PacifiCorp Energy

PacifiCorp Energy

Dave Johnston Power Plant

Wyoming

Lighting Upgrade Audit/Study

November 2013

Evergreen
Consulting Group
Experience. Energy. Efficiency.

Executive Summary

PacifiCorp Energy hired Evergreen Consulting Group to conduct a lighting audit at the Dave Johnston plant located in Glenrock, Wyoming. Site visits were conducted on August 14th-16th, 2013 and the following 3-4 phase recommendations for lighting upgrades are contained in this report.

- T12 Lighting Upgrade: Typical 1.5" diameter fluorescent tubes (4' or 8' lengths, some U-tubes) should be replaced with longer life, high performance T8 linear fluorescent. Scope includes de-lamping most 4 and 3 lamp fixture due to the improved light output of the retrofit kits. T-12 lamps are phasing out and will be more expensive to maintain both on energy consumption and on maintenance. Project will improve "quality of light," reduce maintenance by 75 - 85 percent over current levels, and allow for some controls in areas where fixtures do not need 24-hour operation (or occupancy). LED fixtures are an option (or retrofit kits), but costs are more than the T8 technology with similar life of lamps. There are approximately 1,133 T12 fixtures recommended for this upgrade.

- Turbine Deck: Currently illuminated with 1,000-watt (W) metal halide lamps that have a 40 percent lamp lumen depreciation and a lamp life rated at 20,000 hours. Due to the high mounting height and long life, LED high bays are recommended. LEDs also come with long life typically at 60,000 hours or more. Due to directionality of the LED lamps, uniformity is attained beyond standard fluorescent or high intensity discharge lamps allowing for somewhat lower foot-candles but with better visibility in space. Project will improve "quality of light," reduce maintenance by 60 percent over current levels, and allow for fixture mount occupancy sensors (if required). If taking in to account life cycle cost and any incremental cost difference (between high intensity discharge and fluorescent) LED should be considered for a long life cycle solution.

- Industrial Fixtures: The primary fixtures are 175W metal halide or 150W high-pressure sodium industrial low bay fixtures hanging throughout the entire facility. The recommended upgrade is a LED retrofit kit where the bottom portion of the housing is changed out on existing fixture. The new LED fixture is 78W and lasts approximately 60,000 hours (L70) compared to the existing fixtures 15,000 - 24,000-hour lamp life. In addition to this specific location, these fixture types are typical at other PacifiCorp Energy power plants, and for cost savings to PacifiCorp, it is recommended that a bulk ordering agreement for the same fixture types be set up to share material orders in similar breakouts for all locations.

- Exterior fixtures are broken out as their own phase. This high intensity discharge fixture can be upgraded with various fixture types. Some will match the typical low bay LED retrofits (78W Type RLB1) while some will be similar to Type AL1, WP1-2, FL4-5, and RW1 fixtures. Plant personal or contractor will determine fixture mounting hardware prior to ordering as well as verify fixture types. All recommendations are for longer life LED products to save on future maintenance.

Table 1: Breakout of Lighting Upgrades for phasing purposes

Recommended Breakout	Number of light fixtures	Rough Budget $	kWh Savings
T-12 Lighting Upgrade	1,133	$124,100	517,785
Turbine Deck	86	$57,100	373,956
Industrial Fixtures*	2,943	$2,236,400	3,662,878
Exterior Lighting	345	$294,200	339,227
Totals	**4,507****	**$2,711,800**	**4,890,657**

**Industrial fixtures represent 78W LED replacement fixtures and include lighting controls*
***Estimated total does not include all light fixtures throughout the plant*

Benefits of Recommendations

Why invest in lighting? The economics of the internal savings is not included in this report. PacifiCorp is unable to utilize Rocky Mountain Power's incentive unless they are physically paying a utility bill with an eligible industrial rate. Additionally, the actual cost of energy (in lighting tool) is not the sell rate to commercial/industrial customers. So, once internal rates for power generation are applied, we don't expect projects to net on "energy savings alone" under 2 years to make this an automatic capital investment. However, looking at the long-term benefits there are significant values for investing in these recommended lighting upgrades:

1) The kWh (energy units) and kW (demand) are real and can be re-sold to PacifiCorp end-users
2) Maintenance savings for both hard and soft costs are significant. Recommendations above should reduce 75 – 85 percent of the current lighting maintenance budget each year for the next 10 years (and nominal increases thereafter).
3) Reduced safety risk to maintenance staff (minimizes access to restricted access areas/heights/lifts and lighting over process equipment).
4) Quality of light: New technology improves the color, enhances visibility and human comfort. Existing lighting has a color accuracy of 50 – 65 percent; recommended lighting has a color accuracy of 80 – 90 percent.
5) Increases productivity and safety by providing clearer distinction in colors (e.g., wiring) and small details of equipment, etc.
6) Computer glare is reduced especially in the office areas. Additionally, current IES (illuminating Engineers Society) light level recommendations can be met in those offices.
7) Make power available for other equipment: These projects are base load reductions, meaning power for panels and transformers are reduced and allow mores options to be used for new connections/loads or equipment, besides reducing stress on existing panels or overload situations.
8) Net payback, once included cost benefits factors above (especially adding the human factors), should meet all PacifiCorp's internal rates-of-returns to invest in all power plants. This report cannot identify the physical dollars associated to all these internal

pieces to form a final financial calculation. But based in the nature, these power plants are long-term facilities and even if basic energy savings only net paybacks look longer to invest with more expensive LED technology, the secondary benefits on maintenance and improve working environment should make these projects a high priority on capital investments. The recommended technologies also provide 15 - 20 years equipment life for new fixtures and 12 - 15 years of equipment life on retrofits (for existing fixtures) before replacements or next capital investments would need to be reconsidered.

Lighting Audit Report

The Dave Johnston Power Plant located at 1591 Tank Farm Rd, Glenrock, WY is comprised of four generating units with the total generating capability of 817+ megawatts. It has extensive interior and exterior industrial grated levels. The plant turned 46 years old in 2013. Operating hours are 24 hours a day, 365 days a year with the plant office operating from Monday-Friday.

A lighting audit for the Dave Johnston Power Plant was performed by Dan Kuhl, LC of Evergreen Consulting Group. The entire facility consists of coal conveyer belts, mechanical, service walkways, offices, labs, maintenance shops, generating units, cooling towers and other miscellaneous buildings. The lighting audit encompasses all of Units 1-4 including every common area. The majority of the facility consists of lower wattage 175W metal halide and some high-pressure sodium low bays that provide general ambient lighting. Other wattages and lamp types typical of an industrial power plant are in use but the 175W “plant standard” is the most common with approximately 2,700+ units installed. Old T12 lamps are also prevalent throughout the plant. These T12s with magnetic ballasts should be changed out in 2013 or first quarter of 2014 as replacement lamps are getting harder to find and the costs are increasing.

It was observed that most of the existing lighting equipment is at end of life and will require extensive maintenance or replacement in the near future. They have started installing some new metal halide fixtures, and while this has helped improve the overall light levels, this technology matches the existing inefficient lighting. The best option for continued replacement of the existing lights (due to light loss, CRI, lamp life and maintenance), is new (or retrofit) LED fixtures.

This facility has very significant energy savings opportunities. The savings are a good faith estimate and can change depending upon what is actually installed. Final numbers can be accounted for in the post-inspection process after installation is completed. We invite you to take full advantage of this incentive to improve the energy efficiency of your facility.

Existing Foot-candle readings:

Area	MIN	MAX	AVG
Turbine Area	12	16	13

Recommendations

Detail Lighting Survey: Appendix B contains a large spreadsheet (known as Lighting Tool) on each area baseline and proposed fixtures shown. Included in this report are five Lighting tools:

1. One - master spreadsheet with all baseline opportunities (all fixtures surveyed).
2. Four – breakout spreadsheets (sub-sets or phases) that group the T12 fixtures, low bay high intensity discharge (plant standard), turbine area, and exterior lighting.

Recommended Fixtures: Appendix C contains specification sheets of the typical fixture type being recommended. No specific manufacturer is required and any equal alternatives can be used.

- **De-lamping 4' T12 to T8 retrofit kits**: The typical 4' T12 fixtures should be replaced with 2-lamp T8 CEE high performance ballast/lamp de-lamping kits. These kits fit inside the existing fixture housing and re-position the lamp holders for the new lamps and optimizing how much light projected out of the fixture. They increase the efficiency of the fixture using reflectors and lenses to give recommended light levels as needed for each area of the offices. Plant area T12 are typical 8' slim-line or high output fixture that will either be de-lamped or retrofitted with 4' T8 lamps using a "kit" which allows for easy installation without removing the "body" of the fixture

- **Crouse Hinds** – Currently the plant has over 2,700 low bay industrial fixtures using either 175W metal halide or 150W high-pressure sodium. It is recommended to replace these with a retrofit kit that uses the existing back box when retrofitting the fixture, thereby reducing the labor time to replace. These retrofit kits are available from Dialight or Crouse-Hinds (at the time of this report). Other manufactures may have an equal product. Alternatives could be looked at as a cost saving measure only, which would be a LED screw-in retrofit hybrid kit. This would save money but not provide the "engineered" lighting pattern as described for the recommended retrofit option. Plant would need to do their due-diligence before approving the LED screw-in option (test for example).

- **LED High Bay fixtures**: We strongly recommend the plant select a high quality LED high bay fixture to replace the turbine high bay high intensity discharge lamps. Maintenance reduction, long life, safety, and lighting quality are the drivers here. Recently new fixtures designed specifically for high ceiling applications have been introduced to the market and would meet the space requirements for light levels, uniformity, and quality of light that the turbine area requires. It is recommended that the plant review multiple products before choosing a fixture for this area.

- **Exterior fixtures:** This area would receive a standard replacement with most products changing to a new LED fixture. Time will need to be spent determining the proper fixtures that use the correct optics, wattage, and fixture design. Since the market has been using LED fixtures of this type for a few years now it has matured faster than other LED sectors, driving the price down where the incremental cost difference between existing technologies and LED are minimal.

- **Why CEE/DLC:** The fixtures recommended above can be found on the Consortium for Energy Efficiency (CEE) and Design Lights Consortium (DLC) listed fixtures. The utility

programs require these listed products for lamps/ballast and LED related products. Do these not only protect the owner from lower performance products being installed but also insure that they get the best available technology in the market for their buildings. CEE uses NEMA (National Electrical Manufacturers Association) premium ballast specification and lamp standards to identify the longest lasting and higher quality linear fluorescent lamps (U-tube and 4' lamps only). By ordering CEE listed products (there are over 1000+), your lamp life and quality will be maximized while saving energy and reducing maintenance costs. Estimated costs shown do include these products. Note: For all interior T8 lamps, it is recommended to use long life 28W lamps (84,000 estimated hours). For all T8 ballasts, it is recommended to use program start in conjunction with these same lamps. Program start ballasts, besides being recommended where occupancy sensors are used, provide exact voltage and pre-heat the fluorescent lamp cathode, which extends the life of the lamp.

- DLC is a national list for LED fixtures and retrofit kits that provides minimum performance standards to help identify less desirable products in the market. Because LED is an emerging technology and has experienced early products failures, a national standard was developed.

Recommended Maintenance and Life of Lighting: The primary fixtures are shown for comparison on life of lamps compared to existing.

- Existing T12 lighting at this location have an average lamp life of **12,000 - 20,000 hours** (based on size or brand of lamps). This is typically **1.5 to 2.5 years** before replacement.

- Recommended T8 lighting: Recommended new lamps (for burn out) replacing the T12 lamps have **84,000 hours or 9 years**. Adding controls will extend these fixtures longer than 9 years if operating 24 hours a day. Paying 1 - 2 dollars more for these lamps is well worth the investment up front over the standard T8 lamps.

- Existing 175W metal halide fixtures have a lamp life of **12,000 hours or 1.5 years** before they burn out.

- Existing 150W high-pressure sodium fixtures have a lamp life of **24,000 hours or 2.8 years** before they burn out.

- Recommended LED fixtures have a useful (L70) life of **60,000+ hours or 7+ years**. Definition of "useful" is when the lumen output is at 70 percent of initial light output. LED lamps will keep burning, provide light past this useful life, and therefore offer some additional benefit over lamps that burn out; however, replacement/updates should be considered at the 70 percent mark.

- Existing 400W metal halide (high bay) fixtures have a lamp life of **20,000 hours or 2.8 years**. Metal halide lamps have multiple drawbacks: poor color rendering, short lamp life and steep lamp lumen depreciation (40% loss in light levels). Because of this, your plant is experiencing excessive maintenance (cost/time) and low light levels from existing light fixtures compared to today's technology options.

- Recommended LED high bay fixtures have **60,000 hours** typical useful life (L70). You also get a product that uses less energy to deliver useful lumens (light) on your task with better uniformity than existing high intensity discharge as well as more light with this direct source of lighting. A side benefit is that these turn on instantly rather than having a 5 to 10 minute wait for a fixture to come up to full brightness.

Costs/Budgets

Appendix D contains the detail cost breakout and shows all assumptions or logic for material and labor by fixture type.

Costs are an estimate only (budgeting) and disregard any notations to any utility incentive or dollar savings per year values in attached lighting tools. These values are only applicable if the power plant was able to participate in the Rocky Mountain Power Fin*Answer* Express/***watt***smart Business incentive program. Any $ values (savings or incentive) shown in attachments should be ignored; lighting tools are only used for calculating kW and kWh savings and identifying the fixture types by space.

***Logic for cost estimates*:**
Most fixtures were budgeted at one hour per installation. Some will take longer but some will take less time. Labor cost was based at $80 an hour, which is a typical hourly wage for electricians. Cost could be adjusted up or down depending on your evaluation of local labor rates and the difficulty of each installation, spreadsheets are provided to make those adjustments internally. Individual costs do not include such things as disposal, scaffolding, permitting, safety requirements, or cost of shut down if needed, but other contingency amounts were provided on a total that may be leveraged to cover some of these expenses. PacifiCorp Energy may have other contingency factors not provided for in this report that should be added as necessary based on location of site, security restriction time for contractors, and regional bidding environment of local/remote resources availability.

Cost reduction options:
For the purposes of this lighting survey/audit and ease of installation, the Crouse Hinds retrofit fixture was used for cost estimating. Other manufacturers (Dialight) have or may have a cost effective alternative that may meet the owner's needs with a lower installed cost than the Crouse Hinds fixture. It is recommended that these options be researched or Evergreen Consulting could assist in doing the research.

Upon request, we have re-designed the lighting fixture type for the main open turbine area when compared to the original Unit 1 version (preliminary copies). A 511W LED high bay fixture was recommended as it offers the best maintenance option and longer life desired by facility owners and maintenance personal.

The costs can range dramatically on a project of this size and complexity. LEDs were considered for the plant standard 175W metal halide general low bays and for most of the 1,000W metal halide high bays, as this would be the simplest and easiest to replace. Pricing is higher for this product technology but should be considered for its ease of change out and probability of substantial price reduction if pre-negotiated with the manufacturer prior to purchase for multiple plants. We recommend arranging a national purchase agreement to consolidate same fixture purchases for all power plants over a 1 - 2 year time period purchasing window.

Appendix A

Fixture Summary Page

Fixture Legend

Fixture Codes

Code	Technology	Description
FCIT9	Fluorescent	Circleline T9
FLE	Fluorescent	Linear Exit
FUT12	Fluorescent	U Tube T12
FUT8	Fluorescent	U Tube T8
FUT8CEE	Fluorescent	U Tube CEE T8
FCE	Fluorescent	Compact Exit
FCM	Fluorescent	Compact Medium Base
FCP	Fluorescent	Compact Pin Base
FCPWP	Fluorescent	Compact Pin Base Wall Pack
FCMG	Fluorescent	Compact Mogul Base
FCGU24	Fluorescent	Compact GU24
FLT8	Fluorescent	Linear T8
FLT8CEE	Fluorescent	Linear CEE T8
FLT8CEEHB	Fluorescent	Linear CEE T8 High Bay
FLT10	Fluorescent	Linear T10
FLT12	Fluorescent	Linear T12
FLT12HO	Fluorescent	Linear T12HO
FLT12VHO	Fluorescent	Linear T12VHO
FLT17	Fluorescent	Linear T17
FLT5	Fluorescent	Linear T5
FLT5HO	Fluorescent	Linear T5HO
FLT5HOHB	Fluorescent	Linear T5HO High Bay
FCCFL	Fluorescent	Cold Cathode
CMH	HID	Ceramic Metal Halide
HPS	HID	High Pressure Sodium
MV	HID	Mercury Vapor
MH	HID	Metal Halide
MHPS	HID	Metal Halide Pulse Start
ICE	Incandescent	Exit
ICH	Incandescent	Halogen
ICMB	Incandescent	Medium Base
ICMG	Incandescent	Mogul Base
INRB	Induction	Remote-Ballasted
INSB	Induction	Self-Ballasted
LEDSMC	LED	Surface Mount Canopy
LEDE	LED	Exit
LEDHB	LED	High Bay
LEDSI	LED	Integral Screw-in
LEDPM	LED	Pole Mount
LEDDL	LED	Recessed Downlight
LEDWP	LED	Wall Pack
PE	Photoluminescent	Exit

Ballast Codes

Code	Ballast Type
CEE IS	CEE Instant Start
CEE ISDIM	CEE Dimmable Instant Start
CEE PS/PRSDIM	CEE Dimmable Program Start
CEE RS/PRS	CEE Rapid Start
IS	Instant Start
IS(E)	Efficient Instant Start
RS/PRS	Rapid/Program Start
RS/PRS(E)	Efficient Rapid/Program Start
MG	Magnetic
MG(E)	Efficient Magnetic
MGPH	Magnetic Pre-Heat
CWA	Constant Wattage Autotransformer
HIDLF	HID Low Freq Ballast
INDN	Induction (Non-integral)
LR	Linear Reactor
RL	Regulated Lag
SCWA	Super CWA

Ballast Factor Codes

Code	Description
L	Low (BF ≤ 0.85)
N	Normal (0.85 < BF ≤ 1.0)
H	High (BF > 1.0)
CEE L	CEE Low (BF ≤ 0.85)
CEE N	CEE Normal (0.85 < BF ≤ 1.0)
CEE H	CEE High (BF > 1.0)

Controls/Sensor Codes

Code	Description
Integral	Integral
Occupancy	Occupancy
Daylighting	Daylighting
Ad. Daylighting	Advanced Daylighting
Time Clock	Time Clock
Dup. Occ	Duplicate Occupancy
Dup. DL	Duplicate Daylighting
Dup. Ad. DL	Duplicate Advanced Daylighting
Dup. TC	Duplicate Time Clock

Additional Information
RMP: DLC, Energy Star, LDL Links and Information
PP: DLC, Energy Star, LDL Links and Information

Dave Johnston - All Lighting

Fixture Summary & Count

Fluorescent	
FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	963
FLT8CEE-32W x 2L x 4'-CEE IS CEE H	1
FLT8CEE-28W x 4L x 4'-CEE RS/PRS CEE N	95
FCM-15W x 2L-MG	1
FLT8CEEHB-32W x 4L x 4'-CEE IS CEE H	9
FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	109
FLT12-75W x 2L x 8'-MG(E)	0
FCM-25W-MG	2
FLT8-17W x 3L x 2'-IS(E) L	25
HID	
MH-175W-CWA	0
Induction	
LED	
Other	
CUST: LEDHB-78W	2736
CUST: LEDPM-40W	3
CUST: LEDSI-30W	131
CUST: LEDSI-14W	85
CUST: LED HB 511W	136
CUST: LEDHB-160W	36
CUST: LEDWP-109W	38
CUST: LEDWP-47W	20
CUST: LEDPM-120W	11
CUST: FLT8CEE-28W x 2L x 4'-CEE RS/PRSDIM N	13
CUST: LED Flood 121W	41
CUST: LEDWP-40W	3
CUST: LED Flood - 179W	34
CUST: LEDPM-105W	15
Controls	
Integral	56
Occupancy	87

Dave Johnston - T12 Phase

Fixture Summary & Count

Fluorescent	
FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	960
FLT8CEE-28W x 4L x 4'-CEE RS/PRS CEE N	95
FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	40
FLT12-75W x 2L x 8'-MG(E)	0
FLT8-17W x 3L x 2'-IS(E) L	25
HID	
Induction	
LED	
Other	
CUST: FLT8CEE-28W x 2L x 4'-CEE RS/PRSDIM N	13
Controls	
Occupancy	87
Integral	6

Dave Johnston - Turbine Phase

Fixture Summary & Count

Fluorescent	
FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	10
HID	
Induction	
LED	
LEDHB-160W	10
Other	
CUST: LEDHB-511W	66
Controls	

Dave Johnston - Industrial Phase

Fixture Summary & Count

Fluorescent	
FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3
FLT8CEE-32W x 2L x 4'-CEE IS CEE H	1
FCM-15W x 2L-MG	1
FLT8CEEHB-32W x 4L x 4'-CEE IS CEE H	9
FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	59
FCM-25W-MG	2
HID	
MH-175W-CWA	0
Induction	
LED	
LEDHB-160W	26
LEDWP-40W	3
Other	
CUST: LEDHB-78W	2669
CUST: LEDPM-40W	3
CUST: LEDSI-30W	19
CUST: LEDSI-14W	76
CUST: LEDHB-511W	14
CUST: LEDWP-109W	38
CUST: LEDWP-47W	20
Controls	
Integral	50

Dave Johnston - Exterior Phase

Fixture Summary & Count

Fluorescent

HID

Induction

LED

Other

CUST: LEDSI-30W	112
CUST: LEDHB-78W	67
CUST: LEDPM-120W	11
CUST: LED Flood 121W	41
CUST: LEDSI-14W	9
CUST: LED HB 511W	56
CUST: LED Flood - 179W	34
CUST: LEDPM-105W	15

Controls

Appendix B

Lighting Tools

Survey Notes from Dave Johnston Power Plant, 9-15-13, Dan Kuhl

1. 175W MH the most common lamp/fixture type
2. Operating hours – 24/7 for plant and 12 hrs. for office
3. Customer has installed some Dialite (LED fixture/lamp) as samples, including a Dialite retrofit kit for the Crouse Hinds. Note: Dialite has a retrofit kit for the Crouse Hinds that fits on their back box. See picture
4. Crouse Hinds low bay general illumination is the most common fixture in the plant. Any retrofit product needs to fit on the Crouse Hinds back box to make it easy to install.
5. Need shielded T8 lamps mounted below 8' MH. Verify before ordering lamps.
6. Some Low bay general lights by Crouse Hinds are on 24-hour EM circuits. CFL installed in these fixtures
7. Some areas are under lit or without lights. Add LED version of Crouse Hinds or equal
8. Provide 5% extra parts as part of the fixture order. Lenses, sockets, drivers, ballast, etc… (fixture repairs during upgrades)
9. Money saving Tip: Negotiate 2 yr. buying agreement for <u>all plant</u> standard retrofit fixtures (types).
10. Buy new LED exits as needed and have plant self-install. Example buy qty. 25 exit and install these until all gone. Then buy another batch. Utility incentives available.
11. Buy LED outdoor wall packs same as above
12. Turbine room: 12 to 16FC……13-14 FC average. Under lit and not at IES recommended light levels
13. Power Plant staff to verify all mounting hardware needed to install any new or retrofit fixtures.
14. Unusual amount of T12 and HID lamps not working. Appears many lamps and fixtures are at end of life. Proposed fixtures must consider maintenance factors and longer lifes.
15. Mock-up some offices to verify lamp wattage (28W or 32W T8's) and low ballast factors for appropriate light levels. Consider trying High Performance low glare retrofit kits (lensed and reflector delamping kits make fixture 80+% efficient on light output vs. the 50-60% of existing fixtures)
16. Suggest plant standardize on 28W T8 long life lamps (84,000 hours). Confirm lamp lumens are adequate for most applications. Any high Bay fixtures should use 32W T8's.

ROCKY MOUNTAIN POWER

Let's turn the answers on.

V 070113.5.3

Wyoming FinAnswer Express Program

07/01/13 Effective Date

You Can Now Use The Project Information Tab

Project ID	
Lighting Coordinator	Dan Kuhl
Tool Prepared by	Dan Kuhl
Project Manager	
Account Manager	

Customer Information

Project Name	Dave Johnston Power Plant - Combined Project		
Business Name	PacifiCorp Energy		
Installation Address	1591 Tank Farm Rd		
City, State, Zip	Glenrock	WY	82637
Contact, Title	Brian Gangl		
Phone, Email	(307) 995-5193	brian.gangl@pacificorp.com	
Account, Meter, Rate			48T
Participant is:	☑ Acct Holder ☑ Elect. User ☑ Building Owner		
Business Type	Other		

Contractor Information

Contact		☐ EEA Participant
Business Name		
Address		
City, State, Zip		
Phone, Email		

Payee Information

Incentive Should Be Addressed To:	**Installation Address**		
Business Name	**PacifiCorp Energy**		
Attention	Brian Gangl		
Check Reference			
Address	1591 Tank Farm Rd		
City, State, Zip	Glenrock	WY	82637

Eligibility Information

Business Name			
Address			
City, State, Zip			
Account #		**Office Use Only**	
Meter Base #, Rate			

Processing Information

Construction Type	Retrofit	**Stage**	Preliminary

Project Cost

Material	Labor	Other	Total Project Cost
$2,376,100.00	$318,700.00	$17,000.00	**$2,711,800.00**

Space Type & Size

	Calculation Method	Whole Building	**Allowed Wattage**		**720,000**	
1	Other	**FT²**	1,200,000	**0.60**	**W/FT²**	
		FT²			**W/FT²**	
		FT²			**W/FT²**	
		FT²			**W/FT²**	
		FT²			**W/FT²**	
		FT²			**W/FT²**	
	Other	**FT²**	1,200,000	0.60	**W/FT²**	

Lighting Operation Schedule

# of Holidays Closed?	Day	A	B	C	D	E
0	Mon	3.0	10.0			
Op Weeks Per Year	Tue	3.0	10.0			
52	Wed	3.0	10.0			
Add/Edit	Thu	3.0	10.0			
	Fri	3.0	10.0			
S is for 0 hrs/year	Sat	3.0	4.0			
X is for 8760 hrs/year	Sun	3.0	0.0			
Y is for 4380 hrs/year	**Total**	**1,095**	**2,816**			

Additional Information

Import Existing Project | **EEA Participant Info** | **Email Coordinator** | **Lighting Catalog** | **LED Policy** | **Report A Problem**

Category	
Fixture	
Lamp	
Lamp (W)	
Lamp Qty	
Ballast	
Factor	

26W - CMH-20W-FLFC
125W - CMH-100W-SCWA
26W - MHPS-20W-FLFC
189W - CMH-150W-SCWA
45W - CMH-39W-FLFC
272W - CMH-250W-LR
288W - CMH-250W-SCWA
324W - CMH-300W-LR
342W - CMH-300W-SCWA
55W - MH-50W-FLFC
342W - CMH-320W-LR

Add Fixture
Remove Fixture
Clear Filter
Build Fixture
Reset

35 W - CUST: LEDWP-35W
150W - ICMB-150W
215W - MH-175W-CWA
72W - ICMB-100W
200W - ICMB-200W
40 W - CUST: LEDPM-40W
30 W - CUST: LEDSI-30W
14 W - CUST: LEDSI-14W
72W - FLT12-34W x 2L x 4'-MG(E)
70 W - CUST: LEDWP-70W
295W - HPS-250W

78W - CUST: LEDHB-78W

Custom Fixture

Standard Incentive (16.0% of Cost Paid By Incentive)

Incentive

Savings Information

4,890,657 kWh Saved Per Year

Lighting Power Density		
0.60	Code	51.7% Better Than Code LPD
0.74	Existing	
0.29	Proposed	

ROCKY MOUNTAIN POWER
Let's turn the answers on.

↓↓Project Tracking↓↓
- Preliminary
- Pre-Inspection
- Agreement Needed
- Contracted
- Post-Inspection
- Final Review Needed

Preliminary

Dave Johnston Power Plant - Combined Project

247 Out Of 264 Lines Used

Existing — 4556 | 0 | Interior 882,333 | Exterior 130,290

Proposed — 4507 | 143 | Interior 348,141 | Exterior 51,270

Line Number	Exterior	Schedule	Space Description	Fixture	Qty	Controls	Fixture Wattage	Space Wattage	Fixture	Qty	Controls	Fixture Wattage	Space Wattage	↓↓Project Notes↓↓
1			Unit 4											
2		X	Elevator Room	ICMB-150W	1		150	150	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	Vapor Tight -
3		X	Drum Room	MH-175W-CWA	2		215	430	CUST: LEDHB-78W	2		78	156	Crouse Hines - Type RLB1
4		X	Penthouse	ICMB-100W	2		72	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2	Integral	49	98	Surface Vapor Tight
5		X	RCM	ICMB-200W	3		200	600	CUST: LEDPM-40W	3		40	120	Pipe Mount LED Industrial Refracture Pack- Type RLB1
6		X	West Drum Room	ICMB-150W	1		150	150	CUST: LEDSI-30W	1		30	30	Jelly Jar - Type VTK
7		X	West Drum Room Level 8	MH-175W-CWA	1		215	215	FLT8CEE-32W x 2L x 4'-CEE IS CEE H	1		73	73	Vapor Tight
8		X	Level 8 Under Boiler	ICMB-100W	5		72	360	CUST: LEDSI-14W	3		14	42	LED lamp
9		X	Level 8 Jelly Jar	ICMB-100W	9		72	648	CUST: LEDSI-14W	9		14	126	LED lamp
10		X	Level 8	MH-175W-CWA	198		215	42,570	CUST: LEDHB-78W	198		78	15,444	split line in 2 so savings- Type RLB1
11		X	Level 8	MH-175W-CWA	200		215	43,000	CUST: LEDHB-78W	200		78	15,600	would calculate
12		X	55 Conveyors, Coal MCC	MH-175W-CWA	50		215	10,750	CUST: LEDHB-78W	50		78	3,900	Type RLB1
13		X	55 "B" Conveyor	MH-175W-CWA	23		215	4,945	CUST: LEDHB-78W	23	Integral	78	1,794	Fixture Mount OC -Type RLB1
14		X	55 "B" Conveyor	MH-175W-CWA	23		215	4,945	CUST: LEDHB-78W	23		78	1,794	Every Other Fixture - Type RLB1
15		X	Overall Lunch Room	FLT12-34W x 2L x 4'-MG(E)	3		72	216	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3		49	147	Lamp and Ballast
16		X	DA - 6	MH-175W-CWA	4		215	860	CUST: LEDHB-78W	4		78	312	Type RLB1
17			Level 5											
18		X	Old Scrubber	MH-175W-CWA	13		215	2,795	CUST: LEDHB-78W	13		78	1,014	Type RLB1
19		X	Old Scrubber Master Level	ICMB-100W	12		72	864	CUST: LEDSI-14W	12		14	168	LED lamp
20		X	Old Scrubber Master Level	HPS-250W	3		295	885	CUST: LEDHB-78W	3		78	234	Type RLB1
21		X	3 1/2 Outled, ODD Feeder Deck, Abandoned Stairs, FD & ID Fans	MH-175W-CWA	47		215	10,105	CUST: LEDHB-78W	47		78	3,666	Type RLB1
22		X	FD & ID Fans	HPS-250W	4		295	1,180	CUST: LEDHB-78W	4		78	312	Type RLB1

23		X	# 4 Control Area	FLT12-34W x 4L x 4'-2 MG(E)	24		144	3,456	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	24		49	1,176	Lamp and Ballast
24		X	Turbine Deck	MH-1000W-CWA	66		1,080	71,280	CUST: LED HB 511W	66		511	33,726	Type HB6
25		X	Turbine Deck	HPS-400W	10		465	4,650	CUST: LEDHB-160W	10		160	1,600	Type HB1 - 160W
26		X	Unit #3 Bldg	MH-1000W-CWA	6		1,080	6,480	CUST: LED HB 511W	6		511	3,066	Type HB6
27		X	Unit #3 Bldg	MH-400W-CWA	10		458	4,580	CUST: LEDHB-160W	10		160	1,600	Type HB1 -160W
28		X	Unit #3 Bldg	MH-175W-CWA	325		215	69,875	CUST: LEDHB-78W	325		78	25,350	Type RLB1
29			Unit #2											
30		X	Unit #2	MH-175W-CWA	134		215	28,810	CUST: LEDHB-78W	134		78	10,452	Type RLB1
31		X	Unit #2 & RLM	HPS-150W	63		188	11,844	CUST: LEDHB-78W	63		78	4,914	Type RLB1
32		X	Sports Light Flood	MH-1000W-CWA	8		1,080	8,640	CUST: LED HB 511W	8		511	4,088	Type HB6
33		X	Jelly Jars	ICMB-100W	12		72	864	CUST: LEDSI-14W	12		14	168	LED lamp
34			Unit #1											
35		X	Unit #1	MH-175W-CWA	59		215	12,685	CUST: LEDHB-78W	59		78	4,602	Type RLB1
36		X	Unit #1	HPS-150W	18		188	3,384	CUST: LEDHB-78W	18		78	1,404	Type RLB1
37		X	RLM	ICMB-200W	107		200	21,400	CUST: LEDHB-78W	107		78	8,346	Type RLB1
38		X	Jelly Jars	ICMB-150W	12		150	1,800	CUST: LEDSI-30W	12		30	360	LED lamp
39	+	A	Star Sign	ICMB-150W	112		150	16,800	CUST: LEDSI-30W	112		30	3,360	LED lamp
40	+	X	Coal Belt between #1 & #2	MH-175W-CWA	37		215	7,955	CUST: LEDHB-78W	37		78	2,886	Type RLB1
41														
42		X	Sports Lights	MH-400W-CWA	6		458	2,748	CUST: LEDHB-160W	6		160	960	Type HB1-160W
43		X	Basement	HPS-150W	300		188	56,400	CUST: LEDHB-78W	300		78	23,400	Type RLB1
44		X	Unit #1	MH-175W-CWA	200		215	43,000	CUST: LEDHB-78W	200		78	15,600	Type RLB1
45		X	Unit #1	MH-175W-CWA	245		215	52,675	CUST: LEDHB-78W	245		78	19,110	Type RLB1
46		X	Unit #1	HPS-250W	26		295	7,670	CUST: LEDWP-109W	26		109	2,834	Type WP1
47		X	Unit #1	MH-400W-CWA	10		458	4,580	CUST: LEDHB-160W	10		160	1,600	Type HB1-160W
48		X	Unit #1	FLT12-34W x 2L x 4'-MG(E)	42		72	3,024	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	42		49	2,058	L&B TYPE BNLO1, TYPE L2
49		X	Unit #1	FLT12HO-95W x 2L x 8'-MG(E)	12		207	2,484	FLT8CEE-28W x 4L x 4'-CEE RS/PRS CEE N	12		99	1,188	Type SK2, BNLO2, L2
50		X	Engineering Office	FLT12HO-95W x 2L x 8'-MG(E)	22		207	4,554	FLT8CEE-28W x 4L x 4'-CEE RS/PRS CEE N	22		99	2,178	Type SK2, BNLO2, L2
51		X	Shop Basement	MH-1000W-CWA	8		1,080	8,640	CUST: LEDWP-47W	8		47	376	Type WP1
52		X	Restrooms	FLT12-34W x 4L x 4'-2 MG(E)	2		144	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2	Occupancy	49	98	L&B TYPE BNLO1, TYPE L2
53			Parking Lot-Exterior											
54	+	Y	Pole Lights-Exterior	HPS-400W	11		465	5,115	CUST: LEDPM-120W	11		120	1,320	Type RW1
55			Mezzanine											
56		X	Switch Gear	MH-175W-CWA	5		215	1,075	CUST: LEDHB-78W	5		78	390	Type RLB1
57		X	Generator Pit	HPS-150W	5		188	940	CUST: LEDHB-78W	5		78	390	Type RLB1
58		X	Lunch Room	FLT12-34W x 2L x 4'-MG(E)	11		72	792	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	10	Occupancy	49	490	Wireless Ceiling OC-Lamp and Ballast.
59		X	Lunch Room	FLT12-34W x 2L x 4'-MG(E)	10		72	720	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	11	Occupancy	49	539	Wireless Ceiling OC-Lamp and Ballast
60		X	#3 Switch Gear & Lab	FLT12HO-95W x 2L x 8'-MG(E)	5		207	1,035	FLT8CEE-28W x 4L x 4'-CEE RS/PRS CEE N	5		99	495	Type SK2, BNLO2, L2
61		X	Lab	FLT12-34W x 4L x 4'-2 MG(E)	14		144	2,016	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	14		49	686	L&B TYPE BNLO1, TYPE L2
62		X	Lab	FLT12-34W x 3L x 4'-2 MG(E)	2		115	230	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	L&B TYPE BNLO1, TYPE L2
63		X	Lab	FLT12-34W x 3L x 4'-MG(E)	20		115	2,300	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	20		49	980	L&B TYPE BNLO1, TYPE L2

64			Unit #4 Mezzanine											
65		X	Switch Gear	FLT12-34W x 2L x 4'-MG(E)	7		72	504	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	7		49	343	L&B TYPE BNLO1, TYPE L2
66		X	Switch Gear	FLT12-34W x 2L x 4'-MG(E)	29		72	2,088	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	29		49	1,421	L&B TYPE BNLO1, TYPE L2
67		X	Mezzanine	FLT12-34W x 2L x 4'-MG(E)	26		72	1,872	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	26		49	1,274	L&B TYPE BNLO1, TYPE L2
68		X	Mezzanine	HPS-250W	9		295	2,655	CUST: LEDWP-109W	9		109	981	Type WP2
69		X	Mezzanine	MH-175W-CWA	76		215	16,340	CUST: LEDHB-78W	76		78	5,928	Type RLB1
70		X	Mezzanine	HPS-150W	70		188	13,160	CUST: LEDHB-78W	70		78	5,460	Type RLB1
71		X	AQC Bldg	FLT12-34W x 2L x 4'-MG(E)	11		72	792	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	11		49	539	L&B TYPE BNLO1, TYPE L2
72		X	Floc Bldg	MH-175W-CWA	10		215	2,150	CUST: LEDHB-78W	10		78	780	Type RLB1
73		X	Insulator Shop	FLT12-34W x 4L x 4'-2 MG(E)	10		144	1,440	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	10		49	490	L&B TYPE BNLO1, TYPE L2
74		X	Insulator Shop	FLT12-34W x 2L x 4'-MG(E)	6		72	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	6	Integral	49	294	L&B TYPE BNLO1, TYPE L2
75		X	Insulator Shop	MH-175W-CWA	4		215	860	CUST: LEDWP-47W	4		47	188	Type WP1
76		X	Training Bldg	CUST: ICMB-120W	1		120	120	FCM-15W x 2L-MG	1		30	30	LED lamp
77		X	Training Bldg	FLT12-34W x 2L x 4'-MG(E)	10		72	720	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	10		49	490	2' X 2' U Lamps
78		X	Training Bldg	FLT12-34W x 2L x 4'-MG(E)	1		72	72	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	L&B TYPE BNLO1, TYPE L2
79		X	Men's Restroom	FLT12-34W x 2L x 4'-MG(E)	2		72	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2	Occupancy	49	98	L&B TYPE BNLO1, TYPE L2
80		X	Women's Restroom	FLT12-34W x 2L x 4'-MG(E)	2		72	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	L&B TYPE BNLO1, TYPE L2
81		X	Utility Room	FLT12-34W x 2L x 4'-MG(E)	4		72	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	L&B TYPE BNLO1, TYPE L2
82		X	Training Library	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	L&B TYPE BNLO1, TYPE L2
83		X	Small Office	FLT12-34W x 4L x 4'-2 MG(E)	2		144	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2	Occupancy	49	98	L&B TYPE BNLO1, TYPE L2
84		X	Break Area	FLT12-34W x 4L x 4'-2 MG(E)	2		144	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	L&B TYPE BNLO1, TYPE L2
85		X	Class Room A	FLT12-34W x 4L x 4'-2 MG(E)	12		144	1,728	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	12		49	588	L&B TYPE BNLO1, TYPE L2
86		X	Bob Miller Office	FLT12-34W x 4L x 4'-2 MG(E)	2		144	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	L&B TYPE BNLO1, TYPE L2
87		X	Tech Training	FLT12-34W x 4L x 4'-2 MG(E)	2		144	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	L&B TYPE BNLO1, TYPE L2
88		X	Sim Room	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	L&B TYPE BNLO1, TYPE L2
89		X	Class Room B	FLT12-34W x 4L x 4'-2 MG(E)	13		144	1,872	CUST: FLT8CEE-28W x 2L x 4'-CEE RS/PRSDIM N	13	Occupancy	49	637	L&B TYPE BNLO1, TYPE L2
90		X	Rob McComas	FLT12-34W x 4L x 4'-2 MG(E)	1		144	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	L&B TYPE BNLO1, TYPE L2
91		X	Store Room	FLT12-34W x 4L x 4'-2 MG(E)	1		144	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	L&B TYPE BNLO1, TYPE L2
92		X	Computer Training Lab	FLT12-34W x 4L x 4'-2 MG(E)	9		144	1,296	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	9	Occupancy	49	441	L&B TYPE BNLO1, TYPE L2
93		X	Hallway	FLT12-34W x 4L x 4'-2 MG(E)	1		144	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	L&B TYPE BNLO1, TYPE L2
94		X	Mine Garage	HPS-150W	2		188	376	FLT8CEEHB-32W x 4L x 4'-CEE IS CEE H	1		142	142	Remove both incandescent fixtures.

95		X	Storage	MH-175W-CWA	5		215	1,075	FLT8CEEHB-32W x 4L x 4'-CEE IS CEE H	4	Integral	142	568	New -2 Lamp Strip fixture, TYPE S1 & TYPE L1
96		X	Storage	MH-250W-CWA	2		295	590	FLT8CEEHB-32W x 4L x 4'-CEE IS CEE H	4	Integral	142	568	New -2 Lamp Strip fixture, TYPE S1 & TYPE L1
97		X	Repair Shop	MH-175W-CWA	2		215	430	CUST: LEDWP-47W	2		47	94	Type WP1
98		X	Repair Shop	MH-1000W-CWA	6		1,080	6,480	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	5		213	1,065	FHE Series -Type EHB3
99		X	Repair Shop	HPS-400W	6		465	2,790	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	5		213	1,065	FHE Series- Type EHB3
100		X	Repair Shop	MH-1000W-CWA	1		1,080	1,080	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	1		213	213	FHE Series- Type EHB3
101		X	Repair Shop	ICMG-500W	4		500	2,000	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	5		213	1,065	FHE Series- Type EHB3
102		X	Repair Shop	MH-400W-CWA	2		458	916	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	1		213	213	FHE Series-Type EHB3
103		X	Repair Shop	FLT12-34W x 4L x 4'-2 MG(E)	12		144	1,728	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	9		213	1,917	FHE Series- Type EHB3
104		X	Truck Repair Bays	MH-175W-CWA	3		215	645	MH-175W-CWA	0		215	0	Remove Three 175w MH
105		X	Stock Room	FLT12-75W x 2L x 8'-MG(E)	2		123	246	FLT8CEE-28W x 4L x 4'-CEE RS/PRS CEE N	2		99	198	Wire Body Kit-Type SK2, BNLO2, L2
106		X	Stock Room	FLT12-75W x 2L x 8'-MG(E)	1		123	123	FLT12-75W x 2L x 8'-MG(E)	0		123	0	Remove One 2L F96 T12
107		X	Stock Room	FLT12-34W x 2L x 4'-MG(E)	4		72	288	FLT8CEE-28W x 4L x 4'-CEE RS/PRS CEE N	4	Occupancy	99	396	Wireless Ceiling OC-Lamp And Ballast - TYPE BNLO2 & L2
108		X	Locker Room	FLT12-34W x 2L x 4'-MG(E)	4		72	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	3-Way Occ sensors wireless- Lamp and Ballast - TYPE BNLO1 & L2
109		X	Locker Room	FLT12-34W x 2L x 4'-MG(E)	5		72	360	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	5	Occupancy	49	245	3-Way Occ sensors wireless- Lamp and Ballast - TYPE BNLO1 & L2
110		X	Upstairs Office	FLT12-34W x 2L x 4'-MG(E)	3		72	216	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wireless Ceiling OC -Lamp and Ballast - TYPE BNLO1 & L2
111		X	Upstairs Break Room	FLT12-34W x 2L x 4'-MG(E)	8		72	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	8	Occupancy	49	392	Wireless Ceiling OC -Lamp and Ballast - TYPE BNLO1 & L2
112		X	Upstairs Office	FLT12-34W x 2L x 4'-MG(E)	4		72	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Occ Sensor- L&B - TYPE BNLO1 & L2
113	+	X	Outside of Bldg-Exterior	HPS-400W	10		465	4,650	CUST: LED Flood 121W	10		121	1,210	Flood- Type FL4
114			Unit #1 & #2 Cooling Tower											
115		X	MCC Room	FLT12-34W x 2L x 4'-MG(E)	16		72	1,152	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	16		49	784	Vapor Tight wo/ lens -Lamp and Ballast - TYPE BNLO1 & L2
116		X	Under Grate - MCC	MH-250W-CWA	3		295	885	CUST: LEDWP-109W	3		109	327	Type WP2
117		X	MCC Bldg	MH-175W-CWA	6		215	1,290	CUST: LEDWP-47W	6		47	282	Type WP1
118			Precipitator Bldg											
119		X	Unit #1 & #2	MH-175W-CWA	98		215	21,070	CUST: LEDHB-78W	98		78	7,644	Type RLB1
120		X	Penthouse	FLT12-34W x 2L x 4'-MG(E)	16		72	1,152	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	16		49	784	L&B TYPE BNLO1, TYPE L2
121	+	Y	Penthouse - Outdoor	MH-175W-CWA	8		215	1,720	CUST: LEDHB-78W	8		78	624	Type RLB1
122		X	Penthouse - Communication	FLT12-34W x 2L x 4'-MG(E)	2		72	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	L&B TYPE BNLO1, TYPE L2
123		X	Hopper Level	MH-175W-CWA	60		215	12,900	CUST: LEDHB-78W	60		78	4,680	Type RLB1
124		X	Unit #1 & #2	FLT12-34W x 2L x 4'-MG(E)	80		72	5,760	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	80		49	3,920	L&B TYPE BNLO1, TYPE L2
125		X	Ground Floor	MH-175W-CWA	18		215	3,870	CUST: LEDHB-78W	18		78	1,404	Type RLB1

126		X	Diesel Generating Room	ICMB-200W	2		200	400	ICMB-200W	0		200	0	Remove two 200w Incandescents
127		X	RLM	FLT12-75W x 8'-MG(E)	3		75	225	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3		49	147	Type SK2, BNLO1, L2
128		X	Diesel Fire Pump	MH-175W-CWA	3		215	645	CUST: LEDHB-78W	3		78	234	Type RLB1
129	+	Y	River Intake - Outdoors	HPS-150W	19		188	3,572	CUST: LEDHB-78W	19		78	1,482	Type RLB1
130		X	Chlorine Building	ICMB-200W	4		200	800	CUST: LEDSI-30W	4		30	120	Type VTK
131		X	Chlorine Building - Side Two RLM	ICMB-200W	2		200	400	CUST: LEDSI-30W	2		30	60	Type VTK
132		X	Fire Pump House	MH-175W-CWA	6		215	1,290	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	6		213	1,278	Consider Not Changing
133		X	Turbine Shed	MH-175W-CWA	10		215	2,150	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	5		213	1,065	FHE Series- Type EHB3
134		X	Turbine Shed	MH-250W-CWA	7		295	2,065	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	5		213	1,065	FHE Series- Type EHB3
135			Admin Bldg - 1st Floor											
136		X	Entry	FLT12-34W x 2L x 4'-MG(E)	2		72	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	L&B TYPE BNLO1, TYPE L2
137		X	Hallway	FLT12-34W x 4L x 4'-2 MG(E)	13		144	1,872	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	13		49	637	L&B TYPE BNLO1, TYPE L2
138		X	Break Room - Kitchen	FLT12-34W x 4L x 4'-2 MG(E)	2		144	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2	Occupancy	49	98	Wall Occ Sensor- Lamp and Ballast - BNLO1 & L2
139		X	Men's Restroom	FLT12-34W x 4L x 4'-2 MG(E)	1		144	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	L&B TYPE BNLO1, TYPE L2
140		X	Women's Restroom	FLT12-34W x 4L x 4'-2 MG(E)	1		144	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	L&B TYPE BNLO1, TYPE L2
141		X	Paula Edberg	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Occ Sensor- Lamp and Ballast - BNLO1 & L2
142		X	Jamie Gibson	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Occ Sensor- Lamp and Ballast - BNLO1 & L2
143		X	Tory Gear	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Occ Sensor- Lamp and Ballast - BNLO1 & L2
144		X	Arly Frye	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Occ Sensor- Lamp and Ballast - BNLO1 & L2
145		X	Hallwy, Office Procurement Dept.	FLT12-34W x 4L x 4'-2 MG(E)	10		144	1,440	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	10		49	490	L&B TYPE BNLO1, TYPE L2
146		X	Open Office, Small Office	FLT12-34W x 4L x 4'-2 MG(E)	10		144	1,440	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	10		49	490	L&B TYPE BNLO1, TYPE L2
147		X	Carole Newell	FLT12-34W x 4L x 4'-2 MG(E)	2		144	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2	Occupancy	49	98	Wall Occ Sensor- Lamp and Ballast - BNLO1 & L2
148		X	Mark Wasinger	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Occ Sensor- Lamp and Ballast - BNLO1 & L2
149		X	Supplies Room	FLT12-34W x 4L x 4'-2 MG(E)	1		144	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	L&B TYPE BNLO1, TYPE L2
150		X	Karl Eighmy	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Occ Sensor- Lamp and Ballast - BNLO1 & L2
151		X	Testing Room	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 4L x 4'-CEE RS/PRS CEE N	4		99	396	L&B TYPE BNLO1, TYPE L2
152		X	Electrical Room	ICMB-100W	2		72	144	FCM-25W-MG	2		25	50	LED lamp
153		X	Training Room	FLT12-34W x 4L x 4'-2 MG(E)	6		144	864	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	6	Occupancy	49	294	Wireless Ceiling OC-Lamp and Ballast - TYPE BNLO1 & L2
154		X	Training Room	FLT12-34W x 4L x 4'-2 MG(E)	6		144	864	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	6	Occupancy	49	294	Wireless Ceiling OC-Lamp and Ballast - TYPE BNLO1 & L2

155		X	Mail Room	FLT12-34W x 4L x 4'-2 MG(E)	2		144	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	Wall Occ Sensor- Lamp and Ballast - BNLO1 & L2
156		X	Gym	FLT12-34W x 4L x 4'-2 MG(E)	8		144	1,152	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	8	Occupancy	49	392	Wireless Ceiling OC-Lamp and Ballast - TYPE BNLO1 & L2
157		X	Gym	FLT12-34W x 2L x 4'-MG(E)	1		72	72	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1	Occupancy	49	49	2' X 2' U Lamps - Wireless Ceiling OC
158		X	Gym Hallway	FLT12-34W x 2L x 4'-MG(E)	1		72	72	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	L&B TYPE BNLO1, TYPE L2
159		X	Hallway	FLT12-34W x 4L x 4'-2 MG(E)	2		144	288	FLT8CEE-28W x 4L x 4'-CEE RS/PRS CEE N	2		99	198	L&B TYPE BNLO1, TYPE L2
160		X	Men's Locker - Uniforms	FLT12-34W x 2L x 4'-MG(E)	2		72	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2	Occupancy	49	98	Wireless Ceiling OC-Lamp and Ballast - TYPE BNLO1 & L2
161		X	Men's Locker	FLT12-34W x 4L x 4'-2 MG(E)	24		144	3,456	FLT8CEE-28W x 4L x 4'-CEE RS/PRS CEE N	24		99	2,376	L&B TYPE BNLO2, TYPE L2
162		X	Men's Locker - Showers	FLT12-34W x 2L x 4'-MG(E)	4		72	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4		49	196	4' 2 lamp Vapor Tight surface wrap
163		X	Men's Locker Room Sink	FLT12-34W x 2L x 4'-MG(E)	4		72	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4		49	196	Wall mounted 1 lamp wrap
164		X	Men's Locker - Electrical Room	FLT12-34W x 2L x 4'-MG(E)	1		72	72	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	4' 2 lamp Vapor Tight surface wrap
165		X	Men's Locker Room Entry	FLT12-34W x 2L x 4'-MG(E)	1		72	72	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	L&B TYPE BNLO1, TYPE L2
166		X	Hallway	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4		49	196	L&B TYPE BNLO1, TYPE L2
167			Engineering Storage - locked											Was not considered.
168		X	Men's Restroom	FLT12-34W x 2L x 4'-MG(E)	3		72	216	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall mounted 1 lamp wrap
169		X	Women's Restroom	FLT12-34W x 2L x 4'-MG(E)	3		72	216	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall mounted 1 lamp wrap
170		X	Engineering Support - 2nd Floor	FLT12-34W x 4L x 4'-2 MG(E)	58		144	8,352	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	58	Occupancy	49	2,842	L&B TYPE BNLO1, TYPE L2
171		X	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
172		X	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
173		X	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
174		X	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
175		B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
176		B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
177		B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
178		B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
179		B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
180		B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
181		B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2

182		B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
183		B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
184		B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
185		B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
186		B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
187		B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
188		B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
189		B	Meeting Room	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall mount vacancy sensor
190		B	Meeting Room	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall mount vacancy sensor
191	+	Y	Outside Flag Lights	MH-250W-CWA	2		295	590	CUST: LED Flood 121W	2		121	242	Type FL4
192	+	Y	Exterior Under Canopy Lights	ICMB-100W	9		72	648	CUST: LEDSI-14W	9		14	126	LED Lamp
193		X	Emergency Generator Bldg	FLT12-34W x 2L x 4'-MG(E)	9		72	648	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	9		49	441	L&B TYPE BNLO1, TYPE L2
194	+	Y	Emergency Generator Bldg - Exterior	MH-175W-CWA	3		215	645	CUST: LEDHB-78W	3		78	234	Type RLB1
195			Maintenance Bldg											
196		X	Tool Room	FLT12-34W x 2L x 4'-MG(E)	37		72	2,664	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	37		49	1,813	L&B TYPE BNLO1, TYPE L2
197		X	Machine Shop	FLT12-75W x 2L x 8'-MG(E)	23		123	2,829	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	16		213	3,408	FHE Series- Type EHB3
198		X	Machine Shop Over Stairs	FLT12-34W x 2L x 4'-MG(E)	2		72	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	Lamp and Ballast
199		X	Open	MH-400W-CWA	18		458	8,244	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	14		213	2,982	FHE Series- Type EHB3
200		X	Maintenance Shop	FLT12-34W x 2L x 4'-MG(E)	3		72	216	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3		49	147	L&B TYPE BNLO1, TYPE L2
201		X	Maintenance Shop	FLT12-34W x 2L x 4'-MG(E)	12		72	864	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	7		213	1,491	FHE Series- Type EHB3
202		X	Maintenance Shop	FLT12-75W x 2L x 8'-MG(E)	14		123	1,722	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	8		213	1,704	FHE Series- Type EHB3
203		X	Maintenance Shop	FLT12-34W x 2L x 4'-MG(E)	2		72	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	L&B TYPE BNLO1, TYPE L2
204		X	Bolt Room	FLT12-34W x 2L x 4'-MG(E)	43		72	3,096	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	43		49	2,107	L&B TYPE BNLO1, TYPE L2
205		X	1/2 Wayhouse 2nd Floor	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
206		X	1/2 Wayhouse 2nd Floor	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
207		X	1/2 Wayhouse 2nd Floor	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
208		X	1/2 Wayhouse 2nd Floor	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
209		X	1/2 Wayhouse 2nd Floor	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2

210		X	1/2 Wayhouse 2nd Floor	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
211		X	Planning Room - Open Office	FLT12-34W x 4L x 4'-2 MG(E)	9		144	1,296	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	9		49	441	Lamp and Ballast
212		X	Hallways	FLT12-34W x 2L x 4'-MG(E)	6		72	432	FLT8-17W x 3L x 2'-IS(E) L	9		40	360	2' X 2' Lamp and ballast
213		B	8 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
214		B	8 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
215		B	8 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
216		B	8 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
217		B	8 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
218		B	8 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
219		B	8 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
220		B	8 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
221		X	Men's Restroom	FLT12-34W x 2L x 4'-MG(E)	1		72	72	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	L&B TYPE BNLO1, TYPE L2
222		X	EM Trucks	HPS-100W	3		130	390	CUST: LEDWP-40W	3		40	120	Type WP1
223			Main Warehouse Offices											
224		X	Entry	FLT12-34W x 2L x 4'-MG(E)	2		72	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	L&B TYPE BNLO1, TYPE L2
225		X	Entry	FLT12-34W x 2L x 4'-MG(E)	16		72	1,152	FLT8-17W x 3L x 2'-IS(E) L	16		40	640	2' X 2' Lamp and ballast
226		X	Break Room / Parts	FLT12-34W x 4L x 4'-2 MG(E)	8		144	1,152	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	8		49	392	L&B TYPE BNLO1, TYPE L2
227		X	Conference Room	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
228		B	6 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
229		B	6 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
230		B	6 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
231		B	6 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
232		B	6 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
233		B	6 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
234		X	Down / Parts Drawer	FLT12-34W x 2L x 4'-MG(E)	8		72	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	8	Occupancy	49	392	Fixture mount Occ Sensors- Lamp and Ballast - TYPE BNLO1 & L2
235		X	Down / Parts Drawer	FLT12-34W x 2L x 4'-MG(E)	8		72	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	8	Occupancy	49	392	Fixture mount Occ Sensors- Lamp and Ballast - TYPE BNLO1 & L2
236		X	Down / Parts Drawer	FLT12-34W x 2L x 4'-MG(E)	9		72	648	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	9	Occupancy	49	441	Fixture mount Occ Sensors- Lamp and Ballast - TYPE BNLO1 & L2
237		X	Down / Parts Drawer	FLT12-34W x 2L x 4'-MG(E)	9		72	648	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	9	Occupancy	49	441	Fixture mount Occ Sensors- Lamp and Ballast - TYPE BNLO1 & L2
238		X	Down / Parts Drawer	FLT12-34W x 2L x 4'-MG(E)	9		72	648	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	9	Occupancy	49	441	Fixture mount Occ Sensors- Lamp and Ballast - TYPE BNLO1 & L2

239		X	Down / Parts Drawer	FLT12-34W x 2L x 4'-MG(E)	9		72	648	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	9	Occupancy	49	441	Fixture mount Occ Sensors- Lamp and Ballast - TYPE BNLO1 & L2
240		X	Down / Parts Drawer	FLT12-34W x 2L x 4'-MG(E)	9		72	648	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	9	Occupancy	49	441	Fixture mount Occ Sensors- Lamp and Ballast - TYPE BNLO1 & L2
241		X	Down / Parts Drawer	FLT12-34W x 2L x 4'-MG(E)	9		72	648	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	9	Occupancy	49	441	Fixture mount Occ Sensors- Lamp and Ballast - TYPE BNLO1 & L2
242		X	Down / Parts Drawer	FLT12-34W x 2L x 4'-MG(E)	9		72	648	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	9	Occupancy	49	441	Fixture mount Occ Sensors- Lamp and Ballast - TYPE BNLO1 & L2
243		X	Down / Parts Drawer	FLT12-75W x 2L x 8'-MG(E)	20		123	2,460	FLT8CEE-28W x 4L x 4'-CEE RS/PRS CEE N	20		99	1,980	Fixture mount Occ Sensors- Lamp and Ballast - TYPE BNLO2 & L2
244		X	Down / Parts Drawer	MH-400W-CWA	9		458	4,122	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	5		213	1,065	Typ HB2
245		X	Warehouse Storage - Back	MH-400W-CWA	17		458	7,786	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	11	Integral	213	2,343	Two Outer aisles-Type HB2
246		X	Warehouse Storage - Back	MH-400W-CWA	6		458	2,748	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	6	Integral	213	1,278	Center aisle-Type HB2
247		X	Supply Room	FLT12-34W x 4L x 4'-2 MG(E)	8		144	1,152	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	8	Occupancy	49	392	Wireless Ceiling OC-Lamp and Ballast
248		X	Supply Room	FLT12-34W x 2L x 4'-MG(E)	2		72	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2	Dup. Occ	49	98	L&B TYPE BNLO1, TYPE L2
249			40 Annex Building											
250		X	Offices	FLT12-34W x 4L x 4'-2 MG(E)	11		144	1,584	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	11		49	539	L&B TYPE BNLO1, TYPE L2
251		X	Private Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	L&B TYPE BNLO1, TYPE L2
252		X	Private Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	L&B TYPE BNLO1, TYPE L2
253		X	Private Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	L&B TYPE BNLO1, TYPE L2
254		X	Private Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	L&B TYPE BNLO1, TYPE L2
255	+	Y	100' Pole Lights-Exterior	MH-1000W-CWA	32		1,080	34,560	CUST: LED HB 511W	32		511	16,352	Recommend new LED High Mast Light fixture. Holophane or GE
256	+	Y	70' Pole Lights-Exterior	MH-1000W-CWA	24		1,080	25,920	CUST: LED HB 511W	24		511	12,264	Recommend new LED High Mast Light fixture. Holophane or GE
257			Conveyor Building											
258		X	Conveyor to Appleton, etc.	HPS-150W	129		188	24,252	CUST: LEDHB-78W	129		78	10,062	Type RLB1
259		X	31, 33, 34 & 35 Sump	MH-175W-CWA	177		215	38,055	CUST: LEDHB-78W	177		78	13,806	Type RLB1
260		X	RLM 31, 33, 34 & 35 Sump	ICMB-100W	40		72	2,880	CUST: LEDSI-14W	40		14	560	LED Lamp
261	+	Y	Floods-Exterior	HPS-400W	34		465	15,810	CUST: LED Flood - 179W	34		179	6,086	Type FL5
262	+	Y	Floods-Exterior	HPS-250W	29		295	8,555	CUST: LED Flood 121W	29		121	3,509	Type FL4
263	+	Y	Roadway-Exterior	HPS-200W	15		250	3,750	CUST: LEDPM-105W	15		105	1,575	Type AL1- Area Light/Pole mount - Type III Dist.
264														

ROCKY MOUNTAIN POWER

Let's turn the answers on.

V 070113.5.3

Wyoming FinAnswer Express Program

07/01/13 Effective Date

You Can Now Use The Project Information Tab

Project ID	
Lighting Coordinator	Dan Kuhl
Tool Prepared by	Dan
Project Manager	
Account Manager	

Customer Information

Project Name	Dave Johnston Power Plant - T12 Phase		
Business Name	PacifiCorp Energy		
Installation Address	1591 Tank Farm Rd		
City, State, Zip	Glenrock	WY	82637
Contact, Title	Brian Gangl		
Phone, Email	(307) 995-5193	brian.gangl@pacificorp.com	
Account, Meter, Rate			48T
Participant is:	☑ Acct Holder ☑ Elect. User ☑ Building Owner		
Business Type	Other		

Contractor Information

Contact		☐ EEA Participant	
Business Name			
Address			
City, State, Zip			
Phone, Email			

Payee Information

Incentive Should Be Addressed To:			
Business Name			
Attention			
Check Reference			
Address			
City, State, Zip			

Eligibility Information

Business Name			
Address			
City, State, Zip			
Account #			Office Use Only
Meter Base #, Rate			

Processing Information

Construction Type	Retrofit	Stage	Preliminary

Project Cost

Material	Labor	Other	Total Project Cost
$108,730.00	$14,600.00	$770.00	$124,100.00

Space Type & Size

	Calculation Method	Whole Building	Allowed Wattage		720,000	
1	Other		FT^2	1,200,000	0.60	W/FT^2
			FT^2			W/FT^2
			FT^2			W/FT^2
			FT^2			W/FT^2
			FT^2			W/FT^2
	Other		FT^2	1,200,000	0.60	W/FT^2

Lighting Operation Schedule

# of Holidays Closed?	Day	A	B	C	D	E
0	Mon	3.0	10.0			
Op Weeks Per Year	Tue	3.0	10.0			
52	Wed	3.0	10.0			
Add/Edit	Thu	3.0	10.0			
	Fri	3.0	10.0			
S is for 0 hrs/year	Sat	3.0	4.0			
X is for 8760 hrs/year	Sun	3.0	0.0			
Y is for 4380 hrs/year	Total	1,095	2,816			

Additional Information

Import Existing Project | EEA Participant Info | Email Coordinator | Lighting Catalog | LED Policy | Report A Problem

Category	
Fixture	
Lamp	
Lamp (W)	
Lamp Qty	
Ballast	
Factor	

26W - CMH-20W-ELEC
125W - CMH-100W-SCWA
26W - MHPS-20W-ELEC
189W - CMH-150W-SCWA
45W - CMH-39W-ELEC
272W - CMH-250W-LR
288W - CMH-250W-SCWA
324W - CMH-300W-LR
342W - CMH-300W-SCWA
55W - MH-50W-ELEC
342W - CMH-320W-LR

Add Fixture
Remove Fixture
Clear Filter
Build Fixture
Reset

ROCKY MOUNTAIN POWER
Let's turn the answers on.

45W - CMH-39W-ELEC

HID Ceramic Metal Halide Standard (39W x 1L) 1 Electronic

Standard Incentive (47.9% of Cost Paid By Incentive)

Savings Information

517,785 kWh Saved Per Year

Lighting Power Density		
0.60	Code	90.8%
0.11	Existing	Better Than Code
0.06	Proposed	LPD

↓↓Project Tracking↓↓
Preliminary
Pre-Inspection
Agreement Needed
Contracted
Post-Inspection
Final Review Needed

Preliminary

Dave Johnston Power Plant - T12 Phase

155 Out Of 200 Lines Used

				Existing			Interior	127,216	**Proposed**			Interior	65,965	
					1152	0	Exterior	0		1133	93	Exterior	0	
Line Number	Exterior	Schedule	Space Description	Fixture	Qty	Controls	Fixture Wattage	Space Wattage	Fixture	Qty	Controls	Fixture Wattage	Space Wattage	↓↓Project Notes↓↓
1			Unit 4											
2		X	Overall Lunch Room	FLT12-34W x 2L x 4'-MG(E)	3		72	216	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3		49	147	Lamp and Ballast
3		X	# 4 Control Area	FLT12-34W x 4L x 4'-2 MG(E)	24		144	3,456	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	24		49	1,176	Lamp and Ballast
4		X	Unit #1	FLT12-34W x 2L x 4'-MG(E)	42		72	3,024	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	42		49	2,058	L&B TYPE BNLO1, TYPE L2
5		X	Unit #1	FLT12HO-95W x 2L x 8'-MG(E)	12		207	2,484	FLT8CEE-28W x 4L x 4'-CEE RS/PRS CEE N	12		99	1,188	Type SK2, BNLO2, L2
6		X	Engineering Office	FLT12HO-95W x 2L x 8'-MG(E)	22		207	4,554	FLT8CEE-28W x 4L x 4'-CEE RS/PRS CEE N	22		99	2,178	Type SK2, BNLO2, L2
7		X	Restrooms	FLT12-34W x 4L x 4'-2 MG(E)	2		144	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2	Occupancy	49	98	L&B TYPE BNLO1, TYPE L2
8		X	Lunch Room	FLT12-34W x 2L x 4'-MG(E)	11		72	792	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	10	Occupancy	49	490	Wireless Ceiling OC-Lamp and Ballast.
9		X	Lunch Room	FLT12-34W x 2L x 4'-MG(E)	10		72	720	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	11	Occupancy	49	539	Wireless Ceiling OC-Lamp and Ballast
10		X	#3 Switch Gear & Lab	FLT12HO-95W x 2L x 8'-MG(E)	5		207	1,035	FLT8CEE-28W x 4L x 4'-CEE RS/PRS CEE N	5		99	495	Type SK2, BNLO2, L2
11		X	Lab	FLT12-34W x 4L x 4'-2 MG(E)	14		144	2,016	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	14		49	686	L&B TYPE BNLO1, TYPE L2
12		X	Lab	FLT12-34W x 3L x 4'-2 MG(E)	2		115	230	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	L&B TYPE BNLO1, TYPE L2
13		X	Lab	FLT12-34W x 3L x 4'-MG(E)	20		115	2,300	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	20		49	980	L&B TYPE BNLO1, TYPE L2
14			Unit #4 Mezzanine											
15		X	Switch Gear	FLT12-34W x 2L x 4'-MG(E)	7		72	504	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	7		49	343	L&B TYPE BNLO1, TYPE L2
16		X	Switch Gear	FLT12-34W x 2L x 4'-MG(E)	29		72	2,088	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	29		49	1,421	L&B TYPE BNLO1, TYPE L2
17		X	Mezzanine	FLT12-34W x 2L x 4'-MG(E)	26		72	1,872	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	26		49	1,274	L&B TYPE BNLO1, TYPE L2
18		X	AQC Bldg	FLT12-34W x 2L x 4'-MG(E)	11		72	792	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	11		49	539	L&B TYPE BNLO1, TYPE L2
19		X	Insulator Shop	FLT12-34W x 4L x 4'-2 MG(E)	10		144	1,440	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	10		49	490	L&B TYPE BNLO1, TYPE L2

20	X	Insulator Shop	FLT12-34W x 2L x 4'-MG(E)	6		72	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	6	Integral	49	294	L&B TYPE BNLO1, TYPE L2
21	X	Training Bldg	FLT12-34W x 2L x 4'-MG(E)	10		72	720	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	10		49	490	2' X 2' U Lamps
22	X	Training Bldg	FLT12-34W x 2L x 4'-MG(E)	1		72	72	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	L&B TYPE BNLO1, TYPE L2
23	X	Men's Restroom	FLT12-34W x 2L x 4'-MG(E)	2		72	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2	Occupancy	49	98	L&B TYPE BNLO1, TYPE L2
24	X	Women's Restroom	FLT12-34W x 2L x 4'-MG(E)	2		72	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	L&B TYPE BNLO1, TYPE L2
25	X	Utility Room	FLT12-34W x 2L x 4'-MG(E)	4		72	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	L&B TYPE BNLO1, TYPE L2
26	X	Training Library	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	L&B TYPE BNLO1, TYPE L2
27	X	Small Office	FLT12-34W x 4L x 4'-2 MG(E)	2		144	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2	Occupancy	49	98	L&B TYPE BNLO1, TYPE L2
28	X	Break Area	FLT12-34W x 4L x 4'-2 MG(E)	2		144	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	L&B TYPE BNLO1, TYPE L2
29	X	Class Room A	FLT12-34W x 4L x 4'-2 MG(E)	12		144	1,728	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	12		49	588	L&B TYPE BNLO1, TYPE L2
30	X	Bob Miller Office	FLT12-34W x 4L x 4'-2 MG(E)	2		144	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	L&B TYPE BNLO1, TYPE L2
31	X	Tech Training	FLT12-34W x 4L x 4'-2 MG(E)	2		144	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	L&B TYPE BNLO1, TYPE L2
32	X	Sim Room	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	L&B TYPE BNLO1, TYPE L2
33	X	Class Room B	FLT12-34W x 4L x 4'-2 MG(E)	13		144	1,872	CUST: FLT8CEE-28W x 2L x 4'-CEE RS/PRSDIM N	13	Occupancy	0	0	L&B TYPE BNLO1, TYPE L2
34	X	Rob McComas	FLT12-34W x 4L x 4'-2 MG(E)	1		144	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	L&B TYPE BNLO1, TYPE L2
35	X	Store Room	FLT12-34W x 4L x 4'-2 MG(E)	1		144	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	L&B TYPE BNLO1, TYPE L2
36	X	Computer Training Lab	FLT12-34W x 4L x 4'-2 MG(E)	9		144	1,296	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	9	Occupancy	49	441	L&B TYPE BNLO1, TYPE L2
37	X	Hallway	FLT12-34W x 4L x 4'-2 MG(E)	1		144	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	L&B TYPE BNLO1, TYPE L2
38	X	Repair Shop	FLT12-34W x 4L x 4'-2 MG(E)	12		144	1,728	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	9		213	1,917	FHE Series- Type EHB3
39	X	Stock Room	FLT12-75W x 2L x 8'-MG(E)	2		123	246	FLT8CEE-28W x 4L x 4'-CEE RS/PRS CEE N	2		99	198	Wire Body Kit-Type SK2, BNLO2, L2
40	X	Stock Room	FLT12-75W x 2L x 8'-MG(E)	1		123	123	FLT12-75W x 2L x 8'-MG(E)	0		123	0	Remove One 2L F96 T12
41	X	Stock Room	FLT12-34W x 2L x 4'-MG(E)	4		72	288	FLT8CEE-28W x 4L x 4'-CEE RS/PRS CEE N	4	Occupancy	99	396	Wireless Ceiling OC-Lamp And Ballast - TYPE BNLO2 & L2
42	X	Locker Room	FLT12-34W x 2L x 4'-MG(E)	4		72	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	3-Way Occ sensors wireless- Lamp and Ballast - TYPE BNLO1 & L2
43	X	Locker Room	FLT12-34W x 2L x 4'-MG(E)	5		72	360	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	5	Occupancy	49	245	3-Way Occ sensors wireless- Lamp and Ballast - TYPE BNLO1 & L2
44	X	Upstairs Office	FLT12-34W x 2L x 4'-MG(E)	3		72	216	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wireless Ceiling OC -Lamp and Ballast - TYPE BNLO1 & L2
45	X	Upstairs Break Room	FLT12-34W x 2L x 4'-MG(E)	8		72	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	8	Occupancy	49	392	Wireless Ceiling OC -Lamp and Ballast - TYPE BNLO1 & L2
46	X	Upstairs Office	FLT12-34W x 2L x 4'-MG(E)	4		72	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Occ Sensor- L&B - TYPE BNLO1 & L2

47			Unit #1 & #2 Cooling Tower											
48		X	MCC Room	FLT12-34W x 2L x 4'-MG(E)	16		72	1,152	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	16		49	784	Vapor Tight wo/ lens -Lamp and Ballast - TYPE BNLO1 & L2
49		X	Penthouse	FLT12-34W x 2L x 4'-MG(E)	16		72	1,152	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	16		49	784	L&B TYPE BNLO1, TYPE L2
50		X	Penthouse - Communication	FLT12-34W x 2L x 4'-MG(E)	2		72	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	L&B TYPE BNLO1, TYPE L2
51		X	Unit #1 & #2	FLT12-34W x 2L x 4'-MG(E)	80		72	5,760	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	80		49	3,920	L&B TYPE BNLO1, TYPE L2
52		X	RLM	FLT12-75W x 8'-MG(E)	3		75	225	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3		49	147	Type SK2, BNLO1, L2
53			Admin Bldg - 1st Floor											
54		X	Entry	FLT12-34W x 2L x 4'-MG(E)	2		72	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	L&B TYPE BNLO1, TYPE L2
55		X	Hallway	FLT12-34W x 4L x 4'-2 MG(E)	13		144	1,872	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	13		49	637	L&B TYPE BNLO1, TYPE L2
56		X	Break Room - Kitchen	FLT12-34W x 4L x 4'-2 MG(E)	2		144	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2	Occupancy	49	98	Wall Occ Sensor- Lamp and Ballast - BNLO1 & L2
57		X	Men's Restroom	FLT12-34W x 4L x 4'-2 MG(E)	1		144	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	L&B TYPE BNLO1, TYPE L2
58		X	Women's Restroom	FLT12-34W x 4L x 4'-2 MG(E)	1		144	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	L&B TYPE BNLO1, TYPE L2
59		X	Paula Edberg	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Occ Sensor- Lamp and Ballast - BNLO1 & L2
60		X	Jamie Gibson	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Occ Sensor- Lamp and Ballast - BNLO1 & L2
61		X	Tory Gear	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Occ Sensor- Lamp and Ballast - BNLO1 & L2
62		X	Arly Frye	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Occ Sensor- Lamp and Ballast - BNLO1 & L2
63		X	Hallwy, Office Procurement Dept.	FLT12-34W x 4L x 4'-2 MG(E)	10		144	1,440	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	10		49	490	L&B TYPE BNLO1, TYPE L2
64		X	Open Office, Small Office	FLT12-34W x 4L x 4'-2 MG(E)	10		144	1,440	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	10		49	490	L&B TYPE BNLO1, TYPE L2
65		X	Carole Newell	FLT12-34W x 4L x 4'-2 MG(E)	2		144	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2	Occupancy	49	98	Wall Occ Sensor- Lamp and Ballast - BNLO1 & L2
66		X	Mark Wasinger	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Occ Sensor- Lamp and Ballast - BNLO1 & L2
67		X	Supplies Room	FLT12-34W x 4L x 4'-2 MG(E)	1		144	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	L&B TYPE BNLO1, TYPE L2
68		X	Karl Eighmy	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Occ Sensor- Lamp and Ballast - BNLO1 & L2
69		X	Testing Room	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 4L x 4'-CEE RS/PRS CEE N	4		99	396	L&B TYPE BNLO1, TYPE L2
70		X	Training Room	FLT12-34W x 4L x 4'-2 MG(E)	6		144	864	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	6	Occupancy	49	294	Wireless Ceiling OC-Lamp and Ballast - TYPE BNLO1 & L2
71		X	Training Room	FLT12-34W x 4L x 4'-2 MG(E)	6		144	864	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	6	Occupancy	49	294	Wireless Ceiling OC-Lamp and Ballast - TYPE BNLO1 & L2
72		X	Mail Room	FLT12-34W x 4L x 4'-2 MG(E)	2		144	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	Wall Occ Sensor- Lamp and Ballast - BNLO1 & L2
73		X	Gym	FLT12-34W x 4L x 4'-2 MG(E)	8		144	1,152	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	8	Occupancy	49	392	Wireless Ceiling OC-Lamp and Ballast - TYPE BNLO1 & L2

74		X	Gym	FLT12-34W x 2L x 4'-MG(E)	1		72	72	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1	Occupancy	49	49	2' X 2' U Lamps - Wireless Ceiling OC
75		X	Gym Hallway	FLT12-34W x 2L x 4'-MG(E)	1		72	72	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	L&B TYPE BNLO1, TYPE L2
76		X	Hallway	FLT12-34W x 4L x 4'-2 MG(E)	2		144	288	FLT8CEE-28W x 4L x 4'-CEE RS/PRS CEE N	2		99	198	L&B TYPE BNLO1, TYPE L2
77		X	Men's Locker - Uniforms	FLT12-34W x 2L x 4'-MG(E)	2		72	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2	Occupancy	49	98	Wireless Ceiling OC-Lamp and Ballast - TYPE BNLO1 & L2
78		X	Men's Locker	FLT12-34W x 4L x 4'-2 MG(E)	24		144	3,456	FLT8CEE-28W x 4L x 4'-CEE RS/PRS CEE N	24		99	2,376	L&B TYPE BNLO2, TYPE L2
79		X	Men's Locker - Showers	FLT12-34W x 2L x 4'-MG(E)	4		72	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4		49	196	4' 2 lamp Vapor Tight surface wrap
80		X	Men's Locker Room Sink	FLT12-34W x 2L x 4'-MG(E)	4		72	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4		49	196	Wall mounted 1 lamp wrap
81		X	Men's Locker - Electrical Room	FLT12-34W x 2L x 4'-MG(E)	1		72	72	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	4' 2 lamp Vapor Tight surface wrap
82		X	Men's Locker Room Entry	FLT12-34W x 2L x 4'-MG(E)	1		72	72	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	L&B TYPE BNLO1, TYPE L2
83		X	Hallway	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4		49	196	L&B TYPE BNLO1, TYPE L2
84			Engineering Storage - locked											Was not considered.
85		X	Men's Restroom	FLT12-34W x 2L x 4'-MG(E)	3		72	216	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall mounted 1 lamp wrap
86		X	Women's Restroom	FLT12-34W x 2L x 4'-MG(E)	3		72	216	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall mounted 1 lamp wrap
87		X	Engineering Support - 2nd Floor	FLT12-34W x 4L x 4'-2 MG(E)	58		144	8,352	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	58	Occupancy	49	2,842	L&B TYPE BNLO1, TYPE L2
88		X	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
89		X	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
90		X	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
91		X	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
92		B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
93		B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
94		B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
95		B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
96		B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
97		B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
98		B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
99		B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
100		B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2

101	B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
102	B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
103	B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
104	B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
105	B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
106	B	Meeting Room	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall mount vacancy sensor
107	B	Meeting Room	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall mount vacancy sensor
108	X	Emergency Generator Bldg	FLT12-34W x 2L x 4'-MG(E)	9		72	648	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	9		49	441	L&B TYPE BNLO1, TYPE L2
109		Maintenance Bldg											
110	X	Tool Room	FLT12-34W x 2L x 4'-MG(E)	37		72	2,664	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	37		49	1,813	L&B TYPE BNLO1, TYPE L2
111	X	Machine Shop	FLT12-75W x 2L x 8'-MG(E)	23		123	2,829	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	16		213	3,408	FHE Series- Type EHB3
112	X	Machine Shop Over Stairs	FLT12-34W x 2L x 4'-MG(E)	2		72	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	Lamp and Ballast
113	X	Maintenance Shop	FLT12-34W x 2L x 4'-MG(E)	3		72	216	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3		49	147	L&B TYPE BNLO1, TYPE L2
114	X	Maintenance Shop	FLT12-34W x 2L x 4'-MG(E)	12		72	864	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	7		213	1,491	FHE Series- Type EHB3
115	X	Maintenance Shop	FLT12-75W x 2L x 8'-MG(E)	14		123	1,722	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	8		213	1,704	FHE Series- Type EHB3
116	X	Maintenance Shop	FLT12-34W x 2L x 4'-MG(E)	2		72	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	L&B TYPE BNLO1, TYPE L2
117	X	Bolt Room	FLT12-34W x 2L x 4'-MG(E)	43		72	3,096	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	43		49	2,107	L&B TYPE BNLO1, TYPE L2
118	X	1/2 Wayhouse 2nd Floor	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
119	X	1/2 Wayhouse 2nd Floor	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
120	X	1/2 Wayhouse 2nd Floor	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
121	X	1/2 Wayhouse 2nd Floor	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
122	X	1/2 Wayhouse 2nd Floor	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
123	X	1/2 Wayhouse 2nd Floor	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
124	X	Planning Room - Open Office	FLT12-34W x 4L x 4'-2 MG(E)	9		144	1,296	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	9		49	441	Lamp and Ballast
125	X	Hallways	FLT12-34W x 2L x 4'-MG(E)	6		72	432	FLT8-17W x 3L x 2'-IS(E) L	9		40	360	2' X 2' Lamp and ballast
126	B	8 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
127	B	8 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
128	B	8 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2

129	B	8 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
130	B	8 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
131	B	8 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
132	B	8 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
133	B	8 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
134	X	Men's Restroom	FLT12-34W x 2L x 4'-MG(E)	1		72	72	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	L&B TYPE BNLO1, TYPE L2
135		Main Warehouse Offices											
136	X	Entry	FLT12-34W x 2L x 4'-MG(E)	2		72	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	L&B TYPE BNLO1, TYPE L2
137	X	Entry	FLT12-34W x 2L x 4'-MG(E)	16		72	1,152	FLT8-17W x 3L x 2'-IS(E) L	16		40	640	2' X 2' Lamp and ballast
138	X	Break Room / Parts	FLT12-34W x 4L x 4'-2 MG(E)	8		144	1,152	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	8		49	392	L&B TYPE BNLO1, TYPE L2
139	X	Conference Room	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
140	B	6 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
141	B	6 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
142	B	6 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
143	B	6 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
144	B	6 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
145	B	6 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
146	X	Down / Parts Drawer	FLT12-34W x 2L x 4'-MG(E)	8		72	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	8	Occupancy	49	392	Fixture mount Occ Sensors- Lamp and Ballast - TYPE BNLO1 & L2
147	X	Down / Parts Drawer	FLT12-34W x 2L x 4'-MG(E)	8		72	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	8	Occupancy	49	392	Fixture mount Occ Sensors- Lamp and Ballast - TYPE BNLO1 & L2
148	X	Down / Parts Drawer	FLT12-34W x 2L x 4'-MG(E)	9		72	648	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	9	Occupancy	49	441	Fixture mount Occ Sensors- Lamp and Ballast - TYPE BNLO1 & L2
149	X	Down / Parts Drawer	FLT12-34W x 2L x 4'-MG(E)	9		72	648	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	9	Occupancy	49	441	Fixture mount Occ Sensors- Lamp and Ballast - TYPE BNLO1 & L2
150	X	Down / Parts Drawer	FLT12-34W x 2L x 4'-MG(E)	9		72	648	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	9	Occupancy	49	441	Fixture mount Occ Sensors- Lamp and Ballast - TYPE BNLO1 & L2
151	X	Down / Parts Drawer	FLT12-34W x 2L x 4'-MG(E)	9		72	648	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	9	Occupancy	49	441	Fixture mount Occ Sensors- Lamp and Ballast - TYPE BNLO1 & L2
152	X	Down / Parts Drawer	FLT12-34W x 2L x 4'-MG(E)	9		72	648	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	9	Occupancy	49	441	Fixture mount Occ Sensors- Lamp and Ballast - TYPE BNLO1 & L2
153	X	Down / Parts Drawer	FLT12-34W x 2L x 4'-MG(E)	9		72	648	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	9	Occupancy	49	441	Fixture mount Occ Sensors- Lamp and Ballast - TYPE BNLO1 & L2
154	X	Down / Parts Drawer	FLT12-34W x 2L x 4'-MG(E)	9		72	648	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	9	Occupancy	49	441	Fixture mount Occ Sensors- Lamp and Ballast - TYPE BNLO1 & L2
155	X	Down / Parts Drawer	FLT12-75W x 2L x 8'-MG(E)	20		123	2,460	FLT8CEE-28W x 4L x 4'-CEE RS/PRS CEE N	20		99	1,980	Fixture mount Occ Sensors- Lamp and Ballast - TYPE BNLO2 & L2
156	X	Supply Room	FLT12-34W x 4L x 4'-2 MG(E)	8		144	1,152	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	8	Occupancy	49	392	Wireless Ceiling OC-Lamp and Ballast

157		X	Supply Room	FLT12-34W x 2L x 4'-MG(E)	2		72	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2	Dup. Occ	49	98	L&B TYPE BNLO1, TYPE L2
158			40 Annex Building											
159		X	Offices	FLT12-34W x 4L x 4'-2 MG(E)	11		144	1,584	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	11		49	539	L&B TYPE BNLO1, TYPE L2
160		X	Private Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	L&B TYPE BNLO1, TYPE L2
161		X	Private Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	L&B TYPE BNLO1, TYPE L2
162		X	Private Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	L&B TYPE BNLO1, TYPE L2
163		X	Private Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	L&B TYPE BNLO1, TYPE L2
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ROCKY MOUNTAIN POWER

Let's turn the answers on.

V 070113.5.3

Wyoming FinAnswer Express Program

07/01/13 Effective Date

You Can Now Use The Project Information Tab

Project ID	
Lighting Coordinator	Dan Kuhl
Tool Prepared by	Dan Kuhl
Project Manager	
Account Manager	

Customer Information

Project Name	Dave Johnston Power Plant - Turbine Phase		
Business Name	PacifiCorp Energy		
Installation Address	1591 Tank Farm Rd		
City, State, Zip	Glenrock	WY	82637
Contact, Title	Brian Gangl		
Phone, Email	(307) 995-5193	brian.gangl@pacificorp.com	
Account, Meter, Rate			48T
Participant is:	☐ Acct Holder ☐ Elect. User ☐ Building Owner		
Business Type	Other		

Contractor Information

Contact		☐ EEA Participant	
Business Name			
Address			
City, State, Zip			
Phone, Email			

Payee Information

Incentive Should Be Addressed To:			
Business Name			
Attention			
Check Reference			
Address			
City, State, Zip			

Eligibility Information

Business Name			
Address			
City, State, Zip			
Account #			Office Use Only
Meter Base #, Rate			

Processing Information

Construction Type	Retrofit	Stage	Preliminary

Project Cost

Material	Labor	Other	Total Project Cost
$50,030.00	$6,710.00	$360.00	$57,100.00

Space Type & Size

	Calculation Method	Whole Building	Allowed Wattage		720,000	
1	Other		FT^2	1,200,000	0.60	W/FT^2
			FT^2			W/FT^2
			FT^2			W/FT^2
			FT^2			W/FT^2
			FT^2			W/FT^2
	Other		FT^2	1,200,000	0.60	W/FT^2

Lighting Operation Schedule

# of Holidays Closed?	Day	A	B	C	D	E
0	Mon	24.0				
Op Weeks Per Year	Tue	24.0				
52	Wed	24.0				
Add/Edit	Thu	24.0				
S is for 0 hrs/year	Fri	24.0				
X is for 8760 hrs/year	Sat	24.0				
Y is for 4380 hrs/year	Sun	24.0				
	Total	8,760				

Additional Information

Import Existing Project | EEA Participant Info | Email Coordinator | Lighting Catalog | LED Policy | Report A Problem

Category	LED
Fixture	
Lamp	
Lamp (W)	160
Lamp Qty	
Ballast	
Factor	

160W - LEDHB-160W

Add Fixture | Remove Fixture | Clear Filter | Build Fixture | Reset

511 W - CUST: LEDHB-511W

Savings Information

373,956 kWh Saved Per Year

ROCKY MOUNTAIN POWER
Let's turn the answers on.

↓↓Project Tracking↓↓
Preliminary
Pre-Inspection
Agreement Needed
Contracted
Post-Inspection
Final Review Needed
↓↓Project Notes↓↓

511W - CUST: LEDHB-511W

Custom Fixture

Standard Incentive (15.4% of Cost Paid By Incentive)

Lighting Power Density

0.60	Code	94.8%
0.07	Existing	Better Than Code
0.03	Proposed	LPD

Preliminary

Dave Johnston Power Plant - Turbine Phase

4 Out Of 75 Lines Used

Line Number	Exterior	Schedule	Space Description	Existing Fixture	Qty	Controls	Interior 80,145 / Exterior 0 Fixture Wattage	Space Wattage	Proposed Fixture	Qty	Controls	Interior 37,456 / Exterior 0 Fixture Wattage	Space Wattage	↓↓Project Notes↓↓
					93	0				86	0			
1			Unit 4											
2		X	Turbine Deck	MH-1000W-CWA	66		1,080	71,280	CUST: LEDHB-511W	66		511	33,726	Type HB6
3		X	Turbine Deck	HPS-400W	10		465	4,650	LEDHB-160W	10		160	1,600	Type HB1 - 160W
4														
5		X	Turbine Shed	MH-175W-CWA	10		215	2,150	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	5		213	1,065	FHE Series- Type EHB3
6		X	Turbine Shed	MH-250W-CWA	7		295	2,065	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	5		213	1,065	FHE Series- Type EHB3
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ROCKY MOUNTAIN POWER

Let's turn the answers on.

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Wyoming FinAnswer Express Program

07/01/13 Effective Date

You Can Now Use The Project Information Tab

Project ID	
Lighting Coordinator	Dan Kuhl
Tool Prepared by	Dan
Project Manager	
Account Manager	

Customer Information

Project Name	Dave Johnston Power Plant - Industrial Phase		
Business Name	PacifiCorp Energy		
Installation Address	1591 Tank Farm Rd		
City, State, Zip	Glenrock	WY	82637
Contact, Title	Brian Gangl		
Phone, Email	(307) 995-5193	brian.gangl@pacificorp.com	
Account, Meter, Rate			48T
Participant is:	☐ Acct Holder ☐ Elect. User ☐ Building Owner		
Business Type	Other		

Contractor Information

Contact		☐ EEA Participant	
Business Name			
Address			
City, State, Zip			
Phone, Email			

Payee Information

Incentive Should Be Addressed To:			
Business Name			
Attention			
Check Reference			
Address			
City, State, Zip			

Eligibility Information

Business Name			
Address			
City, State, Zip			
Account #			Office Use Only
Meter Base #, Rate			

Processing Information

Construction Type	Retrofit	Stage	Preliminary

Project Cost

Material	Labor	Other	Total Project Cost
$1,959,440.00	$262,940.00	$14,020.00	$2,236,400.00

Space Type & Size

	Calculation Method	Whole Building	Allowed Wattage		720,000	
1	Other		FT^2	1,200,000	0.60	W/FT^2
			FT^2			W/FT^2
			FT^2			W/FT^2
			FT^2			W/FT^2
			FT^2			W/FT^2
	Other		FT^2	1,200,000	0.60	W/FT^2

Lighting Operation Schedule

# of Holidays Closed?	Day	A	B	C	D	E
0	Mon	12.0				
Op Weeks Per Year	Tue	12.0				
52	Wed	12.0				
Add/Edit	Thu	12.0				
S is for 0 hrs/year	Fri	12.0				
X is for 8760 hrs/year	Sat	12.0				
Y is for 4380 hrs/year	Sun	12.0				
	Total	4,380				

Additional Information

Import Existing Project | EEA Participant Info | Email Coordinator | Lighting Catalog | LED Policy | Report A Problem

Category	LED	101W - LFDPM-101W 102W - LFDPM-102W 106W - LFDPM-106W 108W - LFDPM-108W 112W - LFDPM-112W 124W - LFDPM-124W 131W - LFDPM-131W 138W - LFDPM-138W 139W - LFDPM-139W 143W - LFDPM-143W 146W - LFDPM-146W	Add Fixture Remove Fixture Clear Filter Build Fixture Reset	78 W - CUST: LFDHB-78W 40 W - CUST: LFDPM-40W 30 W - CUST: LFDSI-30W 14 W - CUST: LFDSI-14W 511 W - CUST: LFDHB-511W 109 W - CUST: LFDWP-109W 47 W - CUST: LFDWP-47W		ROCKY MOUNTAIN POWER Let's turn the answers on.
Fixture					Savings Information	↓↓Project Tracking↓↓
Lamp					3,662,878 kWh Saved Per Year	Preliminary
Lamp (W)		213W - FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H			Lighting Power Density	Pre-Inspection
Lamp Qty		Fluorescent Linear T8 CEE Highbay (32W x 6L x 4') 1 CEE Instant Start Ballast (BF > 1.0)			0.60 Code; 0.55 Existing; 0.20 Proposed; 66.7% Better Than Code LPD	Agreement Needed
Ballast		Standard Incentive (13.4% of Cost Paid By Incentive)				Contracted
Factor						Post-Inspection
						Final Review Needed
						↓↓Project Notes↓↓

Preliminary — **Dave Johnston Power Plant - Industrial Phase**

74 Out Of 200 Lines Used

Line Number	Exterior	Schedule	Space Description	Existing Fixture	Qty (2966)	Controls (0)	Interior Fixture Wattage	Interior Space Wattage (657,404)	Proposed Fixture	Qty (2943)	Controls (50)	Interior Fixture Wattage	Interior Space Wattage (240,597)	Project Notes
1			Unit 4											
2		X	Elevator Room	ICMB-150W	1		150	150	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	Vapor Tight -
3		X	Drum Room	MH-175W-CWA	2		215	430	CUST: LEDHB-78W	2		78	156	Crouse Hines - Type RLB1
4		X	Penthouse	ICMB-100W	2		72	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2	Integral	49	98	Surface Vapor Tight
5		X	RCM	ICMB-200W	3		200	600	CUST: LEDPM-40W	3		40	120	Pipe Mount LED Industrial Refracture Pack- Type RLB1
6		X	West Drum Room	ICMB-150W	1		150	150	CUST: LEDSI-30W	1		30	30	Jelly Jar - Type VTK
7		X	West Drum Room Level 8	MH-175W-CWA	1		215	215	FLT8CEE-32W x 2L x 4'-CEE IS CEE H	1		73	73	Vapor Tight
8		X	Level 8 Under Boiler	ICMB-100W	5		72	360	CUST: LEDSI-14W	3		14	42	LED lamp
9		X	Level 8 Jelly Jar	ICMB-100W	9		72	648	CUST: LEDSI-14W	9		14	126	LED lamp
10		X	Level 8	MH-175W-CWA	198		215	42,570	CUST: LEDHB-78W	198		78	15,444	split line in 2 so savings- Type RLB1
11		X	Level 8	MH-175W-CWA	200		215	43,000	CUST: LEDHB-78W	200		78	15,600	would calculate
12		X	55 Conveyors, Coal MCC	MH-175W-CWA	50		215	10,750	CUST: LEDHB-78W	50		78	3,900	Type RLB1
13		X	55 "B" Conveyor	MH-175W-CWA	23		215	4,945	CUST: LEDHB-78W	23	Integral	78	1,794	Fixture Mount OC -Type RLB1
14		X	55 "B" Conveyor	MH-175W-CWA	23		215	4,945	CUST: LEDHB-78W	23		78	1,794	Every Other Fixture - Type RLB1
15		X	DA - 6	MH-175W-CWA	4		215	860	CUST: LEDHB-78W	4		78	312	Type RLB1
16			Level 5											
17		X	Old Scrubber	MH-175W-CWA	13		215	2,795	CUST: LEDHB-78W	13		78	1,014	Type RLB1
18		X	Old Scrubber Master Level	ICMB-100W	12		72	864	CUST: LEDSI-14W	12		14	168	LED lamp
19		X	Old Scrubber Master Level	HPS-250W	3		295	885	CUST: LEDHB-78W	3		78	234	Type RLB1
20		X	3 1/2 Outled, ODD Feeder Deck, Abandoned Stairs, FD & ID Fans	MH-175W-CWA	47		215	10,105	CUST: LEDHB-78W	47		78	3,666	Type RLB1
21		X	FD & ID Fans	HPS-250W	4		295	1,180	CUST: LEDHB-78W	4		78	312	Type RLB1
22		X	Unit #3 Bldg	MH-1000W-CWA	6		1,080	6,480	CUST: LEDHB-511W	6		511	3,066	Type HB6
23		X	Unit #3 Bldg	MH-400W-CWA	10		458	4,580	LEDHB-160W	10		160	1,600	Type HB1 -160W
24		X	Unit #3 Bldg	MH-175W-CWA	325		215	69,875	CUST: LEDHB-78W	325		78	25,350	Type RLB1

25			Unit #2											
26		X	Unit #2	MH-175W-CWA	134		215	28,810	CUST: LEDHB-78W	134		78	10,452	Type RLB1
27		X	Unit #2 & RLM	HPS-150W	63		188	11,844	CUST: LEDHB-78W	63		78	4,914	Type RLB1
28		X	Sports Light Flood	MH-1000W-CWA	8		1,080	8,640	CUST: LEDHB-511W	8		511	4,088	Type HB6
29		X	Jelly Jars	ICMB-100W	12		72	864	CUST: LEDSI-14W	12		14	168	LED lamp
30			Unit #1											
31		X	Unit #1	MH-175W-CWA	59		215	12,685	CUST: LEDHB-78W	59		78	4,602	Type RLB1
32		X	Unit #1	HPS-150W	18		188	3,384	CUST: LEDHB-78W	18		78	1,404	Type RLB1
33		X	RLM	ICMB-200W	107		200	21,400	CUST: LEDHB-78W	107		78	8,346	Type RLB1
34		X	Jelly Jars	ICMB-150W	12		150	1,800	CUST: LEDSI-30W	12		30	360	LED lamp
35		X	Sports Lights	MH-400W-CWA	6		458	2,748	LEDHB-160W	6		160	960	Type HB1-160W
36		X	Basement	HPS-150W	300		188	56,400	CUST: LEDHB-78W	300		78	23,400	Type RLB1
37		X	Unit #1	MH-175W-CWA	200		215	43,000	CUST: LEDHB-78W	200		78	15,600	Type RLB1
38		X	Unit #1	MH-175W-CWA	245		215	52,675	CUST: LEDHB-78W	245		78	19,110	Type RLB1
39		X	Unit #1	HPS-250W	26		295	7,670	CUST: LEDWP-109W	26		109	2,834	Type WP1
40		X	Unit #1	MH-400W-CWA	10		458	4,580	LEDHB-160W	10		160	1,600	Type HB1-160W
41		X	Shop Basement	MH-1000W-CWA	8		1,080	8,640	CUST: LEDWP-47W	8		47	376	Type WP1
42			Mezzanine											
43		X	Switch Gear	MH-175W-CWA	5		215	1,075	CUST: LEDHB-78W	5		78	390	Type RLB1
44		X	Generator Pit	HPS-150W	5		188	940	CUST: LEDHB-78W	5		78	390	Type RLB1
45			Unit #4 Mezzanine											
46		X	Mezzanine	HPS-250W	9		295	2,655	CUST: LEDWP-109W	9		109	981	Type WP2
47		X	Mezzanine	MH-175W-CWA	76		215	16,340	CUST: LEDHB-78W	76		78	5,928	Type RLB1
48		X	Mezzanine	HPS-150W	70		188	13,160	CUST: LEDHB-78W	70		78	5,460	Type RLB1
49		X	Floc Bldg	MH-175W-CWA	10		215	2,150	CUST: LEDHB-78W	10		78	780	Type RLB1
50		X	Insulator Shop	MH-175W-CWA	4		215	860	CUST: LEDWP-47W	4		47	188	Type WP1
51		X	Training Bldg	CUST: ICMB-120W	1		0	0	FCM-15W x 2L-MG	1		30	30	CFL or LED lamp
52		X	Mine Garage	HPS-150W	2		188	376	FLT8CEEHB-32W x 4L x 4'-CEE IS CEE H	1		142	142	Remove both incandescent fixtures.
53		X	Storage	MH-175W-CWA	5		215	1,075	FLT8CEEHB-32W x 4L x 4'-CEE IS CEE H	4	Integral	142	568	New -2 Lamp Strip fixture, TYPE S1 & TYPE L1
54		X	Storage	MH-250W-CWA	2		295	590	FLT8CEEHB-32W x 4L x 4'-CEE IS CEE H	4	Integral	142	568	New -2 Lamp Strip fixture, TYPE S1 & TYPE L1
55		X	Repair Shop	MH-175W-CWA	2		215	430	CUST: LEDWP-47W	2		47	94	Type WP1
56		X	Repair Shop	MH-1000W-CWA	6		1,080	6,480	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	5		213	1,065	FHE Series -Type EHB3
57		X	Repair Shop	HPS-400W	6		465	2,790	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	5		213	1,065	FHE Series- Type EHB3
58		X	Repair Shop	MH-1000W-CWA	1		1,080	1,080	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	1		213	213	FHE Series- Type EHB3
59		X	Repair Shop	ICMG-500W	4		500	2,000	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	5		213	1,065	FHE Series- Type EHB3
60		X	Repair Shop	MH-400W-CWA	2		458	916	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	1		213	213	FHE Series-Type EHB3
61		X	Truck Repair Bays	MH-175W-CWA	3		215	645	MH-175W-CWA	0		215	0	Remove Three 175w MH
62			Unit #1 & #2 Cooling Tower											
63		X	Under Grate - MCC	MH-250W-CWA	3		295	885	CUST: LEDWP-109W	3		109	327	Type WP2
64		X	MCC Bldg	MH-175W-CWA	6		215	1,290	CUST: LEDWP-47W	6		47	282	Type WP1
65			Precipitator Bldg											
66		X	Unit #1 & #2	MH-175W-CWA	98		215	21,070	CUST: LEDHB-78W	98		78	7,644	Type RLB1
67		X	Hopper Level	MH-175W-CWA	60		215	12,900	CUST: LEDHB-78W	60		78	4,680	Type RLB1
68		X	Ground Floor	MH-175W-CWA	18		215	3,870	CUST: LEDHB-78W	18		78	1,404	Type RLB1

69		X	Diesel Generating Room	ICMB-200W	2		200	400	ICMB-200W	0		200	0	Remove two 200w Incandescents
70		X	Diesel Fire Pump	MH-175W-CWA	3		215	645	CUST: LEDHB-78W	3		78	234	Type RLB1
71		X	Chlorine Building	ICMB-200W	4		200	800	CUST: LEDSI-30W	4		30	120	Type VTK
72		X	Chlorine Building - Side Two RLM	ICMB-200W	2		200	400	CUST: LEDSI-30W	2		30	60	Type VTK
73		X	Fire Pump House	MH-175W-CWA	6		215	1,290	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	6		213	1,278	Consider Not Changing
74			Admin Bldg - 1st Floor											
75		X	Electrical Room	ICMB-100W	2		72	144	FCM-25W-MG	2		25	50	CFL or LED lamp
76			Maintenance Bldg											
77		X	Open	MH-400W-CWA	18		458	8,244	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	14		213	2,982	FHE Series- Type EHB3
78		X	EM Trucks	HPS-100W	3		130	390	LEDWP-40W	3		40	120	Type WP1
79			Main Warehouse Offices											
80		X	Down / Parts Drawer	MH-400W-CWA	9		458	4,122	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	5		213	1,065	Typ HB2
81		X	Warehouse Storage - Back	MH-400W-CWA	17		458	7,786	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	11	Integral	213	2,343	Two Outer aisles-Type HB2
82		X	Warehouse Storage - Back	MH-400W-CWA	6		458	2,748	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	6	Integral	213	1,278	Center aisle-Type HB2
83			Conveyor Building											
84		X	Conveyor to Appleton, etc.	HPS-150W	129		188	24,252	CUST: LEDHB-78W	129		78	10,062	Type RLB1
85		X	31, 33, 34 & 35 Sump	MH-175W-CWA	177		215	38,055	CUST: LEDHB-78W	177		78	13,806	Type RLB1
86		X	RLM 31, 33, 34 & 35 Sump	ICMB-100W	40		72	2,880	CUST: LEDSI-14W	40		14	560	LED Lamp
87														
88														
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90														
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ROCKY MOUNTAIN POWER

Let's turn the answers on.

V 070113.5.3

Wyoming FinAnswer Express Program

07/01/13 Effective Date

You Can Now Use The Project Information Tab

Project ID	
Lighting Coordinator	Dan Kuhl
Tool Prepared by	Dan Kuhl
Project Manager	
Account Manager	

Customer Information

Project Name	Dave Johnston Power Plant - Exterior Phase		
Business Name	PacifiCorp Energy		
Installation Address	1591 Tank Farm Rd		
City, State, Zip	Glenrock	WY	82637
Contact, Title	Brian Gangl		
Phone, Email	(307) 995-5193	brian.gangl@pacificorp.com	
Account, Meter, Rate			48T
Participant is:	☑ Acct Holder ☑ Elect. User ☑ Building Owner		
Business Type	Other		

Contractor Information

Contact		☐ EEA Participant	
Business Name			
Address			
City, State, Zip			
Phone, Email			

Payee Information

Incentive Should Be Addressed To:			
Business Name			
Attention			
Check Reference			
Address			
City, State, Zip			

Eligibility Information

Business Name			
Address			
City, State, Zip			
Account #			Office Use Only
Meter Base #, Rate			

Processing Information

Construction Type	Retrofit	Stage	Preliminary

Project Cost

Material	Labor	Other	Total Project Cost
$257,800.00	$34,600.00	$1,800.00	$294,200.00

Space Type & Size

	Calculation Method	Whole Building	Allowed Wattage		720,000	
1	Other		FT^2	1,200,000	0.60	W/FT^2
			FT^2			W/FT^2
			FT^2			W/FT^2
			FT^2			W/FT^2
			FT^2			W/FT^2
	Other		FT^2	1,200,000	0.60	W/FT^2

Lighting Operation Schedule

# of Holidays Closed?	Day	A	B	C	D	E
0	Mon	3.0				
Op Weeks Per Year	Tue	3.0				
52	Wed	3.0				
Add/Edit	Thu	3.0				
S is for 0 hrs/year	Fri	3.0				
X is for 8760 hrs/year	Sat	3.0				
Y is for 4380 hrs/year	Sun	3.0				
	Total	1,095				

Additional Information

Import Existing Project | EEA Participant Info | Email Coordinator | Lighting Catalog | LED Policy | Report A Problem

Category	Fluorescent
Fixture	
Lamp	T5HO High Bay
Lamp (W)	
Lamp Qty	6
Ballast	
Factor	

330W - FLT5HOHB-49W x 6L x 4'-2
348W - FLT5HOHB-51W x 6L x 4'-2
351W - FLT5HOHB-54W x 6L x 4'-3

Add Fixture | Remove Fixture | Clear Filter | Build Fixture | Reset

465W - HPS-400W
400 W - CUST: LEDHB-400W
160 W - CUST: LEDHB-160W
458W - MH-400W-CWA
188W - HPS-150W
207W - FLT12HO-95W x 2L x 8'-MG
115W - FLT12-34W x 3L x 4'-MG(E)
28 W - CUST: LEDHB-28W
43W - FLT12-34W x 4'-MG(E)
120 W - CUST: ICMB-120W
30W - ECM-15W x 2L-MG

Savings Information

339,227 kWh Saved Per Year

ROCKY MOUNTAIN POWER
Let's turn the answers on.

351W - FLT5HOHB-54W x 6L x 4'-3 RS/PRS H

Fluorescent Linear T5HO High Bay (54W x 6L x 4') 3 Rapid/Program Start Ballast (0.95 < BF < 1.10)

Standard Incentive (11.5% of Cost Paid By Incentive)

Lighting Power Density

0.60	Code	99.5% Better Than Code LPD
0.02	Existing	
0.00	Proposed	

↓↓Project Tracking↓↓

- Preliminary
- Pre-Inspection
- Agreement Needed
- Contracted
- Post-Inspection
- Final Review Needed

↓↓Project Notes↓↓

Preliminary

Dave Johnston Power Plant - Exterior Phase

14 Out Of 266 Lines Used

				Existing					Proposed				
					Interior	345	0	17,448		Interior	345	0	3,486
					Exterior			130,290		Exterior			51,270
Line Number	Exterior	Schedule	Space Description	Fixture	Qty	Controls	Fixture Wattage	Space Wattage	Fixture	Qty	Controls	Fixture Wattage	Space Wattage	↓↓Project Notes↓↓
1			Unit #1											
2	+	A	Star Sign	ICMB-150W	112		150	16,800	CUST: LEDSI-30W	112		30	3,360	LED lamp
3	+	X	Coal Belt between #1 & #2	MH-175W-CWA	37		215	7,955	CUST: LEDHB-78W	37		78	2,886	Type RLB1
4			Parking Lot-Exterior											
5	+	Y	Pole Lights-Exterior	HPS-400W	11		465	5,115	CUST: LEDPM-120W	11		120	1,320	Type RW1
6			Unit #4 Mezzanine											
7	+	X	Outside of Bldg-Exterior	HPS-400W	10		465	4,650	CUST: LED Flood 121W	10		121	1,210	Flood- Type FL4
8			Precipitator Bldg											
9	+	Y	Penthouse - Outdoor	MH-175W-CWA	8		215	1,720	CUST: LEDHB-78W	8		78	624	Type RLB1
10	+	Y	River Intake - Outdoors	HPS-150W	19		188	3,572	CUST: LEDHB-78W	19		78	1,482	Type RLB1
11	+	Y	Outside Flag Lights	MH-250W-CWA	2		295	590	CUST: LED Flood 121W	2		121	242	Type FL4
12	+	Y	Exterior Under Canopy Lights	ICMB-100W	9		72	648	CUST: LEDSI-14W	9		14	126	LED Lamp
13														
14	+	Y	Emergency Generator Bldg - Exterior	MH-175W-CWA	3		215	645	CUST: LEDHB-78W	3		78	234	Type RLB1
15			40 Annex Building											
16	+	Y	100' Pole Lights-Exterior	MH-1000W-CWA	32		1,080	34,560	CUST: LED HB 511W	32		511	16,352	Recommend new LED High Mast Light fixture. Holophane or GE
17	+	Y	70' Pole Lights-Exterior	MH-1000W-CWA	24		1,080	25,920	CUST: LED HB 511W	24		511	12,264	Recommend new LED High Mast Light fixture. Holophane or GE
18			Conveyor Building											
19	+	Y	Floods-Exterior	HPS-400W	34		465	15,810	CUST: LED Flood - 179W	34		179	6,086	Type FL5
20	+	Y	Floods-Exterior	HPS-250W	29		295	8,555	CUST: LED Flood 121W	29		121	3,509	Type FL4
21	+	Y	Roadway-Exterior	HPS-200W	15		250	3,750	CUST: LEDPM-105W	15		105	1,575	Type AL1- Area Light/Pole mount - Type III Dist.
22														
23														
24														
25														

Appendix C

Fixture Specification Sheets

D-Series Size 2
LED Wall Luminaire

Catalog Number	DSX1 LED 30C 1000 40K 3TM MVOLT SPA DDBXD
Notes	
Type	AL1

Hit the Tab key or mouse over the page to see all interactive elements.

d-series

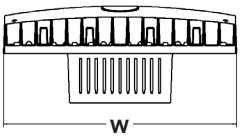
Specifications

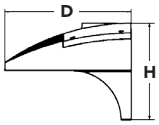
Luminaire

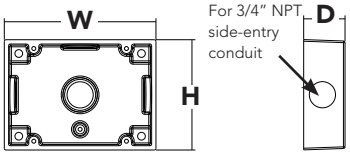
Width:	18-1/2" (47.0 cm)	**Weight:**	21 lbs (9.5 kg)
Depth:	10" (25.4 cm)		
Height:	7-5/8" (19.4 cm)		

Back Box (BBW)

Width:	5-1/2" (14.0 cm)	**BBW Weight:**	1 lbs (0.5 kg)
Depth:	1-1/2" (3.8 cm)		
Height:	4" (10.2 cm)		







Introduction

The D-Series Wall luminaire is a stylish, fully integrated LED solution for building-mount applications. It features a sleek, modern design and is carefully engineered to provide long-lasting, energy-efficient lighting with a variety of optical and control options for customized performance.

With an expected service life of over 20 years of nighttime use and up to 76% in energy savings over comparable 400W metal halide luminaires, the D-Series Wall is a reliable, low-maintenance lighting solution that produces sites that are exceptionally illuminated.

Ordering Information

EXAMPLE: DSXW2 LED 30C 700 40K T3M MVOLT DDBTXD

DSXW2 LED							
Series	**Performance Package**	**Distribution**	**Voltage**	**Mounting**	**Control Options**	**Other Options**	**Finish** *(required)*
DSXW2 LED	**LEDs** 20C 20 LEDs (two engines) 30C 30 LEDs (three engines) **Drive current** 350 350 mA 530 530 mA 700 700 mA 1000 1000 mA (1 A) **Color temperature** 30K 3000K 40K 4000K 50K 5000K	T2S Type II Short T2M Type II Medium T3S Type III Short T3M Type III Medium T4M Type IV Medium TFTM Forward Throw Medium	MVOLT [1] 120 [1] 208 [1] 240 [1] 277 [1] 347 [2] 480 [2]	**Shipped included** (blank) Surface mounting bracket **Shipped separately** [3] BBW Surface-mounted back box (for conduit entry)	**Shipped installed** PE Photoelectric cell, button type [4] PER NEMA twist-lock receptacle only (no controls) DMG 0-10V dimming driver (no controls) DCR Dimmable and controllable via ROAM® (no controls) [5] PIRH 180° motion/ambient light sensor, 15-30' mtg ht [6]	**Shipped installed** SF Single fuse (120, 277, 347V) [7] DF Double fuse (208, 240, 480V) [7] HS House-side shield [3] **Shipped separately** BSW Bird-deterrent spikes [3] WG Wire guard [3] VG Vandal guard [3]	DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DSSXD Sandstone DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white DSSTXD Textured sandstone

NOTES

1. MVOLT driver operates on any line voltage from 120-277V (50/60 Hz). Specify 120, 208, 240 or 277 options only when ordering with fusing (SF, DF options), or photocontrol (PE option).
2. Available with 30 LED/700mA options only (DSXW2 LED 30C 700).
3. Also available as a separate accessory; see Accessories information.
4. Photocontrol (PE) requires 120, 208, 240 or 277 voltage option. Not available with motion/ambient light sensors (PIR or PIRH).
5. Specifies a ROAM® enabled luminaire with 0-10V dimming capability; PER option required. Not available with 347 or 480V. Additional hardware and services required for ROAM® deployment; must be purchased separately. Call 1-800-442-6745 or email: sales@roamservices.net.
6. Specifies the Sensor Switch SBR-6-ODP control; see Motion Sensor Guide for details. Includes ambient light sensor. Not available with "PE" option (button type photocell). Dimming driver standard.
7. Single fuse (SF) requires 120, 277 or 347 voltage option. Double fuse (DF) requires 208, 240 or 480 voltage option.
8. Requires luminaire to be specified with PER option. Ordered and shipped as a separate line item.

Accessories

Ordered and shipped separately.

DLL127F 1.5 JU	Photocell - SSL twist-lock (120-277V) [8]
DLL347F 1.5 CUL JU	Photocell - SSL twist-lock (347V) [8]
DLL480F 1.5 CUL JU	Photocell - SSL twist-lock (480V) [8]
SC U	Shorting cap [8]
DSXWHS U	House-side shield (one per light engine)
DSXWBSW U	Bird-deterrent spikes
DSXW2WG U	Wire guard accessory
DSXW2VG U	Vandal guard accessory
DSXW2BBW DDBXD U	Back box accessory (specify finish)

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. Actual wattage may differ by +/- 8% when operating between 120-480V +/- 10%. Contact factory for performance data on any configurations not shown here.

LEDs	Drive Current (mA)	Performance Package	System Watts	Dist. Type	40K (4000K, 70 CRI)					50K (5000K, 65 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
20C (20 LEDs)	530	20C 530 --K	36 W	T2S	3533	1	0	1	98	3860	1	0	1	107
				T2M	3437	1	0	1	95	3755	1	0	1	104
				T3S	3489	1	0	1	97	3811	1	0	1	106
				T3M	3545	1	0	2	98	3873	1	0	2	108
				T4M	3498	1	0	1	97	3822	1	0	1	106
				TFTM	3495	1	0	1	97	3819	1	0	1	106
	700	20C 700 --K	47 W	T2S	4371	1	0	1	93	4776	1	0	1	102
				T2M	4252	1	0	1	90	4647	1	0	2	99
				T3S	4316	1	0	1	92	4716	1	0	1	100
				T3M	4386	1	0	2	93	4793	1	0	2	102
				T4M	4328	1	0	1	92	4729	1	0	2	101
				TFTM	4324	1	0	1	92	4725	1	0	2	101
	1000	20C 1000 --K	73 W	T2S	5914	1	0	1	81	6462	1	0	1	89
				T2M	5754	1	0	2	79	6287	2	0	2	86
				T3S	5839	1	0	1	80	6380	1	0	2	87
				T3M	5935	1	0	2	81	6484	1	0	2	89
				T4M	5855	1	0	2	80	6398	1	0	2	88
				TFTM	5851	1	0	2	80	6393	1	0	2	88
30C (30 LEDs)	530	30C 530 --K	54 W	T2S	5280	1	0	1	98	5769	1	0	1	107
				T2M	5137	1	0	2	95	5613	1	0	2	104
				T3S	5214	1	0	1	97	5696	1	0	1	105
				T3M	5298	1	0	2	98	5789	1	0	2	107
				T4M	5228	1	0	2	97	5712	1	0	2	106
				TFTM	5223	1	0	2	97	5707	1	0	2	106
	700	30C 700 --K	71 W	T2S	6513	1	0	1	92	7118	2	0	2	100
				T2M	6337	2	0	2	89	6925	2	0	2	98
				T3S	6431	1	0	2	91	7028	1	0	2	99
				T3M	6536	1	0	2	92	7143	2	0	3	101
				T4M	6449	1	0	2	91	7047	1	0	2	99
				TFTM	6444	1	0	2	91	7042	1	0	2	99
	1000	30C 1000 --K	109 W	T2S	8697	2	0	2	80	9501	2	0	2	87
				T2M	8462	2	0	2	78	9244	2	0	2	85
				T3S	8588	1	0	2	79	9381	2	0	2	86
				T3M	8728	2	0	3	80	9534	2	0	3	87
				T4M	8611	1	0	2	79	9407	2	0	2	86
				TFTM	8604	2	0	2	79	9399	2	0	2	86

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	32°F	1.02
10°C	50°F	1.01
20°C	68°F	1.00
25°C	**77°F**	**1.00**
30°C	86°F	1.00
40°C	104°F	0.98

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the **DSXW2 LED 30C 1000** 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	0.95	0.92	0.87

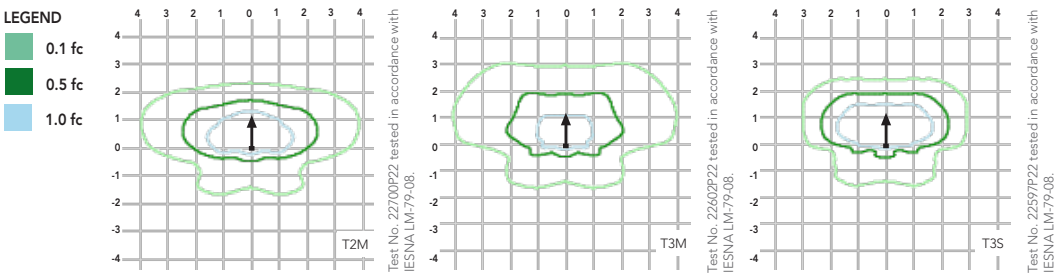
Electrical Load

LEDs	Drive Current (mA)	System Watts	Current (A)					
			120	208	240	277	347	480
20C	350	25 W	0.23	0.13	0.12	0.10	-	-
	530	36 W	0.33	0.19	0.17	0.14	-	-
	700	47 W	0.44	0.25	0.22	0.19	-	-
	1000	73 W	0.68	0.39	0.34	0.29	-	-
30C	350	36 W	0.33	0.19	0.17	0.14	-	-
	530	54 W	0.50	0.29	0.25	0.22	-	-
	700	71 W	0.66	0.38	0.33	0.28	0.23	0.16
	1000	109 W	1.01	0.58	0.50	0.44	-	-

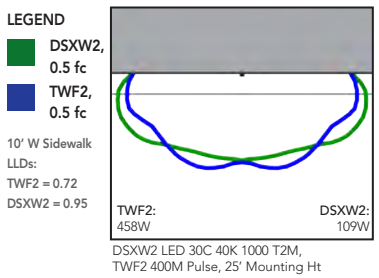
Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's D-Series Wall Size 2 homepage.

Isofootcandle plots for the DSXW2 LED 30C 1000 40K. Distances are in units of mounting height (25').



Distribution overlay comparison to 400W metal halide.



DSXW2 LED 30C 40K 1000 T2M, TWF2 400M Pulse, 25' Mounting Ht

FEATURES & SPECIFICATIONS

INTENDED USE
The energy savings, long life and easy-to-install design of the D-Series Wall Size 2 make it the smart choice for building-mounted doorway and pathway illumination for nearly any facility.

CONSTRUCTION
Two-piece die-cast aluminum housing has integral heat sink fins to optimize thermal management through conductive and convective cooling. Modular design allows for ease of maintenance. The LED driver is mounted to the door to thermally isolate it from the light engines for low operating temperature and long life. Housing is completely sealed against moisture and environmental contaminants.

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. Available in textured and non-textured finishes.

OPTICS
Precision-molded proprietary acrylic lenses provide multiple photometric distributions tailored specifically to building mounted applications. Light engines are available in 3000K (80 min. CRI), 4000K (70 min. CRI) or 5000K (65 min. CRI) configurations.

ELECTRICAL
Light engine(s) consist of 10 high-efficacy LEDs mounted to a metal-core circuit board to maximize heat dissipation and promote long life (L87/100,000 hrs at 25°C). Class 1 electronic drivers have a power factor >90%, THD <20%, and an expected life of 100,000 hours. Surge protection device meets a minimum Category C Low (per ANSI/IEEE C62.41.2).

INSTALLATION
Included universal mounting bracket attaches securely to any 4" round or square outlet box for quick and easy installation. Luminaire has a slotted gasket wireway and attaches to the mounting bracket via corrosion-resistant screws.

LISTINGS
CSA certified to U.S. and Canadian standards. Rated for -40°C minimum ambient.

WARRANTY
Five year limited warranty. Full warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx.

Note: Specifications subject to change without notice.

D-Series Size 1
LED Wall Luminaire

Catalog Number	DSX1 LED 30C 1000 40K 3TM MVOLT SPA DDBXD
Notes	
Type	AL1

Hit the Tab key or mouse over the page to see all interactive elements.

d-series

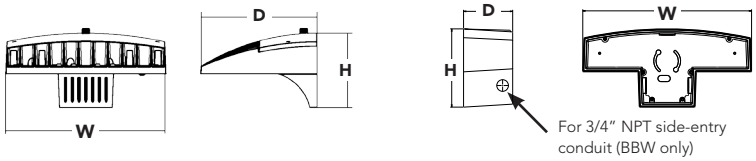
Specifications

Luminaire

Width:	13-3/4" (34.9 cm)	**Weight:**	12 lbs (5.4 kg)
Depth:	10" (25.4 cm)		
Height:	6-3/8" (16.2 cm)		

Back Box (BBW, ELCW)

Width:	13-3/4" (34.9 cm)	**BBW Weight:**	5 lbs (2.3 kg)
Depth:	4" (10.2 cm)	**ELCW Weight:**	10 lbs (4.5 kg)
Height:	6-3/8" (16.2 cm)		



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With an expected service life of over 20 years of nighttime use and up to 74% in energy savings over comparable 250W metal halide luminaires, the D-Series Wall is a reliable, low-maintenance lighting solution that produces sites that are exceptionally illuminated.

Ordering Information

EXAMPLE: DSXW1 LED 20C 1000 40K T3M MVOLT DDBTXD

DSXW1 LED							
Series	**Performance Package**	**Distribution**	**Voltage**	**Mounting**	**Control Options**	**Other Options**	**Finish** *(required)*
DSXW1 LED	**LEDs** 10C 10 LEDs (one engine) 20C 20 LEDs (two engines) **Drive current** 350 350 mA 530 530 mA 700 700 mA 1000 1000 mA (1 A) **Color temperature** 30K 3000K 40K 4000K 50K 5000K	T2S Type II Short T2M Type II Medium T3S Type III Short T3M Type III Medium T4M Type IV Medium TFTM Forward Throw Medium	MVOLT [1] 120 [1] 208 [1] 240 [1] 277 [1]	**Shipped included** (blank) Surface mounting bracket BBW Surface-mounted back box (for conduit entry) [2]	**Shipped installed** PE Photoelectric cell, button type [3] DMG 0-10V dimming driver (no controls) PIR 180° motion/ambient light sensor, <15' mtg ht [4,6] PIRH 180° motion/ambient light sensor, 15-30' mtg ht [5,6] ELCW Emergency battery backup (includes external component enclosure) [7]	**Shipped installed** SF Single fuse (120, 277V) [8] DF Double fuse (208, 240V) [8] HS House-side shield [9] **Shipped separately** BSW Bird-deterrent spikes [9] WG Wire guard [9] VG Vandal guard [9]	DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DSSXD Sandstone DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white DSSTXD Textured sandstone

NOTES

1 MVOLT driver operates on any line voltage from 120-277V (50/60 Hz). Specify 120, 208, 240 or 277 options only when ordering with fusing (SF, DF options), or photocontrol (PE option).
2 Back box ships installed on fixture. Cannot be field installed. Cannot be ordered as an accessory.
3 Photocontrol (PE) requires 120, 208, 240 or 277 voltage option. Not available with motion/ambient light sensors (PIR or PIRH).
4 Specifies the Sensor Switch SBR-10-ODP control; see Motion Sensor Guide for details. Includes ambient light sensor. Not available with "PE" option (button type photocell). Dimming driver standard.
5 Specifies the Sensor Switch SBR-6-ODP control; see Motion Sensor Guide for details. Includes ambient light sensor. Not available with "PE" option (button type photocell). Dimming driver standard.
6 Not available with 20 LED/1000 mA configuration (DSXW1 LED 20C 1000).
7 Not compatible with conduit entry applications. Not available with BBW mounting option.
8 Single fuse (SF) requires 120 or 277 voltage option. Double fuse (DF) requires 208 or 240 voltage option.
9 Also available as a separate accessory; see Accessories information.

Accessories

Ordered and shipped separately.

DSXWHS U	House-side shield (one per light engine)
DSXWBSW U	Bird-deterrent spikes
DSXW1WG U	Wire guard accessory
DSXW1VG U	Vandal guard accessory

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. Actual wattage may differ by +/- 8% when operating between 120-480V +/- 10%. Contact factory for performance data on any configurations not shown here.

LEDs	Drive Current (mA)	Performance Package	System Watts	Dist. Type	40K (4000K, 70 CRI)					50K (5000K, 65 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
10C (10 LEDs)	530	10C 530 --K	20 W	T2S	1724	1	0	1	86	1807	1	0	1	90
				T2M	1729	1	0	1	86	1812	1	0	1	91
				T3S	1709	1	0	1	85	1792	1	0	1	90
				T3M	1753	1	0	1	88	1838	1	0	1	92
				T4M	1753	1	0	1	88	1837	1	0	1	92
				TFTM	1766	1	0	1	88	1851	1	0	1	93
	700	10C 700 --K	27 W	T2S	2234	1	0	1	83	2341	1	0	1	87
				T2M	2241	1	0	1	83	2349	1	0	1	87
				T3S	2216	1	0	1	82	2322	1	0	1	86
				T3M	2272	1	0	1	84	2381	1	0	1	88
				T4M	2272	1	0	1	84	2381	1	0	1	88
				TFTM	2289	1	0	1	85	2399	1	0	1	89
	1000	10C 1000 --K	40 W	T2S	2992	1	0	1	75	3136	1	0	1	78
				T2M	3001	1	0	1	75	3146	1	0	1	79
				T3S	2967	1	0	1	74	3110	1	0	1	78
				T3M	3043	1	0	1	76	3189	1	0	1	80
				T4M	3043	1	0	1	76	3189	1	0	1	80
				TFTM	3066	1	0	1	77	3213	1	0	1	80
20C (20 LEDs)	530	20C 530 --K	36 W	T2S	3545	1	0	1	98	3715	1	0	1	103
				T2M	3556	1	0	1	99	3727	1	0	1	104
				T3S	3515	1	0	1	98	3685	1	0	1	102
				T3M	3606	1	0	2	100	3779	1	0	2	105
				T4M	3605	1	0	1	100	3779	1	0	1	105
				TFTM	3632	1	0	1	101	3807	1	0	1	106
	700	20C 700 --K	47 W	T2S	4357	1	0	1	93	4566	1	0	1	97
				T2M	4370	1	0	1	93	4580	1	0	1	97
				T3S	4320	1	0	1	92	4528	1	0	1	96
				T3M	4431	1	0	2	94	4644	1	0	2	99
				T4M	4430	1	0	1	94	4644	1	0	2	99
				TFTM	4464	1	0	1	95	4678	1	0	1	100
	1000	20C 1000 --K	75 W	T2S	5745	2	0	2	77	6020	2	0	2	80
				T2M	5763	1	0	2	77	6039	2	0	2	81
				T3S	5697	1	0	1	76	5970	1	0	2	80
				T3M	5843	1	0	2	78	6123	2	0	2	82
				T4M	5843	1	0	2	78	6123	1	0	2	82
				TFTM	5887	1	0	2	78	6169	1	0	2	82

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	32°F	1.02
10°C	50°F	1.01
20°C	68°F	1.00
25°C	**77°F**	**1.00**
30°C	86°F	1.00
40°C	104°F	0.98

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the **DSXW1 LED 20C 1000** 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	0.95	0.93	0.88

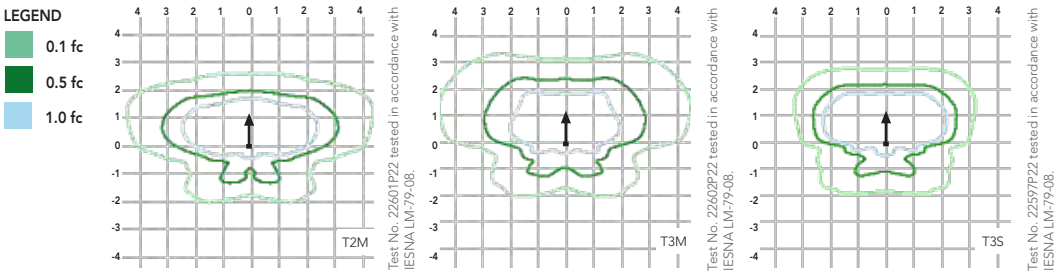
Electrical Load

LEDs	Drive Current (mA)	System Watts	Current (A)					
			120	208	240	277	347	480
10C	350	14 W	0.13	0.07	0.06	0.06	-	-
	530	20 W	0.19	0.11	0.09	0.08	-	-
	700	27 W	0.25	0.14	0.13	0.11	-	-
	1000	40 W	0.37	0.21	0.19	0.16	-	-
20C	350	25 W	0.23	0.13	0.12	0.10	-	-
	530	36 W	0.33	0.19	0.17	0.14	-	-
	700	47 W	0.44	0.25	0.22	0.19	-	-
	1000	75 W	0.69	0.40	0.35	0.30	-	-

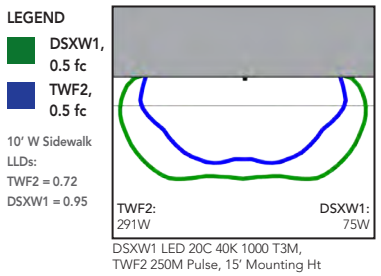
Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's D-Series Wall Size 1 homepage.

Isofootcandle plots for the DSXW1 LED 20C 1000 40K. Distances are in units of mounting height (15').



Distribution overlay comparison to 250W metal halide.



DSXW1 LED 20C 40K 1000 T3M, TWF2 250M Pulse, 15' Mounting Ht

FEATURES & SPECIFICATIONS

INTENDED USE
The energy savings, long life and easy-to-install design of the D-Series Wall Size 1 make it the smart choice for building-mounted doorway and pathway illumination for nearly any facility.

CONSTRUCTION
Two-piece die-cast aluminum housing has integral heat sink fins to optimize thermal management through conductive and convective cooling. Modular design allows for ease of maintenance. The LED driver is mounted to the door to thermally isolate it from the light engines for low operating temperature and long life. Housing is completely sealed against moisture and environmental contaminants.

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. Available in textured and non-textured finishes.

OPTICS
Precision-molded proprietary acrylic lenses provide multiple photometric distributions tailored specifi cally to building mounted applications. Light engines are available in 3000K (80 min. CRI), 4000K (70 min. CRI) or 5000K (65 min. CRI) configurations.

ELECTRICAL
Light engine(s) consist of 10 high-efficacy LEDs mounted to a metal-core circuit board to maximize heat dissipation and promote long life (L88/100,000 hrs at 25°C). Class 1 electronic drivers have a power factor >90%, THD <20%, and an expected life of 100,000 hours. Surge protection device meets a minimum Category C Low (per ANSI/IEEE C62.41.2).

INSTALLATION
Included universal mounting bracket attaches securely to any 4" round or square outlet box for quick and easy installation. Luminaire has a slotted gasket wireway and attaches to the mounting bracket via corrosion-resistant screws.

LISTINGS
CSA certified to U.S. and Canadian standards. Rated for -40°C minimum ambient.

WARRANTY
Five year limited warranty. Full warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx.

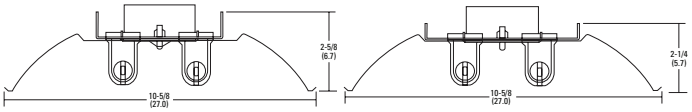
Note: Specifications subject to change without notice.

LITHONIA LIGHTING®

Catalog Number	
Notes	
Type	HB1

AVRK

Assembled Strip retrofit kit
1 or 2 Lamp
4' or 8'
Energy saving T8



FEATURES & SPECIFICATIONS

INTENDED USE - The AVRK series retrofit kits are designed to convert existing 4' and 8' fluorescent strip fixtures to state of the art energy-efficient fluorescent lamp and ballast technology along with high performance reflectors for enhanced light output. Retrofitting older fixtures can greatly reduce energy consumption and lamp replacement costs while improving light. The channels are shipped fully assembled and pre-wired to allow fast, easy installation with minimal labor. Choice of channel widths ensures compatibility with the broadest range of existing fixtures. The AVRK strip reflector conversion kit maximizes fixture efficiency and provides enhanced uniform light distribution.

CONSTRUCTION - One-piece 4' or 8' nominal channels are formed from rugged corrosion resistant aluminum for durability and light weight. All channel aluminum is painted with high-reflectance white paint. Reflectors are precision formed aluminum with highly reflective white paint or 95% reflective specular aluminum. The AVRK is available in two channel widths designed to fit most commercial fluorescent strip fixtures, and the kit installs with simple hand tools. The conversion kit includes a "quick access" aluminum ballast cover secured to the channel with captive quarter-turn fasteners. The snap-in rotary lampholders, ballasts, and ballast quick-disconnect plug are shipped prewired for quick installation. Reflector panels (4' sections) attach to channel with captive quarter-turn fasteners.

ELECTRICAL - Standard ballast is high-efficiency, CEE (Consortium for Energy Efficiency) qualified NEMA premium, instant start, <10% THD, universal voltage and sound rated A. Suggested lamps are high-lumen, long-life super T8 lamps which contribute to optimizing system performance. Optional program start and step-dim bi-level ballasts are available as well as several ballast factor options to maximize energy savings and to allow the amount of light to be balanced to the application. Rotary lampholders and ballast disconnect plug are prewired to ballast assembly.

INSTALLATION - Two channel widths are available for optimum fit to the broadest range of commercial strip fixtures. One-piece aluminum covers with snap-in rotary lampholders attach to the existing channel using provided Tek screws. Ballast is factory mounted to the "quick access" plate and pre-wired to the lampholders. After wiring connection is made to included ballast disconnect plug, ballast access plate secures to channel cover with captive quarter-turn fasteners. Reflector panels (4' sections) attach to channel with captive quarter-turn fasteners.

Installation is designed for maximum speed and simplicity.

LISTING - UL classified for luminaire conversion, retrofit.

WARRANTY — 1-year limited warranty. Complete warranty terms located at:
www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx.

Note: Specifications subject to change without notice.

ORDERING INFORMATION

For shortest lead times, configure products using **bold options**.

Example: AVRK8 2 32 CW42 1/4 BINP WHR

Series	Number of lamps	Wattage	Width	Ballast configuration	Ballast type	Reflector type
AVRK4 4' long, no uplight	1	**32**	**CW42**	AVRK4 / AVRKA4	**BINP**	**WHR**
AVRK8 8' long, no uplight	**2**		CW50	**(blank)** 1 or 2-lamp ballast	BIHP	**SSR**
AVRKA4 4' long, 10% uplight				AVRK8 / AVRKA8	BILP	
AVRKA8 8' long, 10% uplight				**(blank)** Two 2-lamp ballast	BPNP	
				1/4 One 4-lamp ballast	BPHP	
					BPLP	
					BSNP[1]	

Notes
1 Not available as 1/4.
2 AVRK channels and reflectors will ship separately for field installation. Example:
(qty 1) AVRK8 2 32 CW42 BINP SSR *ships as*
(qty 1) AVRK8 2 32 CW42 1/4 BINP L/REFL
(qty 2) AVRK 4FT SSR REFL

LITHONIA LIGHTING®

Catalog Number	
Notes	
Type	HB1

FEATURES & SPECIFICATIONS

INTENDED USE — Ideal where high brightness and good illumination levels are required such as retail, light industrial and warehouses.

Attributes: Available in one lamp or two lamp configuration.

CONSTRUCTION — Heavy-duty channel, die-formed from code-gauge steel.

Sturdy channel cover secured by captive quarter-turn latch for easy access to wireway.

Combination endplate/channel connector furnished with each fixture.

Finish: Five-stage iron phosphate pretreatment ensures superior paint adhesion and rust resistance. Painted parts finished with high-gloss, baked white enamel.

ELECTRICAL — Thermally protected, resetting, Class P, UL Listed and CSA Certified ballast is standard. Sound rating depends on lamp/ballast combination.

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

INSTALLATION — For unit or row installations, surface or suspended mounting.

LISTINGS — UL listed to US and Canadian safety standards. Optional: Mexico NOM.

Damp location listed.

Listed for 25 degree C ambient temperature.

WARRANTY — 1-year limited warranty. Complete warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx .

Note: Specifications subject to change without notice.

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

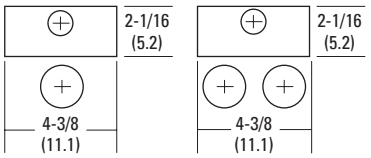
General-Purpose Strip

C

2', 3', 4', 6' and 8' length
1 or 2 lamps

Specifications

Length:	24" (61.0) 36" (91.4) 48" (121.9) 72" (182.9) 96" (243.8)
Width:	4-3/8" (11.1)
Fixture Depth:	2-1/16" (5.2)



All dimensions are inches (centimeters) unless otherwise specified.

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

Example: C 2 32 MVOLT GEB10IS

C								
Series	**Number of lamps**	**Lamp type**						**Voltage**
C General-purpose strip	1	T8		T12 Slimline		HO		MVOLT[2]
For tandem double length unit, add prefix T. Example: TC	2	17	17W T8 (24")	36	30W slimline (36")	24HO	35W T12 800mA (24")[1]	120
	lamp not included	25	25W T8 (36")	48	38W slimline (48")	36HO	45W T12 800mA (36")[1]	277
		32	32W T8 (48")	72	55W slimline (72")	48HO	60W 800mA (48")	347
		48T8	38W T8 (48")	96	75W slimline (96")	48T8HO	44W T8 (48")	Others available
		96T8	59W T8 slimline (96")			72HO	85W 800mA (72")	
						72T8HO	65W T8 (72")	
						96HO	110W 800mA (96")	
						96T8HO	86W 380mA (96")	

Options

GEB	Electronic ballasts, ≤20%THD[4]	EL	Emergency battery pack (nominal 300 lumens)[6]
GEB10IS	Electronic ballasts, ≤10%THD, instant start[2]	GLR	Internal fast-blow fuse (add X for external)[6]
GEB10RS	Electronic ballast, ≤10%THD, rapid start[3]	GMF	Internal slow-blow fuse (add X for external)[6]
GEB10PS	Electronic ballast, ≤10%THD, programmed start	PLR_	Plug-in wiring; specify 1, 2, or 3 branch circuits and hot wires (A = Black, B = Red, C = Blue, AB or AC)
BILP	High-efficiency ballast, .78bf (low), instant start	TILW	Tandem in-line wiring
BINP	T8 high-performance ballast, .88bf (normal), instant start	CSA	CSA Certified (only required for 347V)
BIHP	T8 high-performance ballast, 1.20bf (high), instant start	NOM	NOM Certified
1/4	One four-lamp ballast[5]	AL	Aluminum housing; white enamal finish

Accessories: *Order as separate catalog number.*

SQ_	Swivel stem hanger (specify length in 2" increments)	HRC1®	Hooker T-bar hanger (1-1/2" from ceiling)
1B	Ceiling spacer (adjusts from 1-1/2" to 2-1/2" from ceiling)	WGCSMR48	Wireguard, 4' white for symmetric reflector[7]
CONLGC	12" screw-on channel connector	WGCASR48	Wireguard, 4' white for asymmetric reflector[7]
WGCUN NST	Wireguard, 4' white [7]	CSMR 48	Symmetric reflector, 4' white, 7" aperture[7]
HC36	Chain hangers (1 pair, 36" long)	CASR 48	Asymmetric reflector, 4' white, 5-3/4" wide[7]
HRC®	Hooker T-bar hanger (flush to ceiling)		

Notes

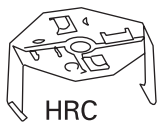
1. Only avaialble with AL option.
2. MVOLT standard for 120-277V applications, 50-60 mhz operation. Some options require voltage specified.
3. 347V, simline lamps only.
4. Slimline and HO lamps only.
5. Not available in slimline.
6. Specify voltage.
7. Order two for 8' fixtures.

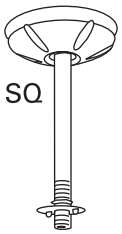
C General-Purpose Strip

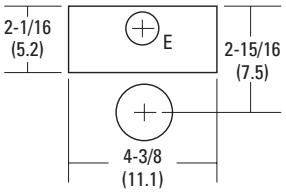
MOUNTING DATA

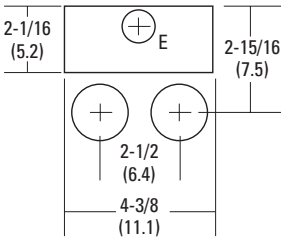
For unit or row installation, surface or suspended mounting.
Unit installation — Minimum of two hangers required.
Row installation — Two hangers per channel required one per fixture plus one per row of CONLGC installed.
Hooker® (HRC) and (HC) Hangers - minimum two per channel (unit and row).

See ACCESSORIES below for hanging devices.







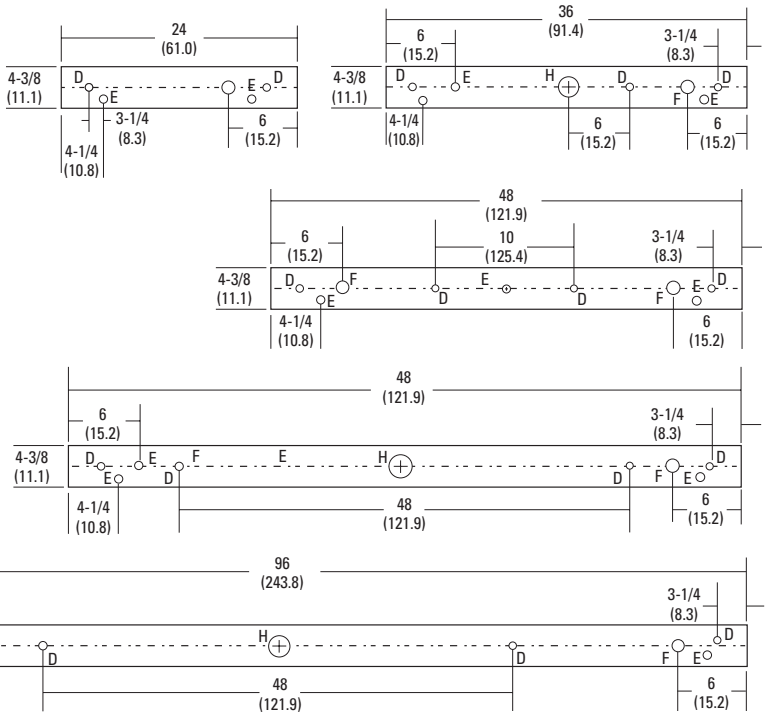


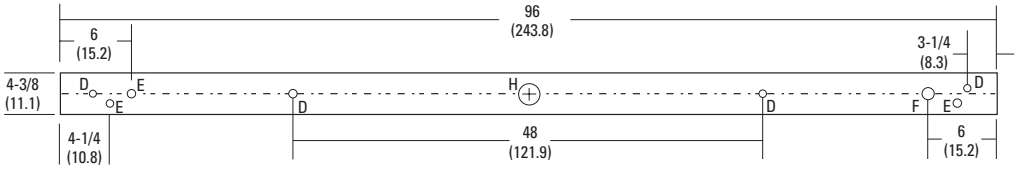
D = 11/16 (17) Dia.K.O.
E = 7/8 (22) Dia.K.O.
F = 1-1/4 (32) Dia.K.O.
H = 2 (51) Dia.K.O.

DIMENSIONS

All dimensions in inches (centimeters) unless otherwise specified. Subject to change without notice.

48", 72", and 96" have only two 7/8" K.O.'s 6" from each end.
24" and 36" have only two 7/8" K.O.'s 3-1/4 from each end.





PHOTOMETRICS

Calculated using the zonal cavity method in accordance with IESNA LM41 procedure. Floor reflectances are 20%. Lamp configurations shown are typical.
All data based on 25°C. Full photometric data on these and other configurations available upon request.

C 2 32
TEST NO: LTL 5181
LUMENS PER LAMP: 2900

Coefficients of Utilization

RCR	pf 20%								
pc	80%			70%			50%		
pw	50%	30%	10%	50%	30%	10%	50%	30%	10%
0	106	106	106	102	102	102	93	93	93
1	89	84	79	85	80	76	78	74	71
2	76	68	62	72	66	60	66	61	56
3	65	57	50	62	55	49	57	51	45
4	57	48	42	55	47	40	50	43	38
5	51	42	35	48	40	34	44	37	32
6	45	36	30	43	35	29	40	33	28
7	41	32	26	39	31	25	36	29	24
8	37	29	23	35	28	22	33	26	21
9	34	26	20	32	25	20	30	23	19
10	31	23	18	30	23	18	28	21	17

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0° - 30°	842.1	14.5	15.6
0° - 40°	1435.8	24.8	26.7
0° - 60°	2810.1	48.4	52.2
0° - 90°	4362.5	75.2	81.0
90° - 180°	1021.0	17.6	19.0
0° - 180°	5383.6	92.8	100.0

C 2 96
TEST NO: LTL 18310
LUMENS PER LAMP: 6300

Coefficients of Utilization

RCR	pf 20%								
pc	80%			70%			50%		
pw	50%	30%	10%	50%	30%	10%	50%	30%	10%
0	103	103	103	98	98	98	90	90	90
1	86	82	78	82	78	74	75	72	69
2	74	67	61	70	64	59	64	59	55
3	64	56	49	61	54	48	56	49	44
4	56	47	41	53	46	40	49	42	37
5	49	41	35	47	39	34	43	37	31
6	44	36	30	42	34	29	39	32	27
7	40	32	26	38	30	25	35	28	24
8	36	28	23	35	27	22	32	25	21
9	33	25	20	32	25	20	29	23	19
10	30	23	18	29	22	18	27	21	17

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0° - 30°	1785.8	14.2	15.7
0° - 40°	3042.4	24.1	26.8
0° - 60°	5944.0	47.2	52.3
0° - 90°	9027.5	71.6	79.4
90° - 180°	2341.8	18.6	20.6
0° - 180°	11369.4	90.2	100.0

Energy (Calculated in accordance with NEMA standard LE-5)

LER.FL	ANNUAL ENERGY COST*	LAMP DESCRIPTION	LAMP LUMENS	BALLST FACTOR	WATTS
86.2	$2.79	(2) T8 F32	2900	.88	55

*Comparative yearly lighting energy cost per 1000 lumens.

Energy (Calculated in accordance with NEMA standard LE-5)

ORDERING INFORMATION	LER.FL	ANNUAL ENERGY COST*	LAMP DESCRIPTION	LAMP LUMENS	BALLAST FACTOR	WATTS
C 2 32 MVOLT GEB10IS	77.6	$3.09	F32T8/735	2800	.88	59
C 2 32 MVOLT BILP	93.6	$2.56	F32T8/835/HT8	3100	.78	48

*Comparative yearly lighting energy cost per 1000 lumens.

LITHONIA LIGHTING®
An AcuityBrands Company
INDUSTRIAL: One Lithonia Way Conyers, GA 30012 Phone: 800-315-4963 Fax: 770-929-8789 www.lithonia.com

STR-LWY-2M-AA-IP-07–12

LEDway® IP66 Street Light – Type II Medium – Adjustable Arm Mount – 70–120 LEDs

Type RW1

STR-LWY 2M AA 07 E UL SV 525 IP

Product Description

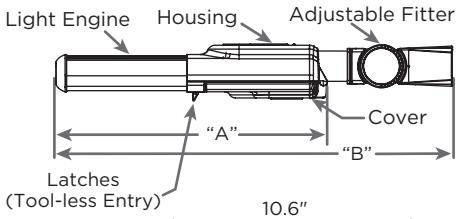
Luminaire housing is all aluminum construction. Standard luminaire utilizes terminal block for power input suitable for #2–#14 AWG wire. Adjustable mounting arm is rugged die cast aluminum and mounts to a 2" (51mm) IP, 2.375" (60mm) O.D. tenon. Two axis T-level included to ensure level installation when desired.

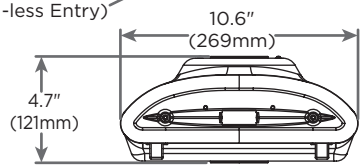
Performance Summary

- Utilizes BetaLED® Technology
- Patented NanoOptic® Product Technology
- Made in the U.S.A. of U.S. and imported parts
- **CRI:** Minimum 70 CRI
- **CCT:** 5700K (+/- 500K) Standard, 4000K (+/- 300K)
- **Limited Warranty†:** 10 years on luminaire/10 years on Colorfast DeltaGuard® finish
- **EPA and Weight:** Reference EPA and Weight spec sheet

Accessories

Field Installed Accessories	
XA-BRDSPK90 (70-90 LEDs)	**XA-XSLBLS90 (70-90 LEDs)**
XA-BRDSPK120 (100-120 LEDs) Bird Spikes for Light Engine	**XA-XSLBLS120 (100-120 LEDs)** External Backlight Shield
XA-BRDSPKHSG Bird Spikes for Housing	





LED Count (x10)	Dimension	Measurement
07-09	"A"	26.8" (685mm)
07-09	"B"	36.6" (930mm)
10-12	"A"	33.1" (842mm)
10-12	"B"	42.9" (1089mm)

Ordering Information

Example: STR-LWY-2M-AA-07-E-UL-SV-525-IP-OPTIONS

STR-LWY	2M	AA		E				IP –
Product	**Optic**	**Mounting**	**LED Count (x10)**	**Version**	**Voltage**	**Color Options***	**Drive Current**	**Options**
STR-LWY	**2M** Type II Medium	**AA** Adjustable Arm	**07** **08** **09** **10** **11** **12**	**E**	**UL** Universal 120–277V **UH** Universal 347–480V	**SV** Silver (Standard) **BK** Black **BZ** Bronze **PB** Platinum Bronze **WH** White	**525** 525mA **700** 700mA	**IP IP66 Classification** **40K 4000K Color Temperature** - Color temperature per luminaire **DIM 0–10V Dimming** - Control by others - Refer to dimming spec sheet for details - Can't exceed specified drive current **F Fuse** - Not available with all ML options. Refer to ML spec sheet for availability with ML options - When code dictates fusing, use time delay fuse **HL Hi/Low (175/350/525 Dual Circuit Input)** - Refer to ML spec sheet for details - Sensor not included **ML Multi-Level** - Refer to ML spec sheet for details **N No Quick Disconnect Harness or Leveling Bubble** - Standard product features unless N option is specified **PD Power Door** - All connections between door and luminaire are shipped unconnected from the factory; door release spring included to open door automatically when the latches are released **R NEMA Photocell Receptacle** - Not available with all ML options. Refer to ML spec sheet for availability with ML options - Photocell by others - Intended for downlight applications at 0˚ tilt **SC Door Safety Tether** - Stainless steel aircraft cable **UTL Utility** - Includes exterior wattage label that reflects watts for the drive current selected. The ability to exceed selected drive current will be disabled

† See www.cree.com/lighting/products/warranty for warranty terms.

* Light engine portion of extrusion is not painted and will remain natural aluminum regardless of color selection.

Rev. Date 03/22/2013

Product Specifications

CONSTRUCTION & MATERIALS

- Housing is all aluminum construction
- Terminal block for power input suitable for #2–#14 AWG wire
- Adjustable mounting arm is rugged die cast aluminum and mounts to a 2" (51mm) IP, 2.375" (60mm) O.D. tenon. Two axis T-level included to ensure level installation if desired
- 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. Standard is silver. Bronze, black, white, and platinum bronze are also available

ELECTRICAL SYSTEM

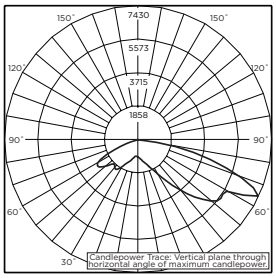
- **Input Voltage:** 120–277V or 347–480V, 50/60Hz, Class 1 drivers
- **Power Factor:** > 0.9 at full load
- **Total Harmonic Distortion:** < 20% at full load
- Quick disconnect harness suitable for mate and break under load provided on power feed to driver for ease of installation
- Integral 10kV surge suppression protection standard
- To address inrush current, slow blow fuse or type C/D breaker should be used

REGULATORY & VOLUNTARY QUALIFICATIONS

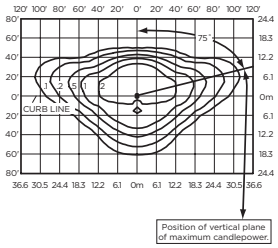
- cULus Listed
- Suitable for wet locations
- Enclosure rated IP66 per IEC 60529 when ordered without R or ML options
- Consult factory for CE Certified products
- Certified to ANSI C136.31-2001, 3G bridge and overpass vibration standards
- 10kV surge suppression protection tested in accordance with IEEE/ANSI C62.41.2
- Luminaire and finish are endurance tested to withstand 5,000 hours of elevated ambient salt fog as defined in ASTM Standard B 117
- Product qualified on the DesignLights Consortium ("DLC") Qualified Products List ("QPL") when ordered without full backlight control shield
- RoHS Compliant
- Meets Buy American requirements within ARRA

Photometry

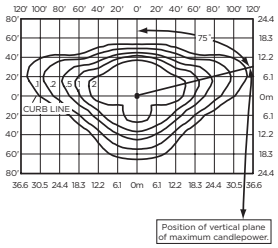
All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP certified laboratory.



CESTL Test Report #: 2013-0025
STR-LWY-2M-**-06-E-UL-700-40K
Initial Delivered Lumens: 10,706



STR-LWY-2M-**-09-E-UL-700
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 16,967
Initial FC at grade



STR-LWY-2M-**-12-E-UL-700
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 22,607
Initial FC at grade

IES Files
To obtain an IES file specific to your project consult:
http://www.cree.com/lighting/tools-and-support/exterior-ies-configuration-tool

Lumen Output, Electrical, and Lumen Maintenance Data

Type II Medium Distribution													
LED Count (x10)	5700K		4000K		System Watts 120–277V	System Watts 347–480V	TOTAL CURRENT						50K Hours Projected Lumen Maintenance Factor @ 15˚C (59˚F)**
	Initial Delivered Lumens	BUG Ratings* Per TM-15-11	Initial Delivered Lumens	BUG Ratings* Per TM-15-11			120V	208V	240V	277V	347V	480V	
525mA @ 25˚C (77˚F)													
07	10,653	B2 U0 G2	10,258	B2 U0 G2	120	124	1.01	0.60	0.54	0.49	0.37	0.28	93%
08	12,120	B3 U0 G3	11,671	B3 U0 G3	139	140	1.17	0.69	0.62	0.56	0.41	0.31	
09	13,573	B3 U0 G3	13,071	B3 U0 G3	149	156	1.26	0.74	0.66	0.59	0.46	0.34	
10	15,166	B3 U0 G3	14,604	B3 U0 G3	167	172	1.41	0.83	0.73	0.65	0.50	0.38	
11	16,629	B3 U0 G3	16,013	B3 U0 G3	182	188	1.54	0.89	0.79	0.70	0.55	0.41	
12	18,086	B3 U0 G3	17,416	B3 U0 G3	197	204	1.67	0.96	0.85	0.75	0.59	0.44	
700mA @ 25˚C (77˚F)													
07	13,316	B3 U0 G3	12,823	B3 U0 G3	163	165	1.37	0.80	0.71	0.63	0.48	0.36	91%
08	15,150	B3 U0 G3	14,589	B3 U0 G3	182	186	1.54	0.90	0.79	0.70	0.54	0.40	
09	16,967	B3 U0 G3	16,338	B3 U0 G3	203	207	1.72	0.99	0.87	0.78	0.60	0.45	
10	18,958	B3 U0 G3	18,256	B3 U0 G3	227	229	1.92	1.11	0.97	0.86	0.67	0.49	
11	20,786	B3 U0 G3	20,016	B3 U0 G3	248	250	2.10	1.21	1.05	0.93	0.73	0.53	
12	22,607	B3 U0 G3	21,770	B3 U0 G3	267	274	2.26	1.30	1.13	1.00	0.80	0.58	

* For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit www.iesna.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf, Vaild with no tilt.
** For recommended lumen maintenance factor data see TD-13. Calculated L_{70} based on 10,000 hours LM-80-08 testing: > 150,000 hours in accordance with guidelines describing "successors to previously tested subcomponents" (Section 5) per Sep 9, 2011 ENERGY STAR guidelines.
See http://www.energystar.gov/ia/partners/prod_development/new_specs/downloads/luminaires/ENERGY_STAR_Final_Lumen_Maintenance_Guidance.pdf.

Champ® Pro PVM Series Luminaires

UL/cUL Listed
NEMA 4X
IP66

Ideal for general high bay/low bay illumination

The Champ® Pro PVM Family

Champ® Pro PVM Series Luminaires are designed to provide full-spectrum, crisp, white light with a true IES type V distribution. Five versions of the PVM Series are available, providing ideal solutions for a wide range of applications.

Champ® Pro PVM Model	Equivalent HID Luminaire	Typical Energy Savings / Lifetime
PVM3L	70W-100W	Up to 70%
PVM5L	100W-150W	reduction in energy
PVM7L	150W-175W	costs and 60,000
PVM9L	175W-200W	hours of continuous
PVM11L	200W-400W	operation!

Standard Materials:

- Lamp housing and adapter – die cast aluminum with Corro-free™ epoxy powder coat
- Lens – heat- and impact-resistant glass
- Gaskets – silicone
- External hardware – stainless steel
- Factory-sealed, no external seals required

Certifications and Compliances:

- UL1598
- UL1598A
- cUL
- NEMA 4X; IP66
- DesignLights Consortium® approved for select models (refer to Ordering Information for details)

LED System:

- High brightness light emitting diode (LED) arrays
- Color temperature: 3000K (CRI 82) where a warmer color is preferred and 5600K (CRI 65) where a cooler color is required
- Advanced heat sink design ensures LED does not exceed manufacturer's temperature ratings across all specified ambient conditions

Drivers:

Model	3L - 9L	11L
Standard	90-305 VAC, 50 / 60 Hz; 108-250 VDC	100-240, 277 VAC
Option 1	347 VAC Model	347 VAC Kit Available
Option 2	480 VAC Model	480 VAC Kit Available

Electrical Ratings:

	PVM3L	PVM5L	PVM7L	PVM9L	PVM11L
Voltage Range, VAC	100-277V	100-277V	100-277V	100-277V	100-240, 277V
Frequency	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz
Input Power	46 Watts	60 Watts	78 Watts	94 Watts	134 Watts
Input Amps (Max.)	0.5	0.7	0.8	0.98	1.7
Voltage Range, VDC	108-250	108-250	108-250	108-250	Not Available
Power Factor	>0.90	>0.90	>0.90	>0.90	>0.90

Ordering Information:

Mounting Style	3L Series†	5L Series†	7L Series†	9L Series†	11L Series†
Luminaire Less Mounting Module	**PVM3LDM2/UNV1**	**PVM5LDM2/UNV1**	**PVM7LDM2/UNV1**	**PVM9LDM2/UNV1**	**PVM11LDM1/UNV**
¾" Pendant	**PVM3L2ADM2/UNV1**	**PVM5L2ADM2/UNV1**	**PVM7L2ADM2/UNV1**	**PVM9L2ADM2/UNV1**	**PVM11L2ADM1/UNV**
1" Pendant	**PVM3L3ADM2/UNV1**	**PVM5L3ADM2/UNV1**	**PVM7L3ADM2/UNV1**	**PVM9L3ADM2/UNV1**	**PVM11L3ADM1/UNV**
¾" Cone Pendant	**PVM3L2BDM2/UNV1**	**PVM5L2BDM2/UNV1**	**PVM7L2BDM2/UNV1**	**PVM9L2BDM2/UNV1**	**PVM11L2BDM1/UNV**
1" Cone Pendant	**PVM3L3BDM2/UNV1**	**PVM5L3BDM2/UNV1**	**PVM7L3BDM2/UNV1**	**PVM9L3BDM2/UNV1**	**PVM11L3BDM1/UNV**
¾" Flexible Pendant	**PVM3L2HADM2/UNV1**	**PVM5L2HADM2/UNV1**	**PVM7L2HADM2/UNV1**	**PVM9L2HADM2/UNV1**	**PVM11L2HADM1/UNV**
¾" Ceiling Mount Thru Feed	**PVM3L2CDM2/UNV1**	**PVM5L2CDM2/UNV1**	**PVM7L2CDM2/UNV1**	**PVM9L2CDM2/UNV1**	**PVM11L2CDM1/UNV**
1" Ceiling Mount Thru Feed	**PVM3L3CDM2/UNV1**	**PVM5L3CDM2/UNV1**	**PVM7L3CDM2/UNV1**	**PVM9L3CDM2/UNV1**	**PVM11L3CDM1/UNV**
¾" Wall Mount Thru Feed	**PVM3L2TWDM2/UNV1**	**PVM5L2TWDM2/UNV1**	**PVM7L2TWDM2/UNV1**	**PVM9L2TWDM2/UNV1**	**PVM11L2TWDM1/UNV**
1" Wall Mount Thru Feed	**PVM3L3TWDM2/UNV1**	**PVM5L3TWDM2/UNV1**	**PVM7L3TWDM2/UNV1**	**PVM9L3TWDM2/UNV1**	**PVM11L3TWDM1/UNV**
1½" Stanchion 25°	**PVM3LJDM2/UNV1**	**PVM5LJDM2/UNV1**	**PVM7LJDM2/UNV1**	**PVM9LJDM2/UNV1**	**PVM11LJDM1/UNV**
1½" Stanchion	**PVM3LPDM2/UNV1**	**PVM5LPDM2/UNV1**	**PVM7LPDM2/UNV1**	**PVM9LPDM2/UNV1**	**PVM11LPDM1/UNV**

†DesignLights Consortium approved models. Cool white only. 3L through 9L models approved at 120V only. For 120 VAC option, replace DM2/UNV1 with DM2/120*. 11L model approved at 120-277V.
For 347 VAC option, replace DM2/UNV1 with DM3/347. For 480 VAC option, replace DM2/UNV1 with DM4/480. **NOTE: Requires additional enclosure for use with 11L series.**
For warm white color temperature, use W designation after luminaire style (Example: PVM3LWDM2/UNV1). **NOTE: Not available for 9L series.**
*5 year limited warranty. Refer to page 2 of the D-0413 authorized distributor price book for Cooper Crouse-Hinds standard Terms and Conditions.

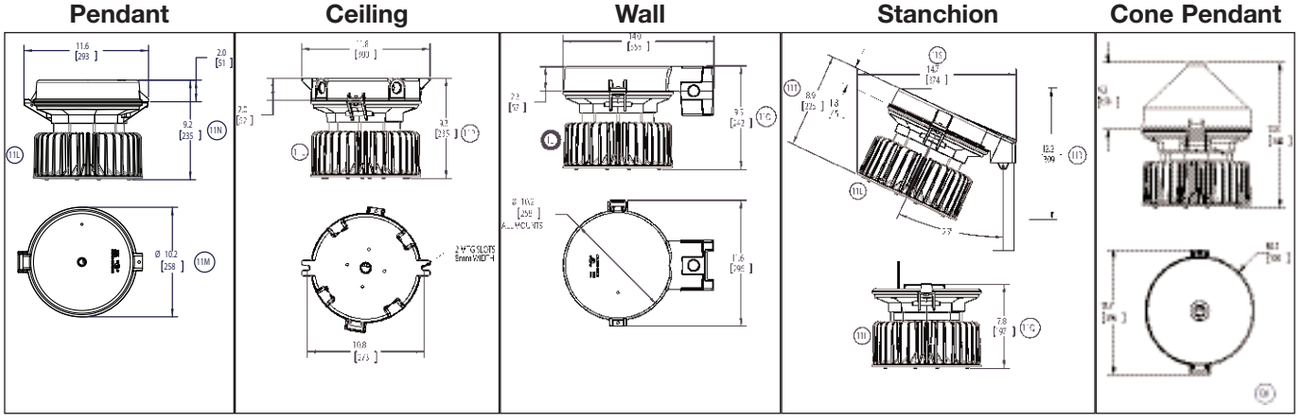
Ideal for general high bay/low bay illumination

Options:

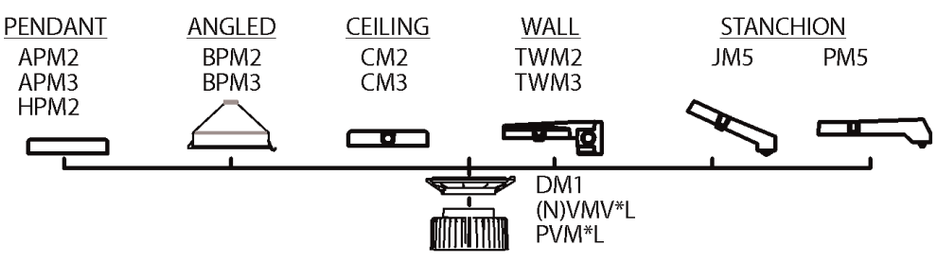
Description	Suffix
Wire guard with captive mounting hardware	P3001
Trunnion mount with redundant pin locking mechanism	S812 K1
Quick Clip for quick installation	S890
Diffused lens reduces glare in applications where the user may have direct visual contact with the light source	S891
Teflon coating on lens for additional shatter protection	S896
Polycarbonate lens available in applications where glass is prohibited	S903

Dimensions:

Pendant | Ceiling | Wall | Stanchion | Cone Pendant



Family Tree:



Weights:

Net Luminaire Weight:	17.8 lb.	8.07 kg.
Mounting Module add (lb.)		
Pendant	1.25	0.57
Cone Pendant	4.00	1.81
Flexible Pendant	1.50	0.68
Ceiling	2.75	1.25
Wall	4.50	2.04
Angle Stanchion	3.50	1.59
Straight Stanchion	4.50	2.04

Ambient Temperature:

Champ® Pro PVM Model	Max. Temp. °C
PVM3L	55
PVM5L	55
PVM7L	55
PVM9L	55
PVM11L	40

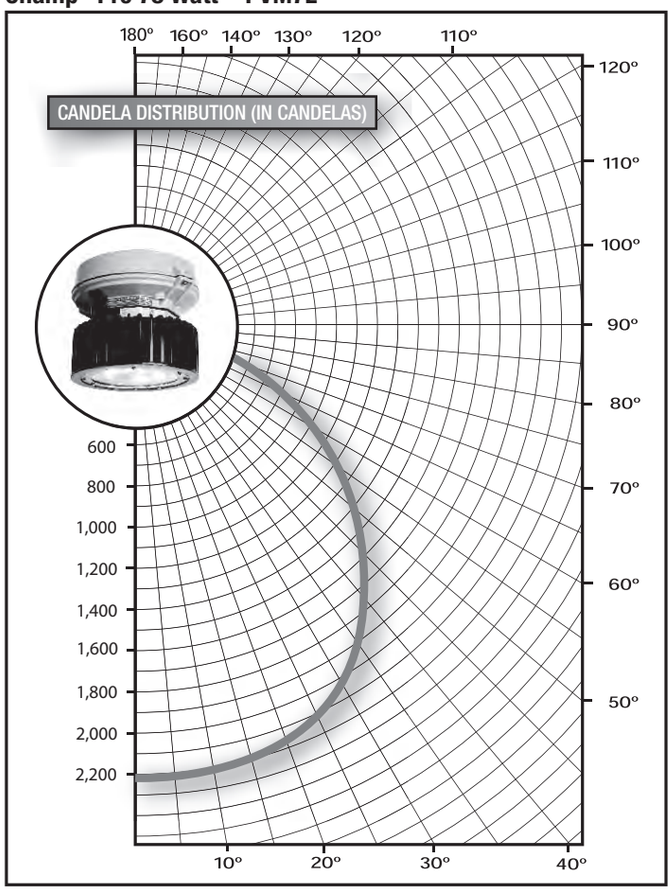
Champ® Pro PVM Series Luminaires

UL/cUL Listed
NEMA 4X
IP66

Ideal for general high bay/low bay illumination

Photometric Data:

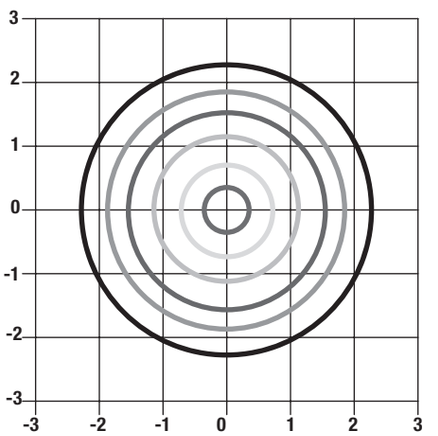
Champ® Pro 78 Watt* - PVM7L



CANDELAS ZONAL LUMENS

VERTICAL ANGLE	FRONT SIDE	ZONE	WITH LUMENS	% LUMEN
0	2245	0-10	212	4%
5	2234	10-20	612	10%
15	2167	20-30	941	15%
25	2041	30-40	1155	18%
35	1846	40-50	1207	19%
45	1566	50-60	1077	17%
55	1207	60-70	764	12%
65	775	70-80	286	5%
75	251	80-90	13	0%
85	0	90-100	0	0%
90	0	100-120	0	0%
		Total	6267	100%

DISTANCE TO MOUNTING HEIGHT
Isofootcandle chart shows illuminance in footcandles at ground level



ISOFOOTCANDLE CHART
Footcandle Values for Isofootcandle Lines

Mtg. Hgt.	A	B	C	D	E	F
8'	31.25	15.63	7.81	3.13	1.56	0.78
10'	20.00	10.00	5.00	2.00	1.00	0.50
12'	13.89	6.94	3.47	1.39	0.69	0.35
16'	7.81	3.91	1.95	0.78	0.39	0.20
20'	5.00	2.50	1.25	0.50	0.25	0.13

LUMEN OUTPUT FOR CHAMP® LED LUMINAIRES

Luminaire Series	System Watts	Lumens
PVM3L	46	3748
PVM5L	60	4654
PVM7L	78	6267
PVM9L	94	7085
PVM11L	134	8880

*Testing performed in accordance with IES LM-79-08.

Champ® Pro PVM Series Luminaires

UL/cUL Listed
NEMA 4X
IP66

Ideal for general high bay/low bay illumination

The Champ® Pro PVM Family

Champ® Pro PVM Series Luminaires are designed to provide full-spectrum, crisp, white light with a true IES type V distribution. Five versions of the PVM Series are available, providing ideal solutions for a wide range of applications.

Champ® Pro PVM Model	Equivalent HID Luminaire	Typical Energy Savings / Lifetime
PVM3L	70W-100W	Up to 70%
PVM5L	100W-150W	reduction in energy
PVM7L	150W-175W	costs and 60,000
PVM9L	175W-200W	hours of continuous
PVM11L	200W-400W	operation!

Standard Materials:

- Lamp housing and adapter – die cast aluminum with Corro-free™ epoxy powder coat
- Lens – heat- and impact-resistant glass
- Gaskets – silicone
- External hardware – stainless steel
- Factory-sealed, no external seals required

Certifications and Compliances:

- UL1598
- UL1598A
- cUL
- NEMA 4X; IP66
- DesignLights Consortium® approved for select models (refer to Ordering Information for details)

LED System:

- High brightness light emitting diode (LED) arrays
- Color temperature: 3000K (CRI 82) where a warmer color is preferred and 5600K (CRI 65) where a cooler color is required
- Advanced heat sink design ensures LED does not exceed manufacturer's temperature ratings across all specified ambient conditions

Drivers:

Model	3L - 9L	11L
Standard	90-305 VAC, 50 / 60 Hz; 108-250 VDC	100-240, 277 VAC
Option 1	347 VAC Model	347 VAC Kit Available
Option 2	480 VAC Model	480 VAC Kit Available

Electrical Ratings:

	PVM3L	PVM5L	PVM7L	PVM9L	PVM11L
Voltage Range, VAC	100-277V	100-277V	100-277V	100-277V	100-240, 277V
Frequency	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz
Input Power	46 Watts	60 Watts	78 Watts	94 Watts	134 Watts
Input Amps (Max.)	0.5	0.7	0.8	0.98	1.7
Voltage Range, VDC	108-250	108-250	108-250	108-250	Not Available
Power Factor	>0.90	>0.90	>0.90	>0.90	>0.90

Ordering Information:

Mounting Style	3L Series†	5L Series†	7L Series†	9L Series†	11L Series†
Luminaire Less Mounting Module	**PVM3LDM2/UNV1**	**PVM5LDM2/UNV1**	**PVM7LDM2/UNV1**	**PVM9LDM2/UNV1**	**PVM11LDM1/UNV**
¾" Pendant	**PVM3L2ADM2/UNV1**	**PVM5L2ADM2/UNV1**	**PVM7L2ADM2/UNV1**	**PVM9L2ADM2/UNV1**	**PVM11L2ADM1/UNV**
1" Pendant	**PVM3L3ADM2/UNV1**	**PVM5L3ADM2/UNV1**	**PVM7L3ADM2/UNV1**	**PVM9L3ADM2/UNV1**	**PVM11L3ADM1/UNV**
¾" Cone Pendant	**PVM3L2BDM2/UNV1**	**PVM5L2BDM2/UNV1**	**PVM7L2BDM2/UNV1**	**PVM9L2BDM2/UNV1**	**PVM11L2BDM1/UNV**
1" Cone Pendant	**PVM3L3BDM2/UNV1**	**PVM5L3BDM2/UNV1**	**PVM7L3BDM2/UNV1**	**PVM9L3BDM2/UNV1**	**PVM11L3BDM1/UNV**
¾" Flexible Pendant	**PVM3L2HADM2/UNV1**	**PVM5L2HADM2/UNV1**	**PVM7L2HADM2/UNV1**	**PVM9L2HADM2/UNV1**	**PVM11L2HADM1/UNV**
¾" Ceiling Mount Thru Feed	**PVM3L2CDM2/UNV1**	**PVM5L2CDM2/UNV1**	**PVM7L2CDM2/UNV1**	**PVM9L2CDM2/UNV1**	**PVM11L2CDM1/UNV**
1" Ceiling Mount Thru Feed	**PVM3L3CDM2/UNV1**	**PVM5L3CDM2/UNV1**	**PVM7L3CDM2/UNV1**	**PVM9L3CDM2/UNV1**	**PVM11L3CDM1/UNV**
¾" Wall Mount Thru Feed	**PVM3L2TWDM2/UNV1**	**PVM5L2TWDM2/UNV1**	**PVM7L2TWDM2/UNV1**	**PVM9L2TWDM2/UNV1**	**PVM11L2TWDM1/UNV**
1" Wall Mount Thru Feed	**PVM3L3TWDM2/UNV1**	**PVM5L3TWDM2/UNV1**	**PVM7L3TWDM2/UNV1**	**PVM9L3TWDM2/UNV1**	**PVM11L3TWDM1/UNV**
1½" Stanchion 25°	**PVM3LJDM2/UNV1**	**PVM5LJDM2/UNV1**	**PVM7LJDM2/UNV1**	**PVM9LJDM2/UNV1**	**PVM11LJDM1/UNV**
1½" Stanchion	**PVM3LPDM2/UNV1**	**PVM5LPDM2/UNV1**	**PVM7LPDM2/UNV1**	**PVM9LPDM2/UNV1**	**PVM11LPDM1/UNV**

†DesignLights Consortium approved models. Cool white only. 3L through 9L models approved at 120V only. For 120 VAC option, replace DM2/UNV1 with DM2/120*. 11L model approved at 120-277V.
For 347 VAC option, replace DM2/UNV1 with DM3/347. For 480 VAC option, replace DM2/UNV1 with DM4/480. **NOTE: Requires additional enclosure for use with 11L series.**
For warm white color temperature, use W designation after luminaire style (Example: PVM3LWDM2/UNV1). **NOTE: Not available for 9L series.**
*5 year limited warranty. Refer to page 2 of the D-0413 authorized distributor price book for Cooper Crouse-Hinds standard Terms and Conditions.

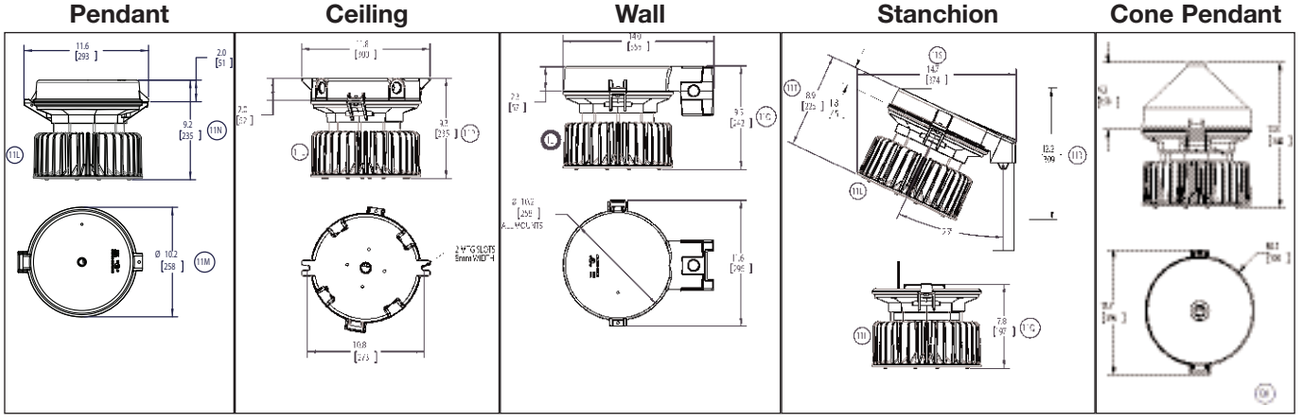
Ideal for general high bay/low bay illumination

Options:

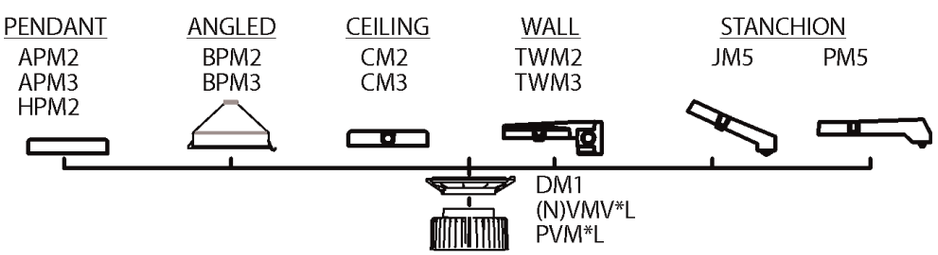
Description	Suffix
Wire guard with captive mounting hardware	P3001
Trunnion mount with redundant pin locking mechanism	S812 K1
Quick Clip for quick installation	S890
Diffused lens reduces glare in applications where the user may have direct visual contact with the light source	S891
Teflon coating on lens for additional shatter protection	S896
Polycarbonate lens available in applications where glass is prohibited	S903

Dimensions:

Pendant | Ceiling | Wall | Stanchion | Cone Pendant



Family Tree:



Weights:

Net Luminaire Weight:	17.8 lb.	8.07 kg.
Mounting Module add (lb.)		
Pendant	1.25	0.57
Cone Pendant	4.00	1.81
Flexible Pendant	1.50	0.68
Ceiling	2.75	1.25
Wall	4.50	2.04
Angle Stanchion	3.50	1.59
Straight Stanchion	4.50	2.04

Ambient Temperature:

Champ® Pro PVM Model	Max. Temp. °C
PVM3L	55
PVM5L	55
PVM7L	55
PVM9L	55
PVM11L	40

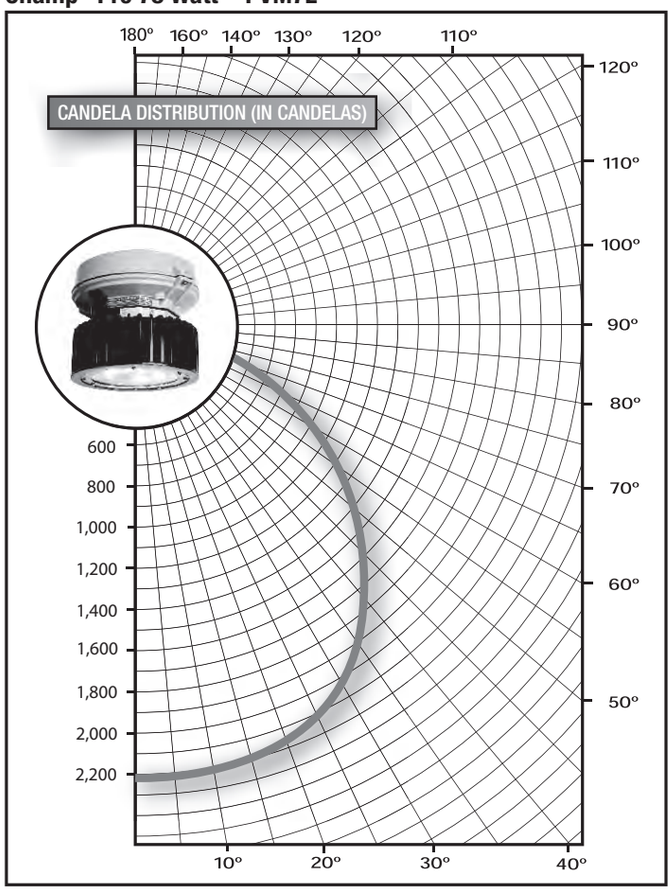
Champ® Pro PVM Series Luminaires

UL/cUL Listed
NEMA 4X
IP66

Ideal for general high bay/low bay illumination

Photometric Data:

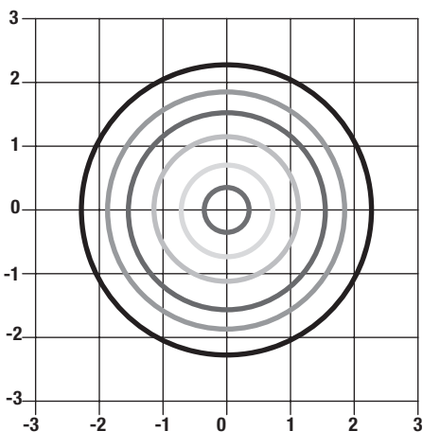
Champ® Pro 78 Watt* - PVM7L



CANDELAS ZONAL LUMENS

VERTICAL ANGLE	FRONT SIDE	ZONE	WITH LUMENS	% LUMEN
0	2245	0-10	212	4%
5	2234	10-20	612	10%
15	2167	20-30	941	15%
25	2041	30-40	1155	18%
35	1846	40-50	1207	19%
45	1566	50-60	1077	17%
55	1207	60-70	764	12%
65	775	70-80	286	5%
75	251	80-90	13	0%
85	0	90-100	0	0%
90	0	100-120	0	0%
		Total	6267	100%

DISTANCE TO MOUNTING HEIGHT
Isofootcandle chart shows illuminance in footcandles at ground level



ISOFOOTCANDLE CHART
Footcandle Values for Isofootcandle Lines

Mtg. Hgt.	A	B	C	D	E	F
8'	31.25	15.63	7.81	3.13	1.56	0.78
10'	20.00	10.00	5.00	2.00	1.00	0.50
12'	13.89	6.94	3.47	1.39	0.69	0.35
16'	7.81	3.91	1.95	0.78	0.39	0.20
20'	5.00	2.50	1.25	0.50	0.25	0.13

LUMEN OUTPUT FOR CHAMP® LED LUMINAIRES

Luminaire Series	System Watts	Lumens
PVM3L	46	3748
PVM5L	60	4654
PVM7L	78	6267
PVM9L	94	7085
PVM11L	134	8880

*Testing performed in accordance with IES LM-79-08.

OCTRON® 800 XP® XL ECOLOGIC®3

EXtended Performance EXtended Life Fluorescent Lamps

SYLVANIA OCTRON 800 XP XL ECOLOGIC3 lamps feature eXtended Life benefits of up to 75,000 hours life on instant start ballasts and 84,000 hours life on programmed rapid start ballasts. The life ratings reflect up to 88% longer life than T8 XP or XV lamps, which is the equivalent of an additional 8 years of maintenance-free lighting for typical operating cycles of 4,000 hours per year.

OCTRON 800 XP XL 32W lamps deliver 14% more light than standard 700 series T8 lamp on normal ballast factor, instant start electronic ballasts. OCTRON 800 XP XL SUPERSAVER lamps provide up to 22% energy savings over standard 32 watt OCTRON lamps. Combining these lamps with QUICKTRONIC high efficiency instant start, low power ballasts will result in up to 42% energy savings over energy saving T12 magnetically ballasted fluorescent systems. Pair with QUICKTRONIC electronic ballast for the industry's first and most comprehensive QUICK 60+® System Warranty.

Key Features & Benefits

- Available in full wattage (32W) and reduced wattage SUPERSAVER® types
- Energy savings compared to standard 32W T8 lamp
  – Up to 12.5% with the 28W XP/XL/SS
  – Up to 22% with the 25W XP/XL/SS
- Up to 96% mean lumens
- Dimmable (see application note 4)
- Lead-free and RoHS compliant
- Made in USA
- Retrofit lamp for existing T8 instant start systems
  – Up to 75,000 hours average life @ 12 hours per start
- Operate 800 XP XL SUPERSAVER lamps on SYLVANIA's QUICKTRONIC® PROStart® programmed rapid start ballasts
  – 84,000 hours average life @ 12 hours per start
- SUPERSAVER 25W and 28W types meet CEE reduced wattage T8 specifications

RoHS compliant
This light source meets restrictions on hazardous substances.

LEAD-FREE GLASS

ecologic3

MADE IN USA

SYLVANIA OCTRON T8 ECOLOGIC3 fluorescent lamps pass the Federal Toxicity Characteristic Leaching Procedure (TCLP[1]) criteria for classification as non-hazardous waste in most states[2].

ECOLOGIC3 represents a more comprehensive approach to sustainability encompassing high efficiency, long life and RoHS/TCLP compliance.

Complies with European Union Restriction of Hazardous Substances Directive (Directive 2002/95/EC)

1. TCLP test results are based on NEMA LL Series standards and are available on request.

2. Lamp disposal regulations may vary; check your local & state regulations.

Product Offering

Lamp Type	Wattage	CCT
OCTRON 800 XP XL		
F032/800/XP/XL/ECO3	32	3500K, 4100K & 5000K
OCTRON 800 XP XL SUPERSAVER		
F028/800XP/XL/SS/ECO3	28	3000K, 3500K, 4100K & 5000K
F032/25W/800/XP/XL/SS/ECO3	25	3500K & 4100K

Application Information

Applications

- Education
- Healthcare
- Industrial
- Office
- Retail

Application Notes

1. SUPERSAVER (SS) lamps are recommended to be used on T8 F32 Instant or Programmed Rapid Start ballasts with minimum open circuit voltage of 550V RMS at the lamp.

   a. Electronically ballasted fixture configurations which operate lamps remotely, such as Master/Satellite applications, can cause reduction of lamp open circuit voltage, in the remote fixture, below the minimum required for reliable lamp starting. For more information, please call 1-800-LIGHTBULB and ask for Ballast Technical Assistance or call your fixture manufacturer.

   b. Not recommended to be used: (1) in remotely ballasted fixtures with lamp open circuit voltages below 550V, (2) in air handling fixtures, (3) on low power factor ballasts or (4) inverter operated emergency lighting systems unless any of the above equipment is specifically listed for SUPERSAVER (SS) lamps. Any of the above situations could result in lamp starting and stabilization problems, or system compatibility issues.

2. If a 28W SUPERSAVER lamp is exposed to drafts and/or the ambient temperature falls below 60°F (70°F for 25W lamp), striation (a rhythmic pulsing pattern of light running down the tube) and/or reduction in lamp brightness may occur. While visually disconcerting, neither behavior is damaging to the lamp and removing the cause (draft or temperature) will return the lamp to normal operation.

3. Fixture must conform to ANSI C78.81 – 2005 requirements for luminaire design.

4. Contact OSRAM SYLVANIA for approved dimming ballasts.

Specification Data

Fixture Description:	Type
Project/Job:	
SYLVANIA lamp:	
SYLVANIA ballast:	
Notes:	

Ordering Information

Item Number	Ordering Abbreviation	Watts	Bulb	Base	Initial Lumens	Mean Lumens[1]	lm/W	Avg. Rated Life Instant Start 3 hrs/ start	Instant Start 12 hrs start	Programmed Rapid Start 3 hrs/ start	Programmed Rapid Start 12 hrs/ start	CCT	CRI
21576	F032/835/XP/XL/ECO3	32	T8	Med Bi-Pin	2950	2830	92	36,000	52,000	65,000	67,000	3500K	85
21577	F032/841/XP/XL/ECO3	32	T8	Med Bi-Pin	2950	2830	92	36,000	52,000	65,000	67,000	4100K	85
22002	F032/850/XP/XL/ECO3	32	T8	Med Bi-Pin	2950	2830	92	36,000	52,000	65,000	67,000	5000K	81
22166	F028/835/XP/XL/SS/ECO3	28	T8	Med Bi-Pin	2600	2470	93	50,000	75,000	80,000	84,000	3500K	85
22167	F028/841/XP/XL/SS/ECO3	28	T8	Med Bi-Pin	2600	2470	93	50,000	75,000	80,000	84,000	4100K	85
22326	F028/850/XP/XL/SS/ECO3	28	T8	Med Bi-Pin	2600	2470	93	50,000	75,000	80,000	84,000	5000K	81
22349	F032/25W/830/XP/XL/SS/ECO3	25	T8	Med Bi-Pin	2400	2280	96	50,000	75,000	80,000	84,000	3000K	85
22222	F032/25W/835/XP/XL/SS/ECO3	25	T8	Med Bi-Pin	2400	2280	96	50,000	75,000	80,000	84,000	3500K	85
22223	F032/25W/841/XP/XL/SS/ECO3	25	T8	Med Bi-Pin	2400	2280	96	50,000	75,000	80,000	84,000	4100K	85

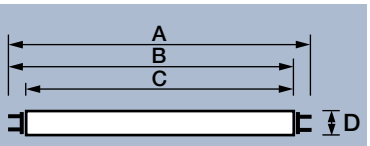
1. Measured at 40% of rated life.

Ordering Guide

FO	28	/	8	41	XP/XL	/	SS	/	ECO3
Fluorescent OCTRON	Wattage 25, 28, 32		CRI ≥ 81	Color Temperature 30 = 3000K 35 = 3500K 41 = 4100K 50 = 5000K	EXtended Performance EXtended Life		SUPERSAVER		ECOLOGIC3

Lamp Dimensions

	(A) Max. Overall Length (in.)	(B) Base Face to Opposite Pin (in.)	(C) Max. Base Face to Base Face (in.)	(D) Max. Outside Diameter (in.)
F032, F028, F032/25W	47.78"	Min. 47.41" Max. 47.5"	47.22"	1.1"



Related Literature

For maximum energy savings consider pairing with the following electronic ballasts:

Ballast Technology Applications & Specification Guide (Literature Code: ECS-SPECGUIDE2013)

QUICKTRONIC® High Efficiency NEMA Premium Guide (Literature Code: ECS112)

QUICK 60+ System Warranty (Literature Code: ECS140)

/sylvania /sylvania

Sample Specification

Lamp(s) shall be OCTRON® XP® XL (32W, SUPERSAVER® XL 28W, SUPERSAVER XL 25W) ECOLOGIC®3 4-foot lamp(s) having medium bi-pin bases. Lamp(s) shall be designed to pass the Federal TCLP test in force at the time of manufacture. Lamp(s) shall have an average rated life of (36,000 - 67,000 hrs on 32W and 50,000 - 84,000 hrs on 28W and 25W) at 3 hours per start when operated on T8 (instant start, programmed start ballasts), (2950, 2600, 2400) initial lumens, 96% lumen maintenance on the 32W and 95% lumen maintenance on the 28 and 25W a correlated color temperature of (3000K, 3500K, 4100K, 5000K) and a CRI of (85, 81). The OCTRON ECOLOGIC3 lamp(s) shall be operated on QUICKTRONIC® electronic, high frequency ballasts with complete system warranty from the manufacturer covering lamps and ballast.

United States
OSRAM SYLVANIA
100 Endicott Street
Danvers, MA 01923
1-800-LIGHTBULB

Trade
Phone: 800-255-5042
Fax: 800-255-5043

National Accounts
Phone: 800-562-4671
Fax: 800-562-4674

OEM/Special Markets
Phone: 800-762-7191
Fax: 800-762-7192

Retail
Phone: 800-842-7010
Fax: 800-842-7011

SYLVANIA Lighting Services
Phone: 800-323-0572
Fax: 800-537-0784

Display/Optic
Phone: 888-677-2627
Fax: 855-543-1043

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OSRAM SYLVANIA LTD.
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Fax: 800-667-6772

OEM/Special Markets/Display/Optic
Phone: 800-265-2852
Fax: 800-667-6772

Retail
Phone: 800-720-2852
Fax: 800-667-6772

SYLVANIA Lighting Services
Phone: 800-663-4268
Fax: 866-239-1278

Mexico
OSRAM MEXICO
Tultitlan/Edo de Mexico
Phone: 011-52-55-58-99-18-50

ENCELIUM Technologies
United States
Phone: 201-928-2400
Fax: 201-928-4028

Canada
Phone: 905-731-7678
Fax: 905-731-1401

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OCTRON® XPS® ECOLOGIC®3

EXtended Performance Super Fluorescent Lamps

SYLVANIA OCTRON Extended Performance Super ECOLOGIC3 (XPS) lamps deliver the highest performance of all OCTRON lamps with initial and mean lumens that are up to 11% higher and substantially longer lamp life than standard T8 fluorescent lamps. These lamps are available in 2, 3, and 4-foot lengths, in a choice of correlated color temperatures with high lumen maintenance of 94%.

When OCTRON XPS ECOLOGIC lamps are operated on existing instant start ballasts as a retrofit lamp, they deliver higher lumen output than the installed system. In new installations paired with QUICKTRONIC PSX ballasts, 2-lamp systems deliver light levels comparable to 3-lamp 700 series T8 lamps, while maximizing energy savings and lamp life.

Key Features & Benefits

- Highest lumen 4-foot OCTRON T8 lamps
- Also available in 2-foot (FO17) and 3-foot (FO25) sizes
- Longer lamp life than standard T8 lamps
  - 40,000 hours rated life @ 12 hrs/start on instant start ballast
  - 42,000 hours rated life @ 12 hrs/start on programmed rapid start ballasts
- 94% Lumen maintenance
- TCLP compliant
- Lead free glass
- Made in USA
- QUICK 60+® system warranty when paired with QUICKTRONIC® electronic ballasts
- Meets CEE Standards

SYLVANIA OCTRON 800 XPS ECOLOGIC3 fluorescent lamps are designed to satisfy the Federal Toxicity Characteristic Leaching Procedure (TCLP[1]) criteria for classification as non-hazardous waste in most states.[2]

ECOLOGIC3 represents a more comprehensive approach to sustainability encompassing high efficiency, long life and RoHS/TCLP compliance.

[1] TCLP test results are based on NEMA LL Series standards and are available on request.
[2] Regulations may vary. Check your local and state regulations.

This light source meets restrictions on hazardous substances.

Product Offering

Ordering Abbreviation	Watts	Nominal Length (in)	CCT
FO17/800/XPS/ECO3	17	24	3000K, 3500K, 4100k
FO25/800/XPS/ECO3	25	36	3000K, 3500K, 4100k
FO32/800/XPS/ECO3	32	48	3000K, 3500K, 4100K, 5000K, 6500K

Application Information

Applications

- Hospitals
- Industrial
- Office
- Retail
- Schools

Application Notes

1. Minimum lamp starting temperature determined by ballast.
2. Operation below 50°F may affect lumen output or lamp operation.
3. For cold temperature applications, use in enclosed fixtures or use tube guards to maximize lamp performance.
4. Good ballast to socket to lamp contact essential for correct operation of system.
5. Actual lamp life dependent on ballast type, switching cycle and hours of operation per start.
6. These lamps may help facilitate compliance with national energy codes such as ASHRAE/IES 90.1 or IECC and state energy codes such as California Title 24. For more information contact your local building inspection office.

Ordering Information

Item Number	Ordering Abbreviation	Watts	Nominal Length (in)	Initial Lumens	Mean Lumens[1]	Lumens per Watt	Average Rated Life Instant Start 3 hrs/ start	Instant Start 12 hrs/ start	Programmed Rapid Start 3 hrs/ start	Programmed Rapid Start 12 hrs/ start	CCT	CRI
22150	F017/830/XPS/ECO3	17	24	1400	1316	82	24,000	40,000	40,000	42,000	3000K	85
22151	F017/835/XPS/ECO3	17	24	1400	1316	82	24,000	40,000	40,000	42,000	3500K	85
22152	F017/841/XPS/ECO3	17	24	1400	1316	82	24,000	40,000	40,000	42,000	4100K	85
22153	F025/830/XPS/ECO3	25	36	2200	2068	88	24,000	40,000	40,000	42,000	3000K	85
22154	F025/835/XPS/ECO3	25	36	2200	2068	88	24,000	40,000	40,000	42,000	3500K	85
22155	F025/841/XPS/ECO3	25	36	2200	2068	88	24,000	40,000	40,000	42,000	4100K	85
21680	F032/830/XPS/ECO3	32	48	3100	2914	97	24,000	40,000	40,000	42,000	3000K	85
21697	F032/835/XPS/ECO3	32	48	3100	2914	97	24,000	40,000	40,000	42,000	3500K	85
21681	F032/841/XPS/ECO3	32	48	3100	2914	97	24,000	40,000	40,000	42,000	4100K	85
21660	F032/850/XPS/ECO3	32	48	3100	2914	97	24,000	40,000	40,000	42,000	5000K	81
21659	F032/865/XPS/ECO3	32	48	3000	2820	94	24,000	40,000	40,000	42,000	6500K	81

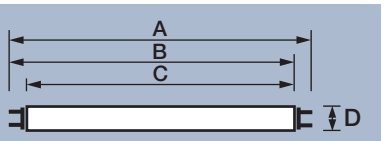
1. Measured at 40% of rated life.

Ordering Guide

FO	32	/	8	35	XPS	/	ECO3
Fluorescent OCTRON®	Wattage: 17, 25, or 32 watts		8 = 81-85 CRI	30 = 3000K 35 = 3500K 41 = 4100K 50 = 5000K 65 = 6500K	EXtended Performance Super		ECOLOGIC3

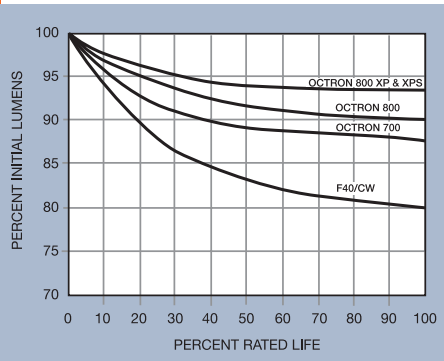
Lamp Dimensions

Item Number	(A) Max. Overall Length (in.)	(B) Base Face to Opposite Pin (in.) Min.	(B) Base Face to Opposite Pin (in.) Max.	(C) Max. Base Face to Base Face (in.)	(D) Max. Outside Diameter (in.)
F017	23.78	23.41	23.50	23.22	1.1
F025	35.78	35.40	35.50	35.22	1.1
F032	47.78	47.41	47.50	47.22	1.1



Technical Information

Lumen Maintenance
OCTRON XP, OCTRON XPS, OCTRON & F40/CW



Related Literature

For optimum system performance and warranty pair with these QUICKTRONIC® Systems:

High Efficiency NEMA Premium QUICKTRONIC® T8 Brochure (Literature Code: ECS112)
Ballast Technology Applications & Specification Guide (Literature Code: ECS-ELECTRONIC2009)
QUICK 60+® System Warranty (Literature Code: ECS140)

Specification Data

Fixture Description

Type

Project/Job

SYLVANIA lamp

SYLVANIA ballast

Notes

Sample Specification

Lamp(s) shall be (a) OCTRON® EXtended Performance Super XPS®/ECO3 2-foot, 3-foot, or 4-foot lamp(s) having medium bi-pin bases. Lamps shall pass the existing Federal TCLP limits. Lamp(s) shall have initial lumens of (1400, 2200, 3100, 3000), an average rated life of (24,000, 40,000) hours on (instant start, programmed rapid start) ballasts, a CRI of (85, 81), 94% lumen maintenance and a correlated color temperature of (3000K, 3500K, 4100K, 5000K or 6500K). Lamps shall be operated on QUICKTRONIC ballasts with complete system warranty from the manufacturer covering lamps and ballasts.

United States
OSRAM SYLVANIA
100 Endicott Street
Danvers, MA 01923

Trade
Phone: 1-800-255-5042
Fax: 1-800-255-5043

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OEM/Special Markets
Phone: 1-800-762-7191
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Display/Optic
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Lutron® sensor solutions

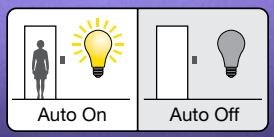
simple. affordable. energy-saving.

Turn lights off in unoccupied spaces . . .

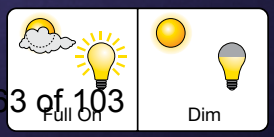
Save energy and money!

Lutron offers occupancy/vacancy and daylight sensors to save energy.

Occupancy sensors: Turn lights on automatically as an occupant enters the room and turns lights off when the room is unoccupied.



Daylight sensors: Take advantage of available daylight by lowering or turning off electric lights when sufficient daylight is available.



In-wall occupancy/vacancy sensors

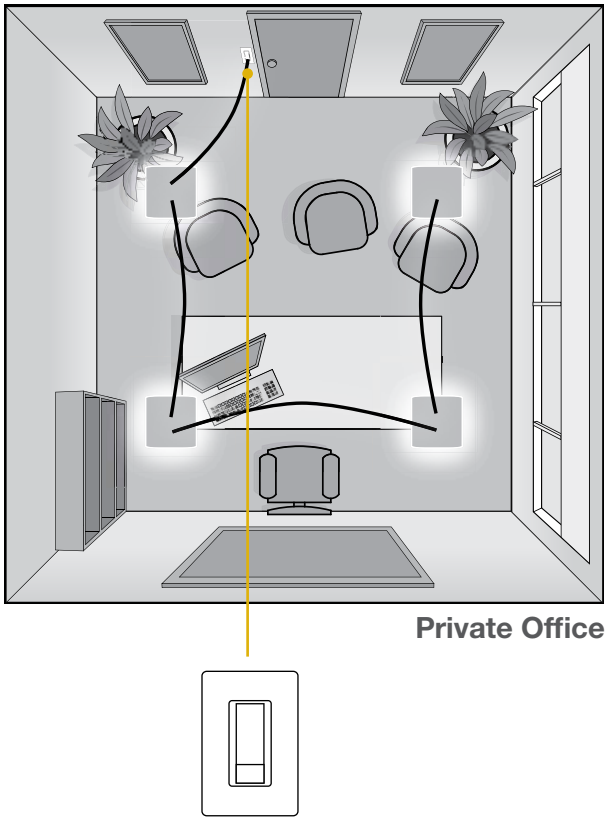
Maestro®

Features:

- Four versions available
  - — 2 Amp, single-pole 120 V switch
  - — 5 Amp, 3-way/multi-location 120 V switch
  - — dual-voltage commercial-grade 120 V/277 V switch
  - — 600 W, single-pole/multi-location 120 V dimmer
- Reliable XCT detection technology ensures lights stay on in occupied rooms
- Switches work with all load types
- Easy installation—no neutral wire, shallow backbox

Specifications:

- 180˚ sensor field-of-view
- Up to 900 ft^2 major motion and 400 ft^2 minor motion coverage
- 1, 3, 5, 15, or 30 minute timeout options
- 120 V switches and dimmer; 120 V/277 V switch available
- See coverage diagram on page 8



Private Office

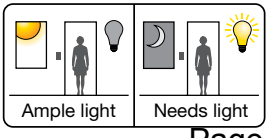
Colors and finishes:

- In-wall sensors* and Claro® wallplates available in gloss colors and Satin Colors®

* BL, GR, BR, and Satin Colors will be available 3/1 for 2 Amp and 5 Amp sensors

2 Amp and 5 Amp sensors also include **learnable ambient light detection.**

- Turns lights on only when needed
- Learns user behavior for when lights should stay on or turn off



Wireless occupancy/vacancy sensors

Radio Powr Savr™

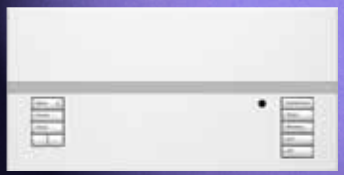
wall-mount sensors:

- 180° wall-mount sensor for spaces with ceiling obstructions or higher than 12-foot ceilings
- 90° corner-mount sensor
- Hallway sensor for spaces requiring longer coverage

ceiling-mount sensor:

- 360° sensing for spaces with 8 to 12-foot ceilings

Works with:



GRAFIK Eye® QS wireless

Maestro Wireless®

PowPak™

Features:

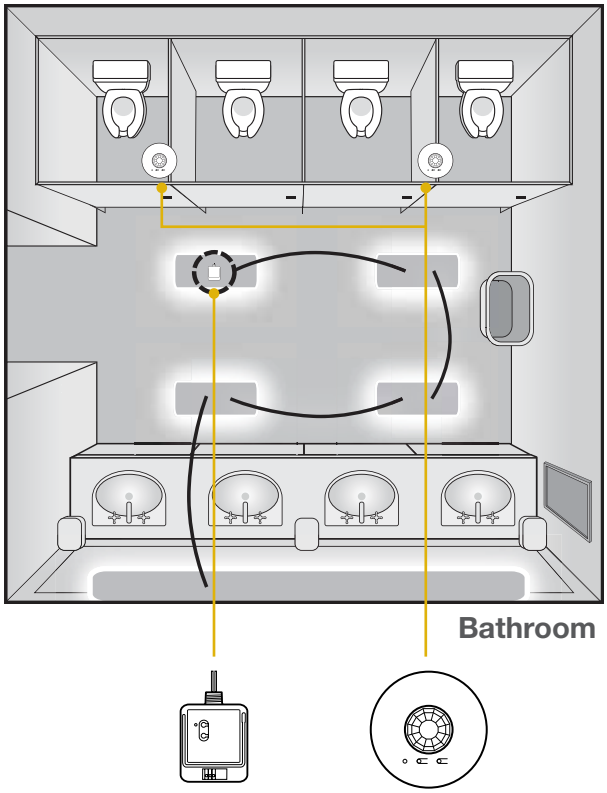
- No wiring required—eliminates power pack and wiring expenses
- Wall controls remain fully operable during automatic shut-off by sensor
- Operates in occupancy or vacancy mode
- Vacancy only available to meet California Title 24 Section 119 (j) requirements and NYC Energy Code Local Law 48
- Test mode assists in verifying the ideal sensor location

Specifications:

- Use up to three sensors per compatible control for maximum coverage; one sensor can control up to 10 compatible dimmers/switches for spaces with additional zones of light
- Timeout options include 1, 5, 15, and 30 minutes
- Battery included (10 year battery life)
- See coverage diagrams on page 8

Colors and finishes:

- Ceiling-mount and wall-mount sensors available in white (WH)



Radio Powr Savr occ/vac sensors used with PowPak ceiling-mount modules are easy to retrofit, and save energy in spaces like bathrooms.

- **Easy installation** saves labor, time, and money
- Wireless products **upgrade existing spaces with little disruption** during installation

Wireless daylight sensor

Radio Powr Savr™

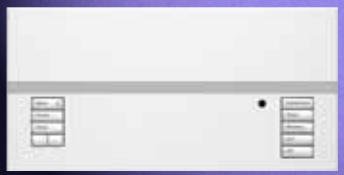
Features:

- Decreases or turns off electric light when sufficient daylight is available
- Increases electric light when insufficient daylight is available
- No wiring required

Maximize energy savings:

Combine occupancy/vacancy sensing with daylighting to maximize energy savings. Together, they can save 30% of lighting energy in a building. Use dimming where appropriate to save an additional 20%.

Works with:



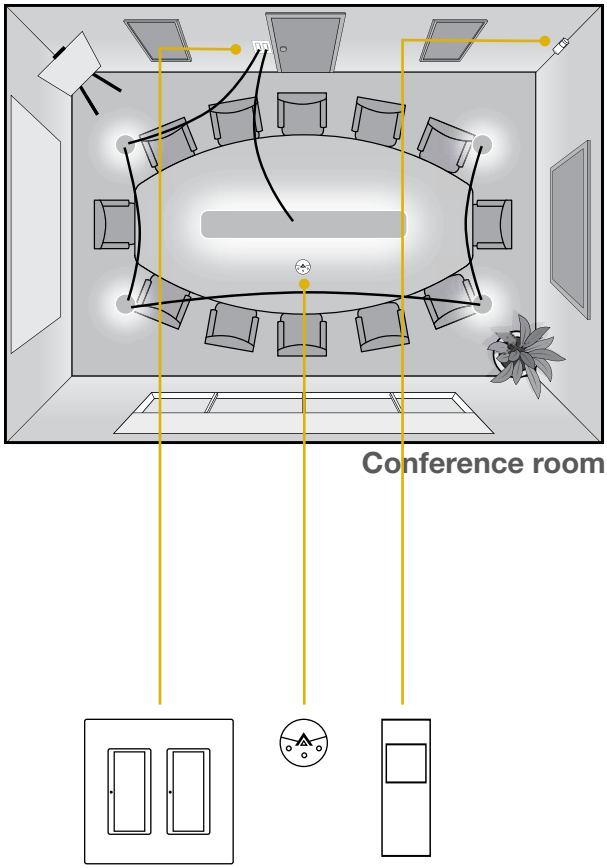
GRAFIK Eye® QS wireless

Maestro Wireless®

PowPak™

Specifications:

- Use one daylight sensor per compatible control
- One sensor can control up to 10 compatible dimmers/switches for spaces with additional zones of light
- Battery included (10-year battery life)



Conference room

Colors and finishes:

- Daylight sensors available in white (WH)

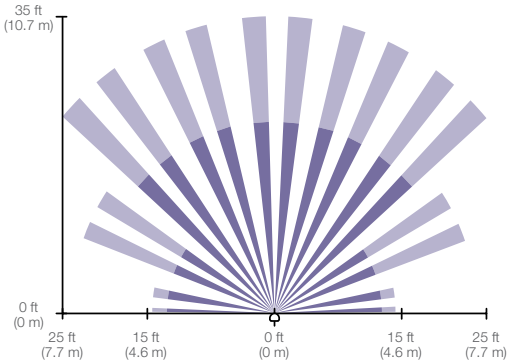
Combine the Radio Powr Savr **occupancy sensors and daylight sensor** to maximize energy savings in spaces like conference rooms.

- **Save more energy** by reducing the usage of electric lights when daylight is available
- Wireless products **reconfigure easily** based on space layout changes

Lutron® Sensor Coverage

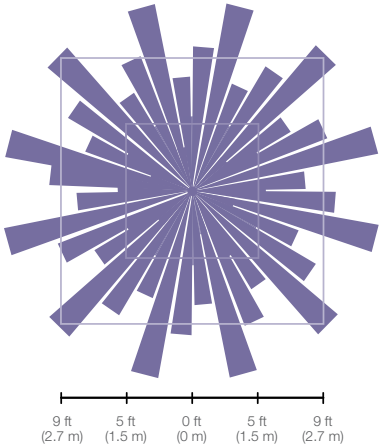
In-wall, 180°

400 ft² — minor motion
900 ft² — major motion



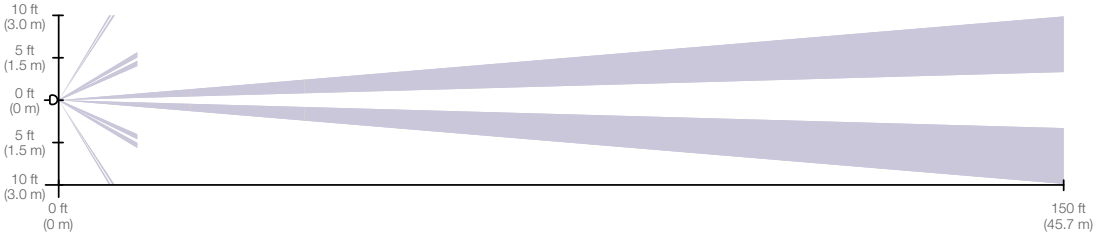
Ceiling-mount, 360°

Coverage varies by ceiling height



Hallway, long narrow field of view

Coverage varies by hallways with and length



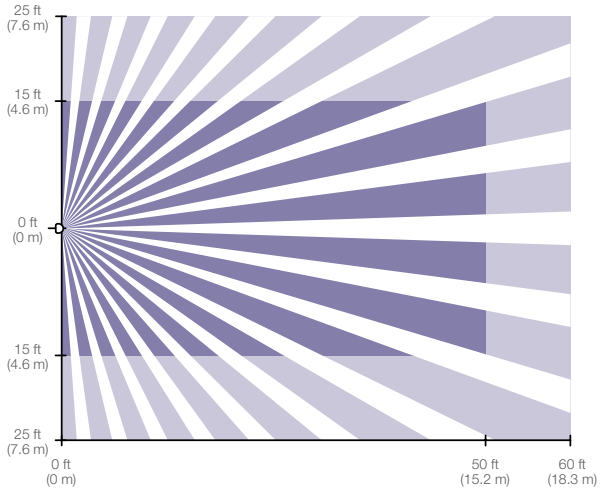
Key:

minor motion

major motion

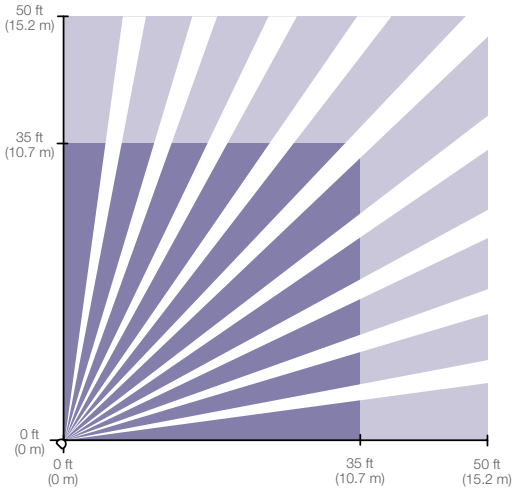
Wall-mount, 180°

1,500 ft² — minor motion
3,000 ft² — major motion



Corner-mount, 90°

1,223 ft² — minor motion
2,500 ft² — major motion



XCT™ Technology:

- This **exclusive, reliable sensing technology** enhances sensors' ability to **detect fine motions**
- Lights stay on when a room is occupied and stay off when a room is unoccupied

Clear Connect™ RF Technology:

- All Lutron wireless sensors operate on a quiet frequency band
- **Ensures flawless communication** free of interference, so lights work every time

Model Numbers

Maestro® occupancy sensors

Model number	Control type
MS-OPS2-XX[1]	single-pole switch with occupancy/vacancy sensor, 120 V, 2 A light, inc/halogen, MLV, ELV, CFL, LED, magnetic/electronic ballasts
MS-OPS5M-XX[1]	single-pole/3-way/multi-location switch with occupancy/vacancy sensor, 120 V, 5 A light, inc/halogen, MLV, ELV, CFL, LED, magnetic/electronic ballasts, 3 A fan
MS-OPS6M-DV-XX[1]	single-pole/multi-location switch with occupancy/vacancy sensor, 120 V/277 V, 6 A light, inc/halogen, MLV, ELV, non-dim fluorescent ballasts, 3 Amp fan
MS-OP600M-XX[1]	single-pole/multi-location dimmer with occupancy/vacancy sensor, 120 V, 600 W incandescent/halogen

■ Spec grade product
XX Color suffix
1 Vacancy only models also available. Replace the "O" in the model number with a "V" to order.

Radio Powr Savr™ sensors

Model number	Control type
LRF2-OCRB2-P-WH	360° ceiling-mounted occupancy/vacancy sensor, auto-on/auto-off or manual on/auto-off settings
LRF2-OWLB-P-WH	180° wall-mounted occupancy/vacancy sensor, auto-on/auto-off or manual on/auto-off settings
LRF2-OKLB-P-WH	90° corner-mounted occupancy/vacancy sensor, auto-on/auto-off or manual on/auto-off settings
LRF2-OHLB-P-WH	wall-mounted hallway occupancy/vacancy sensor, auto-on/auto-off or manual on/auto-off settings
LRF2-DCRB-WH	ceiling-mounted daylight sensor

PowPak™ modules

Model number	Control type
RMJ-EC032-DV-B	dimming module with EcoSystem, 120 V/277 V
RMJ-16R-DV-B	switching module with SoftSwitch, 16 A general purpose switch, 120 V/277 V

Colors and finishes:

- In-wall sensors* available in gloss colors and Satin Colors®

Colors and finishes:

- Ceiling-mount, wall-mount, corner-mount, and hallway occupancy/vacancy sensors available in white (WH)
- Daylight sensor available in white (WH)

* BL, GR, BR, and Satin Colors will be available 3/1 for 2 Amp and 5 Amp sensors

Maestro Wireless® load controllers

Model number	Control type
MRF2-600M-XX	single-pole/multi-location dimmer 120 V, 600 W inc/halogen
MRF2-10D-120-XX	single-pole/multi-location dimmer 120 V, 1000 W inc/halogen, magnetic low voltage
MRF2-6ND-120-XX	single-pole/multi-location neutral wire dimmer 120 V, 600 W inc/halogen, magnetic low voltage
MRF2-8S-DV-XX	single-pole/multi-location non-neutral switch 120 V/277 V, 8 A light, inc/halogen, MLV, ELV, non-dim fluorescent ballasts, does not require a neutral wire connection
MRF2-3LD-XX	plug-in lamp dimmer 300 W, inc/halogen for table or floor lamps
MRF2-3PD-3-XX	plug-in module 300 W dimming/switching

The colors of Lutron

Gloss colors:

- white (WH)
- ivory (IV)
- almond (AL)
- light almond (LA)
- gray (GR)
- brown (BR)
- black (BL)

Satin Colors®:

- hot (HT)
- merlot (MR)
- plum (PL)
- turquoise (TQ)
- sea glass (SG)
- midnight (MN)
- sienna (SI)
- terracotta (TC)
- greenbriar (GB)
- bluestone (BG)
- taupe (TP)
- eggshell (ES)
- biscuit (BI)
- snow (SW)
- palladium (PD)
- mocha stone (MS)
- goldstone (GS)
- desert stone (DS)
- stone (ST)
- limestone (LS)

Colors and finishes:

- Dimmers and switches available in gloss colors and Satin Colors®
- Plug-in lamp dimmer available in gloss white (WH), black (BL)
- Plug-in module available in gloss white (WH), black (BL), and brown (BR)

LITHONIA LIGHTING®

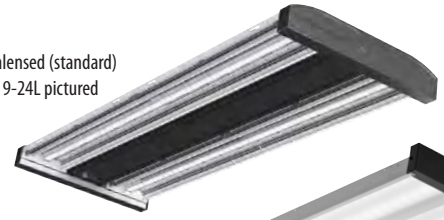
Catalog Number	IBL 18L WD LP740 DLC
Notes	
Type	HB1

T-BEAM® LED

LED High Bay

IBL

Unlensed (standard) 9-24L pictured



Patent Pending

Lensed (optional) 36-48L pictured

LED DESIGNLIGHTS CONSORTIUM®

FEATURES & SPECIFICATIONS

INTENDED USE — Ideal one-for-one replacement of conventional high bay systems such as HID and fluorescent. Applications include warehousing, manufacturing and other large indoor spaces with mounting heights up to 60'. **Certain airborne contaminants can diminish integrity of acrylic.** Click here for Acrylic Environmental Compatibility table for suitable uses.

CONSTRUCTION — Die-formed aluminum alloy chassis with integrated fins for superior cooling through natural convection. The channel is made of heavy-duty code gauge (20-gauge) steel which is powder coated after fabrication. The assembly is rigidly designed to resist twisting and bowing. Access plate on the back of the channel housing allows quick and easy wiring.

OPTICS — Narrow and wide distributions available to meet both horizontal and vertical light level requirements. Reflectors feature precision-formed optics utilizing reflective Alanod® MIRO-5® aluminum. Semi-diffuse lens optional to provide glare control and LED protection.

ELECTRICAL — 89% lumen maintenance at 60,000 hours; predicted life of more than 100,000 hours. Thermally protected driver standard with 0-10V dimming.

LISTINGS — CSA Certified to U.S. and Canadian safety standards. Damp location listed. Suitable for ambient temperatures from -40°F (-40°C) to 131°F (55°C). Patent pending.

WARRANTY — 5-year limited warranty. Complete warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

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

Actual wattage may differ by +/-1% when operating between 120-277V +/-10%.

Note: Specifications subject to change without notice.

ORDERING INFORMATION

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

Example: IBL 18L WD LP740 DLC

IBL													
Series	**Lumens**				**Distribution**		**Lens**		**Voltage**		**Color temperature**[2]	
IBL	9L	9,000 lumens	24L	24,000 lumens	WD	Wide	(blank)	No shielding	(blank)	MVOLT; 120-277V	LP740 DLC	70 CRI, 4000K CCT
	12L	12,000 lumens	36L	36,000 lumens[1]	ND	Narrow	SD125	Semi-diffuse acrylic	HVOLT	347V-480V	LP750 DLC	70 CRI, 5000K CCT
	18L	18,000 lumens	48L	48,000 lumens[1]					120	120V	LP740	70 CRI, 4000K CCT
									277	277V	LP750	70 CRI, 5000K CCT

Options

GLR	Internal fast-blow fuse[3,4]
OUTCTR	Wiring leads pulled through back center of fixture
OCS	RELOC® OnePass® 5' installed[3]
IMP	Integrated modular plug[5,6]
I2412	IOTA emergency LED battery pack for 32°F to104°F (0°C to 40°C) ambient[7,8]
SPD	Surge protector[3]
WGX	Standard wire guard, installed

Cord sets:[9]

CS1W	Straight plug, 120V[10]
CS3W	Twist-lock, 120V[10]
CS7W	Straight plug, 277V[10]
CS11W	Twist-lock, 277V[10]
CS25W	Twist-lock, 347V[10]
CS97W	Twist-lock, 480V[10]
CS93W	600 SO white cord, no plug (no voltage required)

Motion sensors :

MSE360	360° motion sensor embedded, high bay[11,12]
MSE360LB	360° motion sensor embedded, low bay[11,12]
MSIPED	Aisle motion sensor, photo sensor, pre-wired[3]
MSI360PED	360° motion sensor, photo sensor, pre-wired[3]
MSI	Aisle motion sensor, pre-wired[3]
MSI360	360° motion sensor, pre-wired[3]
MSID	Aisle motion sensor, pre-wired, HI/LO dimming control[3]
MSI360D	360° motion sensor, pre-wired, HI/LO dimming control[3]
NMSI	nLight, aisle motion sensor, pre-wired[3]
NMSI360	nLight enabled, 360° motion sensor, pre-wired[3]
nEPP5D	nLight dimming module[3,13]

Finish

(blank)	Gloss white with textured dark gray accents
DWH	Gloss white

Accessories: *Order as separate catalog number.*

Mounting:

IBAC120 M20	Aircraft cable 10' with hook (one pair)
IBAC240 M20	Aircraft cable 20' with hook (one pair)
IBHMP	Hook monopoint
ZACVH	Aircraft 10' V hanger (one pair)[8]
IBLPMP	Pendant monopoint splice box, includes side covers for use with 9L-24L
IBLPMPHB	Pendant monopoint splice box, includes side covers (3/4" hub)for use with 9L-24L.
IBLPMP48	Pendant monopoint splice box, includes side covers for use with 36L and 48L
IBLPMPHB48	Pendant monopoint splice box, includes side covers (3/4" hub) for use with 36L and 48L
HC36	Hanger chain, 36"[8]
THUN	Tong hanger bracket (one pair)[8,14]

Cord sets and sensors for IMP option:

CS1WIMP	Straight plug, 120V[9,10,15]
CS3WIMP	Twist-lock, 120V[9,10,15]
CS7WIMP	Straight plug, 277V[9,10,15]
CS11WIMP	Twist-lock, 277V[9,10,15]
CS25WIMP	Twist-lock 347V[9,10,15]
CS93WIMP	600V SO white cord, no plug (no voltage required)[9, 15]
CS97WIMP	Twist-lock 480V[9,10,15]
MSIIMP	Aisle sensor[6,15]
MSI360IMP	360° sensor[6,15]

Field-installable door and lens assemblies:

DLIBL SD125	Semi-diffuse acrylic lens for use 9L - 24L
DLIBL48 SD125	Semi-diffuse acrylic lens for use with 36L and 48L

Wire guards:

WGIBL	Wire guard for use with 9L - 24L
WGIBL48	Wire guard for use with 36L and 48L

See footnotes on page 2.

Notes

1 Fixtures more than 24" wide can interfere with the operation of some fire sprinkler systems. Verify specific installation requirements with local fire official and insurance carrier. Emergency battery packs are not available with 36L or 48L.
2 Select product configurations are Design Lights Consortium (DLC) qualified; does not apply to 9L packages or 12 ND SD125 LP740 configuration.
3 Specify voltage.
4 Not available with 347 voltage.
5 Must be factory-installed.
6 Must have "IMP" power cord to power fixture.
7 Must specify voltage. 120V or 277V only. Not available with cordset w/plug or OUTCTR option.
8 Not available with 36L or 48L lumen package. When using THUN option maximum ambient temperature is 35°C.
9 All cord sets are 18/3, 6', white.
10 Cord sets are voltage specific. Specify voltage. Other configurations available. Consult factory.
11 Specify voltage;120, 277 or 347 only.
12 Not available with battery pack.
13 Consult factory for dimming of 208, 347 or 480V fixtures.
14 95°F (35°C) maximum ambient temperature when using the THUN.
15 Must have IMP option on fixture.

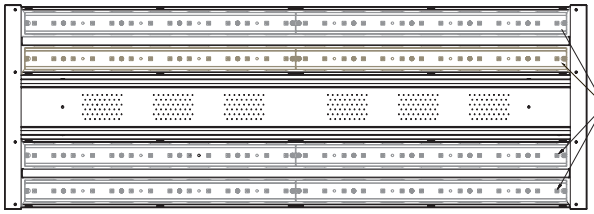
9L, 18L, and 36L lumen packages

12L, 24L, and 48L lumen packages

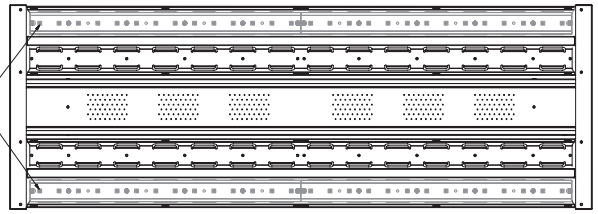
To create the 9L, 18L, and 36L lumen packages, the PCBA (LED board) is depopulated from the endcaps inward. The first LED is 5-1/2" from the end cap on those units, compared to 1-1/8" on the 12L, 24L, and 48L product.

DIMENSIONS

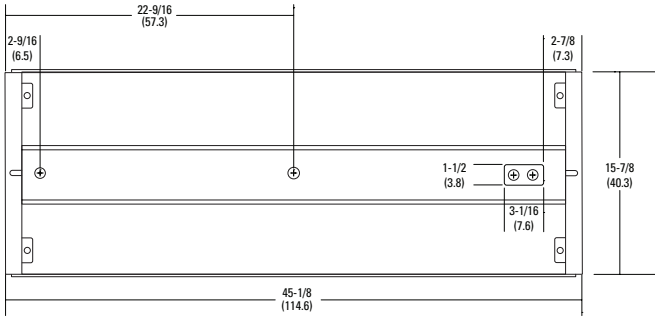
Dimensions may vary with options or accessories.



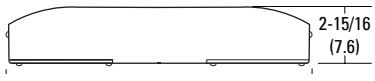
18L, and 24L utilize two drivers wired inboard/outboard
36L and 48L ***(not shown)*** utilize four drivers wired inboard/outboard



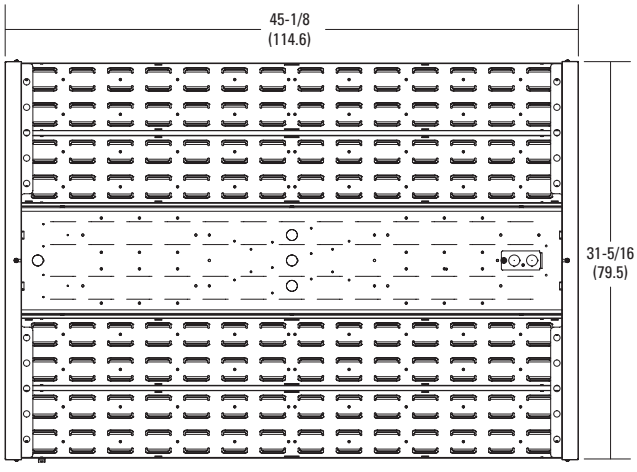
9L and 12L utilize one driver



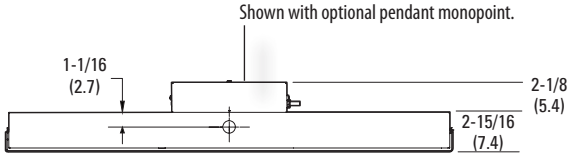
9L-24L



9L-24L



36L-48L



36L-48L

OPERATIONAL DATA

Lumen Package	Ambient Rating (120V - 277V)	Ambient Rating (347V / 480V)	Distribution	Delivered Lumens 5000K CCT @ 77°F (25°C) Ambient Temperature	Delivered Lumens 4000K CCT @ 77°F (25°C) Ambient Temperature	Lumen Multiplier @ 104°F (40°C) Ambient Temperature	Lumen Multiplier @ 104°F (40°C) Ambient w/SD125 Lens Kit
9L	-40°F to 131°F (-40°C to 55°C)	-40°F to 104°F (-40°C to 40°C)	WD	10,039	9,794	0.98	0.901
			ND	8,888	8,671	0.98	0.950
12L	-40°F to 131°F (-40°C to 55°C)	-40°F to 104°F (-40°C to 40°C)	WD	13,055	11,702	0.98	0.901
			ND	11,558	10,360	0.98	0.950
18L	-40°F to 131°F (-40°C to 55°C)	-40°F to 104°F (-40°C to 40°C)	WD	19,893	19,406	0.98	0.901
			ND	17,612	17,181	0.98	0.950
24L	-40°F to 131°F (-40°C to 55°C)	-40°F to 104°F (-40°C to 40°C)	WD	24,052	23,463	0.98	0.901
			ND	21,294	20,772	0.98	0.950
36L	-40°F to 131°F (-40°C to 55°C)	-40°F to 104°F (-40°C to 40°C)	WD	36,805	36,480	0.98	0.901
			ND	35,599	35,284	0.98	0.950
48L	-40°F to 131°F (-40°C to 55°C)	-40°F to 104°F (-40°C to 40°C)	WD	46,856	46,443	0.98	0.901
			ND	45,320	44,920	0.98	0.950

CHARACTERISTICS

Lumen Package	Wattage				Length	Width	Depth	Weight without Lens *(Lens kit adds approx. 7 lbs.)*	Comparable Light Source
	120V	277V	347V	480V	Dimensions are shown in inches (centimeters) unless otherwise noted.				
9L	103	98	107	106	45 (114.3)	15-3/4 (40.0)	3-1/4 (8.3)	12.5 lbs. (5.7 kg)	2-lamp T5HO
12L	134	131	142	141	45 (114.3)	15-3/4 (40.0)	3-1/4 (8.3)	12.5 lbs. (5.7 kg)	4-lamp T8, 250W HID
18L	213	199	213	211	45 (114.3)	15-3/4 (40.0)	3-1/4 (8.3)	17.5 lbs. (7.9 kg)	4-lamp T5HO, 6-lamp T8, 400W HID
24L	262	258	284	281	45 (114.3)	15-3/4 (40.0)	3-1/4 (8.3)	17.5 lbs. (7.9 kg)	6-lamp T5HO, 8-lamp T8
36L	423	417	459	454	45 (114.3)	31-1/3 (79.5)	3-1/4 (8.3)	35 lbs. (15.9 kg)	8-lamp T5HO, 750 HID
48L	531	511	562	557	45 (114.3)	31-1/3 (79.5)	3-1/4 (8.3)	35 lbs. (15.9 kg)	10-lamp T5HO,1000W HID

PROJECTED LUMEN MAINTENANCE

Operating Hours	0	10,000	20,000	25,000	35,000	50,000	60,000	75,000	100,000
Lumen Maintenance Factor	1	0.96	0.95	0.94	0.93	0.91	0.89	0.87	0.84

LUMENS VS. AMBIENT TEMPERATURE

Ambient °C	Ambient °F	Lumen Multiplier
0	32	1.02
5	41	1.015
10	50	1.01
15	59	1.008
20	68	1.005
25	77	1
30	86	0.995
35	95	0.985
40	104	0.98
45	113	0.97
50	122	0.965
55	131	0.96

PHOTOMETRICS

See www.lithonia.com.

SENSORS AND CONTROLS

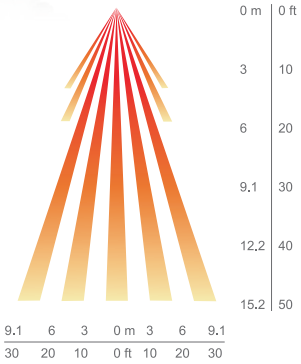
Sensors are an excellent way to maximize the return on your high bay lighting investment. I-BEAM LED fixtures can be equipped with an occupancy sensor, photocell, nLight® or nWiFi™. These devices are factory-installed and require minimal labor to set up during fixture installation.

MSI360
360° Lens

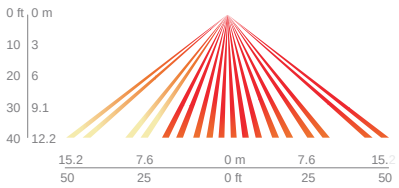
MSI
Aisleway Lens

MSE360
Embedded 360° Lens

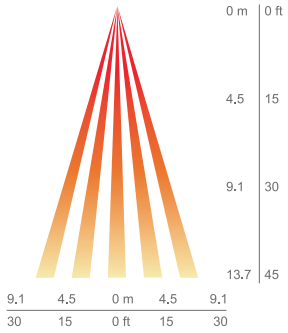
HIGH VIEW



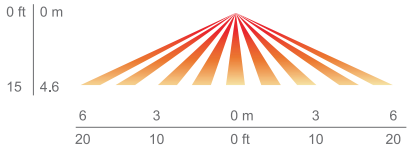
SIDE VIEW



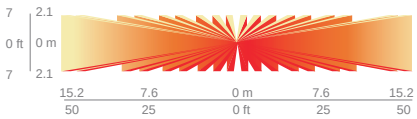
HIGH VIEW



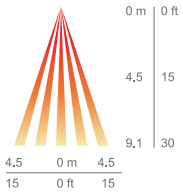
LOW VIEW



TOP VIEW



LOW VIEW



MSI360: The Sensor Switch CMRB 6 open-area sensor has 360° coverage and can be integrated with a photocell (PE) for further energy savings.

Mounting Location: End Plate

- Best choice for 15 to 45 ft (4.57 to 13.72 m) mounting heights
- 15 to 20 ft (4.57 to 6.10 m) radial coverage overlaps area lit by a typical high bay fixture

MSI: The Sensor Switch CMRB 50 aisleway sensor offers a dedicated sensor and extended range, compared to competitive products.

Mounting Location: End Plate

- Provides 50° bi-directional and 10° wide coverage pattern
- 1.2x mounting height equals approximate detection range in either direction
- Sensor lens turret rotates 90° in order to easily adjust the direction of the view pattern

MSE360: The Sensor Switch SFR 5 open-area sensor is embedded in the fixture, making it less intrusive than traditional sensors.

Mounting Location: Center Channel

- Recommended for fixtures that have a 1.0 spacing-to-mounting height ratio or less
- Use provided masking kit to mask off a portion of the view pattern for end-of-aisle applications or, to trim sensor's side viewing to create a rectangular pattern for center-of-aisle viewing only.

All I-BEAM LED fixtures can be equipped with nLight. nLight is an exclusive and revolutionary system that cost-effectively combines time-based and sensor-based lighting controls. The digital interface allows for quick, easy modifications to time delays, photocell sensitivity and light levels at the individual fixture level.

nWiFi for nLight adds conventional WiFi technology to nLight devices, such as occupancy sensors and relays, enabling them to seamlessly communicate with both wired and wireless nLight lighting control zones. This powerful new nLight technology further simplifies installation and reduces hardware costs.

OPTIONS AND ACCESSORIES

The I-BEAM LED fixture offers numerous options for almost every electrical and optical component, including a long list of field-installable accessories.

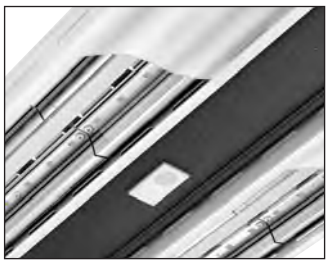
REFLECTORS
Wide distribution is formed with 93% reflective white paint. Narrow distribution is formed with Alanod® MIRO®.

INTEGRATED ELECTRICAL OPTIONS
Channel sized to accept emergency components, surge protector, fusing and embedded sensors.

WIRE GUARD (external)
Field- or factory-installed. Protects light engine from impact. Mounting hardware included.

Factory-installed option:
WGX

Field-installed options:
WGIBL
WGIBL48



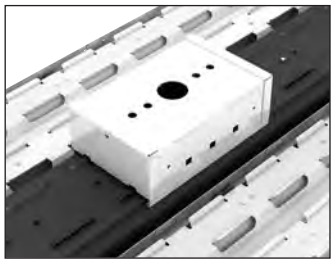
DIFFUSER
Field- or factory-installed. Available in semi-diffuse acrylic. Mounting hardware included.

Factory-installed option:
SD125

Field-installed option:
DLIBL SD125
DLIBL48 SD125

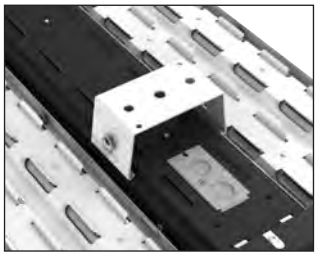
EMBEDDED OCCUPANCY SENSOR
Can be placed in the channel cover which reduces the risk of sensor damage compared to non-embedded sensors.

Factory-installed option:
MSE360



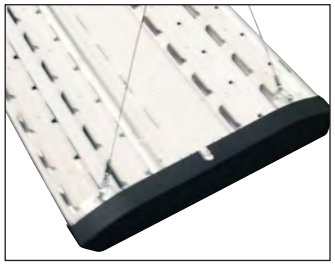
PENDANT MONOPOINT BRACKET
Accepts ¾" rigid conduit for single-point mounting. The bracket can be adjusted to help counterbalance fixture to offset weight variance from end to end.

Order as:
IBLPMP
IBLPMPHB
IBLPMP48
IBLPMPHB48



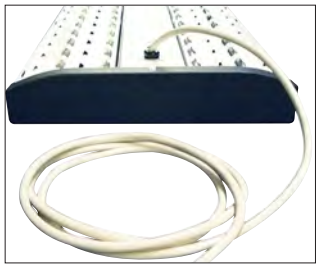
SURFACE MOUNT BRACKET
Rigidly attach I-BEAM LED to a hard ceiling. Can be placed anywhere along fixture.

Order as:
THUN (not for use in ambient temperatures exceeding 95°F (35°C), or on the 36L or 48L)



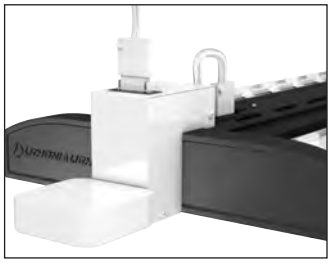
HANGERS
Several lengths of aircraft cables and chains available; with or without V-hooks.

Order as:
IBAC120 M20
IBHMP
For others, see accessories on page 1.



CORD SETS
Available in several lengths with or without molded plug. White is standard.

For available options, see ordering information on page 1.



INTEGRATED MODULAR PLUG (IMP)
Must be factory-installed and allows for field installation of various modular accessories including cordsets, motion sensors, photocells and LC&D X-point™ relays.

LITHONIA LIGHTING®

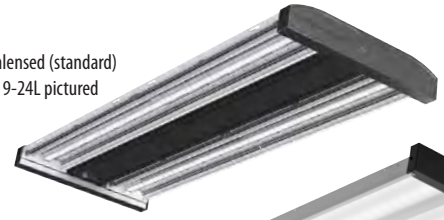
Catalog Number	IBL 18L WD LP740 DLC
Notes	
Type	HB1

T-BEAM® LED

LED High Bay

IBL

Unlensed (standard)
9-24L pictured



Patent Pending

Lensed (optional)
36-48L pictured

DESIGNLIGHTS CONSORTIUM®

FEATURES & SPECIFICATIONS

INTENDED USE — Ideal one-for-one replacement of conventional high bay systems such as HID and fluorescent. Applications include warehousing, manufacturing and other large indoor spaces with mounting heights up to 60'. **Certain airborne contaminants can diminish integrity of acrylic.** **Click here for Acrylic Environmental Compatibility table for suitable uses.**

CONSTRUCTION — Die-formed aluminum alloy chassis with integrated fins for superior cooling through natural convection. The channel is made of heavy-duty code gauge (20-gauge) steel which is powder coated after fabrication. The assembly is rigidly designed to resist twisting and bowing. Access plate on the back of the channel housing allows quick and easy wiring.

OPTICS — Narrow and wide distributions available to meet both horizontal and vertical light level requirements. Reflectors feature precision-formed optics utilizing reflective Alanod® MIRO-5® aluminum. Semi-diffuse lens optional to provide glare control and LED protection.

ELECTRICAL — 89% lumen maintenance at 60,000 hours; predicted life of more than 100,000 hours. Thermally protected driver standard with 0-10V dimming.

LISTINGS — CSA Certified to U.S. and Canadian safety standards. Damp location listed. Suitable for ambient temperatures from -40°F (-40°C) to 131°F (55°C). Patent pending.

WARRANTY — 5-year limited warranty. Complete warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

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

Actual wattage may differ by +/-1% when operating between 120-277V +/-10%.

Note: Specifications subject to change without notice.

ORDERING INFORMATION

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

Example: IBL 18L WD LP740 DLC

IBL						
Series	**Lumens**		**Distribution**	**Lens**	**Voltage**	**Color temperature**[2]
IBL	9L 9,000 lumens	24L 24,000 lumens	WD Wide	(blank) No shielding	(blank) MVOLT; 120-277V	LP740 DLC 70 CRI, 4000K CCT
	12L 12,000 lumens	36L 36,000 lumens[1]	ND Narrow	SD125 Semi-diffuse acrylic	HVOLT 347V-480V	LP750 DLC 70 CRI, 5000K CCT
	18L 18,000 lumens	48L 48,000 lumens[1]			120 120V	LP740 70 CRI, 4000K CCT
					277 277V	LP750 70 CRI, 5000K CCT

Options

GLR	Internal fast-blow fuse[3,4]
OUTCTR	Wiring leads pulled through back center of fixture
OCS	RELOC® OnePass® 5' installed[3]
IMP	Integrated modular plug[5,6]
I2412	IOTA emergency LED battery pack for 32°F to104°F (0°C to 40°C) ambient[7,8]
SPD	Surge protector[3]
WGX	Standard wire guard, installed

Cord sets:[9]

CS1W	Straight plug, 120V[10]
CS3W	Twist-lock, 120V[10]
CS7W	Straight plug, 277V[10]
CS11W	Twist-lock, 277V[10]
CS25W	Twist-lock, 347V[10]
CS97W	Twist-lock, 480V[10]
CS93W	600 SO white cord, no plug (no voltage required)

Motion sensors :

MSE360	360° motion sensor embedded, high bay[11,12]
MSE360LB	360° motion sensor embedded, low bay[11,12]
MSIPED	Aisle motion sensor, photo sensor, pre-wired[3]
MSI360PED	360° motion sensor, photo sensor, pre-wired[3]
MSI	Aisle motion sensor, pre-wired[3]
MSI360	360° motion sensor, pre-wired[3]
MSID	Aisle motion sensor, pre-wired, HI/LO dimming control[3]
MSI360D	360° motion sensor, pre-wired, HI/LO dimming control[3]
NMSI	nLight, aisle motion sensor, pre-wired[3]
NMSI360	nLight enabled, 360° motion sensor, pre-wired[3]
nEPP5D	nLight dimming module[3,13]

Finish

(blank)	Gloss white with textured dark gray accents
DWH	Gloss white

Accessories: *Order as separate catalog number.*

Mounting:

IBAC120 M20	Aircraft cable 10' with hook (one pair)
IBAC240 M20	Aircraft cable 20' with hook (one pair)
IBHMP	Hook monopoint
ZACVH	Aircraft 10' V hanger (one pair)[8]
IBLPMP	Pendant monopoint splice box, includes side covers for use with 9L-24L
IBLPMPHB	Pendant monopoint splice box, includes side covers (3/4" hub)for use with 9L-24L.
IBLPMP48	Pendant monopoint splice box, includes side covers for use with 36L and 48L
IBLPMPHB48	Pendant monopoint splice box, includes side covers (3/4" hub) for use with 36L and 48L
HC36	Hanger chain, 36"[8]
THUN	Tong hanger bracket (one pair)[8,14]

Cord sets and sensors for IMP option:

CS1WIMP	Straight plug, 120V[9,10,15]
CS3WIMP	Twist-lock, 120V[9,10,15]
CS7WIMP	Straight plug, 277V[9,10,15]
CS11WIMP	Twist-lock, 277V[9,10,15]
CS25WIMP	Twist-lock 347V[9,10,15]
CS93WIMP	600V SO white cord, no plug (no voltage required)[9, 15]
CS97WIMP	Twist-lock 480V[9,10,15]
MSIIMP	Aisle sensor[6,15]
MSI360IMP	360° sensor[6,15]

Field-installable door and lens assemblies:

DLIBL SD125	Semi-diffuse acrylic lens for use 9L - 24L
DLIBL48 SD125	Semi-diffuse acrylic lens for use with 36L and 48L

Wire guards:

WGIBL	Wire guard for use with 9L - 24L
WGIBL48	Wire guard for use with 36L and 48L

See footnotes on page 2.

Notes

1 Fixtures more than 24" wide can interfere with the operation of some fire sprinkler systems. Verify specific installation requirements with local fire official and insurance carrier. Emergency battery packs are not available with 36L or 48L.
2 Select product configurations are Design Lights Consortium (DLC) qualified; does not apply to 9L packages or 12 ND SD125 LP740 configuration.
3 Specify voltage.
4 Not available with 347 voltage.
5 Must be factory-installed.
6 Must have "IMP" power cord to power fixture.
7 Must specify voltage. 120V or 277V only. Not available with cordset w/plug or OUTCTR option.
8 Not available with 36L or 48L lumen package. When using THUN option maximum ambient temperature is 35°C.
9 All cord sets are 18/3, 6', white.
10 Cord sets are voltage specific. Specify voltage. Other configurations available. Consult factory.
11 Specify voltage;120, 277 or 347 only.
12 Not available with battery pack.
13 Consult factory for dimming of 208, 347 or 480V fixtures.
14 95°F (35°C) maximum ambient temperature when using the THUN.
15 Must have IMP option on fixture.

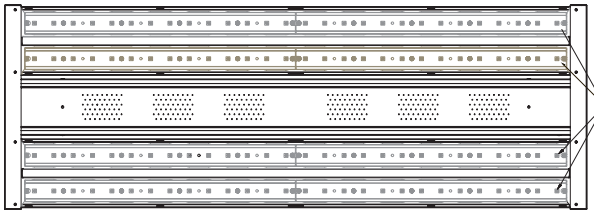
9L, 18L, and 36L lumen packages

12L, 24L, and 48L lumen packages

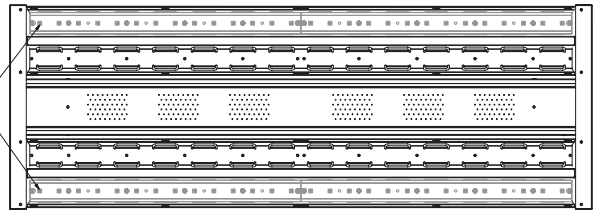
To create the 9L, 18L, and 36L lumen packages, the PCBA (LED board) is depopulated from the endcaps inward. The first LED is 5-1/2" from the end cap on those units, compared to 1-1/8" on the 12L, 24L, and 48L product.

DIMENSIONS

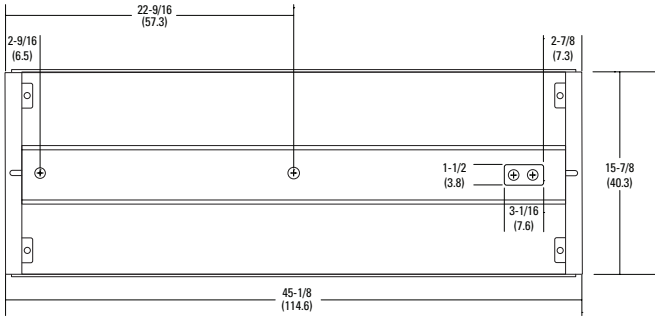
Dimensions may vary with options or accessories.



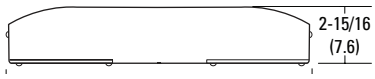
18L, and 24L utilize two drivers wired inboard/outboard
36L and 48L ***(not shown)*** utilize four drivers wired inboard/outboard



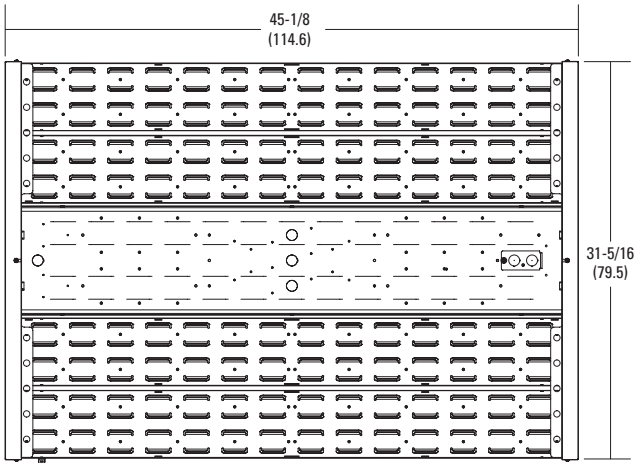
9L and 12L utilize one driver



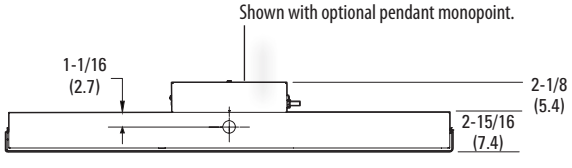
9L-24L



9L-24L



36L-48L



36L-48L

OPERATIONAL DATA

Lumen Package	Ambient Rating (120V - 277V)	Ambient Rating (347V / 480V)	Distribution	Delivered Lumens 5000K CCT @ 77°F (25°C) Ambient Temperature	Delivered Lumens 4000K CCT @ 77°F (25°C) Ambient Temperature	Lumen Multiplier @ 104°F (40°C) Ambient Temperature	Lumen Multiplier @ 104°F (40°C) Ambient w/SD125 Lens Kit
9L	-40°F to 131°F (-40°C to 55°C)	-40°F to 104°F (-40°C to 40°C)	WD	10,039	9,794	0.98	0.901
			ND	8,888	8,671	0.98	0.950
12L	-40°F to 131°F (-40°C to 55°C)	-40°F to 104°F (-40°C to 40°C)	WD	13,055	11,702	0.98	0.901
			ND	11,558	10,360	0.98	0.950
18L	-40°F to 131°F (-40°C to 55°C)	-40°F to 104°F (-40°C to 40°C)	WD	19,893	19,406	0.98	0.901
			ND	17,612	17,181	0.98	0.950
24L	-40°F to 131°F (-40°C to 55°C)	-40°F to 104°F (-40°C to 40°C)	WD	24,052	23,463	0.98	0.901
			ND	21,294	20,772	0.98	0.950
36L	-40°F to 131°F (-40°C to 55°C)	-40°F to 104°F (-40°C to 40°C)	WD	36,805	36,480	0.98	0.901
			ND	35,599	35,284	0.98	0.950
48L	-40°F to 131°F (-40°C to 55°C)	-40°F to 104°F (-40°C to 40°C)	WD	46,856	46,443	0.98	0.901
			ND	45,320	44,920	0.98	0.950

CHARACTERISTICS

Lumen Package	Wattage				Length	Width	Depth	Weight without Lens *(Lens kit adds approx. 7 lbs.)*	Comparable Light Source
	120V	277V	347V	480V	Dimensions are shown in inches (centimeters) unless otherwise noted.				
9L	103	98	107	106	45 (114.3)	15-3/4 (40.0)	3-1/4 (8.3)	12.5 lbs. (5.7 kg)	2-lamp T5HO
12L	134	131	142	141	45 (114.3)	15-3/4 (40.0)	3-1/4 (8.3)	12.5 lbs. (5.7 kg)	4-lamp T8, 250W HID
18L	213	199	213	211	45 (114.3)	15-3/4 (40.0)	3-1/4 (8.3)	17.5 lbs. (7.9 kg)	4-lamp T5HO, 6-lamp T8, 400W HID
24L	262	258	284	281	45 (114.3)	15-3/4 (40.0)	3-1/4 (8.3)	17.5 lbs. (7.9 kg)	6-lamp T5HO, 8-lamp T8
36L	423	417	459	454	45 (114.3)	31-1/3 (79.5)	3-1/4 (8.3)	35 lbs. (15.9 kg)	8-lamp T5HO, 750 HID
48L	531	511	562	557	45 (114.3)	31-1/3 (79.5)	3-1/4 (8.3)	35 lbs. (15.9 kg)	10-lamp T5HO,1000W HID

PROJECTED LUMEN MAINTENANCE

Operating Hours	0	10,000	20,000	25,000	35,000	50,000	60,000	75,000	100,000
Lumen Maintenance Factor	1	0.96	0.95	0.94	0.93	0.91	0.89	0.87	0.84

LUMENS VS. AMBIENT TEMPERATURE

Ambient °C	Ambient °F	Lumen Multiplier
0	32	1.02
5	41	1.015
10	50	1.01
15	59	1.008
20	68	1.005
25	77	1
30	86	0.995
35	95	0.985
40	104	0.98
45	113	0.97
50	122	0.965
55	131	0.96

PHOTOMETRICS

See www.lithonia.com.

SENSORS AND CONTROLS

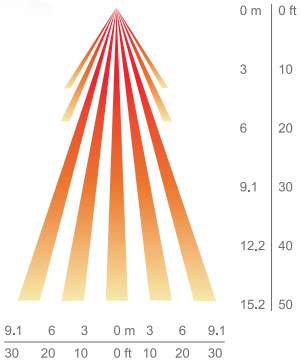
Sensors are an excellent way to maximize the return on your high bay lighting investment. I-BEAM LED fixtures can be equipped with an occupancy sensor, photocell, nLight® or nWiFi™. These devices are factory-installed and require minimal labor to set up during fixture installation.

MSI360
360° Lens

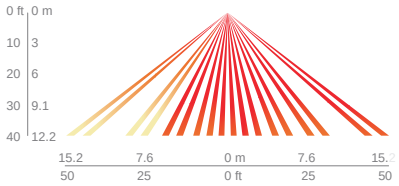
MSI
Aisleway Lens

MSE360
Embedded 360° Lens

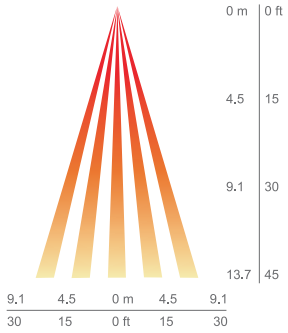
HIGH VIEW



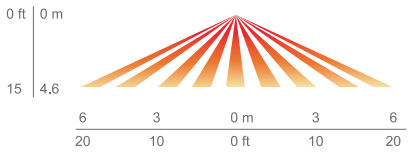
SIDE VIEW



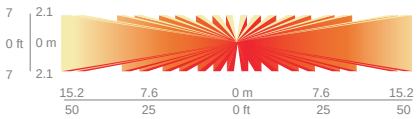
HIGH VIEW



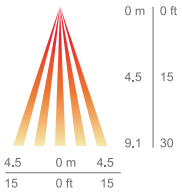
LOW VIEW



TOP VIEW



LOW VIEW



MSI360: The Sensor Switch CMRB 6 open-area sensor has 360° coverage and can be integrated with a photocell (PE) for further energy savings.

Mounting Location: End Plate

- Best choice for 15 to 45 ft (4.57 to 13.72 m) mounting heights
- 15 to 20 ft (4.57 to 6.10 m) radial coverage overlaps area lit by a typical high bay fixture

MSI: The Sensor Switch CMRB 50 aisleway sensor offers a dedicated sensor and extended range, compared to competitive products.

Mounting Location: End Plate

- Provides 50° bi-directional and 10° wide coverage pattern
- 1.2x mounting height equals approximate detection range in either direction
- Sensor lens turret rotates 90° in order to easily adjust the direction of the view pattern

MSE360: The Sensor Switch SFR 5 open-area sensor is embedded in the fixture, making it less intrusive than traditional sensors.

Mounting Location: Center Channel

- Recommended for fixtures that have a 1.0 spacing-to-mounting height ratio or less
- Use provided masking kit to mask off a portion of the view pattern for end-of-aisle applications or, to trim sensor's side viewing to create a rectangular pattern for center-of-aisle viewing only.

nLIGHT

nWiFi

All I-BEAM LED fixtures can be equipped with nLight. nLight is an exclusive and revolutionary system that cost-effectively combines time-based and sensor-based lighting controls. The digital interface allows for quick, easy modifications to time delays, photocell sensitivity and light levels at the individual fixture level.

nWiFi for nLight adds conventional WiFi technology to nLight devices, such as occupancy sensors and relays, enabling them to seamlessly communicate with both wired and wireless nLight lighting control zones. This powerful new nLight technology further simplifies installation and reduces hardware costs.

OPTIONS AND ACCESSORIES

The I-BEAM LED fixture offers numerous options for almost every electrical and optical component, including a long list of field-installable accessories.

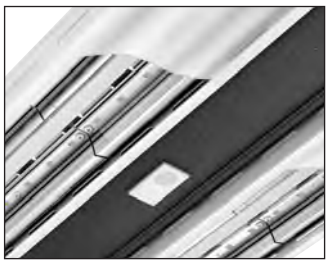
REFLECTORS
Wide distribution is formed with 93% reflective white paint. Narrow distribution is formed with Alanod® MIRO®.

INTEGRATED ELECTRICAL OPTIONS
Channel sized to accept emergency components, surge protector, fusing and embedded sensors.

WIRE GUARD (external)
Field- or factory-installed. Protects light engine from impact. Mounting hardware included.

Factory-installed option:
WGX

Field-installed options:
WGIBL
WGIBL48



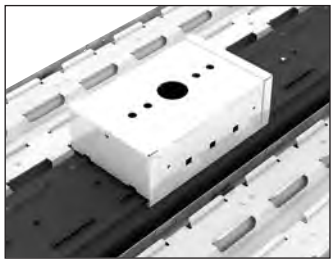
DIFFUSER
Field- or factory-installed. Available in semi-diffuse acrylic. Mounting hardware included.

Factory-installed option:
SD125

Field-installed option:
DLIBL SD125
DLIBL48 SD125

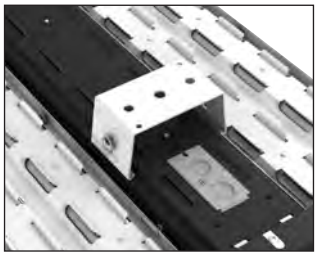
EMBEDDED OCCUPANCY SENSOR
Can be placed in the channel cover which reduces the risk of sensor damage compared to non-embedded sensors.

Factory-installed option:
MSE360



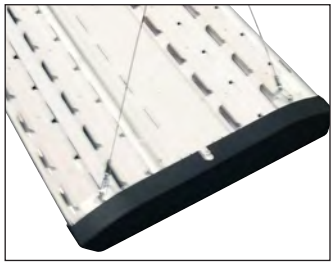
PENDANT MONOPOINT BRACKET
Accepts ¾" rigid conduit for single-point mounting. The bracket can be adjusted to help counterbalance fixture to offset weight variance from end to end.

Order as:
IBLPMP
IBLPMPHB
IBLPMP48
IBLPMPHB48



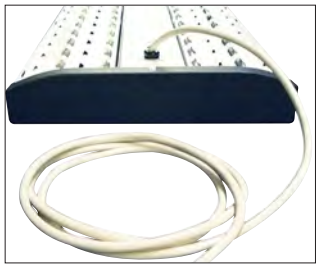
SURFACE MOUNT BRACKET
Rigidly attach I-BEAM LED to a hard ceiling. Can be placed anywhere along fixture.

Order as:
THUN (not for use in ambient temperatures exceeding 95°F (35°C), or on the 36L or 48L)



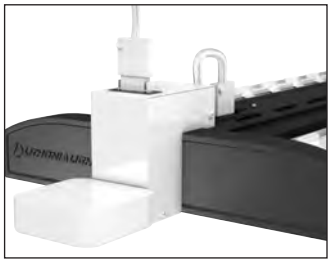
HANGERS
Several lengths of aircraft cables and chains available; with or without V-hooks.

Order as:
IBAC120 M20
IBHMP
For others, see accessories on page 1.



CORD SETS
Available in several lengths with or without molded plug. White is standard.

For available options, see ordering information on page 1.



INTEGRATED MODULAR PLUG (IMP)
Must be factory-installed and allows for field installation of various modular accessories including cordsets, motion sensors, photocells and LC&D X-point™ relays.

Champ® Pro PFM Series Luminaires

Perfect for outdoor/indoor flood illumination

UL/cUL Listed
NEMA 4X
IP66

Type FL5
PFM13L CY/UNV1 76

The Champ® Pro PFM Family

Champ® Pro PFM Series Floodlights are designed to provide full-spectrum, crisp, white light. Five versions of the Champ PFM LED are available, providing ideal solutions for a wide range of applications.

Champ® Pro PFM Model	Equivalent MH HID Lamp	Energy Savings
PFM5L	100W-150W	Up to 62%!
PFM7L	150W-175W	
PFM9L	175W-250W	
PFM11L	250W-400W	
PFM13L	400W	

Certifications and Compliances:

- UL1598
- UL1598A
- cUL
- NEMA 4X; IP66
- DesignLights Consortium® approved for select models (refer to Ordering Information for details)

Drivers:

Model	5L - 13L
Standard	90-305 VAC, 50 / 60 Hz; 108-250 VDC
Option 1	347 VAC Model
Option 2	480 VAC Model

Standard Materials:

- Housing – copper-free aluminum with Corro-free™ epoxy powder coat
- Lens – shatter-resistant glass
- Gaskets – silicone
- External hardware – stainless steel
- Factory-sealed, no external seals required

LED System:

- High brightness light emitting diode (LED) arrays
- Color temperature: 3000K (CRI 82) and 5600K (CRI 65) options available
- Advanced heat sink design ensures LED does not exceed manufacturer's temperature ratings across all specified ambient conditions

Electrical Ratings:

	PFM5L	PFM7L	PFM9L	PFM11L	PFM13L
Voltage Range, VAC	100-277V 50-60 Hz 347 / 480V 60 Hz				
Voltage Range, VDC	108-250	108-250	108-250	108-250	108-250
Input Power (Nom.)	64	89	121	149	179
Input Amps (Max.)	0.550	0.800	1.083	1.608	1.608
Power Factor	>0.85	>0.85	>0.85	>0.85	>0.85

Ordering Information:

Color Temperature	5L Series	7L Series	9L Series	11L Series	13L Series
Cool Color Temperature	**PFM5LCY/UNV1 76**	**PFM7LCY/UNV1 76**	**PFM9LCY/UNV1 76**	**PFM11LCY/UNV1 76**	**PFM13LCY/UNV1 76**
	PFM5LCY/120 76*	**PFM7LCY/120 76***	**PFM9LCY/120 76***	**PFM11LCY/120 76***	**PFM13LCY/120 76***
Warm Color Temperature	**PFM5LWY/UNV1 76**	**PFM7LWY/UNV1 76**	**PFM9LWY/UNV1 76**	**PFM11LWY/UNV1 76**	**PFM13LWY/UNV1 76**

For 347 VAC option, replace /UNV1 with /347. For 480 VAC option, replace /UNV1 with /480.

To order fixture without optics, remove '76' from the end of the catalog number.

*5 year limited warranty. Refer to page 2 of the D-0413 authorized distributor price book for Cooper Crouse-Hinds standard Terms and Conditions.
DesignLights Consortium approved models. Cool white only.

Options:

Description	Suffix
Fused (only applies to UNV1 model, not available for 347V or 480V; NOT marine or cUL Listed)	**S658**
Two conduit/cable glands of like thread installed	**S886**

Accessories:

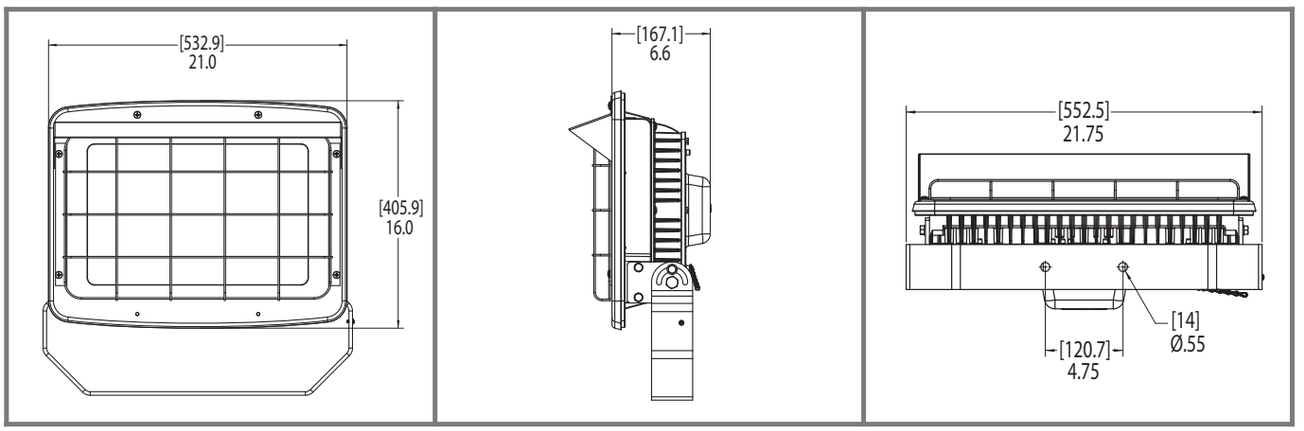
Description	Catalog No. Sold Separately
Bolt-on visor (sold separately)	**DSV1**
Bolt-on wire guard (sold separately)	**P61**
Floodlight slipfitter (sold separately)	**SFA6**
Slipfitter wall mount adapter (sold separately)	**SWB6**

Champ® Pro PFM Series Luminaires

UL/cUL Listed
NEMA 4X
IP66

Perfect for outdoor/indoor flood illumination

Dimensions:



Weights:

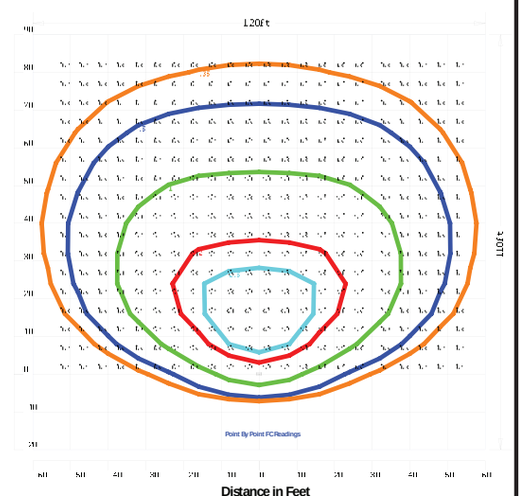
Model	Lbs.
5L	39.11
7L	39.16
9L	39.73
11L	40.35
13L	40.35

Ambient Temperature:

Champ® Pro PFM Model	Max. Temp. °C
PFM5L	55
PFM7L	55
PFM9L	55
PFM11L	40
	55
PFM13L	40
	55

Photometric Data:

PFM13L @ 30 Ft. High; Tilt Angle = 45 Degrees (Isofootcandles)



MULTIPLIERS FOR OTHER LED FLOODLIGHTS

Luminaire Series	Wattage	Lumens*
PFM5L	64	4386
PFM7L	89	6720
PFM9L	121	8478
PFM11L	149	10420

*PFM 13L output is 12,940.

Champ® Pro PFM Series Luminaires

Perfect for outdoor/indoor flood illumination

UL/cUL Listed
NEMA 4X
IP66

Type FL4
PFM9L CY/UNV1 76

The Champ® Pro PFM Family

Champ® Pro PFM Series Floodlights are designed to provide full-spectrum, crisp, white light. Five versions of the Champ PFM LED are available, providing ideal solutions for a wide range of applications.

Champ® Pro PFM Model	Equivalent MH HID Lamp	Energy Savings
PFM5L	100W-150W	Up to 62%!
PFM7L	150W-175W	
PFM9L	175W-250W	
PFM11L	250W-400W	
PFM13L	400W	

Certifications and Compliances:

- UL1598
- UL1598A
- cUL
- NEMA 4X; IP66
- DesignLights Consortium® approved for select models (refer to Ordering Information for details)

Drivers:

Model	5L - 13L
Standard	90-305 VAC, 50 / 60 Hz; 108-250 VDC
Option 1	347 VAC Model
Option 2	480 VAC Model

Standard Materials:

- Housing – copper-free aluminum with Corro-free™ epoxy powder coat
- Lens – shatter-resistant glass
- Gaskets – silicone
- External hardware – stainless steel
- Factory-sealed, no external seals required

LED System:

- High brightness light emitting diode (LED) arrays
- Color temperature: 3000K (CRI 82) and 5600K (CRI 65) options available
- Advanced heat sink design ensures LED does not exceed manufacturer's temperature ratings across all specified ambient conditions

Electrical Ratings:

	PFM5L	PFM7L	PFM9L	PFM11L	PFM13L
Voltage Range, VAC	100-277V 50-60 Hz				
	347 / 480V 60 Hz				
Voltage Range, VDC	108-250	108-250	108-250	108-250	108-250
Input Power (Nom.)	64	89	121	149	179
Input Amps (Max.)	0.550	0.800	1.083	1.608	1.608
Power Factor	>0.85	>0.85	>0.85	>0.85	>0.85

Ordering Information:

Color Temperature	5L Series	7L Series	9L Series	11L Series	13L Series
Cool Color Temperature	**PFM5LCY/UNV1 76**	**PFM7LCY/UNV1 76**	**PFM9LCY/UNV1 76**	**PFM11LCY/UNV1 76**	**PFM13LCY/UNV1 76**
	PFM5LCY/120 76*	**PFM7LCY/120 76***	**PFM9LCY/120 76***	**PFM11LCY/120 76***	**PFM13LCY/120 76***
Warm Color Temperature	**PFM5LWY/UNV1 76**	**PFM7LWY/UNV1 76**	**PFM9LWY/UNV1 76**	**PFM11LWY/UNV1 76**	**PFM13LWY/UNV1 76**

For 347 VAC option, replace /UNV1 with /347. For 480 VAC option, replace /UNV1 with /480.

To order fixture without optics, remove '76' from the end of the catalog number.

*5 year limited warranty. Refer to page 2 of the D-0413 authorized distributor price book for Cooper Crouse-Hinds standard Terms and Conditions.
DesignLights Consortium approved models. Cool white only.

Options:

Description	Suffix
Fused (only applies to UNV1 model, not available for 347V or 480V; NOT marine or cUL Listed)	**S658**
Two conduit/cable glands of like thread installed	**S886**

Accessories:

Description	Catalog No. Sold Separately
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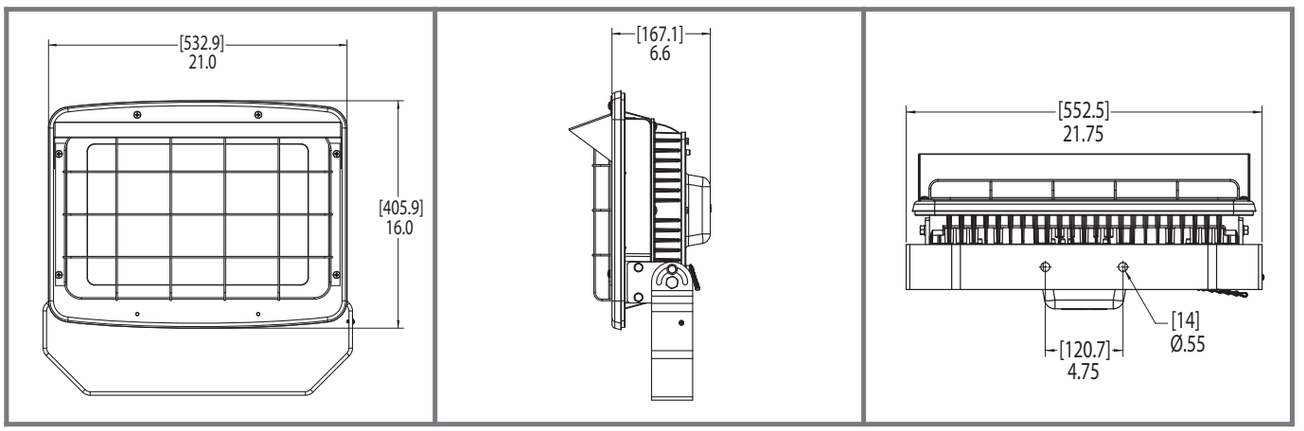
Slipfitter wall mount adapter (sold separately)	**SWB6**

Champ® Pro PFM Series Luminaires

UL/cUL Listed
NEMA 4X
IP66

Perfect for outdoor/indoor flood illumination

Dimensions:



Weights:

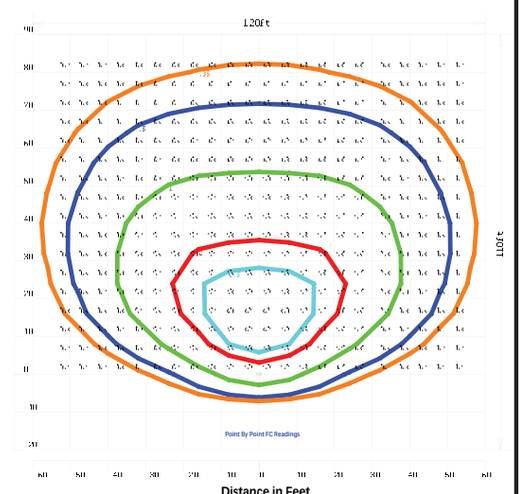
Model	Lbs.
5L	39.11
7L	39.16
9L	39.73
11L	40.35
13L	40.35

Ambient Temperature:

Champ® Pro PFM Model	Max. Temp. °C
PFM5L	55
PFM7L	55
PFM9L	55
PFM11L	40
	55
PFM13L	40
	55

Photometric Data:

PFM13L @ 30 Ft. High; Tilt Angle = 45 Degrees (Isofootcandles)



MULTIPLIERS FOR OTHER LED FLOODLIGHTS

Luminaire Series	Wattage	Lumens*
PFM5L	64	4386
PFM7L	89	6720
PFM9L	121	8478
PFM11L	149	10420

*PFM 13L output is 12,940.

LITHONIA LIGHTING®

Catalog Number	DSX1 LED 30C 1000 40K 3TM MVOLT SF
Notes	
Type	AL1

FEATURES & SPECIFICATIONS

INTENDED USE — Ideal for use in food processing, manufacturing, industrial, schools, gymnasiums and exterior retail environments. Fiberglass enclosure protects fixture while remaining easy to service and clean. **Certain airborne contaminants can diminish integrity of acrylic. Click here for Acrylic Environmental Compatibility table for suitable uses.**

CONSTRUCTION — One-piece 5VA rated fiberglass housing with continuous poured-in-place, closed-cell gasket. Tool-less ballast and wiring access.

OPTICS — Injection-molded, impact-resistant clear acrylic diffuser with frosted ends and side lineal prisms is standard (.080" thick), securely tethered to fixture for ease of maintenance. UV stabilized poly-carbonate diffuser option also is available (.080" thick). Stainless steel latches (12) included. Reflectors are precision-formed, high-performance, segmented optics utilizing premium specular aluminum. Provides 95% reflectivity and warranted for 25 years.

ELECTRICAL — Ballasts: Thermally protected, resetting, Class P, HPF, Sound Rating A+. UL listed wire, rated for required temperatures, used throughout. T8 ballast starting temperature is -18°C (0°F) and T5HO starting temperature is -29°C (-20°F).

Lamps: 4100K lamps standard. Secured with rotary locking lampholders for ease of re-lamping and to minimize disconnection due to vibration or incidental contact.

INSTALLATION — Surface conduit entry provisions with watertight plugs are standard. Stainless steel universal hanging clips included for suspension with aircraft cable (cable not included). Optional stainless steel V-hooks available for chain hanging (chain not included).

LISTINGS — UL/C-UL listed to US and Canadian Safety Standard. NOM Certified (see Options). UL listed for 40°C ambient (except six-lamp 54T5HO, which is UL listed at 35°C ambient). Suitable for wet location. IP65, IP66 and IP67 rated and certified to meet NSF Splash Zone 2. NEMA 4X. 1500 PSI hose-down.

WARRANTY — 1-year limited warranty. Complete warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

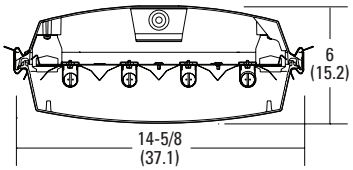
Note: Specifications subject to change without notice.

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

High-Pressure Hose-Down

FHE

FOOD PROCESSING
2-, 3-, 4- or 6-lamp, T5HO, T5 or T8



Specifications

Length: 52.0 (132.0)
Width: 14-5/8 (37.1)
Depth: 6 (15.2)
Weight: 26.2 lbs. (11.88 kg)

All dimensions are inches (centimeters) unless otherwise specified.

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

Example: FHE 454L 1/4

FHE						
Series	**Lamp type**[1]			**Shielding**	**Distribution**	**Voltage**	**Ballast configuration**
FHE 15"X4'[1]	T5HO lamps	T5 lamps	T8 lamps	(blank) Clear acrylic	White ballast cover	(blank) MVOLT; 120-277V	(blank) All two-lamp ballasts
	254L 2 lamps, 54W	228T5L 4 lamps, 28W	232L 2 lamps, 32W	PCL Clear polycarbonate	(blank) General distribution	HVOLT 347-480V[2]	1/3 One, three-lamp ballast[2]
	354L 3 lamps, 54W	328T5L 3 lamps, 28W	332L 3 lamps, 32W		Specular reflector		1/4 One, four-lamp ballast[2]
	454L 4 lamps, 54W	428T5L 4 lamps, 28W	432L 4 lamps, 32W		ND Narrow distribution		2/3 Two, three-lamp ballasts[2]
	654L 6 lamps, 54W	628T5L 6 lamps, 28W	632L 6 lamps, 32W		SD Spread distribution		1/41/2 One, four-lamp and one, two-lamp ballast[2]

Ballast	**Options**[3]		**Lamps installed**[12]
T5/T5HO	CS89 6' white cord, 16/3, no plug, wet location	RMK Rigid mount kit, 18 gauge stainless steel	(blank) 85 CRI, 841
(blank) 1.0 BF, PRS	CS89L12 12' white cord, 16/3, no plug, wet location	PMP Pendant monopoint[7]	LP830 85 CRI, 830
ACRP 1.0 BF, Advance cool running plus	CS88 6' Brad Harrison 16/3 cord and straight blade plug set[4]	WLF Wet location fitting (two pre-installed, 40" off centers)	LP835 85 CRI, 835
T8	OCS Reloc OnePass 5' installed[5]	MSI___ Wet location 360° motion sensor[8,9]	LP850 85 CRI, 850
(blank) 1.18 BF, IS	EL14DW Emergency lighting (1400 lumens)[4,6]	TRS Tamper-resistant screws[10]	Energy-saving T5 49W lamps
GEB10IS .88 BF, IS	MHKB Stainless steel V-hook and brackets	NOM Meets Mexican standards	P841E49 F54T5HO/841
GEB10ISL .76 BF, IS	SMB Surface mounting bracket	RIF_ Radio interference filter[11]	P835E49 F54T5HO/835
GEB10PS .88 BF, PRS	EMK End mount supension bracket	DL Damp location listed	P850E49 F54T5HO/850

Accessories: *Order as separate catalog number.*

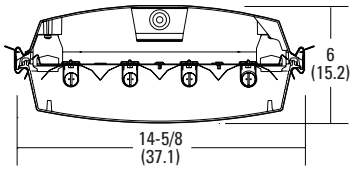
MHKB	Stainless steel V-hook and brackets
MHCH36	3' double chain[13]
FHEACT120	10' adjustable aircraft cable, Y, 2-toggle
MHHK120	10' adjustable aircraft cable, single hook[14]
RK1 T10DRV	Torx® T10 screwdriver for TRS option

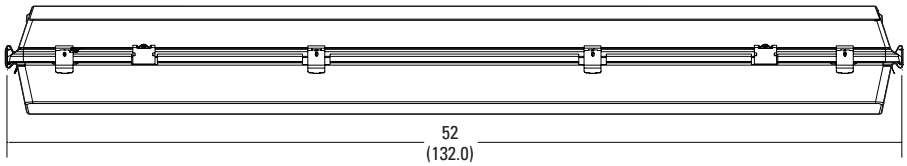
Notes
1 To order fixtures WITHOUT lamps, remove the "L" from the description (EX: FHE 454).
2 Not available with 28T5.
3 For additional options consult factory.
4 Must specify voltage.
5 Requires DL option
6 900 lumens for T5HO. UL listed for 55°C. Output in emergency mode varies with ambient temperature (approx. 944 lumens at 25°C and 911 lumens at 45°C. Single-lamp operation only. Not available with HVOLT.
7 Housing pre-drilled with WLF in center; additional support cables required.
8 For mounting up to 20', specify MSI20; for mounting up to 40', specify MSI40. IP65 rated but not recommended for high pressure hose down.
9 GEB10PS recommended.
10 Stainless steel Torx® T10 screws with center reject pin.
11 Use RIF1 for one filter per fixture & RIF2 for one filter per ballast.
12 Alternate lamp color need only be specified if pre-installed lamps are provided.
13 For use with MHKB option.
14 For use with EMK option.

FHE Fluorescent High-Pressure Hose-Down, T5, T5HO and T8

DIMENSIONS

Inches (centimeters). Subject to change without notice.





Thermal Factor to Apply in Illuminance Calculations*							
		34°F		0°F		-20°F	
Fixture	# Lamps	F54T5HO	F32T8	F54T5HO	F32T8	F54T5HO	F32T8[1]
FHE	4 lamp	1.14	1.10	0.97[1]	0.90[1]	0.63[1]	0.51
FHE	6 lamp	1.13	1.12	1.28	1.15	1.11[2]	1.02

* Also apply appropriate factors for lumen depreciation, dirt and ballast factor.
* Factors for F32T8 are based upon 32-watt lamps using high ballast factor ballasts, so an appropriate high ballast factor (typically 1.12 to 1.20) should be used.
* For F32T8 lamps, use manufacturer's rated lumens (initial) per lamp.
* For F54T5HO lamps, use 4450 lumens (initial) per lamp.

1 Not recommended.
2 For continuous operation only

PHOTOMETRICS

Consult factory for photometric information.

TEST NO: ABA200972
LUMINAIRE CATALOG NO.: FHE 654L ND
LUMENS PER LAMP: 4450

Coefficients of Utilization

pf	20%								
pc	80%			70%			50%		
pw	50%	30%	10%	50%	30%	10%	50%	30%	10%
0	77	77	77	75	75	75	71	71	71
1	67	64	61	65	62	60	62	59	57
2	58	53	49	57	52	49	54	50	47
3	51	45	41	50	45	41	47	43	40
4	45	39	35	44	39	35	42	38	34
5	41	35	30	40	34	30	38	33	29
6	37	31	26	36	30	26	34	29	26
7	33	28	23	33	27	23	31	27	23
8	30	25	21	30	25	21	29	24	21
9	28	23	19	27	22	19	27	22	19
10	26	21	17	25	21	17	25	20	17

RCR

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0° - 30°	4789.4	17.9	27.4
0° - 40°	7621.2	28.5	43.5
0° - 60°	12733.3	47.7	72.7
0° - 90°	16817.2	63.0	96.0
90° - 180°	691.9	2.6	4.0
0° - 180°	17509.1	65.6	100.0

TEST NO: ABA200975
LUMINAIRE CATALOG NO.: FHE 454L ND
LUMENS PER LAMP: 4450

Coefficients of Utilization

pf	20%								
pc	80%			70%			50%		
pw	50%	30%	10%	50%	30%	10%	50%	30%	10%
0	93	93	93	90	90	90	86	86	86
1	80	77	74	78	75	73	75	72	70
2	71	65	61	69	64	60	66	62	58
3	62	56	51	61	55	51	58	54	49
4	56	49	44	55	48	43	52	47	43
5	50	43	38	49	43	38	47	42	37
6	45	39	34	45	38	34	43	37	33
7	41	35	30	41	34	30	39	34	30
8	38	32	27	37	31	27	36	31	27
9	35	29	25	35	29	25	34	28	24
10	33	26	22	32	26	22	31	26	22

RCR

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0° - 30°	4370.5	24.6	31.4
0° - 40°	6760.0	38.0	48.6
0° - 60°	10724.0	60.2	77.1
0° - 90°	13579.4	76.3	97.6
90° - 180°	338.7	1.9	2.4
0° - 180°	13918.1	78.2	100.0

TEST NO: ABA200978
LUMINAIRE CATALOG NO.: FHE 632L ND
LUMENS PER LAMP: 2950

Coefficients of Utilization

pf	20%								
pc	80%			70%			50%		
pw	50%	30%	10%	50%	30%	10%	50%	30%	10%
0	90	90	90	88	88	88	83	83	83
1	78	74	71	76	73	70	72	69	67
2	68	62	57	66	61	57	63	58	55
3	59	53	48	58	52	47	55	50	46
4	52	45	40	51	45	40	49	43	39
5	47	40	34	46	39	34	44	38	33
6	42	35	30	41	34	30	39	34	29
7	38	31	26	37	31	26	36	30	26
8	35	28	24	34	28	23	33	27	23
9	32	25	21	31	25	21	30	25	21
10	29	23	19	29	23	19	28	23	19

RCR

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0° - 30°	3399.9	19.2	25.1
0° - 40°	5527.2	31.2	40.8
0° - 60°	9869.8	55.8	72.9
0° - 90°	13023.2	73.6	96.2
90° - 180°	508.1	2.9	3.8
0° - 180°	13531.3	76.4	100.0

TEST NO: ABA200981
LUMINAIRE CATALOG NO.: FHE 432L ND
LUMENS PER LAMP: 2950

Coefficients of Utilization

pf	20%								
pc	80%			70%			50%		
pw	50%	30%	10%	50%	30%	10%	50%	30%	10%
0	104	104	104	101	101	101	96	96	96
1	90	86	82	88	84	81	83	80	78
2	78	72	67	76	71	66	73	68	64
3	69	62	56	67	61	55	64	59	54
4	61	54	48	60	53	47	57	51	46
5	55	47	41	54	46	41	52	45	40
6	50	42	36	49	41	36	47	40	35
7	45	37	32	44	37	32	43	36	31
8	41	34	29	41	34	29	39	33	28
9	38	31	26	37	31	26	36	30	26
10	35	28	24	35	28	24	33	27	23

RCR

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0° - 30°	2914.9	24.7	28.2
0° - 40°	4642.9	39.3	44.8
0° - 60°	7769.6	65.8	75.1
0° - 90°	10026.8	85.0	96.9
90° - 180°	325.4	2.8	3.1
0° - 180°	10352.3	87.7	100.0

LITHONIA LIGHTING®
An AcuityBrands Company
INDUSTRIAL: One Lithonia Way Conyers, GA 30012 Phone: 800-315-4963 Fax: 770-981-8191 www.lithonia.com

QUICKTRONIC® POWERSENSE® T8 Universal Voltage Dimming Systems

NEMA Premium

RoHS compliant

Fluorescent Controllable Lighting Systems

High Efficiency Series

POWERSENSE T8 DIM

Lamp / Ballast Guide

32W T8 - SYLVANIA OCTRON® lamps
1-lamp QTP1x32T8/UNV DIM
2-lamp QTP2x32T8/UNV DIM
3-lamp QTP3x32T8/UNV DIM
4-lamp QTP4x32T8/UNV DIM

Primary Lamp Types
F032, FB032 & FB031

Also operates:
F030/SS, F028/SS, F025/SS, F025, F017, FB024 & FB016

Key System Features

- Industry's first ballast that combines dimming inputs from 0-10V and/or two-wire AC dimming providing maximum flexibility
- Compatible with low voltage and power line fluorescent dimmers
- High Efficiency
- NEMA Premium Electronic Ballast Program compliant
- Lamp Detection Technology
- Universal voltage (120-277V)
- 100 - 5% Dimming Range
- PROStart® Programmed Rapid Start
- Anti-flash circuitry - turns on in dimmed mode
- Operates at >42kHz
- QUICK 60+ ballast and lamp warranty
- RoHS compliant
- Lead-free solder and manufacturing process

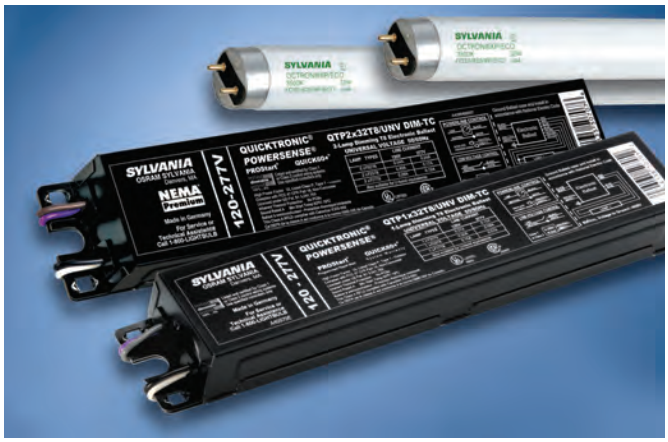
Application Information

SYLVANIA QUICKTRONIC POWERSENSE ballasts
are ideally suited for:

- Occupancy sensors
- Daylight harvesting
- Energy management
- Load shedding
- New construction
- Retrofit

SYLVANIA QUICKTRONIC High Efficiency, POWERSENSE T8 electronic ballasts offer several advantages:

- **Wide Dimming Range:** operate linear fluorescent T8 lamps over a 100-5% dimming range and provide true versatility in controls selection.
- **Industry's Most Adaptable Dimming Ballast:** ballasts feature micro-controller technology for compatibility with:
  - low voltage controls
  - power line fluorescent dimmers
  - any line voltage from 120V to 277V
- **Unmatched Performance:** patented lamp detection technology that virtually eliminates variations in brightness from lamp-to-lamp and provides uniform lighting throughout the dimming range. At light levels of >75% unnecessary lamp-coil power is turned off, delivering energy efficiences comparable to non-dimming Instant start electronic ballast. This technology also eases installation and troubleshooting by recognizing failed lamps, faulty wiring or loose connections, and shutting down.



When the problem is corrected, the system restarts automatically.

- **NEMA Premium Electronic Ballast Program compliant.** This program promotes the use of high efficiency T8 electronic ballasts by meeting or exceeding the Ballast Efficiency Factors, (BEF) established by the CEE, (Consortium for Energy Efficiency). For additional information on this program go to: *www.cee1.org or www.nema.org*

These ballasts are RoHS compliant and feature lead-free solder and manufacturing process.

Setting the standard for quality, QUICKTRONIC POWERSENSE ballasts are covered by the QUICK 60+® warranty, the first and most comprehensive lamp & ballast system warranty in the industry.

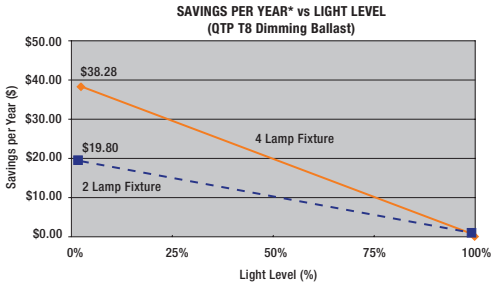
System Information

QUICKTRONIC POWERSENSE ballasts operate from standard low voltage (0-10VDC) fluorescent controllers or compatible 2-wire power line fluorescent dimmers, making them ideal for individual office lighting or automated building applications, both in new construction and retrofit projects.

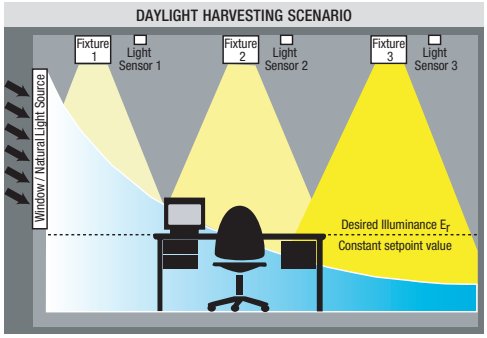
For the individual office or conference room, installation can be streamlined by using a 2-wire power line fluorescent dimmer; eliminating the need for additional control wires.

For more advanced systems, such as daylight harvesting or building automation applications, standard low voltage devices (0-10VDC, Class 1 or 2) are used to control the lighting system. In this daylight harvesting example, each lighting fixture (or fixture row) is controlled by it's own photosensor; regulating the light output to compensate for changes in natural daylight. Depending upon the specific application, energy savings of up to 60% compared to fixed output T8 electronic systems can be realized.

All QUICKTRONIC POWERSENSE ballasts include a line voltage protection circuit, which protects the ballast in the event that line voltage is inadvertently applied to the low voltage control inputs.



* FO32/XP lamps with QUICKTRONIC T8 POWERSENSE ballast
* Based on 4000 hrs/yr, $0.11/kWh, and 120V operation
* Savings per Year (@Light Level) = Cost of operation (100% Light Level) - Cost of operation (@Light Level)



SPECIFICATION DATA

Catalog #	Date	Type
Project	Prepared by	
Comments		

QUICKTRONIC® POWERSENSE® Controls Information

Controls Manufacturer	Fluorescent Powerline Controllers	0-10 VDC Controllers	Photo Cells	Occupancy Sensors	Building Management Systems
Sylvania www.sylvania.com/controls	X	X	X	X	X
Acuity Brand Controls www.acuitybrandscontrols.com	X	X	X	X	X
Blue Ridge Technologies www.brtint.com	X	X	X	X	X
Cooper Greengate http://greengate.coopercontrol.com		X	X	X	X
Encelium www.encelium.com		X	X	X	X
Hunt Dimming www.huntdimming.com	X	X			X
Lehigh Electric Products www.lehighdim.com	X	X			X
Leviton www.leviton.com	X	X	X	X	
Sensor Switch www.sensorswitch.com			X	X	
Siemens Building Technology http://sbt.siemens.com					X
Starfield Controls www.starfieldcorp.com		X	X	X	X
Watt Stopper www.wattstopper.com	X	X	X	X	X

Please contact controls manfacturer to order/specify controls. For the latest controls list go to www.sylvania.com
Also, for more information, refer to the LCA (Lighting Controls Association) site: http://lightingcontrolsassociation.org

Dimensions:

1 & 2 lamp enclosure

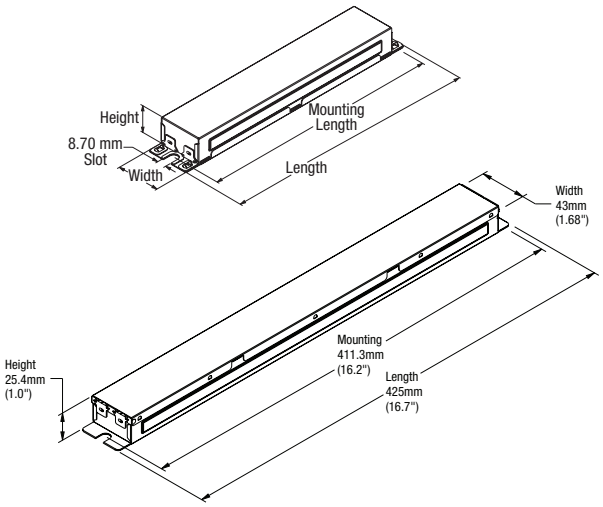
Overall: 9.5" L x 1.68" W x 1.0" H (241 x 43 x 25 mm)
Mounting: 8.90" (226 mm)
Weight: 1.1 lbs each (500 g)

3 & 4 lamp enclosure

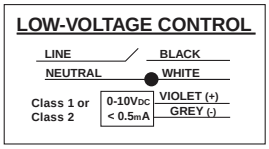
Overall: 16.7" L x 1.68" W x 1.0" H (425 x 43 x 25 mm)
Mounting:16.2" (411 mm)
Weight: 2.1 lbs each (950 g)

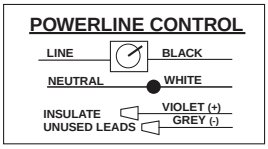
Wiring:

Leads Only



Input & Control Wiring Options:





Control Specifications/model numbers may change.
Please consult manufacturers listed for their latest control models and to order their controls.

T8 POWERSENSE

High Efficiency

Controls Guide

Warning

Install and wire these ballast and controls in accordance with the National Electrical Code (NEC), all applicable Federal, State and local electrical codes, as well as the specific instructions provided with the compatible control that you purchased. Installation should be performed by qualified personnel only.

These instructions are guidelines only. Installation may vary for different controls/ fixtures/applications. Be sure to follow the control instructions and all applicable codes and standards when installing dimming systems.

Please contact controls manufacturer listed in the OSRAM SYLVANIA Inc. controls cross reference for compatible controls and instruction wiring.

NOTES:

1. Dimming ballasts source < 0.5mA (0-10VDC control input).
2. Powerline controls must be rated for the type (e.g. Fluorescent Phase-control) and size (e.g. 600W, 1000W, 1500W & 2000W etc.) of the connected load. Do NOT use incandescent powerline controls; incandescent dimmers are not rated for fluorescent loads and are NOT compatible with POWERSENSE ballasts.

OSRAM SYLVANIA
National Customer
Service and Sales Center
1-800-LIGHTBULB
(1-800-544-4828)
www.sylvania.com

SPECIFICATION DATA

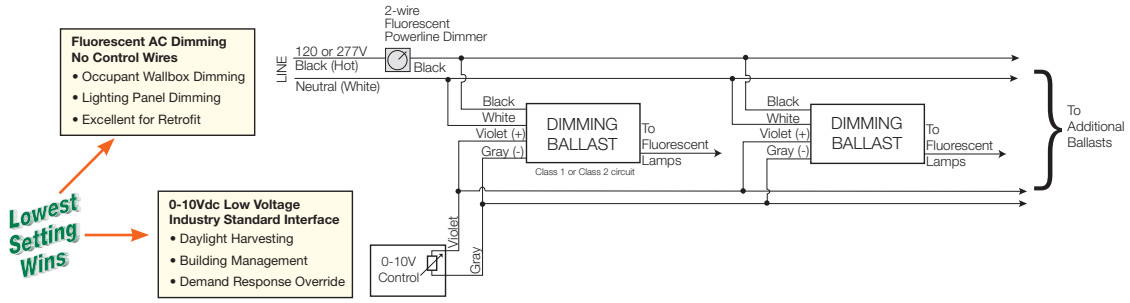
Catalog #	Date	Type
Project	Prepared by	
Comments		

T8 POWERSENSE
High Efficiency

QUICKTRONIC® POWERSENSE® T8 Dimming UNV - Dimming Control Wiring Examples

Industry's 1st Ballast That Allows POWERLINE Fluorescent Control *AND* 0-10Vdc Control Input Simultaneously

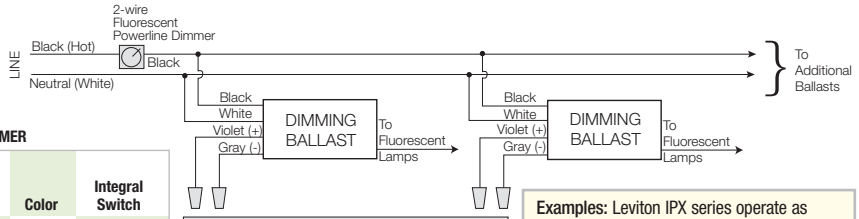
2-wire Powerline *AND* 0-10Vdc Control with POWERSENSE Ballasts



Wallbox Style 2-wire Powerline Control Wiring Example

Powerline Control Specs:
Specification-grade controls are available for 120V or 277V operation of controllable analog electronic fluorescent ballasts. Controls must be suitably rated for both the type (e.g. Fluorescent Phase-control) and size (e.g. 600W) of the connected load.

2-wire Powerline Control with POWERSENSE Ballasts



CAUTION:
For 2-wire Powerline wiring, individually insulate (cap-off) all unused Violet & Gray leads as shown.

ELOGIC™ MANUAL CONTROL SLIDE FLUORESCENT PHASE CUT DIMMER

Item Number	OSRAM SYLVANIA Description	Maximum Input Current (A) (# of gangs) Single	Double	Triple	Input Voltage (V)	Color	Integral Switch
45045	ELMC-SL-FLPCWALL/120-WH	5.0A	4.5A	4.0A	120	White	Single Pole
45046	ELMC-SL-FLPCWALL/277-WH	2.2A	2.0A	1.7A	277	White	

Examples: Leviton IPX series operate as single pole or 3-way models. Available in 120V and 277V models. Leviton 6668-1W (white) 120V single pole fluorescent dimmer.

Wallbox Style 0-10V Control with Power Switch Wiring Example

0-10V DC Control with POWERSENSE Ballasts

Examples: Lithonia model ISD BC or Leviton IP 710 Series (These 0-10V dc, 120/277V models can be wired for single pole application (shown); these models can also be wired for 3-way applications.)

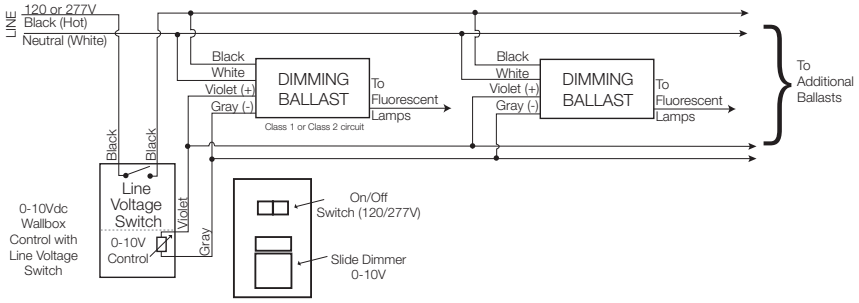
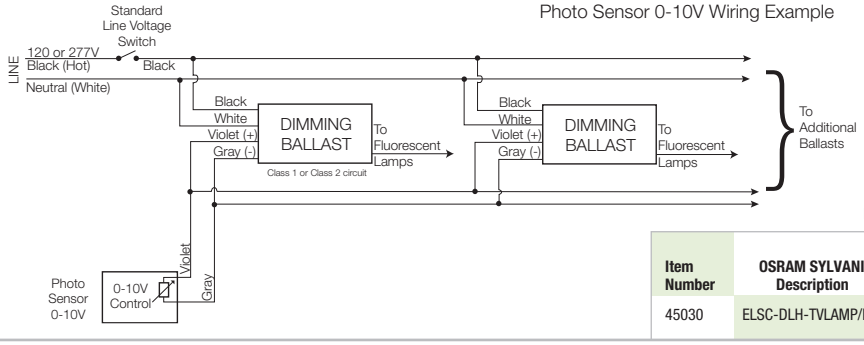


Photo Sensor 0-10V Wiring Example

0-10V DC Control with POWERSENSE Ballasts

Photo Sensor 0-10V Wiring Example



ELOGIC DAYLIGHT SENSOR ORDERING INFORMATION

Item Number	OSRAM SYLVANIA Description	Type	Ballast Control Method	Output Voltage (VDC)	Max. Input Current (mA)	Lamp Type
45030	ELSC-DLH-TVLAMP/BUS	Sensor & Control for Daylight Harvesting	Analog	0-10V	6	T8 or T5 or T5HO

SPECIFICATION DATA

Catalog #	Date	Type
Project	Prepared by	
Comments		

High Efficiency, T8 Controllable Lighting Systems, UNV (120-277V)

RoHS compliant

NEMA Premium

Item Number	OSRAM SYLVANIA Description	Input Current (AMPS)	Lamp Type	Rated Lumens (lm)	No. of Lamps	Ballast Factor (BF)	System Lumens	Mean Lumens	Input Power (W) 120V	Input Power (W) 277V	System[1] Efficacy (lm/W)	BEF[2]
50705	QTP 1x32T8/UNV DIM-TC	**0.27/0.12**	**F032XP**	**3000**	**1**	**0.88 0.05**	**2640 150**	**2480 140**	**30 8**	**30 8**	**88**	**2.93**
		0.24/0.11	F030/SS	2850	1	0.88 0.05	2510 145	2360 135	28 8	28 8	90	3.14
		0.22/0.10	F028/SS	2725	1	0.88 0.05	2400 135	2255 130	25 8	25 8	96	3.52
		0.20/0.09	F025/SS	2475	1	0.88 0.05	2180 125	2045 115	23 7	23 7	95	3.83
50707	QTP 2x32T8/UNV DIM-TC	**0.51/0.24**	**F032XP**	**3000**	**2**	**0.88 0.05**	**5280 300**	**4965 280**	**59 14**	**57 14**	**93**	**1.54**
		0.48/0.20	F030/SS	2850	2	0.88 0.05	5015 285	4715 270	55 14	53 14	95	1.66
		0.43/0.18	F028/SS	2725	2	0.88 0.05	4795 275	4510 255	51 13	49 13	98	1.80
		0.39/0.16	F025/SS	2475	2	0.88 0.05	4355 250	4095 235	45 13	44 13	99	2.00
50714	QTP 3x32T8/UNV DIM-TCL	**0.73/0.30**	**F032XP**	**3000**	**3**	**0.88 0.05**	**7920 450**	**7445 425**	**87 20**	**84 20**	**94**	**1.05**
		0.68/0.30	F030/SS	2850	3	0.88 0.05	7525 430	7075 400	81 20	78 20	96	1.13
		0.62/0.26	F028/SS	2725	3	0.88 0.05	7195 410	6760 385	73 19	72 19	100	1.22
		0.56/0.24	F025/SS	2475	3	0.88 0.05	6535 370	6140 350	67 19	66 19	99	1.33
50716	QTP 4x32T8/UNV DIM-TCL	**0.96/0.40**	**F032XP**	**3000**	**4**	**0.88 0.05**	**10,560 600**	**9925 565**	**114 27**	**110 27**	**96**	**0.80**
		0.92/0.39	F030/SS	2850	4	0.88 0.05	10,030 570	9430 535	107 26	104 26	96	0.85
		0.82/0.35	F028/SS	2725	4	0.88 0.05	9590 545	9015 510	98 25	95 25	101	0.93
		0.74/0.32	F025/SS	2475	4	0.88 0.05	8710 495	8190 465	91 24	89 24	98	0.99

Products are all 10-pack. **Striation might occur with SUPERSAVER lamps.*

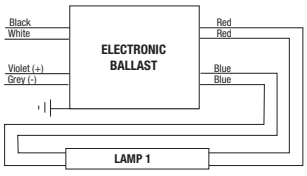
1: System Efficacy calculation based on lowest input power value.

2: Ballast Efficiency Factor (BEF) shown = (Ballast Factor x 100) divided by Input Power (Note: calculation based on lowest wattage value).

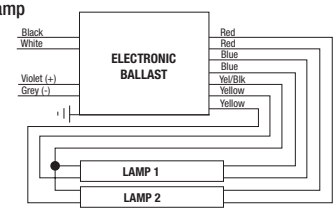
Wiring Diagrams

Output Wiring: Lamp wiring for dimming ballasts can differ significantly from non-dimming ballasts and from other manufacturers dimming ballasts. Take care to connect lamp lead wires as shown on the applicable ballast diagram. **Lamp Seasoning:** For optimal performance, fluorescent lamps may require seasoning for up to 12 hours prior to low temperature starting & low level dimming. Refer to NEMA LSD 23-2002 Lighting Systems Division: Recommended Practice — Lamp Seasoning for Fluorescent Dimming Systems

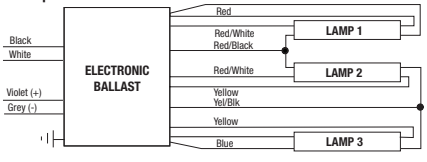
1 lamp



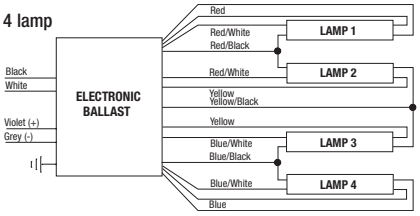
2 lamp



3 lamp



4 lamp



Item Number — **50707 QTP 2 x 32T8 / UNV DIM-TC** — System Type - DIMMING/Case Size

QUICKTRONIC — Line Voltage (120-277V)

Number of Lamps (1, 2, 3, 4) — Primary Lamp Wattage

T8 POWERSENSE®

High Efficiency

Performance Guide

Data based on SYLVANIA OCTRON® lamps shown. QUICKTRONIC® POWERSENSE ballasts are also compatible with other manufacturers equivalent lamp types that meet ANSI specifications, including F17, F25, F32, U-Bend equivalent lamps and SUPERSAVER lamps.

Specifications

Data based on F32T8

Starting Method: Programmed Rapid Start
Circuit Type: Series
Lamp Frequency: >40 kHz
Lamp CCF: Less than 1.7
Starting Temp: 50°F/10°C minimum for OCTRON T8 lamps
Input Voltage: 120-277V, ±10%
Input Frequency: 50/60 Hz
THD: <10% @ Full Output
Power Factor: >98% @ Full Output
UL Listed Class P, Type 1 Outdoor
CSA or C/UL Certified
70°C Max Case Temperature
FCC 47CFR Part 18 Non-Consumer Class A Sound Rating
RoHS compliant[3]
ANSI C62.41 Cat. A Transient Protection
Remote mounting (Max. wire length from ballast case to lampholder)

- up to 8ft for full wattage T8s
- no remote mounting for SUPERSAVER

3 Complies with European Union Restriction of Hazardous Substances Directive (Directive EC 2002/95)

Control Information

QUICKTRONIC POWERSENSE ballasts are compatible with a wide range of low voltage (0-10VDC) and power line fluorescent controllers available from various manufacturers.
Low Voltage Control Specs: Ballast will source up to 0.5mA for 0-10VDC control purposes. May be wired as a Class 1 or Class 2 circuit-consult Local and National Electrical Codes.
Power Line Control Specs: Specification-grade fluorescent controls are available for 120V or 277V operation of controllable analog electronic fluorescent ballasts. Controls must be suitably rated for both the type (e.g. Fluorescent Phasecontrol) and size (e.g. 600W) of the connected load.

System Life / Warranty

QUICKTRONIC products are covered by the QUICK 60+® warranty, a comprehensive lamp and ballast system warranty. For additional details, refer to the QUICK 60+ warranty bulletin.

OSRAM SYLVANIA
National Customer
Service and Sales Center
1-800-LIGHTBULB
(1-800-544-4828)
www.sylvania.com

Specifications subject to change without notice.

www.sylvania.com

QUICKTRONIC® PROStart® PSN T8 Universal Voltage Systems

NEMA Premium

RoHS compliant

Normal Ballast Factor

Professional Series

QTP T8 PSN

Lamp / Ballast Guide

Primary Systems
32W T8 OCTRON® lamps
1-lamp QTP1x32T8/UNV PSN-TC
2-lamp QTP2x32T8/UNV PSN-TC
3-lamp QTP3x32T8/UNV PSN-SC
4-lamp QTP4x32T8/UNV PSN-SC

Also operates:
FBO32, FBO31, FO25, FBO24, FO17, FBO16, FO30/SS, FBO30/SS (30W), FBO29/SS, FO28/SS (28W) & FO25/SS (25W)

Key System Features

- PROStart® Programmed Rapid Start
  - Increase lamp life
  - Ideal for occupancy sensors
- NEMA Premium Electronic Ballast Program compliant
- Low profile enclosures:
  - 1.00" high "Thin Can"
  - 1.18" high "Small Can"
- Min. Starting Temp:
  - 0°F (-18°C) for T8 lamps
  - 60°F (16°C) for Energy Saving T8 lamps
- Operates at >40kHz to avoid interference with infrared control systems
- Universal Input Voltage (120-277V)
- RoHS compliant
- Lead-free solder, printed circuit board and manufacturing process

Application Information

SYLVANIA QUICKTRONIC PROStart T8 ballasts
are ideally suited for:

- Any applications where extended lamp life is required to reduce maintenance costs
- Energy retrofits
- Occupancy sensors
- Building control systems

SYLVANIA QUICKTRONIC PROStart programmed rapid start electronic ballasts operate linear U-bend SUPERSAVER® equivalent T8 lamps in applications where extended lamp life is required.

QUICKTRONIC PROStart ballasts utilize a micro-controller based circuit to apply a precise amount of cathode heat prior to starting the lamp. This ensures that the cathodes have reached optimum temperature before the lamp is started. Once the lamp has ignited, the ballast eliminates the cathode voltage which optimizes system efficiencies similar to instant start ballasts.

QUICKTRONIC PROStart ballasts are NEMA Premium Electronic Ballast Program compliant. The program promotes the use of high efficiency T8 electronic ballasts by meeting or exceeding the Ballast Efficiency Factors, (BEF) established by the CEE, (Consortium for Energy Efficiency). For additional information on this program go to: ***www.cee1.org or www.nema.org***

All SYLVANIA Professional Series (QTP) electronic ballasts feature high power quality (<10% THD), lightweight, low profile designs.

This product is also offered in new banded packaging and pallet packs.

- Distributor-friendly for easy stocking and individual ballast sales
- Reduced waste
- Easy removable bands
- No tangled wires

These ballasts are also RoHS compliant and feature lead-free solder, printed circuit boards and manufacturing process.

System Information

QUICKTRONIC PROStart ballasts provide optimum starting conditions to provide over 100,000 switching cycles for occupancy sensor and building control system applications.

QUICKTRONIC PSN UNV operates from 120V through 277V, eliminating "wrong voltage" wiring errors and reducing the number of models in inventory by half.

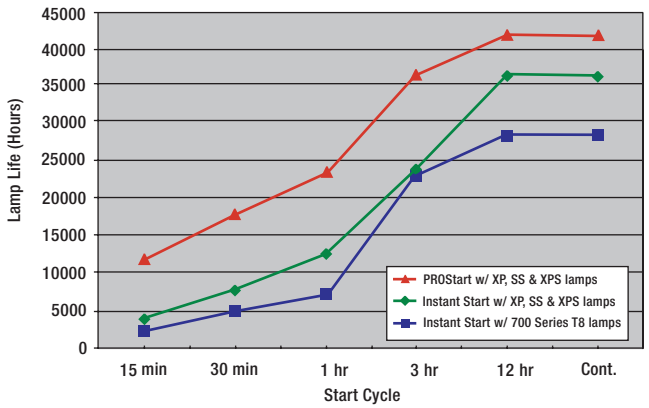
In addition to substantial energy savings, QUICKTRONIC PSN ballasts deliver an optimized programmed start which extends lamp life. This advanced starting process drastically reduces the amount of cathode sputtering, resulting in improved lamp life in all applications including short start cycles.

QUICK 60+® warranty coverage is included when you use SYLVANIA lamps and ballasts together as a system. See the QUICK 60+ warranty bulletin for complete details.

The QUICKTRONIC PROStart ballasts are ideally suited for applications requiring extended lamp life. In short cycle applications, our PROStart ballasts will deliver three times the number of start cycles compared to electronic Instant Start ballasts.

Lamp & Ballast Type	Input Power (W)	Initial Lumens	Initial LPW	Mean System Lumens	Relative Mean Light Output	% Energy Savings	% Lamp Life
2-FO32/700 QTP 2x32 ISN	59	4930	84	4435	Baseline	Baseline	Baseline
2-FO32/800/XP QTP 2x32 ISN	59	5280	89	4965	112%	0%	100%
2-FO32/800/XP QTP 2x 32 PSN	59	5280	89	4965	112%	0%	150%
2-FO28/SS QTP 2x32 PSN	52	4800	92	4510	102%	12%	150%

OCTRON® T8 Lamp Life Comparison



SPECIFICATION DATA

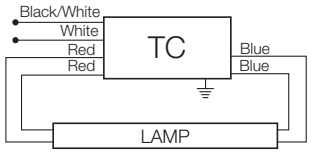
Catalog #	Date	Type
Project	Prepared by	
Comments		

PROStart® Programmed Rapid Start Systems UNV (120-277V)

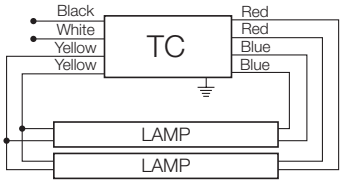
Item Number	OSRAM SYLVANIA Description	Input Current (AMPS)	Lamp Type	Rated Lumens (lm)	No. of Lamps	Ballast Factor (BF)	System Lumens	Mean Lumens	Input Wattage (W)	System Efficacy (lm/W)	BEF[1]
	QTP 1x32T8/UNV PSN-TC	0.26/0.11	F032/700	2800	1	0.88	2465	2220	31/30	79/82	2.93
51399	*Banded Pack*	0.26/0.11	F032/XP	3000	1	0.88	2640	2480	31/30	85/88	2.93
51400	*10-Pack*	0.24/0.10	F030/SS	2850	1	0.88	2510	2360	29/28	87/90	3.14
51401	*Pallet Pack*	**0.23/0.09**	**F028/SS**	**2725**	**1**	**0.88**	**2400**	**2255**	**27/26**	**89/92**	**3.38**
		0.20/0.09	F025/SS	2475	1	0.88	2175	2045	24/23	91/95	3.83
	QTP 2x32T8/UNV PSN-TC	0.50/0.21	F032/700	2800	2	0.88	4930	4435	59/56	84/88	1.57
51402	*Banded Pack*	0.50/0.21	F032/XP	3000	2	0.88	5280	4965	59/56	89/94	1.57
51405	*10-Pack*	0.47/0.20	F030/SS	2850	2	0.88	5015	4715	55/53	91/95	1.66
51406	*Pallet Pack*	**0.45/0.19**	**F028/SS**	**2725**	**2**	**0.88**	**4800**	**4510**	**52/49**	**92/98**	**1.80**
		0.39/0.17	F025/SS	2475	2	0.88	4355	4095	46/44	95/99	2.00
	QTP 3x32T8/UNV PSN-SC	0.74/0.31	F032/700	2800	3	0.88	7390	6655	88/85	84/87	1.04
51403	*Banded Pack*	0.74/0.31	F032/XP	3000	3	0.88	7920	7445	88/85	90/93	1.04
51410	*10-Pack*	0.70/0.29	F030/SS	2850	3	0.88	7525	7075	83/80	91/94	1.10
51411	*Pallet Pack*	**0.65/0.27**	**F028/SS**	**2725**	**3**	**0.88**	**7195**	**6760**	**77/75**	**93/96**	**1.17**
		0.58/0.25	F025/SS	2475	3	0.88	6535	6140	69/68	95/96	1.29
	QTP 4x32T8/UNV PSN-SC	0.99/0.41	F032/700	2800	4	0.88	9855	8870	118/113	83/87	0.78
51404	*Banded Pack*	0.99/0.41	F032/XP	3000	4	0.88	10,560	9925	118/113	90/94	0.78
51415	*10-Pack*	0.93/0.39	F030/SS	2850	4	0.88	10,030	9430	111/106	90/95	0.83
51416	*Pallet Pack*	**0.88/0.36**	**F028/SS**	**2725**	**4**	**0.88**	**9590**	**9015**	**104/99**	**92/97**	**0.89**
		0.77/0.32	F025/SS	2475	4	0.88	8710	8190	92/90	95/97	0.98

Banded Pack, (add "-B" to Description). Banded Pack and 10-Pack contain 10 pieces each. Pallet Pack contains 840 pieces, (add "-PAL" to Description).
1: Ballast Efficiency Factor (BEF) shown = (Ballast Factor x 100) divided by Input Power (Note: calculation based on lowest wattage value).

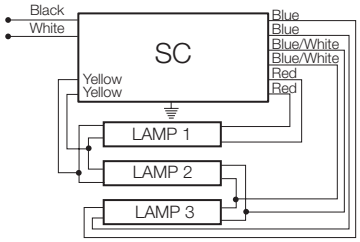
1 lamp



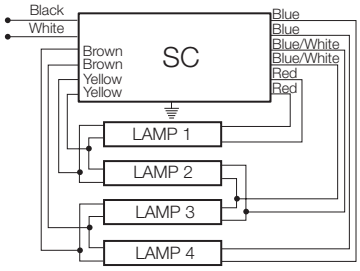
2 lamp



3 lamp

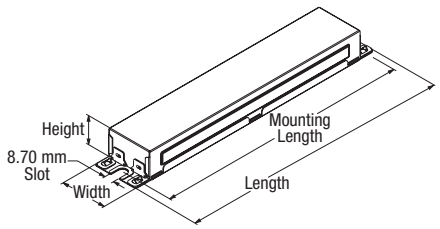


4 lamp



Dimensions "TC & SC" Enclosure:
"SC" Overall: 9.5" L x 1.68" W x 1.18" H
"TC" Overall: 9.5" L x 1.68" W x 1.00" H
Mounting: 8.90"
Weight: 1.6 lbs each

Wiring:
Leads only
(no connectors provided)



Item Number — **51402 QTP 2 x 32T8 / UNV PSN TC** — Enclosure Type (TC or SC)
QUICKTRONIC PROFESSIONAL — Starting Type/Ballast Factor – PROStart/Normal BF
Number of Lamps (1, 2, 3, 4) — Line Voltage (120-277V)
Primary Lamp Type (F32T8)

Normal Ballast Factor

T8 PROStart® PSN UNV

Professional Series

QTP T8 PSN

Performance Guide

Data based upon SYLVANIA OCTRON® lamps shown. QUICKTRONIC® QTP PROStart ballasts are also compatible with other lamp manufacturers equivalent lamp types that meet ANSI specifications. QTP PROStart ballasts will also operate F17 & F25, SUPERSAVER® & U-Bend equivalent T8 lamps. Complete performance data is available in the QUICKSYSTEMS section of the SYLVANIA Ballast Technology & Specification Guide.

Specifications

Data based on F32T8

Starting Method: Programmed Rapid-Start
Ballast Factor: 0.88
Circuit Type: Series
Lamp Frequency: >40 kHz
Lamp CCF: Less than 1.6
Starting Temp:[2]
0°F (-18°C) for OCTRON T8 lamps;
60°F (16°C) for SUPERSAVER® T8 lamps
Input Frequency: 50/60 Hz
Low THD: <10%
Power Factor: >98%
Voltage Range: ±10% of 120-277V rated line (108-305V)

UL Listed Class P, Type 1, Outdoor
CSA Certified
70°C Max Case Temp.
FCC 47CFR Part 18 Non-Consumer
Class A Sound Rating
RoHS Compliant[3]
NEMA Premium Electronic Ballast Program compliant
ANSI C62.41 Cat A. Transient
GFCI compatible
Emergency ballast compatible
Remote Mounting (Max. wire length from ballast case to lamp holder):

- 20 ft: full wattage T8s
- 10 ft: energy saving T8s
- 4 ft: 25W energy saving T8s

(keep blue wires short, ie. lamp(s) attached to the blue leads to remain in the fixture that houses the ballast).

2 Operation below 50ºF (10°C) may affect light output or lamp operation – see "Low Temp. Starting" definition.

3 Complies with European Union Restriction of Hazardous Substances Directive (Directive EC 2002/95)

System Life / Warranty

QUICKTRONIC products are covered by the QUICK 60+® warranty, a comprehensive lamp and ballast system warranty. For additional details, refer to the QUICK 60+ warranty bulletin.

OSRAM SYLVANIA
National Customer
Service and Sales Center
1-800-LIGHTBULB
(1-800-544-4828)
www.sylvania.com

Specifications subject to change without notice.

QUICKTRONIC® PROStart® T8
High Ambient Temperature

NEMA Premium

Type CC, Lamp Striation Control & Parallel Operation
High Ballast Factor

High Efficiency Series

QHE T8 PSH

Lamp / Ballast Guide

Primary Systems
32W T8 - OCTRON®
2-lamp QHE2x32T8/UNV PSH-HT
3-lamp QHE3x32T8/UNV PSH-HT
4-lamp QHE4x32T8/UNV PSH-HT

Also operates:
FBO32, FBO31, FO30/SS (30W), FO28/SS (28W), FO25/SS (25W), FBO30/SS (30W), FBO29/SS (29W), FO25, FBO24, FO17 & FBO16

Key System Features

- High Efficiency Systems over 90% efficient
- NEMA Premium Ballast compliant
- PROStart Programmed Rapid Start
  - Extends lamp life
- High ballast factor: 1.15
- Parallel operation, (one lamp out, remaining lamps stay lit)
- 90°C maximum case temp.
- UL Type CC
- LSC (Lamp Striation Control)
- Universal input voltage (120-277V)
- Min. Starting Temp:
  - 0°F/-18°C for T8 lamps
  - 60°F/16°C for Energy Saving T8 lamps

Application Information

SYLVANIA QUICKTRONIC PROStart T8 is ideally suited for:

- High bay
- Warehouses
- Applications where extended lamp life is required to reduce maintenance costs
- Areas where frequent switching is desired
- Occupancy sensor usage
- Building control systems
- Areas that are underlit

SYLVANIA QUICKTRONIC PROStart programmed rapid start electronic T8 ballasts offer eight major advantages:

1. **Operate** 32W linear and U-bend equivalent T8 lamps at High Efficiency and high ballast factor which increases light levels while optimizing system performance.
2. **Longer Lamp Life:** System PSH, (Programmed Start High Ballast Factor) is the first SYLVANIA high ballast factor model to extend lamp life which is ideal for applications where long lamp life is desired to reduce maintenance costs.
3. **High Ambient Temperature:** specifically designed for those applications where the ballast is subjected to higher ambient temperatures, such as high bays in industrial installations.
4. **Parallel Circuitry:** keeps remaining lamps lit if one or more go out. First SYLVANIA PROStart ballast to offer parallel lamp operation.
5. **Available in 2, 3 & 4-lamp models** which allows great flexibility for various light levels in high bay applications to replace HID or T12HO lighting systems.
6. **NEMA Premium Ballast (NPB) program compliant.** The NPB program promotes the use of high efficiency T8 electronic ballasts by meeting or exceeding the Ballast Efficiency Factors, (BEF) established by the CEE, (Consortium for Energy Efficiency). For additional information on this program go to: ***www.cee1.org or www.nema.org***
7. **UL Type CC compliant:** ballasts utilize a micro-controller based circuit to reduce arcing caused by loose connections or improper lamp pin to socket connections.
8. **Lamp Striation Control (LSC):** T8 energy saving lamps should be operated above 60°F, but under certain conditions the lamps may striate. LSC circuitry may minimize or eliminate this condition; however there are limited applications where LSC circuitry may not entirely mitigate lamp striations. (Please consult lamp manufacturers for additional details.)

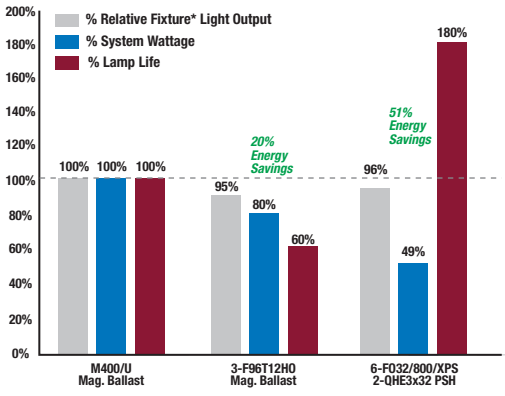
System Information

SYLVANIA QUICKTRONIC High Efficiency (QHE) System advantages:

- Operate from 120V through 277V
  - Eliminates "wrong voltage" errors
  - Reduces inventory by 50%
- Utilizes Programmed Rapid Start operation for:
  - Highest System Efficacy
  - Longer Life
  - Over 100,000 switching cycles for occupancy sensor and building control systems applications.
- Operate at >42Hz to reduce potential interference with infrared control systems

Lamp & Ballast Type	Input Power (W)	Initial LPW	Mean Fixture* Lumens	Relative Fixture* Output	% Energy Savings	% Lamp Life @3hrs/ start
M400/U Magnetic Ballast	452	61	17,784	Baseline	Baseline	Baseline
3-F96T12HO Magnetic Ballast	360	58	16,875	95%	20%	60%
6-FO32/800/XPS 2-QHE3x32 PSH	220	83	17,090	96%	51%	180%

**Based on Fixture Efficiency: 76% for M400/U and 85% for T12HO and FO32T8 lamps.*



SEE THE WORLD IN A NEW LIGHT SYLVANIA

SPECIFICATION DATA

Catalog #	Date	Type
Project	Prepared by	
Comments		

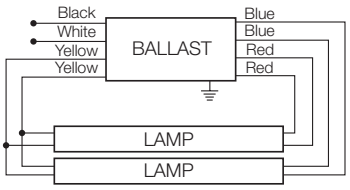
High Efficiency Type CC, Lamp Striation Control & High Ambient (120-277V)

NEMA Premium

Item Number	OSRAM SYLVANIA Description	Input Current (AMPS)	Lamp Type	Rated Lumens (lm)	No. of Lamps	Ballast Factor (BF)	System Lumens	Mean Lumens	Input Power (W)	System Efficacy (lm/W)	BEF[1]
	QHE2x32T8/UNV-PSH-HT	0.60/0.27	F032/700	2800	2	1.15	6440	5795	72/70	89/92	1.64
49450	*Banded Pack*	0.60/0.27	F032/XP	3000	2	1.15	6900	6485	72/70	96/99	1.64
49459	*Pallet Pack*	0.57/0.25	F030/SS	2850	2	1.15	6555	6160	69/67	95/98	1.72
		0.53/0.23	**F028/SS**	**2725**	**2**	**1.15**	**6270**	**5890**	**63/62**	**100/101**	**1.85**
		0.47/0.20	F025/SS	2475	2	1.15	5695	5350	56/55	102/104	2.09
		0.46/0.20	F025/XP	2175	2	1.16	5045	4740	55	92	2.11
		0.32/0.14	F017/XP	1375	2	1.17	3220	3025	38	85	3.08
	QHE3x32T8/UNV-PSH-HT	0.94/0.40	F032/700	2800	3	1.15	9660	8695	110/108	88/89	1.06
49453	*Banded Pack*	0.94/0.40	F032/XP	3000	3	1.15	10,350	9730	110/108	94/96	1.06
49460	*Pallet Pack*	0.88/0.37	F030/SS	2850	3	1.15	9835	9245	104/101	95/97	1.14
		0.81/0.34	**F028/SS**	**2725**	**3**	**1.15**	**9400**	**8835**	**95/93**	**99/101**	**1.24**
		0.72/0.31	F025/SS	2475	3	1.15	8540	8025	85/84	100/102	1.37
		0.70/0.30	F025/XP	2175	3	1.17	7635	7175	83/82	92/93	1.43
		0.48/0.21	F017/XP	1375	3	1.18	4870	4575	56	87	2.11
	QHE4x32T8/UNV-PSH-HT	1.22/0.53	F032/700	2800	4	1.15	12,880	11,590	143/141	90/91	0.82
49455	*Banded Pack*	1.22/0.53	F032/XP	3000	4	1.15	13,800	12,970	143/141	97/98	0.82
49470	*Pallet Pack*	1.13/0.49	F030/SS	2850	4	1.15	13,110	12,325	132/130	99/101	0.88
		1.06/0.46	**F028/SS**	**2725**	**4**	**1.15**	**12,535**	**11,785**	**124/123**	**101/102**	**0.93**
		0.95/0.41	F025/SS	2475	4	1.15	11,385	10,700	112/110	102/104	1.05
		0.91/0.40	F025/XP	2175	4	1.17	10,180	9570	107/106	95/96	1.10
		0.63/0.28	F017/XP	1375	4	1.18	6490	6100	73	89	1.62

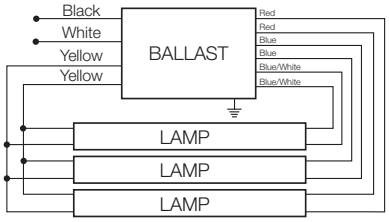
Banded pack contains 10 pieces, (add "-B" to Description). Pallet Pack contains 500 pieces, (add "-PAL" to Description).
1: Ballast Efficiency Factor (BEF) shown = (Ballast Factor x 100) divided by Input Power (Note: calculation based on lowest wattage value).

2 lamp



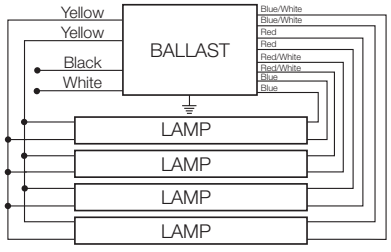
QUICKTRONIC 2x32

3 lamp



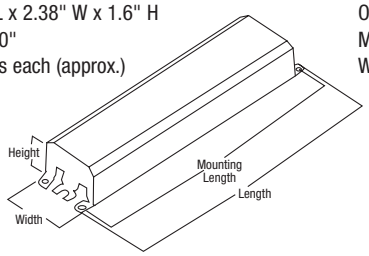
QUICKTRONIC 3x32

4 lamp

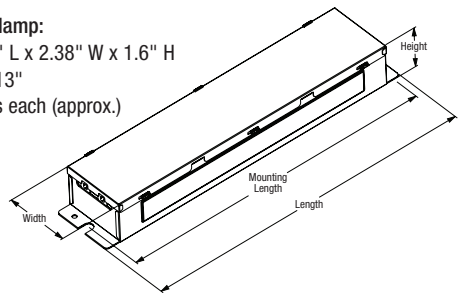


QUICKTRONIC 4x32

Dimensions 2 & 3-lamp:
Overall: 9.5" L x 2.38" W x 1.6" H
Mounting: 8.90"
Weight: 1.6 lbs each (approx.)



Dimensions 4-lamp:
Overall: 11.75" L x 2.38" W x 1.6" H
Mounting: 11.13"
Weight: 2.9 lbs each (approx.)



Item Number — **49450 QHE 2 x 32T8 / UNV PSH HT** — High Case Temp. Rating
QUICKTRONIC High Efficiency — Starting Type/Ballast Factor
Number of Lamps (2, 3, 4) — Line Voltage (120-277V)
Primary Lamp Wattage

Performance Guide

Data based upon SYLVANIA OCTRON® lamps shown. QUICKTRONIC® QHE PROStart ballasts are also compatible with other lamp manufacturers equivalent lamp types that meet ANSI specifications.

QHE PROStart ballasts will also operate F17 & F25, SUPERSAVER & U-Bend equivalent T8 lamps.

NEW!

QHE T8 PSH

Specifications

Data based on F32T8

Starting Method: Programmed Rapid-Start
Ballast Factor: 1.15
Circuit Type: Parallel
Lamp Frequency: >40 kHz
Lamp CCF: Less than 1.7
Starting Temp:[2]
0°F (-18°C) for OCTRON T8 lamps;
60°F (16°C) for SUPERSAVER® T8 lamps
Input Frequency: 50/60 Hz
THD: <10%
Power Factor: >98%
Voltage Range: ±10% of 120-277V rated line (108-305V)

UL Listed Class P, Type 1 Outdoor
UL Type CC Rated
Lamp Striation Control (LSC)
CSA Certified
High Ambient Applications:
90°C Max. Case Temp. **(3 yr. warranty)**
Standard Ambient Applications:
70°C Max. Case Temp. **(5 yr. warranty)**
FCC 47CFR Part 18 Non-Consumer
Class A Sound Rating
ANSI C62.41 Cat A. Transient Protection
GFCI compatible
Emergency ballast compatible
Remote Mounting (Max. wire length from ballast case to lampholder):

- 20 ft: full wattage T8s
- 10 ft: energy saving T8s
- 4 ft: 25W energy saving T8s

2 Operation below 50ºF (10°C) may affect light output or lamp operation – see "Low Temp. Starting" definition.

System Life / Warranty

QUICKTRONIC products are covered by our QUICK 60+® warranty, a comprehensive lamp and ballast system warranty. For additional details, refer to our QUICK 60+ warranty bulletin.

OSRAM SYLVANIA
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1-800-LIGHTBULB
(1-800-544-4828)
www.sylvania.com

Specifications subject to change without notice.

D-Series Size 1
LED Area Luminaire

Catalog Number: DSX1 LED 30C 1000 40K 3TM M

Notes:

Type: AL1

Hit the Tab key or mouse over the page to see all interactive elements.

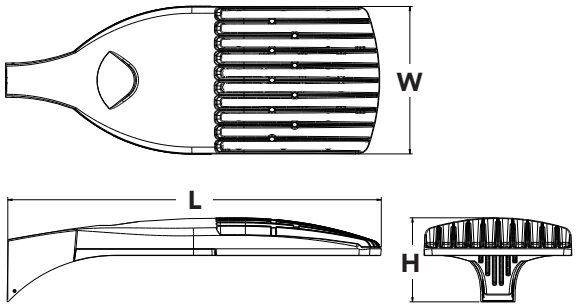
Introduction

The modern styling of the D-Series is striking yet unobtrusive - making a bold, progressive statement even as it blends seamlessly with its environment.

The D-Series distills the benefits of the latest in LED technology into a high performance, high efficacy, long-life luminaire. The outstanding photometric performance results in sites with excellent uniformity, greater pole spacing and lower power density. It is ideal for replacing 100 – 400W metal halide in pedestrian and area lighting applications with typical energy savings of 65% and expected service life of over 100,000 hours.

Specifications

EPA:	1.2 ft² *(0.11 m²)*
Length:	33″ *(83.8 cm)*
Width:	13″ *(33.0 cm)*
Height:	7-1/2″ *(19.0 cm)*
Weight (max):	27 lbs *(12.2 kg)*



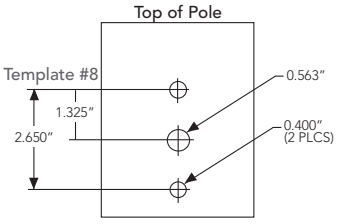
Ordering Information

EXAMPLE: DSX1 LED 60C 1000 40K T3M MVOLT SPA DDBXD

DSX1 LED

Series	LEDs	Drive current	Color temperature	Distribution	Voltage	Mounting	Control options	Other options	Finish *(required)*
DSX1 LED	30C 30 LEDs (one engine)	530 530 mA	30K 3000K (80 CRI min.)	T1S Type I short	MVOLT[2]	**Shipped included**	**Shipped installed**	**Shipped installed**	DDBXD Dark bronze
	40C 40 LEDs (two engines)	700 700 mA	40K 4000K (70 CRI min.)[1]	T2S Type II short	120[2]	SPA Square pole mounting	PER NEMA twist-lock receptacle only (no controls)	HS House-side shield[11]	DBLXD Black
	60C 60 LEDs (two engines)	1000 1000 mA (1 A)	50K 5000K (67 CRI)	T2M Type II medium	208[2]	RPA Round pole mounting	DMG 0-10V dimming driver (no controls)[4]	WTB Utility terminal block[12]	DNAXD Natural aluminum
				T3S Type III short	240[2]	WBA Wall bracket	DCR Dimmable and controllable via ROAM® (no controls)[5]	SF Single fuse (120, 277, 347V)[13]	DWHXD White
				T3M Type III medium	277[2]		DS Dual switching[6,7]	DF Double fuse (208, 240, 480V)[13]	DDBTXD Textured dark bronze
				T4M Type IV medium	347		PIR Motion sensor, 8-15′ mounting height[8]	TLS Tool-less entry trigger latch	DBLBXD Textured black
				TFTM Forward throw medium	480[3]		PIRH Motion sensor, 15-30′ mounting height[9]	L90 Left rotated optics[14]	DNATXD Textured natural aluminum
				T5VS Type V very short			BL30 Switched dimming, 30%[7,10]	R90 Right rotated optics[14]	DWHGXD Textured white
				T5S Type V short			BL50 Switched dimming, 50%[7,10]		
				T5M Type V medium					
				T5W Type V wide					

Drilling



DSX1 shares a unique drilling pattern with the AERIS™ family. Specify this drilling pattern when specifying poles, per the table below.

DM19AS	Single unit	**DM29AS**	2 at 90°
DM28AS	2 at 180°	**DM39AS**	3 at 90°
DM49AS	4 at 90°	**DM32AS**	3 at 120°*

Example: SSA 20 4C **DM19AS** DDBXD

Visit Lithonia Lighting's POLES CENTRAL to see our wide selection of poles, accessories and educational tools.

Accessories

Ordered and shipped separately.

DLL127F 1.5 JU	Photocell - SSL twist-lock (120-277V)[15]
DLL347F 1.5 CUL JU	Photocell - SSL twist-lock (347V)[15]
DLL480F 1.5 CUL JU	Photocell - SSL twist-lock (480V)[15]
SC U	Shorting cap[15]
DSX1HS 30C U	House-side shield for 30 LED unit
DSX1HS 40C U	House-side shield for 40 LED unit
DSX1HS 60C U	House-side shield for 60 LED unit
SPA19/MR2 DDBXD U	Square pole DM19 to DM19AS adapter (specify finish)
RPA19/MR2 DDBXD U	Round pole DM19 to DM19AS adapter (specify finish)

For more control options, visit DTL and ROAM online.

Tenon Mounting Slipfitter*

Tenon O.D.	Single Unit	2 at 180°	2 at 90°	3 at 120°	3 at 90°	4 at 90°
2-3/8″	AST20-190	AST20-280	AST20-290	AST20-320	AST20-390	AST20-490
2-7/8″	AST25-190	AST25-280	AST25-290	AST25-320	AST25-390	AST25-490
4″	AST35-190	AST35-280	AST35-290	AST35-320	AST35-390	AST35-490

** For round pole mounting (RPA) only.*

NOTES

1. Configured with 4000K (40K) provides the shortest lead times. Consult factory for 3000K (30K) and 5000K (50K) lead times.
2. MVOLT driver operates on any line voltage from 120-277V (50/60 Hz). Specify 120, 208, 240 or 277 options only when ordering with fusing (SF, DF options).
3. Not available with single board, 530mA product (30C 530).
4. Not available with 347 or 480V.
5. Specifies a ROAM® enabled luminaire with 0-10V dimming capability; PER option required. Not available with 347 or 480V. Additional hardware and services required for ROAM® deployment; must be purchased separately. Call 1-800-442-6745 or email: sales@roamservices.net. Not available with PIRH.
6. Requires 40C or 60C. Provides 50/50 luminaire operation via two independent drivers on two separate circuits. N/A with PER, DCR, DMG or WTB.
7. Requires an additional switched line.
8. Specifies the SensorSwitch SBR-10-ODP control; see Motion Sensor Guide for details. Dimming driver standard. Not available with DCR or WTB.
9. Specifies the SensorSwitch SBR-6-ODP control; see Motion Sensor Guide for details. Dimming driver standard. Not available with DCR or WTB.
10. Dimming driver standard. MVOLT only. Not available with DCR or WTB.
11. Also available as a separate accessory; see Accessories information.
12. WTB not available with BL30, BL50, DS, PIR or PIRH.
13. Single fuse (SF) requires 120, 277 or 347 voltage option. Double fuse (DF) requires 208, 240 or 480 voltage option.
14. Available with 60 LEDs (60C option) only.
15. Requires luminaire to be specified with PER option. Ordered and shipped as a separate line item.

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. Actual wattage may differ by +/- 8% when operating between 120-480V +/-10%. Contact factory for performance data on any configurations not shown here.

LEDs	Drive Current (mA)	Performance Package	System Watts	Dist. Type	30K (3000K, 80 minimum CRI)					40K (4000K, 70 minimum CRI)					50K (5000K, 67 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
30C (30 LEDs)	700 mA	30C 700 --K	68 W	T1S	5,290	1	0	1	78	6,524	2	0	2	96	7,053	2	0	2	104
				T2S	5,540	1	0	1	81	6,833	2	0	2	100	7,387	2	0	2	109
				T2M	5,360	1	0	2	79	6,611	2	0	2	97	7,147	2	0	2	105
				T3S	5,479	1	0	1	81	6,757	1	0	2	99	7,305	2	0	2	107
				T3M	5,452	1	0	2	80	6,724	2	0	2	99	7,269	2	0	2	107
				T4M	5,461	1	0	2	80	6,736	2	0	2	99	7,282	2	0	2	107
				TFTM	5,378	1	0	2	79	6,633	1	0	2	98	7,171	1	0	2	105
				T5VS	5,708	2	0	0	84	7,040	3	0	0	104	7,611	3	0	1	112
				T5S	5,639	2	0	0	83	6,955	2	0	0	102	7,519	3	0	0	111
				T5M	5,710	3	0	1	84	7,042	3	0	1	104	7,613	3	0	2	112
				T5W	5,551	3	0	1	82	6,847	3	0	2	101	7,401	3	0	2	109
	1000 mA	30C 1000 --K	105 W	T1S	7,229	2	0	2	69	9,168	2	0	2	87	9,874	2	0	2	94
				T2S	7,572	2	0	2	72	9,603	2	0	2	91	10,342	2	0	2	98
				T2M	7,325	2	0	2	70	9,291	2	0	2	88	10,005	2	0	3	95
				T3S	7,488	2	0	2	71	9,496	2	0	2	90	10,227	2	0	2	97
				T3M	7,451	2	0	2	71	9,450	2	0	2	90	10,177	2	0	2	97
				T4M	7,464	2	0	2	71	9,467	2	0	2	90	10,195	2	0	2	97
				TFTM	7,351	1	0	2	70	9,323	2	0	2	89	10,040	2	0	3	96
				T5VS	7,801	3	0	1	74	9,894	3	0	1	94	10,655	3	0	1	101
				T5S	7,803	3	0	2	74	9,774	3	0	1	93	10,526	3	0	1	100
				T5M	7,707	3	0	0	73	9,897	3	0	2	94	10,658	4	0	2	102
				T5W	7,586	3	0	2	72	9,621	4	0	2	92	10,363	4	0	2	99
40C (40 LEDs)	700 mA	40C 700 --K	89 W	T1S	6,876	2	0	2	77	8,639	2	0	2	97	9,345	2	0	2	105
				T2S	7,202	2	0	2	81	9,049	2	0	2	102	9,788	2	0	2	110
				T2M	6,968	2	0	2	78	8,755	2	0	2	98	9,469	2	0	3	106
				T3S	7,122	2	0	2	80	8,948	2	0	2	101	9,679	2	0	2	109
				T3M	7,088	2	0	2	80	8,905	2	0	2	100	9,632	2	0	2	108
				T4M	7,100	2	0	2	80	8,920	2	0	2	100	9,649	2	0	2	108
				TFTM	6,992	1	0	2	79	8,785	2	0	2	99	9,502	2	0	2	107
				T5VS	7,421	3	0	0	83	9,323	3	0	1	105	10,085	3	0	1	113
				T5S	7,331	2	0	0	82	9,210	3	0	1	103	9,962	3	0	1	112
				T5M	7,423	3	0	2	83	9,326	3	0	2	105	10,087	4	0	2	113
				T5W	7,216	3	0	2	81	9,066	4	0	2	102	9,807	4	0	2	110
	1000 mA	40C 1000 --K	138 W	T1S	9,521	2	0	2	69	11,970	2	0	2	87	12,871	3	3	0	93
				T2S	9,972	2	0	2	72	12,558	3	0	3	91	13,481	3	0	3	98
				T2M	9,648	2	0	3	70	12,149	3	0	3	88	13,043	3	0	3	95
				T3S	9,862	2	0	2	71	12,418	2	0	2	90	13,331	2	0	2	97
				T3M	9,814	2	0	2	71	12,358	3	0	3	90	13,267	3	0	3	96
				T4M	9,831	2	0	2	71	12,379	2	0	3	90	13,290	2	0	3	96
				TFTM	9,681	2	0	2	70	12,191	2	0	3	88	13,087	2	0	3	95
				T5VS	10,275	3	0	1	74	12,937	3	0	1	94	13,890	4	0	1	101
				T5S	10,150	3	0	1	74	12,782	3	0	1	93	13,721	3	0	1	99
				T5M	10,278	4	0	2	74	12,942	4	0	2	94	13,894	4	0	2	101
				T5W	9,991	4	0	2	72	12,582	4	0	2	91	13,507	4	0	2	98
60C (60 LEDs)	700 mA	60C 700 --K	131 W	T1S	10,226	2	0	2	78	12,871	3	0	3	98	13,929	3	0	3	106
				T2S	10,711	2	0	2	82	13,481	3	0	3	103	14,589	3	0	3	111
				T2M	10,363	2	0	3	79	13,043	3	0	3	100	14,115	3	0	3	108
				T3S	10,592	2	0	2	81	13,331	2	0	2	102	14,427	3	0	3	110
				T3M	10,541	2	0	2	80	13,267	3	0	3	101	14,357	3	0	3	110
				T4M	10,559	2	0	2	81	13,290	2	0	3	101	14,382	3	0	3	110
				TFTM	10,398	2	0	3	79	13,087	2	0	3	100	14,163	2	0	3	108
				T5VS	11,036	3	0	1	84	13,890	4	0	4	106	15,032	4	0	1	115
				T5S	10,902	3	0	1	83	13,721	3	0	1	105	14,849	4	0	1	113
				T5M	11,039	4	0	2	84	13,894	4	0	2	106	15,036	4	0	2	115
				T5W	10,732	4	0	2	82	13,507	4	0	2	103	14,617	4	0	2	112
	1000 mA	60C 1000 --K	209 W	T1S	14,017	3	0	3	67	17,632	3	0	3	84	19,007	3	0	3	91
				T2S	14,681	3	0	3	70	18,467	3	0	3	88	19,908	3	0	3	95
				T2M	14,204	3	0	3	68	17,867	3	0	3	85	19,260	3	0	3	92
				T3S	14,518	3	0	3	69	18,262	3	0	3	87	19,687	3	0	3	94
				T3M	14,448	3	0	3	69	18,173	3	0	4	87	19,591	3	0	4	94
				T4M	14,473	3	0	3	69	18,205	3	0	3	87	19,625	3	0	4	94
				TFTM	14,253	2	0	3	68	17,928	3	0	4	86	19,326	3	0	4	92
				T5VS	15,127	4	0	1	72	19,028	4	0	1	91	20,512	4	0	1	98
				T5S	14,943	4	0	1	71	18,797	4	0	1	90	20,263	4	0	1	97
				T5M	15,131	4	0	2	72	19,033	4	0	2	91	20,517	5	0	3	98
				T5W	14,710	4	0	2	70	18,503	5	0	3	89	19,946	5	0	3	95

Performance Data

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	32°F	1.02
10°C	50°F	1.01
20°C	68°F	1.00
25°C	**77°F**	**1.00**
30°C	86°F	1.00
40°C	104°F	0.99

Electrical Load

			Current (A)					
Number of LEDs	Drive Current (mA)	System Watts	120	208	240	277	347	480
30	530	52	0.52	0.30	0.26	0.23	0.18	--
	700	68	0.68	0.39	0.34	0.30	0.24	0.17
	1000	105	1.03	0.59	0.51	0.45	0.36	0.26
40	530	68	0.67	0.39	0.34	0.29	0.23	0.17
	700	89	0.89	0.51	0.44	0.38	0.31	0.22
	1000	138	1.35	0.78	0.67	0.58	0.47	0.34
60	530	99	0.97	0.56	0.48	0.42	0.34	0.24
	700	131	1.29	0.74	0.65	0.56	0.45	0.32
	1000	209	1.98	1.14	0.99	0.86	0.69	0.50

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the platforms noted 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).

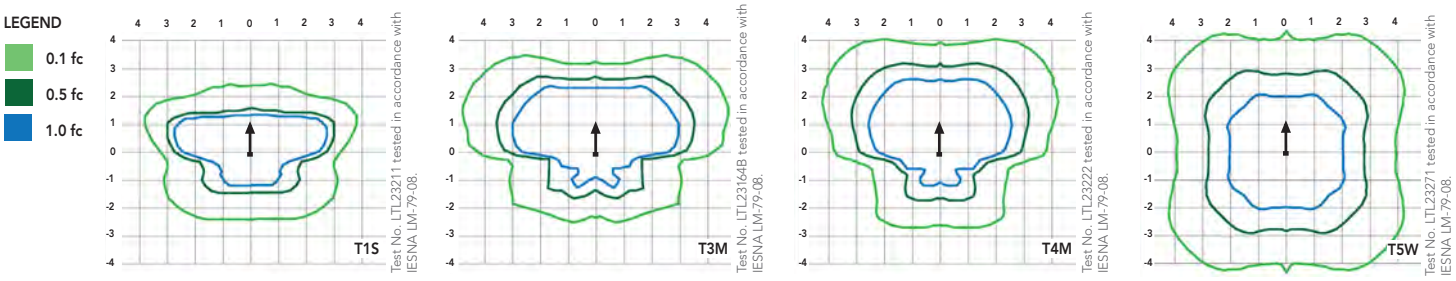
To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	DSX1 LED 60C 1000			
	1.0	0.95	0.93	0.88
	DSX1 LED 60C 700			
	1.0	0.99	0.98	0.96

Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's D-Series Area Size 1 homepage.

Isofootcandle plots for the DSX1 LED 60C 1000 40K. Distances are in units of mounting height (20').



FEATURES & SPECIFICATIONS

INTENDED USE
The sleek design of the D-Series Size 1 reflects the embedded high performance LED technology. It is ideal for many commercial and municipal applications, such as parking lots, plazas, campuses, and streetscapes.

CONSTRUCTION
Single-piece die-cast aluminum housing has integral heat sink fins to optimize thermal management through conductive and convective cooling. Modular design allows for ease of maintenance and future light engine upgrades. The LED driver is mounted in direct contact with the casting to promote low operating temperature and long life. Housing is completely sealed against moisture and environmental contaminants (IP65). Low EPA (1.2 ft^2) for optimized pole wind loading.

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. Available in both textured and non-textured finishes.

OPTICS
Precision-molded proprietary acrylic lenses are engineered for superior area lighting distribution, uniformity, and pole spacing. Light engines are available in standard 4000K (70 minimum CRI) or optional 3000K (80 minimum CRI) or 5000K (67 CRI) configurations. The D-Series Size 1 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 configurations consist of 30, 40 or 60 high-efficacy LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life (up to L96/100,000 hours at 25°C). Class 1 electronic drivers are designed to have a power factor >90%, THD <20%, and an expected life of 100,000 hours with <1% failure rate. Easily serviceable 10kV or 6kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).

INSTALLATION
Included mounting block and integral arm facilitate quick and easy installation. Stainless steel bolts fasten the mounting block securely to poles and walls, enabling the D-Series Size 1 to withstand up to a 3.0 G vibration load rating per ANSI C136.31. The D-Series Size 1 utilizes the AERIS™ series pole drilling pattern. Optional terminal block, tool-less entry, and NEMA photocontrol receptacle are also available.

LISTINGS
CSA certified to U.S. and Canadian standards. Light engines are IP66 rated; luminaire is IP65 rated. Rated for -40°C minimum ambient. U.S. Patent No. D672,492 S. International patent pending.

WARRANTY
Five-year limited warranty. Full warranty terms located at:
www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

Note: Specifications subject to change without notice.

Appendix D

Budget Breakout

Fixture Type	Manufacturer	Catalog Number	Description
AL1	Lithonia	DSX1 LED 30C 1000 40K T3M MVOLT SPA DDBXD	105w LED area light - type III
BNLO1	Osram Sylvania	QTP2x32T8/UNV PSN-TC # 51402	2L program start NLO Ballast
BNLO2	Osram Sylvania	QTP4x32T8/UNV PSN-SC # 51404	4L program start NLO Ballast
BHLO1	Osram Sylvania	QHE 2x32T8/UNV PSH-HT # 49450	2L program start HLO Ballast
BHLO2	Osram Sylvania	QHE 4x32T8/UNV PSH-HT # 49455	4L program start HLO Ballast
DBNLO1	Osram Sylvania	QTP2x32T8/UNV DIM-TC	2L prog. st. NLO Dimming Ballast
EHB3	Lithonia	FHE 632L	6L HPT8 enclosed high bay
FL4	Crouse Hinds	PFM9L CY/UNV1 76	121w LED flood light
FL5	Crouse Hinds	PFM13L CY/UNV1 76	179w LED flood light
HB1	Lithonia	IBL 18L WD LP740 DLC	213w LED high bay
HB6	Lithonia	IBL 48L WD LP740 DLC	515w LED high bay
L1	Osram Sylvania	FO32/841/XPS/ECO3 # 21681	21681 HPT8 lamp 32w
L2	Osram Sylvania	FO28/841/XP/XL/ECO3 # 22167	22167 HPT8 lamp 28w
RLB1	Crouse Hinds	PVM7LDM2/UNV1	78W Retrofit low bay-Indust
RLB3	Crouse Hinds	PVM3LDM2/UNV1	46W Retrofit low bay-Indust
RW1	Cree	STR-LWY 2M AA 07 E UL SV 525 IP	120w LED roadway
SK2	Lithonia	AVRK8 2 32 CW42 1/4 BINP WHR	HPT8 strip kit with reflector
WP1	Lithonia	DSXW1 LED 20C 700 40K T3M MVOLT DDBXD	47w LED wall pack
WP2	Lithonia	DSXW2 LED 30C 1000 40K T3M MVOLT DDBXD	109w LED wall pack
T8-17W			2 foot linear T8 17W 2'x2' kit (FLT8-17W x 3L x 2'-IS(E) L)
CFL-25			25W compact fluorescent-screw-in (FCM-25W-MG)
CFL-15			15W compact fluorescent screw-in (FCM-15W x 2L-MG)
LED-30			30W screw-in LED (CUST: LEDSI-30W)
LED-14			14W screw-in LED (CUST: LEDSI-14W)
IC			integral occupancy sensor
W-OCC			Wireless occupancy sensor

Lighting Calculator Code	Fixture Type	Description	Qty	lamp/ fix. qty	lamp/ fix cost	total lamp/ fix cost	ballast / fix cost	measure cost (no mark-up)	Distributor Net Cost (no mark-up)	Mark up (%)	Marked Up Total (per unit)	Measure total	Unit Labor rate ($)	Total Labor ($)	Other Costs/ Contingency ($)
FLT8CEE-28W x 2L X 4'-CEE RS/PRS CEE N	BNLO1 & L2	2L PRS NLO	963	2	$6	$13	$20	$33	$32,155	122%	$41	$39,229	$ 40	$ 38,520	$ 1,000
FLT8CEE-32W x 2L X 4'-CEE IS CEE H	BHLO1 & L1	2L IS HLO	1	2	$5	$9	$22	$31	$31	125%	$39	$39	$ 40	$ 40	$ -
FLT8CEE-28W x 4L X 4'-CEE RS/PRS CEE N	BNLO2 & L2	4L PRS NLO	95	4	$6	$26	$19	$45	$4,281	122%	$55	$5,222	$ 40	$ 3,800	$ -
FCM-15W x 2L-MG	CFL-15	2 Lamp CFL 15W each	1	2	$8	$16	$10	$26	$26	125%	$33	$33	$ 20	$ 20	$ -
FLT8CEEHB-32W x 4L X 4'-CEE IS CEE H	BHLO2 & L1	4L IS HLO	9	4	$5	$19	$10	$29	$258	125%	$36	$322	$ 80	$ 720	$ 500
FLT8CEEHB-32W x 6L X 4'-CEE IS CEE H	EHB3 & L1	6L IS HLO	109	6	$5	$28	$186	$214	$23,327	122%	$261	$28,459	$ 80	$ 8,720	$ 500
FCM-25W-MG	CFL-25	25W CFL	2	1	$15	$15		$15	$30	125%	$19	$38	$ 10	$ 20	$ -
FLT8-17W x 3L x 2'-IS(E) L	T8-17W	2L 2x2 F17W T8	25	2	$6	$12	$75	$87	$2,175	125%	$109	$2,719	$ 80	$ 2,000	$ -
CUST: LEDHB-78W	RLB1	78w LED high bay	2736	1	$618	$618		$618	$1,690,848	120%	$742	$2,029,018	$ 80	$ 218,880	$ 10,000
CUST: LEDPM-40W	RLB3	40w LED pendant	3	1	$618	$618		$618	$1,854	120%	$742	$2,225	$ 80	$ 240	$ 500
CUST: LEDSI-30W	LED-30	30w LED screw in	131	1	$30	$30		$30	$3,930	125%	$38	$4,913	$ 20	$ 2,620	$ -
CUST: LEDSI-14W	LED-14	14w LED screw in	85	1	$25	$25		$25	$2,125	125%	$31	$2,656	$ 20	$ 1,700	$ -
CUST: LEDHB-511W	HB6	511w LED high bay	136	1	$600	$600		$600	$81,600	120%	$720	$97,920	$ 120	$ 16,320	$ 2,000
CUST: LEDHB-160W	HB1	160w LED high bay	36	1	$347	$347		$347	$12,474	122%	$423	$15,218	$ 120	$ 4,320	$ 500
CUST: LEDWP-109W	WP2	109w LED wall pack	38	1	$420	$420		$420	$15,960	122%	$512	$19,471	$ 80	$ 3,040	$ -
CUST: LEDWP-47W	WP1	47w LED wall pack	20	1	$325	$325		$325	$6,500	122%	$397	$7,930	$ 80	$ 1,600	$ -
CUST: LEDPM-120W	RW1	120w LED pendant	11	1	$809	$809		$809	$8,899	120%	$971	$10,679	$ 120	$ 1,320	$ 500
CUST: FLT8CEE-28W x 2L X 4'-CEE RS/PRSDIM N	DBNLO1 & L2	2L PRS NLO DIM	13	2	$5	$9	$59	$68	$888	125%	$85	$1,110	$ 80	$ 1,040	$ -
CUST: LED Flood 121w	FL4	121w LED Flood	41	1	$820	$820		$820	$33,620	120%	$984	$40,344	$ 80	$ 3,280	$ -
CUST: LEDWP-40W	WP1	40w LED wall pack	3	1	$325	$325		$325	$975	122%	$397	$1,190	$ 80	$ 240	$ -
CUST: LED Flood 179w	FL5	179w LED Flood	34	1	$1,057	$1,057		$1,057	$35,938	120%	$1,268	$43,126	$ 80	$ 2,720	$ 1,000
CUST: LEDPM-105W	AL1	105w LED pendant	15	1	$620	$620		$620	$9,300	120%	$744	$11,160	$ 80	$ 1,200	$ 500
Integral controls		ordered with fixture	56	1	$60	$60		$60	$3,360	122%	$73	$4,099	$ 20	$ 1,120	$ -
Occupancy controls		Wireless	87	1	$85	$85		$85	$7,395	122%	$104	$9,022	$ 60	$ 5,220	$ -

* Contingency and other costs include lifts, scaffolding, or other misc. materials/spares.

$1,886,472 DNC		**$2,376,140** with markup		**$ 318,700** Labor total	**$ 17,000** Other total
material price shown in lighting tool (rounded)		**$2,376,100**	**Rounded Labor**	**$ 318,700**	**$ 17,000**

Grand Total all phases all bugetted costs = $ 2,711,800