PACIFICORP ENERGY
A DIVISION OF PACIFICORP

PacifiCorp Energy

Huntington Power Plant

Utah

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 Huntington plant located in Huntington, Utah. Site visits were conducted on August 8th and 9th, 2013 and the following 4 phases 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 maintenance. Recommendation 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 (no additional advantages over long life T8 lamps). There are approximately 1,180 T12 fixtures recommended for upgrade.

- Turbine Area: Existing fixtures include dual-head 400-Watt (W) mercury vapor and metal halide fixtures. The recommended upgrade for this measure is to double 213W LED high bay fixtures to match the number of heads existing or to install larger 531W HB6 LED high bay if the customer desires to perform a one for one unit replacement without installing new electrical for a change in layout. LED are recommended for this area specifically for the long life and access limitations for maintenance to replace lamps (like a T5HO high bay fixture with 8 lamps each.

- Industrial Fixtures: The primary fixtures at this location 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 (Crouse Hinds industrial brand). The new LED fixture is 78 watts and lasts approximately 60,000 hours (L70, hours until 70% of light output for this fixture) compared to the existing fixtures 15,000 - 24,000 hour lamp life. In addition to this specific site, 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 for all locations.

- Exterior fixtures are broken out as their own phase. These high intensity discharge fixtures can be upgraded with various fixture types. Some will match the typical low bay LED retrofits (78W Type discussed for industrial phase), while some will be pole, wall mount or flood light types. Plant personal or contractor will determine fixture mounting hardware prior to ordering as well as verify fixture types, but all types are listed in the lighting tool and appendix.

Table 1: Breakout of Lighting Upgrades for phasing purposes

Recommended Breakout	Number of light fixtures	Rough Budget $	kWh Savings
T-12 Lighting Upgrade	1,180	$122,200	480,782
Turbine Area	99	$82,060	230,099
Industrial Fixtures	2,267	$1,824,600	2,707,425

Exterior Lighting	577	$326,900	436,371
Totals	**4,123**	**$2,355,760**	**3,854,677**

**Industrial fixtures represent most 78W LED replacement fixtures and include lighting controls at times.*
***Estimated total does not include all light fixtures throughout the plant. Misc. fixtures can be added to each phase as desired. Some fixtures are getting controls only and stay as is.*

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 for PacifiCorp Energy. So once internal power rates for power generation are applied, we don't expect projects to net on "energy savings alone" under a typical 2-years payback period to make this an automatic capital investment. However, looking at the long-term benefits, there are significant values (other cost savings) for investing in these recommended lighting upgrades that should be added to energy costs savings:

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 expenses and time each year for the next 10 years (and nominal increases thereafter).
3) Reduced safety risk to maintenance staff (by minimizes access to restricted accessible areas/heights/lifts and lighting fixtures 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 (rating); recommended lighting proposed has a color accuracy of 80 – 90 percent (rating). Term in lighting sector is called CRI (color rendering index).
5) Increases productivity and safety by providing clearer distinction in colors (e.g., instrumentation wiring) and small details of equipment, etc.
6) Computer glare is reduced especially in the office areas. Additionally, current IES (Illuminating Engineering Society) light level recommendations can be met in those offices with these recommendations.
7) Make power (sources) 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) In some cases, insurance premiums could qualify for reductions with some project improvements.
9) 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 that these power plants as long-term facilities and even if basic energy savings only net paybacks looks 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 should need to be reconsidered. Life cycle cost analysis will show capital investment justifications.

Lighting Audit Report

Richard Wood of Evergreen Consulting Group performed a lighting audit for Huntington Power Plant. The entire facility consists of mechanical, service walkways, offices, labs and some maintenance shops. The lighting audit encompasses all of the power plant systems/site. The entire facility is operated all day 365-days a year.

The building has mostly lower wattage 175W Mercury Vapor and Metal Halide fixtures (industrial housing) types. They come in a variety ranging from dusk-to-dawn (pole mounted), low bays, to emergency lighting applications. The recommendations for Huntington Power Plant include installing lower wattage LED industrial and hazardous fixtures designs from Crouse Hinds to replace the existing HIDs (brand is typical to existing fixtures).

Secondary fixtures include T12 (1.5” diameter) linear fluorescent fixtures, that were typical of the age of facility, but are considered an obsolete technology in the lighting industry and nationally with federal standards are being restricted for replacement availability through efficiency standards on manufacturers.

Site Conditions/Survey: Environmental heat concerns may be a concern for areas near the boiler where temperatures reach 131 degrees Fahrenheit around light fixtures. If areas meet this threshold, the installer should use a metal halide technology instead of the LED or make sure specifications for any fixture type are designed for these higher ambient temperatures. LED do not like heat but prefer cold and typically shortens life of LED fixtures at higher temperatures. The facility has a natural tendency to collect dirt, so dirt depreciation is a major threat to lighting performance of any fixture installed. Semi-regular cleaning is recommended to preserve proper light levels, this is applied to existing fixtures as with any new fixtures over time.

Recommendations

Detail Lighting Survey:

Appendix B contains a large spreadsheet (known as Lighting Tool) on each area showing baseline and proposed fixtures (recommended). Included in this appendix are five lighting tools:

1. One - master spreadsheet with all baseline opportunities (all fixtures surveyed).
2. Four – breakout spreadsheets (subsets of total) with baselines for your T12 fixtures, turbine, industrial areas, and exterior lighting.

Recommended Fixtures:

Appendix C contains specification sheets of the typical fixture types being recommended. No specific manufacturer is required and an “or-equal” alternative can be used for bid purposes.

- **De-lamping T12 to T8 retrofit kits**: The typical 4' T12 linear fluorescent 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 projects 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's are typical 8' slim-line or high output fluorescent fixtures that will be either de-lamped or retrofitted with 4' linear T8 CEE lamps using a "kit" which allows for easy installation without removing the "body" of the fixture. The 8' lamps will be eliminated also, which is a significant maintenance expense and storage concern. New lamps operate as high as 84,000 hours, 4x the existing T12 lamps.

  Please pay particular attention to the ballast factor and lamp types being recommended as higher savings can be achieved by installing CEE T8 lamps and ballasts with appropriate light levels for each space. The attached spreadsheets show the individual room-by-room recommendations with the associated fixture or retrofit components.

- **Crouse Hinds <industrial fixture>:** Currently, the plant has over 2,000 low-bay industrial fixtures styles using either 175W metal halide or 150W high-pressure sodium technology. It is recommended to replace these with a LED retrofit kit that uses the existing back box (mounting) when retrofitting the fixture, thereby reducing the labor time to replace/upgrade. These retrofit kits are available from Dialight or Crouse-Hinds (at the time of this report); other manufactures may have an equal product. Alternatives design could be looked at as a cost saving measure only, which would be a LED screw-in retrofit hybrid kit. This would save up-front 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). Recommendation made is the longest measure life option to achieve need for adequate light levels for on-site.
- **LED High Bay fixtures**: We strongly recommend the plant select a high quality LED high bay fixture to replace the turbine area's existing high bay high intensity discharge (HID) fixtures. Maintenance reduction, long life, safety, and lighting quality are all 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. The existing average foot candle (FC) light level readings are 55-60, which is higher than IES recommends (@30FC). Caution should be taken when recommending a new fixture and light level. Uniformity and higher quality light (CRI) is highly recommended if reducing FC's. It is recommended that the plant review multiple products before choosing a fixture for this area. Test fixtures at one plant could help decide other locations.

Existing and Projected Lighting Performance in Turbine Area:

Existing Foot-candle readings:

Area	MIN	MAX	AVG
Turbine Area with daylight	25	75	40

Proposed Foot-candle Estimates:

Area	MIN	MAX	AVG
Turbine Area without daylight	20	41	34

- **Exterior fixtures:** This area would receive a standard replacement with most recommended products changing to a new LED fixture or pulse start metal halide technology. Time will need to be spent determining the proper fixtures that use the correct optics, wattage, and fixture design for new fixtures. 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. Coal pit and some pole lights do recommend lower cost Pulse Start Metal Halide retrofits for easy 1-for-1 upgrades using existing fixtures.

Why CEE/DLC:

The fixtures recommended above can be found on the Consortium for Energy Efficiency (CEE) and Designlights Consortium (DLC) listed fixtures (national qualification lists). The utility programs require these listed products for lamps/ballast and LED related products. 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 minimum lamp efficiency standards to identify the longest lasting and higher quality linear fluorescent lamps (U-tube and 4' lamps only are listed). By ordering CEE listed products (there are over 1,000+), 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 longer life 28W lamps (84,000 estimated hours). For all T8 ballasts, it is recommended to use "program start" ballasts 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 lamps.
- 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 (linear fluorescent) 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 (1" diameter) lighting: Recommended new lamps replacing the T12 lamps have **84,000 hours or 9 years** life span between burnouts**.** Adding controls will extend these fixtures longer than 9 years if currently operating 24-hours a day. Office fixtures operating only M-F, could have 15-20 year life before burn-outs. Paying 1 - 2 dollars more for these lamps are well worth the investment up-front over the standard T8 lamps.
- Existing 175-watt metal halide fixtures have a lamp life of **12,000 hours or 1.5 years** before they burn out (on average).

- Existing 150-watt 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 light output point.
- Existing 400-watt 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 (CRI), short lamp life and steep lamp lumen depreciation (40% loss in light levels). Because of this, this 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 fixture 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 (warm-up) waiting time for a fixture to come up to full brightness allowing for controls to be added in storage areas that will extend the longevity of the fixture (by years) and energy savings for not being used 24-hours/day.

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 ***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 labor per installation average; 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 excess 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. Internal labor rates could also be alternatively considered.

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 changed the recommended lighting fixture type from a fluorescent to a LED for the main open turbine area (when compared to the original preliminary report copies). A 2x213-watt LED high bay fixture is 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 fixtures, as this would be the simplest and easiest to replace. Pricing is higher for this product technology (LED) 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 (locations). 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

Huntington - Entire Scope

Fixture Summary & Count

Fluorescent	
FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	835
FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	214
FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE N	58
FLT5HOHB-54W x 8L x 4'-3 RS/PRS H	112
FLT5HOHB-54W x 4L x 4'-RS/PRS H	33
FUT8CEE-28W x 2L x 2'-CEE RS/PRS N	3
FCM-27W-IS N	2
HID	
MHPS-750W-SCWA	97
MHPS-320W-SCWA	23
Induction	
LED	
LEDWP-45W	130
LEDHB-213W	84
Other	
CUST: PVM7LDM2/UNV1	2441
CUST: LEDHB-531W-DIM	23
CUST: PVM9LDM2/UNV1	68
Controls	
Occupancy	96
Integral	59

Huntington - T12 Phase

Fixture Summary & Count

Fluorescent	
FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	835
FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	214
FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE N	58
FLT5HOHB-54W x 8L x 4'-3 RS/PRS H	58
FUT8CEE-28W x 2L x 2'-CEE RS/PRS N	3
HID	
Induction	
LED	
Other	
CUST: PVM7LDM2/UNV1	12
Controls	
Occupancy	83
Integral	35

Huntington - Turbine Phase

Fixture Summary & Count

Fluorescent

HID

Induction

LED

LEDHB-213W	35

Other

CUST: LEDHB-531W-DIM	12
CUST: PVM7LDM2/UNV1	52

Controls

Huntington - Industrial Phase

Fixture Summary & Count

Fluorescent	
FLT5HOHB-54W x 8L x 4'-3 RS/PRS H	54
FLT5HOHB-54W x 4L x 4'-RS/PRS H	33
FCM-27W-IS N	2
HID	
Induction	
LED	
LEDWP-45W	63
LEDHB-213W	49
Other	
CUST: PVM7LDM2/UNV1	1987
CUST: PVM9LDM2/UNV1	68
CUST: LEDHB-531W-DIM	11
Controls	
Occupancy	11
Integral	24

Huntington - Exterior Phase

Fixture Summary & Count

Fluorescent

HID

MHPS-750W-SCWA	97
MHPS-320W-SCWA	23

Induction

LED

LEDWP-45W	67

Other

CUST: PVM7LDM2/UNV1	390

Controls

Occupancy	2

Appendix B

Lighting Tools

ROCKY MOUNTAIN POWER

Let's turn the answers on.

V 070113.5.3

wattsmart® Business - Utah

07/01/13 Effective Date

You Can Now Use The Project Information Tab

Project ID	
Lighting Coordinator	
Tool Prepared by	Richard Wood
Project Manager	
Account Manager	

Customer Information

Project Name	Huntington Power Plant - Entire scope		
Business Name	PacifiCorp Energy		
Installation Address			
City, State, Zip	Huntington	UT	
Contact, Title	Don Arnold		
Phone, Email	801-220-4757	Don.Arnold@PacifiCorp.com	
Account, Meter, Rate	☑		6
Participant is:	Acct Holder	Elect. User	Building Owner
Business Type	Industrial		

Contractor Information

Contact		wattsmart Business vendor
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 #	
Meter Base #, Rate	

Processing Information

Construction Type	Retrofit	Stage	Preliminary

Project Cost

Material	Labor	Other	Total Project Cost
$2,057,400.00	$283,360.00	$15,000.00	**$2,355,760.00**

Space Type & Size

	Calculation Method	Whole Building	Allowed Wattage		1,300,000	
1	Manufacturing Facility		FT^2	1,000,000	1.30	W/FT^2
			FT^2			W/FT^2
			FT^2			W/FT^2
			FT^2			W/FT^2
			FT^2			W/FT^2
	Manufacturing Facility		FT^2	1,000,000	1.30	W/FT^2

Lighting Operation Schedule

# of Holidays Closed?	Day	A	B	C	D	E
0	Mon	18.0	9.0	4.0	2.0	
Op Weeks Per Year	Tue	18.0	9.0	4.0	2.0	
52	Wed	18.0	9.0	4.0	2.0	
"S" is for a seasonal operational schedule	Thu	18.0	9.0	4.0	2.0	
S is for 0 hrs/year	Fri	18.0	9.0	4.0	2.0	
X is for 8760 hrs/year	Sat	18.0	9.0	4.0	2.0	
Y is for 4380 hrs/year	Sun	18.0	9.0	4.0	2.0	
	Total	6,570	3,285	1,460	730	

Additional Information

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 | Clear Filter | Build Fixture | Reset

295W - HPS-250W
465W - HPS-400W
128W - MH-100W-CWA
215W - MH-175W-CWA
295W - MH-250W-CWA
458W - MH-400W-CWA
500W - ICMG-500W
144W - FLT12-34W x 4L x 4'-2 MG(E)
78 W - CUST: PVM7LDM2/UNV1
94 W - CUST: PVM9LDM2/UNV1
73W - FLT8CEE-32W x 2L x 4'-CEE RS/P

Savings Information

3,854,676 kWh Saved Per Year

ROCKY MOUNTAIN POWER

Let's turn the answers on.

48W - FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L

Fluorescent Linear T8 CEE (32W x 2L x 4') 1 CEE Rapid/Program Start Ballast (BF < 0.85)

Standard Incentive (15.1% of Cost Paid By Incentive)

Lighting Power Density

1.30	Code	74.4%
0.73	Existing	Better Than Code
0.33	Proposed	LPD

↓↓Project Tracking↓↓

Preliminary

Pre-Inspection

Agreement Needed

Contracted

Post-Inspection

Final Review Needed

Preliminary

Huntington Power Plant - Entire scope

328 Out Of 338 Lines Used

				Existing			Interior	731,708	Proposed			Interior	332,958	
					4138	0	Exterior	204,970		4123	155	Exterior	121,291	
Line Number	Exterior	Schedule	Space Description	Fixture	Qty	Controls	Fixture Wattage	Space Wattage	Fixture	Qty	Controls	Fixture Wattage	Space Wattage	↓↓Project Notes↓↓
1		X	Floor 15	MH-175W-CWA	7		215	1,505	CUST: PVM7LDM2/UNV1	7		78	546	vmrm175 (M57) Existing Type RLB1
2		X	Floor 14	FLT12-60W x 2L x 8'-MG(E)	12		123	1,476	CUST: PVM7LDM2/UNV1	12		78	936	TYPE RLB1
3		X	Floor 14	MH-175W-CWA	2		215	430	CUST: PVM7LDM2/UNV1	2		78	156	TYPE RLB1
4		X	Upper level	MV-175W-CWA	12		205	2,460	CUST: PVM7LDM2/UNV1	12		78	936	Many of the Emergency Incandescent Fixtures are on all the time because of insufficient HID fixtures
5		X	Floor 13	MV-175W-CWA	24		205	4,920	CUST: PVM7LDM2/UNV1	24		78	1,872	TYPE RLB1
6		X	Floor 13	MH-175W-CWA	4		215	860	CUST: PVM7LDM2/UNV1	4		78	312	TYPE RLB1
7		X	upper conveyor	MV-175W-CWA	8		205	1,640	CUST: PVM7LDM2/UNV1	8		78	624	TYPE RLB1
8		X	upper conveyor	MH-175W-CWA	7		215	1,505	CUST: PVM7LDM2/UNV1	7		78	546	TYPE RLB1
9		X	Floor 12	MV-175W-CWA	18		205	3,690	CUST: PVM7LDM2/UNV1	18		78	1,404	TYPE RLB1
10		X	Floor 12	MH-175W-CWA	2		215	430	CUST: PVM7LDM2/UNV1	2		78	156	TYPE RLB1
11		X	upper conveyor	MH-175W-CWA	3		215	645	CUST: PVM7LDM2/UNV1	3		78	234	TYPE RLB1
12		X	feed water	MV-175W-CWA	8		205	1,640	CUST: PVM7LDM2/UNV1	8		78	624	TYPE RLB1
13		X	feed water	HPS-100W	1		130	130	CUST: PVM7LDM2/UNV1	1		78	78	TYPE RLB1
14		X	Lower Level	MV-175W-CWA	6		205	1,230	CUST: PVM7LDM2/UNV1	6		78	468	TYPE RLB1
15		X	Floor 11	MV-175W-CWA	30		205	6,150	CUST: PVM7LDM2/UNV1	30		78	2,340	TYPE RLB1
16		X	Floor 10	MV-175W-CWA	26		205	5,330	CUST: PVM7LDM2/UNV1	26		78	2,028	TYPE RLB1
17		X	Upper level	MH-175W-CWA	5		215	1,075	CUST: PVM7LDM2/UNV1	5		78	390	TYPE RLB1
18		X	Upper level	MV-175W-CWA	1		205	205	CUST: PVM7LDM2/UNV1	1		78	78	TYPE RLB1
19		X	Floor 9	MH-175W-CWA	8		215	1,720	CUST: PVM7LDM2/UNV1	8		78	624	TYPE RLB1
20		X	Floor 9	MV-175W-CWA	13		205	2,665	CUST: PVM7LDM2/UNV1	13		78	1,014	TYPE RLB1
21		X	reddler transfer	MH-175W-CWA	45		215	9,675	CUST: PVM7LDM2/UNV1	45		78	3,510	TYPE RLB1
22		X	reddler transfer	MV-175W-CWA	3		205	615	CUST: PVM7LDM2/UNV1	3		78	234	TYPE RLB1
23		X	stairs above air handler	MV-175W-CWA	8		205	1,640	CUST: PVM7LDM2/UNV1	8		78	624	TYPE RLB1
24		X	stairs above air handler	HPS-100W	1		130	130	CUST: PVM7LDM2/UNV1	1		78	78	TYPE RLB1
25		X	Floor 8	MV-175W-CWA	18		205	3,690	CUST: PVM7LDM2/UNV1	18		78	1,404	TYPE RLB1
26		X	Floor 7	MV-175W-CWA	29		205	5,945	CUST: PVM7LDM2/UNV1	29		78	2,262	TYPE RLB1
27		X	Floor 7	MV-175W-CWA	1		205	205	LEDWP-45W	1		45	45	TYPE WP1
28		X	Floor 6	MV-175W-CWA	25		205	5,125	CUST: PVM7LDM2/UNV1	25		78	1,950	TYPE RLB1
29		X	Floor 6 Units I and 2	FLT12-60W x 2L x 8'-MG(E)	23		123	2,829	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	23		73	1,679	Industrial Strip w/ Reflector (Delamp) TYPE SK2, TYPE BHLO1 & TYPE L1

30		X	Floor 6 Units I and 2	MH-175W-CWA	19		215	4,085	CUST: PVM7LDM2/UNV1	19		78	1,482	TYPE RLB1
31		X	Tanks room/hazardous Unit 2	MH-175W-CWA	12		215	2,580	CUST: PVM7LDM2/UNV1	12		78	936	TYPE RLB1
32		X	Tanks room/hazardous Unit 1	MH-175W-CWA	12		215	2,580	CUST: PVM7LDM2/UNV1	12		78	936	TYPE RLB1
33		X	Floor 5	MV-175W-CWA	21		205	4,305	CUST: PVM7LDM2/UNV1	21		78	1,638	TYPE RLB1
34		X	Floor 5	MH-175W-CWA	2		215	430	CUST: PVM7LDM2/UNV1	2		78	156	TYPE RLB1
35		X	mill feeder deck	MH-175W-CWA	15		215	3,225	CUST: PVM7LDM2/UNV1	15		78	1,170	TYPE RLB1
36		X	Floor 4 turbine deck	MH-400W-CWA	18		458	8,244	LEDHB-213W	9		213	1,917	100 x (7x30) TYPE HB1
37		X	Floor 4 turbine deck	MH-1000W-CWA	12		1,080	12,960	CUST: LEDHB-531W-DIM	12		531	6,372	TYPE HB6
38		X	Floor 4 turbine deck	MH-400W-CWA	17		458	7,786	LEDHB-213W	17		213	3,621	17h 4v TYPE HB1
39		X	Floor 4 turbine deck	ICMG-500W	9		500	4,500	LEDHB-213W	9		213	1,917	TYPE HB1
40		X	Floor 4 turbine deck	MV-175W-CWA	52		205	10,660	CUST: PVM7LDM2/UNV1	52		78	4,056	TYPE RLB1
41		X	logic room dcs	FLT12-34W x 4L x 4'-2 MG(E)	50		144	7,200	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	50		73	3,650	2×4 Prismatic kit TYPE TK1, TYPE BHLO1 & TYPE L1
42		X	server room	FLT12-34W x 4L x 4'-2 MG(E)	18		144	2,592	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	18	Occupancy	73	1,314	delamp TYPE BHLO1 & TYPE L1
43		X	storage	FLT12-34W x 4L x 4'-2 MG(E)	2		144	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2	Occupancy	73	146	L&B TYPE BHLO1 & TYPE L1
44		X	storage	FLT12-34W x 4L x 4'-2 MG(E)	9		144	1,296	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	9	Occupancy	73	657	L&B TYPE BHLO1 & TYPE L1
45		X	Control RM unit 2	FLT12-34W x 2L x 4'-MG(E)	34		72	2,448	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	34		48	1,632	L&B TYPE BRLO1 & TYPE L1
46			Control RM unit 2											The rest are T8's
47		X	logic room dcs	FLT12-34W x 4L x 4'-2 MG(E)	55		144	7,920	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE N	55		58	3,190	L&B TYPE BNLO1 & TYPE L1
48		X	exciter	FLT12-34W x 2L x 4'-MG(E)	9		72	648	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	9		48	432	L&B TYPE BRLO1 & TYPE L1
49		X	exciter	FLT12-34W x 2L x 4'-MG(E)	9		72	648	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	9		48	432	wrap TYPE BRLO1 & TYPE L1
50		X	mill feeder deck	MV-175W-CWA	9		205	1,845	CUST: PVM7LDM2/UNV1	9		78	702	TYPE RLB1
51		X	mill feeder deck	FLT12-60W x 2L x 8'-MG(E)	13		123	1,599	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	13		73	949	L&B TYPE BHLO1 & TYPE L1
52		X	Floor 4	MV-175W-CWA	5		205	1,025	CUST: PVM7LDM2/UNV1	5		78	390	TYPE RLB1
53		X	Floor 4	MV-250W-CWA	9		290	2,610	CUST: PVM9LDM2/UNV1	9		94	846	TYPE RLB2
54		X	Floor 3	FLT12-60W x 2L x 8'-MG(E)	20		123	2,460	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	20		73	1,460	L&B TYPE BHLO1 & TYPE L1
55		X	Floor 3	MV-175W-CWA	12		205	2,460	CUST: PVM7LDM2/UNV1	12		78	936	TYPE RLB1
56		X	Floor 3	MH-175W-CWA	24		215	5,160	CUST: PVM7LDM2/UNV1	24		78	1,872	TYPE RLB1
57		X	middle Compressor level	FLT12-60W x 2L x 8'-MG(E)	8		123	984	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	8	Occupancy	73	584	L&B TYPE BHLO1 & TYPE L1
58		X	Floor 3	FLT12-60W x 2L x 8'-MG(E)	7		123	861	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	7		73	511	L&B TYPE BHLO1 & TYPE L1
59		X	Floor 3	MH-175W-CWA	17		215	3,655	CUST: PVM7LDM2/UNV1	17		78	1,326	TYPE RLB1
60		X	Floor 3	MV-175W-CWA	11		205	2,255	CUST: PVM7LDM2/UNV1	11		78	858	TYPE RLB1
61		X	4166 switch gear unit 1	FLT12-34W x 2L x 4'-MG(E)	29		72	2,088	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	29	Occupancy	48	1,392	tandem strip 8' TYPE SK1, TYPE BRLO1 & TYPE L1
62		X	4167 switch gear unit 1	FLT12-34W x 2L x 4'-MG(E)	29		72	2,088	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	29	Occupancy	48	1,392	L&B TYPE BRLO1 & TYPE L1
63		X	Coal Mill level two	MH-1000W-CWA	6		1,080	6,480	CUST: LEDHB-531W-DIM	6		531	3,186	TYPE HB6
64		X	Floor 2 unit 1	MV-175W-CWA	17		205	3,485	CUST: PVM7LDM2/UNV1	17		78	1,326	TYPE RLB1
65		X	Floor 2 unit 2	MV-175W-CWA	17		205	3,485	CUST: PVM7LDM2/UNV1	17		78	1,326	TYPE RLB1
66		X	Floor 1 mill rm unit 1	MH-175W-CWA	18		215	3,870	LEDWP-45W	18		45	810	TYPE WP1
67		X	Floor 1 mill rm unit 1	MH-175W-CWA	18		215	3,870	CUST: PVM7LDM2/UNV1	18		78	1,404	TYPE RLB1

68		X	Floor 1	FLT12-60W x 2L x 8'-MG(E)	118		123	14,514	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	118		73	8,614	L&B TYPE BHLO1 & TYPE L1
69		X	Floor 1	MH-175W-CWA	26		215	5,590	CUST: PVM7LDM2/UNV1	26		78	2,028	TYPE RLB1
70		X	Floor 1	MV-175W-CWA	41		205	8,405	CUST: PVM7LDM2/UNV1	41		78	3,198	TYPE RLB1
71		X	Floor 1	MH-175W-CWA	4		215	860	LEDWP-45W	4		45	180	TYPE WP1
72		X	Floor 1	HPS-100W	13		130	1,690	CUST: PVM7LDM2/UNV1	13		78	1,014	TYPE RLB1
73		X	Floor 1 mill rm unit 2	MH-175W-CWA	30		215	6,450	CUST: PVM7LDM2/UNV1	30		78	2,340	TYPE RLB1
74		X	Floor 1 mill rm unit 2	MH-175W-CWA	11		215	2,365	LEDWP-45W	11		45	495	TYPE WP1
75		X	Floor 1 boiler unit 2	MV-175W-CWA	24		205	4,920	CUST: PVM7LDM2/UNV1	24		78	1,872	TYPE RLB1
76		X	Floor 1 boiler unit 2	MH-175W-CWA	9		215	1,935	CUST: PVM7LDM2/UNV1	9		78	702	TYPE RLB1
77		X	Floor 1 boiler unit 2	HPS-100W	3		130	390	CUST: PVM7LDM2/UNV1	3		78	234	TYPE RLB1
78		X	Floor 1 boiler unit 2	MH-175W-CWA	1		215	215	LEDWP-45W	1		45	45	TYPE WP1
79		X	mineralizer room	FLT12-34W x 2L x 4'-MG(E)	10		72	720	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	10	Occupancy	48	480	2×4 Prismatic kit TYPE TK1, TYPE BRLO1 & TYPE L1
80		X	floor 1 boiler unit 1	MH-175W-CWA	21		215	4,515	CUST: PVM7LDM2/UNV1	21		78	1,638	TYPE RLB1
81		X	floor 1 boiler unit 1	MV-175W-CWA	18		205	3,690	CUST: PVM7LDM2/UNV1	18		78	1,404	TYPE RLB1
82		X	Controller RM	FLT12-34W x 2L x 4'-MG(E)	9		72	648	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	9	Occupancy	48	432	Industrial Strip w/ Reflector (Delamp) TYPE SK2, TYPE BRLO1 & TYPE L1
83		X	Lab	FLT12-34W x 4L x 4'-2 MG(E)	26		144	3,744	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	26		73	1,898	L&B TYPE BHLO1 & TYPE L1
84		X	Side Office	FLT12-34W x 4L x 4'-2 MG(E)	14		144	2,016	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	14	Occupancy	73	1,022	L&B TYPE BHLO1 & TYPE L1
85		X	Side Office	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	4	Occupancy	73	292	L&B TYPE BHLO1 & TYPE L1
86		X	lab sample room	FLT12-34W x 4L x 4'-2 MG(E)	14		144	2,016	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	14	Occupancy	73	1,022	L&B TYPE BHLO1 & TYPE L1
87		X	Lab	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	4	Occupancy	73	292	L&B TYPE BHLO1 & TYPE L1
88	+	X	mill receiving dock units 1 and 2	MV-175W-CWA	16		205	3,280	CUST: PVM7LDM2/UNV1	16		78	1,248	TYPE RLB1
89	+	X	large fans behind mills	MV-175W-CWA	13		205	2,665	LEDWP-45W	13		45	585	TYPE WP1
90		X	large fans behind mills	MV-175W-CWA	8		205	1,640	CUST: PVM7LDM2/UNV1	8		78	624	TYPE RLB1
91		X	Upper level	MV-175W-CWA	9		205	1,845	CUST: PVM7LDM2/UNV1	9		78	702	TYPE RLB1
92		X	bag house switch gear room	FLT12-60W x 2L x 8'-MG(E)	29		123	3,567	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	29	Occupancy	73	2,117	L&B TYPE BHLO1 & TYPE L1
93		X	bag house lowest level	MV-175W-CWA	24		205	4,920	CUST: PVM7LDM2/UNV1	24		78	1,872	TYPE RLB1
94		X	bag house second level	MV-175W-CWA	48		205	9,840	CUST: PVM7LDM2/UNV1	48		78	3,744	TYPE RLB1
95	+	Y	bag house third level	MV-175W-CWA	25		205	5,125	CUST: PVM7LDM2/UNV1	25		78	1,950	TYPE RLB1
96	+	Y	bag house top level	HPS-100W	30		130	3,900	CUST: PVM7LDM2/UNV1	30		78	2,340	TYPE RLB1
97		A	bag house top level	MV-175W-CWA	30		205	6,150	CUST: PVM7LDM2/UNV1	30		78	2,340	highbay fixtures TYPE RLB1
98		A	bag house top level	MH-175W-CWA	18		215	3,870	CUST: PVM7LDM2/UNV1	18		78	1,404	TYPE RLB1
99	+	Y	bag house rear and lower sides	MH-175W-CWA	14		215	3,010	LEDWP-45W	14		45	630	TYPE WP1
100	+	Y	bag house rear and lower sides	MH-175W-CWA	2		215	430	CUST: PVM7LDM2/UNV1	2		78	156	pole mounted TYPE RLB1
101	+	X	smoke tower	MH-175W-CWA	78		215	16,770	CUST: PVM7LDM2/UNV1	78		78	6,084	TYPE RLB1
102	+	Y	scrubber front side	MH-175W-CWA	12		215	2,580	CUST: PVM7LDM2/UNV1	12		78	936	TYPE RLB1
103	+	Y	scrubber front side	HPS-100W	1		130	130	CUST: PVM7LDM2/UNV1	1		78	78	TYPE RLB1
104	+	Y	scrubber front side	MH-175W-CWA	6		215	1,290	LEDWP-45W	6		45	270	TYPE WP1
105		X	scrubber bldg	MH-175W-CWA	9		215	1,935	CUST: PVM7LDM2/UNV1	9		78	702	TYPE RLB1
106		X	scrubber bldg	MH-175W-CWA	9		215	1,935	CUST: PVM7LDM2/UNV1	9		78	702	other fluorescents already t8's

107		X	backside of scrubber unit 1	MV-175W-CWA	44		205	9,020	CUST: PVM7LDM2/UNV1	44		78	3,432	TYPE RLB1
108		X	backside of scrubber unit 1	HPS-100W	8		130	1,040	CUST: PVM7LDM2/UNV1	8		78	624	TYPE RLB1
109		X	backside of scrubber unit 1	MH-175W-CWA	3		215	645	CUST: PVM7LDM2/UNV1	3		78	234	TYPE RLB1
110		X	scrubber elevator	MH-175W-CWA	8		215	1,720	LEDWP-45W	8		45	360	TYPE WP1
111		X	raw water treatment	MV-175W-CWA	8		205	1,640	CUST: PVM7LDM2/UNV1	8		78	624	TYPE RLB1
112		X	raw water treatment	MV-175W-CWA	29		205	5,945	CUST: PVM7LDM2/UNV1	29		78	2,262	TYPE RLB1
113		X	raw water treatment	MV-175W-CWA	6		205	1,230	CUST: PVM7LDM2/UNV1	6		78	468	TYPE RLB1
114			Unit 2 Starts											
115		X	Level 15	MV-175W-CWA	12		205	2,460	CUST: PVM7LDM2/UNV1	12		78	936	TYPE RLB1
116		X	Level 14	MV-175W-CWA	26		205	5,330	CUST: PVM7LDM2/UNV1	26		78	2,028	TYPE RLB1
117		X	Level 14	MH-175W-CWA	1		215	215	CUST: PVM7LDM2/UNV1	1		78	78	TYPE RLB1
118		X	Level 14	MV-175W-CWA	13		205	2,665	CUST: PVM7LDM2/UNV1	13		78	1,014	TYPE RLB1
119		X	Level 13	MV-175W-CWA	26		205	5,330	CUST: PVM7LDM2/UNV1	26		78	2,028	TYPE RLB1
120		X	Level 13	MH-175W-CWA	2		215	430	CUST: PVM7LDM2/UNV1	2		78	156	TYPE RLB1
121		X	Level 13	FLT12-40W x 2L x 4'-MG(E)	2		72	144	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	2		48	96	L&B TYPE BRLO1 & TYPE L1
122		X	Level 12	MV-175W-CWA	26		205	5,330	CUST: PVM7LDM2/UNV1	26		78	2,028	TYPE RLB1
123		X	Level 12	MH-175W-CWA	3		215	645	CUST: PVM7LDM2/UNV1	3		78	234	TYPE RLB1
124		X	above the mill	MV-175W-CWA	11		205	2,255	CUST: PVM7LDM2/UNV1	11		78	858	TYPE RLB1
125		X	above the mill	MH-175W-CWA	1		215	215	CUST: PVM7LDM2/UNV1	1		78	78	TYPE RLB1
126		X	Level 11	MV-175W-CWA	28		205	5,740	CUST: PVM7LDM2/UNV1	28		78	2,184	TYPE RLB1
127		X	Level 10	MH-175W-CWA	6		215	1,290	CUST: PVM7LDM2/UNV1	6		78	468	TYPE RLB1
128		X	Level 10	MV-175W-CWA	21		205	4,305	CUST: PVM7LDM2/UNV1	21		78	1,638	TYPE RLB1
129		X	Level 9	MV-175W-CWA	24		205	4,920	CUST: PVM7LDM2/UNV1	24		78	1,872	TYPE RLB1
130		X	Level 9	MH-175W-CWA	2		215	430	CUST: PVM7LDM2/UNV1	2		78	156	TYPE RLB1
131		X	Level 9	MV-175W-CWA	4		205	820	LEDWP-45W	4		45	180	TYPE WP1
132		X	Level 9	MV-175W-CWA	3		205	615	CUST: PVM7LDM2/UNV1	3		78	234	TYPE RLB1
133		Y	Level 9	MV-175W-CWA	6		205	1,230	CUST: PVM7LDM2/UNV1	6		78	468	TYPE RLB1
134		X	transfer mill	MH-175W-CWA	23		215	4,945	CUST: PVM7LDM2/UNV1	23		78	1,794	TYPE RLB1
135		X	deairator	MV-175W-CWA	14		205	2,870	CUST: PVM7LDM2/UNV1	14		78	1,092	TYPE RLB1
136		X	deairator	MH-175W-CWA	8		215	1,720	CUST: PVM7LDM2/UNV1	8		78	624	TYPE RLB1
137		X	Level 8	MV-175W-CWA	18		205	3,690	CUST: PVM7LDM2/UNV1	18		78	1,404	TYPE RLB1
138		X	Level 8	MH-175W-CWA	2		215	430	CUST: PVM7LDM2/UNV1	2		78	156	TYPE RLB1
139		X	Level 8	MH-175W-CWA	1		215	215	LEDWP-45W	1		45	45	TYPE WP1
140		X	Level 7	MV-175W-CWA	34		205	6,970	CUST: PVM7LDM2/UNV1	34		78	2,652	TYPE RLB1
141		X	Level 7	MH-175W-CWA	3		215	645	CUST: PVM7LDM2/UNV1	3		78	234	TYPE RLB1
142		X	Level 6	MV-175W-CWA	23		205	4,715	CUST: PVM7LDM2/UNV1	23		78	1,794	TYPE RLB1
143		X	Level 6	MH-175W-CWA	1		215	215	CUST: PVM7LDM2/UNV1	1		78	78	TYPE RLB1
144		X	Level 5	MV-175W-CWA	36		205	7,380	CUST: PVM7LDM2/UNV1	36		78	2,808	TYPE RLB1
145		X	Level 5	MH-175W-CWA	4		215	860	CUST: PVM7LDM2/UNV1	4		78	312	TYPE RLB1
146		X	Floor 4	MV-175W-CWA	5		205	1,025	CUST: PVM7LDM2/UNV1	5		78	390	TYPE RLB1
147		X	Floor 4	MV-250W-CWA	9		290	2,610	CUST: PVM9LDM2/UNV1	9		94	846	TYPE RLB2
148		X	bag house switch gear room	FLT12-60W x 2L x 8'-MG(E)	29		123	3,567	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	29	Occupancy	73	2,117	L&B TYPE BHLO1 & TYPE L1
149		X	bag house lowest level	MV-175W-CWA	24		205	4,920	CUST: PVM7LDM2/UNV1	24		78	1,872	TYPE RLB1
150		X	bag house second level	MV-175W-CWA	48		205	9,840	CUST: PVM7LDM2/UNV1	48		78	3,744	TYPE RLB1
151	+	Y	bag house third level	MV-175W-CWA	25		205	5,125	CUST: PVM7LDM2/UNV1	25		78	1,950	TYPE RLB1
152	+	Y	bag house top level	MV-175W-CWA	30		205	6,150	CUST: PVM7LDM2/UNV1	30		78	2,340	TYPE RLB1
153		X	bag house top level	MV-175W-CWA	30		205	6,150	CUST: PVM7LDM2/UNV1	30		78	2,340	TYPE RLB1
154		X	bag house top level	MH-175W-CWA	18		215	3,870	CUST: PVM7LDM2/UNV1	18		78	1,404	TYPE RLB1

155	+	Y	bag house rear and lower sides	MH-175W-CWA	14		215	3,010	LEDWP-45W	14		45	630	TYPE WP1
156	+	Y	bag house rear and lower sides	MH-175W-CWA	2		215	430	CUST: PVM7LDM2/UNV1	2		78	156	TYPE RLB1
157	+	Y	smoke Tower	MV-175W-CWA	47		205	9,635	CUST: PVM7LDM2/UNV1	47		78	3,666	TYPE RLB1
158	+	Y	Scrubber front	MH-175W-CWA	10		215	2,150	CUST: PVM7LDM2/UNV1	10		78	780	TYPE RLB1
159	+	Y	Scrubber top	HPS-100W	10		130	1,300	LEDWP-45W	10		45	450	TYPE WP1
160		X	Scrubber top	MH-175W-CWA	10		215	2,150	CUST: PVM7LDM2/UNV1	10		78	780	TYPE RLB1
161	+	Y	Scrubber front	HPS-100W	10		130	1,300	CUST: PVM7LDM2/UNV1	10		78	780	TYPE RLB1
162		X	Scrubber top	MH-175W-CWA	1		215	215	CUST: PVM7LDM2/UNV1	1		78	78	TYPE RLB1
163		X	scrubber level 4	MH-175W-CWA	7		215	1,505	CUST: PVM7LDM2/UNV1	7		78	546	TYPE RLB1
164		X	scrubber level 3	MH-1000W-CWA	1		1,080	1,080	CUST: PVM7LDM2/UNV1	1		78	78	TYPE RLB1
165		X	scrubber level 2	MH-175W-CWA	1		215	215	CUST: PVM7LDM2/UNV1	1		78	78	TYPE RLB1
166		X	Scrubber	MH-250W-CWA	16		295	4,720	CUST: PVM9LDM2/UNV1	16		94	1,504	TYPE RLB2
167		X	Scrubber	MH-1000W-CWA	2		1,080	2,160	CUST: LEDHB-531W-DIM	2		531	1,062	TYPE HB6
168		X	Scrubber	MH-175W-CWA	1		215	215	LEDWP-45W	1		45	45	TYPE WP1
169			control room is updated											
170	+	Y	lime prep tank outside	HPS-100W	5		130	650	CUST: PVM7LDM2/UNV1	5		78	390	TYPE RLB1
171		X	lime prep lower floor	MH-175W-CWA	8		215	1,720	CUST: PVM7LDM2/UNV1	8		78	624	TYPE RLB1
172		X	lime prep lower floor	MH-250W-CWA	2		295	590	CUST: PVM9LDM2/UNV1	2		94	188	TYPE RLB2
173	+	Y	lime prep exterior	HPS-100W	17		130	2,210	CUST: PVM7LDM2/UNV1	17		78	1,326	TYPE RLB1
174		X	lime prep second from top	MH-175W-CWA	4		215	860	CUST: PVM7LDM2/UNV1	4		78	312	TYPE RLB1
175	+	Y	lime prep exterior	HPS-100W	7		130	910	CUST: PVM7LDM2/UNV1	7		78	546	TYPE RLB1
176		X	lime prep top level	MH-175W-CWA	4		215	860	CUST: PVM7LDM2/UNV1	4		78	312	TYPE RLB1
177		X	lime prep third level	MH-1000W-CWA	3		1,080	3,240	CUST: LEDHB-531W-DIM	3		531	1,593	TYPE HB6
178	+	Y	lime prep exterior	MH-1000W-CWA	1		1,080	1,080	MHPS-750W-SCWA	1		818	818	Flood
179		X	Transport blowers	MH-175W-CWA	4		215	860	CUST: PVM7LDM2/UNV1	4		78	312	TYPE RLB1
180		X	RCC building	MV-175W-CWA	28		205	5,740	CUST: PVM7LDM2/UNV1	28		78	2,184	TYPE RLB1
181		X	RCC building	HPS-100W	3		130	390	CUST: PVM7LDM2/UNV1	3		78	234	TYPE RLB1
182		X	RCC control room	FLT12-34W x 4L x 4'-2 MG(E)	2		144	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2	Occupancy	73	146	L&B TYPE BHLO1 & TYPE L1
183	+	X	RCC bldg	MV-175W-CWA	5		205	1,025	CUST: PVM7LDM2/UNV1	5	Occupancy	78	390	TYPE RLB1
184			unit 1 de-wateringswitch gear/pump											T8's already
185		X	old system	FLT12-60W x 2L x 8'-MG(E)	8		123	984	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	8	Occupancy	73	584	L&B TYPE BHLO1 & TYPE L1
186		X	oxidation blower room unit 1	MV-175W-CWA	4		205	820	CUST: PVM7LDM2/UNV1	4	Occupancy	78	312	TYPE RLB1
187	+	Y	old system	MV-175W-CWA	4		205	820	LEDWP-45W	4		45	180	TYPE WP1
188	+	Y	tanks	MV-175W-CWA	6		205	1,230	CUST: PVM7LDM2/UNV1	6		78	468	TYPE RLB1
189		X	oxidation blower room unit 1 upper level/vacant	MV-175W-CWA	7		205	1,435	LEDHB-213W	7	Occupancy	213	1,491	TYPE HB1
190														
191			Administration											
192														
193														
194		B	electrical offices	FLT12-34W x 4L x 4'-2 MG	3		144	432	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	3	Occupancy	73	219	L&B TYPE BHLO1 & TYPE L1

195		A	Maintenance Bay	FLT5HOHB-54W x 8L x 4'-3 RS/PRS H	23		458	10,534	FLT5HOHB-54W x 8L x 4'-3 RS/PRS H	23		458	10,534	NO CHANGE
196		A	Storage	FLT12-34W x 2L x 4'-MG(E)	4		72	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	4	Occupancy	73	292	L&B TYPE BHLO1 & TYPE L1
197		A	store	FLT5HOHB-54W x 8L x 4'-3 RS/PRS H	6		458	2,748	FLT5HOHB-54W x 8L x 4'-3 RS/PRS H	6	Integral	458	2,748	NO CHANGE, ADD CONTROLS
198		A	store	FLT12-34W x 2L x 4'-MG(E)	43		72	3,096	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	43		48	2,064	L&B TYPE BRLO1 & TYPE L1
199		A	store	FLT12-60W x 2L x 8'-MG(E)	26		123	3,198	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	26		73	1,898	L&B TYPE BHLO1 & TYPE L1
200		B	store office	FLT12-34W x 4L x 4'-2 MG	19		144	2,736	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	19		73	1,387	L&B TYPE BHLO1 & TYPE L1
201		A	store	MV-175W-CWA	13		205	2,665	CUST: PVM7LDM2/UNV1	13		78	1,014	TYPE RLB1
202		A	store	FLT5HOHB-54W x 8L x 4'-3 RS/PRS H	29		458	13,282	FLT5HOHB-54W x 8L x 4'-3 RS/PRS H	29	Integral	458	13,282	NO CHANGE, ADD CONTROLS
203		A	receiving dock office	FLT12-60W x 2L x 8'-MG(E)	3		123	369	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	3		73	219	L&B TYPE BHLO1 & TYPE L1
204		X	mechanical room above store	MV-175W-CWA	13		205	2,665	CUST: PVM7LDM2/UNV1	13		78	1,014	TYPE RLB1
205		A	electrician office	FLT12-34W x 4L x 4'-2 MG	4		144	576	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	4	Occupancy	73	292	L&B TYPE BHLO1 & TYPE L1
206		A	Maintenance Bay	FLT5HOHB-54W x 8L x 4'-3 RS/PRS H	37		458	16,946	FLT5HOHB-54W x 8L x 4'-3 RS/PRS H	37		458	16,946	NO CHANGE, ADD CONTROLS
207		A	Maintenance Bay	FLT5HOHB-54W x 4L x 4'- RS/PRS H	13		229	2,977	FLT5HOHB-54W x 4L x 4'- RS/PRS H	13		229	2,977	NO CHANGE, ADD CONTROLS
208		B	Side Office	FLT12-34W x 4L x 4'-2 MG	4		144	576	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	4	Occupancy	73	292	L&B TYPE BHLO1 & TYPE L1
209		B	Side Office	FLT12-34W x 4L x 4'-2 MG	4		144	576	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	4	Occupancy	73	292	L&B TYPE BHLO1 & TYPE L1
210		B	Side Office	FLT12-34W x 4L x 4'-2 MG	2		144	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2	Occupancy	73	146	L&B TYPE BHLO1 & TYPE L1
211		A	vending machines	FLT12-34W x 4L x 4'-2 MG	2		144	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2		73	146	L&B TYPE BHLO1 & TYPE L1
212		A	mens restrooms and locker	FLT12-34W x 4L x 4'-2 MG	37		144	5,328	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	37	Occupancy	73	2,701	L&B TYPE BHLO1 & TYPE L1
213		A	Admin Hall	FLT12-34W x 4L x 4'-2 MG	16		144	2,304	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	16		73	1,168	L&B TYPE BHLO1 & TYPE L1
214		A	Admin Hall	FUT12-34W x 2L x 2'-IS N	4		63	252	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	4		48	192	L&B TYPE BRLO1 & TYPE L1
215		A	Admin Break RM	FLT12-34W x 4L x 4'-2 MG	4		144	576	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	4	Occupancy	73	292	L&B TYPE BHLO1 & TYPE L1
216		B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	4		144	576	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	4	Occupancy	73	292	L&B TYPE BHLO1 & TYPE L1
217		B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	4		144	576	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	4	Occupancy	73	292	L&B TYPE BHLO1 & TYPE L1
218		B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	4		144	576	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	4	Occupancy	73	292	L&B TYPE BHLO1 & TYPE L1
219		B	Admin Side Office	FLT12-34W x 2L x 4'-MG(E)	6		72	432	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	6	Occupancy	48	288	L&B TYPE BRLO1 & TYPE L1
220		B	Admin Open Office	FLT12-34W x 4L x 4'-2 MG	17		144	2,448	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	17		73	1,241	L&B TYPE BHLO1 & TYPE L1
221		B	Admin Open Office	FLT12-34W x 4L x 4'-2 MG	21		144	3,024	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	21		73	1,533	recessed strips TYPE SK1, TYPE BHLO1 & TYPE L1
222		B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	6		144	864	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	6	Occupancy	73	438	L&B TYPE BHLO1 & TYPE L1
223		B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	3		144	432	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	3	Occupancy	73	219	L&B TYPE BHLO1 & TYPE L1

224	B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	3		144	432	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	3	Occupancy	73	219	L&B TYPE BHLO1 & TYPE L1
225	B	Admin Side Office	FLT12-34W x 2L x 4'-MG(E)	6		72	432	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	6	Occupancy	48	288	recessed strips TYPE SK1, TYPE BRLO1 & TYPE L1
226	B	Admin Side Office	FLT12-34W x 2L x 4'-MG(E)	6		72	432	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	6	Occupancy	48	288	recessed strips TYPE SK1, TYPE BRLO1 & TYPE L1
227	B	Admin Side Office	FLT12-34W x 2L x 4'-MG(E)	6		72	432	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	6	Occupancy	48	288	recessed strips TYPE SK1, TYPE BRLO1 & TYPE L1
228	B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	3		144	432	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	3	Occupancy	73	219	L&B TYPE BHLO1 & TYPE L1
229	A	Admin Hall	FLT12-34W x 4L x 4'-2 MG	12		144	1,728	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	12		73	876	recessed strips TYPE SK1, TYPE BHLO1 & TYPE L1
230	A	Admin Hall	ICMB-75W	8		53	424	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2		73	146	L&B TYPE BHLO1 & TYPE L1
231	B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	3		144	432	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	3	Occupancy	73	219	L&B TYPE BHLO1 & TYPE L1
232	B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	3		144	432	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	3	Occupancy	73	219	L&B TYPE BHLO1 & TYPE L1
233	B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	3		144	432	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	3	Occupancy	73	219	L&B TYPE BHLO1 & TYPE L1
234	B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	5		144	720	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	5	Occupancy	73	365	L&B TYPE BHLO1 & TYPE L1
235	B	Admin Side Office	FUT12-34W x 2L x 2'-IS N	1		63	63	FUT8CEE-28W x 2L x 2'-CEE RS/PRS N	1	Occupancy	50	50	L&B TYPE BNLO1 & TYPE L1
236	B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	4		144	576	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	4	Occupancy	73	292	L&B TYPE BHLO1 & TYPE L1
237	B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	6		144	864	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	6	Occupancy	73	438	L&B TYPE BHLO1 & TYPE L1
238	B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	7		144	1,008	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	7	Occupancy	73	511	L&B TYPE BHLO1 & TYPE L1
239	C	Admin Conference RM	FLT12-34W x 4L x 4'-2 MG	4		144	576	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	4	Occupancy	73	292	L&B TYPE BHLO1 & TYPE L1
240	B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	6		144	864	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	6	Occupancy	73	438	L&B TYPE BHLO1 & TYPE L1
241	C	copy room	FLT12-34W x 4L x 4'-2 MG	2		144	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2	Occupancy	73	146	L&B TYPE BHLO1 & TYPE L1
242	B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	4		144	576	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	4	Occupancy	73	292	L&B TYPE BHLO1 & TYPE L1
243	B	Admin Side Office	FUT12-34W x 2L x 2'-IS N	1		63	63	FUT8CEE-28W x 2L x 2'-CEE RS/PRS N	1	Occupancy	50	50	L&B TYPE BNLO1 & TYPE L1
244	B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	2		144	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2	Occupancy	73	146	L&B TYPE BHLO1 & TYPE L1
245	B	Admin Side Office	FUT12-34W x 2L x 2'-IS N	1		63	63	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	1	Occupancy	48	48	L&B TYPE BRLO1 & TYPE L1
246	B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	2		144	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2	Occupancy	73	146	L&B TYPE BHLO1 & TYPE L1
247	B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	3		144	432	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	3	Occupancy	73	219	L&B TYPE BHLO1 & TYPE L1
248	B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	4		144	576	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	4	Occupancy	73	292	L&B TYPE BHLO1 & TYPE L1
249	B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	2		144	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2	Occupancy	73	146	L&B TYPE BHLO1 & TYPE L1
250	B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	2		144	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2	Occupancy	73	146	L&B TYPE BHLO1 & TYPE L1
251	B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	2		144	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2	Occupancy	73	146	L&B TYPE BHLO1 & TYPE L1

252		A	downstairs hallway	FLT12-34W x 4L x 4'-2 MG	16		144	2,304	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	16		73	1,168	L&B TYPE BHLO1 & TYPE L1
253		B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	2		144	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2	Occupancy	73	146	L&B TYPE BHLO1 & TYPE L1
254		C	Admin Conference RM	FLT12-34W x 4L x 4'-2 MG	13		144	1,872	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	13	Occupancy	73	949	L&B TYPE BHLO1 & TYPE L1
255		B	Admin Break RM	FLT12-34W x 4L x 4'-2 MG	4		144	576	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	4	Occupancy	73	292	L&B TYPE BHLO1 & TYPE L1
256		D	Janitor's Closet	FLT12-34W x 4L x 4'-2 MG	1		144	144	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	1		73	73	L&B TYPE BHLO1 & TYPE L1
257		B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	2		144	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2	Occupancy	73	146	L&B TYPE BHLO1 & TYPE L1
258		B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	4		144	576	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	4	Occupancy	73	292	L&B TYPE BHLO1 & TYPE L1
259		B	mens restrooms and locker	FLT12-34W x 4L x 4'-2 MG	2		144	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2	Occupancy	73	146	L&B TYPE BHLO1 & TYPE L1
260		B	mens restrooms and locker	FUT12-34W x 2L x 2'-IS N	1		63	63	FUT8CEE-28W x 2L x 2'-CEE RS/PRS N	1	Dup. Occ	50	50	L&B TYPE BNLO1 & TYPE L1
261		B	women's restrrom	FLT12-34W x 4L x 4'-2 MG	2		144	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2	Occupancy	73	146	L&B TYPE BHLO1 & TYPE L1
262		B	women's restrrom	FUT12-34W x 2L x 2'-IS N	1		63	63	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	1	Dup. Occ	48	48	L&B TYPE BRLO1 & TYPE L1
263		B	PDM offices	FLT12-34W x 4L x 4'-2 MG	6		144	864	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	6	Occupancy	73	438	surface mount TYPE SK1, BRLO1, L1
264		C	record storage room	FLT12-34W x 4L x 4'-2 MG	24		144	3,456	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	24	Occupancy	73	1,752	L&B TYPE BHLO1 & TYPE L1
265		B	phone room	FLT12-34W x 4L x 4'-2 MG	4		144	576	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	4	Occupancy	73	292	L&B TYPE BHLO1 & TYPE L1
266		A	auto shop	MH-400W-CWA	11		458	5,038	LEDHB-213W	11	Integral	213	2,343	TYPE HB1
267		A	auto shop	MH-175W-CWA	4		215	860	LEDHB-213W	1	Integral	213	213	TYPE HB1
268		A	auto shop	MH-400W-CWA	6		458	2,748	LEDHB-213W	6	Integral	213	1,278	TYPE HB1
269		A	auto shop	MH-175W-CWA	2		215	430	LEDWP-45W	2		45	90	TYPE WP1
270		A	wash bay	MV-400W x 2L-CWA	3		910	2,730	LEDHB-213W	6	Integral	213	1,278	TYPE HB1
271		X	lube shop	MV-175W-CWA	6		205	1,230	CUST: PVM7LDM2/UNV1	6		78	468	TYPE RLB1
272		X	cylinder storage	MV-175W-CWA	4		205	820	CUST: PVM7LDM2/UNV1	4		78	312	TYPE RLB1
273		X	paint shop	MV-175W-CWA	7		205	1,435	CUST: PVM7LDM2/UNV1	7		78	546	TYPE RLB1
274		B	safety training hall	FLT12-34W x 4L x 4'-2 MG	16		144	2,304	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	16		73	1,168	L&B TYPE BHLO1 & TYPE L1
275		B	simulator room	FLT12-34W x 4L x 4'-2 MG	18		144	2,592	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	18	Occupancy	73	1,314	L&B TYPE BHLO1 & TYPE L1
276		B	classroom 1	FLT12-34W x 4L x 4'-2 MG	18		144	2,592	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	18	Occupancy	73	1,314	L&B TYPE BHLO1 & TYPE L1
277		B	side office	FLT12-34W x 4L x 4'-2 MG	3		144	432	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	3	Occupancy	73	219	L&B TYPE BHLO1 & TYPE L1
278		D	side office	FLT12-34W x 4L x 4'-2 MG	2		144	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2	Occupancy	73	146	L&B TYPE BHLO1 & TYPE L1
279		B	side office	FLT12-34W x 4L x 4'-2 MG	2		144	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2	Occupancy	73	146	L&B TYPE BHLO1 & TYPE L1
280		B	break romm	FLT12-34W x 4L x 4'-2 MG	4		144	576	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	4	Occupancy	73	292	L&B TYPE BHLO1 & TYPE L1
281		C	restrroms	FLT12-34W x 4L x 4'-2 MG	2		144	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2	Occupancy	73	146	L&B TYPE BHLO1 & TYPE L1
282		C	restrooms	FLT12-34W x 4L x 4'-2 MG	2		144	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2	Occupancy	73	146	L&B TYPE BHLO1 & TYPE L1
283		D	vacant office	FLT12-34W x 4L x 4'-2 MG	2		144	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2	Occupancy	73	146	L&B TYPE BHLO1 & TYPE L1

284		B	training coordinator	FLT12-34W x 4L x 4'-2 MG	3		144	432	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	3	Occupancy	73	219	L&B TYPE BHLO1 & TYPE L1
285		B	side offoce	FLT12-34W x 4L x 4'-2 MG	2		144	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2	Occupancy	73	146	L&B TYPE BHLO1 & TYPE L1
286		B	side offoce	FLT12-34W x 4L x 4'-2 MG	2		144	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2	Occupancy	73	146	L&B TYPE BHLO1 & TYPE L1
287		D	landscaping shed	ICMB-100W	2		72	144	FCM-27W-IS N	2	Occupancy	27	54	
288	+	X	lime slurry bldg	MV-175W-CWA	2		205	410	CUST: PVM7LDM2/UNV1	2	Occupancy	78	156	TYPE RLB1
289		X	lime slurry bldg	FLT12HO-60W x 2L x 4'-MG	6		145	870	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	6	Occupancy	73	438	L&B TYPE BHLO1 & TYPE L1
290			de-waterong building											already T8's
291		X	de-waterong building	MV-175W-CWA	12		205	2,460	CUST: PVM7LDM2/UNV1	12	Occupancy	78	936	TYPE RLB1
292	+	Y	de-waterong building	MV-175W-CWA	17		205	3,485	CUST: PVM7LDM2/UNV1	17		78	1,326	TYPE RLB1
293		X	fly ash#1	MH-175W-CWA	14		215	3,010	CUST: PVM7LDM2/UNV1	14	Occupancy	78	1,092	TYPE RLB1
294	+	Y	fly ash#1	MH-175W-CWA	7		215	1,505	CUST: PVM7LDM2/UNV1	7		78	546	TYPE RLB1
295	+	Y	RCC	MH-175W-CWA	13		215	2,795	CUST: PVM7LDM2/UNV1	13		78	1,014	TYPE RLB1
296		X	fly ash#2	MH-175W-CWA	14		215	3,010	CUST: PVM7LDM2/UNV1	14	Occupancy	78	1,092	TYPE RLB1
297	+	Y	small shed entrances	MH-175W-CWA	5		215	1,075	LEDWP-45W	5		45	225	TYPE WP1
298		X	warehouse 6	FLT5HOHB-54W x 4L x 4'-RS/PRS H	20		229	4,580	FLT5HOHB-54W x 4L x 4'-RS/PRS H	20	Occupancy	229	4,580	NO CHANGE, ADD CONTROLS
299		X	warehouse 5	MH-1000W-CWA	14		1,080	15,120	LEDHB-213W	14	Occupancy	213	2,982	TYPE HB1
300		X	warehouse 5	MV-400W-CWA	4		455	1,820	LEDHB-213W	4	Occupancy	213	852	TYPE HB1
301	+	Y	warehouse 5	MH-175W-CWA	5		215	1,075	CUST: PVM7LDM2/UNV1	5		78	390	TYPE RLB1
302	+	Y	warehouse 5	MH-175W-CWA	1		215	215	LEDWP-45W	1		45	45	TYPE WP1
303		Y	warehouse 6	MH-175W-CWA	1		215	215	LEDWP-45W	1		45	45	TYPE WP1
304		X	warehouse 7	MH-175W-CWA	9		215	1,935	CUST: PVM7LDM2/UNV1	9	Occupancy	78	702	TYPE RLB1
305		X	warehouse 7	FLT12-34W x 2L x 4'-MG(E)	1		72	72	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	1		48	48	L&B TYPE BRLO1 & TYPE L1
306		B	TPM	FLT5HOHB-54W x 8L x 4'-3 RS/PRS H	17		458	7,786	FLT5HOHB-54W x 8L x 4'-3 RS/PRS H	17	Occupancy	458	7,786	NO CHANGE, ADD CONTROLS
307		B	work station	FLT12-34W x 2L x 4'-MG(E)	4		72	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	4	Occupancy	48	192	wrap TYPE BRLO1 & TYPE L1
308		B	Locker Room	FLT12-34W x 2L x 4'-MG(E)	3		72	216	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	3	Occupancy	48	144	L&B TYPE BRLO1 & TYPE L1
309		B	Copy Room	FLT12-34W x 2L x 4'-MG(E)	2		72	144	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	2	Occupancy	48	96	L&B TYPE BRLO1 & TYPE L1
310		B	Garage	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	4	Occupancy	73	292	surface mount troffer TYPE TK1, BHLO1 & L1
311		X	conveyor	MV-175W-CWA	57		205	11,685	CUST: PVM7LDM2/UNV1	57		78	4,446	TYPE RLB1
312		X	conveyor landing	MV-175W-CWA	5		205	1,025	CUST: PVM7LDM2/UNV1	5		78	390	TYPE RLB1
313		X	lower transfer house	MV-175W-CWA	6		205	1,230	CUST: PVM7LDM2/UNV1	6		78	468	TYPE RLB1
314		X	upper transfer house	MV-175W-CWA	6		205	1,230	CUST: PVM7LDM2/UNV1	6		78	468	TYPE RLB1
315		X	coal yard conveyor	MV-175W-CWA	66		205	13,530	CUST: PVM7LDM2/UNV1	66		78	5,148	TYPE RLB1
316		X	coal yard conveyor	MV-175W-CWA	21		205	4,305	CUST: PVM7LDM2/UNV1	21		78	1,638	TYPE RLB1
317		X	landing	MV-175W-CWA	9		205	1,845	CUST: PVM7LDM2/UNV1	9		78	702	TYPE RLB1
318		X	stairs	MV-175W-CWA	8		205	1,640	CUST: PVM7LDM2/UNV1	8		78	624	TYPE RLB1
319		X	second floor	HPS-100W	5		130	650	CUST: PVM7LDM2/UNV1	5		78	390	TYPE RLB1
320		X	coal yard transfer exit	HPS-100W	11		130	1,430	LEDWP-45W	11		45	495	TYPE WP1
321		X	coal yard to barn conveyor	MV-175W-CWA	63		205	12,915	CUST: PVM7LDM2/UNV1	63		78	4,914	TYPE RLB1
322		X	coal yard to barn conveyor	HPS-100W	4		130	520	CUST: PVM7LDM2/UNV1	4		78	312	TYPE RLB1
323		X	barn conveyor	MV-175W-CWA	9		205	1,845	CUST: PVM7LDM2/UNV1	9		78	702	TYPE RLB1

324		X	coal barn	FLT12HO-110W x 2L x 8'-MG(E)	2		227	454	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE N	2		58	116	L&B TYPE BNLO1 & TYPE L1
325		X	coal barn	FLT12HO-110W x 2L x 8'-MG(E)	1		227	227	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE N	1		58	58	L&B TYPE BNLO1 & TYPE L1
326		X	coal barn multi-level	MV-175W-CWA	51		205	10,455	CUST: PVM7LDM2/UNV1	51		78	3,978	TYPE RLB1
327		X	coal barn multi-level	HPS-100W	1		130	130	CUST: PVM7LDM2/UNV1	1		78	78	TYPE RLB1
328		X	coal pit conveyor	MV-175W-CWA	37		205	7,585	CUST: PVM7LDM2/UNV1	37		78	2,886	TYPE RLB1
329		X	coal pit conveyor	HPS-100W	7		130	910	CUST: PVM7LDM2/UNV1	7		78	546	TYPE RLB1
330		X	coal pit underside	MV-400W-CWA	32		455	14,560	CUST: PVM9LDM2/UNV1	32		94	3,008	TYPE RLB1
331	+	Y	coal pit	MH-1000W-CWA	4		1,080	4,320	MHPS-750W-SCWA	4		818	3,272	flood - TYPE MHPSFL2
332	+	Y	coal pit extra tall poles/ New	MH-1000W-CWA	24		1,080	25,920	MHPS-750W-SCWA	24		818	19,632	flood - TYPE MHPSFL2
333	+	Y	Shorter Poles	MV-400W-CWA	4		455	1,820	MHPS-320W-SCWA	4		370	1,480	flood - TYPE MHPSFL1
334	+	Y	Medium Poles with Visors	HPS-400W	19		465	8,835	MHPS-320W-SCWA	19		370	7,030	flood - TYPE MHPSFL1
335	+	Y	coal pit extra tall poles/ New	MH-1000W-CWA	68		1,080	73,440	MHPS-750W-SCWA	68		818	55,624	flood - TYPE MHPSFL2
336	+	Y	fly ash	MH-175W-CWA	7		215	1,505	CUST: PVM7LDM2/UNV1	7		78	546	TYPE RLB1
337	+	Y	bottom ash	MH-175W-CWA	11		215	2,365	CUST: PVM7LDM2/UNV1	11		78	858	TYPE RLB1
338														

ROCKY MOUNTAIN POWER

Let's turn the answers on.

V 070113.5.3

wattsmart® Business - Utah

07/01/13 Effective Date

You Can Now Use The Project Information Tab

Project ID	
Lighting Coordinator	
Tool Prepared by	Richard Wood
Project Manager	
Account Manager	

Customer Information

Project Name	Huntington Power Plant - T12 Phase		
Business Name	PacifiCorp Energy		
Installation Address			
City, State, Zip	Huntington	UT	
Contact, Title	Don Arnold		
Phone, Email	801-220-4757	Don.Arnold@PacifiCorp.com	
Account, Meter, Rate			9
Participant is:	Acct Holder	Elect. User	Building Owner
Business Type	Industrial		

Contractor Information

Contact		wattsmart Business vendor
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 #	
Meter Base #, Rate	

Processing Information

Construction Type	Retrofit	Stage	Preliminary

Project Cost

Material	Labor	Other	Total Project Cost
$105,800.00	$14,600.00	$1,800.00	$122,200.00

Space Type & Size

	Calculation Method	Whole Building	Allowed Wattage		1,300,000	
1	Manufacturing Facility		FT^2	1,000,000	1.30	W/FT^2
			FT^2			W/FT^2
			FT^2			W/FT^2
			FT^2			W/FT^2
			FT^2			W/FT^2
	Manufacturing Facility		FT^2	1,000,000	1.30	W/FT^2

Lighting Operation Schedule

# of Holidays Closed?	Day	A	B	C	D	E
0	Mon	18.0	9.0	4.0	2.0	
Op Weeks Per Year	Tue	18.0	9.0	4.0	2.0	
52	Wed	18.0	9.0	4.0	2.0	
"S" is for a seasonal operational schedule	Thu	18.0	9.0	4.0	2.0	
S is for 0 hrs/year	Fri	18.0	9.0	4.0	2.0	
X is for 8760 hrs/year	Sat	18.0	9.0	4.0	2.0	
Y is for 4380 hrs/year	Sun	18.0	9.0	4.0	2.0	
	Total	6,570	3,285	1,460	730	

Additional Information

Category		26W - CMH-20W-FLEC 125W - CMH-100W-SCWA 26W - MHPS-20W-FLEC 189W - CMH-150W-SCWA 45W - CMH-39W-FLEC 277W - CMH-250W-LR 288W - CMH-250W-SCWA 324W - CMH-300W-LR 342W - CMH-300W-SCWA 55W - MH-50W-FLEC 342W - CMH-320W-LR	Add Fixture Remove Fixture Clear Filter Build Fixture Reset	130W - HPS-100W 188W - HPS-150W 295W - HPS-250W 465W - HPS-400W 128W - MH-100W-CWA 215W - MH-175W-CWA 295W - MH-250W-CWA 458W - MH-400W-CWA 500W - ICMG-500W 144W - FLT12-34W x 4L x 4'-2 MG 78 W - CUST: PVM7LDM2/UNV1		ROCKY MOUNTAIN POWER Let's turn the answers on.
Fixture					Savings Information	↓↓Project Tracking↓↓
Lamp					480,782 kWh Saved Per Year	Preliminary
Lamp (W)						Pre-Inspection
Lamp Qty						Agreement Needed
Ballast						Contracted
Factor						Post-Inspection
		123W - FLT12-60W x 2L x 8'-MG(E)			Lighting Power Density	Final Review Needed
		Fluorescent Linear T12 (60W x 2L x 8') 1 Efficient Magnetic Ballast			1.30 Code; 0.17 Existing; 0.10 Proposed; 92.2% Better Than Code LPD	↓↓Project Notes↓↓
		Standard Incentive (43.5% of Cost Paid By Incentive)				

Preliminary — **Huntington Power Plant - T12 Phase**

118 Out Of 339 Lines Used

Line Number	Exterior	Schedule	Space Description	Existing Fixture	Existing Qty (1186)	Existing Controls (0)	Existing Interior Fixture Wattage	Existing Interior Space Wattage (166,314)	Existing Exterior Fixture Wattage (0)	Proposed Fixture	Proposed Qty (1180)	Proposed Controls (118)	Proposed Interior Fixture Wattage	Proposed Interior Space Wattage (102,241)	Proposed Exterior Fixture Wattage (0)	Project Notes
1		X	Floor 14	FLT12-60W x 2L x 8'-MG(E)	12		123	1,476		CUST: PVM7LDM2/UNV1	12		78	936		TYPE RLB1
2		X	Floor 6 Units I and 2	FLT12-60W x 2L x 8'-MG(E)	23		123	2,829		FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	23		73	1,679		Industrial Strip w/ Reflector (Delamp)
3		X	logic room dcs	FLT12-34W x 4L x 4'-2 MG(E)	50		144	7,200		FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	50		73	3,650		2×4 Prismatic
4		X	server room	FLT12-34W x 4L x 4'-2 MG(E)	18		144	2,592		FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	18	Occupancy	73	1,314		delamp
5		X	storage	FLT12-34W x 4L x 4'-2 MG(E)	2		144	288		FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2	Occupancy	73	146		L&B
6		X	storage	FLT12-34W x 4L x 4'-2 MG(E)	9		144	1,296		FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	9	Occupancy	73	657		L&B
7		X	Control RM unit 2	FLT12-34W x 2L x 4'-MG(E)	34		72	2,448		FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	34		48	1,632		L&B
8			Control RM unit 2													The rest are T8's
9		X	logic room dcs	FLT12-34W x 4L x 4'-2 MG(E)	55		144	7,920		FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE N	55		58	3,190		L&B
10		X	exciter	FLT12-34W x 2L x 4'-MG(E)	9		72	648		FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	9		48	432		L&B
11		X	exciter	FLT12-34W x 2L x 4'-MG(E)	9		72	648		FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	9		48	432		wrap
12		X	mill feeder deck	FLT12-60W x 2L x 8'-MG(E)	13		123	1,599		FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	13		73	949		L&B
13		X	Floor 3	FLT12-60W x 2L x 8'-MG(E)	20		123	2,460		FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	20		73	1,460		L&B
14		X	middle Compressor level	FLT12-60W x 2L x 8'-MG(E)	8		123	984		FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	8	Occupancy	73	584		L&B
15		X	Floor 3	FLT12-60W x 2L x 8'-MG(E)	7		123	861		FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	7		73	511		L&B
16		X	4166 switch gear unit 1	FLT12-34W x 2L x 4'-MG(E)	29		72	2,088		FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	29	Occupancy	48	1,392		tandem strip 8'
17		X	4167 switch gear unit 1	FLT12-34W x 2L x 4'-MG(E)	29		72	2,088		FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	29	Occupancy	48	1,392		L&B
18		X	Floor 1	FLT12-60W x 2L x 8'-MG(E)	118		123	14,514		FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	118		73	8,614		L&B
19		X	mineralizer room	FLT12-34W x 2L x 4'-MG(E)	10		72	720		FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	10	Occupancy	48	480		2x4 prismatic
20		X	Controller RM	FLT12-34W x 2L x 4'-MG(E)	9		72	648		FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	9	Occupancy	48	432		Strips w/reflectors

21		X	Lab	FLT12-34W x 4L x 4'-2 MG(E)	26		144	3,744	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	26		73	1,898	L&B
22		X	Side Office	FLT12-34W x 4L x 4'-2 MG(E)	14		144	2,016	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	14	Occupancy	73	1,022	L&B
23		X	Side Office	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	4	Occupancy	73	292	L&B
24		X	lab sample room	FLT12-34W x 4L x 4'-2 MG(E)	14		144	2,016	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	14	Occupancy	73	1,022	L&B
25		X	Lab	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	4	Occupancy	73	292	L&B
26		X	bag house switch gear room	FLT12-60W x 2L x 8'-MG(E)	29		123	3,567	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	29	Occupancy	73	2,117	L&B
27			Unit 2 Starts											
28		X	Level 13	FLT12-40W x 2L x 4'-MG(E)	2		72	144	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	2		48	96	L&B
29		X	bag house switch gear room	FLT12-60W x 2L x 8'-MG(E)	29		123	3,567	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	29	Occupancy	73	2,117	L&B
30		X	RCC control room	FLT12-34W x 4L x 4'-2 MG(E)	2		144	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2	Occupancy	73	146	L&B
31			unit 1 de-wateringswitch gear/pump											NO CHANGE
32		X	old system	FLT12-60W x 2L x 8'-MG(E)	8		123	984	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	8	Occupancy	73	584	L&B
33			Administration											NO CHANGE, ADD CONTROLS
34		B	electrical offices	FLT12-34W x 4L x 4'-2 MG	3		144	432	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	3	Occupancy	73	219	L&B
35		A	Maintenance Bay	FLT5HOHB-54W x 8L x 4'-3 RS/PRS H	23		458	10,534	FLT5HOHB-54W x 8L x 4'-3 RS/PRS H	23		458	10,534	L&B
36		A	Storage	FLT12-34W x 2L x 4'-MG(E)	4		72	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	4	Occupancy	73	292	L&B
37		A	store	FLT5HOHB-54W x 8L x 4'-3 RS/PRS H	6		458	2,748	FLT5HOHB-54W x 8L x 4'-3 RS/PRS H	6	Integral	458	2,748	L&B
38		A	store	FLT12-34W x 2L x 4'-MG(E)	43		72	3,096	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	43		48	2,064	L&B
39		A	store	FLT12-60W x 2L x 8'-MG(E)	26		123	3,198	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	26		73	1,898	L&B
40		A	store	FLT5HOHB-54W x 8L x 4'-3 RS/PRS H	29		458	13,282	FLT5HOHB-54W x 8L x 4'-3 RS/PRS H	29	Integral	458	13,282	controls only
41		B	store office	FLT12-34W x 4L x 4'-2 MG	19		144	2,736	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	19		73	1,387	L&B
42		A	receiving dock office	FLT12-60W x 2L x 8'-MG(E)	3		123	369	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	3		73	219	L&B
43		A	electrician office	FLT12-34W x 4L x 4'-2 MG	4		144	576	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	4	Occupancy	73	292	L&B
44		B	Side Office	FLT12-34W x 4L x 4'-2 MG	4		144	576	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	4	Occupancy	73	292	L&B
45		B	Side Office	FLT12-34W x 4L x 4'-2 MG	4		144	576	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	4	Occupancy	73	292	L&B
46		B	Side Office	FLT12-34W x 4L x 4'-2 MG	2		144	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2	Occupancy	73	146	L&B
47		A	vending machines	FLT12-34W x 4L x 4'-2 MG	2		144	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2		73	146	L&B
48		A	mens restrooms and locker	FLT12-34W x 4L x 4'-2 MG	37		144	5,328	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	37	Occupancy	73	2,701	L&B
49		A	Admin Hall	FLT12-34W x 4L x 4'-2 MG	16		144	2,304	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	16		73	1,168	L&B

50		A	Admin Hall	FUT12-34W x 2L x 2'-IS N	4		63	252	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	4		48	192	L&B
51		A	Admin Break RM	FLT12-34W x 4L x 4'-2 MG	4		144	576	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	4	Occupancy	73	292	L&B
52		B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	4		144	576	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	4	Occupancy	73	292	L&B
53		B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	4		144	576	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	4	Occupancy	73	292	recessed strips
54		B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	4		144	576	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	4	Occupancy	73	292	L&B
55		B	Admin Side Office	FLT12-34W x 2L x 4'-MG(E)	6		72	432	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	6	Occupancy	48	288	L&B
56		B	Admin Open Office	FLT12-34W x 4L x 4'-2 MG	17		144	2,448	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	17		73	1,241	L&B
57		B	Admin Open Office	FLT12-34W x 4L x 4'-2 MG	21		144	3,024	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	21		73	1,533	recessed strips
58		B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	6		144	864	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	6	Occupancy	73	438	recessed strips
59		B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	3		144	432	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	3	Occupancy	73	219	recessed strips
60		B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	3		144	432	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	3	Occupancy	73	219	L&B
61		B	Admin Side Office	FLT12-34W x 2L x 4'-MG(E)	6		72	432	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	6	Occupancy	48	288	recessed strips
62		B	Admin Side Office	FLT12-34W x 2L x 4'-MG(E)	6		72	432	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	6	Occupancy	48	288	L&B
63		B	Admin Side Office	FLT12-34W x 2L x 4'-MG(E)	6		72	432	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	6	Occupancy	48	288	L&B
64		B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	3		144	432	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	3	Occupancy	73	219	L&B
65		A	Admin Hall	FLT12-34W x 4L x 4'-2 MG	12		144	1,728	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	12		73	876	L&B
66		A	Admin Hall	ICMB-75W	8		53	424	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2		73	146	L&B
67		B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	3		144	432	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	3	Occupancy	73	219	L&B
68		B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	3		144	432	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	3	Occupancy	73	219	L&B
69		B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	3		144	432	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	3	Occupancy	73	219	L&B
70		B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	5		144	720	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	5	Occupancy	73	365	L&B
71		B	Admin Side Office	FUT12-34W x 2L x 2'-IS N	1		63	63	FUT8CEE-28W x 2L x 2'-CEE RS/PRS N	1	Occupancy	50	50	L&B
72		B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	4		144	576	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	4	Occupancy	73	292	L&B
73		B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	6		144	864	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	6	Occupancy	73	438	L&B
74		B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	7		144	1,008	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	7	Occupancy	73	511	L&B
75		C	Admin Conference RM	FLT12-34W x 4L x 4'-2 MG	4		144	576	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	4	Occupancy	73	292	L&B
76		B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	6		144	864	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	6	Occupancy	73	438	L&B
77		C	copy room	FLT12-34W x 4L x 4'-2 MG	2		144	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2	Occupancy	73	146	L&B

78		B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	4		144	576	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	4	Occupancy	73	292	L&B
79		B	Admin Side Office	FUT12-34W x 2L x 2'-IS N	1		63	63	FUT8CEE-28W x 2L x 2'-CEE RS/PRS N	1	Occupancy	50	50	L&B
80		B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	2		144	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2	Occupancy	73	146	L&B
81		B	Admin Side Office	FUT12-34W x 2L x 2'-IS N	1		63	63	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	1	Occupancy	48	48	L&B
82		B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	2		144	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2	Occupancy	73	146	L&B
83		B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	3		144	432	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	3	Occupancy	73	219	L&B
84		B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	4		144	576	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	4	Occupancy	73	292	L&B
85		B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	2		144	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2	Occupancy	73	146	L&B
86		B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	2		144	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2	Occupancy	73	146	L&B
87		B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	2		144	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2	Occupancy	73	146	L&B
88		A	downstairs hallway	FLT12-34W x 4L x 4'-2 MG	16		144	2,304	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	16		73	1,168	L&B
89		B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	2		144	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2	Occupancy	73	146	L&B
90		C	Admin Conference RM	FLT12-34W x 4L x 4'-2 MG	13		144	1,872	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	13	Occupancy	73	949	L&B
91		B	Admin Break RM	FLT12-34W x 4L x 4'-2 MG	4		144	576	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	4	Occupancy	73	292	L&B
92		D	Janitor's Closet	FLT12-34W x 4L x 4'-2 MG	1		144	144	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	1		73	73	L&B
93		B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	2		144	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2	Occupancy	73	146	L&B
94		B	Admin Side Office	FLT12-34W x 4L x 4'-2 MG	4		144	576	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	4	Occupancy	73	292	L&B
95		B	mens restrooms and locker	FLT12-34W x 4L x 4'-2 MG	2		144	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2	Occupancy	73	146	surface mpunt
96		B	mens restrooms and locker	FUT12-34W x 2L x 2'-IS N	1		63	63	FUT8CEE-28W x 2L x 2'-CEE RS/PRS N	1	Dup. Occ	50	50	L&B
97		B	women's restrrom	FLT12-34W x 4L x 4'-2 MG	2		144	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2	Occupancy	73	146	L&B
98		B	women's restrrom	FUT12-34W x 2L x 2'-IS N	1		63	63	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	1	Dup. Occ	48	48	L&B
99		B	PDM offices	FLT12-34W x 4L x 4'-2 MG	6		144	864	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	6	Occupancy	73	438	L&B
100		C	record storage room	FLT12-34W x 4L x 4'-2 MG	24		144	3,456	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	24	Occupancy	73	1,752	L&B
101		B	phone room	FLT12-34W x 4L x 4'-2 MG	4		144	576	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	4	Occupancy	73	292	L&B
102		B	safety training hall	FLT12-34W x 4L x 4'-2 MG	16		144	2,304	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	16		73	1,168	L&B
103		B	simulator room	FLT12-34W x 4L x 4'-2 MG	18		144	2,592	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	18	Occupancy	73	1,314	L&B
104		B	classroom 1	FLT12-34W x 4L x 4'-2 MG	18		144	2,592	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	18	Occupancy	73	1,314	L&B
105		B	side office	FLT12-34W x 4L x 4'-2 MG	3		144	432	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	3	Occupancy	73	219	L&B

106		D	side office	FLT12-34W x 4L x 4'-2 MG	2		144	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2	Occupancy	73	146	L&B
107		B	side office	FLT12-34W x 4L x 4'-2 MG	2		144	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2	Occupancy	73	146	L&B
108		B	break romm	FLT12-34W x 4L x 4'-2 MG	4		144	576	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	4	Occupancy	73	292	L&B
109		C	restrroms	FLT12-34W x 4L x 4'-2 MG	2		144	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2	Occupancy	73	146	L&B
110		C	restrooms	FLT12-34W x 4L x 4'-2 MG	2		144	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2	Occupancy	73	146	L&B
111		D	vacant office	FLT12-34W x 4L x 4'-2 MG	2		144	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2	Occupancy	73	146	L&B
112		B	training coordinator	FLT12-34W x 4L x 4'-2 MG	3		144	432	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	3	Occupancy	73	219	already T8's
113		B	side offoce	FLT12-34W x 4L x 4'-2 MG	2		144	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2	Occupancy	73	146	L&B
114		B	side offoce	FLT12-34W x 4L x 4'-2 MG	2		144	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	2	Occupancy	73	146	wrap
115		X	lime slurry bldg	FLT12HO-60W x 2L x 4'-MG	6		145	870	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	6	Occupancy	73	438	L&B
116			de-waterong building											L&B
117		X	warehouse 7	FLT12-34W x 2L x 4'-MG(E)	1		72	72	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	1		48	48	surface mount troffer
118		B	work station	FLT12-34W x 2L x 4'-MG(E)	4		72	288	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	4	Occupancy	48	192	L&B
119		B	Locker Room	FLT12-34W x 2L x 4'-MG(E)	3		72	216	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	3	Occupancy	48	144	L&B
120		B	Copy Room	FLT12-34W x 2L x 4'-MG(E)	2		72	144	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L	2	Occupancy	48	96	
121		B	Garage	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H	4	Occupancy	73	292	
122		X	coal barn	FLT12HO-110W x 2L x 8'-MG(E)	2		227	454	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE N	2		58	116	
123		X	coal barn	FLT12HO-110W x 2L x 8'-MG(E)	1		227	227	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE N	1		58	58	
124														
125														
126														
127														
128														
129														
130														

ROCKY MOUNTAIN POWER

Let's turn the answers on.

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wattsmart® Business - Utah

07/01/13 Effective Date

You Can Now Use The Project Information Tab

Project ID	
Lighting Coordinator	
Tool Prepared by	Richard Wood
Project Manager	
Account Manager	

Customer Information

Project Name	Huntington Power Plant - Turbine Phase		
Business Name	PacifiCorp Energy		
Installation Address			
City, State, Zip	Huntington	UT	
Contact, Title	Don Arnold		
Phone, Email	801-220-4757	Don.Arnold@PacifiCorp.com	
Account, Meter, Rate			9
Participant is:	Acct Holder	Elect. User	Building Owner
Business Type	Industrial		

Contractor Information

Contact		wattsmart Business vendor
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 #	
Meter Base #, Rate	

Processing Information

Construction Type	Retrofit	Stage	Preliminary

Project Cost

Material	Labor	Other	Total Project Cost
$69,800.00	$9,600.00	$2,660.00	**$82,060.00**

Space Type & Size

	Calculation Method	Whole Building	Allowed Wattage		1,300,000	
1	Manufacturing Facility		FT^2	1,000,000	1.30	W/FT^2
			FT^2			W/FT^2
			FT^2			W/FT^2
			FT^2			W/FT^2
			FT^2			W/FT^2
	Manufacturing Facility		FT^2	1,000,000	1.30	W/FT^2

Lighting Operation Schedule

# of Holidays Closed?	Day	A	B	C	D	E
0	Mon	18.0	9.0	4.0	2.0	
Op Weeks Per Year	Tue	18.0	9.0	4.0	2.0	
52	Wed	18.0	9.0	4.0	2.0	
"S" is for a seasonal operational schedule	Thu	18.0	9.0	4.0	2.0	
S is for 0 hrs/year	Fri	18.0	9.0	4.0	2.0	
X is for 8760 hrs/year	Sat	18.0	9.0	4.0	2.0	
Y is for 4380 hrs/year	Sun	18.0	9.0	4.0	2.0	
	Total	6,570	3,285	1,460	730	

Additional Information

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
277W - 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

130W - HPS-100W
188W - HPS-150W
295W - HPS-250W
465W - HPS-400W
128W - MH-100W-CWA
215W - MH-175W-CWA
295W - MH-250W-CWA
458W - MH-400W-CWA
500W - ICMG-500W
144W - FLT12-34W x 4L x 4'-2 MG
78 W - CUST: PVM7LDM2/UNV1

213W - LEDHB-213W

LED Highbay/Lowbay (213W x 1L)

Standard Incentive (12.8% of Cost Paid By Incentive)

Savings Information

230,099 kWh Saved Per Year

Lighting Power Density

1.30	Code	98.6%
0.04	Existing	Better Than Code
0.02	Proposed	LPD

ROCKY MOUNTAIN POWER
Let's turn the answers on.

↓↓Project Tracking↓↓

Preliminary

Pre-Inspection

Agreement Needed

Contracted

Post-Inspection

Final Review Needed

↓↓Project Notes↓↓

Preliminary

Huntington Power Plant - Turbine Phase

5 Out Of 338 Lines Used

Line Number	Exterior	Schedule	Space Description	Existing Fixture	Existing Qty (108)	Existing Controls (0)	Existing Fixture Wattage (Interior 44,150 / Exterior 0)	Existing Space Wattage	Proposed Fixture	Proposed Qty (99)	Proposed Controls (0)	Proposed Fixture Wattage (Interior 17,883 / Exterior 0)	Proposed Space Wattage	↓↓Project Notes↓↓
1														
2														
3														
4														
5														
6		X	Floor 4 turbine deck	MH-400W-CWA	18		458	8,244	LEDHB-213W	9		213	1,917	100 x (7x30) TYPEHB1
7		X	Floor 4 turbine deck	MH-1000W-CWA	12		1,080	12,960	CUST: LEDHB-531W-DIM	12		531	6,372	TYPE HB6
8		X	Floor 4 turbine deck	MH-400W-CWA	17		458	7,786	LEDHB-213W	17		213	3,621	17h 4v TYPE HB1
9		X	Floor 4 turbine deck	ICMG-500W	9		500	4,500	LEDHB-213W	9		213	1,917	TYPE HB1
10		X	Floor 4 turbine deck	MV-175W-CWA	52		205	10,660	CUST: PVM7LDM2/UNV1	52		78	4,056	TYPE RLB1
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ROCKY MOUNTAIN POWER

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Project ID	
Lighting Coordinator	
Tool Prepared by	Richard Wood
Project Manager	
Account Manager	

Customer Information

Project Name	Huntington Power Plant - Industrial Phase		
Business Name	PacifiCorp Energy		
Installation Address			
City, State, Zip	Huntington	UT	
Contact, Title	Don Arnold		
Phone, Email	801-220-4757	Don.Arnold@PacifiCorp.com	
Account, Meter, Rate			9
Participant is:	Acct Holder	Elect. User	Building Owner
Business Type	Industrial		

Contractor Information

Contact		wattsmart Business vendor
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 #	
Meter Base #, Rate	

Processing Information

Construction Type	Retrofit	Stage	Preliminary

Project Cost

Material	Labor	Other	Total Project Cost
$1,595,300.00	$219,700.00	$9,600.00	**$1,824,600.00**

Space Type & Size

	Calculation Method	Whole Building	Allowed Wattage		1,300,000	
1	Manufacturing Facility		FT^2	1,000,000	1.30	W/FT^2
			FT^2			W/FT^2
			FT^2			W/FT^2
			FT^2			W/FT^2
			FT^2			W/FT^2
	Manufacturing Facility		FT^2	1,000,000	1.30	W/FT^2

Lighting Operation Schedule

# of Holidays Closed?	Day	A	B	C	D	E
0	Mon	18.0	9.0	4.0	2.0	
Op Weeks Per Year	Tue	18.0	9.0	4.0	2.0	
52	Wed	18.0	9.0	4.0	2.0	
"S" is for a seasonal operational schedule	Thu	18.0	9.0	4.0	2.0	
S is for 0 hrs/year	Fri	18.0	9.0	4.0	2.0	
X is for 8760 hrs/year	Sat	18.0	9.0	4.0	2.0	
Y is for 4380 hrs/year	Sun	18.0	9.0	4.0	2.0	
	Total	6,570	3,285	1,460	730	

Additional Information

Category		26W - CMH-20W-FLEC 125W - CMH-100W-SCWA 26W - MHPS-20W-FLEC 189W - CMH-150W-SCWA 45W - CMH-39W-FLEC 272W - CMH-250W-LR 288W - CMH-250W-SCWA 324W - CMH-300W-LR 342W - CMH-300W-SCWA 55W - MH-50W-FLEC 342W - CMH-320W-LR	Add Fixture	130W - HPS-100W 188W - HPS-150W 295W - HPS-250W 465W - HPS-400W 128W - MH-100W-CWA 215W - MH-175W-CWA 295W - MH-250W-CWA 458W - MH-400W-CWA 500W - ICMG-500W 144W - FLT12-34W x 4L x 4'-2 MG 78 W - CUST: PVM7LDM2/UNV1		ROCKY MOUNTAIN POWER Let's turn the answers on.
Fixture			Remove Fixture			
Lamp			Clear Filter			
Lamp (W)			Build Fixture			
Lamp Qty			Reset			
Ballast						
Factor						

78W - CUST: PVM7LDM2/UNV1				
Custom Fixture				
Standard Incentive (13.9% of Cost Paid By Incentive)				

Savings Information

2,707,425 kWh Saved Per Year

Lighting Power Density

1.30	Code	83.6%
0.52	Existing	Better Than Code
0.21	Proposed	LPD

↓↓Project Tracking↓↓

Preliminary

Pre-Inspection

Agreement Needed

Contracted

Post-Inspection

Final Review Needed

↓↓Project Notes↓↓

Preliminary

Huntington Power Plant - Industrial Phase

166 Out Of 338 Lines Used

Line Number	Exterior	Schedule	Space Description	Existing Fixture	Existing Qty (2267)	Existing Controls (0)	Existing Fixture Wattage (Interior 521,244)	Existing Space Wattage (Exterior 0)	Proposed Fixture	Proposed Qty (2267)	Proposed Controls (35)	Proposed Fixture Wattage (Interior 212,834)	Proposed Space Wattage (Exterior 0)	↓↓Project Notes↓↓
1														
2		X	Floor 15	MH-175W-CWA	7		215	1,505	CUST: PVM7LDM2/UNV1	7		78	546	vmrm175 (M57) Existing Type RLB1
3		X	Floor 14	MH-175W-CWA	2		215	430	CUST: PVM7LDM2/UNV1	2		78	156	TYPE RLB1
4		X	Upper level	MV-175W-CWA	12		205	2,460	CUST: PVM7LDM2/UNV1	12		78	936	Many of the Emergency Incandescent Fixtures are on all the time because of insufficient HID fixtures
5		X	Floor 13	MV-175W-CWA	24		205	4,920	CUST: PVM7LDM2/UNV1	24		78	1,872	TYPE RLB1
6		X	Floor 13	MH-175W-CWA	4		215	860	CUST: PVM7LDM2/UNV1	4		78	312	TYPE RLB1
7		X	upper conveyor	MV-175W-CWA	8		205	1,640	CUST: PVM7LDM2/UNV1	8		78	624	TYPE RLB1
8		X	upper conveyor	MH-175W-CWA	7		215	1,505	CUST: PVM7LDM2/UNV1	7		78	546	TYPE RLB1
9		X	Floor 12	MV-175W-CWA	18		205	3,690	CUST: PVM7LDM2/UNV1	18		78	1,404	TYPE RLB1
10		X	Floor 12	MH-175W-CWA	2		215	430	CUST: PVM7LDM2/UNV1	2		78	156	TYPE RLB1
11		X	upper conveyor	MH-175W-CWA	3		215	645	CUST: PVM7LDM2/UNV1	3		78	234	TYPE RLB1
12		X	feed water	MV-175W-CWA	8		205	1,640	CUST: PVM7LDM2/UNV1	8		78	624	TYPE RLB1
13		X	feed water	HPS-100W	1		130	130	CUST: PVM7LDM2/UNV1	1		78	78	TYPE RLB1
14		X	Lower Level	MV-175W-CWA	6		205	1,230	CUST: PVM7LDM2/UNV1	6		78	468	TYPE RLB1
15		X	Floor 11	MV-175W-CWA	30		205	6,150	CUST: PVM7LDM2/UNV1	30		78	2,340	TYPE RLB1
16		X	Floor 10	MV-175W-CWA	26		205	5,330	CUST: PVM7LDM2/UNV1	26		78	2,028	TYPE RLB1
17		X	Upper level	MH-175W-CWA	5		215	1,075	CUST: PVM7LDM2/UNV1	5		78	390	TYPE RLB1
18		X	Upper level	MV-175W-CWA	1		205	205	CUST: PVM7LDM2/UNV1	1		78	78	TYPE RLB1
19		X	Floor 9	MH-175W-CWA	8		215	1,720	CUST: PVM7LDM2/UNV1	8		78	624	TYPE RLB1
20		X	Floor 9	MV-175W-CWA	13		205	2,665	CUST: PVM7LDM2/UNV1	13		78	1,014	TYPE RLB1
21		X	reddler transfer	MH-175W-CWA	45		215	9,675	CUST: PVM7LDM2/UNV1	45		78	3,510	TYPE RLB1
22		X	reddler transfer	MV-175W-CWA	3		205	615	CUST: PVM7LDM2/UNV1	3		78	234	TYPE RLB1
23		X	stairs above air handler	MV-175W-CWA	8		205	1,640	CUST: PVM7LDM2/UNV1	8		78	624	TYPE RLB1
24		X	stairs above air handler	HPS-100W	1		130	130	CUST: PVM7LDM2/UNV1	1		78	78	TYPE RLB1
25		X	Floor 8	MV-175W-CWA	18		205	3,690	CUST: PVM7LDM2/UNV1	18		78	1,404	TYPE RLB1
26		X	Floor 7	MV-175W-CWA	29		205	5,945	CUST: PVM7LDM2/UNV1	29		78	2,262	TYPE RLB1
27		X	Floor 7	MV-175W-CWA	1		205	205	LEDWP-45W	1		45	45	TYPE WP1
28		X	Floor 6	MV-175W-CWA	25		205	5,125	CUST: PVM7LDM2/UNV1	25		78	1,950	TYPE RLB1
29		X	Floor 6 Units I and 2	MH-175W-CWA	19		215	4,085	CUST: PVM7LDM2/UNV1	19		78	1,482	Crouse Hinds

30		X	Tanks room/hazardous Unit 2	MH-175W-CWA	12		215	2,580	CUST: PVM7LDM2/UNV1	12		78	936	TYPE RLB1
31		X	Tanks room/hazardous Unit 1	MH-175W-CWA	12		215	2,580	CUST: PVM7LDM2/UNV1	12		78	936	TYPE RLB1
32		X	Floor 5	MV-175W-CWA	21		205	4,305	CUST: PVM7LDM2/UNV1	21		78	1,638	TYPE RLB1
33		X	Floor 5	MH-175W-CWA	2		215	430	CUST: PVM7LDM2/UNV1	2		78	156	TYPE RLB1
34		X	mill feeder deck	MH-175W-CWA	15		215	3,225	CUST: PVM7LDM2/UNV1	15		78	1,170	TYPE RLB1
35		X	mill feeder deck	MV-175W-CWA	9		205	1,845	CUST: PVM7LDM2/UNV1	9		78	702	TYPE RLB1
36		X	Floor 4	MV-175W-CWA	5		205	1,025	CUST: PVM7LDM2/UNV1	5		78	390	TYPE RLB1
37		X	Floor 4	MV-250W-CWA	9		290	2,610	CUST: PVM9LDM2/UNV1	9		94	846	TYPE RLB2
38		X	Floor 3	MV-175W-CWA	12		205	2,460	CUST: PVM7LDM2/UNV1	12		78	936	TYPE RLB1
39		X	Floor 3	MH-175W-CWA	24		215	5,160	CUST: PVM7LDM2/UNV1	24		78	1,872	TYPE RLB1
40		X	Floor 3	MH-175W-CWA	17		215	3,655	CUST: PVM7LDM2/UNV1	17		78	1,326	TYPE RLB1
41		X	Floor 3	MV-175W-CWA	11		205	2,255	CUST: PVM7LDM2/UNV1	11		78	858	TYPE RLB1
42		X	Coal Mill level two	MH-1000W-CWA	6		1,080	6,480	CUST: LEDHB-531W-DIM	6		531	3,186	TYPE HB6
43		X	Floor 2 unit 1	MV-175W-CWA	17		205	3,485	CUST: PVM7LDM2/UNV1	17		78	1,326	Crouse Hinds Unitvmvc175/277
44		X	Floor 2 unit 2	MV-175W-CWA	17		205	3,485	CUST: PVM7LDM2/UNV1	17		78	1,326	TYPE RLB1
45		X	Floor 1 mill rm unit 1	MH-175W-CWA	18		215	3,870	LEDWP-45W	18		45	810	TYPE WP1
46		X	Floor 1 mill rm unit 1	MH-175W-CWA	18		215	3,870	CUST: PVM7LDM2/UNV1	18		78	1,404	TYPE RLB1
47		X	Floor 1	MH-175W-CWA	26		215	5,590	CUST: PVM7LDM2/UNV1	26		78	2,028	TYPE RLB1
48		X	Floor 1	MV-175W-CWA	41		205	8,405	CUST: PVM7LDM2/UNV1	41		78	3,198	TYPE RLB1
49		X	Floor 1	MH-175W-CWA	4		215	860	LEDWP-45W	4		45	180	TYPE WP1
50		X	Floor 1	HPS-100W	13		130	1,690	CUST: PVM7LDM2/UNV1	13		78	1,014	TYPE RLB1
51		X	Floor 1 mill rm unit 2	MH-175W-CWA	30		215	6,450	CUST: PVM7LDM2/UNV1	30		78	2,340	TYPE RLB1
52		X	Floor 1 mill rm unit 2	MH-175W-CWA	11		215	2,365	LEDWP-45W	11		45	495	TYPE WP1
53		X	Floor 1 boiler unit 2	MV-175W-CWA	24		205	4,920	CUST: PVM7LDM2/UNV1	24		78	1,872	TYPE RLB1
54		X	Floor 1 boiler unit 2	MH-175W-CWA	9		215	1,935	CUST: PVM7LDM2/UNV1	9		78	702	TYPE RLB1
55		X	Floor 1 boiler unit 2	HPS-100W	3		130	390	CUST: PVM7LDM2/UNV1	3		78	234	TYPE RLB1
56		X	Floor 1 boiler unit 2	MH-175W-CWA	1		215	215	LEDWP-45W	1		45	45	TYPE WP1
57		X	floor 1 boiler unit 1	MH-175W-CWA	21		215	4,515	CUST: PVM7LDM2/UNV1	21		78	1,638	TYPE RLB1
58		X	floor 1 boiler unit 1	MV-175W-CWA	18		205	3,690	CUST: PVM7LDM2/UNV1	18		78	1,404	TYPE RLB1
59		X	large fans behind mills	MV-175W-CWA	8		205	1,640	CUST: PVM7LDM2/UNV1	8		78	624	TYPE RLB1
60		X	Upper level	MV-175W-CWA	9		205	1,845	CUST: PVM7LDM2/UNV1	9		78	702	TYPE RLB1
61		X	bag house lowest level	MV-175W-CWA	24		205	4,920	CUST: PVM7LDM2/UNV1	24		78	1,872	TYPE RLB1
62		X	bag house second level	MV-175W-CWA	48		205	9,840	CUST: PVM7LDM2/UNV1	48		78	3,744	TYPE RLB1
63		A	bag house top level	MV-175W-CWA	30		205	6,150	CUST: PVM7LDM2/UNV1	30		78	2,340	highbay fixtures
64		A	bag house top level	MH-175W-CWA	18		215	3,870	CUST: PVM7LDM2/UNV1	18		78	1,404	TYPE RLB1
65		X	scrubber bldg	MH-175W-CWA	9		215	1,935	CUST: PVM7LDM2/UNV1	9		78	702	TYPE RLB1
66		X	scrubber bldg	MH-175W-CWA	9		215	1,935	CUST: PVM7LDM2/UNV1	9		78	702	TYPE RLB1
67		X	backside of scrubber unit 1	MV-175W-CWA	44		205	9,020	CUST: PVM7LDM2/UNV1	44		78	3,432	TYPE RLB1
68		X	backside of scrubber unit 1	HPS-100W	8		130	1,040	CUST: PVM7LDM2/UNV1	8		78	624	TYPE RLB1
69		X	backside of scrubber unit 1	MH-175W-CWA	3		215	645	CUST: PVM7LDM2/UNV1	3		78	234	TYPE RLB1
70		X	scrubber elevator	MH-175W-CWA	8		215	1,720	LEDWP-45W	8		45	360	TYPE WP1
71		X	raw water treatment	MV-175W-CWA	8		205	1,640	CUST: PVM7LDM2/UNV1	8		78	624	TYPE RLB1
72		X	raw water treatment	MV-175W-CWA	29		205	5,945	CUST: PVM7LDM2/UNV1	29		78	2,262	TYPE RLB1
73		X	raw water treatment	MV-175W-CWA	6		205	1,230	CUST: PVM7LDM2/UNV1	6		78	468	TYPE RLB1
74			Unit 2 Starts											
75		X	Level 15	MV-175W-CWA	12		205	2,460	CUST: PVM7LDM2/UNV1	12		78	936	TYPE RLB1

76		X	Level 14	MV-175W-CWA	26		205	5,330	CUST: PVM7LDM2/UNV1	26		78	2,028	TYPE RLB1
77		X	Level 14	MH-175W-CWA	1		215	215	CUST: PVM7LDM2/UNV1	1		78	78	TYPE RLB1
78		X	Level 14	MV-175W-CWA	13		205	2,665	CUST: PVM7LDM2/UNV1	13		78	1,014	TYPE RLB1
79		X	Level 13	MV-175W-CWA	26		205	5,330	CUST: PVM7LDM2/UNV1	26		78	2,028	TYPE RLB1
80		X	Level 13	MH-175W-CWA	2		215	430	CUST: PVM7LDM2/UNV1	2		78	156	TYPE RLB1
81		X	Level 12	MV-175W-CWA	26		205	5,330	CUST: PVM7LDM2/UNV1	26		78	2,028	TYPE RLB1
82		X	Level 12	MH-175W-CWA	3		215	645	CUST: PVM7LDM2/UNV1	3		78	234	TYPE RLB1
83		X	above the mill	MV-175W-CWA	11		205	2,255	CUST: PVM7LDM2/UNV1	11		78	858	TYPE RLB1
84		X	above the mill	MH-175W-CWA	1		215	215	CUST: PVM7LDM2/UNV1	1		78	78	TYPE RLB1
85		X	Level 11	MV-175W-CWA	28		205	5,740	CUST: PVM7LDM2/UNV1	28		78	2,184	TYPE RLB1
86		X	Level 10	MH-175W-CWA	6		215	1,290	CUST: PVM7LDM2/UNV1	6		78	468	TYPE RLB1
87		X	Level 10	MV-175W-CWA	21		205	4,305	CUST: PVM7LDM2/UNV1	21		78	1,638	TYPE RLB1
88		X	Level 9	MV-175W-CWA	24		205	4,920	CUST: PVM7LDM2/UNV1	24		78	1,872	TYPE RLB1
89		X	Level 9	MH-175W-CWA	2		215	430	CUST: PVM7LDM2/UNV1	2		78	156	TYPE RLB1
90		X	Level 9	MV-175W-CWA	4		205	820	LEDWP-45W	4		45	180	TYPE WP1
91		X	Level 9	MV-175W-CWA	3		205	615	CUST: PVM7LDM2/UNV1	3		78	234	TYPE RLB1
92		Y	Level 9	MV-175W-CWA	6		205	1,230	CUST: PVM7LDM2/UNV1	6		78	468	TYPE RLB1
93		X	transfer mill	MH-175W-CWA	23		215	4,945	CUST: PVM7LDM2/UNV1	23		78	1,794	TYPE RLB1
94		X	deairator	MV-175W-CWA	14		205	2,870	CUST: PVM7LDM2/UNV1	14		78	1,092	TYPE RLB1
95		X	deairator	MH-175W-CWA	8		215	1,720	CUST: PVM7LDM2/UNV1	8		78	624	TYPE RLB1
96		X	Level 8	MV-175W-CWA	18		205	3,690	CUST: PVM7LDM2/UNV1	18		78	1,404	TYPE RLB1
97		X	Level 8	MH-175W-CWA	2		215	430	CUST: PVM7LDM2/UNV1	2		78	156	TYPE RLB1
98		X	Level 8	MH-175W-CWA	1		215	215	LEDWP-45W	1		45	45	TYPE WP1
99		X	Level 7	MV-175W-CWA	34		205	6,970	CUST: PVM7LDM2/UNV1	34		78	2,652	TYPE RLB1
100		X	Level 7	MH-175W-CWA	3		215	645	CUST: PVM7LDM2/UNV1	3		78	234	TYPE RLB1
101		X	Level 6	MV-175W-CWA	23		205	4,715	CUST: PVM7LDM2/UNV1	23		78	1,794	TYPE RLB1
102		X	Level 6	MH-175W-CWA	1		215	215	CUST: PVM7LDM2/UNV1	1		78	78	TYPE RLB1
103		X	Level 5	MV-175W-CWA	36		205	7,380	CUST: PVM7LDM2/UNV1	36		78	2,808	TYPE RLB1
104		X	Level 5	MH-175W-CWA	4		215	860	CUST: PVM7LDM2/UNV1	4		78	312	TYPE RLB1
105		X	Floor 4	MV-175W-CWA	5		205	1,025	CUST: PVM7LDM2/UNV1	5		78	390	TYPE RLB1
106		X	Floor 4	MV-250W-CWA	9		290	2,610	CUST: PVM9LDM2/UNV1	9		94	846	TYPE RLB2
107		X	bag house lowest level	MV-175W-CWA	24		205	4,920	CUST: PVM7LDM2/UNV1	24		78	1,872	TYPE RLB1
108		X	bag house second level	MV-175W-CWA	48		205	9,840	CUST: PVM7LDM2/UNV1	48		78	3,744	TYPE RLB1
109		X	bag house top level	MV-175W-CWA	30		205	6,150	CUST: PVM7LDM2/UNV1	30		78	2,340	TYPE RLB1
110		X	bag house top level	MH-175W-CWA	18		215	3,870	CUST: PVM7LDM2/UNV1	18		78	1,404	TYPE RLB1
111		X	Scrubber top	MH-175W-CWA	10		215	2,150	CUST: PVM7LDM2/UNV1	10		78	780	TYPE RLB1
112		X	Scrubber top	MH-175W-CWA	1		215	215	CUST: PVM7LDM2/UNV1	1		78	78	TYPE RLB1
113		X	scrubber level 4	MH-175W-CWA	7		215	1,505	CUST: PVM7LDM2/UNV1	7		78	546	TYPE RLB1
114		X	scrubber level 3	MH-1000W-CWA	1		1,080	1,080	CUST: PVM7LDM2/UNV1	1		78	78	TYPE RLB1
115		X	scrubber level 2	MH-175W-CWA	1		215	215	CUST: PVM7LDM2/UNV1	1		78	78	TYPE RLB1
116		X	Scrubber	MH-250W-CWA	16		295	4,720	CUST: PVM9LDM2/UNV1	16		94	1,504	TYPE RLB2
117		X	Scrubber	MH-1000W-CWA	2		1,080	2,160	CUST: LEDHB-531W-DIM	2		531	1,062	TYPE HB6
118		X	Scrubber	MH-175W-CWA	1		215	215	LEDWP-45W	1		45	45	TYPE WP1
119			control room is updated											
120		X	lime prep lower floor	MH-175W-CWA	8		215	1,720	CUST: PVM7LDM2/UNV1	8		78	624	TYPE RLB1
121		X	lime prep lower floor	MH-250W-CWA	2		295	590	CUST: PVM9LDM2/UNV1	2		94	188	TYPE RLB2
122		X	lime prep second from top	MH-175W-CWA	4		215	860	CUST: PVM7LDM2/UNV1	4		78	312	TYPE RLB1
123		X	lime prep top level	MH-175W-CWA	4		215	860	CUST: PVM7LDM2/UNV1	4		78	312	TYPE RLB1
124		X	lime prep third level	MH-1000W-CWA	3		1,080	3,240	CUST: LEDHB-531W-DIM	3		531	1,593	TYPE HB6
125		X	Transport blowers	MH-175W-CWA	4		215	860	CUST: PVM7LDM2/UNV1	4		78	312	TYPE RLB1
126		X	RCC building	MV-175W-CWA	28		205	5,740	CUST: PVM7LDM2/UNV1	28		78	2,184	TYPE RLB1
127		X	RCC building	HPS-100W	3		130	390	CUST: PVM7LDM2/UNV1	3		78	234	TYPE RLB1

128		X	oxidation blower room unit 1	MV-175W-CWA	4		205	820	CUST: PVM7LDM2/UNV1	4	Occupancy	78	312	TYPE RLB1
129		X	oxidation blower room unit 1 upper level/vacant	MV-175W-CWA	7		205	1,435	LEDHB-213W	7	Occupancy	213	1,491	TYPE HB1
130			Administration											
131		A	Maintenance Bay	FLT5HOHB-54W x 8L x 4'-3 RS/PRS H	37		458	16,946	FLT5HOHB-54W x 8L x 4'-3 RS/PRS H	37		458	16,946	NO CHANGE
132		A	Maintenance Bay	FLT5HOHB-54W x 4L x 4'- RS/PRS H	13		229	2,977	FLT5HOHB-54W x 4L x 4'- RS/PRS H	13		229	2,977	NO CHANGE
133		X	warehouse 6	FLT5HOHB-54W x 4L x 4'- RS/PRS H	20		229	4,580	FLT5HOHB-54W x 4L x 4'- RS/PRS H	20	Occupancy	229	4,580	NO CHANGE, ADD CONTROLS
134		B	TPM	FLT5HOHB-54W x 8L x 4'-3 RS/PRS H	17		458	7,786	FLT5HOHB-54W x 8L x 4'-3 RS/PRS H	17	Occupancy	458	7,786	NO CHANGE, ADD CONTROLS
135		A	store	MV-175W-CWA	13		205	2,665	CUST: PVM7LDM2/UNV1	13		78	1,014	TYPE RLB1
136		X	mechanical room above store	MV-175W-CWA	13		205	2,665	CUST: PVM7LDM2/UNV1	13		78	1,014	TYPE RLB1
137		A	auto shop	MH-400W-CWA	11		458	5,038	LEDHB-213W	11	Integral	213	2,343	TYPE HB1
138		A	auto shop	MH-175W-CWA	4		215	860	LEDHB-213W	1	Integral	213	213	TYPE HB1
139		A	auto shop	MH-400W-CWA	6		458	2,748	LEDHB-213W	6	Integral	213	1,278	TYPE HB1
140		A	auto shop	MH-175W-CWA	2		215	430	LEDWP-45W	2		45	90	TYPE WP1
141		A	wash bay	MV-400W x 2L-CWA	3		910	2,730	LEDHB-213W	6	Integral	213	1,278	TYPE HB1
142		X	lube shop	MV-175W-CWA	6		205	1,230	CUST: PVM7LDM2/UNV1	6		78	468	TYPE RLB1
143		X	cylinder storage	MV-175W-CWA	4		205	820	CUST: PVM7LDM2/UNV1	4		78	312	TYPE RLB1
144		X	paint shop	MV-175W-CWA	7		205	1,435	CUST: PVM7LDM2/UNV1	7		78	546	TYPE RLB1
145		D	landscaping shed	ICMB-100W	2		72	144	FCM-27W-IS N	2	Occupancy	27	54	
146			de-waterong building											
147		X	de-waterong building	MV-175W-CWA	12		205	2,460	CUST: PVM7LDM2/UNV1	12	Occupancy	78	936	TYPE RLB1
148		X	fly ash#1	MH-175W-CWA	14		215	3,010	CUST: PVM7LDM2/UNV1	14	Occupancy	78	1,092	TYPE RLB1
149		X	fly ash#2	MH-175W-CWA	14		215	3,010	CUST: PVM7LDM2/UNV1	14	Occupancy	78	1,092	TYPE RLB1
150		X	warehouse 5	MH-1000W-CWA	14		1,080	15,120	LEDHB-213W	14	Occupancy	213	2,982	TYPE HB1
151		X	warehouse 5	MV-400W-CWA	4		455	1,820	LEDHB-213W	4	Occupancy	213	852	TYPE HB1
152		Y	warehouse 6	MH-175W-CWA	1		215	215	LEDWP-45W	1		45	45	TYPE WP1
153		X	warehouse 7	MH-175W-CWA	9		215	1,935	CUST: PVM7LDM2/UNV1	9	Occupancy	78	702	TYPE RLB1
154		X	conveyor	MV-175W-CWA	57		205	11,685	CUST: PVM7LDM2/UNV1	57		78	4,446	TYPE RLB1
155		X	conveyor landing	MV-175W-CWA	5		205	1,025	CUST: PVM7LDM2/UNV1	5		78	390	TYPE RLB1
156		X	lower transfer house	MV-175W-CWA	6		205	1,230	CUST: PVM7LDM2/UNV1	6		78	468	TYPE RLB1
157		X	upper transfer house	MV-175W-CWA	6		205	1,230	CUST: PVM7LDM2/UNV1	6		78	468	TYPE RLB1
158		X	coal yard conveyor	MV-175W-CWA	66		205	13,530	CUST: PVM7LDM2/UNV1	66		78	5,148	TYPE RLB1
159		X	coal yard conveyor	MV-175W-CWA	21		205	4,305	CUST: PVM7LDM2/UNV1	21		78	1,638	TYPE RLB1
160		X	landing	MV-175W-CWA	9		205	1,845	CUST: PVM7LDM2/UNV1	9		78	702	TYPE RLB1
161		X	stairs	MV-175W-CWA	8		205	1,640	CUST: PVM7LDM2/UNV1	8		78	624	TYPE RLB1
162		X	second floor	HPS-100W	5		130	650	CUST: PVM7LDM2/UNV1	5		78	390	TYPE RLB1
163		X	coal yard transfer exit	HPS-100W	11		130	1,430	LEDWP-45W	11		45	495	TYPE WP1
164		X	coal yard to barn conveyor	MV-175W-CWA	63		205	12,915	CUST: PVM7LDM2/UNV1	63		78	4,914	TYPE RLB1
165		X	coal yard to barn conveyor	HPS-100W	4		130	520	CUST: PVM7LDM2/UNV1	4		78	312	TYPE RLB1
166		X	barn conveyor	MV-175W-CWA	9		205	1,845	CUST: PVM7LDM2/UNV1	9		78	702	TYPE RLB1
167		X	coal barn multi-level	MV-175W-CWA	51		205	10,455	CUST: PVM7LDM2/UNV1	51		78	3,978	TYPE RLB1
168		X	coal barn multi-level	HPS-100W	1		130	130	CUST: PVM7LDM2/UNV1	1		78	78	TYPE RLB1
169		X	coal pit conveyor	MV-175W-CWA	37		205	7,585	CUST: PVM7LDM2/UNV1	37		78	2,886	TYPE RLB1
170		X	coal pit conveyor	HPS-100W	7		130	910	CUST: PVM7LDM2/UNV1	7		78	546	TYPE RLB1
171		X	coal pit underside	MV-400W-CWA	32		455	14,560	CUST: PVM9LDM2/UNV1	32		94	3,008	TYPE RLB1
172														

ROCKY MOUNTAIN POWER

Let's turn the answers on.

V 070113.5.3

wattsmart® Business - Utah

07/01/13 Effective Date

You Can Now Use The Project Information Tab

Project ID	
Lighting Coordinator	
Tool Prepared by	Richard Wood
Project Manager	
Account Manager	

Customer Information

Project Name	Huntington Power Plant - Exterior Phase		
Business Name	PacifiCorp Energy		
Installation Address			
City, State, Zip	Huntington	UT	
Contact, Title	Don Arnold		
Phone, Email	801-220-4757	Don.Arnold@PacifiCorp.com	
Account, Meter, Rate			9
Participant is:	Acct Holder	Elect. User	Building Owner
Business Type	Industrial		

Contractor Information

Contact		wattsmart Business vendor
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 #	
Meter Base #, Rate	

Processing Information

Construction Type	Retrofit	Stage	Preliminary

Project Cost

Material	Labor	Other	Total Project Cost
$286,400.00	$39,400.00	$1,100.00	$326,900.00

Space Type & Size

Calculation Method	Whole Building			Allowed Wattage	1,300,000	
1	Manufacturing Facility			FT^2	1,000,000	1.30 W/FT^2
				FT^2		W/FT^2
				FT^2		W/FT^2
				FT^2		W/FT^2
				FT^2		W/FT^2
	Manufacturing Facility			FT^2	1,000,000	1.30 W/FT^2

Lighting Operation Schedule

# of Holidays Closed?	Day	A	B	C	D	E
0	Mon	18.0	9.0	4.0	2.0	
Op Weeks Per Year	Tue	18.0	9.0	4.0	2.0	
52	Wed	18.0	9.0	4.0	2.0	
"S" is for a seasonal operational schedule	Thu	18.0	9.0	4.0	2.0	
S is for 0 hrs/year	Fri	18.0	9.0	4.0	2.0	
X is for 8760 hrs/year	Sat	18.0	9.0	4.0	2.0	
Y is for 4380 hrs/year	Sun	18.0	9.0	4.0	2.0	
	Total	6,570	3,285	1,460	730	

Additional Information

Category		26W - CMH-20W-FLEC 125W - CMH-100W-SCWA 26W - MHPS-20W-FLEC 189W - CMH-150W-SCWA 45W - CMH-39W-FLEC 277W - CMH-250W-LR 288W - CMH-250W-SCWA 324W - CMH-300W-LR 342W - CMH-300W-SCWA 55W - MH-50W-FLEC 342W - CMH-320W-LR	Add Fixture Remove Fixture Clear Filter Build Fixture Reset	130W - HPS-100W 188W - HPS-150W 295W - HPS-250W 465W - HPS-400W 128W - MH-100W-CWA 215W - MH-175W-CWA 295W - MH-250W-CWA 458W - MH-400W-CWA 500W - ICMG-500W 144W - FLT12-34W x 4L x 4'-2 MG 78 W - CUST: PVM7LDM2/UNV1											
Fixture																	
Lamp																	
Lamp (W)																	
Lamp Qty																	
Ballast																	
Factor																	
		78W - CUST: PVM7LDM2/UNV1															
		Custom Fixture															
		Standard Incentive (11.8% of Cost Paid By Incentive)															

Savings Information

436,371 kWh Saved Per Year

Lighting Power Density

1.30	Code	100.0%
0.00	Existing	Better Than Code
0.00	Proposed	LPD

ROCKY MOUNTAIN POWER

Let's turn the answers on.

↓↓Project Tracking↓↓

Preliminary

Pre-Inspection

Agreement Needed

Contracted

Post-Inspection

Final Review Needed

↓↓Project Notes↓↓

Preliminary

Huntington Power Plant - Exterior Phase

39 Out Of 338 Lines Used

Line Number	Exterior	Schedule	Space Description	Existing Fixture	Existing Qty	Existing Controls	Existing Interior Fixture Wattage (577)	Existing Interior Space Wattage (0)	Existing Exterior Fixture Wattage (0)	Existing Exterior Space Wattage (204,970)	Proposed Fixture	Proposed Qty	Proposed Controls	Proposed Interior Fixture Wattage (577)	Proposed Interior Space Wattage (0)	Proposed Exterior Fixture Wattage (2)	Proposed Exterior Space Wattage (121,291)	Project Notes
1	+	X	mill receiving dock units 1 and 2	MV-175W-CWA	16		205	3,280			CUST: PVM7LDM2/UNV1	16		78	1,248			TYPE RLB1
2	+	X	large fans behind mills	MV-175W-CWA	13		205	2,665			LEDWP-45W	13		45	585			TYPE WP1
3	+	Y	bag house third level	MV-175W-CWA	25		205	5,125			CUST: PVM7LDM2/UNV1	25		78	1,950			TYPE RLB1
4	+	Y	bag house top level	HPS-100W	30		130	3,900			CUST: PVM7LDM2/UNV1	30		78	2,340			Cooper Champ LMV e17
5	+	Y	bag house rear and lower sides	MH-175W-CWA	14		215	3,010			LEDWP-45W	14		45	630			TYPE WP1
6	+	Y	bag house rear and lower sides	MH-175W-CWA	2		215	430			CUST: PVM7LDM2/UNV1	2		78	156			pole mounted
7	+	X	smoke tower	MH-175W-CWA	78		215	16,770			CUST: PVM7LDM2/UNV1	78		78	6,084			TYPE RLB1
8	+	Y	scrubber front side	MH-175W-CWA	12		215	2,580			CUST: PVM7LDM2/UNV1	12		78	936			TYPE RLB1
9	+	Y	scrubber front side	HPS-100W	1		130	130			CUST: PVM7LDM2/UNV1	1		78	78			TYPE RLB1
10	+	Y	scrubber front side	MH-175W-CWA	6		215	1,290			LEDWP-45W	6		45	270			TYPE WP1
11	+	Y	bag house third level	MV-175W-CWA	25		205	5,125			CUST: PVM7LDM2/UNV1	25		78	1,950			TYPE RLB1
12	+	Y	bag house top level	MV-175W-CWA	30		205	6,150			CUST: PVM7LDM2/UNV1	30		78	2,340			TYPE RLB1
13	+	Y	bag house rear and lower sides	MH-175W-CWA	14		215	3,010			LEDWP-45W	14		45	630			TYPE WP1
14	+	Y	bag house rear and lower sides	MH-175W-CWA	2		215	430			CUST: PVM7LDM2/UNV1	2		78	156			TYPE RLB1
15	+	Y	smoke Tower	MV-175W-CWA	47		205	9,635			CUST: PVM7LDM2/UNV1	47		78	3,666			TYPE RLB1
16	+	Y	Scrubber front	MH-175W-CWA	10		215	2,150			CUST: PVM7LDM2/UNV1	10		78	780			TYPE RLB1
17	+	Y	Scrubber top	HPS-100W	10		130	1,300			LEDWP-45W	10		45	450			TYPE WP1
18	+	Y	Scrubber front	HPS-100W	10		130	1,300			CUST: PVM7LDM2/UNV1	10		78	780			TYPE RLB1
19	+	Y	lime prep tank outside	HPS-100W	5		130	650			CUST: PVM7LDM2/UNV1	5		78	390			TYPE RLB1
20	+	Y	lime prep exterior	HPS-100W	17		130	2,210			CUST: PVM7LDM2/UNV1	17		78	1,326			TYPE RLB1
21	+	Y	lime prep exterior	HPS-100W	7		130	910			CUST: PVM7LDM2/UNV1	7		78	546			TYPE RLB1
22	+	Y	lime prep exterior	MH-1000W-CWA	1		1,080	1,080			MHPS-750W-SCWA	1		818	818			Flood
23	+	X	RCC bldg	MV-175W-CWA	5		205	1,025			CUST: PVM7LDM2/UNV1	5	Occupancy	78	390			TYPE RLB1
24	+	Y	old system	MV-175W-CWA	4		205	820			LEDWP-45W	4		45	180			TYPE WP1
25	+	Y	tanks	MV-175W-CWA	6		205	1,230			CUST: PVM7LDM2/UNV1	6		78	468			TYPE RLB1
26	+	X	lime slurry bldg	MV-175W-CWA	2		205	410			CUST: PVM7LDM2/UNV1	2	Occupancy	78	156			TYPE RLB1
27	+	Y	de-waterong building	MV-175W-CWA	17		205	3,485			CUST: PVM7LDM2/UNV1	17		78	1,326			TYPE RLB1

28	+	Y	fly ash#1	MH-175W-CWA	7		215	1,505	CUST: PVM7LDM2/UNV1	7		78	546	TYPE RLB1
29	+	Y	RCC	MH-175W-CWA	13		215	2,795	CUST: PVM7LDM2/UNV1	13		78	1,014	TYPE RLB1
30	+	Y	small shed entrances	MH-175W-CWA	5		215	1,075	LEDWP-45W	5		45	225	TYPE WP1
31	+	Y	warehouse 5	MH-175W-CWA	5		215	1,075	CUST: PVM7LDM2/UNV1	5		78	390	TYPE RLB1
32	+	Y	warehouse 5	MH-175W-CWA	1		215	215	LEDWP-45W	1		45	45	TYPE WP1
33	+	Y	coal pit	MH-1000W-CWA	4		1,080	4,320	MHPS-750W-SCWA	4		818	3,272	flood
34	+	Y	coal pit extra tall poles/ New	MH-1000W-CWA	24		1,080	25,920	MHPS-750W-SCWA	24		818	19,632	
35	+	Y	Shorter Poles	MV-400W-CWA	4		455	1,820	MHPS-320W-SCWA	4		370	1,480	
36	+	Y	Medium Poles with Visors	HPS-400W	19		465	8,835	MHPS-320W-SCWA	19		370	7,030	
37	+	Y	coal pit extra tall poles/ New	MH-1000W-CWA	68		1,080	73,440	MHPS-750W-SCWA	68		818	55,624	
38	+	Y	fly ash	MH-175W-CWA	7		215	1,505	CUST: PVM7LDM2/UNV1	7		78	546	TYPE RLB1
39	+	Y	bottom ash	MH-175W-CWA	11		215	2,365	CUST: PVM7LDM2/UNV1	11		78	858	TYPE RLB1
40														
41														
42														
43														
44														
45														

Appendix C

Fixture Specification Sheets

Fixture Type	Manufacturer	Catalog Number	Description	Distributor Net Cost (no mark-up)	Lighting Tool Descriptions
BNLO1	Osram Sylvania	QTP2x32T8/UNV PSN-TC # 51402	2L program start NLO Ballast	$20.45	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE N
BRLO1	Osram Sylvania	QHE2x32T8/UNV PSX-MC # 51428	2L program start RLO Ballast	$19.18	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L
BHLO1	Osram Sylvania	QHE 2x32T8/UNV PSH-HT # 49450	2L program start HLO Ballast	$21.72	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H
HB1	Lithonia	IBL 18L WD LP740 DLC	213w LED high bay	$346.50	LEDHB-213W
HB6	Lithonia	IBL 48L WD LP740 DLC	515-531w LED high bay w/Dimming ballast	$600.00	CUST: LEDHB-531W-DIM
L1	Osram Sylvania	FO32/841/XPS/ECO3 # 21681	High Performance 4' T8 lamp 32w	$4.66	FLT8CEE-32W x 2L x 4'-...
MHPSFL1	Lithonia	170S 320M HPN TB SCWA LPI	320w MHPS flood	$80.00	MHPS-320W-SCWA
MHPSFL2	Lithonia	170S 750M HPN TB SCWA LPI	750 MHPS flood	$125.00	MHPS-750W-SCWA
RLB1	Crouse Hinds	PVM7LDM2/UNV1	78W Retrofit low bay-Indust	$618.00	CUST: PVM7LDM2/UNV1
RLB2	Crouse Hinds	PVM9LDM2/UNV1	98W Retrofit low bay-Indust	$809.00	CUST: PVM9LDM2/UNV1
SK1	Lithonia	AGRK8 2 32 CW42 1/4 BINP	HPT8 strip kit	$45.00	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H
SK2	Lithonia	AVRK8 2 32 CW42 1/4 BINP WHR	HPT8 strip kit with reflector	$59.00	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE H
TK1	Lithonia	2MRT 2 32 WHR J10 must order in qty of 10	2 lamp troffer kit	$13.45	FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE N FLT8CEE-32W x 2L x 4'-CEE RS/PRS CEE L
WP1	Lithonia	DSXW1 LED 20C 700 40K T3M MVOLT DDBXD	45-47w LED wall pack	$325.00	LEDWP-45W
CFL-27			27W compact fluorescent-screw-in with Instant start normal ballast factor		FCM-27W-IS N
IC			integral occupancy sensor		Integral
W-OCC			Wireless occupancy sensor		Occupancy

D-Series Size 1
LED Wall Luminaire

Catalog Number	DSXW1 LED 20C 700 40K T3M MVOLT DDBXD
Notes	
Type	WP1

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

d-series

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 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.

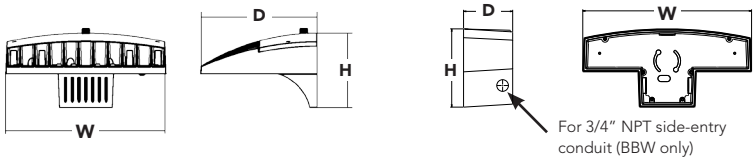
Specifications

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)		



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]	**Finish** *(required)* 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

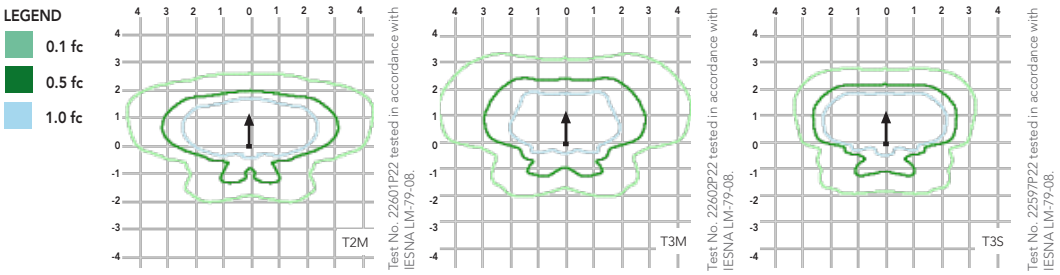
Electrical Load

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	-	-

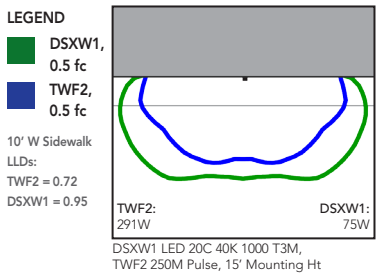
Photometric Diagrams

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.

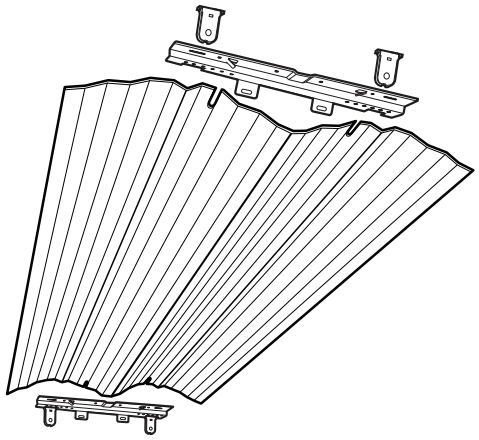
Note: Specifications subject to change without notice.

LITHONIA LIGHTING®

Catalog Number	170S 320M HPN TB SCWA LPI
Notes	
Type	HB1

2MRT

2' x 4' Relight
Two lamps



FEATURES & SPECIFICATIONS

INTENDED USE — The MRT troffer retrofit kit is designed to fit easily in most commercial fluorescent troffers, in order to provide maximum efficiency and full, even lamp imaging below. This series delivers high light levels for general lighting retrofits of normally spaced 2'x4' recessed troffer-style fixtures. Typical applications include classrooms, offices, hospitals and commercial areas.

CONSTRUCTION — Reflectors are precision-formed aluminum for optimal performance, durability and ease of handling. Segmented reflectors are available in a variety of finishes with choice of reflectances (standard shown below; consult factory for additional finishes).

Reflector optics offer varying photometric distributions and spacing criteria to best meet application and budget requirements.

Socket brackets are white pre-painted, die-formed aluminum and are designed to fit in most troffers. Socket brackets may be mounted either to end plates or to the upper surface of the existing "host" fixture housing.

INSTALLATION — Installs quickly and easily using only four self-tapping screws (included). All products ship as components packaged in job packs, for minimal waste at the installation site. Consult factory for component job pack quantities.

Lamps are secured with rotary locking lamp sockets for ease of relamping, and to withstand vibration or incidental contact. Lamp socket accepts #18 gauge wire (solid, solder-dipped or twisted-tinned).

LISTINGS — UL/cUL classified (standard except for 347V; consult factory). Consult factory for NOM capability.

WARRANTY — Retrofit kits are guaranteed for one year against mechanical defects in manufacture. Ballasts shipped with kits are subject to the ballast manufacturer's warranty.

Note: Specifications subject to change without notice.

Specifications

Intended to be installed in existing recessed lensed troffers or parabolic fixtures.

Weight of 10-pack: 16 lbs. (7.3 kg.)

Weight of 40-pack: 64 lbs. (29.0 kg.)

ORDERING INFORMATION For shortest lead times, configure product using **standard options (shown in bold).** **Example**: 2MRT 2 32 SSR

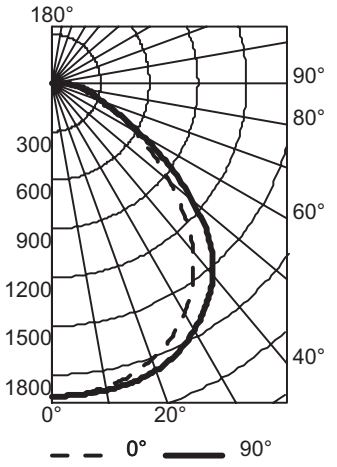
2MRT					
Series	**Lamps**[2]	**Lamp type**	**Voltage**	**Ballast**[6]	**Reflector**
2MRT[1]	**1** **2** **3**[3] Not included	**32** **32W T8 (48")** 28T5 28W T5 (46") 54T5HO 54W T5HO (46")	**(blank)** No ballast, instant start[4] L/BPS No ballast, programmed start 347 347V[5]	**(blank)** No ballast T8 **BINP** T8 high-performance ballast, normal ballast factor (.88), instant start BILP T8 high-performance ballast, low ballast factor (.78), instant start BIHP T8 high-performance ballast, high ballast factor (1.20), instant start BPNP T8 high-performance ballast, normal ballast factor (.88), programmed start BPLP T8 high-performance ballast, low ballast factor (.78), programmed start BPHP T8 high-performance ballast, high ballast factor (1.20), programmed start T5 GEB95 Ballast factor .95, program start T5HO GEB10PS Ballast factor 1.0, program start	**(blank)** White powder coat, normal beam SSR Specular spread beam, 95% reflective 1/3 One 3-lamp ballast

Notes

1. Must be ordered in quantities of 10.
2. All components (reflectors, sockets, socket brackets and lamps) ship separately in bulk quantities. Consult factory for details.
3. Only available in T8.
4. When no ballast is selected, standard lamp holders shipped will be instant start (IS) sockets. If programmed start (PS) sockets are required, select "L/BPS".
5. Consult factory for ballast availability/compatibility.
6. All ballast are standard MVOLT.

PHOTOMETRICS

2MRT 2 32, (2) 32W T8 lamps, 2950 lumens per lamp, s/m 1.2 (along) 1.3 (across)



Coefficients of Utilization

CP Summary			pf	20%								
	0°	90	pc	80%			70%			50%		
			pw	70%	50%	30%	50%	30%	10%	50%	30%	10%
0°	1932	1932	0	101	101	101	99	99	99	94	94	94
5°	1927	1930	1	93	89	86	87	84	81	83	81	79
15°	1867	1912	2	85	78	73	77	72	68	74	70	66
25°	1735	1836	3	78	70	63	68	62	57	66	61	56
35°	1511	1663	RCR 4	72	62	55	61	54	49	59	53	49
45°	1158	1375	5	66	56	48	55	48	43	53	47	42
55°	748	873	6	61	50	43	50	43	38	48	42	37
65°	438	449	7	57	46	39	45	38	33	44	38	33
75°	229	260	8	53	42	35	41	35	30	40	34	30
85°	92	116	9	50	38	32	38	32	27	37	31	27
90	0	0	10	46	36	29	35	29	25	34	28	24

Zonal Lumen Summary

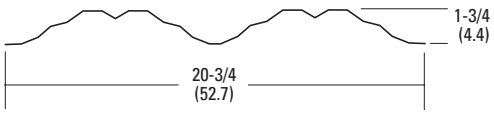
Zone	Lumens	% Lamp	% Fixture
0° - 30°	1540	26.1	30.8
0° - 40°	2533	42.9	50.6
0° - 60°	4234	71.8	84.7
0° - 90°	5001	84.8	100.0
90° - 180°	0	0.0	0.0
0° - 180°	5001	84.8	100.0

Efficiency: 84.8%

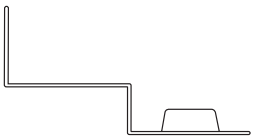
DIMENSIONS

All dimensions are inches (centimeters) unless otherwise specified.

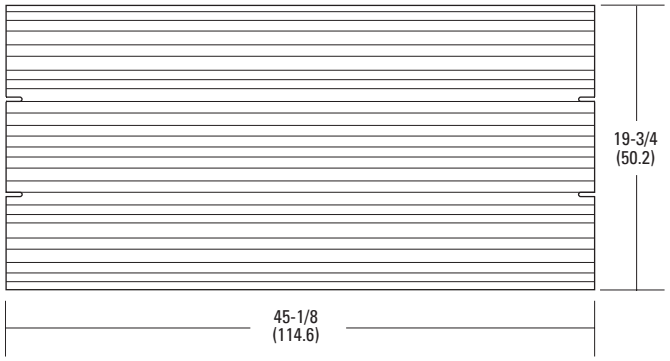
Side View



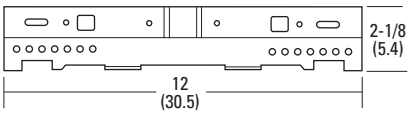
Bracket Side View



Top View



Bracket Top View

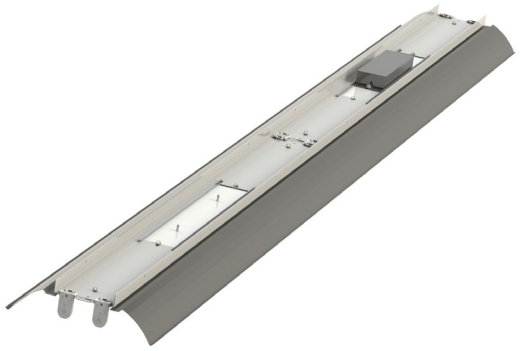


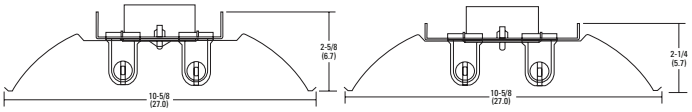
LITHONIA LIGHTING®

Catalog Number	170S 320M HPN TB SCWA LPI
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]	

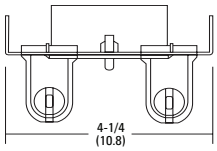
Notes
1 Not available as 1/4.
2 AVRK channels and reflectors will ship separately for field installation. Example:
(qty 1) AVRK8 2 32 CW42 BINP SSR *ships as*
(qty 1) AVRK8 2 32 CW42 1/4 BINP L/REFL
(qty 2) AVRK 4FT SSR REFL

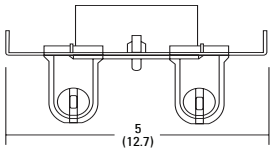
LITHONIA LIGHTING®

Catalog Number	170S 320M HPN TB SCWA LPI
Notes	
Type	HB1

AGRK

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





FEATURES & SPECIFICATIONS

INTENDED USE - The AGRK 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. Retrofitting these older fixtures can greatly reduce energy consumption and lamp replacement costs. The kits 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 AGRK strip conversion kit maximizes fixture efficiency and provides uniform light distribution.

CONSTRUCTION - One-piece 4' or 8' nominal channels are formed from rugged corrosion resistant aluminum for durability and light weight. All aluminum is painted with high-reflectance white paint. The AGRK 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.

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. 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: AGRK8 2 32 CW42 BINP

		32			
Series	**Number of lamps**	**Wattage**	**Width**	**Ballast Configuration**	**Ballast type**
AGRK4 **AGRK8**	1 **2**	**32**	**CW42** CW50	AGRK4 **(blank)** 1 or 2-lamp ballast AGRK8 **(blank)** Two 2-lamp ballast 1/4 One 4-lamp ballast	**BINP** BIHP BILP BPNP BPHP BPLP BSNP[1]

Notes
1 Not available as 1/4.

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.

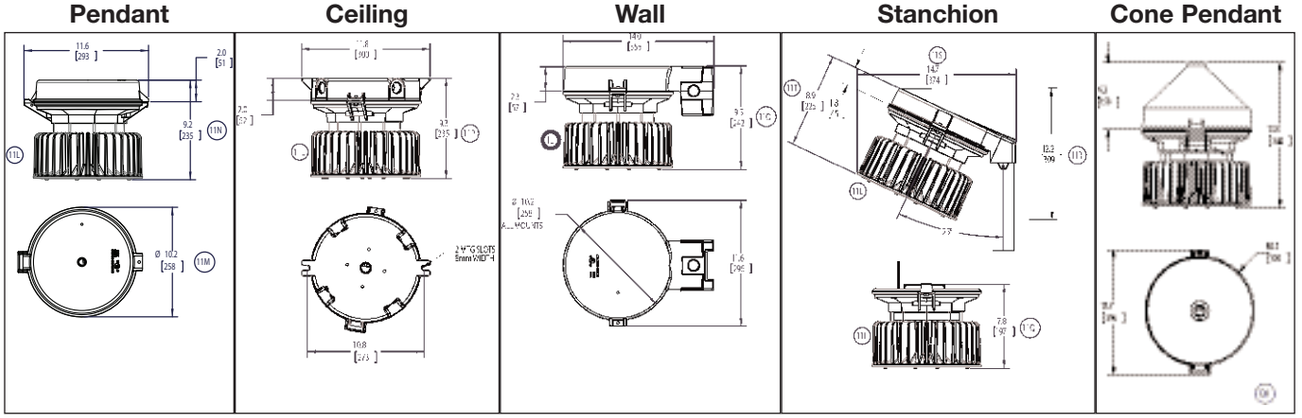
Ideal for general high bay/low bay illumination

Options:

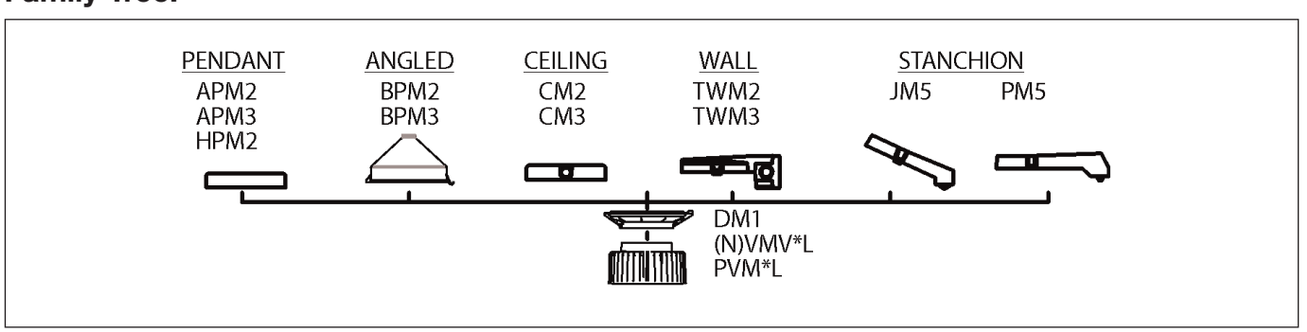
Description	Suffix
Wire guard with captive mounting hardware	P3001
Trunnion mount with redundant pin locking mechanism	S812 K1
Quick Clip for quick installation	S890
Diffused lens reduces glare in applications where the user may have direct visual contact with the light source	S891
Teflon coating on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

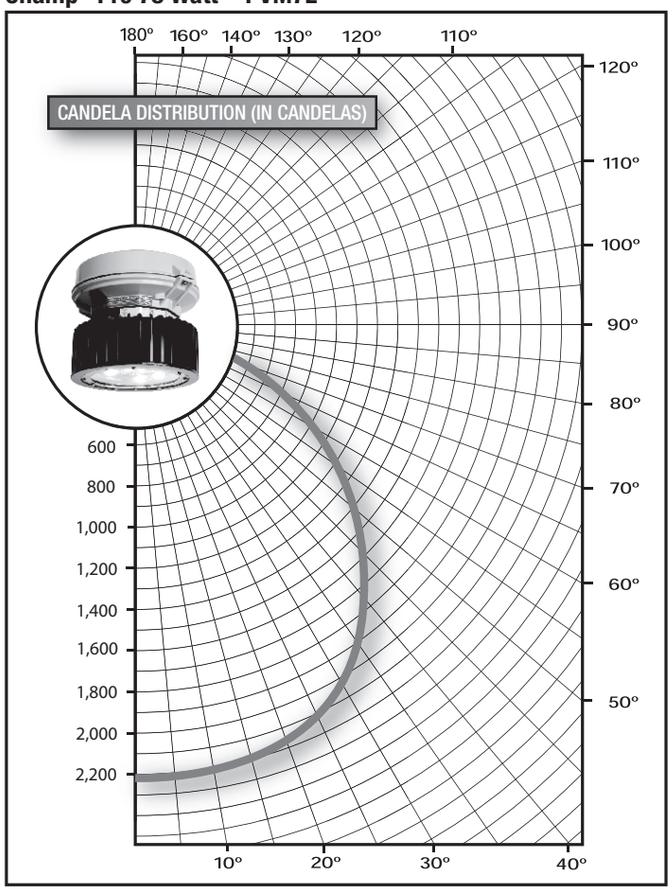
Champ® Pro PVM Series Luminaires

UL/cUL Listed
NEMA 4X
IP66

Ideal for general high bay/low bay illumination

Photometric Data:

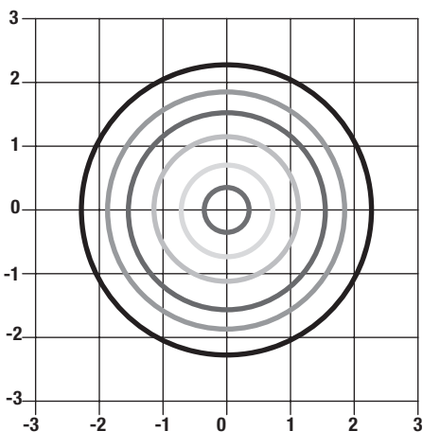
Champ® Pro 78 Watt* - PVM7L



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.

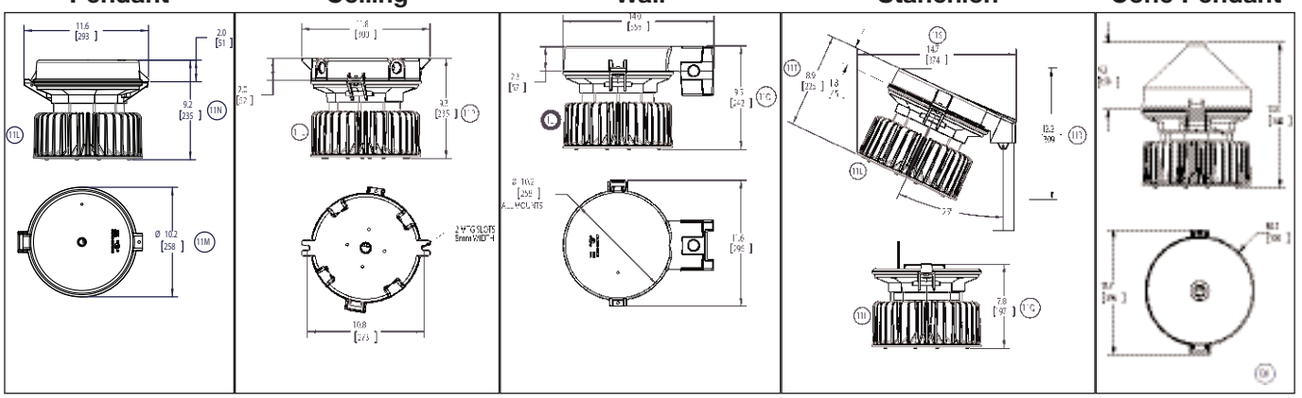
Ideal for general high bay/low bay illumination

Options:

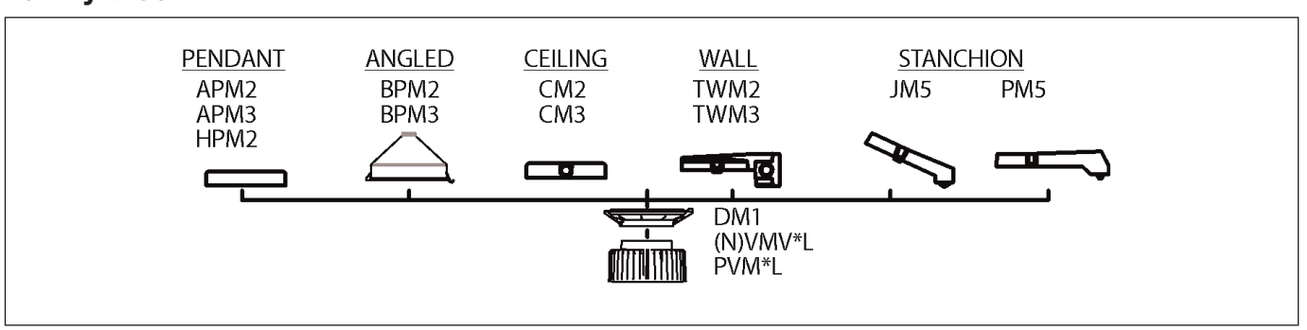
Description	Suffix
Wire guard with captive mounting hardware	P3001
Trunnion mount with redundant pin locking mechanism	S812 K1
Quick Clip for quick installation	S890
Diffused lens reduces glare in applications where the user may have direct visual contact with the light source	S891
Teflon coating on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

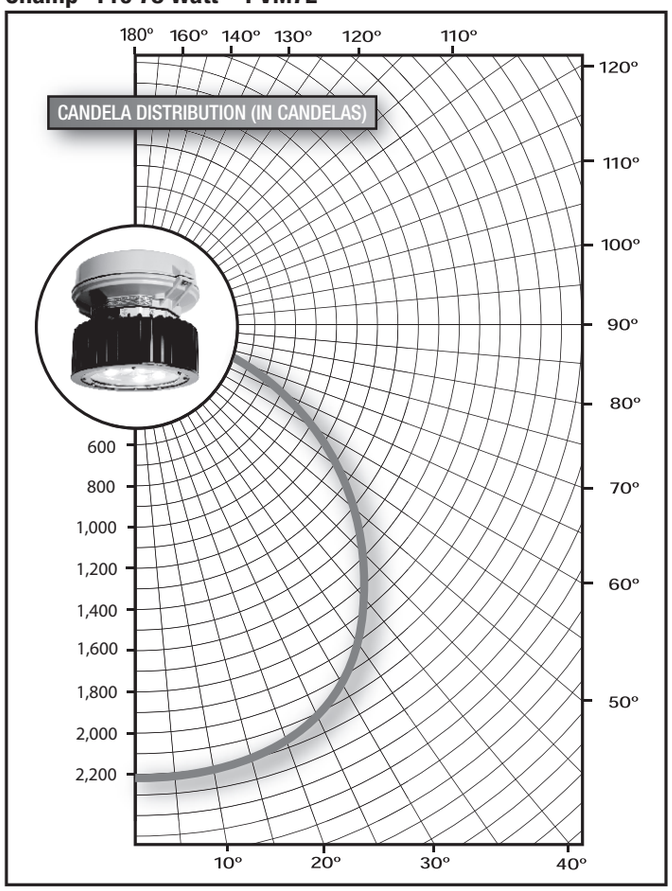
Champ® Pro PVM Series Luminaires

UL/cUL Listed
NEMA 4X
IP66

Ideal for general high bay/low bay illumination

Photometric Data:

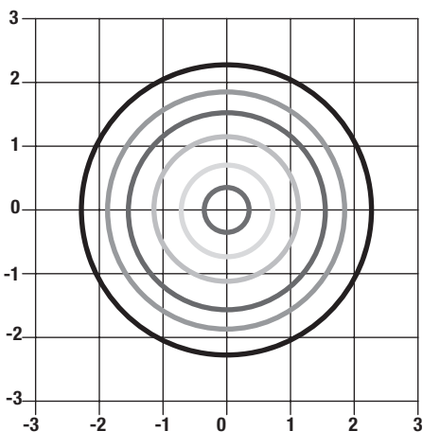
Champ® Pro 78 Watt* - PVM7L



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.

LITHONIA LIGHTING®

Catalog Number: 170S 320M HPN TB SCWA LPI

Notes

Type: HB1

FEATURES & SPECIFICATIONS

INTENDED USE — Use for airport aprons or parking areas.

CONSTRUCTION — Rugged, heavy-gauge, lightweight aluminum housing. Continuously seam-welded for weathertight integrity. Stainless steel fasteners. Aluminum door frame is secured with four stainless steel latches.

Finish: Standard finish is dark bronze (DDB) corrosion-resistant, polyester powder with other architectural colors available.

OPTICS — Anodized, aluminum reflector with internal glare control louver is painted matte black to provide an asymmetrical beam pattern with sharp vertical cutoff. Thermal- and shock-resistant, tempered flat, glass lens.

ELECTRICAL — Constant-wattage autotransformer ballast is 100% factory tested. Super CWA Pulse Start ballasts, 88% efficient and EISA legislation compliant, are required for 320-400W (must order SCWA option) for US shipments only. CSA or INTL required for probe start shipments outside of the U.S.

Socket: Mogul-base, porcelain sockets with copper alloy, nickel-plated screw shell and center contact. UL listed 1500W, 600V, 4KV pulse rated.

INSTALLATION — Painted steel yoke. Vertical aiming device with repositioning stop included to assist in positioning luminaire and 3 ft. 14/3 SEO cable, standard.

LISTINGS — UL listed for wet locations. Listed and labeled to comply with Canadian Standards (see Options).

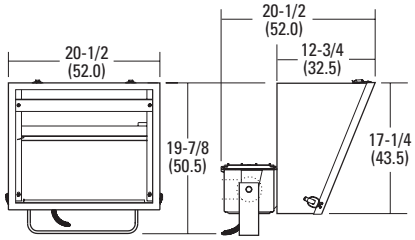
High Performance Floodlighting

170S

METAL HALIDE: 320-1000W
HIGH PRESSURE SODIUM: 250-1000W

Specifications

EPA: 2.7 ft² (.25m²)
Length: 20-1/2 (52.0)
Height: 17-1/4 (43.5)
Fixture height: 19-7/8 (50.5)
Depth: 12-3/4 (32.5)
Fixture depth: 20 (51.0)
*Weight: 77 lbs (34.8 kg)



*Weight as configured in example provided.
All dimensions are inches (centimeters).

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

Example: 170S 1000M HPN TB LPI

170S								
Series	**Wattage**	**Distribution[5]**	**Voltage**	**Ballast**	**Mounting**	**Options**	**Finish[16]**	**Lamp[17]**
170S	Metal halide 320M[1] 350M[1,2] 400M[3] 1000M[4] High Pressure Sodium[5] 1000S	HPN Narrow asymetric	120 208[7] 240[7] 277 347 480[7] TB[8] 23050HZ[9]	(blank) Magnetic CWI Contant wattage isolated Pulse Start SCWA HID Ballast/Lamp Systems SCWA Super CWA pulse-start ballast NOTE: For shipments to U.S. territories, SCWA must be specified to comply with EISA. Shipped separately - outdoor remote ballast HRBW HID remote ballast weather proof (black)[10] Shipped separately - indoor remote ballast HRB HID remote ballast (white)[10]	Shipped installed (blank) Yoke mount Shipped separately[10] TS Tenon slipfitter[11] MPB29 Mounting pole bracket for 2 fixtures @ 90°[12] MPB39 Mounting pole bracket for 3 fixtures @ 90°[12] MPB49 Mounting pole bracket for 4 fixtures @ 90°[12]	Shipped installed in fixture SF Single fuse (120, 277, 347V n/a TB) DF Double fuse (208, 240, 480V n/a TB) PER NEMA twist-lock receptacle only CSA Listed and labeled to comply with Canadian Standards INTL Available for MH probe start shipping outside the U.S. REGC1 California Title 20 effective 1/1/2010 QRS Quartz restrike[13] Shipped seperately[11] UV Upper visor[14] SC Shorting cap[15] PE1 NEMA twist-lock photocontrol (120, 208, 240V)[15] PE3 NEMA twist-lock photocontrol (347V)[15] PE4 NEMA twist-lock photocontrol (480V)[15] PE7 NEMA twist-lock photocontrol (277V)[15]	(blank) Dark bronze DWH White DBL Black DMB Medium bronze DNA Natural aluminum DSS Sandstone DGC Charcoal gray DTG Tennis green DBR Bright red DSB Steel blue	LPI Lamp included L/LP Less lamp

Notes

1 Must be ordered with SCWA.
2 These wattages do not comply with California Title 20 regulations.
3 These wattages require the REGC1 option to be chosen for shipments into California for Title 20 compliance.
4 Utilizes BT-37 reduced jacket lamp.
5 Not available with SCWA.
6 Beam spread 10% max. candela.
7 Must specify CWI for use in Canada.
8 Optional multi-tap ballast (120, 208, 240, 277V). In Canada 120, 277, 347V; ships as 120/347.
9 Consult factory for available wattages.
10 Refer to HRB/HRBW specification sheet in the Options & Accessories section for additional information. (OA 135).
11 May be ordered as an accessory.
12 MPB bracket ships separately with junction box and hinge mechanisms. Bracket weight: 12 lbs. MPB29, 39, or 49 must be ordered on the same line as the fixture in multiples of 2, 3, or 4 respectively.
13 Maximum allowable wattage lamp included.
14 Prefix with fixture (i.e., 170SUV DBL U). Finish must be specified.
15 PER must be ordered with fixture.
16 See www.lithonia.com/archcolors for additional color options.
17 Must be specified.

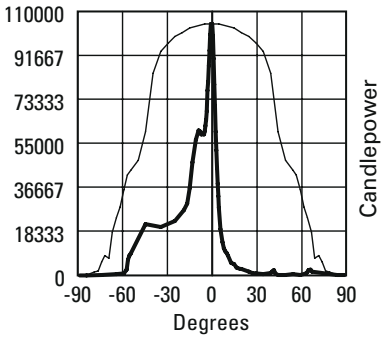
Vertical Candlepower
Horizontal Candlepower

170S 1000M HPN
Test No. SH10005
107800 Lumens

NEMA Type : 7 H x 4 V

10% Maximum Candela
138°H x 63°V

50% Maximum Candela
98°H x 15°V

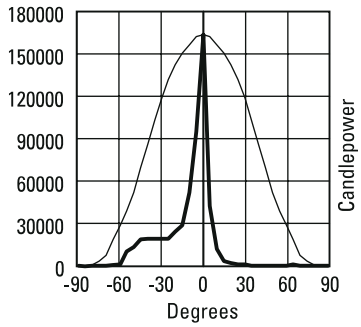


170S 1000S HPN
Test No. SH10109
140,000 Lumens

NEMA Type: 7 H x 4 V

10% Maximum Candela
132° H x 56° V

50% Maximum Candela
82° H x 8° V



NOTES:

1 Photometric data for other distributions can be accessed from the Lithonia Lighting website. (www.lithonia.com)

2 For electrical characteristics, consult outdoor technical data specification sheets on www.lithonia.com.

3 Tested to current IES and NEMA standards under stabilized laboratory conditions. Various operating factors can cause differences between laboratory and actual field measurements. Dimensions and specifications are based on the most current data and are subject to change.

LITHONIA LIGHTING®

Catalog Number	170S 320M HPN TB SCWA LPI
Notes	
Type	HB1

FEATURES & SPECIFICATIONS

INTENDED USE — Use for airport aprons or parking areas.

CONSTRUCTION — Rugged, heavy-gauge, lightweight aluminum housing. Continuously seam-welded for weathertight integrity. Stainless steel fasteners. Aluminum door frame is secured with four stainless steel latches.

Finish: Standard finish is dark bronze (DDB) corrosion-resistant, polyester powder with other architectural colors available.

OPTICS — Anodized, aluminum reflector with internal glare control louver is painted matte black to provide an asymmetrical beam pattern with sharp vertical cutoff. Thermal- and shock-resistant, tempered flat, glass lens.

ELECTRICAL — Constant-wattage autotransformer ballast is 100% factory tested. Super CWA Pulse Start ballasts, 88% efficient and EISA legislation compliant, are required for 320-400W (must order SCWA option) for US shipments only. CSA or INTL required for probe start shipments outside of the U.S.

Socket: Mogul-base, porcelain sockets with copper alloy, nickel-plated screw shell and center contact. UL listed 1500W, 600V, 4KV pulse rated.

INSTALLATION — Painted steel yoke. Vertical aiming device with repositioning stop included to assist in positioning luminaire and 3 ft. 14/3 SEO cable, standard.

LISTINGS — UL listed for wet locations. Listed and labeled to comply with Canadian Standards (see Options).

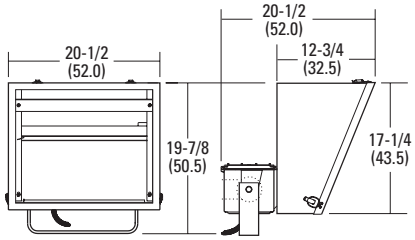
High Performance Floodlighting

170S

METAL HALIDE: 320-1000W
HIGH PRESSURE SODIUM: 250-1000W

Specifications

EPA: 2.7 ft² (.25m²)
Length: 20-1/2 (52.0)
Height: 17-1/4 (43.5)
Fixture height: 19-7/8 (50.5)
Depth: 12-3/4 (32.5)
Fixture depth: 20 (51.0)
*Weight: 77 lbs (34.8 kg)



*Weight as configured in example provided.
All dimensions are inches (centimeters).

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

Example: 170S 1000M HPN TB LPI

170S								
Series	**Wattage**	**Distribution[5]**	**Voltage**	**Ballast**	**Mounting**	**Options**	**Finish[16]**	**Lamp[17]**
170S	Metal halide 320M[1] 350M[1,2] 400M[3] 1000M[4] High Pressure Sodium[5] 1000S	HPN Narrow asymetric	120 208[7] 240[7] 277 347 480[7] TB[8] 23050HZ[9]	(blank) Magnetic CWI Contant wattage isolated Pulse Start HID Ballast/Lamp Systems SCWA Super CWA pulse-start ballast NOTE: For shipments to U.S. territories, SCWA must be specified to comply with EISA. Shipped separately - outdoor remote ballast HRBW HID remote ballast weather proof (black)[10] Shipped separately - indoor remote ballast HRB HID remote ballast (white)[10]	Shipped installed (blank) Yoke mount Shipped separately[10] TS Tenon slipfitter[11] MPB29 Mounting pole bracket for 2 fixtures @ 90°[12] MPB39 Mounting pole bracket for 3 fixtures @ 90°[12] MPB49 Mounting pole bracket for 4 fixtures @ 90°[12]	Shipped installed in fixture SF Single fuse (120, 277, 347V n/a TB) DF Double fuse (208, 240, 480V n/a TB) PER NEMA twist-lock receptacle only CSA Listed and labeled to comply with Canadian Standards INTL Available for MH probe start shipping outside the U.S. REGC1 California Title 20 effective 1/1/2010 QRS Quartz restrike[13] Shipped seperately[11] UV Upper visor[14] SC Shorting cap[15] PE1 NEMA twist-lock photocontrol (120, 208, 240V)[15] PE3 NEMA twist-lock photocontrol (347V)[15] PE4 NEMA twist-lock photocontrol (480V)[15] PE7 NEMA twist-lock photocontrol (277V)[15]	(blank) Dark bronze DWH White DBL Black DMB Medium bronze DNA Natural aluminum DSS Sandstone DGC Charcoal gray DTG Tennis green DBR Bright red DSB Steel blue	LPI Lamp included L/LP Less lamp

Notes

1 Must be ordered with SCWA.
2 These wattages do not comply with California Title 20 regulations.
3 These wattages require the REGC1 option to be chosen for shipments into California for Title 20 compliance.
4 Utilizes BT-37 reduced jacket lamp.
5 Not available with SCWA.
6 Beam spread 10% max. candela.
7 Must specify CWI for use in Canada.
8 Optional multi-tap ballast (120, 208, 240, 277V). In Canada 120, 277, 347V; ships as 120/347.
9 Consult factory for available wattages.
10 Refer to HRB/HRBW specification sheet in the Options & Accessories section for additional information. (OA 135).
11 May be ordered as an accessory.
12 MPB bracket ships separately with junction box and hinge mechanisms. Bracket weight: 12 lbs. MPB29, 39, or 49 must be ordered on the same line as the fixture in multiples of 2, 3, or 4 respectively.
13 Maximum allowable wattage lamp included.
14 Prefix with fixture (i.e., 170SUV DBL U). Finish must be specified.
15 PER must be ordered with fixture.
16 See www.lithonia.com/archcolors for additional color options.
17 Must be specified.

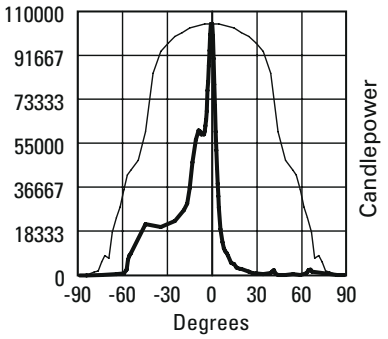
Vertical Candlepower
Horizontal Candlepower

170S 1000M HPN
Test No. SH10005
107800 Lumens

NEMA Type : 7 H x 4 V

10% Maximum Candela
138°H x 63°V

50% Maximum Candela
98°H x 15°V

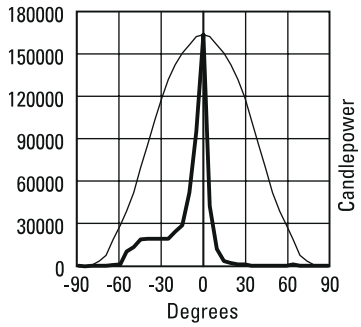


170S 1000S HPN
Test No. SH10109
140,000 Lumens

NEMA Type: 7 H x 4 V

10% Maximum Candela
132° H x 56° V

50% Maximum Candela
82° H x 8° V



NOTES:

1 Photometric data for other distributions can be accessed from the Lithonia Lighting website. (www.lithonia.com)

2 For electrical characteristics, consult outdoor technical data specification sheets on www.lithonia.com.

3 Tested to current IES and NEMA standards under stabilized laboratory conditions. Various operating factors can cause differences between laboratory and actual field measurements. Dimensions and specifications are based on the most current data and are subject to change.

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

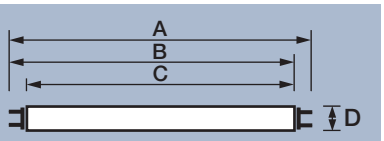
1. Measured at 40% of rated life.

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

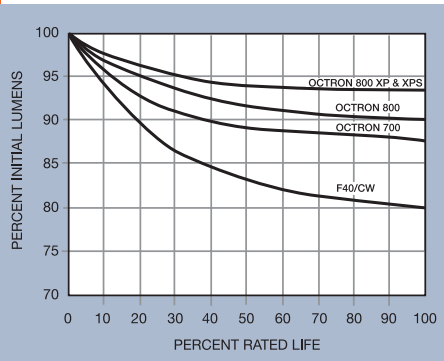
Lamp Dimensions

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

National Accounts
Phone: 1-800-562-4671
Fax: 1-800-562-4674

OEM/Special Markets
Phone: 1-800-762-7191
Fax: 1-800-762-7192

Display/Optic
Phone: 1-888-677-2627
Fax: 1-800-762-7192

Canada
OSRAM SYLVANIA LTD.
2001 Drew Road
Mississauga, ON L5S 1S4

Trade
Phone: 1-800-263-2852
Fax: 1-800-667-6772

OEM/Special Markets/Display/Optic
Phone: 1-800-265-2852
Fax: 1-800-667-6772

www.sylvania.com

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.

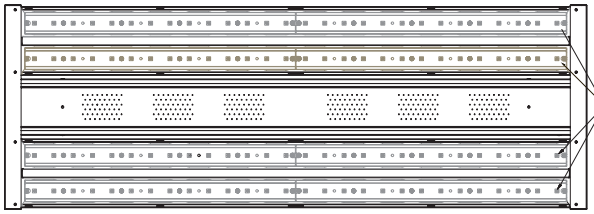
9L, 18L, and 36L lumen packages

12L, 24L, and 48L lumen packages

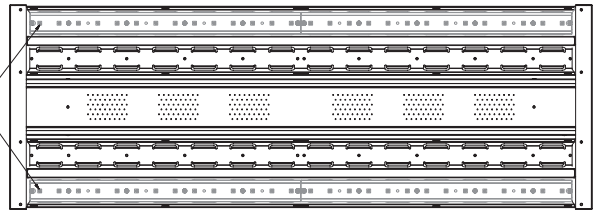
To create the 9L, 18L, and 36L lumen packages, the PCBA (LED board) is depopulated from the endcaps inward. The first LED is 5-1/2" from the end cap on those units, compared to 1-1/8" on the 12L, 24L, and 48L product.

DIMENSIONS

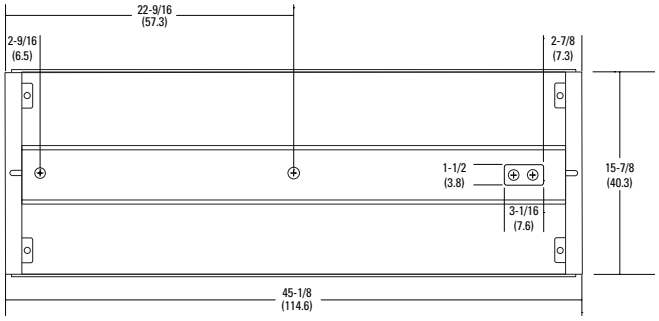
Dimensions may vary with options or accessories.



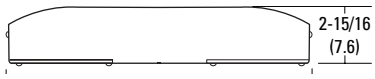
18L, and 24L utilize two drivers wired inboard/outboard
36L and 48L ***(not shown)*** utilize four drivers wired inboard/outboard



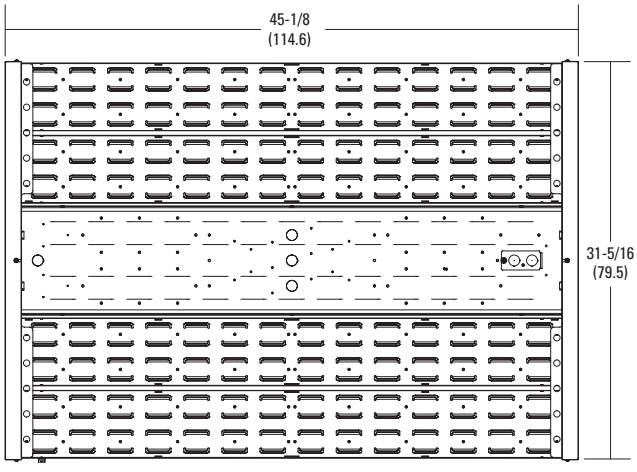
9L and 12L utilize one driver



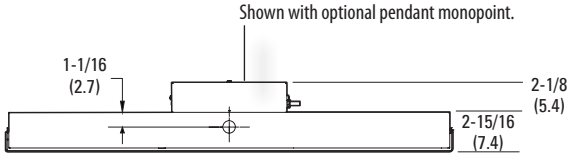
9L-24L



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

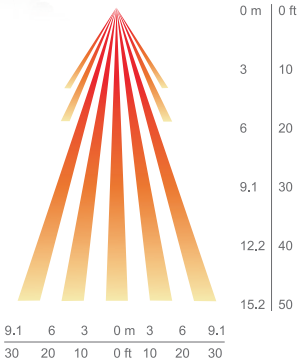
See www.lithonia.com.

SENSORS AND CONTROLS

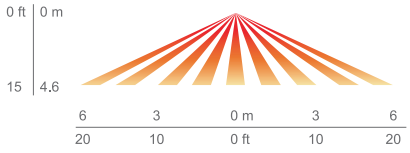
Sensors are an excellent way to maximize the return on your high bay lighting investment. I-BEAM LED fixtures can be equipped with an occupancy sensor, photocell, nLight® or nWiFi™. These devices are factory-installed and require minimal labor to set up during fixture installation.

MSI360
360° Lens

HIGH VIEW



LOW VIEW



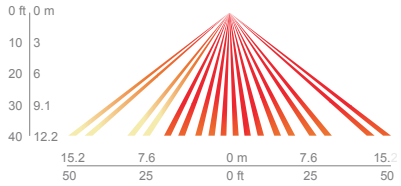
MSI: The Sensor Switch CMRB 50 aisleway sensor offers a dedicated sensor and extended range, compared to competitive products.

Mounting Location: End Plate

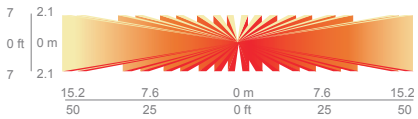
- Provides 50° bi-directional and 10° wide coverage pattern
- 1.2x mounting height equals approximate detection range in either direction
- Sensor lens turret rotates 90° in order to easily adjust the direction of the view pattern

MSI
Aisleway Lens

SIDE VIEW



TOP VIEW



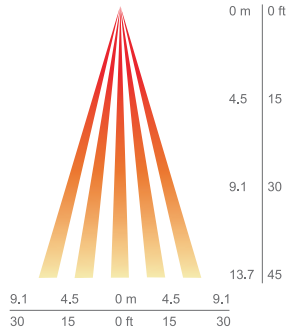
MSI360: The Sensor Switch CMRB 6 open-area sensor has 360° coverage and can be integrated with a photocell (PE) for further energy savings.

Mounting Location: End Plate

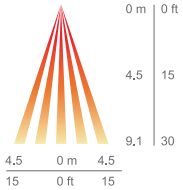
- Best choice for 15 to 45 ft (4.57 to 13.72 m) mounting heights
- 15 to 20 ft (4.57 to 6.10 m) radial coverage overlaps area lit by a typical high bay fixture

MSE360
Embedded 360° Lens

HIGH VIEW



LOW VIEW



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.

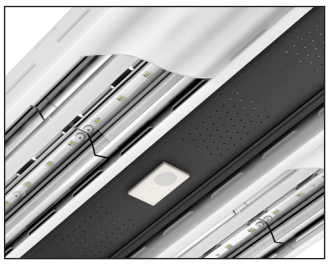
REFLECTORS
Wide distribution is formed with 93% reflective white paint. Narrow distribution is formed with Alanod® MIRO®.

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



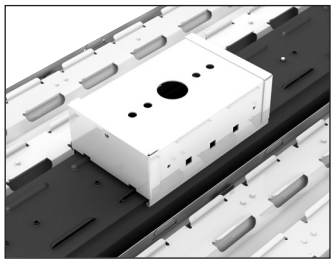
DIFFUSER
Field- or factory-installed. Available in semi-diffuse acrylic. Mounting hardware included.

Factory-installed option:
SD125

Field-installed option:
DLIBL SD125
DLIBL48 SD125

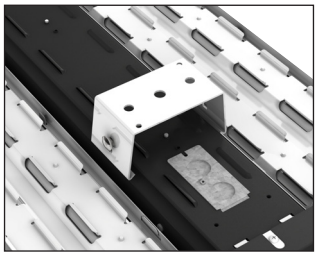
EMBEDDED OCCUPANCY SENSOR
Can be placed in the channel cover which reduces the risk of sensor damage compared to non-embedded sensors.

Factory-installed option:
MSE360



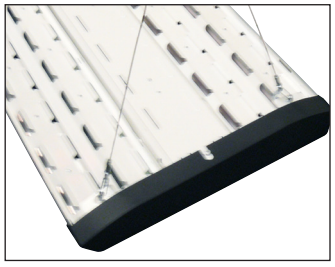
PENDANT MONOPOINT BRACKET
Accepts ¾" rigid conduit for single-point mounting. The bracket can be adjusted to help counterbalance fixture to offset weight variance from end to end.

Order as:
IBLPMP
IBLPMPHB
IBLPMP48
IBLPMPHB48



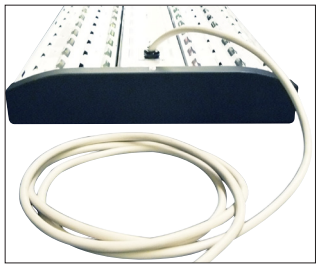
SURFACE MOUNT BRACKET
Rigidly attach I-BEAM LED to a hard ceiling. Can be placed anywhere along fixture.

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



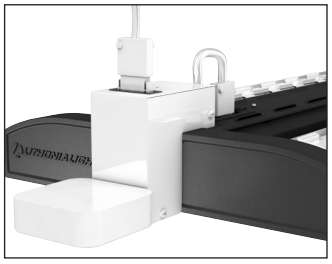
HANGERS
Several lengths of aircraft cables and chains available; with or without V-hooks.

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.

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.

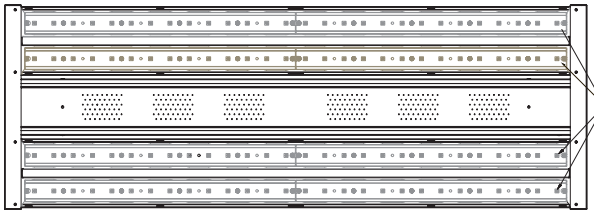
9L, 18L, and 36L lumen packages

12L, 24L, and 48L lumen packages

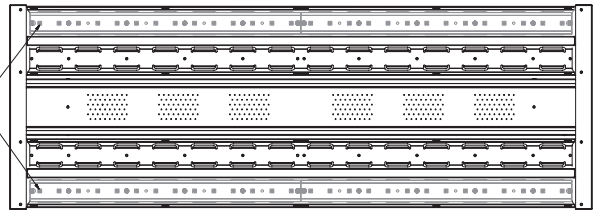
To create the 9L, 18L, and 36L lumen packages, the PCBA (LED board) is depopulated from the endcaps inward. The first LED is 5-1/2" from the end cap on those units, compared to 1-1/8" on the 12L, 24L, and 48L product.

DIMENSIONS

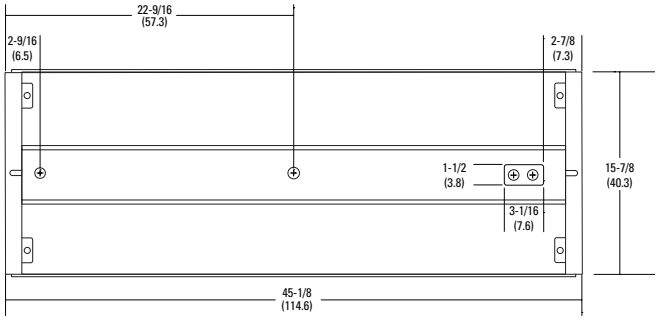
Dimensions may vary with options or accessories.



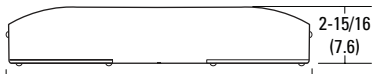
18L, and 24L utilize two drivers wired inboard/outboard
36L and 48L ***(not shown)*** utilize four drivers wired inboard/outboard



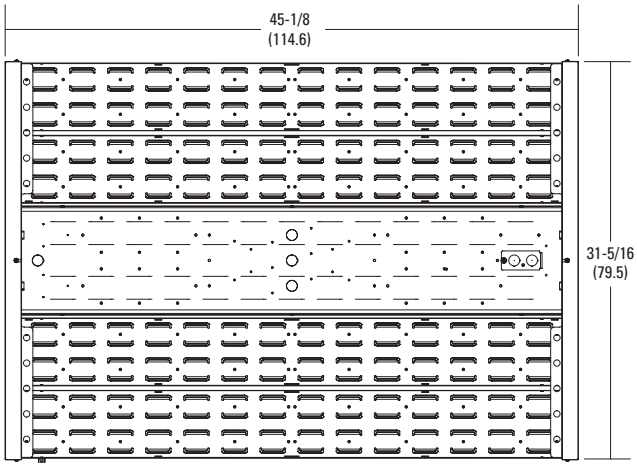
9L and 12L utilize one driver



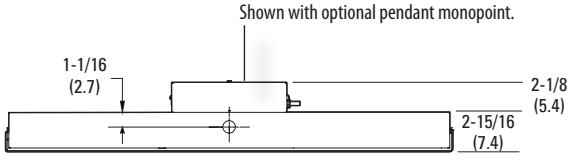
9L-24L



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
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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
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45	113	0.97
50	122	0.965
55	131	0.96

PHOTOMETRICS

See www.lithonia.com.

SENSORS AND CONTROLS

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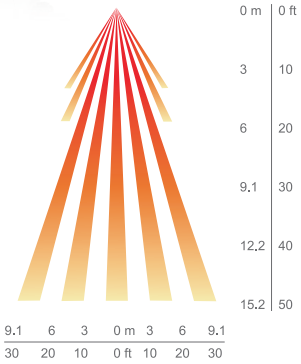
MSI360
360° Lens

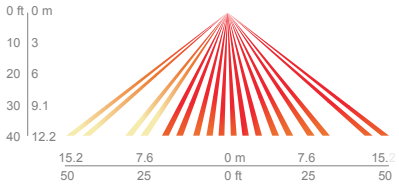
MSI
Aisleway Lens

MSE360
Embedded 360° Lens

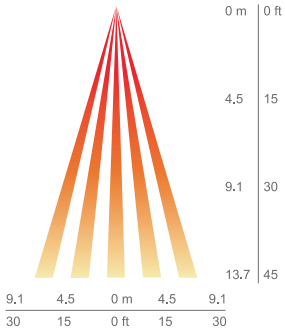
HIGH VIEW



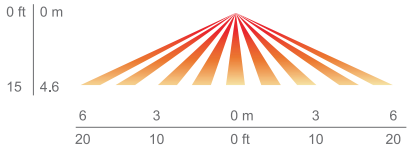
SIDE VIEW



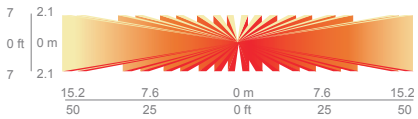
HIGH VIEW



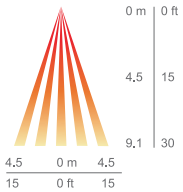
LOW VIEW



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

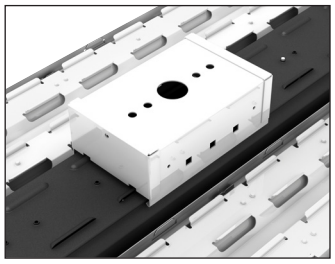
DIFFUSER
Field- or factory-installed. Available in semi-diffuse acrylic. Mounting hardware included.

Factory-installed option:
SD125

Field-installed option:
DLIBL SD125
DLIBL48 SD125

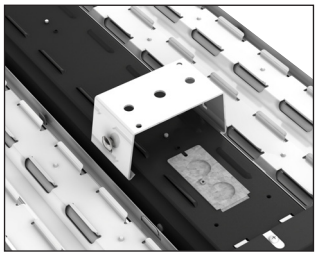
EMBEDDED OCCUPANCY SENSOR
Can be placed in the channel cover which reduces the risk of sensor damage compared to non-embedded sensors.

Factory-installed option:
MSE360



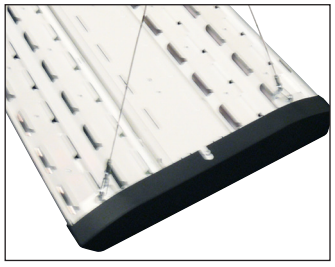
PENDANT MONOPOINT BRACKET
Accepts ¾" rigid conduit for single-point mounting. The bracket can be adjusted to help counterbalance fixture to offset weight variance from end to end.

Order as:
IBLPMP
IBLPMPHB
IBLPMP48
IBLPMPHB48



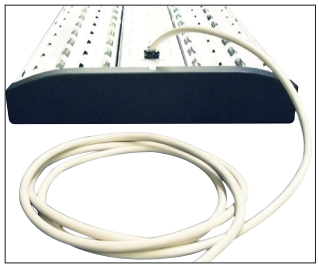
SURFACE MOUNT BRACKET
Rigidly attach I-BEAM LED to a hard ceiling. Can be placed anywhere along fixture.

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



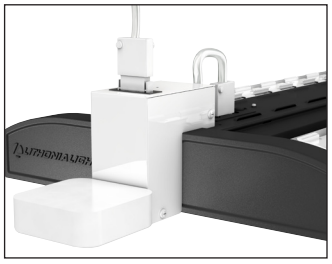
HANGERS
Several lengths of aircraft cables and chains available; with or without V-hooks.

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.

www.sylvania.com

QUICKTRONIC® PROStart® T8 Parallel Operation Systems

Type CC, Lamp Striation Control
Parallel Operation
Xtreme Low Ballast Factor

High Efficiency Series

QHE T8 PSX

Lamp / Ballast Guide

Primary Systems
32W T8 - OCTRON®
1-lamp QHE 1x32T8/UNV PSX-MC
2-lamp QHE 2x32T8/UNV PSX-MC
3-lamp QHE 3x32T8/UNV PSX-SC
4-lamp QHE 4x32T8/UNV PSX-SC

Also operates:
FO30/SS, FO28/SS, FO25/SS, FBO32, FBO31, FBO30/SS, FBO29/SS, FO25, FO17, FBO24 & FBO16

F40T8 operation:
1 lamp on 2L ballast; 2 lamps on 3L ballast; 3 lamps on 4L ballast

Key System Features

- High Efficiency Systems
- NEMA Premium Electronic Ballast Program compliant
- PROStart programmed rapid start
- Parallel operation (one lamp out, remaining lamps stay lit)
- Xtreme Low Ballast Factor: 0.71- 0.72
- UL Type CC
- LSC (Lamp Striation Control)
- Universal input voltage (120-277V)
- Minimum starting temperature:
  - -20°F (-29°C) for T8 lamps
  - 60°F (16°C) for energy saving T8 lamps
- RoHS compliant
- Lead-free solder and manufacturing process

Application Information

SYLVANIA QUICKTRONIC PROStart Ballast is ideally suited for:

- Any applications where the lowest power systems are needed for maximum energy savings
- Energy retrofits
- Occupancy sensors
- Building control systems

SYLVANIA QUICKTRONIC High Efficiency PROStart PSX programmed rapid start electronic T8 ballast family offers several advantages:

- **Lowest Power** T8 OCTRON system available when combined with OCTRON SUPERSAVER® high performance T8 lamps.
- **Parallel Circuitry:** keeps remaining lamps lit if one or more go out.
- **Lamp Striation Control (LSC):** T8 energy saving lamps should be operated above 60°F, but under certain conditions, the lamps may striate. LSC circuitry will minimize or eliminate this condition in most applications. (Please consult lamp manufacturers for additional details.)
- **Micro-Can Enclosure:** the 1 & 2-lamp models are in the micro-can enclosure. This allows the ballast to fit in very small profile fixtures where standard can T8 ballasts are too large.

- **NEMA Premium Electronic Ballast Program and RoHS compliant:** These ballasts feature lead-free solder and manufacturing. The NEMA Premium 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 details on this program go to: ***www.cee1.org or www.nema.org***

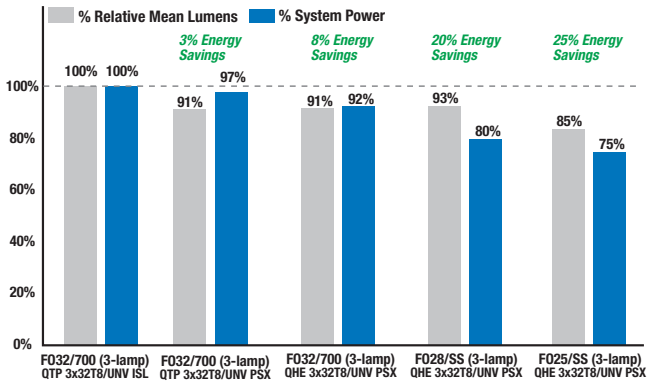
System Information

SYLVANIA QUICKTRONIC High Efficiency (QHE) PROStart System advantages:

- Operate from 120V through 277V
  - Eliminates "wrong voltage" errors
  - Reduces inventory by 50%
- Utilizes Programmed Rapid Start operation for:
  - High System Efficacy
  - Longer Life
  - Over 100,000 switching cycles for occupancy sensor and building control systems applications with OCTRON SUPERSAVER lamps.
- Operate at >42 kHz to reduce potential interference with infrared control systems
- 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
- These ballasts are also RoHS compliant and feature lead-free solder, printed circuit boards and manufacturing process

System Type	Input System Power (W)	Initial System Lumens	Mean System Lumens	Initial System Efficacy (lm/W)	Mean Relative Lumens (%)	Energy Savings (%)
FO32/700 (3-lamps) - QTP3x32T8/UNV ISL	75	6085	5595	81	Baseline	Baseline
FO32/700 (3-lamps) - QTP3x32T8/UNV PSX	73	5540	5090	76	91%	3%
FO32/700 (3-lamps) - QHE3x32T8/UNV PSX	69	5540	5090	80	91%	8%
FO28/SS (3-lamps) - QHE3x32T8/UNV PSX	60	5805	5455	97	97%	20%
FO25/SS (3-lamps) - QHE3x32T8/UNV PSX	56	5345	5025	95	90%	25%

**Fixture efficiency not considered.* **120V input voltage.*



SPECIFICATION DATA

Catalog #	Date	Type
Project	Prepared by	
Comments		

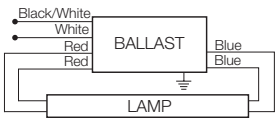
SUPERSAVER Xtreme Systems Universal Voltage (120-277V)

RoHS compliant · NEMA Premium

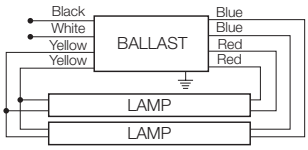
Item Number	OSRAM SYLVANIA Description	Input Current (AMPS)	Lamp[1] Type	Rated[1] Lumens (lm)	No. of Lamps	Ballast[1] Factor (BF)	System[1] Lumens	Mean[1] Lumens	Input[1] Power (W) 120	277	System[3] Efficacy (lm/W)	BEF[2]
51423 ✪	QHE1x32T8/UNV PSX-MC	0.21/0.09	F032/700	2600	1	0.72	1870	1720	25	24	78	2.94
	Banded 10-Pack	0.21/0.09	F032XPS®	3100	1	0.72	2230	2100	25	24	93	3.00
		0.21/0.09	F032XP®/XL	2950	1	0.72	2110	1985	25	24	88	2.97
		0.20/0.09	F030/SS	2850	1	0.72	2050	1930	23	23	88	3.10
		0.18/0.08	**F028/SS**	**2725**	**1**	**0.72**	**1960**	**1845**	**21**	**21**	**93**	**3.41**
		0.16/0.07	F025/SS	2475	1	0.72	1780	1675	20	19	92	3.71
51428 ✪	QHE2x32T8/UNV PSX-MC	0.40/0.17	F032/700	2600	2	0.72	3745	3440	48	47	80	1.53
	Banded 10-Pack	0.40/0.17	F032XPS	3100	2	0.72	4465	4195	48	47	94	1.53
		0.40/0.17	F032XP/XL	2950	2	0.72	4250	3995	48	47	90	1.53
		0.37/0.16	F030/SS	2850	2	0.72	4105	3860	45	43	95	1.66
		0.34/0.15	**F028/SS**	**2725**	**2**	**0.72**	**3925**	**3690**	**41**	**40**	**98**	**1.80**
		0.31/0.14	F025/SS	2475	2	0.72	3565	3350	38	37	96	1.94
51433 ✪	QHE3x32T8/UNV PSX-SC	0.58/0.25	F032/700	2600	3	0.71	5540	5090	69	67	83	1.06
	Banded 10-Pack	0.58/0.25	F032XPS	3100	3	0.71	6605	6205	69	67	99	1.06
		0.58/0.25	F032XP/XL	2950	3	0.71	6285	5905	69	67	94	1.06
		0.54/0.23	F030/SS	2850	3	0.71	6070	5705	65	63	97	1.13
		0.50/0.22	**F028/SS**	**2725**	**3**	**0.71**	**5805**	**5455**	**60**	**59**	**98**	**1.20**
		0.47/0.20	F025/SS	2475	3	0.71	5345	5025	56	55	96	1.28
51438 ✪	QHE4x32T8/UNV PSX-SC	0.76/0.32	F032/700	2600	4	0.71	7385	6790	90	89	83	0.79
	Banded 10-Pack	0.76/0.32	F032XPS	3100	4	0.71	8770	8240	90	89	99	0.79
		0.76/0.32	F032XP/XL	2950	4	0.71	8345	7845	90	89	94	0.79
		0.72/0.31	F030/SS	2850	4	0.71	8065	7580	86	84	96	0.84
		0.66/0.28	**F028/SS**	**2725**	**4**	**0.71**	**7745**	**7280**	**79**	**77**	**100**	**0.92**
		0.61/0.26	F025/SS	2475	4	0.71	7060	6640	73	71	99	1.00

1 See QUICKSYSTEMS for delamped data. 2 Ballast Efficiency Factor (BEF) shown = (Ballast Factor x 100) divided by Input Power (Note: calculation based on lowest wattage value).
3 System Efficacy calculation based on lowest input power value. ✪ Preliminary specifications. Please contact OSRAM SYLVANIA for additional information.

1 lamp



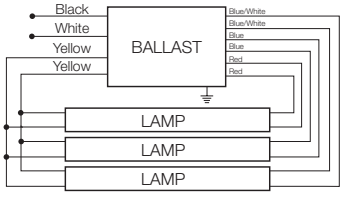
2 lamp



Note: For 1L application, individually cap both RED leads.
Insulate to 600 volts.

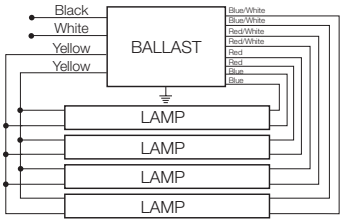
Installation Notes Lamp wiring for 3 & 4 lamp QHE PSX "parallel" models vary from QTP series models. Be sure to wire ballasts per label/ schematics shown on this bulletin.

3 lamp



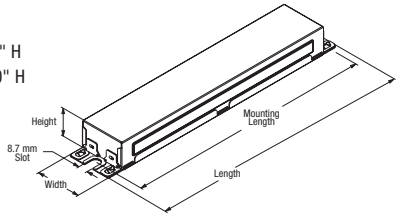
Note: For 2L application, individually cap both RED leads.
For 1L operation, individually cap both RED and BLUE leads.
Insulate to 600 volts.

4 lamp



Note: For 3L application, individually cap both RED leads.
For 2L application, individually cap both RED and BLUE leads.
For 1L application, individually cap both RED, BLUE and Red/White leads.
For lamps approved for 1L operation, see QUICKSYSTEMS.
Insulate to 600 volts.

"SC" Overall: 9.5" L x 1.68" W x 1.18" H
"MC" Overall: 9.5" L x 1.30" W x 1.00" H
Mounting: 8.90"



Product Weight:
QHE1xPSN & QHE2xPSN: 0.66 lbs. each
QHE3xPSN & QHE4xPSN: 1.27 lbs. each

Wiring:
Leads only (no connectors provided)

Item Number — **51428 QHE 2 x 32T8 / UNV PSX - MC** — Enclosure Type (MC or SC)
QUICKTRONIC High Efficiency — Starting Type/Ballast Factor - PROStart/Xtreme Low BF
Number of Lamps — Line Voltage (120-277V)
Primary Lamp Wattage

Xtreme Low Ballast Factor

T8 PROStart®

High Efficiency

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 F017 & F025, 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: 0.71 - 0.72
Circuit Type: Parallel
Lamp Frequency: >42 kHz
Lamp CCF: Less than 1.7
Starting Temp:[4]
-20°F (-29°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
UL Type CC Rated
Lamp Striation Control (LSC)
CSA Certified (where applicable)
70°C Max. Case Temperature
FCC 47 CFR Part 18 Non-Consumer
Class A Sound Rating
NEMA Premium Electronic Ballast
Program compliant
RoHS compliant[5]
ANSI C62.41 Cat. A Transient Protection
GFCI & 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

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

5 Complies with European Union Restriction of Hazardous Substances Directive

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.

QHE T8 PSX

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:
FB032, FB031, F025, FB024, F017, FB016, F030/SS, FB030/SS (30W), FB029/SS, F028/SS (28W) & F025/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.

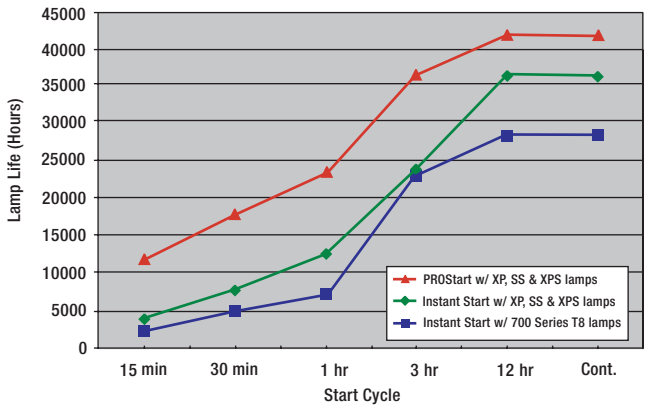
In addition to substantial energy savings, QUICKTRONIC PSN ballasts deliver an optimized programmed start which extends lamp life. This advanced starting process drastically reduces the amount of cathode sputtering, resulting in improved lamp life in all applications including short start cycles.

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-F032/700 QTP 2x32 ISN	59	4930	84	4435	Baseline	Baseline	Baseline
2-F032/800/XP QTP 2x32 ISN	59	5280	89	4965	112%	0%	100%
2-F032/800/XP QTP 2x 32 PSN	59	5280	89	4965	112%	0%	150%
2-F028/SS QTP 2x32 PSN	52	4800	92	4510	102%	12%	150%

OCTRON® T8 Lamp Life Comparison



SPECIFICATION DATA

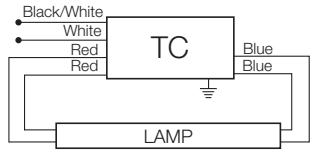
Catalog #	Date	Type
Project	Prepared by	
Comments		

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

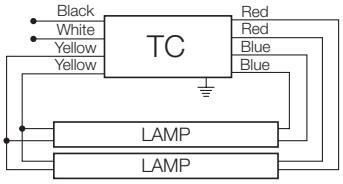
Item Number	OSRAM SYLVANIA Description	Input Current (AMPS)	Lamp Type	Rated Lumens (lm)	No. of Lamps	Ballast Factor (BF)	System Lumens	Mean Lumens	Input Wattage (W)	System Efficacy (lm/W)	BEF[1]
	QTP 1x32T8/UNV PSN-TC	0.26/0.11	F032/700	2800	1	0.88	2465	2220	31/30	79/82	2.93
51399	*Banded Pack*	0.26/0.11	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).

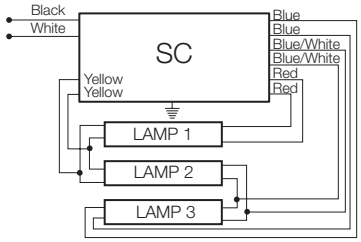
1 lamp



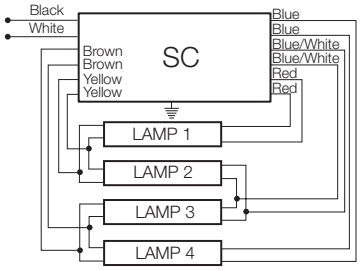
2 lamp



3 lamp

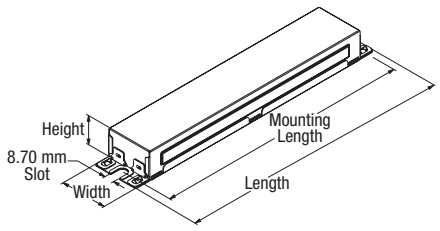


4 lamp



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

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.

QTP T8 PSN

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.)

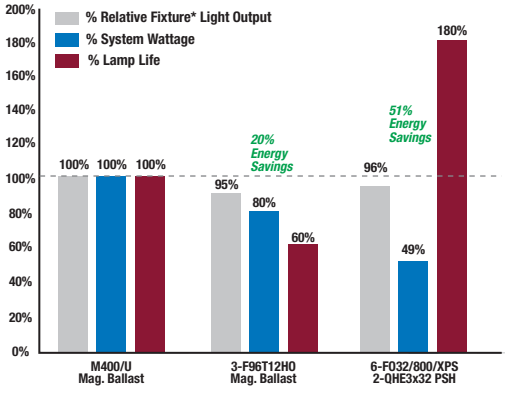
System Information

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		

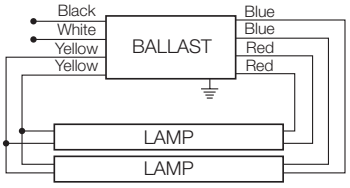
High Efficiency Type CC, Lamp Striation Control & High Ambient (120-277V)

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

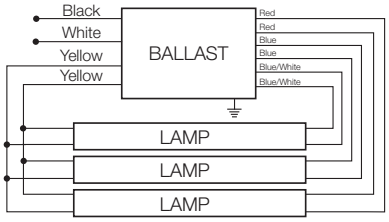
Banded pack contains 10 pieces, (add "-B" to Description). Pallet Pack contains 500 pieces, (add "-PAL" to Description).
1: Ballast Efficiency Factor (BEF) shown = (Ballast Factor x 100) divided by Input Power (Note: calculation based on lowest wattage value).

2 lamp



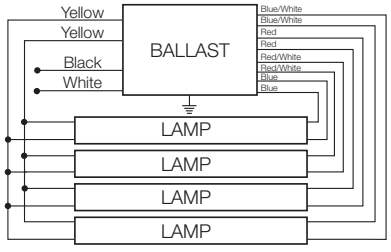
QUICKTRONIC 2x32

3 lamp



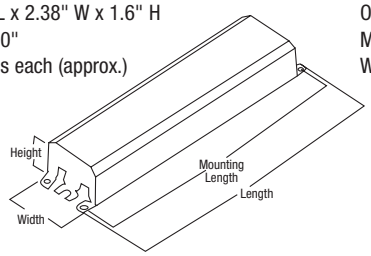
QUICKTRONIC 3x32

4 lamp

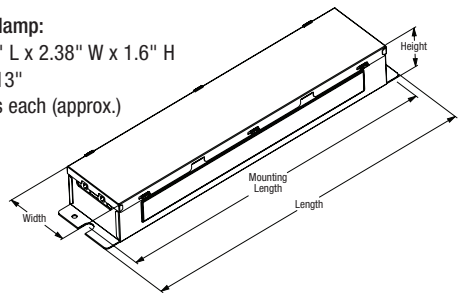


QUICKTRONIC 4x32

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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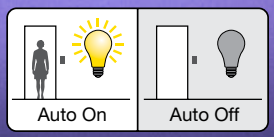
Turn lights off in unoccupied spaces . . .

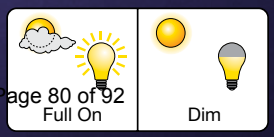
Save energy and money!

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

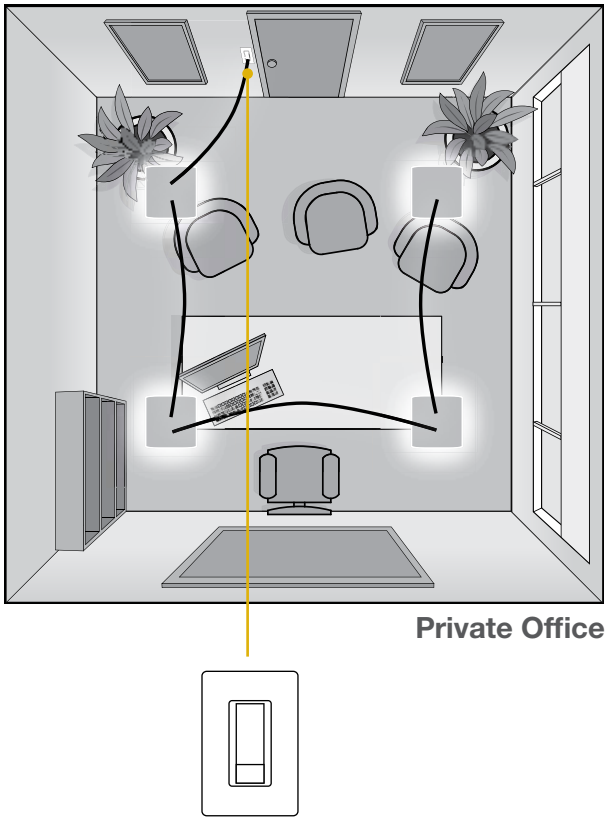
Maestro®

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

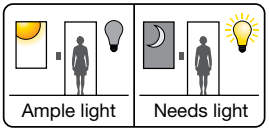
Colors and finishes:

- 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™

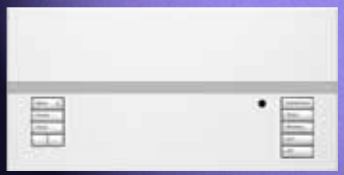
wall-mount sensors:

- 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®

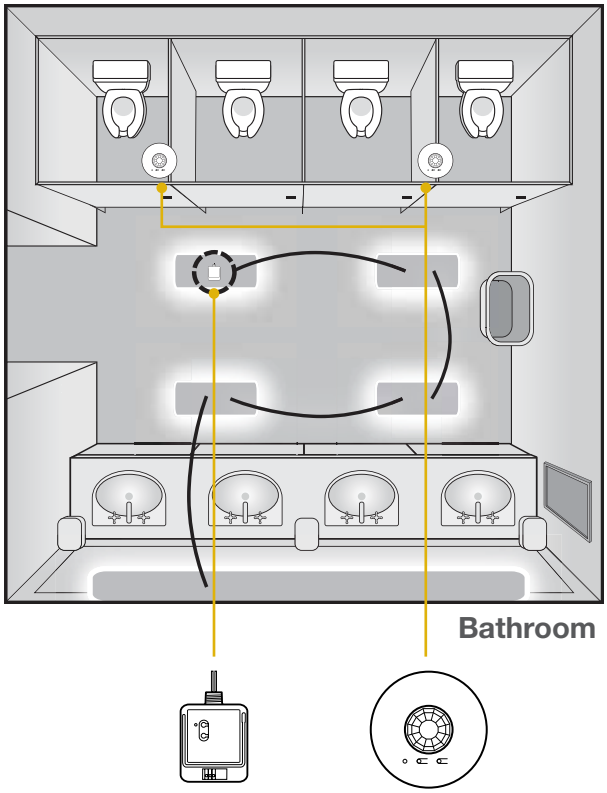
PowPak™

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™

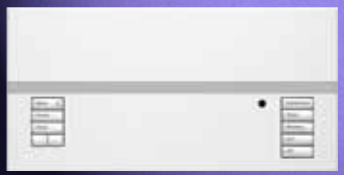
Features:

- 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:



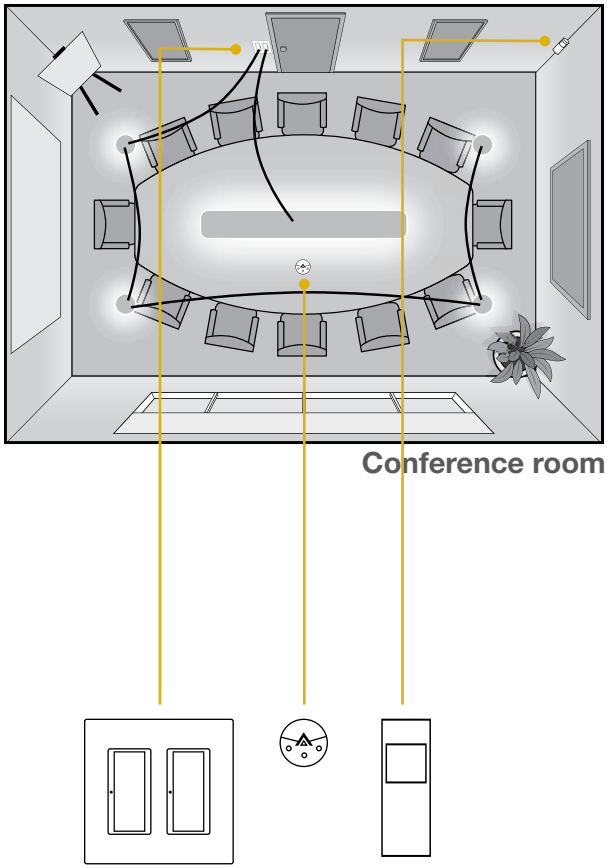
GRAFIK Eye® QS wireless

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)

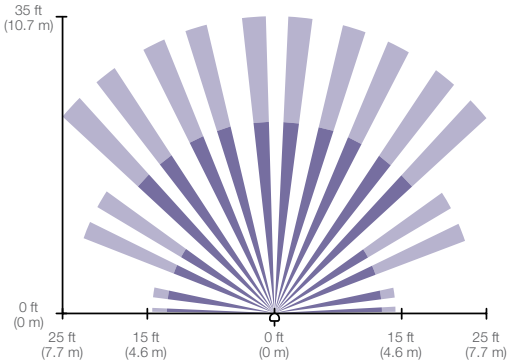
Combine the Radio Powr Savr **occupancy sensors and daylight sensor** to maximize energy savings in spaces like conference rooms.

- **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

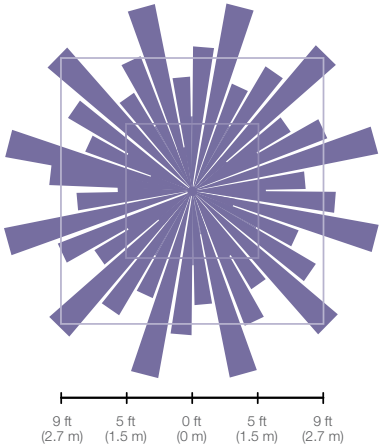
In-wall, 180°

400 ft² — minor motion
900 ft² — major motion



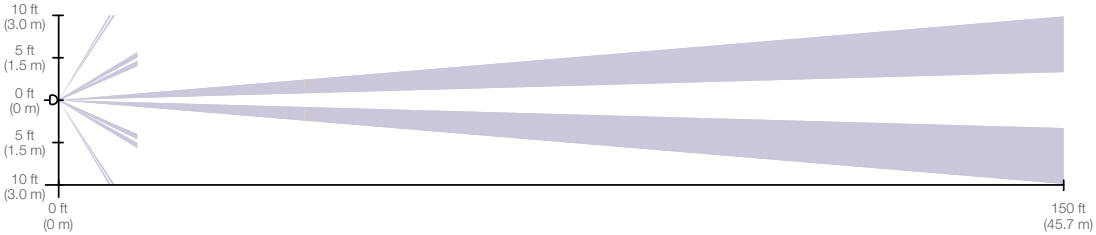
Ceiling-mount, 360°

Coverage varies by ceiling height



Hallway, long narrow field of view

Coverage varies by hallways with and length



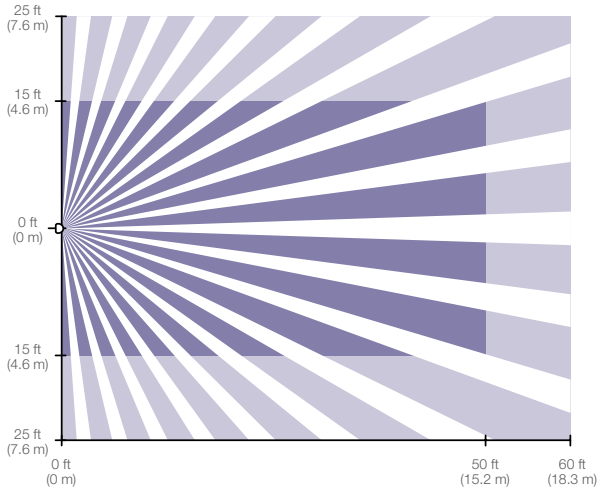
Key:

minor motion

major motion

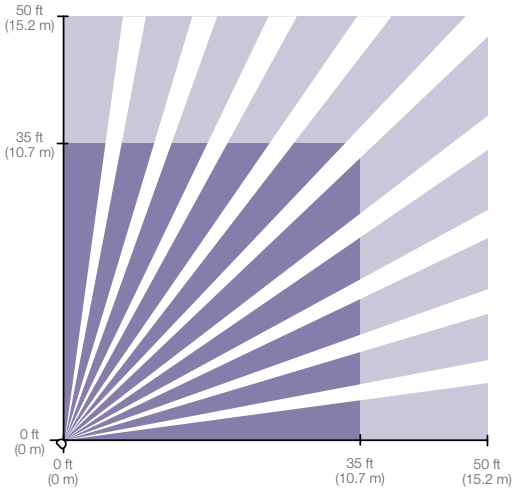
Wall-mount, 180°

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)

Appendix D

Budget Breakout

Total Lighting Project Budget (100% all fixtures)

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-32W x 2L X 4'-CEE RS/PRS CEE H	BHL01 & L1	2L program start High BF	835	2	$4.66	$9	$22	$31	$26,152	120%	$38	$31,383	$ 40	$ 33,400	$ 1,000
FLT8CEE-32W x 2L X 4'-CEE RS/PRS CEE L	BRLO1 & L1	2L program start Low BF	214	2	$4.66	$9	$20	$29	$6,274	120%	$35	$7,529	$ 40	$ 8,560	$ -
FLT8CEE-32W x 2L X 4'-CEE RS/PRS CEE N	BNL01 & L1	2L program start normal BF	58	2	$4.66	$9	$20	$29	$1,701	120%	$35	$2,041	$ 40	$ 2,320	$ -
FUT8CEEHB-28W x 2L X 2'-CEE RS/PRS N		U lamp 2L program start normal BF	3	2	$18	$36	$21	$57	$171	125%	$71	$214	$ 40	$ 120	
FCM-27W-IS N	CFL-27	27W CFL	2	1	$15	$15	$15	$30	$60	125%	$38	$75	$ 20	$ 40	$ -
CUST: LEDLB-78W/PVM7LDM2/Unv1	RLB1	78w LED low-bay/Pendant	2441	1	$618	$618		$618	$1,508,538	120%	$742	$1,810,246	$ 80	$ 195,280	$ 10,000
CUST: LEDLB-98W/PVM9LDM2/Unv1	RLB2	98w LED low bay/pendant	68	1	$809	$809		$809	$55,012	120%	$971	$66,014	$ 80	$ 5,440	
CUST: LEDHB-531W	HB6	531w LED high bay	23	1	$600	$600		$600	$13,800	120%	$720	$16,560	$ 120	$ 2,760	$ 2,000
CUST: LEDHB-213W	HB1	213w LED high bay	84	1	$347	$347		$347	$29,148	120%	$416	$34,978	$ 120	$ 10,080	$ 1,000
LEDWP-45W	WP1	45-47w LED wall pack	130	1	$325	$325		$325	$42,250	120%	$390	$50,700	$ 80	$ 10,400	$ -
8' strip conversion w/Reflextor	SK2	4' T8 CEE for BRLO1 and L1 above	23	1	$0	$0	$59	$59	$1,357	120%	$71	$1,628	$ 5	$ 115	
8' strip conversion (no reflextor)	SK1	4' T8 CEE for BHLO1 and L1 for above	77	1	$0	$0	$13	$13	$1,001	120%	$16	$1,201	$ 5	$ 385	$ -
T8 troffer retrofit delamping kit	TK1	4' 2L T8 CEE for BRLO1 and L1	64	1	$0	$0	$49	$49	$3,136	120%	$59	$3,763	$ 5	$ 320	
MHPS-750W-SCWA	MHPSFL1	750W pulse start metal halide flood	97	1	$125	$125		$125	$12,125	120%	$150	$14,550	$ 60	$ 5,820	$ 1,000
MHPS-320-SCWA	MHPSFL2	320W pulse start metal halide flood	23	1	$80	$80		$80	$1,840	120%	$96	$2,208	$ 60	$ 1,380	
Integral controls		ordered with fixture	59	1	$60	$60		$60	$3,540	122%	$73	$4,319	$ 20	$ 1,180	$ -
Occupancy controls		Wireless	96	1	$85	$85		$85	$8,160	122%	$104	$9,955	$ 60	$ 5,760	$ -

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

$1,684,463 DNC	$2,057,364 with markup	$ 283,360 Labor total	$ 15,000 Other total

Fixture Count (+sensors) 4297

material price shown in lighting tool (rounded)	$2,057,400	Labor	$ 283,360	$ 15,000

Grand Total all phases all budgeted costs = $ 2,355,760