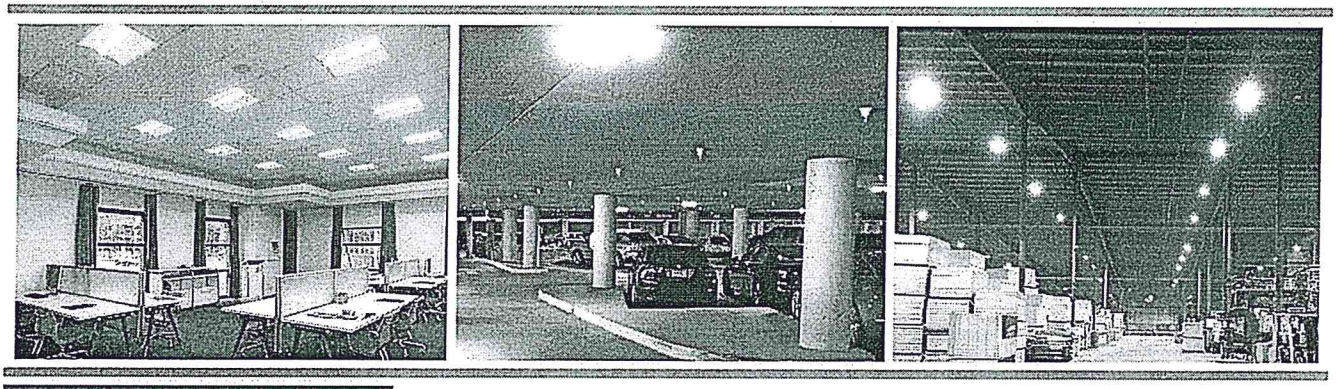
SCES Gym
T-8



Building Name
Spencer Co. Elementary School

Proposal Name
Spencer Co. Elementary School Fluorescent Proposal

A Proposal For .
Jim Oliver
Director of Facilities and Groun
Spencer Co. Elementary School

Friday, April 18, 2014

T-8

Executive Summary

Project Overview

Total Material Cost ($)	3,300
Less Rebates and Incentives ($)	
Net Cost of Project ($)	**3,300**
Annual Operating Savings	
Energy Savings ($)[1,2]	838
Maintenance Savings ($)[3]	260
Total Annual Operating Savings ($)	**1,099**
Operating Savings Over 10 Years	
Energy Savings ($)[1,2]	8,386
Maintenance Savings ($)	2,607
Total Operating Savings Over 10 Years ($)	**10,993**
Payback Period (yrs)	1.3
Net Present Value ($)[4]	5,525
Internal Rate of Return (%)	117.37

1. *Energy cost ($) = 0.0700/kWh; Annual energy cost escalation (%) = 0.00*
2. *Energy savings are averaged over 10 year analysis period*
3. *Maintenance costs are averaged over 10 year analysis period*
4. *Assumed cost of capital (%) = 6*
5. *Product Tax Rate (%) = 0.00*
6. *Service Tax Rate (%) = 0.00*

Financial Summary

Total Project Cost ($)	Net Project Cost ($)	10 Yr Operating Savings ($)[1,2]	Payback Period (yrs)	NPV ($)[3]	IRR (%)
3,300	3,300	10,993	1.3	5,525	117.37

1. *Energy cost ($) = 0.0700/kWh; Annual energy cost escalation (%) = 0.00*
2. *Operating Savings equals the energy cost savings plus the maintenance savings averaged over the analysis period*
3. *Assumed Cost of capital (%) = 6*
4. *Product Tax Rate (%) = 0.00*
5. *Service Tax Rate (%) = 0.00*

Friday, April 18, 2014

Jim Oliver
Director of Facilities and Grounds
Spencer Co. Elementary School
520 Taylorsville Road
Taylorsville KY 40071

Many businesses are searching for various means to reduce their operating expenses. In many cases, the search need not be any more tedious than simply looking at something most of us take for granted on a daily basis - our lighting systems. By carefully analyzing the equipment and usage patterns of these systems, we can uncover hidden expenditures and provide an optimal return on investment that improves your bottom line and environmental impact.

Our team of energy experts surveyed your facility and compiled data from your existing equipment. The equipment reviewed and analyzed included lamps, ballasts, controls, fixtures, lenses, and/or voltage, lamp temperature, color of light, foot candles, lumens and maintenance schedule.

The Energy Savings Assessment provides a model for retro-fits and upgrade recommendation. It allows us to visualize the energy reduction and financial benefits of the proposed changes as well as the cost of doing nothing. Using the information collected during the audit process and the integrated market data, we can quickly and accurately model various projects and upgrade scenarios. The integration of product performance, market and industry data at the point in time when it's needed is a powerful component of the Energy Savings Assessment's analysis suite.

Ultimately, we can see the impact the recommended efficiency measures will have on a building's energy usage and financial performance. Using equipment and occupancy information collected during the audit, the Energy Savings Assessment enables us to view proposed upgrades and determine how these recommendations compare to the operating cost and energy consumption of the existing equipment. Rexel can quickly create project alternatives and compare them to determine the best return on investment for the customer and the project.

We look forward to discussing the proposed options and working with you to provide your company the best possible solution.

Thank you for the opportunity.

Micah Cheak
Account Manager
Phone: 859-338-9419
Email: Micah.Cheak@RexelUSA.com

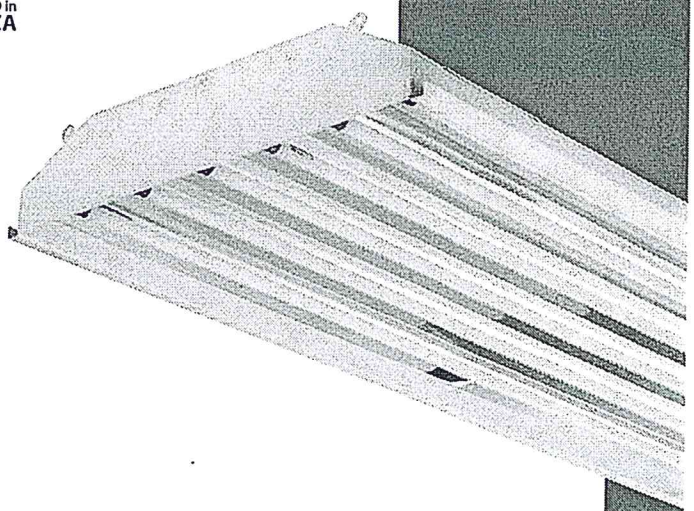
Catalog Number	CB6-32-T8	
Project Name		Type

T8 COOL BEAM FLUORESCENT HIGH BAY

(6 LAMP FULL BODY SPECIFICATION GRADE)

CB6 Series

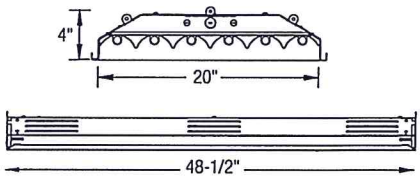
SAME DAY SHIPPING AVAILABLE | COOL BEAM | PROUDLY ASSEMBLED in AMERICA



PRODUCT FEATURES:

- Our Cool Beam Technology allows ballast to stay cool through ventilation slots on sides, and to maintain 5 year warranty at 55ºC.
- Full Body construction is formed from 22 Gauge steel to ensure rigidity and endurance. Body includes knockouts on top and sides for easy wiring.
- Reflector is attached to body with 4 screws, and hinges down along with lamps for easy access to ballast. Rotary Lamp sockets hold lamps in place and allow for easy relamping.
- Wireguard is standard white finish and may be combined with lens option. Wireguard and lens option come preinstalled with hinged doorframe for easy access to lamps.
- Additional options such as motion sensors, emergency ballasts, lamps and wiring all come prewired from factory.
- 95% reflective premium reflector material is engineered to optimize performance for 93% total fixture efficiency.
- Post painted high-gloss enamel finish ensures maximum adhesion and rust resistance.
- Using the latest optical technology our 6 lamp CB luminaire out performs conventional MH fixtures while maintaining minimal energy consumption.
- Four corner tie points are standard for chain or aircraft cable mount.
- Comes standard with 2 Instant start GE, pro line multi-volt ballasts model number GE332-MV-H.
- Assembled in the USA.
- Qualifies for most national and regional utility rebates.
- CEE qualified ballast found standard on most fixture options (Consult factory for details).
- NEC required ballast disconnect is standard.

LISTING - UL/ C-UL listed for damp location.
WARRANTY - Guaranteed for five years against mechanical defects.



Ordering Information EXAMPLE: CB-6-32-T8

CB	6	32-T8							

SERIES
CB - Oracle Cool Beam Industrial Series

LAMPS
6

LAMP TYPE
32-T8 -32W T8

VOLTAGE[2]
(Blank) - MVOLT (120/277)
120
277
347
480

 # OF BALLAST
(Blank) -2 Ballast
3 -3 Ballasts

BALLAST FACTOR
(Blank)- High BF
NBF- Normal BF
LBF- Low BF

LAMPS INSTALLED
(Blank) - No lamps
L30K - 30K L41K - 41K
L35K - 35K L50K - 50K

BALLAST CONFIGURATION & CODE

32W/T8	DESCRIPTION
(Blank)	Electronic Instant Start
EPS	Electronic Program Start
ADV-7	Advance Mark-7[2]
ADV-10	Advance Mark-10[2]
-	Advance Optanium[2]
ADV-ESS	Advance Essential[2]
ADV-ROVR	Advance Rover[2]
LUT-EHD	Lutron Ecosystem H-Series[2]
LUT-2W[1]	Lutron Tu-Wire[2]
LUT-EC5	Lutron Ecosystem[2]
LUT-EC3	Lutron Eco-10[2]
LUT-TVE[1]	Lutron Tve[2]
-	Lutron Hi-Lume 3D[2]
-	Lutron Ecosystem (347V Only)[2]

1- Requires 3 Ballasts
2- Voltage must be specified for dimming ballast.

EMERGENCY BATTERY PACK OPTIONS (L. = LUMENS)

ORDER CODE	DESCRIPTION
EMG-T8-BX-450	Up to 450 L. for T8 or BX
EMG-T8-BX-600	Up to 600 L. for T8 or BX
EMG-T8-BX-700	Up to 700 L. for T8 or BX
EMG-T8-BX-1400	Up to 1400 L. for T8 or BX
EMG-T8-BX-T5-T5HO-3200	Up to 3200 L. for T8, BX, T5 or T5HO
EMG-SD-T8-BX-T5-T5HO-1400	Self-Diagnostic 1400 L. for T8, BX, T5 or T5HO
EMG-ICE-T8-BX-T5-T5HO-1400	ICE Pack 1400 L. for T8, BX, T5 or T5HO

WIRING OPTIONS

PCSB120	- 10' Nema 5-15R 120V Straight Blade Plug
PCSB277	- 10' Nema 7-15R 277V Straight Blade Plug
PCTL120	- 10' Nema L5-15R 120V Twist Lock Plug
PCTL277	- 10' Nema L7-15R 277V Twist Lock Plug
S01	- 10' 120V/277V SO Cord
S02	- 10' 480V SO Cord
C3	- 6' 3-wire Flex Cable (Single Circuit)
C4	- 6' 4-wire Flex Cable (Double Circuit)

(Consult Factory for 208V, 248V, 347V and 480V wiring)

OTHER OPTIONS

6WG	- Wireguard
6WGCL	- Wireguard with Clear Lens
6WGPL	- Wireguard with Prismatic Lens
6WGDF	- Wireguard with Door frame
6CLDF	- Clear Lens with Door Frame
6PLDF	- Prismatic Lens with Door Frame
6GDF	- Gasketed Door Frame
MH	- Mounting Hub
GSS	- Gripple Suspension System
GSSP	- Gripple System with Paddles
VHCH	- V-Hook with chain kit
CH	- Chain with S hooks
VH	- V Hook
MS	- Motion Sensor
MSPH	- Motion Sensor with Photocell
GL	- Generic Lamps Installed
6WHR	- White Reflector
USA	- Made in America Compliance

STANDARD BALLAST INFO

LAMP	# OF LAMPS	LINE VOLTS	Ballast Factor	Power Factor% (>=)	THD% (<=)	Min. Starting Temp (°F/°C)
F32T8	6	120/ 277	1.15	99	10	-22/ -30

T8
CB6

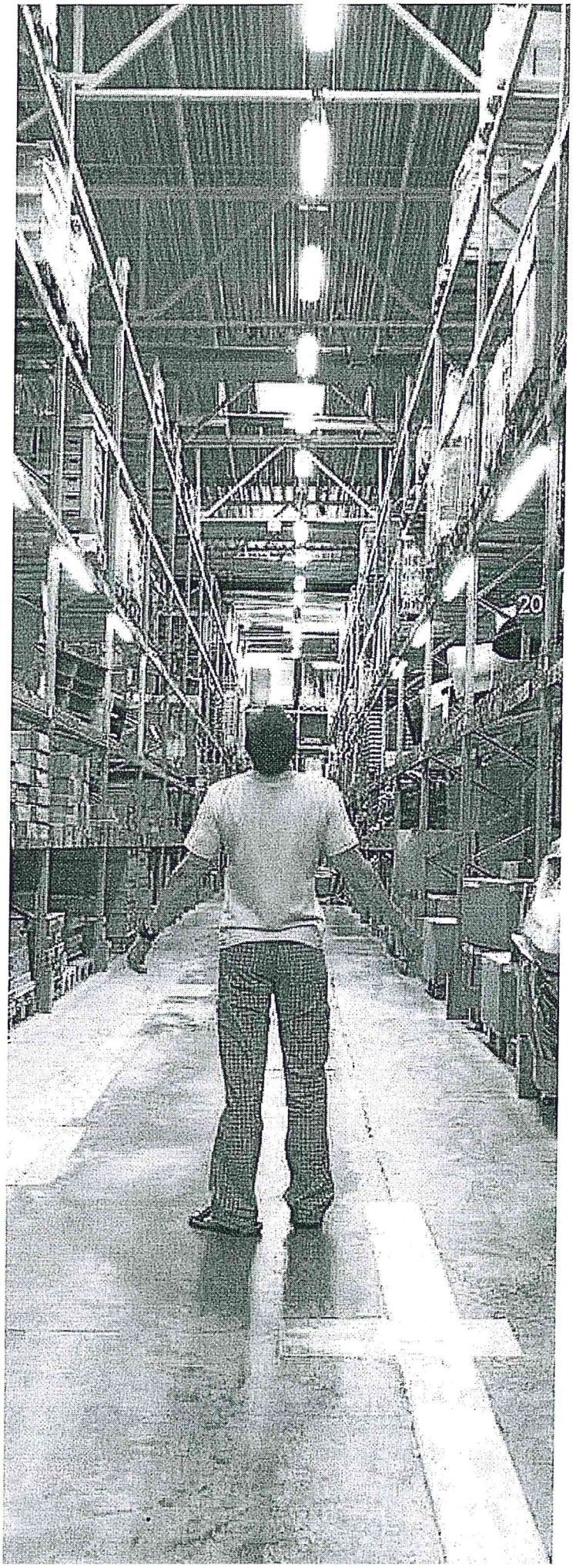
Cool Beam Fluorescent 6 Lamp T8 High Bay

High Bay Series

UP TO 93% EFFICIENCY

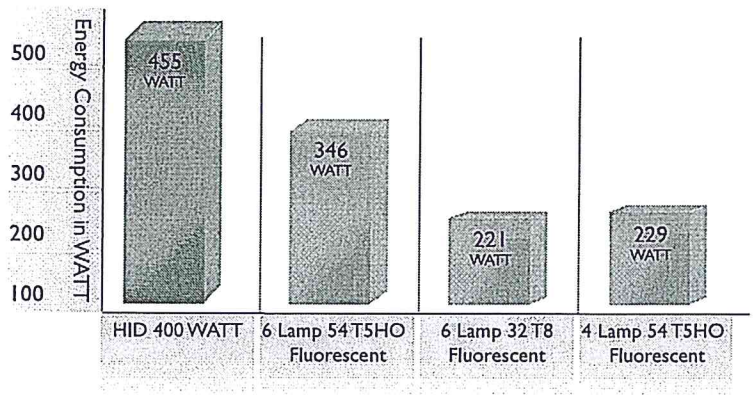
LET THERE BE LIGHT

Oracle Lighting is proud to introduce the Cool Beam Series: a new breed of specification grade Fluorescent High Bays complete with mounting, dimming and shielding options, for every application. Compared to traditional 400W MH fixtures, our Cool Beam High Bays deliver more usable lumens, require no warm up time, have excellent efficiency in the mid 90's, and provide greater energy savings. On the next job, make sure you ask about our new Cool Beam Fluorescent High Bay and LET THERE BE LIGHT!



Energy Saving

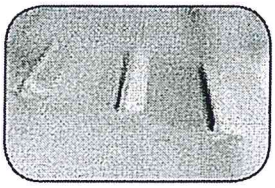
ELITE Lighting Fluorescent high bay has designed to offer significant energy saving opportunities over HID light systems.



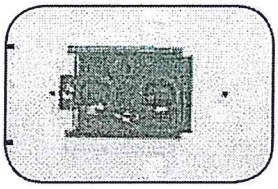
COOL BEAM HIGH BAY

[capabilities]

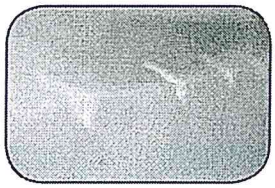
ability [abil·i·ty]
the quality of being able to perform;
a quality that permits or facilitates
achievement or accomplishment.



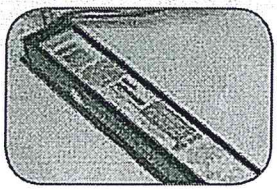
1. RELIABILITY
Slot louvers on each side ensure that the ballast will remain cool and operate for its rated lifetime.



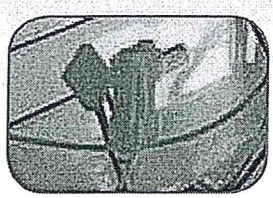
2. ACCESSIBILITY
Full size access plate is located on the top of the full body for quick wiring and maintenance.



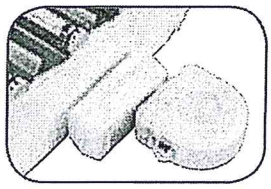
3. DURABILITY
Post painted high gloss enamel finish ensures maximum adhesion and rust resistance.



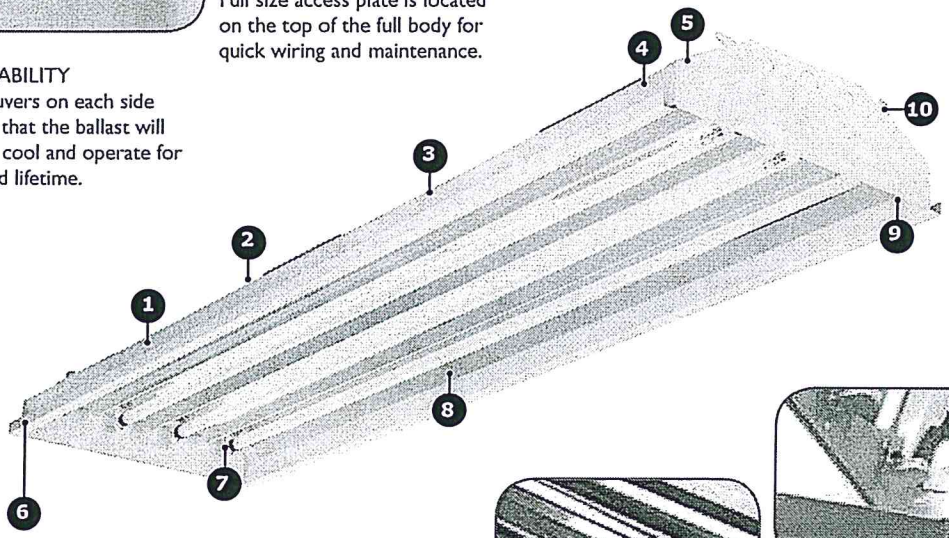
4. CREDITABILITY
Cool Beam fixtures use only well known components in the industry such as High Temperature Advance ballast , Leviton sockets, IOTA and Bodine Emergency battery packs.

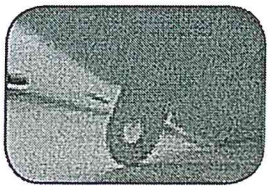


5. CONNECTABILITY
NEC required ballast disconnects along with quick disconnects are standard.



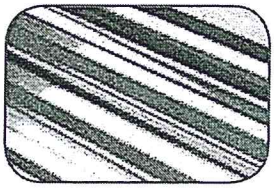
* CONTROLLABILITY
Leviton's fixture mounted sensor provide fast, easy installation and instant energy saving. (Optional Item)



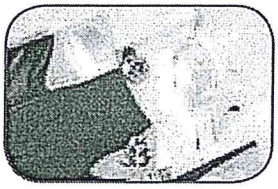


10. SUPPORTABILITY
Four corner tie points are standard for safety wire support when required.

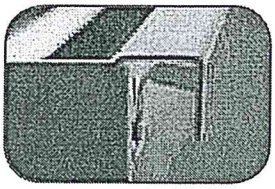
9. SERVICEABILITY
Reflector, wireguard clear lens with door frame hinges down by removing two screws and allows for quick maintenance and access to ballast without removing lamps.



8. REFLECTIVITY
Highly tooled 95% reflective premium reflector material is engineered to optimize the thermal and luminous environment.



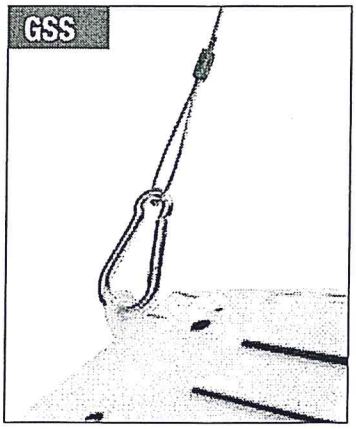
7. FLEXIBILITY
Rotary sockets provide great lamp retention and conceal contacts.



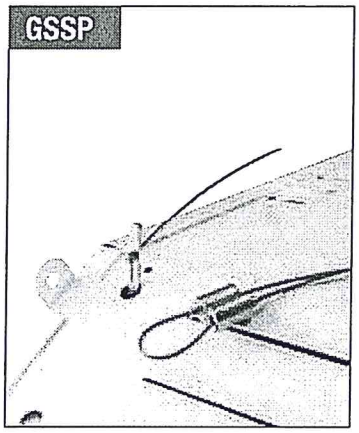
6. MANAGEABILITY
All sides and corner are turned in removing sharp edges for safe handling and installation.

COOL BEAM

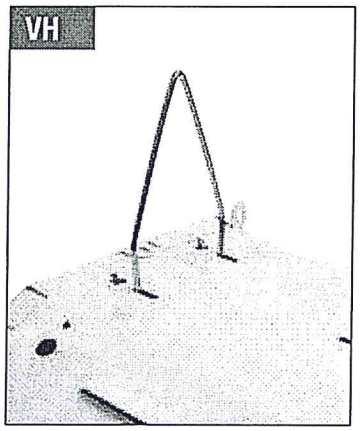
FLUORESCENT HIGH BAY SUPPORTABILITY



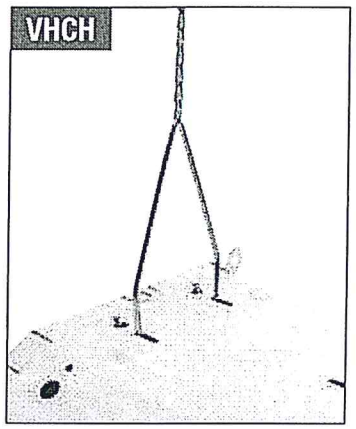
GSS - Gripple Suspension System is fully adjustable for different mounting heights. "Y" style comes standard with 10' length. Other lengths are available upon request.



GSSP - Paddles and tool-less, adjustable looping cable grippers. "Y" style comes standard 10' length. Other lengths are available upon request.

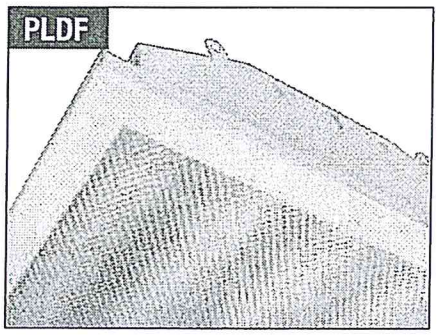


VH - Easy to install V Hooks snap into pre-drill holes at the top of high bay body and ensure strong support.

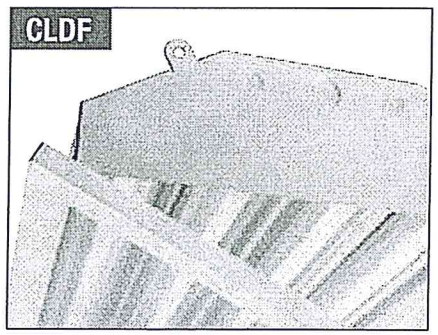


VHCH - Easy to install V-Hook and Chain Kit includes all necessary mounting accessories. Kit includes 2 V-Hooks, 2 chains (32"), 2 S-Hooks for adjustment, and 2 "S" hooks for connecting chain to V-Hooks.

FLUORESCENT HIGH BAY OTHER OPTIONS

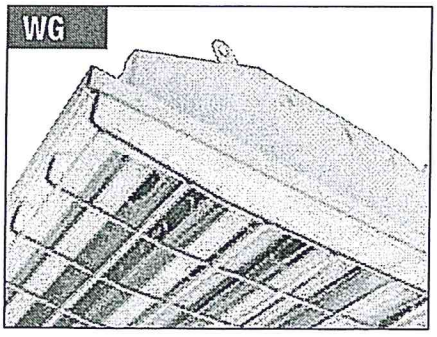


PLDF - Acrylic #12 pattern lens attached is fitted into door frame.
Other prismatic lens options available upon request.

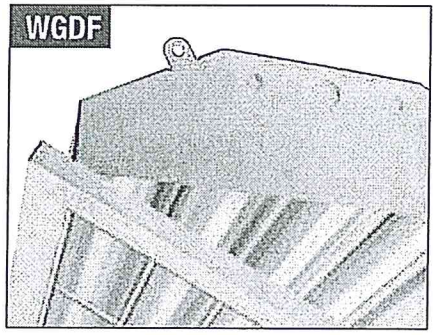


CLDF - Clear Lens comes with door frame and easily swings open for easy lamp replacement.

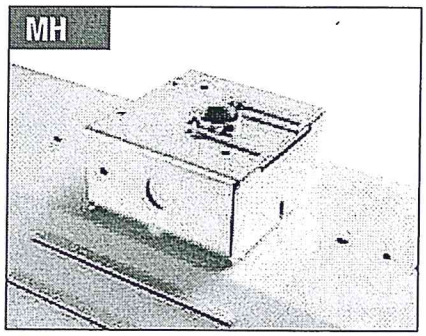
WGCL - Post pointed wireguard with clear lens and door frame.
WGPL - Post pointed wireguard with prismatic Acrylic #12 pattern lens and door frame



WG - Post pointed wireguard protects lamps from objects that may impact fixture. Ideal for gymnasiums and sports facilities. Wireguard is held by 4 clips that attach to fixture.



WGDF - Post pointed flat Wireguard with door frame. Protects lamps from being impacted by objects.

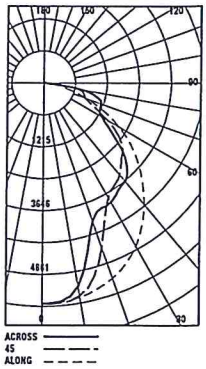


MH - Mounting Hub is made from Cast-iron and allows for pendant mounting and acts as junction box. Top Plate slides for balancing and access to wiring. Multiple Knockouts on sides are standard.

4 LAMP, T8 FLUORESCENT HIGH BAY PHOTOMETRICS

CB-4-32-T8

LAMP: **PHILIPS F32T8/TL24/PLUS/ALTO** LAMP LUMENS: **2950** TOTAL LUMINAIRE EFFICIENCY: **91.5%** SPACING CRITERIA: **1.10**



ZONAL LUMENS SUMMARY

ZONE	LUMENS	%LAMP	%FIXT
0-30	3122.26	26.5	28.9
0-40	4914.42	41.6	45.5
0-60	8492.39	72	78.6
60-90	2305.00	19.5	21.4
0-90	10797.87	91.5	100

TOTAL LUMINIARE EFFICIENCY = **91.5%**

T8 FLUORESCENT HIGH BAY

EFFICIENCY = 91.5%

CANDELA TABULATION

	0	22.5	45	67.5	90
0	4855.44	4855.44	4855.44	4855.44	4855.44
5	4847.43	4829.82	4802.4	4764.42	4732.73
15	4656.32	4536.17	4135.78	3648.04	3463.38
25	4247.77	3884.23	2965.17	2782.31	2799.98
35	3639.13	2842.46	2480.5	2849.8	2927.85
45	2968.39	2022.35	2388.05	2690.39	2715.56
55	2221.46	1589.74	2034.03	1903.32	1773.34
65	1376.02	1208.15	1141.77	1129.94	1215.27
75	590.74	589.32	803.41	1034.5	1068.81
85	66.3	219.33	240.69	195.82	168.62
90	0	0	0	0	0

Coefficients of Utilization - Zonal Cavity Method (Effective Floor Cavity Reflectance 0.20)

RC	80%				70%				50%			30%			10%			0%
RW	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0%
0	109	109	109	109	106	106	106	106	102	102	102	97	97	97	93	93	93	92
1	99	95	91	87	97	93	89	86	89	86	83	85	83	81	82	80	78	76
2	90	83	76	71	88	81	75	70	78	73	69	75	71	67	72	69	66	64
3	82	73	65	59	80	71	64	59	69	63	58	66	61	57	64	59	56	54
4	76	65	57	50	74	63	56	50	61	55	49	59	53	49	57	52	48	46
5	70	58	50	44	68	57	49	43	55	48	43	53	47	42	51	46	42	40
6	64	52	44	38	63	51	44	38	50	43	38	48	42	37	47	41	37	35
7	60	48	40	34	58	47	39	34	45	39	34	44	38	33	43	37	33	31
8	56	44	36	30	54	43	36	30	42	35	30	41	34	30	39	34	30	28
9	52	40	33	28	51	40	32	27	38	32	27	37	32	27	37	31	27	25
10	49	37	30	25	48	37	30	25	36	29	25	35	29	25	34	29	25	23

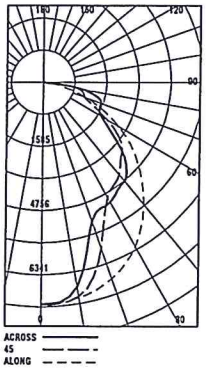
ROOM CAVITY RATIO

RC - Ceiling Cavity Reflectance RW - Wall Reflectance

6 LAMP, T8 FLUORESCENT HIGH BAY PHOTOMETRICS

CB-6-32-T8

LAMP: **PHILIPS F32T8/TL24/PLUS/ALTO** LAMP LUMENS: **2950** TOTAL LUMINAIRE EFFICIENCY: **92.5%** SPACING CRITERIA: **1.16**



ZONAL LUMENS SUMMARY

ZONE	LUMENS	%LAMP	%FIXT
0-30	4,731.80	26.70%	28.90%
0-40	7,453.60	42.10%	45.50%
0-60	12,688.20	71.70%	77.50%
60-90	3,683.20	20.80%	22.50%
0-90	16,371.40	92.50%	100%

TOTAL LUMINIARE EFFICIENCY = **92.5%**

T8 FLUORESCENT HIGH BAY

EFFICIENCY = 92.5%

CANDELA TABULATION

	0	22.5	45	67.5	90
0	6961	6961	6961	6961	6961
5	6933	6946	6959	6946	6906
15	6721	6708	6311	5706	5461
25	6244	5979	4640	4333	4355
35	5446	4585	3917	4098	4117
45	4416	3207	3447	3732	3703
55	3333	2483	2876	2675	2550
65	2134	1775	1744	1809	1939
75	962	899	1293	1677	1769
85	115	382	495	468	427
90	0	0	0	0	0

Coefficients of Utilization - Zonal Cavity Method (Effective Floor Cavity Reflectance 0.20)

RC	80%				70%				50%			30%			10%			0%
RW	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0%
0	110	110	110	110	108	108	108	92	103	103	103	98	98	98	94	94	94	92
1	100	96	91	88	98	93	90	77	89	86	84	86	83	81	82	80	79	77
2	91	83	77	71	89	81	76	65	78	73	69	75	71	67	72	69	66	64
3	83	73	66	59	81	72	65	55	69	63	58	66	61	57	64	60	56	54
4	76	65	57	51	74	64	56	48	61	55	49	59	53	49	57	52	48	46
5	70	58	50	44	68	57	49	42	55	48	43	53	47	43	52	46	42	40
6	65	53	44	38	63	52	44	37	50	43	38	48	42	38	47	42	37	35
7	60	48	40	34	59	47	39	33	46	39	34	44	38	33	43	37	33	31
8	56	44	36	31	55	43	36	30	42	35	30	41	35	30	40	34	30	28
9	53	40	33	28	51	40	33	27	39	32	27	38	32	27	37	31	27	25
10	49	37	30	25	48	37	30	25	36	29	25	35	29	25	34	29	25	23

ROOM CAVITY RATIO

RC - Ceiling Cavity Reflectance RW - Wall Reflectance

Upgrade Summary

Total Cost ($)	Total Incentives ($)	Net Cost ($)	Total Energy Savings ($) [1,2]	Maintenance Savings ($)	10 Yr NPV ($)[3]	Payback Period (yrs)
3,300		3,300	8,386	2,607	5,525	1.3

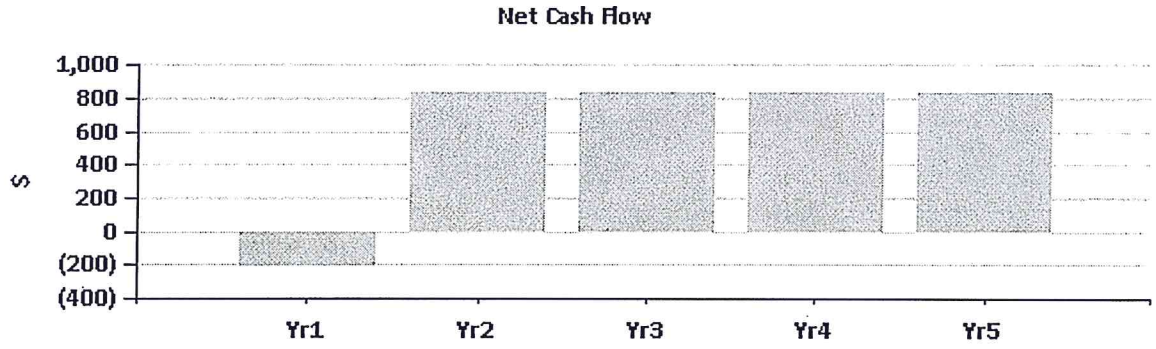
1. *Energy cost ($) = 0.0700/kWh; Annual energy cost escalation (%) = 0.00*
2. *Energy savings are for the 10-year analysis period*
3. *Assumed Cost of capital (%) = 6*
4. *Product Tax Rate (%) = 0.00*
5. *Service Tax Rate (%) = 0.00*

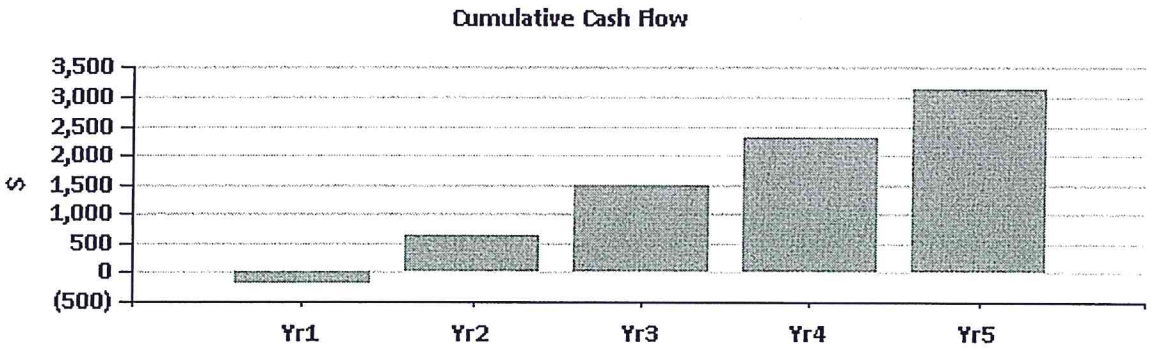
There is no data to be presented for Lighting Controls Summary.

Cash Flow Analysis

10 Year Cash Flow Analysis ($)

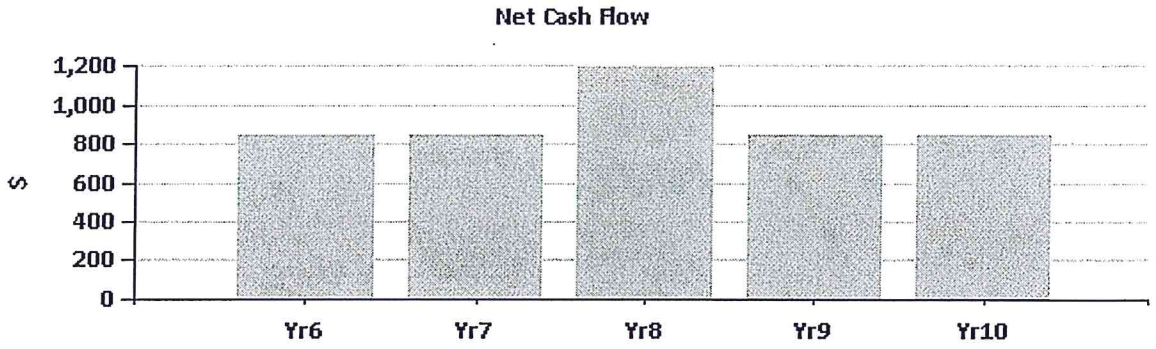
	Yr1	Yr2	Yr3	Yr4	Yr5
Product Costs	3,300	-	-	-	-
Energy Savings	839	839	839	839	839
Maintenance Savings	2,254	-	-	-	-
Net Cash Flow	**(208)**	**839**	**839**	**839**	**839**
Cumulative Cash Flow	**(208)**	**631**	**1,470**	**2,308**	**3,147**

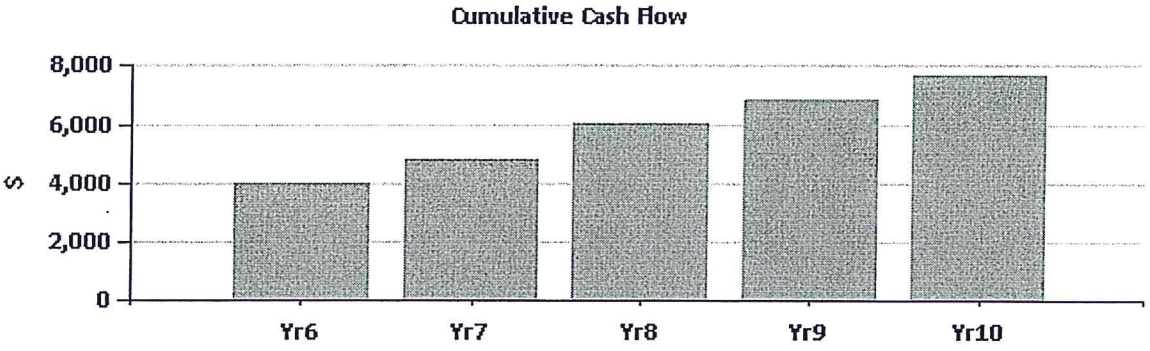




10 Year Cash Flow Analysis ($)

	Yr6	Yr7	Yr8	Yr9	Yr10	Total
Product Costs	-	-	-	-	-	3,300
Energy Savings	839	839	839	839	839	8,387
Maintenance Savings	-	-	354	-	-	2,607
Net Cash Flow	**839**	**839**	**1,192**	**839**	**839**	**7,694**
Cumulative Cash Flow	**3,986**	**4,824**	**6,016**	**6,855**	**7,694**	**7,694**

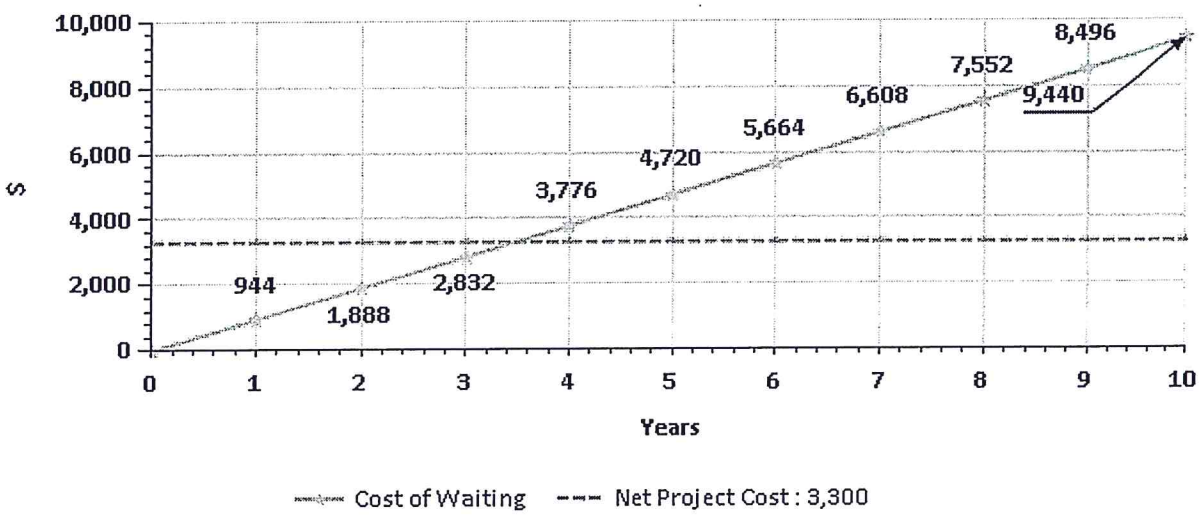




Cost of Waiting

Cost of Waiting

Monthly ($)	Yearly ($)	5 Years ($)	10 Years ($)	15 Years ($)	20 Years ($)
78	944	4,720	9,440	14,160	18,880



1. Cost of waiting includes energy savings and maintenance savings applied as an average annual amount over a 20 year analysis period

Energy Usages and Costs

Annual Energy Usage

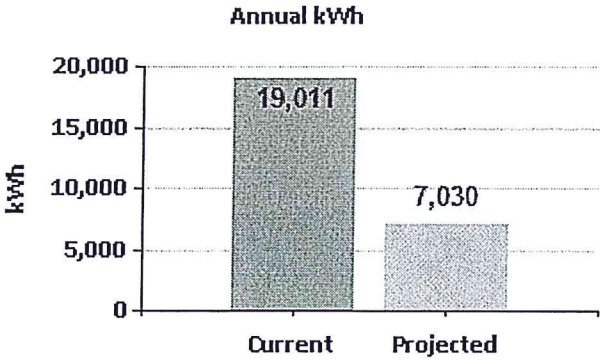
Current Usage (kWh)	Projected Usage (kWh)	Reduction (%)	Current Cost ($)[1,2]	Projected Cost ($)[1,2]	Savings ($)	Cost Savings (%)
19,011	7,030	63	1,330	492	838	63

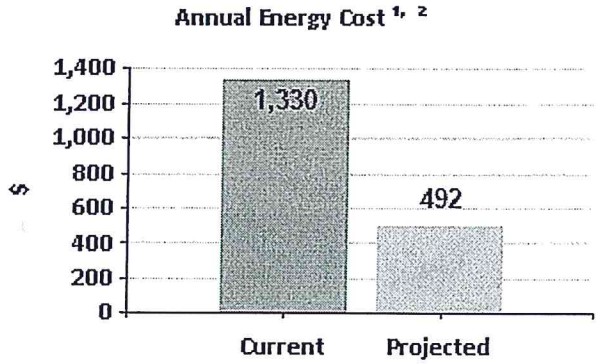
1. Energy cost ($) = 0.0700/kWh; Annual energy cost escalation (%) = 0.00
2. Energy costs are averaged over10-year analysis period

Annual Energy Usage Reduction

Current Usage (kWh)	Projected Usage (kWh)	Reduction (kWh)	Reduction (%)
19,011	7,030	11,980	63

Energy Comparison





1. Energy Cost ($) = 0.0700/kWh; Annual energy cost escalation (%) = 0.00
2. Energy costs are averaged over10-year analysis period

Watts Summary

Existing Watts[1]	Proposed Watts[1]	Reduced Watts	Reduction (%)
9,140	3,380	5,760	63

1. The watts calculations in this table take into account existing fixtures that are being replaced, upgraded, and/or have new lighting controls being proposed for them

Fixture Replacement Wattage Comparison

Area :

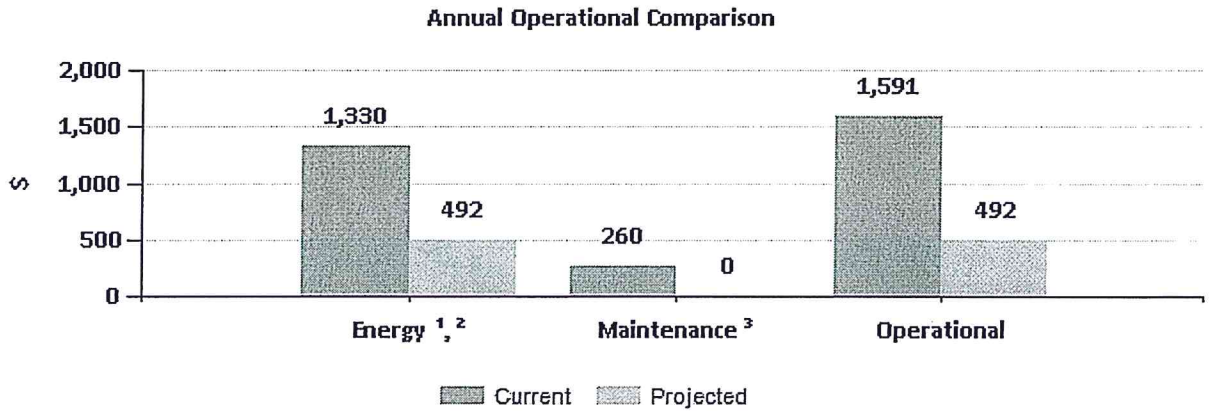
Space	Existing Fixture	Qty	Watts	**Total**	Proposed Fixture	Qty	Watts	**Total**

				Watts				Watts
Interior :								
High Bay	MH, 400W, Mag Probe	20	457	9,140	T8 High Bay 6L	20	169	3,380
Total(s)			**457**	**9,140**			**169**	**3,380**

There is no data to be presented for Component Upgrade Wattage Comparison.

Operational Overview

Annual Operational Savings Comparison



1. *Energy cost ($) = 0.0700/kWh; Annual energy cost escalation (%) = 0.00*
2. *Energy costs are averaged over10-year analysis period*
3. *Maintenance costs are averaged over10-year analysis period*

Upgrade Analysis

Fixture Replacement Summary

Existing Fixture	Qty	Proposed Fixture	Qty
MH, 400W, Mag Probe	20	T8 High Bay 6L	20
Total(s)	**20**		**20**

There is no data to be presented for Component Upgrade Summary.

Bill of Materials

Products

Luminaire Replacement

Part Number	Short Description	Qty	Cost ($)	Extended ($)
CB-6-32-T8-L41K	T8 High Bay 6L	20	135.00	2,700.00
Total(s)				**2,700.00**

There is no data to be presented for Installation.

Additional Items

Part Number	Short Description	Qty	Cost ($)	Extended ($)
CB6-WG	Wire Guard	20	30.00	600.00
Total(s)				**600.00**

There is no data to be presented for Additional Cost.