



DATE

**INDIRECT / DIRECT** 



PROJECT

COMMENTS

# PRODUCT FEATURES

### **FIXTURE HOUSING**

Width: 3.0" Height: 4.0"

### INDIRECT ILLUMINATION

We offer three indirect illumination options. Standard Lambertian can be upgraded to Batwing Up (BW) or Asymmetric Up (AU)

### **ONE-PIECE EXTRUDED ALUMINUM HOUSING**

Housing ensures straighter rows and consistent lens retention

### 120/277VAC 0-10 VOLT DIMMING TO 1% STANDARD

**UP TO 159.7 LUMENS PER WATT AT 90 CRI** 















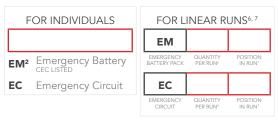
## **ORDERING GUIDE** EX: 3SID - 20 - VHU - MD - 35 - UNV - T1 - WH - C90

SERIES	LENGTH	UPP	ER OUTPUT	DIRE	ECT OUTPUT		ССТ	V	OLTAGE		MOUNTING	COLOR
3SID												
	XX FT	VHU	1250 LM/FT	VHD	1250 LM/FT	30	3000K	UNV	120-277V	T1	1" Grid	WH White
ORDERING NOTES	1' Increments EX: 20' = 20	HU	1000 LM/FT	HD	1000 LM/FT	35	3500K	347¹	347V	Т9	9/16" Grid	<b>BLK</b> Black
1. EM NOT AVAILABLE WITH 347V.		MU	750 LM/FT	MD	750 LM/FT	40	4000K			SC	Screw Slot	
<ol><li>EM AND SENSORS ARE NOT AVAILABLE WIT FIXTURES.</li></ol>	H 2' AND 3'	LU	500 LM/FT	LD	500 LM/FT					нс	Hard Ceiling	
3. FOR INDIVIDUAL FIXTURES, SENSOR LOCATE FEED END. FOR RUNS, A SENSOR IS INSTALLED		VLU <sup>4</sup>	250 LM/FT	VLD	250 LM/FT					JB	Junction Box	
FIXTURE IN RUN, EX. 2 SENSORS ARE INSTALL RUN (1 SENSOR IN EACH 8' FIXTURE).		CU	Custom	CD	Custom							

4. VLU NOT AVAILABLE ON 2 FT LENGTHS.

# OPTIONS

CRI	SUSPENSION	INTEGRATED CONTROLS <sup>2, 3, 4</sup>	OPTICAL	CIRCUITING
C90				
<b>C90</b> 90 CRI	BLANK = 48" CABLE	DOS Daylight Occupancy Sensor	BLANK = LAMBERTIAN	SS-U/D Separate Switching UPWARDS/DOWNWARDS
	<b>CB96</b> 96" Cables		<b>WW⁵</b> Wall Wash, Direct	
	<b>CB144</b> 144" Cables		<b>BW</b> Batwing Up	
	BC Black Canopy & Cord		<b>AU</b> Asymmetric Up	



#### **EMERGENCY OPTION NOTES**

- 5. CONSULT FACTORY FOR COMPONENT OR SYSTEM NOT LISTED.
- 6. INTEGRATED CONTROLS NOT AVAILABLE WITH WALL WASH.
- 7. EM AND EC QUANTITY IS NOT TO EXCEED NUMBER OF DISCRETE FIXTURE SECTIONS IN A ROW.
- 8. EM AND EC POSITION REFERS TO WHICH FIXTURE IN THE RUN THAT WILL BE POWERED BY THE EM/EC CIRCUIT. POSITION OPTIONS: **\$**=STARTER, **J**=JOINER, **E**=ENDER EX: 3SID-20-HU-HD-35-UNV-T1-WH-EM2SJ





# **3SID** SUSPENDED INDIRECT / DIRECT



### **PHOTOMETRICS**

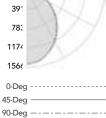
## **ENERGY CONSUMPTION** WATTS PER LINEAR FOOT

## 3SID-04-HU-HD-35-UNV-XX-C90

Total Lumens: 8,032 Ratio: 50% Up & 50% Down 1174 Wattage: 56.1 783 Efficacy: 143.1 LM/W 391 Fixture Length: Four Feet

## **Zonal Lumen Summary**

Zone	Lumens	% Fixt
0 - 30	1136.0	14.1
0 - 40	1828.8	22.8
0 - 60	3145.9	39.2
0 - 90	3997.3	49.8
90 - 180	4034.9	50.2
0 - 180	8032.1	100.0



90-Deg -----

# INDIRECT (LAMBERTIAN) / DIRECT (LAMBERTIAN) LIGHT AT 90 CRI, 3500K

143.1 147.8 151.8 159.7

	VHU-VHD	VHU-HD	VHU-MD	VHU-LD	VHU-VLD
Watts/ft	18.2	15.8	13.7	11.7	9.8
Lumens/ft	2543	2287	2043	1787	1556
LPW	139.7	144.7	149.1	152.7	159.4
	HU-VHD	HU-HD	HU-MD	HU-LD	HU-VLD
Watts/ft	16.4	14.0	11.9	9.9	8.0
Lumens/ft	2264	2007	1763	1507	1276

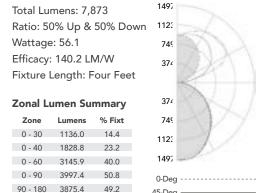
	MU-VHD	MU-HD	MU-MD	MU-LD	MU-VLD
Watts/ft	14.9	12.5	10.4	8.4	6.4
Lumens/ft	1997	1741	1497	1241	1010
LPW	134.2	139.5	144.2	148.0	156.8

LPW 137.8

Watts/ft	13.5	11.1	9.0	7.0	5.1
Lumens/ft	1766	1510	1266	1010	779
LPW	130.8	136.0	140.6	144.2	153.9
	VLU-VHD	VLU-HD	VLU-MD	VLU-LD	VLU-VLD
Watts/ft	<b>VLU-VHD</b> 12.1	<b>VLU-HD</b> 9.7	<b>VLU-MD</b> 7.6	<b>VLU-LD</b> 5.6	VLU-VLD 3.6
Watts/ft Lumens/ft					

LU-VHD LU-HD LU-MD LU-LD LU-VLD

#### 3SID-04-HU-HD-35-UNV-XX-C90-BW



## INDIRECT (BATWING) / DIRECT (LAMBERTIAN) LIGHT AT 90 CRI, 3500K

INDIRECT (ASYMMETRIC) / DIRECT (LAMBERTIAN) LIGHT AT 90 CRI, 3500K

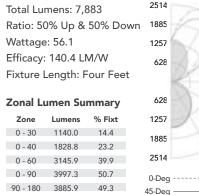
	VHU-VHD	VHU-HD	VHU-MD	VHU-LD	VHU-VLD
Watts/ft	18.2	15.8	13.7	11.7	9.7
Lumens/ft	2492	2236	1992	1736	1505
LPW	136.9	141.5	145.4	148.4	155.2
	HU-VHD	HU-HD	HU-MD	HU-LD	HU-VLD
Watts/ft	16.4	14.0	11.9	9.9	7.9
Lumens/ft	2224	1967	1723	1467	1236
LPW	135.3	140.2	144.4	147.8	155.9
	MU-VHD	MU-HD	MU-MD	MU-LD	MU-VLD
Watts/ft	14.9	12.5	10.4	8.4	6.4
Lumens/ft	1968	1711	1467	1211	980
LPW	132.2	137.1	141.3	144.5	153.6

Watts/ft	13.5	11.1	9.0	7.0	5.0
Lumens/ft	1746	1489	1245	989	758
Ediliciis/ IC	1740	1407	1243	,0,	750
LPW	129.3	134.2	138.4	141.3	151.7
	VLU-VHD	VLU-HD	VLU-MD	VLU-LD	VLU-VLD
Watts/ft	<b>VLU-VHD</b> 12.1	<b>VLU-HD</b> 9.7	<b>VLU-MD</b> 7.6	<b>VLU-LD</b> 5.6	VLU-VLD 3.6
110.000,10	12.1	9.7	7.6	5.6	3.6
Watts/ft Lumens/ft					
110.000,10	12.1	9.7	7.6	5.6	3.6

LU-VHD LU-HD LU-MD LU-LD LU-VLD

# 3SID-04-HU-HD-35-UNV-XX-C90-AU

0 - 180 7872.7 100.0



	VHU-VHD	VHU-HD	VHU-MD	VHU-LD	VHU-VLD
Watts/ft	18.2	15.8	13.7	11.7	9.7
Lumens/ft	2496	2239	1995	1739	1508
LPW	137.1	141.7	145.6	148.7	155.5
	HU-VHD	HU-HD	HU-MD	HU-LD	HU-VLD
Watts/ft		<b>HU-HD</b> 14.0	<b>HU-MD</b> 11.9	<b>HU-LD</b> 9.9	<b>HU-VLD</b> 7.9
Watts/ft Lumens/ft	16.4				
11445714	16.4	14.0	11.9	9.9	7.9

LPW	135.5	140.4	144.7	148.0	156.2
	MU-VHD	MU-HD	MU-MD	MO-LD	MIO-VLD
Watts/ft	14.9	12.5	10.4	8.4	6.4
774445771	,	12.0		0	0
Lumens/ft	1969	1713	1469	1213	982
LPW	132.4	137.3	141.5	144.8	153.9

Lumens/ft	1747	1491	1247	991	760
LPW	129.4	134.3	138.5	141.5	151.9
	VLU-VHD	VLU-HD	VLU-MD	VLU-LD	VLU-VLD
Watts/ft	12.1	9.7	7.6	5.6	3.6
Lumens/ft	1507	1251	1007	751	520
LPW	125.1	129.6	133.4	135.3	146.5

Watts/ft 13.5 11.1 9.0 7.0 5.0

LU-VHD LU-HD LU-MD LU-LD LU-VLD

### **LUMEN ADJUSTMENT CALCULATIONS**

90-Deg -

LUMEN MULTIPLIER				
3000K	0.995			
3500K	1.000			
4000K	1.023			

0 - 180 7883.1 100.0

#### Example: HU-MD Output, 3000K at 90CRI

Total Light Output: 7052 x 0.995 = 7017 lm

Total Light Output Per Foot: 1763 x 0.995 = 1754 lm/ft Efficacy = 1754 / 11.9 = 147.4 lm/W



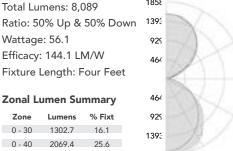
# **3SID** SUSPENDED INDIRECT / DIRECT



### **PHOTOMETRICS**

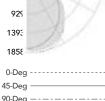
### **ENERGY CONSUMPTION** WATTS PER LINEAR FOOT

## 3SID-04-HU-HD-35-UNV-XX-C90-WW



1858

Zone	Lumens	% Fixt
0 - 30	1302.7	16.1
0 - 40	2069.4	25.6
0 - 60	3396.3	42.0
0 - 90	4056.4	50.1
90 - 180	4033.0	49.9
0 - 180	8089.4	100.0



# INDIRECT (LAMBERTIAN) / DIRECT (WALL WASH) LIGHT AT 90 CRI, 3500K

	VHU-VHD	VHU-HD	VHU-MD	VHU-LD	VHU-VLD
Watts/ft	18.2	15.8	13.7	11.7	9.7
Lumens/ft	2562	2302	2054	1794	1560
LPW	140.8	145.7	149.9	153.4	160.8
	HU-VHD	HU-HD	HU-MD	HU-LD	HU-VLD
Watts/ft	16.4	14.0	11.9	9.9	7.9
Lumens/ft	2282	2022	1774	1515	1280
LPW	138.9	144.1	148.7	152.5	161.4
	MU-VHD	MU-HD	MU-MD	MU-LD	MU-VLD
Watts/ft	14.9	12.5	10.4	8.4	6.4

1755

140.7

1508

145.3

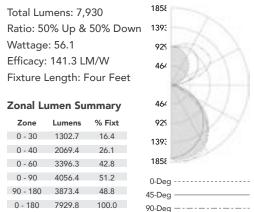
Lumens/ft 2016

**LPW** 135.5

vvatts/tt	13.3	11.1	9.0	7.0	5.0
Lumens/ft	1785	1524	1277	1017	783
LPW	132.2	137.3	141.9	145.3	156.5
	VLU-VHD	VIIIHD	VIIIMD	VIIIID	VIIIVID
	VLO-VIID	VLO-11D	A FO-IAID	VLU-LD	ALO-ALD
Watts/ft	12.1	9.7	7.6	5.6	3.6
Watts/ft Lumens/ft					

LU-VHD LU-HD LU-MD LU-LD LU-VLD

#### 3SID-04-HU-HD-35-UNV-XX-C90-WW-BW



#### INDIRECT (BATWING) / DIRECT (WALL WASH) LIGHT AT 90 CRI, 3500K

INDIRECT (ASYMMETRIC) / DIRECT (WALL WASH) LIGHT AT 90 CRI, 3500K

1248

1014

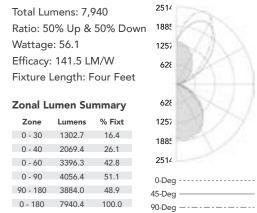
148.9 158.9

VHU-VHD	VHU-HD	VHU-MD	VHU-LD	VHU-VLD
18.2	15.8	13.7	11.7	9.7
2511	2251	2003	1743	1509
138.0	142.5	146.2	149.0	155.6
HU-VHD	HU-HD	HU-MD	HU-LD	HU-VLD
16.4	14.0	11.9	9.9	7.9
2242	1982	1735	1475	1240
136.5	141.3	145.4	148.5	156.4
MU-VHD	MU-HD	MU-MD	MU-LD	MU-VLD
14.9	12.5	10.4	8.4	6.4
1986	1726	1478	1219	984
133.5	138.3	142.4	145.4	154.3
	18.2 2511 138.0 <b>HU-VHD</b> 16.4 2242 136.5 <b>MU-VHD</b> 14.9	18.2 15.8 2511 2251 138.0 142.5 HU-VHD HU-HD 16.4 14.0 2242 1982 136.5 141.3 MU-VHD 14.9 12.5 1986 1726	18.2 15.8 13.7   2511 2251 2003   138.0 142.5 146.2   HU-VHD HU-HD HU-MD   16.4 14.0 11.9   2242 1982 1735   136.5 141.3 145.4   MU-VHD MU-HD MU-MD   14.9 12.5 10.4   1986 1726 1478	2511 2251 2003 1743   138.0 142.5 146.2 149.0   HU-VHD HU-HD HU-MD HU-LD   16.4 14.0 11.9 9.9   2242 1982 1735 1475   136.5 141.3 145.4 148.5   MU-VHD MU-HD MU-MD MU-LD   14.9 12.5 10.4 8.4   1986 1726 1478 1219

	LO-VID	LO-ND	LO-IVID	LU-LD	LO-VLD
Watts/ft	13.5	11.1	9.0	7.0	5.0
Lumens/ft	1764	1504	1257	997	762
LPW	130.7	135.5	139.6	142.4	152.5
	VLU-VHD	VLU-HD	VLU-MD	VLU-LD	VLU-VLD
Watts/ft	<b>VLU-VHD</b> 12.1	<b>VLU-HD</b> 9.7	<b>VLU-MD</b> 7.6	<b>VLU-LD</b> 5.6	VLU-VLD 3.6
Watts/ft Lumens/ft					
	12.1	9.7	7.6	5.6	3.6

HILVHD HILMD HILD HILVID

## 3SID-04-HU-HD-35-UNV-XX-C90-WW-AU



	VHU-VHD	VHU-HD	VHU-MD	VHU-LD	VHU-VLD
Watts/ft	18.2	15.8	13.7	11.7	9.7
Lumens/ft	2515	2254	2007	1747	1512
LPW	138.2	142.7	146.5	149.3	155.9
	HU-VHD	HU-HD	HU-MD	шпп	HU-VLD
	110-4110	110-110	טואי-טוו	110-LD	110-VLD
Watts/ft	16.4	14.0	11.9	9.9	7.9

	HU-VHD	HU-HD	HU-MD	HU-LD	HU-VLD
Watts/ft	16.4	14.0	11.9	9.9	7.9
Lumens/ft	2245	1985	1737	1477	1243
LPW	136.6	141.5	145.6	148.8	156.7
	MU-VHD	MU-HD	MU-MD	MU-LD	MU-VLD
Watts/ft	<b>MU-VHD</b> 14.9	<b>MU-HD</b> 12.5	<b>MU-MD</b> 10.4	<b>MU-LD</b> 8.4	<b>MU-VLD</b> 6.4
Watts/ft Lumens/ft					
	14.9	12.5	10.4	8.4	6.4

Watts/ft	13.5	11.1	9.0	7.0	5.0
Lumens/ft	1766	1506	1258	998	764
LPW	130.8	135.6	139.8	142.6	152.7
	VLU-VHD	VLU-HD	VLU-MD	VLU-LD	VLU-VLD
Watts/ft	12.1	9.7	7.6	5.6	3.6

VHU-VHD VHU-HD VHU-MD VHU-LD VHU-VLD

Watts/ft	12.1	9.7	7.6	5.6	3.6
Lumens/ft	1526	1266	1018	759	524
LPW	126.7	131.2	134.9	136.7	147.6

### **LUMEN ADJUSTMENT CALCULATIONS**

LUMEN MULTIPLIER							
3000K	0.995						
3500K	1.000						
4000K	1.023						

Example: Indirect Lambertian, Direct Wall Wash, HU-MD Output, 3000K at 90CRI

Total Light Output: 7096 x 0.995 = 7060 lm

Total Light Output Per Foot: 1774 x 0.995 = 1765 lm/ft

Efficacy = 1765 / 11.9 = 148.3 lm/W



# **3SID** SUSPENDED

INDIRECT / DIRECT



#### **OPERATION**

### **Light Engine:**

The 3SID is available in 3000K, 3500K and 4000K CCT all within a 3-Step MacAdam Ellipse and has a standard CRI of 90+.

### **Direct Optics:**

The back-lit extruded acrylic lens ensures high efficiency light output, in a minimal form factor for a clean, evenly illuminated surface with minimal glare. Upgrade to direct Wall Wash (WW) for direct asymmetric illumination.

#### **Indirect Optics:**

Standard Lambertian can be upgraded to indirect batwing (BW) or Asymmetric (AU). The extruded acrylic batwing lens (BW) provides an ultrawide distribution with even illumination across the ceiling while allowing for maximum spacing between fixtures. The Asymmetric (AU) diffused forward-throw optics properly illuminates the wall. All 3 indirect acrylic optics protect LED's from dust and debris.

#### Electrical:

Class 2 programmable (factory pre-set) premium power supply, 120-277VAC input. Power factor >0.9. THD <15%. Integral Surge Protection to 2KV.

#### Dimmina:

The 3SID comes standard with 0-10V dimming to 1%. For DOS (Daylight/ Occupancy Sensor) ordering code, DALI driver required. Advance Xitanium SR, 1% dimming to be utilized.

## **Emergency Battery Pack:**

Emergency Battery Pack has been engineered to exceed UL minimum safety standards. Standard battery is CEC Listed. For most fixtures, the entire direct portion of the fixture will be illuminated by the EM Battery Pack. For 8' VHD, 10' HD and VHD, and 12' MD, HD, and VHD, only the first portion of the fixture will be illuminated by the EM battery pack. "Quantity per Run" refers to the number of fixtures in the run that will be supplied with an emergency battery pack. "Position in Run" refers to which fixture in the run that will contain the battery. Position options are Starter (S), Joiner (J), or Ender (E). For example, a 24' run needing two emergency battery packs, one in the starter and one in the joiner, would be ordered as EM2SJ. When a joiner is selected, battery packs are always supplied in 8' fixtures before 6' fixtures in that run.

## **Emergency Circuit:**

Emergency Circuit fixtures are engineered so that the entire fixture is wired to the emergency circuit. "Quantity per Run" refers to the number of fixtures in the run that are wired to the emergency circuit. "Position in Run" refers to which fixture in the run that will be powered by the Emergency Circuit. Position options are Starter (S), Joiner (J), or Ender (E). For example, a 24' run needing two emergency sections, one in the starter and one in the joiner, would be ordered as EC2SJ. When a joiner is selected, Emergency Circuits are always supplied in 8' fixtures before 6' fixtures in that run.

#### **MECHANICAL**

### **Housing Construction:**

Extruded Aluminum 6063-T5 alloy outer housing with die-formed steel internal components for strength, alignment, and mounting attachment. Our high-quality die-cast end caps are engineered to conceal all fasteners and to retain the sealing gaskets on the inside of the fixture while completing the clean and minimalistic look of this luminaire.

### Alignment/Assembly:

The alignment system employs a four-point alignment and attachment method, designed to create straighter rows and minimize seams between sections (field assembled). Four alignment pins ensure the outer extruded aluminum rails are aligned, while a draw-screw secures housing-to-housing attachment. Additional alignment biscuits double as the light shields.

#### Lengths:

The 3SID is available in a minimum 2-foot (nominal) length with additional 1-foot increments available ( $\pm 0.030$ ",  $\pm 0.50$ °). Longer fixture rows are available and will be configured with 4-foot, 5-foot, 6-foot, 7-foot, and 8-foot fixtures. Maximum run length on one power feed is 72'. Continuous runs over 72' will require a second feed.

### Mounting Method/Hardware:

The 3SID is available for mounting upon any ceiling type, additional mounting hardware available by others.

#### **Exterior Finish:**

The 3SID is available in White and Black polyester powder coat finish to ensure durability.

#### **Suspension Components:**

The Hidden Connect design recesses or hides attachment hardware at the fixture. Fixtures are suspended by 1/16" galvanized aircraft cable. Cables are attached to the ceiling suspension point with a ¼-20 threaded ceiling cable barrel that incorporates a threaded ring to support the feed/hanger canopy allowing access to the J-box/hanger without removal of the suspension cable allowing conductor inspection/service without having to support the fixture(s). Feed canopies are 5" O.D. And hanger canopies are 2" O.D. (JB Option = 5" O.D.) Cable lengths can be specified for 48", 96" and 144" suspension lengths. Ceiling type options are "T1" T-grid, "T9" T-grid, "SC" screw slot grid, "HC" hard ceiling or "JB" hard ceiling J-box mount.

# Integrated Controls:

The 3SID is available with optional integrated controls. Sensors are conveniently designed to mount in aperture and are located at the power feed end of each fixture. For runs, each fixture section will be supplied with a discrete sensor that will control that specific section. Philips EasySense is standard daylight/occupancy sensor. DALI driver required. If your project requires a component or system not listed, please contact your local American Linear Lighting representative.

MANUFACTURER	ORDERING CODE	SENSOR	CONNECTION	DRIVER
Philips EasySense	DOS	Daylight/PIR Occupancy	Wireless	DALI (Advanced Xitanium SR, 1% Dimming)

### **GENERAL**

## Warranty:

Ten (10) Year limited warranty from date of shipment.

## Lumen Maintenance:

Rated for 85% initial lumen output at 90,000 Hours of operation, operated at 25°C ambient temperature; per TM-21 Guidelines published by the Illuminating Engineering Society (IES).

# **MOUNTING DETAILS**

## Certifications:

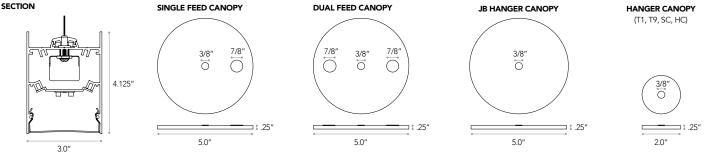
All Luminaires are UL/cUL Listed to UL 1598 Standards and approved for Indoor use in Dry/Damp Locations.

## Shipping:

2 week lead time for White (WH) or Black (BLK) finish orders up to 1000 feet. Lead time for orders greater than 1000 linear feet will be determined at time of order.

## Manufactured in the USA:

All ALL Luminaires and Components (with the exception of our LED boards and drivers) are proudly manufactured and assembled in the USA.

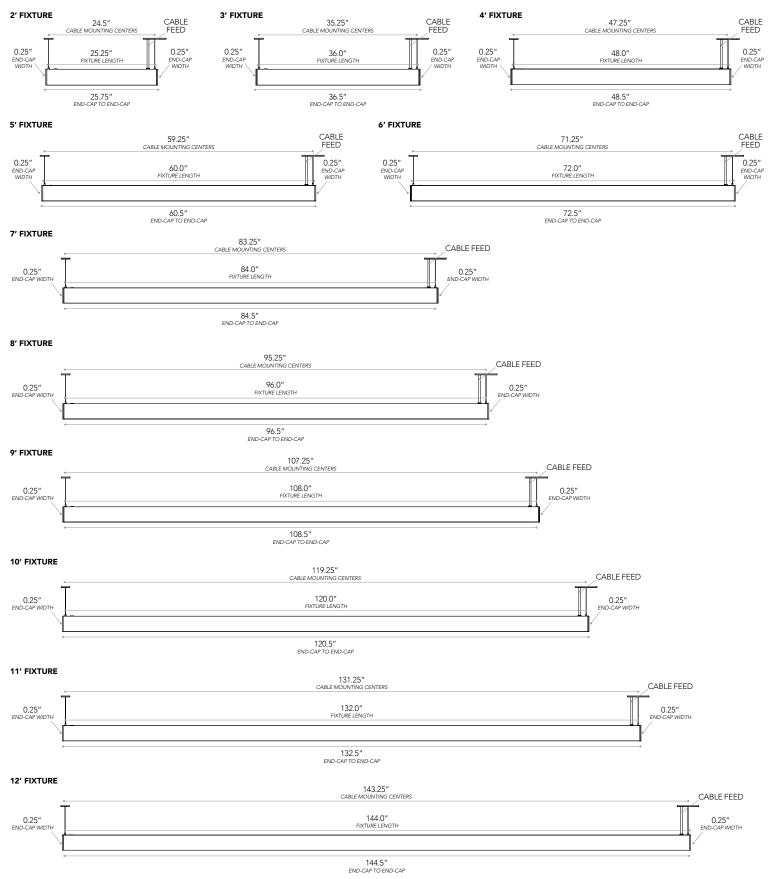








## **FIXTURE ROW LAYOUT: SINGLE UNIT** 2' - 3' - 4' - 5' - 6' - 7' - 8' - 9' - 10' - 11' - 12'

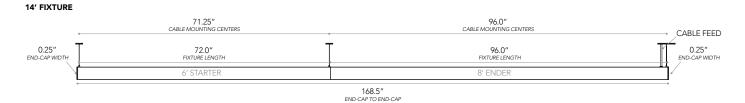


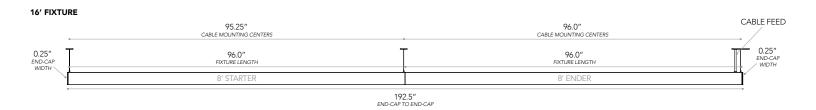






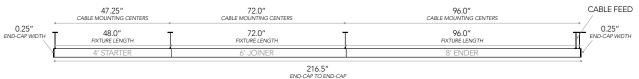
## FIXTURE ROW LAYOUT: TWO UNITS 14' - 16'





## FIXTURE ROW LAYOUT: THREE UNITS 18' - 20' - 22' - 24'

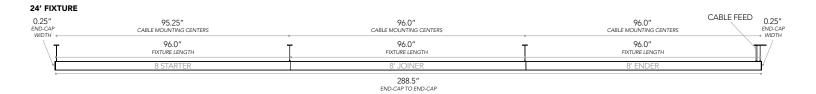
#### 18' FIXTURE



## 20' FIXTURE













## **FIXTURE ROW COMPONENTS**

				FIX	TURE LENG	THS					FEED HANGER FND CAR		
RUN LENGTH	STARTER				JOINER		_		ENDER		KITS	KITS	END-CAP TO END-CAP
404	1 5/	2	3	4	5	6	7	8	9				457.5%
13'	5′	-	-	-	-	-	-	-	8'	1	1	2	156.5"
14'	6'	-	-	-	-	-	-	-	8'	1	1	2	168.5"
15'	7'	-	-	-	-	-	-	-	8'	1	1	2	180.5"
16'	8′	-	-	-	-	-	-	-	8'	1	1	2	192.5"
17′	3′	6'	-	-	-	-	-	-	8'	2	1	3	204.5"
18′	4′	6′	-	-	-	-	-	-	8'	2	1	3	216.5"
19′	5′	6′	-	-	-	-	-	-	8'	2	1	3	228.5"
20′	4′	8′	-	-	-	-	-	-	8'	2	1	3	240.5"
21′	5′	8′	-	-	-	-	-	-	8'	2	1	3	252.5"
22′	6'	8′	-	-	-	-	-	-	8′	2	1	3	264.5"
23′	7′	8′	-	-	-	-	-	-	8′	2	1	3	276.5"
24′	8'	8′	-	-	-	-	-	-	8′	2	1	3	288.5"
25′	5′	6′	6'	-	-	-	-	-	8′	3	1	4	300.5"
26'	4'	6′	8′	-	-	-	-	-	8′	3	1	4	312.5"
27′	5′	6'	8′	-	-	-	-	-	8′	3	1	4	324.5"
28′	4'	8′	8′	-	-	-	-	-	8′	3	1	4	336.5"
29'	5′	8′	8'	-	-	-	-	-	8′	3	1	4	348.5"
30′	6'	8′	8′	-	-	-	-	-	8′	3	1	4	360.5"
31′	7'	8′	8′	_	-	_	_	_	8'	3	1	4	372.5"
32'	8'	8′	8′	_	-	-	-	_	8′	3	1	4	384.5"
33'	5'	6'	6'	8′	_	-		_	8′	4	1	5	396.5"
34'	4'	6'	8′	8′	_	_	_	_	8'	4	1	5	408.5"
35'	5'	6'	8'	8'	_	_	_	_	8'	4	1	5	420.5"
36'	4'	8′	8'	8'	-	-	_	_	8'	4	1	5	432.5"
37'	5'	8′	8'	8'	_	_	_	_	8'	4	1	5	444.5"
38'	6'	8′	8'	8'	-	-	-	-	8'	4	1	5	456.5"
39′	7'	8′	8'	8'	-	-	-	-	8'	4	1	5	
	8'		8'		-	-				4	1	5	468.5"
40′		8′		8'			-	-	8'				480.5"
41′	5′	6'	6'	8'	8′	-	-	-	8'	5	1	6	492.5"
42'	4′	6'	8′	8′	8′	-	-	-	8'	5	1	6	504.5"
43′	5′	6'	8′	8′	8′	-	-	-	8'	5	1	6	516.5"
44′	4′	8′	8′	8′	8′	-	-	-	8'	5	1	6	528.5"
45′	5′	8′	8′	8′	8′	-	-	-	8'	5	1	6	540.5"
46′	6'	8′	8′	8′	8′	-	-	-	8'	5	1	6	552.5"
47′	7'	8′	8′	8′	8′	-	-	-	8′	5	1	6	564.5"
48′	8′	8′	8′	8′	8′	-	-	-	8′	5	1	6	576.5"
49'	5′	6′	6'	8′	8′	8′	-	-	8'	6	1	7	588.5"
50′	4'	6′	8′	8′	8′	8′	-	-	8′	6	1	7	600.5"
51′	5′	6′	8′	8′	8′	8′	-	-	8′	6	1	7	612.5"
52'	4'	8′	8′	8′	8′	8′	-	-	8′	6	1	7	624.5"
53'	5'	8′	8′	8′	8′	8′	-	-	8′	6	1	7	636.5"
54'	6'	8′	8′	8′	8′	8′	-	-	8′	6	1	7	648.5"
55′	7'	8′	8'	8′	8′	8′	-	-	8'	6	1	7	660.5"
56′	8'	8′	8′	8′	8′	8′	-	-	8′	6	1	7	672.5"
57'	5'	6′	6'	8′	8′	8′	8′	_	8'	7	1	8	684.5"
58′	4'	6′	8′	8′	8′	8′	8′	_	8′	7	1	8	696.5"
59′	5'	6'	8′	8′	8′	8′	8′	_	8′	7	1	8	708.5"
60′	4'	8′	8′	8′	8′	8′	8′	_	8′	7	1	8	720.5"
61′	5'	8′	8′	8′	8′	8′	8′	_	8′	7	1	8	732.5"
62'	6'	8′	8′	8′	8'	8′	8′	_	8'	7	1	8	744.5"
63'	7'	8′	8'	8′	8'	8′	8'	_	8'	7	1	8	756.5"
64'	8'	8′	8′	8′	8′	8'	8′	-	8′	7	1	8	768.5"
65'	5′	6′	6'	8′	8′	8'	8′	8′	8'	8	1	9	780.5"
66'	4'	6'	8′	8′	8'	8′	8′	8′	8′	8	1	9	792.5"
67'	5′	6'	8′	8′	8'	8′	8′	8′	8′	8	1	9	804.5"
68′	4'	8′	8′	8′	8′	8′	8′	8′	8′	8	1	9	816.5"
69'	5′	8′	8′	8′	8′	8′	8′	8′	8′	8	1	9	828.5"
70′	6'	8′	8′	8′	8′	8′	8′	8′	8′	8	1	9	840.5"
71′	7'	8′	8′	8′	8′	8′	8′	8′	8′	8	1	9	852.5"
72′	8'	8′	8′	8′	8′	8'	8′	8'	8'	8	1	9	864.5"

	FIXTURE LENGTH	MOUNTING CENTERS	
	STARTER	STARTER	JOINER/ENDER
3′	36.0"	35.25"	-
4'	48.0"	47.25"	-
5′	60.0"	59.25"	-
6′	72.0"	71.25"	72.0"
7′	84.0"	83.25"	-
8′	96.0"	95.25"	96.0"

