIFICATION	TYPICAL INITIAL LUMENS			TYPICAL SYSTEM WATTAGE	3000K	
			3000K	4000K	5000K	120-277 & 347-480V	120-277V	347-480V
AA	77	7x7	18900	19300	19500	150	EFH101_AA77730	
BB			26300	28600	27100	194	EFH101_BB77730_	
CC			29100	29700	30000	218	EFH101_CC77730_	
DD			34000	34700	35000	266	EFH101_DD77730_	
EE			37900	38700	39000	297	EFH101_EE77730_	
AA	76	7x6	18500	18800	19000	150	EFH101_AA76730	
BB			25700	26200	26500	194	EFH101_BB76730_	
CC			28400	29000	29300	218	EFH101_CC76730_	
DD			33200	33900	34200	266	EFH101_DD76730_	
EE			37100	37800	38100	297	EFH101_EE76730_	
AA	66	6x6	18200	18600	18800	150	EFH101_AA66730	
BB			25400	25900	26200	194	EFH101_BB766730_	
CC			28100	28700	29000	218	EFH101_CC66730_	
DD			32800	33500	33800	266	EFH101_DD66730_	
EE			36600	37400	37700	297	EFH101_EE66730_	
AA	65	6x5	17300	17700	17900	150	EFH101_AA65730	
BB			24100	24600	24800	194	EFH101_BB65730_	
CC			26700	27200	27500	218	EFH101_CC65730_	
DD			31200	31800	32100	266	EFH101_DD65730_	
EE			34800	35500	35800	297	EFH101_EE65730_	

Not all products on this document are DLC qualified, please visit https://www.designlights.org/search/

Evolve® EFH Series

LED Flood Light

Photometric Plots

CUSTOMER NAME

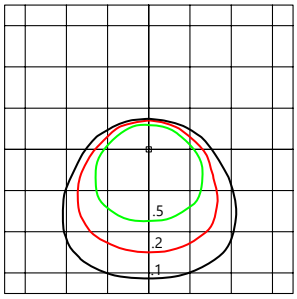
Project Name _____

Date _____ Type _____

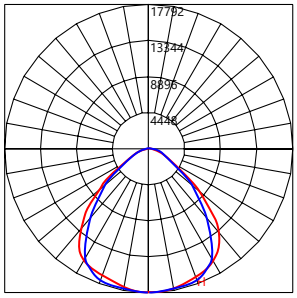
Catalog Number _____

77-EE

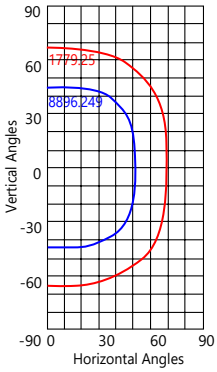
38,700 Lumens, 4000K
EFH101_EE77740__.IES



- Mounting Height at 35′
- 45° Tilt Initial Footcandle at Grade



— Vertical Axel Candela Distribution
— Horizontal Axel Candela Distribution



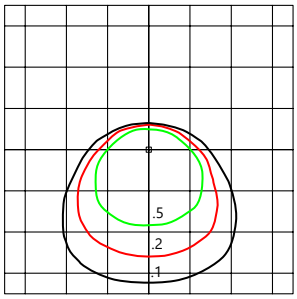
Isocandela Display

10% Max	(1799.2499 Cd)
50% Max	(8896.2495 Cd)

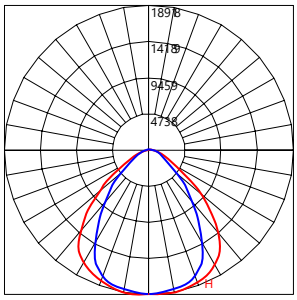
76-EE

37,800 Lumens, 4000K
EFH101_EE76740__.IES

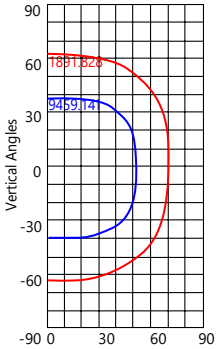
[3] This optic is designed to address a Roadway Photometric Application and may classify as Type II or III.



- Mounting Height at 35′
- 45° Tilt Initial Footcandle at Grade



— Vertical Axel Candela Distribution
— Horizontal Axel Candela Distribution

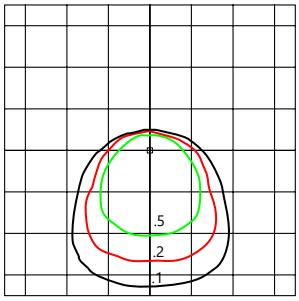


Isocandela Display

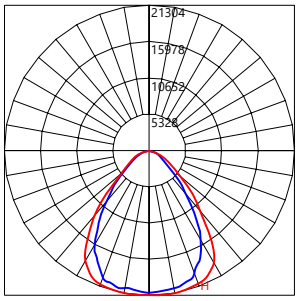
10% Max	(1891.8282 Cd)
50% Max	9459.141 Cd)

66-EE

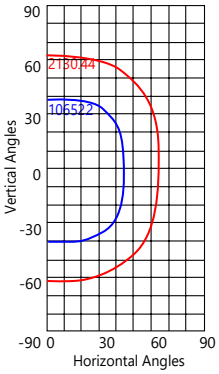
37,400 Lumens, 4000K
EFH101_EE66740__.IES



- Mounting Height at 35′
- 45° Tilt Initial Footcandle at Grade



— Vertical Axel Candela Distribution
— Horizontal Axel Candela Distribution

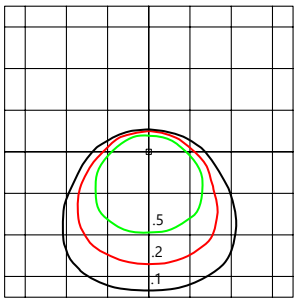


Isocandela Display

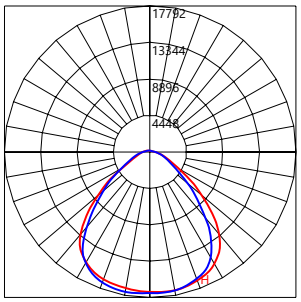
10% Max	(2130.4402 Cd)
50% Max	(10652.201 Cd)

65-EE

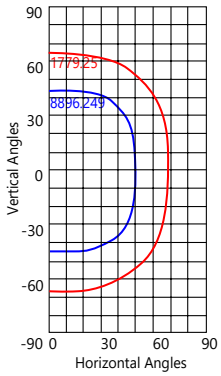
35,500 Lumens, 4000K
EFH101_EE65740__.IES



- Mounting Height at 35′
- 45° Tilt Initial Footcandle at Grade



— Vertical Axel Candela Distribution
— Horizontal Axel Candela Distribution



Isocandela Display

10% Max	(1779.2499 Cd)
50% Max	8896.2495 Cd)

GE current
a Daintree company

Evolve® EFH Series

LED Flood Light

Motion Sensing

CUSTOMER NAME

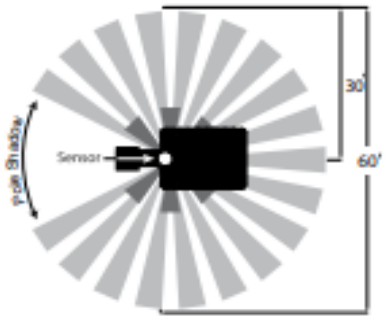
Project Name _____

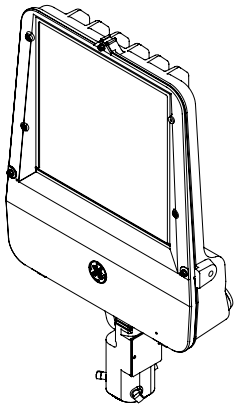
Date _____ Type _____

Catalog Number _____

H MOTION SENSING OPTION

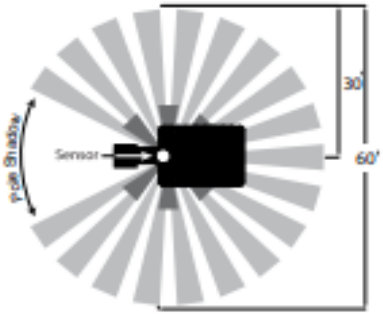
Recommended Mounting Height:	15-30′ (4.6-9.1m)
Coverage Radius:	15-20′ (4.6-6.1 m)
Lateral Coverage:	300 °
Total Harmonic Distortion:	≤ 20% at rated watts
Default Settings:	
Output:	Occupied - 100%/Unoccupied - 50%
PE Sensor:	None
Ramp/Fade:	5 Minutes/5 Minutes
Adds:	< 1W to fixture power rating
Field:	Programmable using FSIR-100 hand held programmer

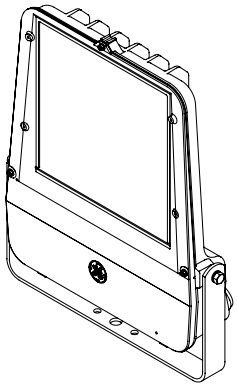




H2 MOTION SENSING OPTION

Recommended Mounting Height:	15-30′ (4.6-9.1m)
Coverage Radius:	15-20′ (4.6-6.1 m)
Lateral Coverage:	300 °
Total Harmonic Distortion:	≤ 20% at rated watts
Default Settings:	
Output:	Occupied - 100%/Unoccupied - 50%
PE Sensor:	Enabled
Ramp/Fade:	5 Minutes/5 Minutes
Requires Daintree Enterprise and wide area control (WAC)	





Evolve® EFH Series
LED Flood Light

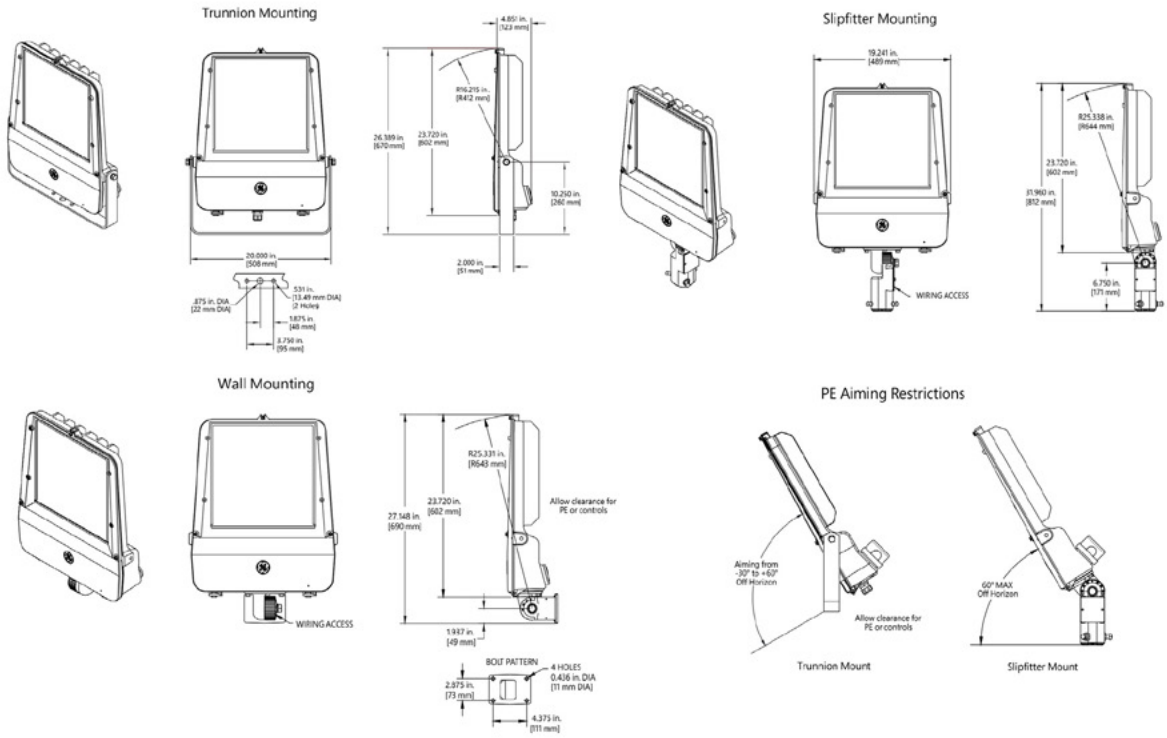
Mounting & Accessories

CUSTOMER NAME

Project Name _____

Date _____ Type _____

Catalog Number _____



MOUNTING

- Adjustable for 1.25 to 1 in. nominal mounting pipe
- Integral diecast mounting pipe stop
- Slipfitter with +/- 5 degrees of leveling adjustment

EFFECTIVE PROJECTED AREA

- – Vertical 3.51 sq ft (0.33 sq M) (aimed at horizon)
- – Tilted 1.79 sqft (0.17 sq M) (aimed down 45 degrees)

ACCESSORIES

SAP Number	Part Number	Description
93123552	WANSI - 277	ANSI 136.41 Dimming PE Danitree Enable, 105-305V
93123553	WANSI - 480	ANSI 136.41 Dimming PE Danitree Enable, 312-530V
93029237	PED-MV-LED-7	ANSI C136.41 Dimming PE, 120-277V
93029238	PED-347-LED-7	ANSI C136.41 Dimming PE, 347V
93029239	PED-480-LED-7	ANSI C136.41 Dimming PE, 480V
28299	PECOTL	Standard 120-277V
28294	PEC5TL	Standard 480V
80436	PECDTL	Standard 347V
73251	SCCL-PECTL	Shorting Cap

SHIELDS

SAP Number	Part Number	Description
93033494	TSVBLCK-EFH	Top and Side Visor
93033655	TSVDKBZ-EFH	Top and Side Visor
93033493	TSVGRAY-EFH	Top and Side Visor
93033656	TSVWHTE-EFH	Top and Side Visor
93034260	VAN-EFH	Vandal Shield
93034259	WG-EFH	Wire Guard
93034837	BDABLCK-EFH	Barn Doors
93034838	BDADKBZ-EFH	Barn Doors
93034836	BDAGRAY-EFH	Barn Doors
93034839	BDAWHTE-EFH	Barn Doors

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Information provided is subject to change without notice. All values are design or typical values when measured under laboratory conditions.
OLP3107 (Rev 04/30/21)

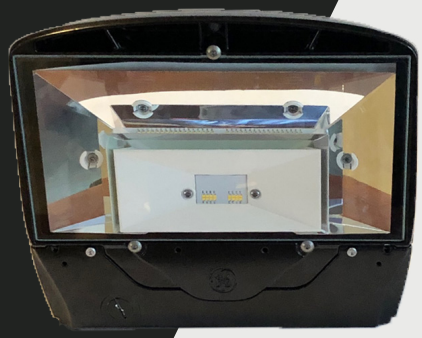
Evolve® LED Wall Pack

A Series (EWAS)

Project Name _____

Date _____ Type _____

Notes _____



The **Evolve**® LED A Series Wall Pack (EWAS), offers Type II, III and IV optical patterns with lumen levels ranging from 3,000 to 17,000 lumens, and is a designed replacement for 50W to 400W HID including an optional Emergency Battery Backup.

CONSTRUCTION

Housing:	Aluminum die cast enclosure. Integral heat sink for maximum heat transfer
Lens:	Impact resistant tempered glass
Paint:	Corrosion resistant polyester powder paint, minimum 2.0 mil thickness Standard = Black, Dark Bronze, Gray & White (RAL & custom colors available)
Weight:	8 - 10 lbs.

OPTICAL SYSTEM

Lumens:	3,000 - 17,000
Distribution:	Type II, III, IV
CCT:	3000K, 4000K, 5000K
CRI:	≥70

ELECTRICAL

Input Voltage:	120-277V & 347-480V
Input Frequency:	50/60Hz
Power Factor:	> 90% at rated watts
Total Harmonic Distortion:	< 20% at rated watts

SURGE PROTECTION

Typical	Enhanced
☐ 6kV/3kA*	☐ 10kV/5kA*

*Per ANSI C136.2-2015

WARRANTY

☐ 5 Year (Standard)

LUMEN MAINTENANCE

Projected Lxx per IES TM-21-11 at 25°C

Distribution	LXX(10K) @ Hours		
	25,000 HR	50,000 HR	60,000 HR
A2, A3, A4, B2, B3, B4, C2, C3, C4, D2, D3, D4	L95	L93	L92
E2, E3, E4, F2, F3, F4, G2, G3, G4	L96	L94	L94

Note: Projected Lxx based on LM80 (≥ 10,000 hour testing). Accepted Industry tolerances apply to initial luminous flux and lumen maintenance measurements.

LUMINAIRE AMBIENT TEMPERATURE FACTOR

Ambient Temp (°C)	Initial Flux Factor	Ambient Temp (°C)	Initial Flux Factor
10	1.02	30	0.99
20	1.01	40	0.98
25	1.00	50	0.97

RATINGS

Operating Temperature:	-40°C to 50°C
Vibration:	3G per ANSI C136.31-2010
LM-79:	Testing in accordance with IESNA Standards

CONTROLS

Dimming:	Standard - 0-10V ☐
Sensors:	Photo Electric Sensors (PE) available LightGrid and Daintree Compatiable

EMERGENCY BATTERY BACKUP

Provides reliable emergency operations when there is a loss to normal power, supported by Independent Secondary Battery and LED Board.

Powers luminaire for a minimum of 90 minutes @ 1,000 lumens.

Available on A* and B* Optical Code Packages only

Operating Temperature (for EMBB models) -20° to 40°C

3kV/1.5kA surge protection for EMBB models.

GE current
a Daintree company

UL 1598 for WET LOCATIONS

IP66 Optical

IK08

Not all product variations listed on this page are DLC qualified. Visit www.designlights.org/search to confirm qualifications.

Evolve® LED Wall Pack

A Series (EWAS)

Catalog Logic

Project Name ______________________
Date ____________ Type ____________
Notes ______________________

E W A S 01 7 FM

_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

PROD. ID	GEN	VOLTAGE	OPTIC CODE	DISTRIBUTION	CRI (min)	CCT	CONTROLS	PE FUNCTION	MOUNTING	COLOR	OPTIONS
E = Evolve	01	0 = 120-277	Ax = 3000	AF = Asymmetric Forward	7 = 70 CRI	30 = 3000K[8]	N = No external dimming leads	1 = None	FM = Flush Mount	BLCK = Black	EMBB = Emergency Battery Backup[1,4,9,12]
W = Wallpack		H = 347-480	Bx = 5000	AN = Asymmetric Narrow		40 = 4000K	D = External dimming leads[1]	3 = Button PE[1,2,3,11]		DKBZ = Dark Bronze	R = Enhanced Surge Protection (10kV/5kA)
AS = A-Series			Cx = 7500	AW = Asymmetric Wide		50 = 5000K		A = ANSI C136.41 7-Pin Receptacle		GRAY = Gray	T = Extreme Surge Protection (20kV/10kA)
		1 = 120	Dx = 10000					D = ANSI C136.41 7-Pin Receptacle with Shorting Cap		WHTE = White	H = Motion Sensor (Wattstopper)[5,6,10]
		2 = 208	Ex = 12200					E = ANSI C136.41 7-Pin Receptacle with Non Dimming PE Control			Y = Coastal Finish[7]
		3 = 240	Fx = 14400								XXX = Special Options
		4 = 277	Gx = 17000								
		D = 347									
		5 = 480									

1 Not available with Option H (Motion Sensor)
2 Only available with discrete voltages
3 Not available with Voltage Options 0, H, or 5
4 Available with A and B Optical Codes Only
5 H Motion Sensor Bottom mount available with A, B, C, D, & E Optical Codes Only
6 H Motion Sensor Side Mount available with F & G Optical Codes Only
7 Recommended for installations within 750 feet from coast. Lead time varies, check with factory
8 Select 3000K CCT for IDA approved fixtures
9 Not available with voltage options D, 5, or H
10 WS FSIR-100 (Sku# 197634) needed for programming sensor
11 Motion sensor has dusk-to-dawn control functionality
12 EMBB cannot be used with R (Enhanced Surge 10kV/5kA) or T (Extreme Surge 20kV/10kA)

Evolve® LED Wall Pack

A Series (EWAS)

Spec Tables

Project Name _____

Date _____ Type _____

Notes _____

TYPE	OPTIC CODE	DISTRIBUTION	TYPICAL INITIAL LUMENS		TYPICAL SYSTEM WATTAGE		BUG RATINGS	
							3000K	4000K & 5000K
			3000K	4000K & 5000K	120-277V	347-480V	B-U-G	B-U-G
Type IV	A4	Asymmetric Forward (AF)	2900	3000	21	23	B1-U0-G1	B1-U0-G1
	B4		4900	5000	36	38	B1-U0-G1	B1-U0-G1
	C4		7300	7500	56		B1-U0-G2	B1-U0-G2
	D4		9800	10000	77		B2-U0-G2	B2-U0-G2
	E4		11500	12200	89		B2-U0-G2	B2-U0-G2
	F4		13600	14400	109		B2-U0-G2	B2-U0-G2
	G4		16100	17000	130		B3-U0-G3	B3-U0-G3
Type III	A3	Asymmetric Wide (AW)	2900	3000	21	23	B1-U0-G1	B1-U0-G1
	B3		4900	5100	36	38	B1-U0-G1	B1-U0-G1
	C3		7400	7600	56		B2-U0-G1	B2-U0-G1
	D3		9900	10200	77		B2-U0-G2	B2-U0-G2
	E3		11700	12400	89		B2-U0-G2	B2-U0-G2
	F3		13900	14700	109		B2-U0-G2	B2-U0-G2
	G3		16400	17300	130		B2-U0-G2	B3-U0-G2
Type II	A2	Asymmetric Narrow (AN)	2900	3000	21	23	B1-U0-G1	B1-U0-G1
	B2		4900	5000	36	38	B1-U0-G1	B1-U0-G1
	C2		7300	7500	56		B2-U0-G1	B2-U0-G2
	D2		9800	10100	77		B2-U0-G2	B2-U0-G2
	E2		11600	12300	89		B2-U0-G2	B2-U0-G2
	F2		13700	14500	109		B3-U0-G3	B3-U0-G3
	G2		16200	17100	130		B3-U0-G3	B3-U0-G3

For additional information on EWAS IES files, please click the following link: **EWAS IES Files**

GE current
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Evolve® LED Wall Pack

A Series (EWAS)

Photometric Plots

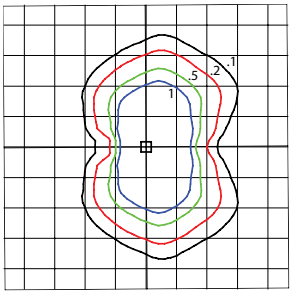
Project Name _____

Date _____ Type _____

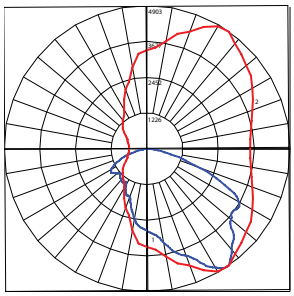
Notes _____

EWAS
ASYMMETRIC NARROW
(D2AN750)

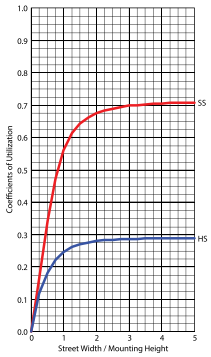
10,100 Lumens
5000K
EWAS01_D2AN750_.IES



- Mounting Height at 15'
- Initial Footcandle at Grade

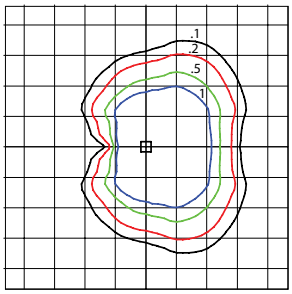


— Vertical plane through horizontal angle of Max. Cd at 55°
— Horizontal cone through vertical angle of Max. Cd at 34°

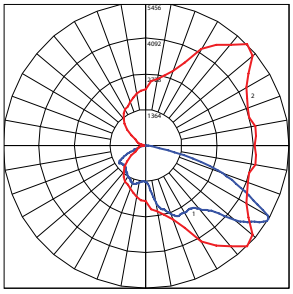


EWAS
ASYMMETRIC WIDE
(D3AW750)

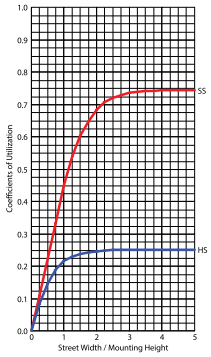
10,200 Lumens
5000K
EWAS01_D3AW750_.IES



- Mounting Height at 15'
- Initial Footcandle at Grade

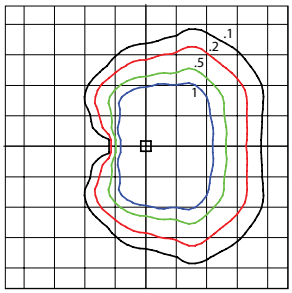


— Vertical plane through horizontal angle of Max. Cd at 45°
— Horizontal cone through vertical angle of Max. Cd at 59°

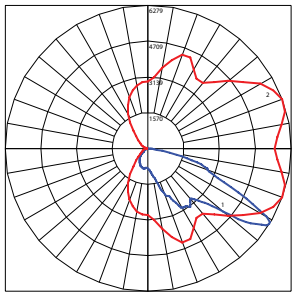


EWAS
ASYMMETRIC FORWARD
(D4AF750)

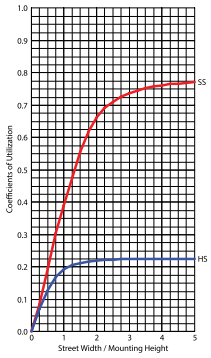
10,000 Lumens
5000K
EWAS01_D4AF750_.IES



- Mounting Height at 15'
- Initial Footcandle at Grade

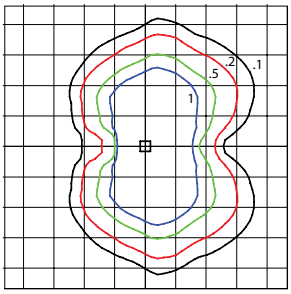


— Vertical plane through horizontal angle of Max. Cd at 20°
— Horizontal cone through vertical angle of Max. Cd at 58°

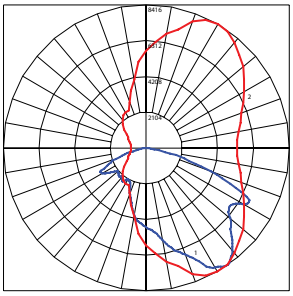


EWAS
ASYMMETRIC NARROW
(G2AN750)

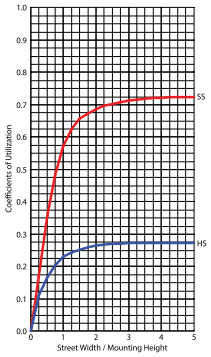
17,100 Lumens
5000K
EWAS01_G2AN750_.IES



- Mounting Height at 15'
- Initial Footcandle at Grade



— Vertical plane through horizontal angle of Max. Cd at 60°
— Horizontal cone through vertical angle of Max. Cd at 35°



GE current
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Evolve® LED Wall Pack

A Series (EWAS)

Photometric Plots

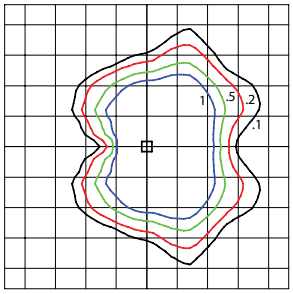
Project Name _____

Date _____ Type _____

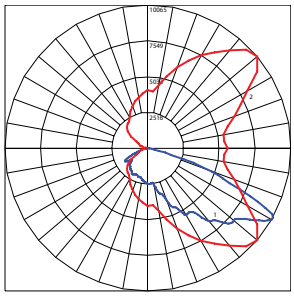
Notes _____

EWAS
ASYMMETRIC WIDE
(G3AW750)

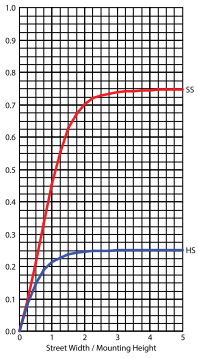
17,300 Lumens
5000K
EWAS01_G3AW750_.IES



- Mounting Height at 15'
- Initial Footcandle at Grade

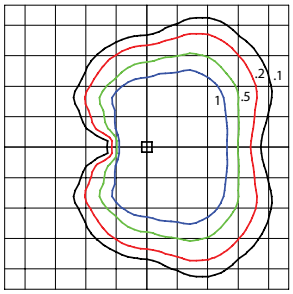


— Vertical plane through horizontal angle of Max. Cd at 40°
— Horizontal cone through vertical angle of Max. Cd at 61°

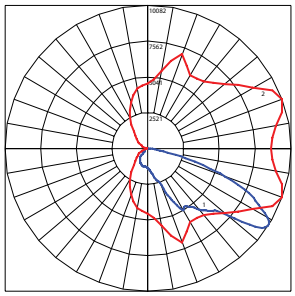


EWAS
ASYMMETRIC FORWARD
(G4AF750)

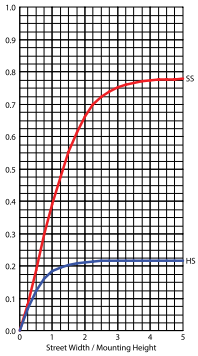
17,000 Lumens
5000K
EWAS01_G4AF750_.IES



- Mounting Height at 15'
- Initial Footcandle at Grade

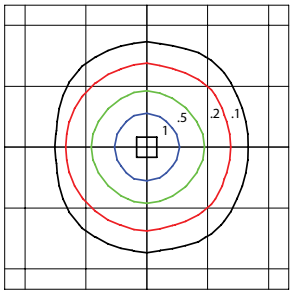


— Vertical plane through horizontal angle of Max. Cd at 20°
— Horizontal cone through vertical angle of Max. Cd at 57°

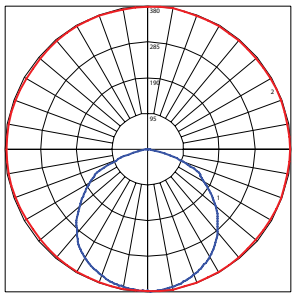


EWAS
(With Emergency Battery
Backup in Operation)

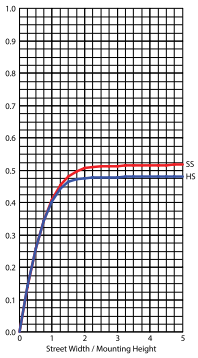
1,000 Lumens
3000K, 4000K, 5000K
EWAS01_With Emergency
Battery Backup On_.IES



- Mounting Height at 15'
- Initial Footcandle at Grade



— Vertical plane through horizontal angle of Max. Cd at 80°
— Horizontal cone through vertical angle of Max. Cd at 1°



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Evolve® LED Wall Pack

A Series (EWAS)

Motion Sensing

Project Name _____

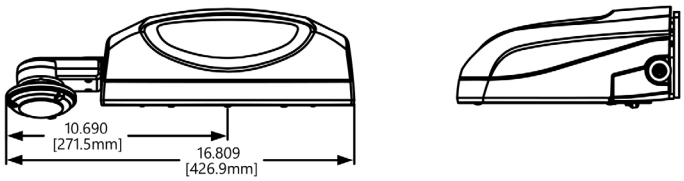
Date _____ Type _____

Notes _____

H MOTION SENSING OPTION

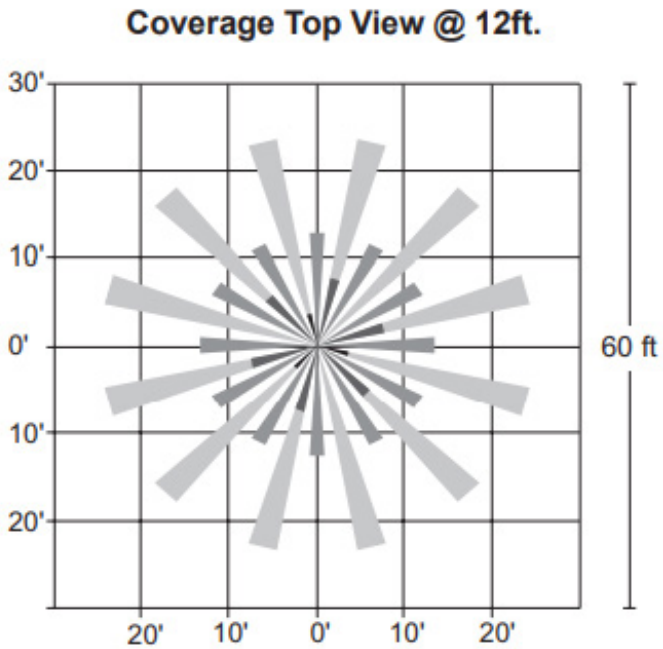
Recommended Mounting Height:	8-25ft
Coverage Radius:	25-30 ft
Lateral Coverage	Provides 180° coverage (180° blocked by wall)
Default Settings	
Output:	Occupied - 100% Unoccupied - 50%
PE Sensor:	Enabled
Ramp/Fade:	10% dimming after 5 minutes with no occupancy
	Adds < 1W to fixture power rating
	Field programmable using FSIR-100 hand held programmer SKU # 197634 (WS FSIR-100)

H Option - Wattstopper Motion Sensor
Bottom mount available with A, B, C, D, & E Optical Codes Only



H Option - Wattstopper® Motion Sensor
Side mount available with F & G Optical Codes Only

SENSOR PATTERN*



* Image used with permission from Catalog Number: FSP-L2/FSP-L3/FSP-L7

For additional information on Wattstopper® products please click the following link:

Wattstopper® Coverage Guide

GE current
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Evolve® LED Wall Pack

A Series (EWAS)

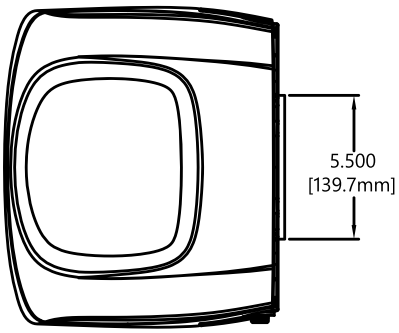
Mounting & Accessories

Project Name _____

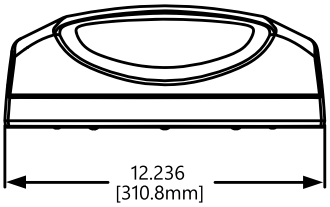
Date _____ Type _____

Notes _____

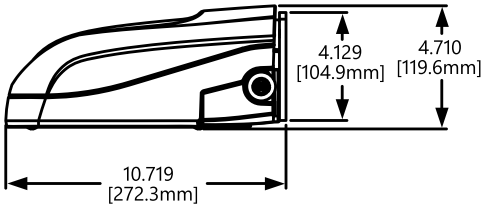
TOP VIEW

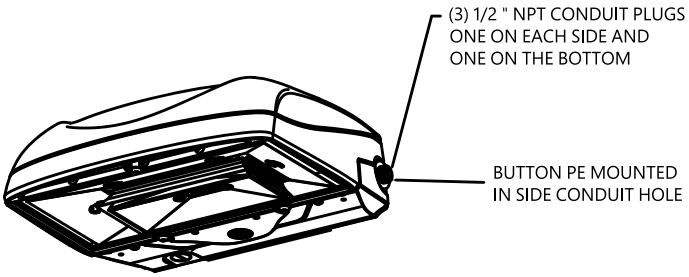


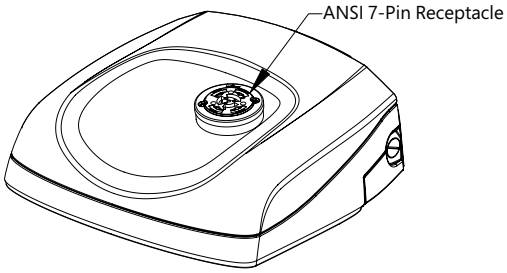
FRONT VIEW



SIDE VIEW







MOUNTING

- Flush Mount: Mounts directly to customer supplied junction box
- Surface Mount: Mounts to walls via separate mounting holes.

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OLP3165 (Rev 11/24/21)