

ENERGY OPPORTUNITY PLAN – SAMPLE HOTEL

Leverage Energy Efficiency to Increase Profits

TARGET: Capitalize on an available \$1,580,000 in increased asset value by implementing energy efficiency measures (EEMs) selected based on their potential for utility cost savings, increased operating income, and increased guest comfort. (Based on persistent utility savings of \$79,000 per year and 5% cap rate.)

SUBTARGET: Market the substantial energy, water and carbon emission savings to attract eco-conscious travelers.

RATIONALE: Installing the identified high efficiency lighting, high efficiency water heating, HVAC controls retrofits and low-flow water toilets projects will yield the following benefits:

- \$1,580,000 in increased building asset value
- \$735,000 increased profitability over the next 10 years
- \$82,000 worth of project costs reimbursed from state and local rebate programs
- 1.1 million gallons of water saved each year
- 1.2 million fewer pounds of carbon dioxide emissions each year

RECOMMENDED PROJECTS:

- LED and low wattage Fluorescent lighting
- Add HVAC control capabilities and Variable Frequency Drives
- Replace old boilers with on-demand tankless water heating units
- Low water flow toilets in all guest rooms

FINANCIAL:

Capital Cost	NPV	SIR	SP	mIRR
\$237,000	\$735,000	570%	1.6	23.3%

Incentive Amount	Energy Savings (BTU/Yr)	Energy/Water Savings (\$/Yr)	Demand Savings (kW)	Demand Savings (\$/Yr)
\$82,150	4,728,000	\$72,600	25	\$6,461

SPECIAL THANKS:

- Projects were identified with help from [REDACTED] and all the helpful staff and other engineers. Thank you!

ACTION:

- Solicit project installation estimates
- Submit incentive applications to SF Environment, PG&E and SFPUC
- Install projects



Financial Analysis of Efficiency Improvements Simulating Streams of Cash Inflows and Outflows



Discount Rate:	5%
Finance Rate:	4%
Reinvestment Rate:	2%
Inflation Rate	3%

	Today	End of YR 1	End of YR 2	End of YR 3	End of YR 4	End of YR 5	End of YR 6	End of YR 7	End of YR 8	End of YR 9	End of YR 10
Date:	0	1	2	3	4	5	6	7	8	9	10

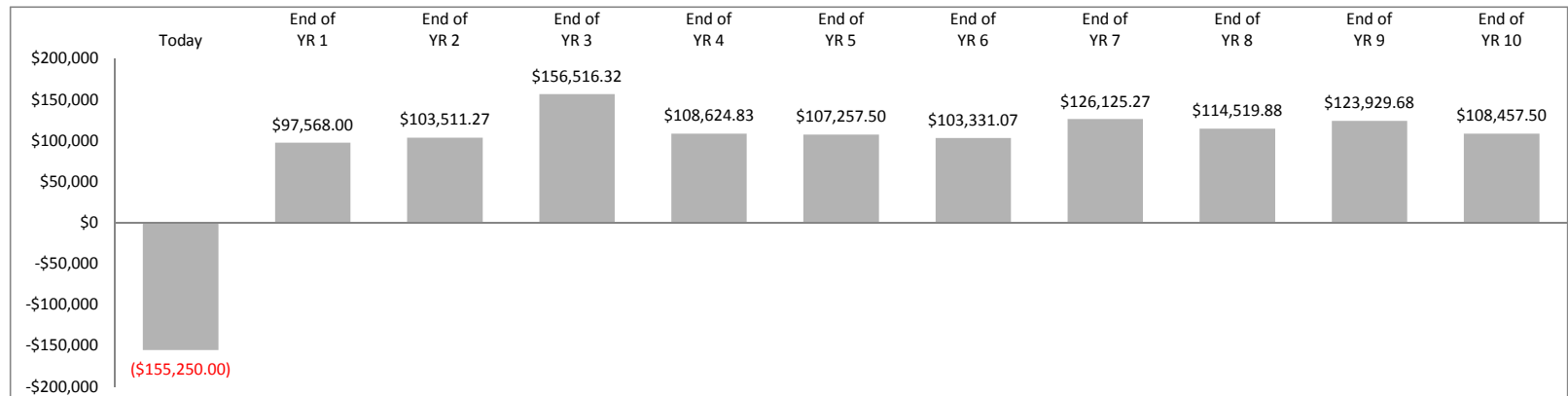
CASH INFLOWS

Rebate/incentive rec'd	\$ 82,150										
HVAC Controls	\$ (48,000)	\$ 25,309	\$ 26,068	\$ 26,850	\$ 27,656	\$ 28,486	\$ 29,340	\$ 30,220	\$ 31,127	\$ 32,061	\$ 33,023
Lighting Savings	\$ (35,000)	\$ 27,390	\$ 31,228	\$ 32,066	\$ 35,859	\$ 32,309	\$ 26,133	\$ 46,612	\$ 32,621	\$ 39,575	\$ 21,571
Tankless	\$ (65,600)	\$ 23,000	\$ 23,690	\$ 74,400	\$ 21,214	\$ 21,850	\$ 22,506	\$ 23,181	\$ 23,876	\$ 24,592	\$ 25,330
Toilets	\$ (88,800)	\$ 21,869	\$ 22,525	\$ 23,200	\$ 23,896	\$ 24,613	\$ 25,352	\$ 26,112	\$ 26,896	\$ 27,702	\$ 28,534
HVAC Controls Maintenance savings	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
SUBTOTAL INFLOWS	\$ (155,250)	\$ 97,568	\$ 103,511	\$ 156,516	\$ 108,625	\$ 107,258	\$ 103,331	\$ 126,125	\$ 114,520	\$ 123,930	\$ 108,458

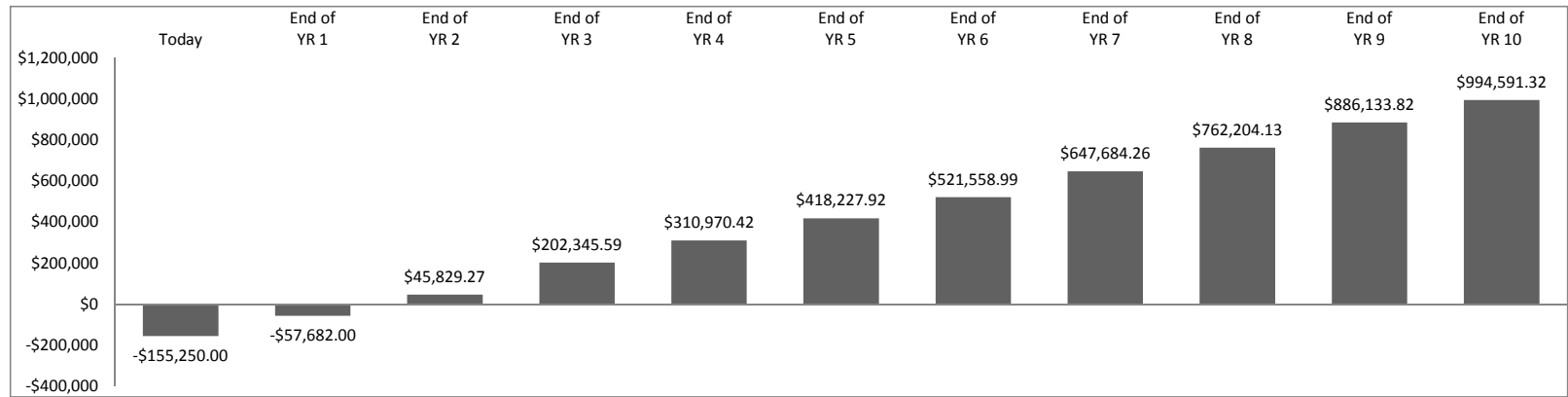
Annual Cash Flow	(\$155,250.00)	\$97,568.00	\$103,511.27	\$156,516.32	\$108,624.83	\$107,257.50	\$103,331.07	\$126,125.27	\$114,519.88	\$123,929.68	\$108,457.50
Annual Present Value	(\$155,250.00)	\$92,921.90	\$93,887.77	\$135,204.68	\$89,365.91	\$84,039.06	\$77,107.23	\$89,634.87	\$77,511.56	\$79,886.18	\$66,583.50

NOTE THAT CERTAIN RETURNS VARY DEPENDING ON THE LENGTH OF THE ANALYSIS TERM											
	10-YEAR	1-YEAR	2-YEAR	3-YEAR	4-YEAR	5-YEAR	6-YEAR	7-YEAR	8-YEAR	9-YEAR	10-YEAR
NPV	\$ 730,893	(\$62,328.10)	\$31,559.68	\$166,764.36	\$256,130.27	\$340,169.33	\$417,276.57	\$506,911.44	\$584,423.00	\$664,309.18	\$730,892.68
SPP	1.6										
ROI	62.8%										
IRR	70.4%	-37.2%	18.9%	51.1%	60.5%	65.1%	67.4%	68.9%	69.7%	70.2%	70.4%
MIRR	23.3%	-37.2%	14.4%	32.8%	32.6%	30.9%	28.9%	27.5%	26.0%	24.6%	23.3%
SIR	5.7	0.6	1.2	2.1	2.6	3.2	3.7	4.3	4.8	5.3	5.7

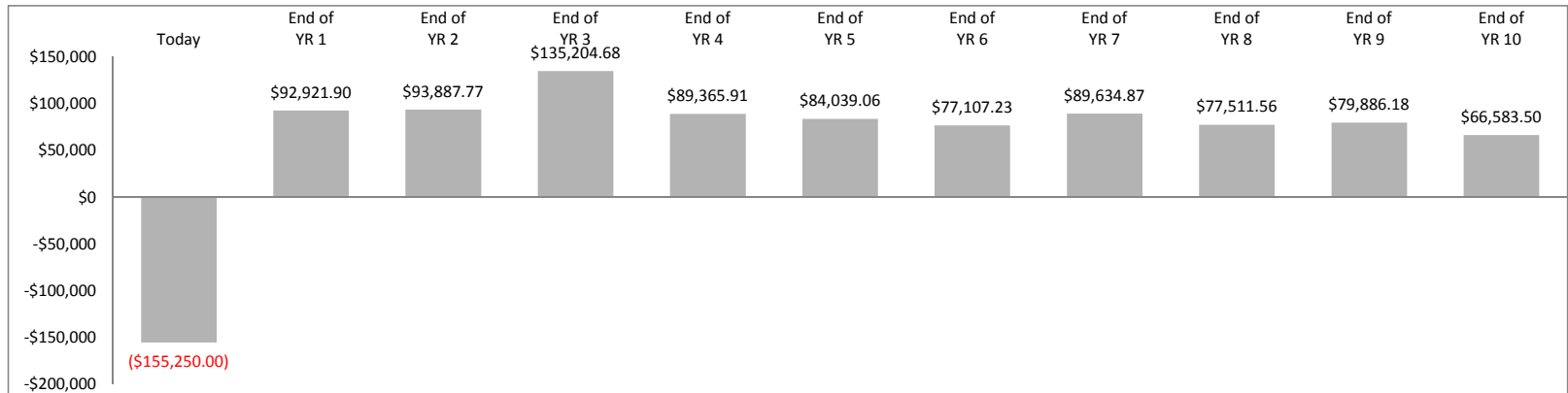
10-year Cash Flow



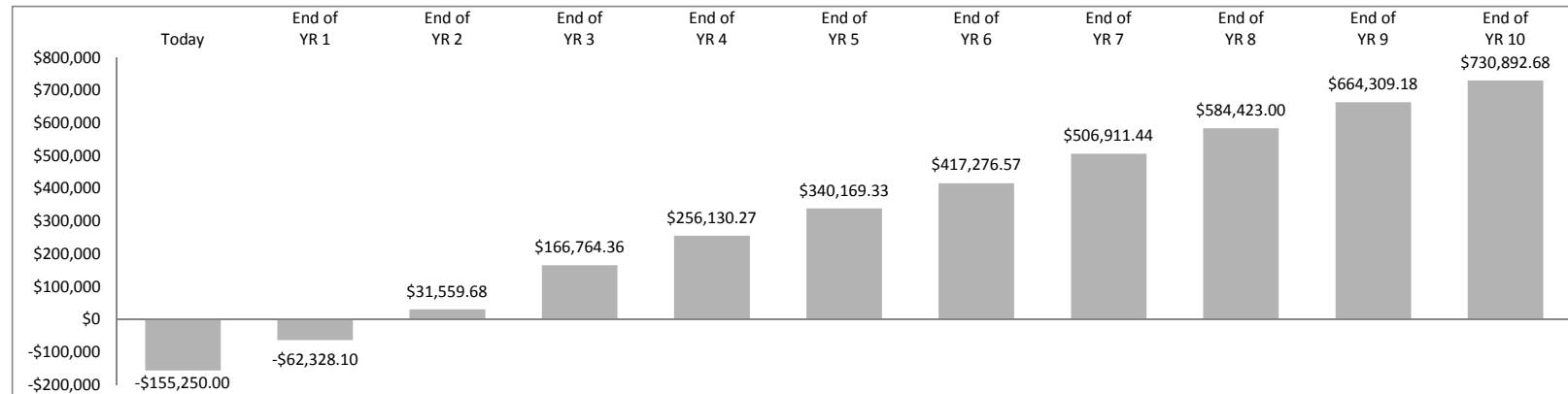
Cumulative 10-year Cash Flow



10-year Present Value



Cumulative 10-year Present Value



Procedures for Commercial Building Energy Audits , Second Edition
Sample End-Use Breakdown

© 2011 ASHRAE

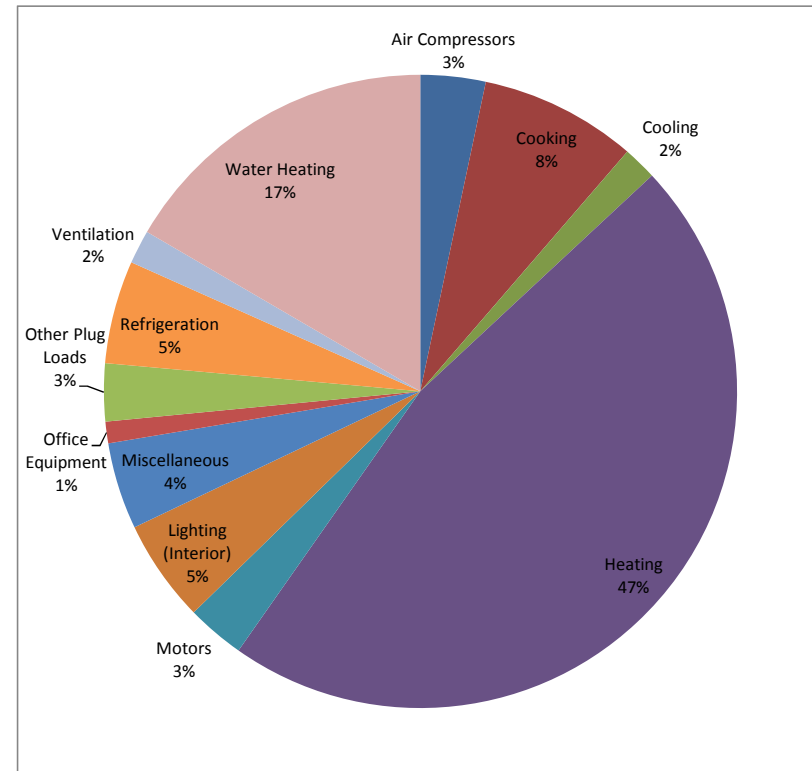


Conversion Factor to kBtu

Input Unit 1	kWh	3.412142
Input Unit 2	therms	100
Input Unit 3	gallons (propane)	91.33
Combined Output Units	kBtu	1
Building Gross Floor Area	225,000	
Floor Area Units	ft^2	

End Use	Input Energy Units			Combined Energy Use	
	kWh	therms	gallons (propane)	kBtu	%
Air Compressors	225,000			767,732	3%
Cooking	250,000	10,000		1,853,036	8%
Cooling	117,252			400,080	2%
Heating		108,000		10,800,000	47%
Motors	200,000			682,428	3%
Lighting (Interior)	355,942			1,214,525	5%
Miscellaneous	300,000			1,023,643	4%
Office Equipment	75,000			255,911	1%
Other Plug Loads	200,000			682,428	3%
Refrigeration	355,942			1,214,525	5%
Ventilation	117,252			400,080	2%
Water Heating		38,376		3,837,564	17%
Total Estimated	2,196,388	156,376	-	23,131,952	100%
Historical Billing	2,492,917	156,376	-	24,143,751	
Percent of Actual	88.1%	100.0%	-	95.8%	
Total per ft^2	9.8	0.7	-	102.8	

Combined Fuel End-Use Breakdown



Assumptions / Notes / Conclusions

SIGNIFICANT FACTORS AND ASSUMPTIONS

Ballast Verification	The lighting ballasts were not individually verified for each fixture.
Buildings Cap Rate	5%.
Cost of Capital	4%
Equipment Replacement	In the baseline model failed equipment is replaced with the same type.
Est. Hourly Maintenance Rate	\$50 per hour.
Estimated Lamp Wattage	Most MR-16 wattages were assumed to be 20W.
HVAC Equipment Replacement	Assume that new HVAC equipment lasts 10+ years.
Lighting Pricing	The preliminary lighting pricing numbers are estimates only, which are based on cost estimates from Star Energy. Pricing does not represent a finalized price proposal.
Reinvestment Rate	2%.
Replacement Ballast Life	Assume new ballasts will not require group replacement for more than 10 years. Ballasts regularly last 10 years.
Utility Price Escalation Estimate	3% per year.
Existing Boiler Replacement	Based on Bay Area Air Quality Management District rules and the age of the boiler, a full boiler replacement was assumed in 2017.

FINANCIAL ACRONYM KEY

SP	Simple Payback.
mIRR	Modified Internal Rate of Return.
NPV	Net Present Value.
SIR	Savings to Investment Ratio.



BUILDING BEST PRACTICES

Strategies to Improve Building Operations

1. Change pneumatic controls to electronic controls
2. Bring Fire, Life and Safety up to code
3. Look to replace chiller coils
4. Look to replace heating coils
5. Energy Recovery Ventilator (EVR) for systems where exhaust goes by OSA
6. Clean evaporator coils
7. Clean condenser coils
8. Replace filters on HVAC equipment
9. Promote lights out with custodians/occupants
10. Stop electricity to portables, etc. not in use (occupancy sensor powerstrips)
11. De-energize computers when not in use
12. De-energize copiers when not in use
13. Institute recycling
14. Institute composting
15. Institute battery recycling
16. Recycle fluorescent tubes



Tower, Lobby and Common - Admin Offices

Project Description:

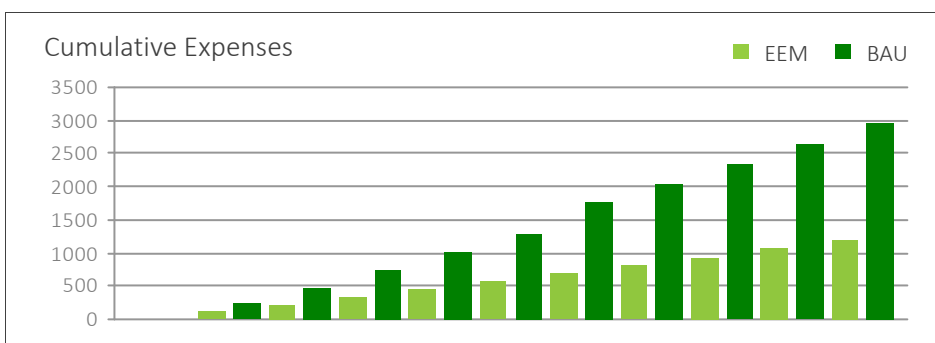
Replace (7) T8 - 4 Foot 2 Lamp - 32W
Fluorescent - Rapid Start Ballast, NLO - 700
Series with (7) Fluor 4F-1L - 28W T8 Lamp
Replacement 2XL in the Admin Offices.



mIRR:
100%

SIR:
100

Fluor 4F-1L - 28W T8
Lamp Replacement 2XL



Type	Attribute	Value
Financial	Capital Cost	\$131.04
	Incentive	\$131.04
	Simple Payback	0.1
	1 Yr. Cost of Delay	\$135.62
	10 Yr. Cost of Delay	\$1,346.37
Environment	Hours On per Yr.	2350
	Energy Savings	592 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.11
Labor	Fewer Replacements	14
	Avoided Labor Hours	3.5
	Unit Cost	6.49
	Link to Purchase	N/A
Lighting	Wattage	28 W
	CRI	85
	Lumens	2600
	Lamp Type	F28T8/2XL
	Base Type	Medium Bipin

Tower, Lobby and Common - VAV Rest Mech Room Admin Offices

Project Description:

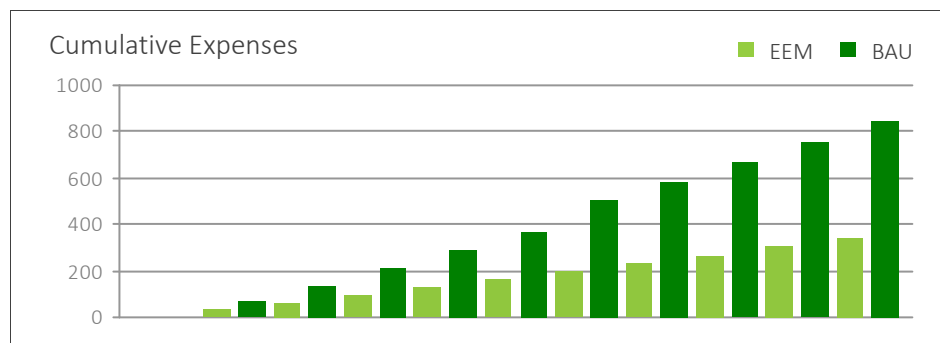
Replace (2) T8 - 4 Foot 2 Lamp - 32W
Fluorescent - Rapid Start Ballast, NLO - 700
Series with (2) Fluor 4F-1L - 28W T8 Lamp
Replacement 2XL in the VAV Rest Mech Room
Admin Offices.



mIRR:
100%

SIR:
100

Fluor 4F-1L - 28W T8
Lamp Replacement 2XL



Type	Attribute	Value
Financial	Capital Cost	\$37.44
	Incentive	\$37.44
	Simple Payback	0.1
	1 Yr. Cost of Delay	\$38.75
	10 Yr. Cost of Delay	\$384.56
Environment	Hours On per Yr.	2350
	Energy Savings	169 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.11
Labor	Fewer Replacements	4
	Avoided Labor Hours	1
	Unit Cost	6.49
	Link to Purchase	N/A
Lighting	Wattage	28 W
	CRI	85
	Lumens	2600
	Lamp Type	F28T8/2XL
	Base Type	Medium Bipin

Annex Building - Main room

Project Description:

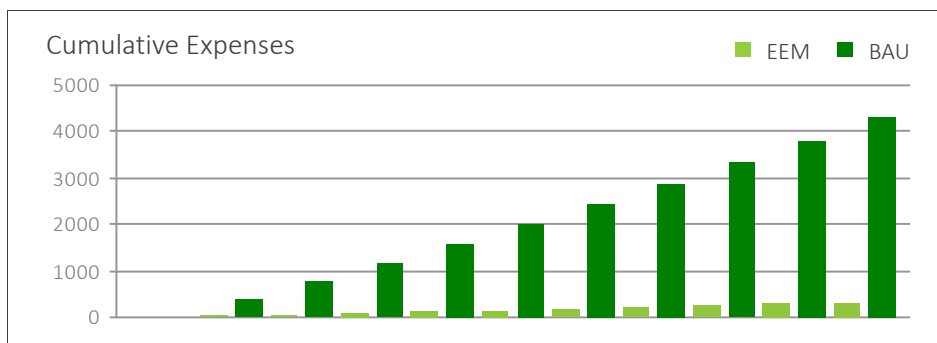
Replace (15) Incandescent, (1) 60W lamp with
(15) LED 9.5W Screw In - 60W Equivalent
w/OCC SENSOR in the Main room.



mIRR:
100%

SIR:
100

LED 9.5W Screw In - 60W
Equivalent w/OCC
SENSOR



Type	Attribute	Value
Financial	Capital Cost	\$310.50
	Incentive	\$310.50
	Simple Payback	0.1
	1 Yr. Cost of Delay	\$347.57
	10 Yr. Cost of Delay	\$3,077.89
Environment	Hours On per Yr.	1004
	Energy Savings	761 (kWh/Yr.)
	Demand Savings (kW)	1 kW
	Avoided Electricity Cost	\$0.19
Labor	Fewer Replacements	150
	Avoided Labor Hours	37.5
	Unit Cost	8.47
	Link to Purchase	N/A
Lighting	Wattage	9.5 W
	CRI	80
	Lumens	800
	Lamp Type	LED
	Base Type	Medium

Restaurant and Meeting Rooms - Big Red Pendants

Project Description:

Replace (9) Incandescent, (1) 60W lamp with (9) LED 9.5W Screw In - 850lm - 60W Equivalent in the Big Red Pendants.



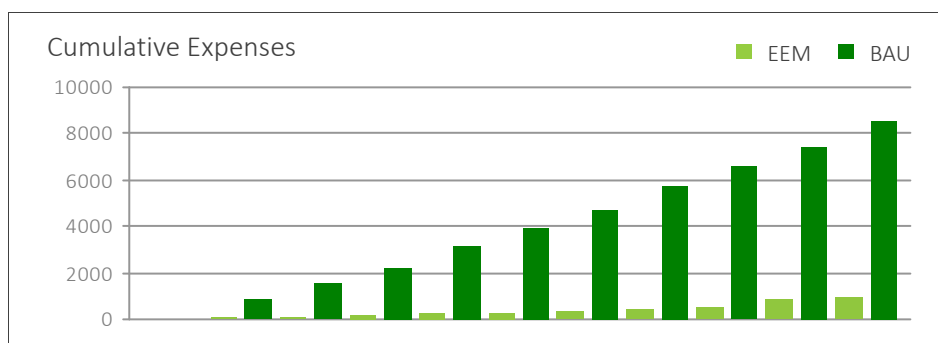
mIRR:

90.6%

SIR:

467.1

LED 9.5W Screw In -
850lm - 60W Equivalent



Type	Attribute	Value
Financial	Capital Cost	\$240.39
	Incentive	\$227.25
	Simple Payback	0
	1 Yr. Cost of Delay	\$763.04
	10 Yr. Cost of Delay	\$5,888.41
Environment	Hours On per Yr.	3339
	Energy Savings	1518 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.10
Labor	Fewer Replacements	297
	Avoided Labor Hours	74.25
	Unit Cost	14.48
	Link to Purchase	N/A
Lighting	Wattage	9.5 W
	CRI	80
	Lumens	850
	Lamp Type	LED A19
	Base Type	Medium

Restaurant and Meeting Rooms - Wait Station 2

Project Description:

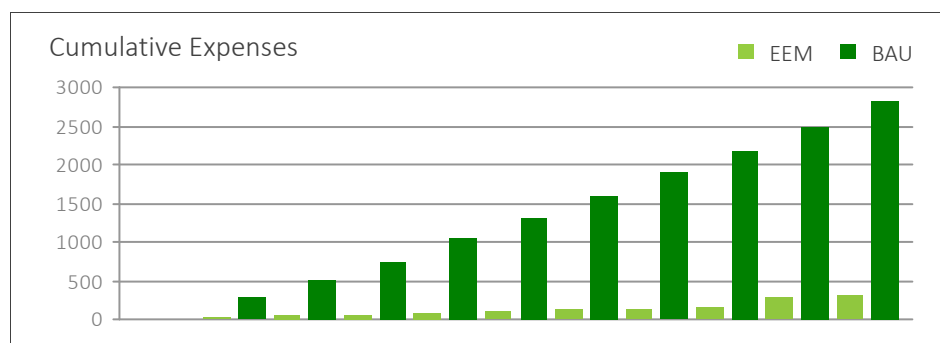
Replace (3) Incandescent, (1) 60W lamp with (3) LED 9.5W Screw In - 850lm - 60W Equivalent in the Wait Station 2.



mIRR:
90.6%

SIR:
466.6

LED 9.5W Screw In -
850lm - 60W Equivalent



Type	Attribute	Value
Financial	Capital Cost	\$80.13
	Incentive	\$75.75
	Simple Payback	0
	1 Yr. Cost of Delay	\$254.35
	10 Yr. Cost of Delay	\$1,961.03
Environment	Hours On per Yr.	3339
	Energy Savings	506 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.10
Labor	Fewer Replacements	99
	Avoided Labor Hours	24.75
	Unit Cost	14.48
	Link to Purchase	N/A
Lighting	Wattage	9.5 W
	CRI	80
	Lumens	850
	Lamp Type	LED A19
	Base Type	Medium

Tower, Lobby and Common - Small Chiller Room

Project Description:

Replace (1) Incandescent, (1) 60W lamp with (1) LED 9.5W Screw In - 850lm - 60W Equivalent in the Small Chiller Room.



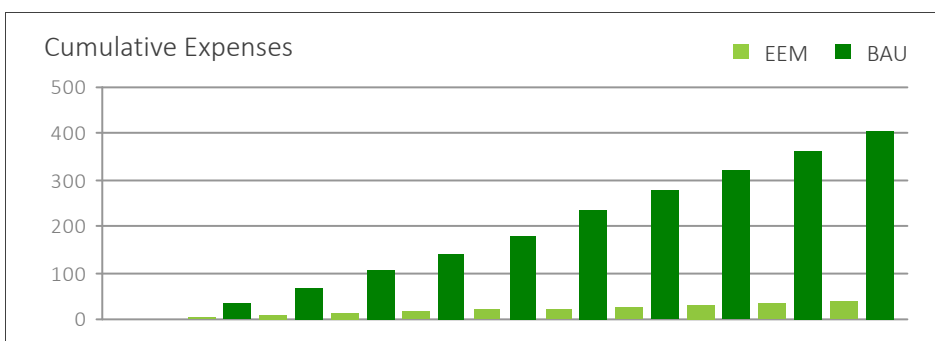
mIRR:

75.4%

SIR:

203

LED 9.5W Screw In -
850lm - 60W Equivalent



Type	Attribute	Value
Financial	Capital Cost	\$26.71
	Incentive	\$25.25
	Simple Payback	0
	1 Yr. Cost of Delay	\$30.78
	10 Yr. Cost of Delay	\$283.54
Environment	Hours On per Yr.	1096
	Energy Savings	55 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.07
Labor	Fewer Replacements	11
	Avoided Labor Hours	2.75
	Unit Cost	14.48
	Link to Purchase	N/A
Lighting	Wattage	9.5 W
	CRI	80
	Lumens	850
	Lamp Type	LED A19
	Base Type	Medium

Restaurant and Meeting Rooms - Mtg Rooms AHU Room

Project Description:

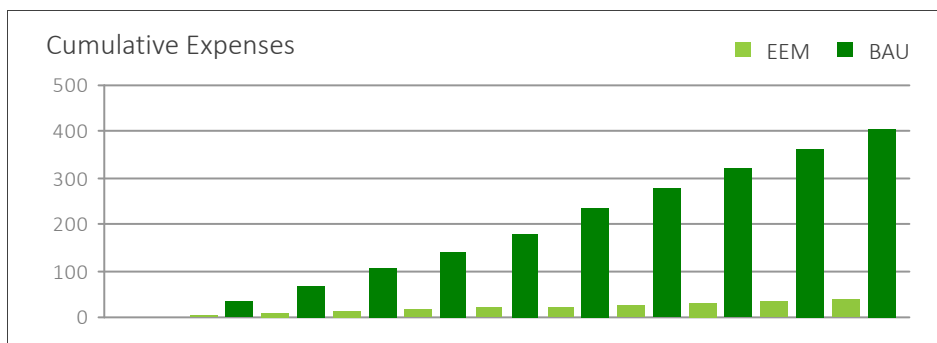
Replace (1) Incandescent, (1) 60W lamp with (1) LED 9.5W Screw In - 850lm - 60W Equivalent in the Mtg Rooms AHU Room.



mIRR:
75.4%

SIR:
203

LED 9.5W Screw In -
850lm - 60W Equivalent



Type	Attribute	Value
Financial	Capital Cost	\$26.71
	Incentive	\$25.25
	Simple Payback	0
	1 Yr. Cost of Delay	\$30.78
	10 Yr. Cost of Delay	\$283.54
Environment	Hours On per Yr.	1096
	Energy Savings	55 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.07
Labor	Fewer Replacements	11
	Avoided Labor Hours	2.75
	Unit Cost	14.48
	Link to Purchase	N/A
Lighting	Wattage	9.5 W
	CRI	80
	Lumens	850
	Lamp Type	LED A19
	Base Type	Medium

Tower, Lobby and Common - Side Hall Desk

Project Description:

Replace (14) R20 30W - Inc - Frosted with (14) LED R20 8 watts - 50W equivalent - Frosted in the Side Hall Desk.



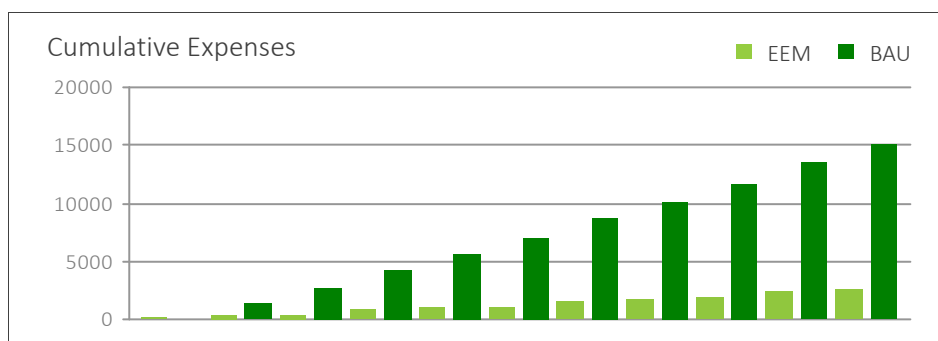
mIRR:

57.5%

SIR:

69.3

LED R20 8 watts - 50W
equivalent - Frosted



Type	Attribute	Value
Financial	Capital Cost	\$302.26
	Incentive	\$154.00
	Simple Payback	0.1
	1 Yr. Cost of Delay	\$1,328.57
	10 Yr. Cost of Delay	\$9,740.43
Environment	Hours On per Yr.	8760
	Energy Savings	2698 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.09
Labor	Fewer Replacements	574
	Avoided Labor Hours	143.5
	Unit Cost	9.36
	Link to Purchase	N/A
Lighting	Wattage	8 W
	CRI	80
	Lumens	450
	Lamp Type	LED
	Base Type	Medium

Tower, Lobby and Common - Main Lobby

Project Description:

Replace (1) R20 30W - Inc - Frosted with (1) LED
R20 8 watts - 50W equivalent - Frosted in the
Main Lobby.



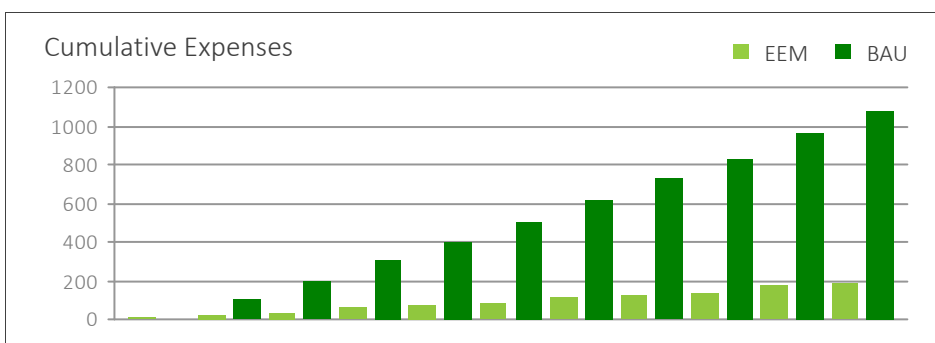
mIRR:

57.5%

SIR:

69.2

LED R20 8 watts - 50W
equivalent - Frosted



Type	Attribute	Value
Financial	Capital Cost	\$21.59
	Incentive	\$11.00
	Simple Payback	0.1
	1 Yr. Cost of Delay	\$94.47
	10 Yr. Cost of Delay	\$694.21
Environment	Hours On per Yr.	8760
	Energy Savings	193 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.09
Labor	Fewer Replacements	41
	Avoided Labor Hours	10.25
	Unit Cost	9.36
	Link to Purchase	N/A
Lighting	Wattage	8 W
	CRI	80
	Lumens	450
	Lamp Type	LED
	Base Type	Medium

Annex Building - Loading Dock

Project Description:

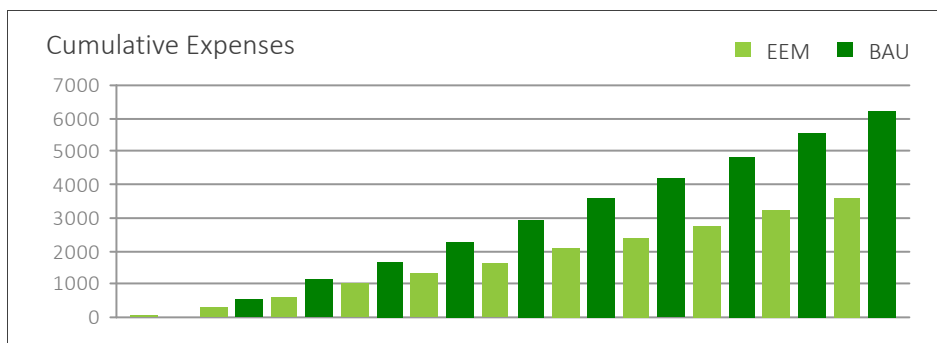
Replace (2) Fluorescent, 96", T-8 lamp, Instant Start Ballast 2 Lamp with (2) 2L T8 96inch 49W - 59W T8 equivalent in the Loading Dock.



mIRR:
56%

SIR:
63

2L T8 96inch 49W - 59W
T8 equivalent



Type	Attribute	Value
Financial	Capital Cost	\$118.60
	Incentive	\$84.50
	Simple Payback	0.1
	1 Yr. Cost of Delay	\$281.03
	10 Yr. Cost of Delay	\$2,034.01
Environment	Hours On per Yr.	8760
	Energy Savings	1139 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.19
Labor	Fewer Replacements	16
	Avoided Labor Hours	4
	Unit Cost	34.8
	Link to Purchase	N/A
Lighting	Wattage	85 W
	CRI	84
	Lumens	8888
	Lamp Type	T8
	Base Type	Single Pin

Tower, Lobby and Common - Elevator x2

Project Description:

Replace (6) Fluorescent, 48", T-8 lamp, Instant Start Ballast 2 Lamp with (6) 2L T8 28W Lamp and IS Ballast Replacement in the Elevator x2.



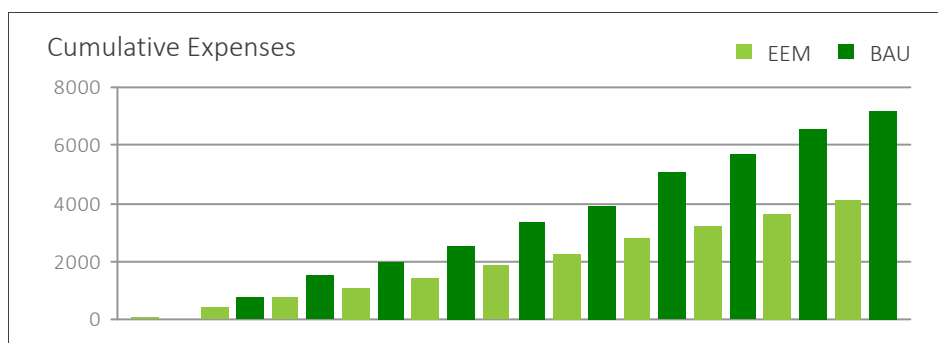
mIRR:

54.1%

SIR:

55.9

2L T8 28W Lamp and IS Ballast Replacement



Type	Attribute	Value
Financial	Capital Cost	\$151.26
	Incentive	\$105.30
	Simple Payback	0.1
	1 Yr. Cost of Delay	\$426.46
	10 Yr. Cost of Delay	\$2,424.38
Environment	Hours On per Yr.	8760
	Energy Savings	1419 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.09
Labor	Fewer Replacements	36
	Avoided Labor Hours	9
	Unit Cost	37.98
	Link to Purchase	N/A
Lighting	Wattage	55 W
	CRI	85
	Lumens	4611
	Lamp Type	28WT8/2XL
	Base Type	Medium Bipin

Restaurant and Meeting Rooms - Emergency

Project Description:

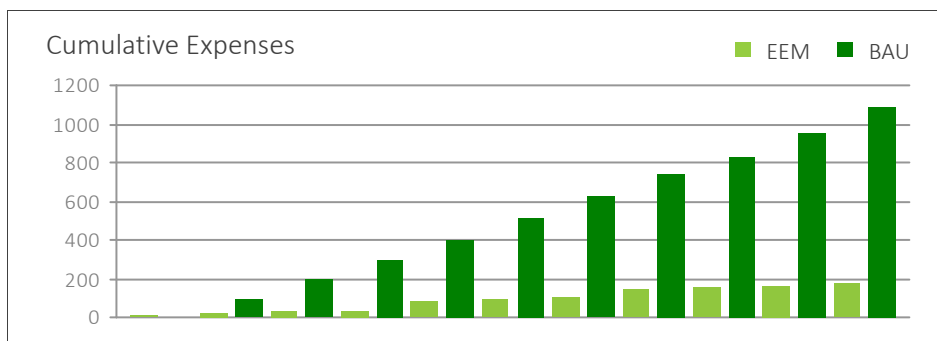
Replace (1) Halogen Incandescent, (1) 50W lamp (MR16) with (1) LED 7W MR-16 CRI 80 3000 K - 50W Equivalent (Green Creative) in the Emergency.



mIRR:
53.8%

SIR:
54.8

LED 7W MR-16 CRI 80
3000 K - 50W Equivalent
(Green Creative)



Type	Attribute	Value
Financial	Capital Cost	\$35.02
	Incentive	\$21.50
	Simple Payback	0.2
	1 Yr. Cost of Delay	\$88.92
	10 Yr. Cost of Delay	\$699.49
Environment	Hours On per Yr.	8760
	Energy Savings	377 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.09
Labor	Fewer Replacements	27
	Avoided Labor Hours	6.75
	Unit Cost	22.79
	Link to Purchase	N/A
Lighting	Wattage	7 W
	CRI	80
	Lumens	525
	Lamp Type	LED MR16
	Base Type	GU5.3

Tower, Lobby and Common - Main Lobby

Project Description:

Replace (3) Halogen Incandescent, (1) 50W lamp (MR16) with (3) LED 7W MR-16 CRI 80 3000 K - 50W Equivalent (Green Creative) in the Main Lobby.



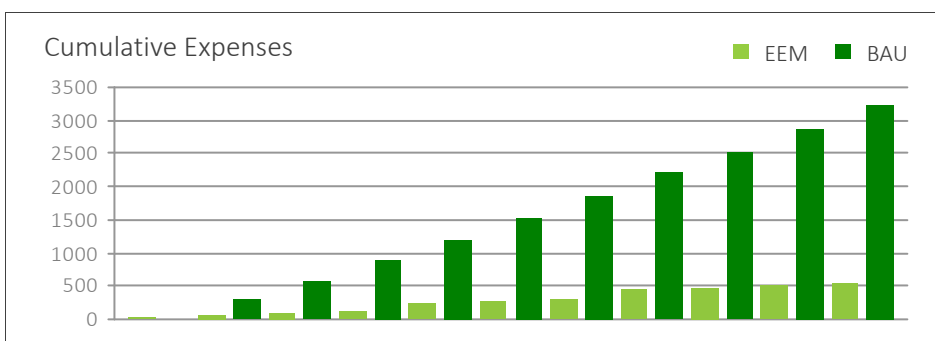
mIRR:

53.8%

SIR:

54.5

LED 7W MR-16 CRI 80
3000 K - 50W Equivalent
(Green Creative)



Type	Attribute	Value
Financial	Capital Cost	\$105.06
	Incentive	\$64.50
	Simple Payback	0.2
	1 Yr. Cost of Delay	\$265.75
	10 Yr. Cost of Delay	\$2,087.83
Environment	Hours On per Yr.	8760
	Energy Savings	1130 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.09
Labor	Fewer Replacements	81
	Avoided Labor Hours	20.25
	Unit Cost	22.79
	Link to Purchase	N/A
Lighting	Wattage	7 W
	CRI	80
	Lumens	525
	Lamp Type	LED MR16
	Base Type	GU5.3

Tower, Lobby and Common - Lobby

Project Description:

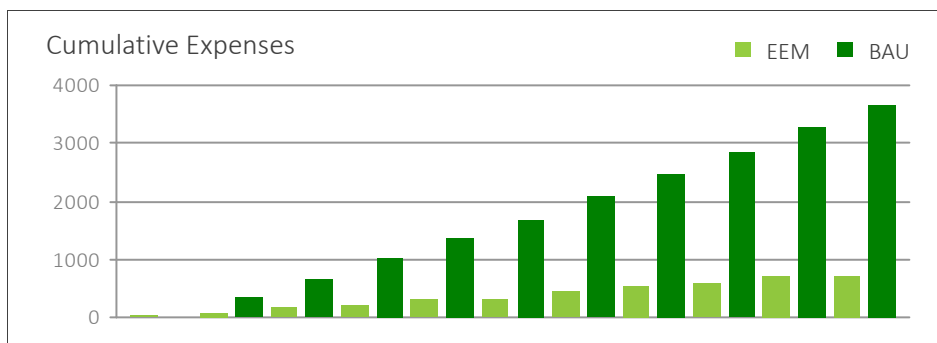
Replace (4) 20W Halogen Bi-Pin with (4) LED 5W G4 Bi-Pin - 20W Halogen equivalent in the Lobby.



mIRR:
52.8%

SIR:
51.1

LED 5W G4 Bi-Pin - 20W
Halogen equivalent



Type	Attribute	Value
Financial	Capital Cost	\$76.88
	Incentive	\$30.00
	Simple Payback	0.1
	1 Yr. Cost of Delay	\$331.28
	10 Yr. Cost of Delay	\$2,258.09
Environment	Hours On per Yr.	8760
	Energy Savings	526 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.09
Labor	Fewer Replacements	156
	Avoided Labor Hours	39
	Unit Cost	6.99
	Link to Purchase	N/A
Lighting	Wattage	5 W
	CRI	82
	Lumens	250
	Lamp Type	LED
	Base Type	G4, GU4 Bi-Pin

Tower, Lobby and Common - RR Women

Project Description:

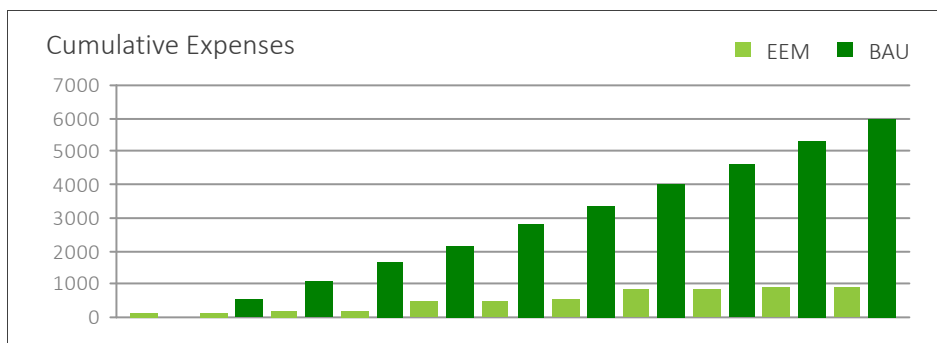
Replace (6) 40W Candelabra - Incandescent
with (6) LED 5W Candelabra- Dimmable - 25W -
40W Equivalent in the RR Women.



mIRR:
49.5%

SIR:
41.2

LED 5W Candelabra-
Dimmable - 25W - 40W
Equivalent



Type	Attribute	Value
Financial	Capital Cost	\$205.26
	Incentive	\$105.00
	Simple Payback	0.2
	1 Yr. Cost of Delay	\$528.48
	10 Yr. Cost of Delay	\$3,873.37
Environment	Hours On per Yr.	8760
	Energy Savings	1840 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.09
Labor	Fewer Replacements	198
	Avoided Labor Hours	49.5
	Unit Cost	21.98
	Link to Purchase	N/A
Lighting	Wattage	5 W
	CRI	80
	Lumens	250
	Lamp Type	LED
	Base Type	E12 - Candelabra

Tower, Lobby and Common - Main RR Men

Project Description:

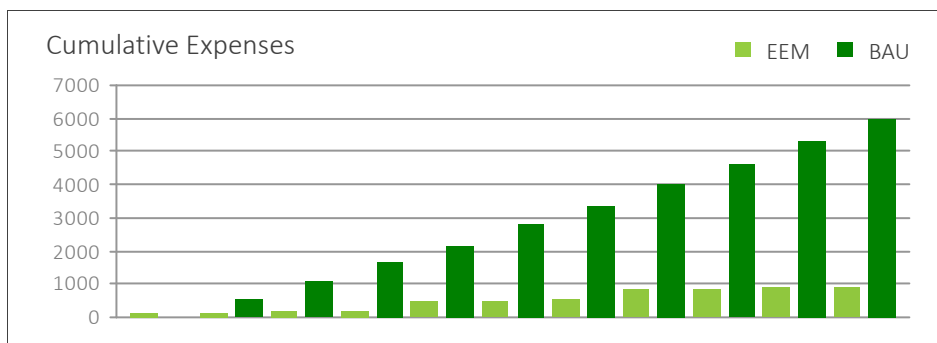
Replace (6) 40W Candelabra - Incandescent
with (6) LED 5W Candelabra- Dimmable - 25W -
40W Equivalent in the Main RR Men.



mIRR:
49.5%

SIR:
41.2

LED 5W Candelabra-
Dimmable - 25W - 40W
Equivalent



Type	Attribute	Value
Financial	Capital Cost	\$205.26
	Incentive	\$105.00
	Simple Payback	0.2
	1 Yr. Cost of Delay	\$528.48
	10 Yr. Cost of Delay	\$3,873.37
Environment	Hours On per Yr.	8760
	Energy Savings	1840 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.09
Labor	Fewer Replacements	198
	Avoided Labor Hours	49.5
	Unit Cost	21.98
	Link to Purchase	N/A
Lighting	Wattage	5 W
	CRI	80
	Lumens	250
	Lamp Type	LED
	Base Type	E12 - Candelabra

Tower, Lobby and Common - Business Center

Project Description:

Replace (4) PAR16 - 75W with (4) LED PAR 30 14W - 75W Equivalent in the Business Center.



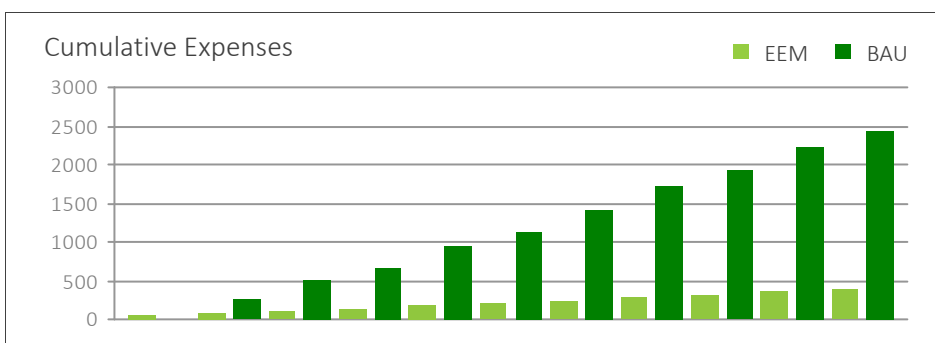
mIRR:

48.4%

SIR:

38.3

LED PAR 30 14W - 75W
Equivalent



Type	Attribute	Value
Financial	Capital Cost	\$166.24
	Incentive	\$122.00
	Simple Payback	0.2
	1 Yr. Cost of Delay	\$218.32
	10 Yr. Cost of Delay	\$1,585.59
Environment	Hours On per Yr.	2350
	Energy Savings	573 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.11
Labor	Fewer Replacements	24
	Avoided Labor Hours	6
	Unit Cost	29.33
	Link to Purchase	N/A
Lighting	Wattage	14 W
	CRI	82
	Lumens	800
	Lamp Type	LED
	Base Type	Medium

Tower, Lobby and Common - Back Lobby

Project Description:

Replace (4) Halogen Floodlight, PAR30, 48W with (4) LED PAR 30 14W - 75W Equivalent in the Back Lobby.



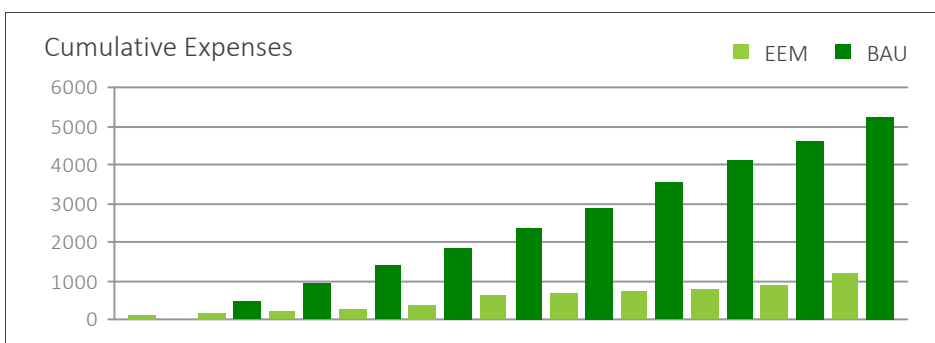
mIRR:

46.7%

SIR:

34.1

LED PAR 30 14W - 75W
Equivalent



Type	Attribute	Value
Financial	Capital Cost	\$166.24
	Incentive	\$68.00
	Simple Payback	0.3
	1 Yr. Cost of Delay	\$384.90
	10 Yr. Cost of Delay	\$3,131.29
Environment	Hours On per Yr.	8760
	Energy Savings	1191 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.09
Labor	Fewer Replacements	76
	Avoided Labor Hours	19
	Unit Cost	29.33
	Link to Purchase	N/A
Lighting	Wattage	14 W
	CRI	82
	Lumens	800
	Lamp Type	LED
	Base Type	Medium

Tower, Lobby and Common - Stair Landing

Project Description:

Replace (6) Halogen Floodlight, PAR30, 48W with (6) LED PAR 30 14W - 75W Equivalent in the Stair Landing.



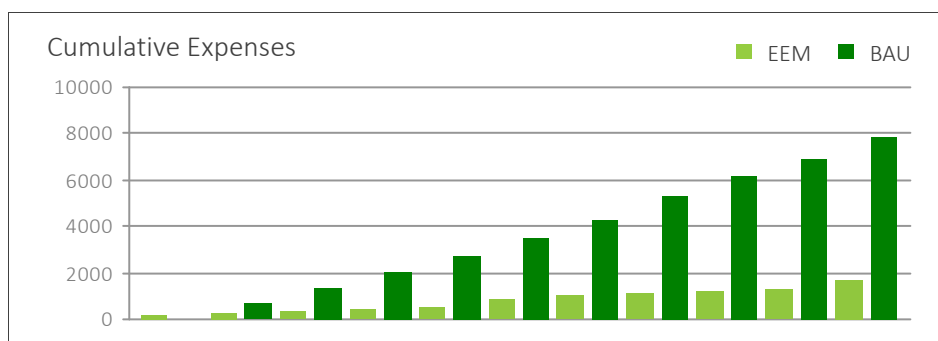
mIRR:

46.7%

SIR:

34.1

LED PAR 30 14W - 75W
Equivalent



Type	Attribute	Value
Financial	Capital Cost	\$249.36
	Incentive	\$102.00
	Simple Payback	0.3
	1 Yr. Cost of Delay	\$577.35
	10 Yr. Cost of Delay	\$4,695.63
Environment	Hours On per Yr.	8760
	Energy Savings	1787 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.09
Labor	Fewer Replacements	114
	Avoided Labor Hours	28.5
	Unit Cost	29.33
	Link to Purchase	N/A
Lighting	Wattage	14 W
	CRI	82
	Lumens	800
	Lamp Type	LED
	Base Type	Medium

Tower, Lobby and Common - Front Desk

Project Description:

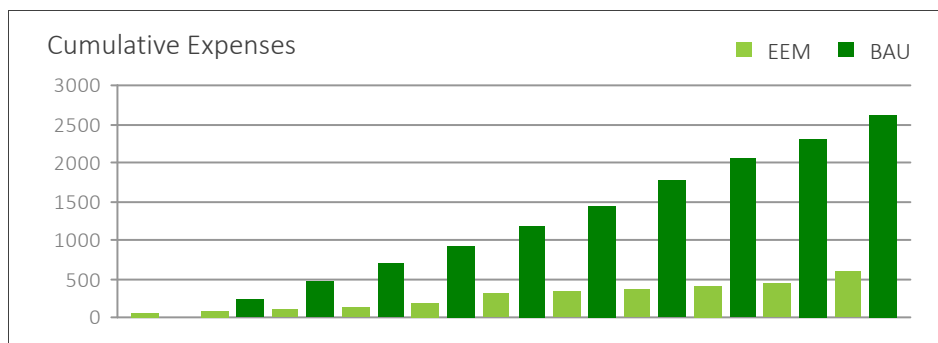
Replace (2) Halogen Floodlight, PAR30, 48W with (2) LED PAR 30 14W - 75W Equivalent in the Front Desk.



mIRR:
46.7%

SIR:
34.1

LED PAR 30 14W - 75W
Equivalent



Type	Attribute	Value
Financial	Capital Cost	\$83.12
	Incentive	\$34.00
	Simple Payback	0.3
	1 Yr. Cost of Delay	\$192.45
	10 Yr. Cost of Delay	\$1,564.33
Environment	Hours On per Yr.	8760
	Energy Savings	596 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.09
Labor	Fewer Replacements	38
	Avoided Labor Hours	9.5
	Unit Cost	29.33
	Link to Purchase	N/A
Lighting	Wattage	14 W
	CRI	82
	Lumens	800
	Lamp Type	LED
	Base Type	Medium

Restaurant and Meeting Rooms - Post St. Entrance Cans

Project Description:

Replace (1) 65W BR30 - Incandescent with (1) LED BR 30 9.5W - 65W Equivalent in the Post St. Entrance Cans.



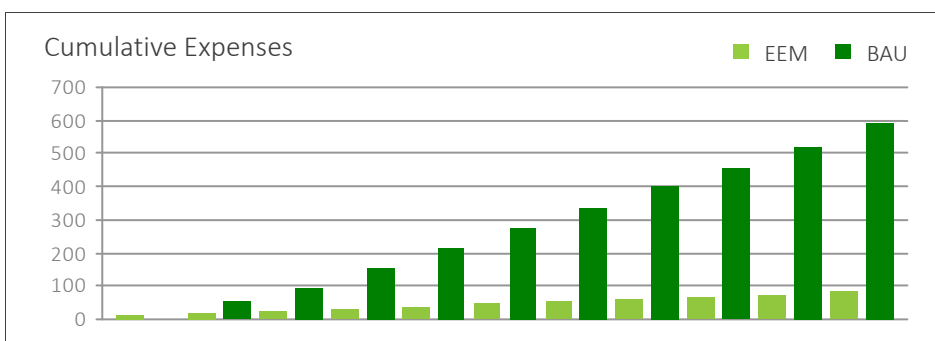
mIRR:

44.4%

SIR:

29.1

LED BR 30 9.5W - 65W
Equivalent



Type	Attribute	Value
Financial	Capital Cost	\$42.23
	Incentive	\$27.75
	Simple Payback	0.3
	1 Yr. Cost of Delay	\$48.83
	10 Yr. Cost of Delay	\$391.80
Environment	Hours On per Yr.	3339
	Energy Savings	185 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.10
Labor	Fewer Replacements	8
	Avoided Labor Hours	2
	Unit Cost	30
	Link to Purchase	N/A
Lighting	Wattage	9.5 W
	CRI	92
	Lumens	650
	Lamp Type	LED
	Base Type	Medium

Restaurant and Meeting Rooms - Control Room

Project Description:

Replace (1) Halogen Incandescent, (1) 50W lamp (MR16) with (1) LED 7W MR-16 CRI 80 3000 K - 50W Equivalent (Green Creative) in the Control Room.



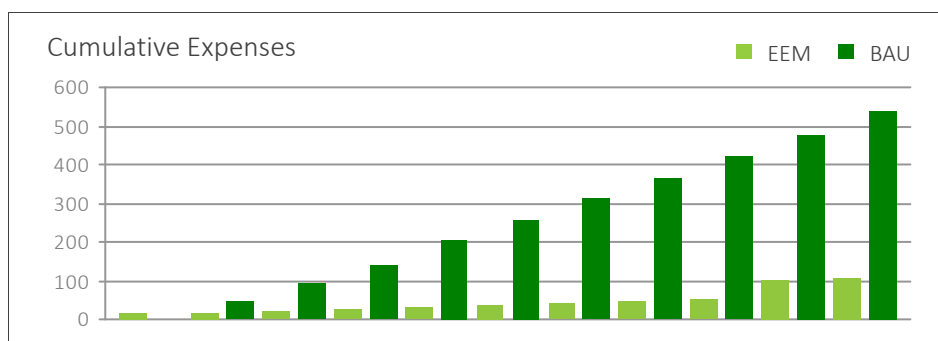
mIRR:

43.1%

SIR:

26.8

LED 7W MR-16 CRI 80
3000 K - 50W Equivalent
(Green Creative)



Type	Attribute	Value
Financial	Capital Cost	\$35.02
	Incentive	\$21.50
	Simple Payback	0.3
	1 Yr. Cost of Delay	\$41.21
	10 Yr. Cost of Delay	\$335.46
Environment	Hours On per Yr.	3339
	Energy Savings	144 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.10
Labor	Fewer Replacements	10
	Avoided Labor Hours	2.5
	Unit Cost	22.79
	Link to Purchase	N/A
Lighting	Wattage	7 W
	CRI	80
	Lumens	525
	Lamp Type	LED MR16
	Base Type	GU5.3

Restaurant and Meeting Rooms - Communal Table Spots

Project Description:

Replace (4) Halogen Incandescent, (1) 50W lamp (MR16) with (4) LED 7W MR-16 CRI 80 3000 K - 50W Equivalent (Green Creative) in the Communal Table Spots.



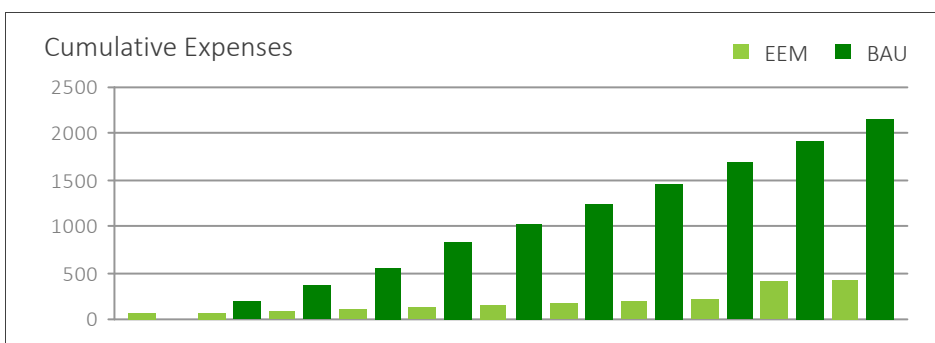
mIRR:

43.1%

SIR:

26.8

LED 7W MR-16 CRI 80
3000 K - 50W Equivalent
(Green Creative)



Type	Attribute	Value
Financial	Capital Cost	\$140.08
	Incentive	\$86.00
	Simple Payback	0.3
	1 Yr. Cost of Delay	\$164.84
	10 Yr. Cost of Delay	\$1,340.10
Environment	Hours On per Yr.	3339
	Energy Savings	574 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.10
Labor	Fewer Replacements	40
	Avoided Labor Hours	10
	Unit Cost	22.79
	Link to Purchase	N/A
Lighting	Wattage	7 W
	CRI	80
	Lumens	525
	Lamp Type	LED MR16
	Base Type	GU5.3

Restaurant and Meeting Rooms - Post St. Screen Pendants

Project Description:

Replace (4) Halogen Incandescent, (1) 50W lamp (MR16) with (4) LED 7W MR-16 CRI 80 3000 K - 50W Equivalent (Green Creative) in the Post St. Screen Pendants.



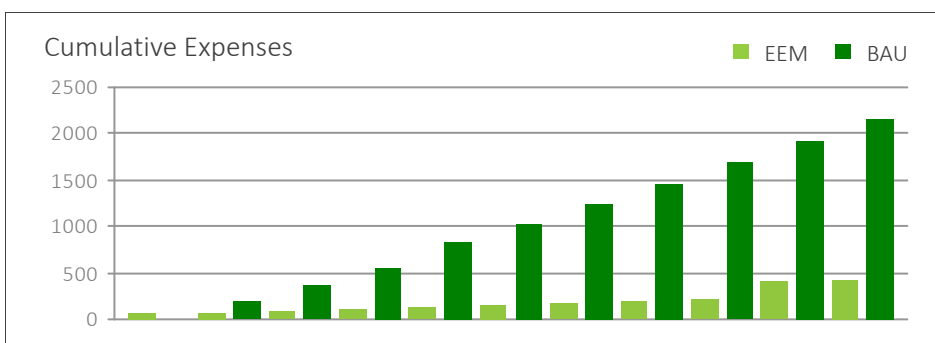
mIRR:

43.1%

SIR:

26.8

LED 7W MR-16 CRI 80
3000 K - 50W Equivalent
(Green Creative)



Type	Attribute	Value
Financial	Capital Cost	\$140.08
	Incentive	\$86.00
	Simple Payback	0.3
	1 Yr. Cost of Delay	\$164.84
	10 Yr. Cost of Delay	\$1,340.10
Environment	Hours On per Yr.	3339
	Energy Savings	574 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.10
Labor	Fewer Replacements	40
	Avoided Labor Hours	10
	Unit Cost	22.79
	Link to Purchase	N/A
Lighting	Wattage	7 W
	CRI	80
	Lumens	525
	Lamp Type	LED MR16
	Base Type	GU5.3

Restaurant and Meeting Rooms - PDR Nooks

Project Description:

Replace (2) Halogen Incandescent, (1) 50W lamp (MR16) with (2) LED 7W MR-16 CRI 80 3000 K - 50W Equivalent (Green Creative) in the PDR Nooks.



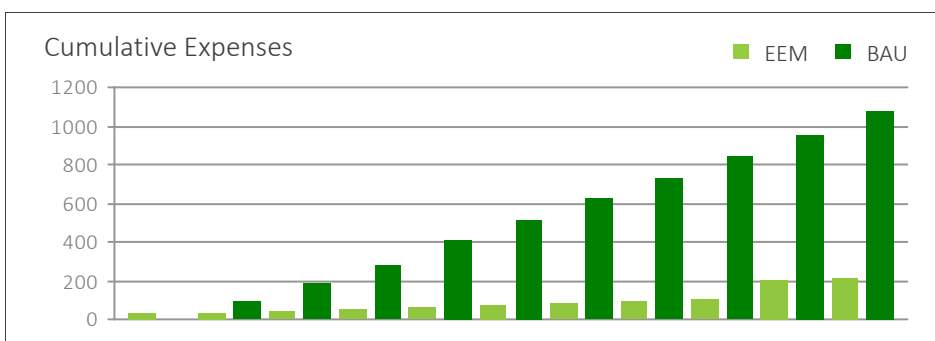
mIRR:

43.1%

SIR:

26.8

LED 7W MR-16 CRI 80
3000 K - 50W Equivalent
(Green Creative)



Type	Attribute	Value
Financial	Capital Cost	\$70.04
	Incentive	\$43.00
	Simple Payback	0.3
	1 Yr. Cost of Delay	\$82.42
	10 Yr. Cost of Delay	\$670.08
Environment	Hours On per Yr.	3339
	Energy Savings	287 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.10
Labor	Fewer Replacements	20
	Avoided Labor Hours	5
	Unit Cost	22.79
	Link to Purchase	N/A
Lighting	Wattage	7 W
	CRI	80
	Lumens	525
	Lamp Type	LED MR16
	Base Type	GU5.3

Restaurant and Meeting Rooms - Track Along Street

Project Description:

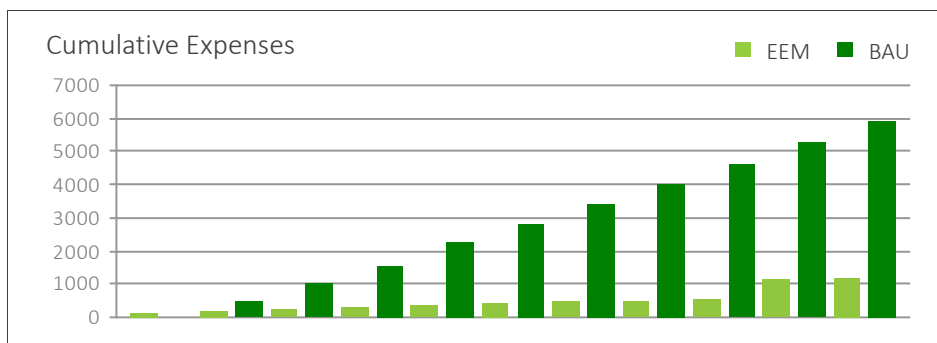
Replace (11) Halogen Incandescent, (1) 50W lamp (MR16) with (11) LED 7W MR-16 CRI 80 3000 K - 50W Equivalent (Green Creative) in the Track Along Street.



mIRR:
43.1%

SIR:
26.7

LED 7W MR-16 CRI 80
3000 K - 50W Equivalent
(Green Creative)



Type	Attribute	Value
Financial	Capital Cost	\$385.22
	Incentive	\$236.50
	Simple Payback	0.3
	1 Yr. Cost of Delay	\$452.32
	10 Yr. Cost of Delay	\$3,677.79
Environment	Hours On per Yr.	3339
	Energy Savings	1579 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.10
Labor	Fewer Replacements	110
	Avoided Labor Hours	27.5
	Unit Cost	22.79
	Link to Purchase	N/A
Lighting	Wattage	7 W
	CRI	80
	Lumens	525
	Lamp Type	LED MR16
	Base Type	GU5.3

Restaurant and Meeting Rooms - Track Along Driveway

Project Description:

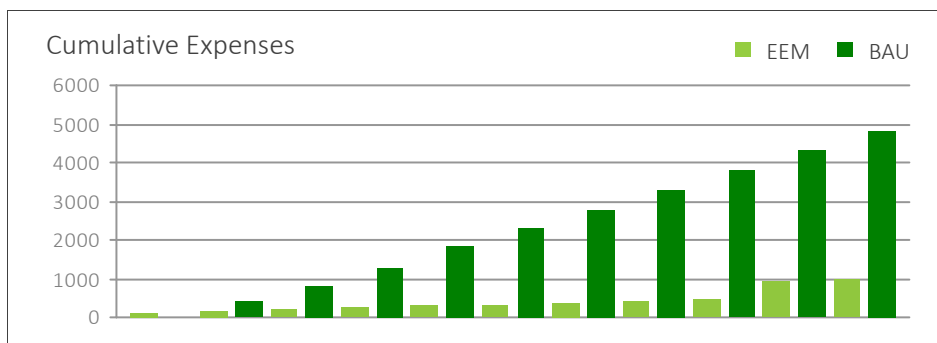
Replace (9) Halogen Incandescent, (1) 50W lamp (MR16) with (9) LED 7W MR-16 CRI 80 3000 K - 50W Equivalent (Green Creative) in the Track Along Driveway.



mIRR:
43.1%

SIR:
26.7

LED 7W MR-16 CRI 80
3000 K - 50W Equivalent
(Green Creative)



Type	Attribute	Value
Financial	Capital Cost	\$315.18
	Incentive	\$193.50
	Simple Payback	0.3
	1 Yr. Cost of Delay	\$369.89
	10 Yr. Cost of Delay	\$3,006.84
Environment	Hours On per Yr.	3339
	Energy Savings	1292 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.10
Labor	Fewer Replacements	90
	Avoided Labor Hours	22.5
	Unit Cost	22.79
	Link to Purchase	N/A
Lighting	Wattage	7 W
	CRI	80
	Lumens	525
	Lamp Type	LED MR16
	Base Type	GU5.3

Restaurant and Meeting Rooms - Wait Station

Project Description:

Replace (5) Halogen Incandescent, (1) 50W lamp (MR16) with (5) LED 7W MR-16 CRI 80 3000 K - 50W Equivalent (Green Creative) in the Wait Station.



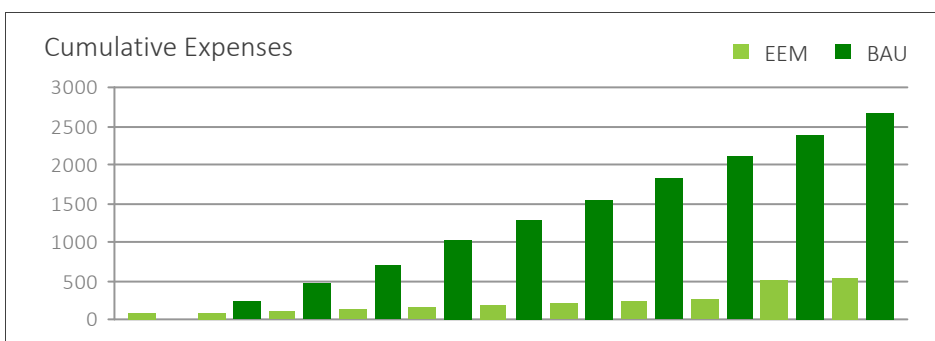
mIRR:

43.1%

SIR:

26.7

LED 7W MR-16 CRI 80
3000 K - 50W Equivalent
(Green Creative)



Type	Attribute	Value
Financial	Capital Cost	\$175.10
	Incentive	\$107.50
	Simple Payback	0.3
	1 Yr. Cost of Delay	\$205.05
	10 Yr. Cost of Delay	\$1,667.60
Environment	Hours On per Yr.	3339
	Energy Savings	718 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.10
Labor	Fewer Replacements	50
	Avoided Labor Hours	12.5
	Unit Cost	22.79
	Link to Purchase	N/A
Lighting	Wattage	7 W
	CRI	80
	Lumens	525
	Lamp Type	LED MR16
	Base Type	GU5.3

Tower, Lobby and Common - Hall to Annex

Project Description:

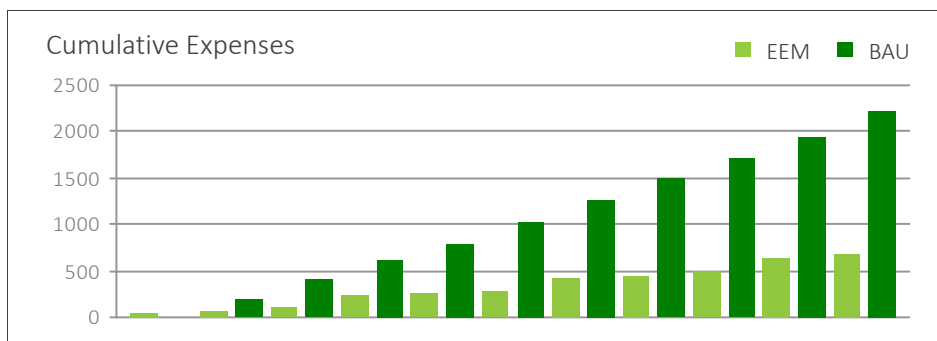
Replace (3) Incandescent, (1) 40W lamp with (3) LED 8W A19 in the Hall to Annex.



LED 8W A19

mIRR:
42.6%

SIR:
25.7



Type	Attribute	Value
Financial	Capital Cost	\$98.04
	Incentive	\$48.00
	Simple Payback	0.3
	1 Yr. Cost of Delay	\$177.05
	10 Yr. Cost of Delay	\$1,187.55
Environment	Hours On per Yr.	8760
	Energy Savings	841 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.09
Labor	Fewer Replacements	45
	Avoided Labor Hours	11.25
	Unit Cost	20.45
	Link to Purchase	N/A
Lighting	Wattage	8 W
	CRI	81
	Lumens	470
	Lamp Type	LED
	Base Type	A19

Tower, Lobby and Common - Front Desk

Project Description:

Replace (2) 20W MR16 - Halogen with (2) LED 6W MR16 - Dimmable - 20W equivalent in the Front Desk.



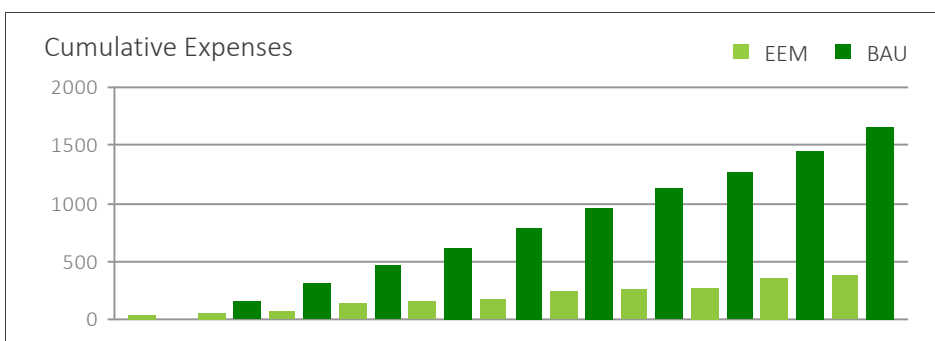
LED 6W MR16 -
Dimmable - 20W
equivalent

mIRR:

42.3%

SIR:

25.2



Type	Attribute	Value
Financial	Capital Cost	\$56.04
	Incentive	\$14.00
	Simple Payback	0.3
	1 Yr. Cost of Delay	\$135.60
	10 Yr. Cost of Delay	\$978.58
Environment	Hours On per Yr.	8760
	Energy Savings	245 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.09
Labor	Fewer Replacements	52
	Avoided Labor Hours	13
	Unit Cost	15.79
	Link to Purchase	N/A
Lighting	Wattage	6 W
	CRI	85
	Lumens	295
	Lamp Type	LED
	Base Type	GU5.3

Tower, Lobby and Common - Lobby

Project Description:

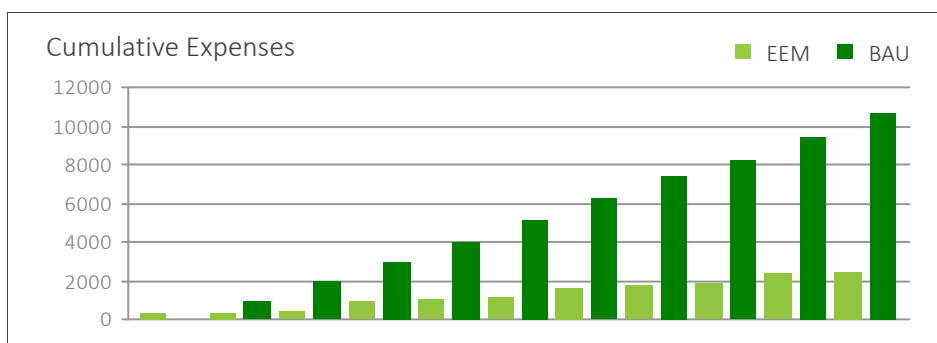
Replace (13) 20W MR16 - Halogen with (13) LED 6W MR16 - Dimmable - 20W equivalent in the Lobby.



LED 6W MR16 -
Dimmable - 20W
equivalent

mIRR:
42.3%

SIR:
25.2



Type	Attribute	Value
Financial	Capital Cost	\$364.26
	Incentive	\$91.00
	Simple Payback	0.3
	1 Yr. Cost of Delay	\$879.88
	10 Yr. Cost of Delay	\$6,356.70
Environment	Hours On per Yr.	8760
	Energy Savings	1594 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.09
Labor	Fewer Replacements	338
	Avoided Labor Hours	84.5
	Unit Cost	15.79
	Link to Purchase	N/A
Lighting	Wattage	6 W
	CRI	85
	Lumens	295
	Lamp Type	LED
	Base Type	GU5.3

Tower, Lobby and Common - Main Lobby

Project Description:

Replace (3) 20W MR16 - Halogen with (3) LED 6W MR16 - Dimmable - 20W equivalent in the Main Lobby.



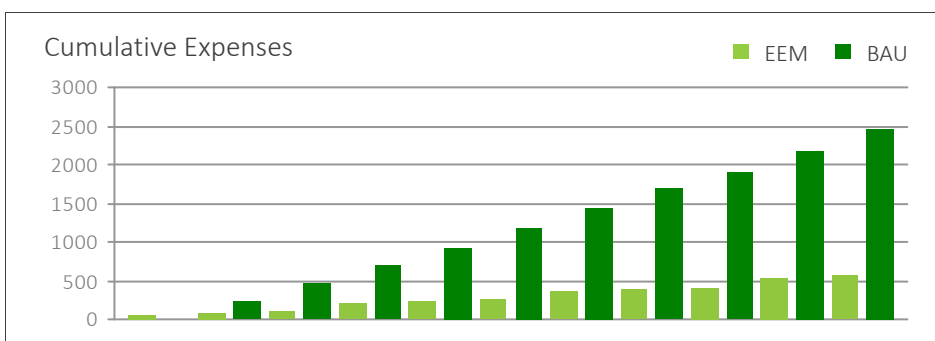
LED 6W MR16 -
Dimmable - 20W
equivalent

mIRR:

42.3%

SIR:

25.2



Type	Attribute	Value
Financial	Capital Cost	\$84.06
	Incentive	\$21.00
	Simple Payback	0.3
	1 Yr. Cost of Delay	\$202.90
	10 Yr. Cost of Delay	\$1,465.63
Environment	Hours On per Yr.	8760
	Energy Savings	368 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.09
Labor	Fewer Replacements	78
	Avoided Labor Hours	19.5
	Unit Cost	15.79
	Link to Purchase	N/A
Lighting	Wattage	6 W
	CRI	85
	Lumens	295
	Lamp Type	LED
	Base Type	GU5.3

Tower, Lobby and Common - Stair Landing

Project Description:

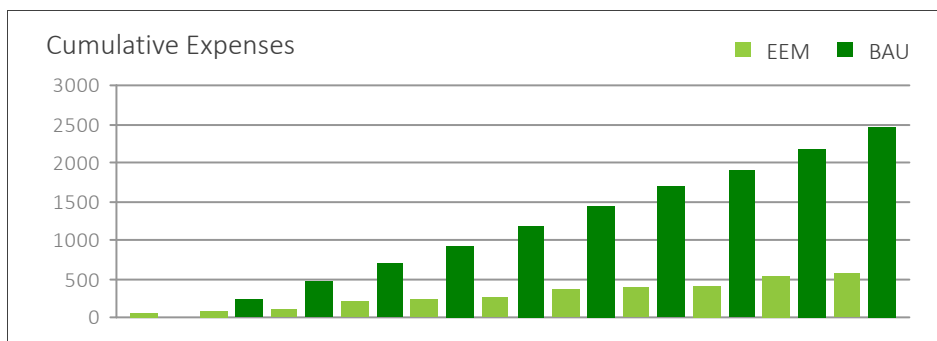
Replace (3) 20W MR16 - Halogen with (3) LED 6W MR16 - Dimmable - 20W equivalent in the Stair Landing.



LED 6W MR16 -
Dimmable - 20W
equivalent

mIRR:
42.3%

SIR:
25.2



Type	Attribute	Value
Financial	Capital Cost	\$84.06
	Incentive	\$21.00
	Simple Payback	0.3
	1 Yr. Cost of Delay	\$202.90
	10 Yr. Cost of Delay	\$1,465.63
Environment	Hours On per Yr.	8760
	Energy Savings	368 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.09
Labor	Fewer Replacements	78
	Avoided Labor Hours	19.5
	Unit Cost	15.79
	Link to Purchase	N/A
Lighting	Wattage	6 W
	CRI	85
	Lumens	295
	Lamp Type	LED
	Base Type	GU5.3

Tower, Lobby and Common - Hall to Annex

Project Description:

Replace (1) 20W MR16 - Halogen with (1) LED 6W MR16 - Dimmable - 20W equivalent in the Hall to Annex.



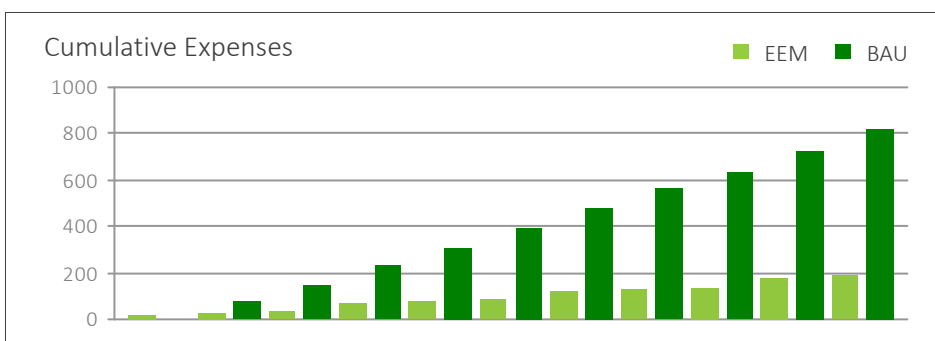
LED 6W MR16 -
Dimmable - 20W
equivalent

mIRR:

42.3%

SIR:

25.1



Type	Attribute	Value
Financial	Capital Cost	\$28.02
	Incentive	\$7.00
	Simple Payback	0.3
	1 Yr. Cost of Delay	\$67.30
	10 Yr. Cost of Delay	\$487.06
Environment	Hours On per Yr.	8760
	Energy Savings	123 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.09
Labor	Fewer Replacements	26
	Avoided Labor Hours	6.5
	Unit Cost	15.79
	Link to Purchase	N/A
Lighting	Wattage	6 W
	CRI	85
	Lumens	295
	Lamp Type	LED
	Base Type	GU5.3

Restaurant and Meeting Rooms - Booth Pendants along Hotel wall

Project Description:

Replace (6) 20W Halogen Bi-Pin with (6) LED 5W G4 Bi-Pin - 20W Halogen equivalent in the Booth Pendants along Hotel wall.



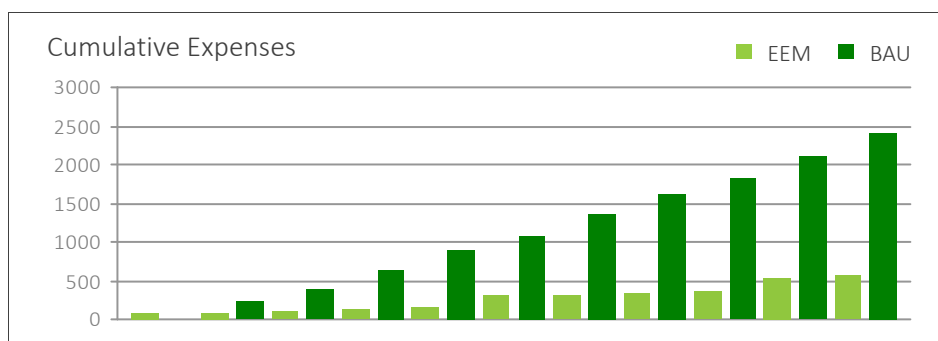
mIRR:

40.5%

SIR:

22.2

LED 5W G4 Bi-Pin - 20W
Halogen equivalent



Type	Attribute	Value
Financial	Capital Cost	\$115.32
	Incentive	\$45.00
	Simple Payback	0.3
	1 Yr. Cost of Delay	\$216.86
	10 Yr. Cost of Delay	\$1,432.41
Environment	Hours On per Yr.	3339
	Energy Savings	301 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.10
Labor	Fewer Replacements	90
	Avoided Labor Hours	22.5
	Unit Cost	6.99
	Link to Purchase	N/A
Lighting	Wattage	5 W
	CRI	82
	Lumens	250
	Lamp Type	LED
	Base Type	G4, GU4 Bi-Pin

Restaurant and Meeting Rooms - Big Ballroom

Project Description:

Replace (64) 65W BR30 - Incandescent with
(64) LED BR 30 9.5W - 65W Equivalent in the
Big Ballroom.



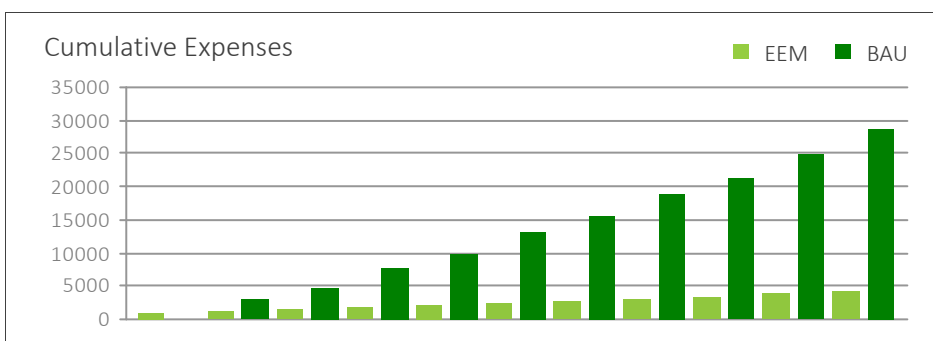
mIRR:

40.4%

SIR:

22

LED BR 30 9.5W - 65W
Equivalent



Type	Attribute	Value
Financial	Capital Cost	\$2,702.72
	Incentive	\$1,776.00
	Simple Payback	0.4
	1 Yr. Cost of Delay	\$2,591.29
	10 Yr. Cost of Delay	\$18,679.00
Environment	Hours On per Yr.	2139
	Energy Savings	7598 (kWh/Yr.)
	Demand Savings (kW)	4 kW
	Avoided Electricity Cost	\$0.09
Labor	Fewer Replacements	384
	Avoided Labor Hours	96
	Unit Cost	30
	Link to Purchase	N/A
Lighting	Wattage	9.5 W
	CRI	92
	Lumens	650
	Lamp Type	LED
	Base Type	Medium

Restaurant and Meeting Rooms - Wait Station 2

Project Description:

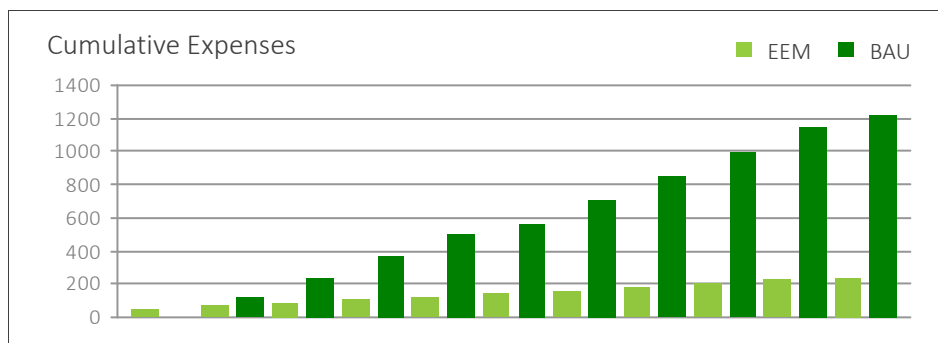
Replace (2) Halogen Floodlight, PAR30, 48W with (2) LED PAR 30 14W - 75W Equivalent in the Wait Station 2.



mIRR:
36.8%

SIR:
17

LED PAR 30 14W - 75W
Equivalent



Type	Attribute	Value
Financial	Capital Cost	\$83.12
	Incentive	\$34.00
	Simple Payback	0.5
	1 Yr. Cost of Delay	\$102.45
	10 Yr. Cost of Delay	\$754.06
Environment	Hours On per Yr.	3339
	Energy Savings	227 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.10
Labor	Fewer Replacements	16
	Avoided Labor Hours	4
	Unit Cost	29.33
	Link to Purchase	N/A
Lighting	Wattage	14 W
	CRI	82
	Lumens	800
	Lamp Type	LED
	Base Type	Medium

Restaurant and Meeting Rooms - Sakura Room

Project Description:

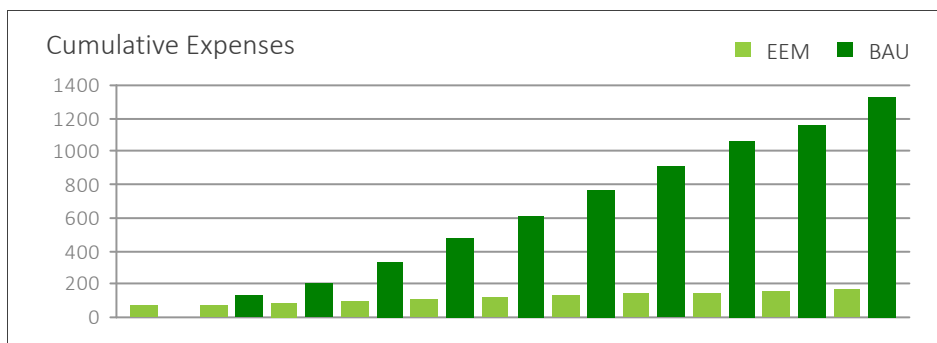
Replace (4) 40W Candelabra - Incandescent
with (4) LED 5W Candelabra- Dimmable - 25W -
40W Equivalent in the Sakura Room.



mIRR:
34.8%

SIR:
14.7

LED 5W Candelabra-
Dimmable - 25W - 40W
Equivalent



Type	Attribute	Value
Financial	Capital Cost	\$136.84
	Incentive	\$70.00
	Simple Payback	0.6
	1 Yr. Cost of Delay	\$116.73
	10 Yr. Cost of Delay	\$877.32
Environment	Hours On per Yr.	2139
	Energy Savings	299 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.09
Labor	Fewer Replacements	32
	Avoided Labor Hours	8
	Unit Cost	21.98
	Link to Purchase	N/A
Lighting	Wattage	5 W
	CRI	80
	Lumens	250
	Lamp Type	LED
	Base Type	E12 - Candelabra

Tower, Lobby and Common - Vanity

Project Description:

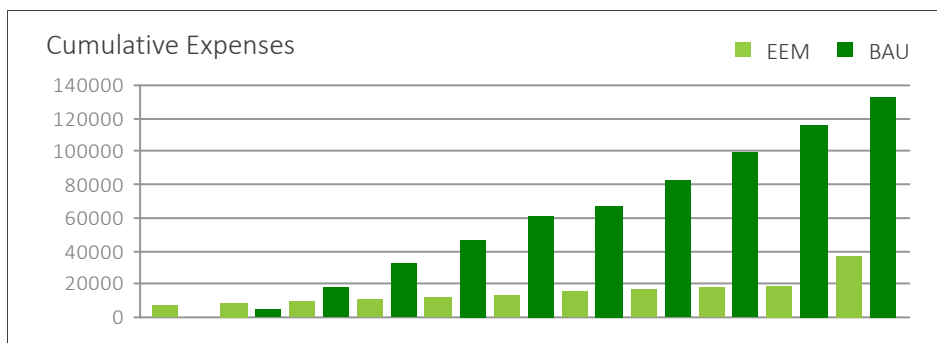
Replace (600) 20W Halogen Bi-Pin with (600) LED 5W G4 Bi-Pin - 20W Halogen equivalent w/OCC SENSOR in the Vanity.



mIRR:
32%

SIR:
11.9

LED 5W G4 Bi-Pin - 20W
Halogen equivalent
w/OCC SENSOR



Type	Attribute	Value
Financial	Capital Cost	\$11,532.00
	Incentive	\$4,500.00
	Simple Payback	1.9
	1 Yr. Cost of Delay	\$3,743.23
	10 Yr. Cost of Delay	\$73,581.38
Environment	Hours On per Yr.	1607
	Energy Savings	14463 (kWh/Yr.)
	Demand Savings (kW)	9 kW
	Avoided Electricity Cost	\$0.09
Labor	Fewer Replacements	4200
	Avoided Labor Hours	1050
	Unit Cost	6.99
	Link to Purchase	N/A
Lighting	Wattage	5 W
	CRI	82
	Lumens	250
	Lamp Type	LED
	Base Type	G4, GU4 Bi-Pin

Annex Building - Annex Elevator x2

Project Description:

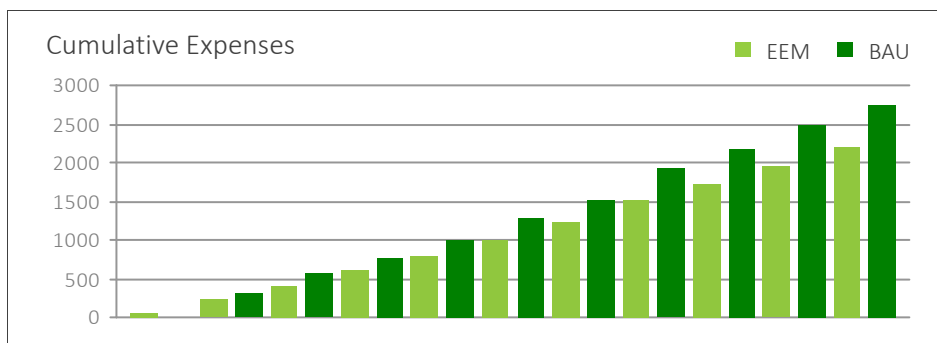
Replace (2) T12 - 4 Foot 2 Lamp - 34W
Fluorescent - Electronic Ballast with (2) 2L T8
28W Lamp and IS Ballast Replacement in the
Annex Elevator x2.



mIRR:
32%

SIR:
12

2L T8 28W Lamp and IS
Ballast Replacement



Type	Attribute	Value
Financial	Capital Cost	\$50.42
	Incentive	\$9.10
	Simple Payback	0.3
	1 Yr. Cost of Delay	\$133.26
	10 Yr. Cost of Delay	\$436.06
Environment	Hours On per Yr.	8760
	Energy Savings	123 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.19
Labor	Fewer Replacements	12
	Avoided Labor Hours	3
	Unit Cost	37.98
	Link to Purchase	N/A
Lighting	Wattage	55 W
	CRI	85
	Lumens	4611
	Lamp Type	28WT8/2XL
	Base Type	Medium Bipin

Restaurant and Meeting Rooms - Big Ballroom

Project Description:

Replace (4) Halogen Floodlight, PAR30, 48W with (4) LED PAR 30 14W - 75W Equivalent in the Big Ballroom.



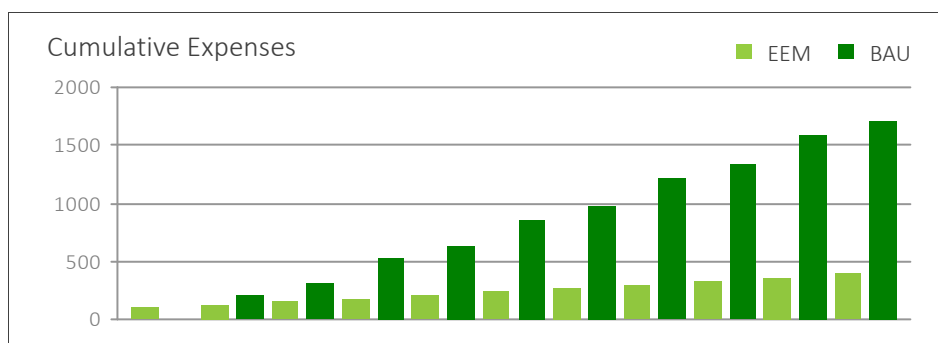
mIRR:

31.8%

SIR:

11.7

LED PAR 30 14W - 75W
Equivalent



Type	Attribute	Value
Financial	Capital Cost	\$166.24
	Incentive	\$68.00
	Simple Payback	0.5
	1 Yr. Cost of Delay	\$185.88
	10 Yr. Cost of Delay	\$1,009.64
Environment	Hours On per Yr.	2139
	Energy Savings	291 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.09
Labor	Fewer Replacements	20
	Avoided Labor Hours	5
	Unit Cost	29.33
	Link to Purchase	N/A
Lighting	Wattage	14 W
	CRI	82
	Lumens	800
	Lamp Type	LED
	Base Type	Medium

Restaurant and Meeting Rooms - Lounge Cans along driveway

Project Description:

Replace (6) 20W MR16 - Halogen with (6) LED 6W MR16 - Dimmable - 20W equivalent in the Lounge Cans along driveway.



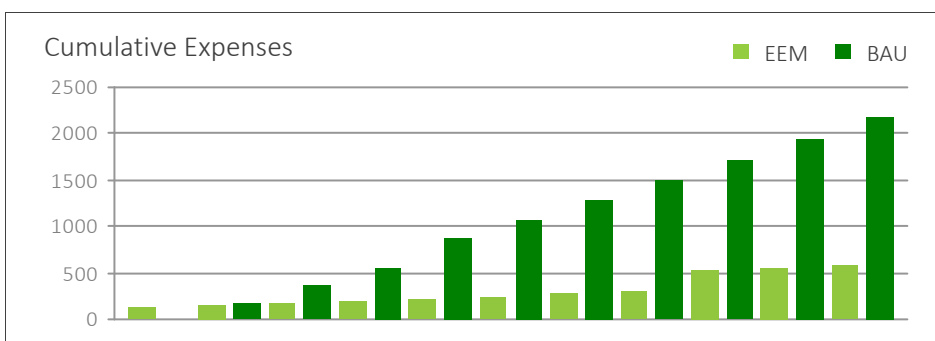
LED 6W MR16 -
Dimmable - 20W
equivalent

mIRR:

30.1%

SIR:

11.1



Type	Attribute	Value
Financial	Capital Cost	\$168.12
	Incentive	\$42.00
	Simple Payback	0.8
	1 Yr. Cost of Delay	\$158.20
	10 Yr. Cost of Delay	\$1,228.02
Environment	Hours On per Yr.	3339
	Energy Savings	280 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.10
Labor	Fewer Replacements	60
	Avoided Labor Hours	15
	Unit Cost	15.79
	Link to Purchase	N/A
Lighting	Wattage	6 W
	CRI	85
	Lumens	295
	Lamp Type	LED
	Base Type	GU5.3

Restaurant and Meeting Rooms - Upper Bar

Project Description:

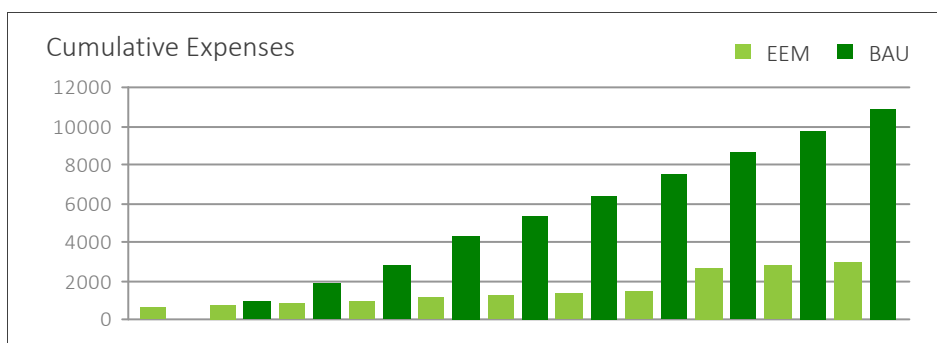
Replace (30) 20W MR16 - Halogen with (30) LED 6W MR16 - Dimmable - 20W equivalent in the Upper Bar.



LED 6W MR16 -
Dimmable - 20W
equivalent

mIRR:
30.1%

SIR:
11.1



Type	Attribute	Value
Financial	Capital Cost	\$840.60
	Incentive	\$210.00
	Simple Payback	0.8
	1 Yr. Cost of Delay	\$790.01
	10 Yr. Cost of Delay	\$6,134.75
Environment	Hours On per Yr.	3339
	Energy Savings	1402 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.10
Labor	Fewer Replacements	300
	Avoided Labor Hours	75
	Unit Cost	15.79
	Link to Purchase	N/A
Lighting	Wattage	6 W
	CRI	85
	Lumens	295
	Lamp Type	LED
	Base Type	GU5.3

Restaurant and Meeting Rooms - Upper Lounge

Project Description:

Replace (12) 20W MR16 - Halogen with (12) LED 6W MR16 - Dimmable - 20W equivalent in the Upper Lounge.



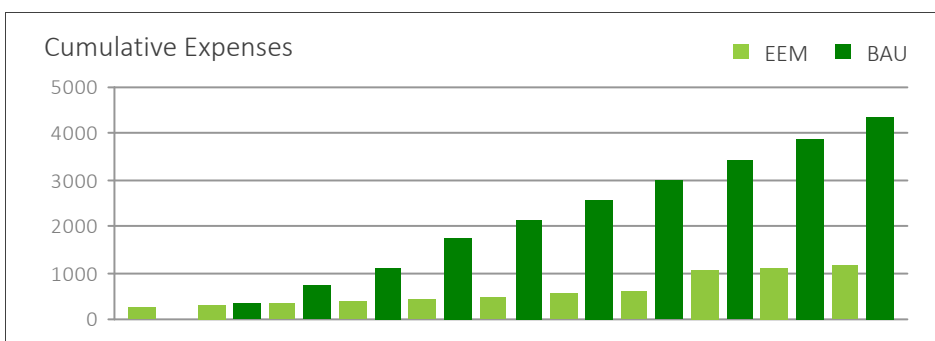
LED 6W MR16 -
Dimmable - 20W
equivalent

mIRR:

30.1%

SIR:

11.1



Type	Attribute	Value
Financial	Capital Cost	\$336.24
	Incentive	\$84.00
	Simple Payback	0.8
	1 Yr. Cost of Delay	\$315.40
	10 Yr. Cost of Delay	\$2,449.82
Environment	Hours On per Yr.	3339
	Energy Savings	561 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.10
Labor	Fewer Replacements	120
	Avoided Labor Hours	30
	Unit Cost	15.79
	Link to Purchase	N/A
Lighting	Wattage	6 W
	CRI	85
	Lumens	295
	Lamp Type	LED
	Base Type	GU5.3

Restaurant and Meeting Rooms - Bar Track

Project Description:

Replace (13) 20W MR16 - Halogen with (13) LED 6W MR16 - Dimmable - 20W equivalent in the Bar Track.



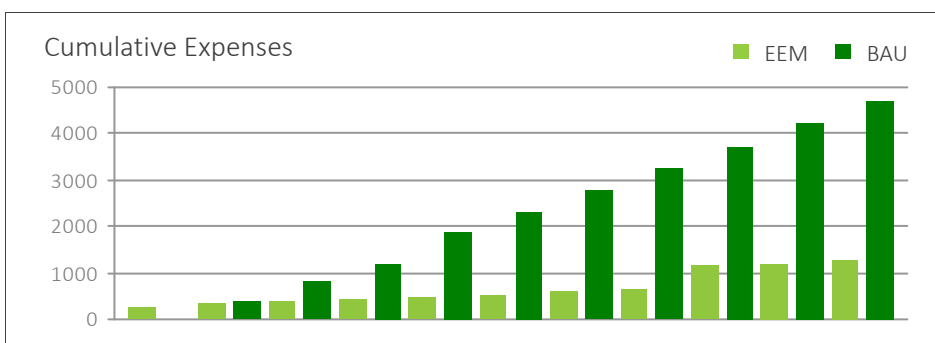
LED 6W MR16 -
Dimmable - 20W
equivalent

mIRR:

30.1%

SIR:

11.1



Type	Attribute	Value
Financial	Capital Cost	\$364.26
	Incentive	\$91.00
	Simple Payback	0.8
	1 Yr. Cost of Delay	\$341.94
	10 Yr. Cost of Delay	\$2,655.70
Environment	Hours On per Yr.	3339
	Energy Savings	608 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.10
Labor	Fewer Replacements	130
	Avoided Labor Hours	32.5
	Unit Cost	15.79
	Link to Purchase	N/A
Lighting	Wattage	6 W
	CRI	85
	Lumens	295
	Lamp Type	LED
	Base Type	GU5.3

Restaurant and Meeting Rooms - Host Station Cans

Project Description:

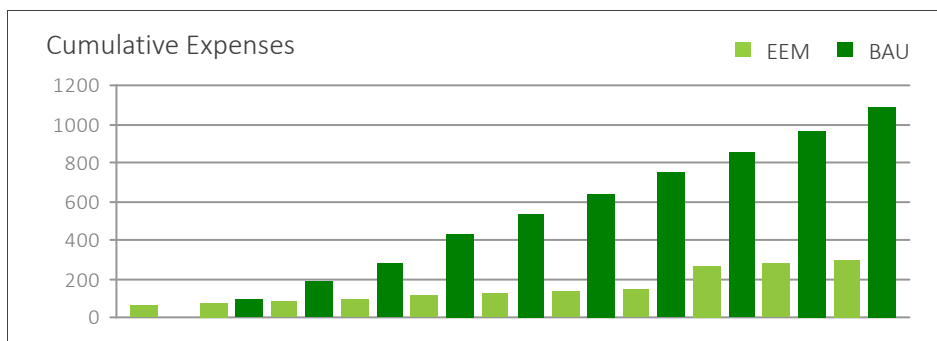
Replace (3) 20W MR16 - Halogen with (3) LED 6W MR16 - Dimmable - 20W equivalent in the Host Station Cans.



LED 6W MR16 -
Dimmable - 20W
equivalent

mIRR:
30%

SIR:
11.1



Type	Attribute	Value
Financial	Capital Cost	\$84.06
	Incentive	\$21.00
	Simple Payback	0.8
	1 Yr. Cost of Delay	\$78.60
	10 Yr. Cost of Delay	\$610.48
Environment	Hours On per Yr.	3339
	Energy Savings	140 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.10
Labor	Fewer Replacements	30
	Avoided Labor Hours	7.5
	Unit Cost	15.79
	Link to Purchase	N/A
Lighting	Wattage	6 W
	CRI	85
	Lumens	295
	Lamp Type	LED
	Base Type	GU5.3

Annex Building - Main room

Project Description:

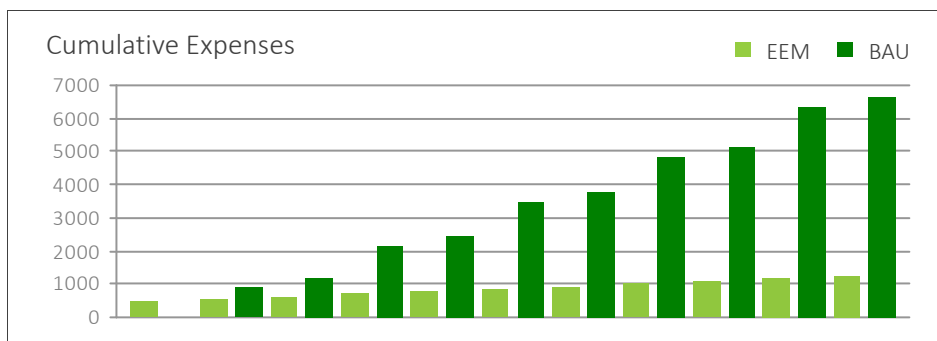
Replace (45) R20 30W - Inc - Frosted with (45) LED R20 8 watts - 50W equivalent - Frosted w/OCC SENSOR in the Main room.



mIRR:
29.7%

SIR:
10

LED R20 8 watts - 50W
equivalent - Frosted
w/OCC SENSOR



Type	Attribute	Value
Financial	Capital Cost	\$971.55
	Incentive	\$495.00
	Simple Payback	0.6
	1 Yr. Cost of Delay	\$842.24
	10 Yr. Cost of Delay	\$4,127.37
Environment	Hours On per Yr.	1004
	Energy Savings	994 (kWh/Yr.)
	Demand Savings (kW)	1 kW
	Avoided Electricity Cost	\$0.19
Labor	Fewer Replacements	225
	Avoided Labor Hours	56.25
	Unit Cost	9.36
	Link to Purchase	N/A
Lighting	Wattage	8 W
	CRI	80
	Lumens	450
	Lamp Type	LED
	Base Type	Medium

Tower, Lobby and Common - Tower Floor Hallways

Project Description:

Replace (130) 85 CRI, 24,000 Hr. RSR,
Fluorescent, (1)48" T-8 lamp, Premium IS
Ballast, NLO with (130) Fluor 4F-1L - 28W T8
Lamp Replacement 2XL in the Tower Floor
Hallways.



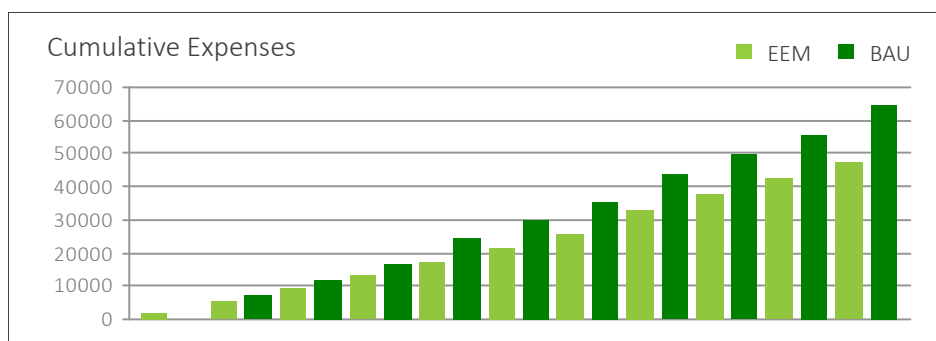
mIRR:

28.1%

SIR:

8.8

Fluor 4F-1L - 28W T8
Lamp Replacement 2XL



Type	Attribute	Value
Financial	Capital Cost	\$2,433.60
	Incentive	\$676.00
	Simple Payback	0.5
	1 Yr. Cost of Delay	\$3,207.19
	10 Yr. Cost of Delay	\$13,161.29
Environment	Hours On per Yr.	8760
	Energy Savings	9110 (kWh/Yr.)
	Demand Savings (kW)	1 kW
	Avoided Electricity Cost	\$0.09
Labor	Fewer Replacements	390
	Avoided Labor Hours	97.5
	Unit Cost	6.49
	Link to Purchase	N/A
Lighting	Wattage	28 W
	CRI	85
	Lumens	2600
	Lamp Type	F28T8/2XL
	Base Type	Medium Bipin

Tower, Lobby and Common - Fitness Room

Project Description:

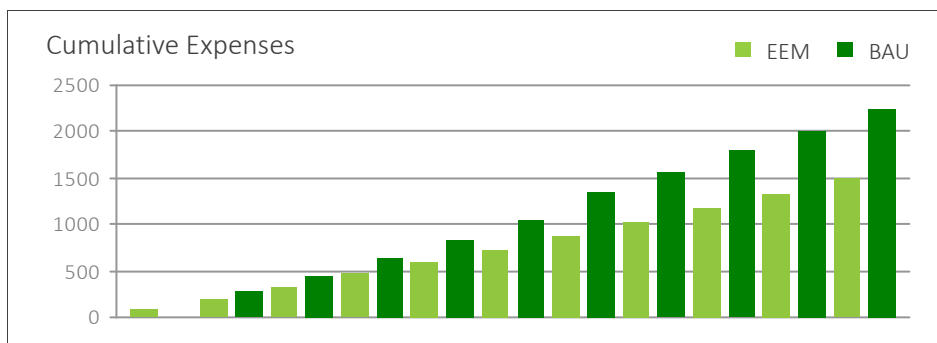
Replace (4) T8 - 4 Foot 2 Lamp - 32W
Fluorescent - Rapid Start Ballast, NLO - 700
Series with (4) Fluor 4F-2L - 28W T8 Lamp
Replacement with Wall Mount Occupancy
Sensor in the Fitness Room.



mIRR:
27.7%

SIR:
8.6

Fluor 4F-2L - 28W T8
Lamp Replacement with
Wall Mount Occupancy



Type	Attribute	Value
Financial	Capital Cost	\$100.84
	Incentive	\$20.80
	Simple Payback	0.5
	1 Yr. Cost of Delay	\$149.30
	10 Yr. Cost of Delay	\$582.47
Environment	Hours On per Yr.	2849
	Energy Savings	484 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.10
Labor	Fewer Replacements	16
	Avoided Labor Hours	4
	Unit Cost	62.98
	Link to Purchase	N/A
Lighting	Wattage	56 W
	CRI	85
	Lumens	4600
	Lamp Type	F32T8/2XL
	Base Type	Medium Bipin

Restaurant and Meeting Rooms - Bar

Project Description:

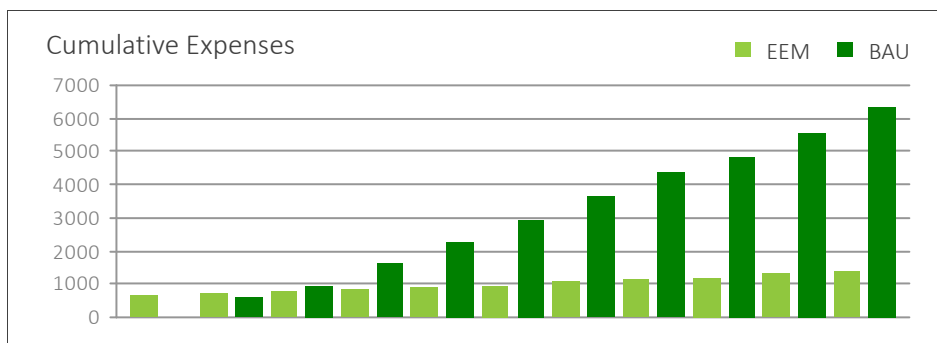
Replace (12) PAR36 - 50W with (12) LED PAR36
9 Watts - Screw Terminal - 50W Equivalent in
the Bar.



mIRR:
25.5%

SIR:
7.1

LED PAR36 9 Watts -
Screw Terminal - 50W
Equivalent



Type	Attribute	Value
Financial	Capital Cost	\$876.24
	Incentive	\$246.00
	Simple Payback	1.2
	1 Yr. Cost of Delay	\$535.90
	10 Yr. Cost of Delay	\$3,719.67
Environment	Hours On per Yr.	3339
	Energy Savings	1643 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.10
Labor	Fewer Replacements	96
	Avoided Labor Hours	24
	Unit Cost	48.56
	Link to Purchase	N/A
Lighting	Wattage	9 W
	CRI	84
	Lumens	520
	Lamp Type	LED
	Base Type	Screw Terminal, Universal

Tower, Lobby and Common - Small Chiller Room

Project Description:

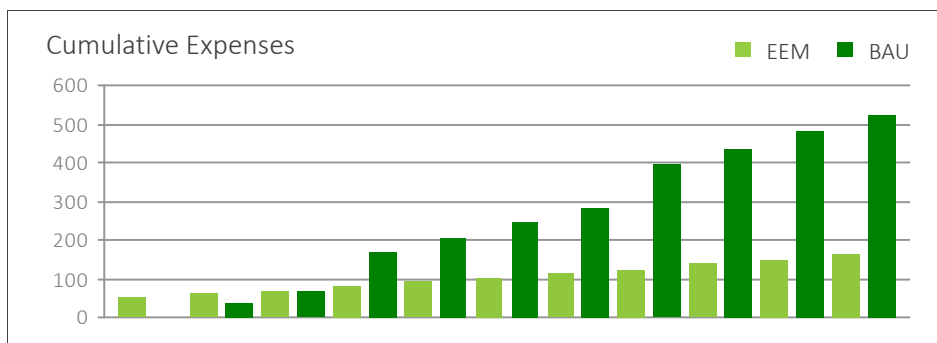
Replace (2) Halogen Floodlight, PAR30, 48W with (2) LED PAR 30 14W - 75W Equivalent in the Small Chiller Room.



mIRR:
24.8%

SIR:
6.8

LED PAR 30 14W - 75W
Equivalent



Type	Attribute	Value
Financial	Capital Cost	\$83.12
	Incentive	\$34.00
	Simple Payback	2.1
	1 Yr. Cost of Delay	\$23.95
	10 Yr. Cost of Delay	\$273.36
Environment	Hours On per Yr.	1096
	Energy Savings	75 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.07
Labor	Fewer Replacements	4
	Avoided Labor Hours	1
	Unit Cost	29.33
	Link to Purchase	N/A
Lighting	Wattage	14 W
	CRI	82
	Lumens	800
	Lamp Type	LED
	Base Type	Medium

Annex Building - Loading Dock

Project Description:

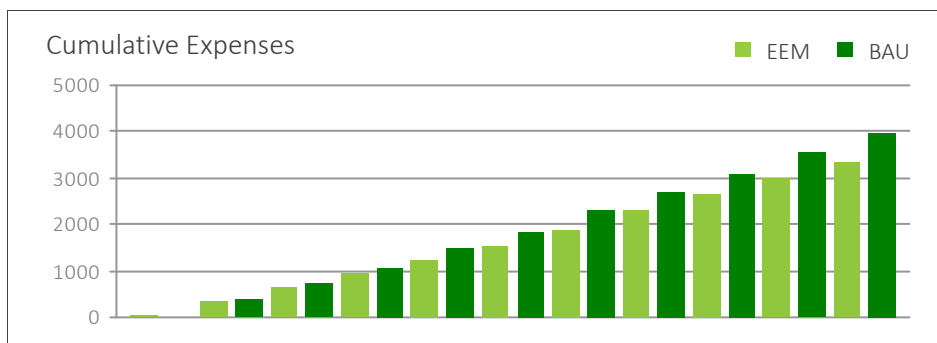
Replace (3) T8 - 4 Foot 2 Lamp - 32W
Fluorescent - Rapid Start Ballast, NLO - 700
Series with (3) Fluor 4F-2L - 28W T8 Lamp
Replacement 2XL in the Loading Dock.



mIRR:
24%

SIR:
9.3

Fluor 4F-2L - 28W T8
Lamp Replacement 2XL



Type	Attribute	Value
Financial	Capital Cost	\$75.63
	Incentive	\$15.60
	Simple Payback	0.5
	1 Yr. Cost of Delay	\$110.88
	10 Yr. Cost of Delay	\$481.86
Environment	Hours On per Yr.	8760
	Energy Savings	210 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.19
Labor	Fewer Replacements	18
	Avoided Labor Hours	4.5
	Unit Cost	12.98
	Link to Purchase	N/A
Lighting	Wattage	56 W
	CRI	85
	Lumens	5200
	Lamp Type	F28T8/2XL
	Base Type	Medium Bipin

Tower, Lobby and Common - Halls

Project Description:

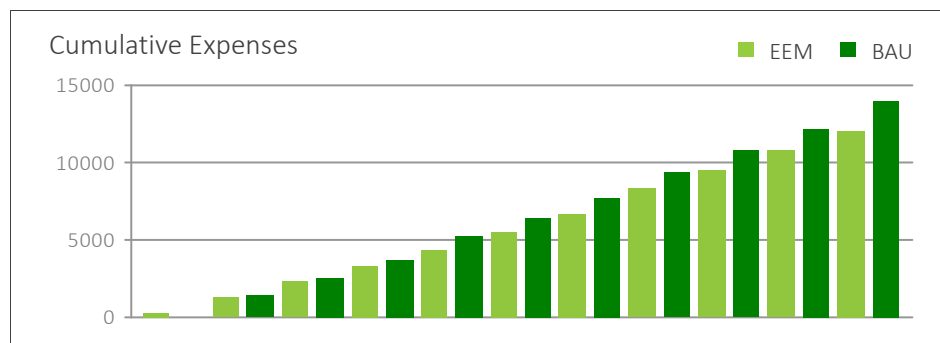
Replace (10) 85 CRI, 24,000 Hr. RSR, Fluorescent, (4)48" T-8 lamp, Premium IS Ballast, NLO with (10) Fluor 4F-4L - 28W T8 Lamp Replacement (T8 Baseline) 2XL in the Halls.



mIRR:
23.3%

SIR:
6

Fluor 4F-4L - 28W T8
Lamp Replacement (T8
Baseline) 2XL



Type	Attribute	Value
Financial	Capital Cost	\$381.90
	Incentive	\$78.00
	Simple Payback	0.7
	1 Yr. Cost of Delay	\$407.56
	10 Yr. Cost of Delay	\$1,466.90
Environment	Hours On per Yr.	8760
	Energy Savings	1051 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.09
Labor	Fewer Replacements	120
	Avoided Labor Hours	30
	Unit Cost	25.96
	Link to Purchase	N/A
Lighting	Wattage	96 W
	CRI	85
	Lumens	10400
	Lamp Type	F28T8/2XL
	Base Type	Medium Bipin

Restaurant and Meeting Rooms - Kitchen

Project Description:

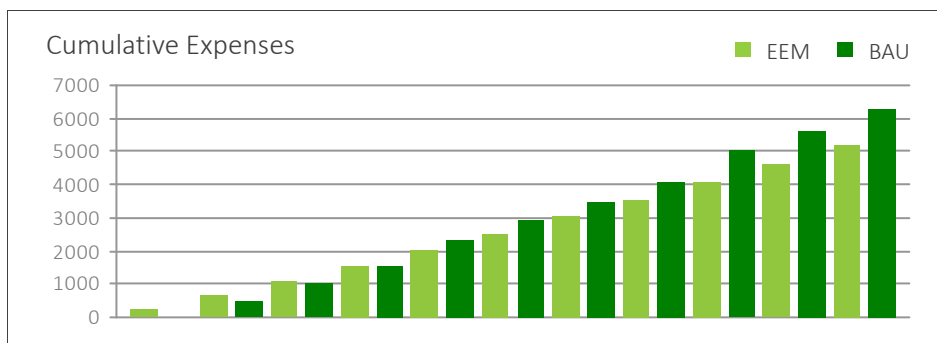
Replace (11) T8 - 4 Foot 2 Lamp - 32W
Fluorescent - Rapid Start Ballast, NLO - 700
Series with (11) Fluor 4F-2L - 28W T8 Lamp
Replacement 2XL in the Kitchen.



mIRR:
20.5%

SIR:
4.7

Fluor 4F-2L - 28W T8
Lamp Replacement 2XL



Type	Attribute	Value
Financial	Capital Cost	\$277.31
	Incentive	\$57.20
	Simple Payback	3.6
	1 Yr. Cost of Delay	\$61.87
	10 Yr. Cost of Delay	\$792.70
Environment	Hours On per Yr.	5633
	Energy Savings	496 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.08
Labor	Fewer Replacements	44
	Avoided Labor Hours	11
	Unit Cost	12.98
	Link to Purchase	N/A
Lighting	Wattage	56 W
	CRI	85
	Lumens	5200
	Lamp Type	F28T8/2XL
	Base Type	Medium Bipin

Tower, Lobby and Common - Liquor

Project Description:

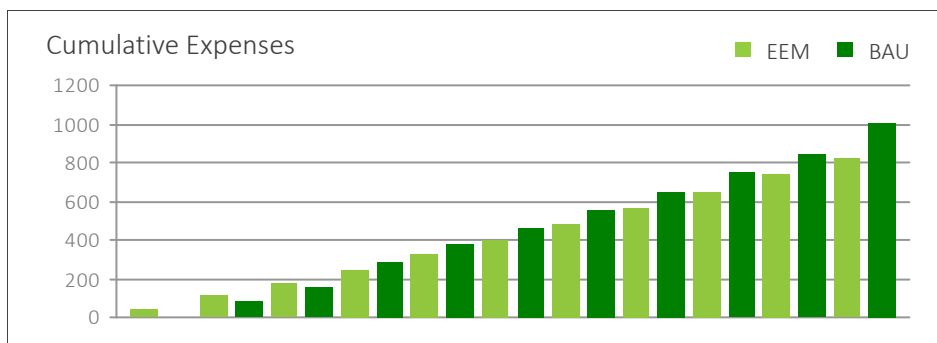
Replace (2) T8 - 4 Foot 2 Lamp - 32W
Fluorescent - Rapid Start Ballast, NLO - 700
Series with (2) Fluor 4F-2L - 28W T8 Lamp
Replacement 2XL in the Liquor.



mIRR:
19.6%

SIR:
4.4

Fluor 4F-2L - 28W T8
Lamp Replacement 2XL



Type	Attribute	Value
Financial	Capital Cost	\$50.42
	Incentive	\$10.40
	Simple Payback	4.1
	1 Yr. Cost of Delay	\$9.75
	10 Yr. Cost of Delay	\$130.35
Environment	Hours On per Yr.	3339
	Energy Savings	53 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.10
Labor	Fewer Replacements	8
	Avoided Labor Hours	2
	Unit Cost	12.98
	Link to Purchase	N/A
Lighting	Wattage	56 W
	CRI	85
	Lumens	5200
	Lamp Type	F28T8/2XL
	Base Type	Medium Bipin

Tower, Lobby and Common - Lobby

Project Description:

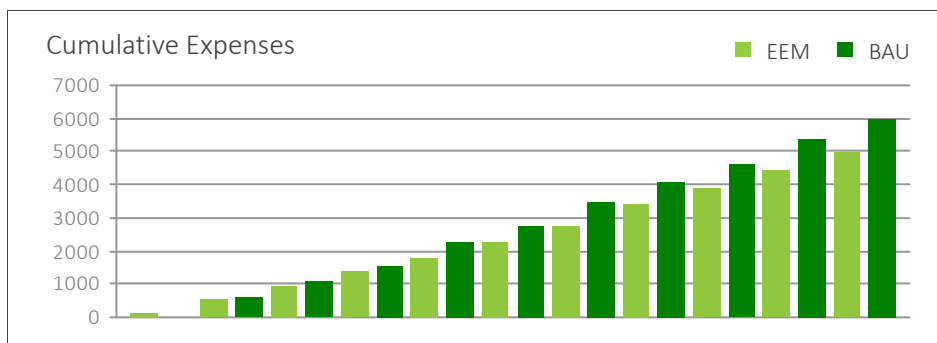
Replace (7) T8 - 4 Foot 2 Lamp - 32W
Fluorescent - Rapid Start Ballast, NLO - 700
Series with (7) Fluor 4F-2L - 28W T8 Lamp
Replacement 2XL in the Lobby.



mIRR:
19.3%

SIR:
7

Fluor 4F-2L - 28W T8
Lamp Replacement 2XL



Type	Attribute	Value
Financial	Capital Cost	\$176.47
	Incentive	\$36.40
	Simple Payback	0.6
	1 Yr. Cost of Delay	\$222.19
	10 Yr. Cost of Delay	\$803.81
Environment	Hours On per Yr.	8760
	Energy Savings	491 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.09
Labor	Fewer Replacements	42
	Avoided Labor Hours	10.5
	Unit Cost	12.98
	Link to Purchase	N/A
Lighting	Wattage	56 W
	CRI	85
	Lumens	5200
	Lamp Type	F28T8/2XL
	Base Type	Medium Bipin

Tower, Lobby and Common - Kitchen

Project Description:

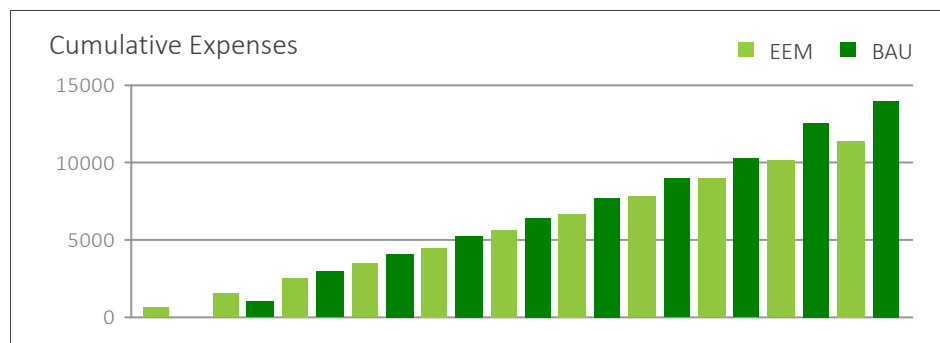
Replace (29) T8 - 4 Foot 2 Lamp - 32W
Fluorescent - Rapid Start Ballast, NLO - 700
Series with (29) Fluor 4F-2L - 28W T8 Lamp
Replacement 2XL in the Kitchen.



mIRR:
19.3%

SIR:
4.3

Fluor 4F-2L - 28W T8
Lamp Replacement 2XL



Type	Attribute	Value
Financial	Capital Cost	\$731.09
	Incentive	\$150.80
	Simple Payback	4.3
	1 Yr. Cost of Delay	\$135.12
	10 Yr. Cost of Delay	\$1,850.28
Environment	Hours On per Yr.	3470
	Energy Savings	805 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.09
Labor	Fewer Replacements	116
	Avoided Labor Hours	29
	Unit Cost	12.98
	Link to Purchase	N/A
Lighting	Wattage	56 W
	CRI	85
	Lumens	5200
	Lamp Type	F28T8/2XL
	Base Type	Medium Bipin

Tower, Lobby and Common - Break Room

Project Description:

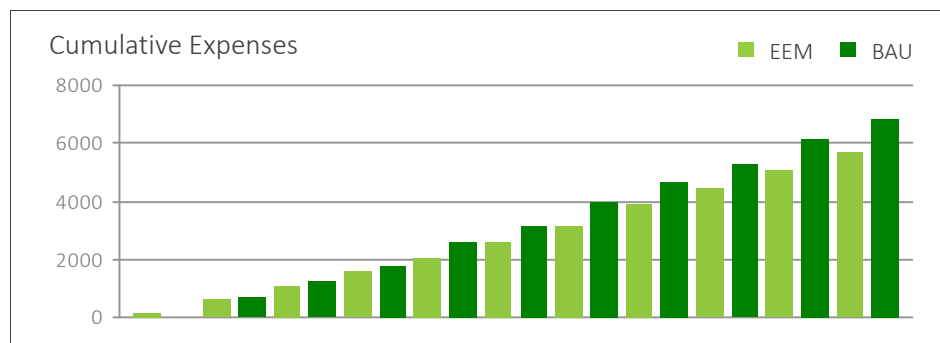
Replace (8) T8 - 4 Foot 2 Lamp - 32W
Fluorescent - Rapid Start Ballast, NLO - 700
Series with (8) Fluor 4F-2L - 28W T8 Lamp
Replacement 2XL in the Break Room.



mIRR:
19.3%

SIR:
7

Fluor 4F-2L - 28W T8
Lamp Replacement 2XL



Type	Attribute	Value
Financial	Capital Cost	\$201.68
	Incentive	\$41.60
	Simple Payback	0.6
	1 Yr. Cost of Delay	\$254.37
	10 Yr. Cost of Delay	\$919.68
Environment	Hours On per Yr.	8760
	Energy Savings	561 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.09
Labor	Fewer Replacements	48
	Avoided Labor Hours	12
	Unit Cost	12.98
	Link to Purchase	N/A
Lighting	Wattage	56 W
	CRI	85
	Lumens	5200
	Lamp Type	F28T8/2XL
	Base Type	Medium Bipin

Tower, Lobby and Common - Service Hallways

Project Description:

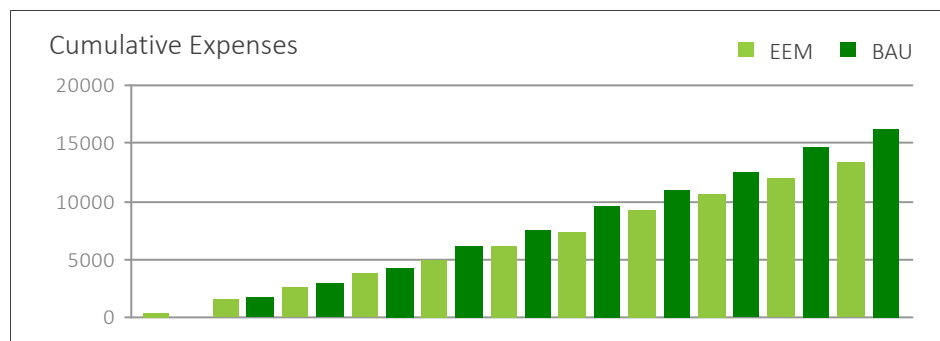
Replace (19) T8 - 4 Foot 2 Lamp - 32W
Fluorescent - Rapid Start Ballast, NLO - 700
Series with (19) Fluor 4F-2L - 28W T8 Lamp
Replacement 2XL in the Service Hallways.



mIRR:
19.3%

SIR:
7

Fluor 4F-2L - 28W T8
Lamp Replacement 2XL



Type	Attribute	Value
Financial	Capital Cost	\$478.99
	Incentive	\$98.80
	Simple Payback	0.6
	1 Yr. Cost of Delay	\$603.24
	10 Yr. Cost of Delay	\$2,181.55
Environment	Hours On per Yr.	8760
	Energy Savings	1332 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.09
Labor	Fewer Replacements	114
	Avoided Labor Hours	28.5
	Unit Cost	12.98
	Link to Purchase	N/A
Lighting	Wattage	56 W
	CRI	85
	Lumens	5200
	Lamp Type	F28T8/2XL
	Base Type	Medium Bipin

Tower, Lobby and Common - Halls

Project Description:

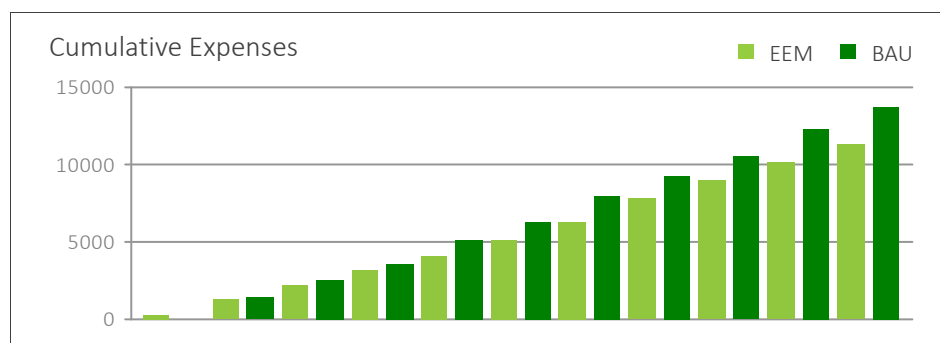
Replace (16) T8 - 4 Foot 2 Lamp - 32W
Fluorescent - Rapid Start Ballast, NLO - 700
Series with (16) Fluor 4F-2L - 28W T8 Lamp
Replacement 2XL in the Halls.



mIRR:
19.3%

SIR:
7

Fluor 4F-2L - 28W T8
Lamp Replacement 2XL



Type	Attribute	Value
Financial	Capital Cost	\$403.36
	Incentive	\$83.20
	Simple Payback	0.6
	1 Yr. Cost of Delay	\$507.73
	10 Yr. Cost of Delay	\$1,835.78
Environment	Hours On per Yr.	8760
	Energy Savings	1121 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.09
Labor	Fewer Replacements	96
	Avoided Labor Hours	24
	Unit Cost	12.98
	Link to Purchase	N/A
Lighting	Wattage	56 W
	CRI	85
	Lumens	5200
	Lamp Type	F28T8/2XL
	Base Type	Medium Bipin

Tower, Lobby and Common - P-1 Men's Locker Back

Project Description:

Replace (1) Fluorescent, (1) 48", ES lamp with
(1) 1L T8 Lamp and Ballast Replacement in the
P-1 Men's Locker Back.



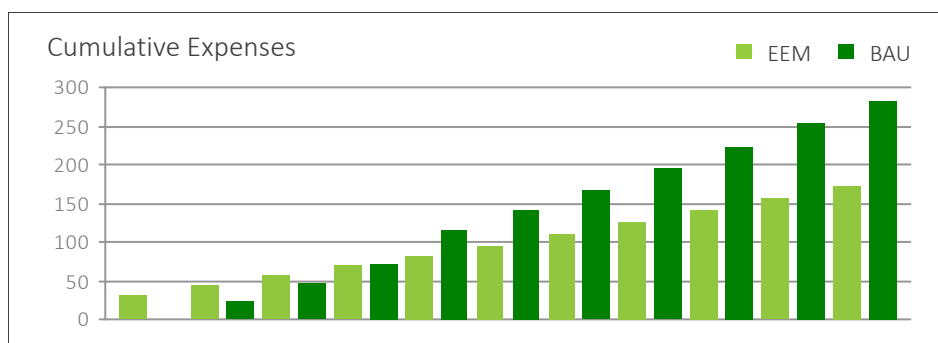
mIRR:

17.8%

SIR:

3.8

1L T8 Lamp and Ballast
Replacement



Type	Attribute	Value
Financial	Capital Cost	\$43.00
	Incentive	\$13.00
	Simple Payback	2.8
	1 Yr. Cost of Delay	\$10.76
	10 Yr. Cost of Delay	\$80.85
Environment	Hours On per Yr.	2350
	Energy Savings	47 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.11
Labor	Fewer Replacements	1
	Avoided Labor Hours	0.25
	Unit Cost	53
	Link to Purchase	N/A
Lighting	Wattage	23 W
	CRI	85
	Lumens	2450
	Lamp Type	F25T8/XLL
	Base Type	Medium Bipin

Restaurant and Meeting Rooms - Sakura Room B

Project Description:

Replace (48) 85 CRI, 24,000 Hr. RSR,
Fluorescent, (1)48" T-8 lamp, Premium IS
Ballast, NLO with (48) Fluor 4F-1L - 28W T8
Lamp Replacement 2XL in the Sakura Room B.



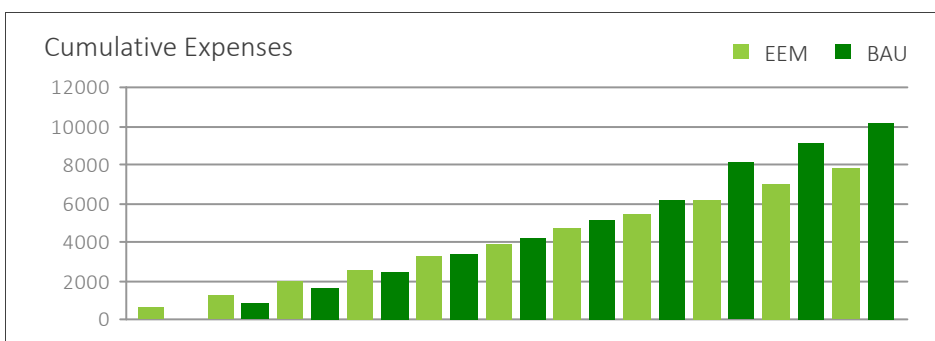
mIRR:

17.4%

SIR:

3.6

Fluor 4F-1L - 28W T8
Lamp Replacement 2XL



Type	Attribute	Value
Financial	Capital Cost	\$898.56
	Incentive	\$249.60
	Simple Payback	3.7
	1 Yr. Cost of Delay	\$177.54
	10 Yr. Cost of Delay	\$1,632.63
Environment	Hours On per Yr.	2139
	Energy Savings	821 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.09
Labor	Fewer Replacements	48
	Avoided Labor Hours	12
	Unit Cost	6.49
	Link to Purchase	N/A
Lighting	Wattage	28 W
	CRI	85
	Lumens	2600
	Lamp Type	F28T8/2XL
	Base Type	Medium Bipin

Tower, Lobby and Common - Basement Outside Plant

Project Description:

Replace (18) 85 CRI, 24,000 Hr. RSR,
Fluorescent, (1)48" T-8 lamp, Premium IS
Ballast, NLO with (18) Fluor 4F-1L - 28W T8
Lamp Replacement 2XL in the Basement
Outside Plant.



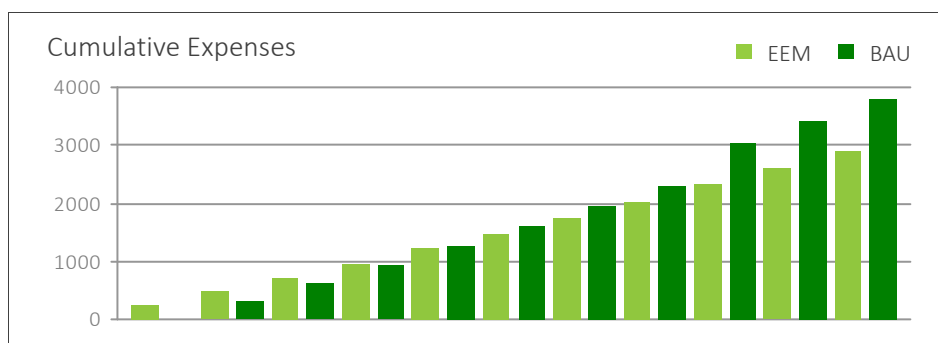
mIRR:

17.4%

SIR:

3.6

Fluor 4F-1L - 28W T8
Lamp Replacement 2XL



Type	Attribute	Value
Financial	Capital Cost	\$336.96
	Incentive	\$93.60
	Simple Payback	3.7
	1 Yr. Cost of Delay	\$66.58
	10 Yr. Cost of Delay	\$612.24
Environment	Hours On per Yr.	2139
	Energy Savings	308 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.09
Labor	Fewer Replacements	18
	Avoided Labor Hours	4.5
	Unit Cost	6.49
	Link to Purchase	N/A
Lighting	Wattage	28 W
	CRI	85
	Lumens	2600
	Lamp Type	F28T8/2XL
	Base Type	Medium Bipin

Tower, Lobby and Common - Basement

Project Description:

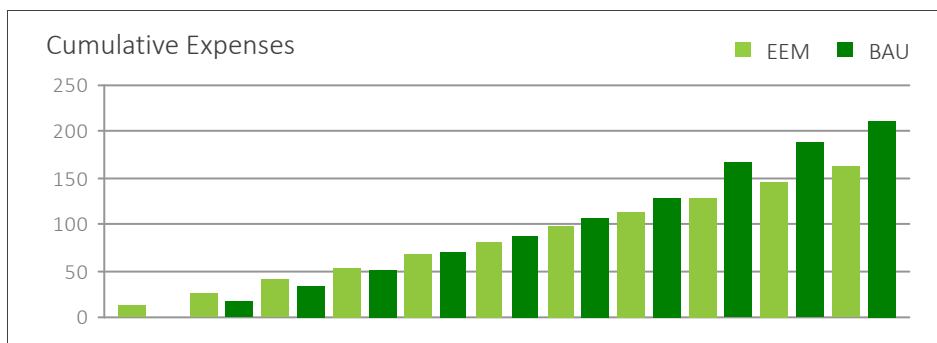
Replace (1) 85 CRI, 24,000 Hr. RSR, Fluorescent,
(1)48" T-8 lamp, Premium IS Ballast, NLO with
(1) Fluor 4F-1L - 28W T8 Lamp Replacement
2XL in the Basement.



mIRR:
17.3%

SIR:
3.6

Fluor 4F-1L - 28W T8
Lamp Replacement 2XL



Type	Attribute	Value
Financial	Capital Cost	\$18.72
	Incentive	\$5.20
	Simple Payback	3.7
	1 Yr. Cost of Delay	\$3.70
	10 Yr. Cost of Delay	\$33.59
Environment	Hours On per Yr.	2139
	Energy Savings	17 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.09
Labor	Fewer Replacements	1
	Avoided Labor Hours	0.25
	Unit Cost	6.49
	Link to Purchase	N/A
Lighting	Wattage	28 W
	CRI	85
	Lumens	2600
	Lamp Type	F28T8/2XL
	Base Type	Medium Bipin

Tower, Lobby and Common - Central Plant

Project Description:

Replace (10) T8 - 4 Foot 3 Lamp - 32 W
Fluorescent - Instant Start Ballast, NLO with (10)
3L T8 48inch 28W (2645 lm) - lamp only replace
in the Central Plant.



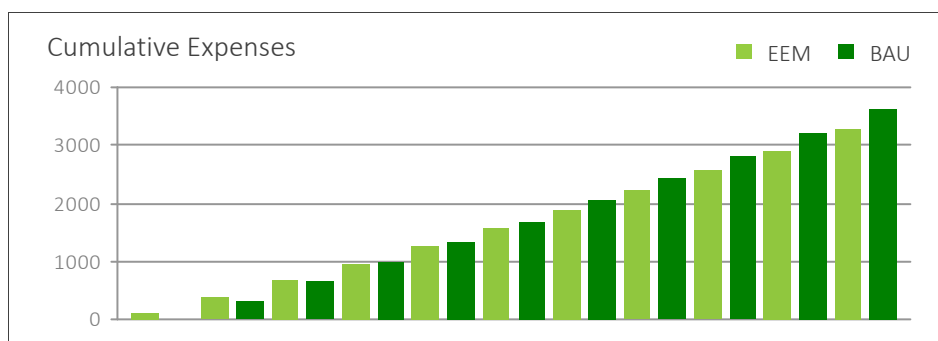
mIRR:

16.1%

SIR:

3.3

3L T8 48inch 28W (2645
lm) - lamp only replace



Type	Attribute	Value
Financial	Capital Cost	\$196.40
	Incentive	\$78.00
	Simple Payback	2.8
	1 Yr. Cost of Delay	\$42.26
	10 Yr. Cost of Delay	\$260.36
Environment	Hours On per Yr.	1096
	Energy Savings	132 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.07
Labor	Fewer Replacements	0
	Avoided Labor Hours	0
	Unit Cost	7.41
	Link to Purchase	N/A
Lighting	Wattage	78 W
	CRI	85
	Lumens	7697
	Lamp Type	T8
	Base Type	Medium Bipin

Tower, Lobby and Common - Exec Office

Project Description:

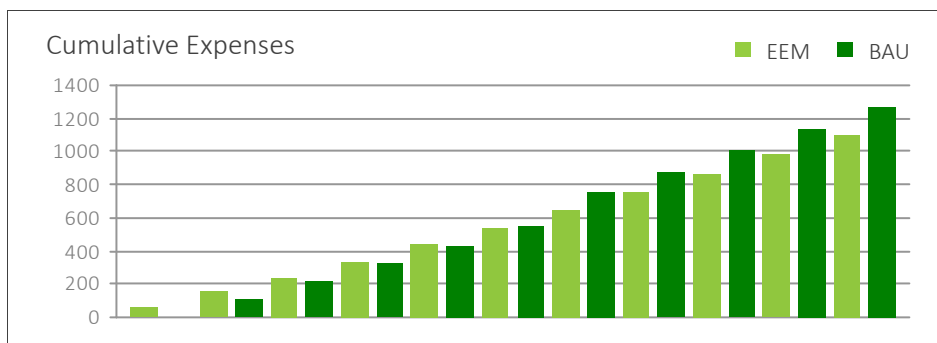
Replace (3) T8 - 4 Foot 2 Lamp - 32W
Fluorescent - Rapid Start Ballast, NLO - 700
Series with (3) Fluor 4F-2L - 28W T8 Lamp
Replacement 2XL in the Exec Office.



mIRR:
15.4%

SIR:
3.1

Fluor 4F-2L - 28W T8
Lamp Replacement 2XL



Type	Attribute	Value
Financial	Capital Cost	\$75.63
	Incentive	\$15.60
	Simple Payback	4.6
	1 Yr. Cost of Delay	\$12.92
	10 Yr. Cost of Delay	\$119.20
Environment	Hours On per Yr.	2350
	Energy Savings	56 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.11
Labor	Fewer Replacements	6
	Avoided Labor Hours	1.5
	Unit Cost	12.98
	Link to Purchase	N/A
Lighting	Wattage	56 W
	CRI	85
	Lumens	5200
	Lamp Type	F28T8/2XL
	Base Type	Medium Bipin

Tower, Lobby and Common - Admin Offices

Project Description:

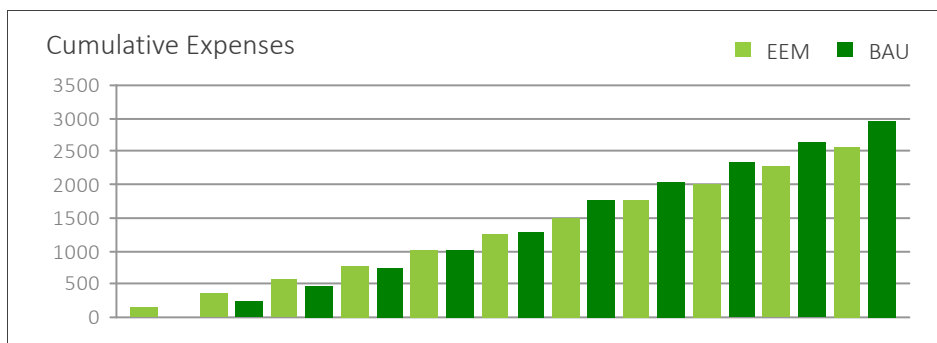
Replace (7) T8 - 4 Foot 2 Lamp - 32W
Fluorescent - Rapid Start Ballast, NLO - 700
Series with (7) Fluor 4F-2L - 28W T8 Lamp
Replacement 2XL in the Admin Offices.



mIRR:
15.3%

SIR:
3.1

Fluor 4F-2L - 28W T8
Lamp Replacement 2XL



Type	Attribute	Value
Financial	Capital Cost	\$176.47
	Incentive	\$36.40
	Simple Payback	4.6
	1 Yr. Cost of Delay	\$30.14
	10 Yr. Cost of Delay	\$277.57
Environment	Hours On per Yr.	2350
	Energy Savings	132 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.11
Labor	Fewer Replacements	14
	Avoided Labor Hours	3.5
	Unit Cost	12.98
	Link to Purchase	N/A
Lighting	Wattage	56 W
	CRI	85
	Lumens	5200
	Lamp Type	F28T8/2XL
	Base Type	Medium Bipin

Tower, Lobby and Common - Admin Offices

Project Description:

Replace (11) T8 - 4 Foot 2 Lamp - 32W
Fluorescent - Rapid Start Ballast, NLO - 700
Series with (11) Fluor 4F-2L - 28W T8 Lamp
Replacement 2XL in the Admin Offices.



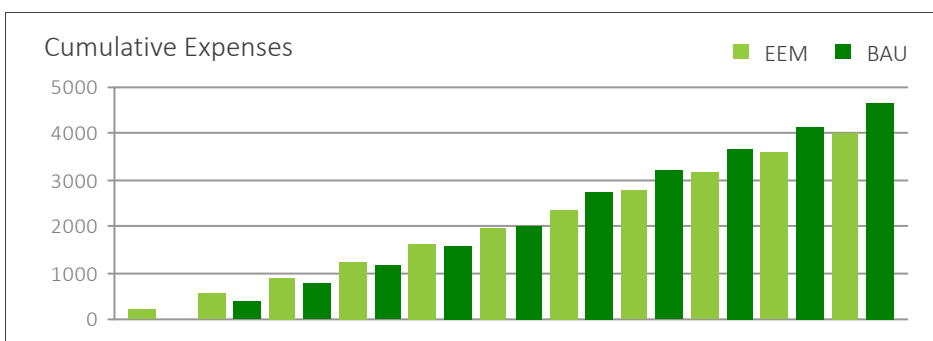
mIRR:

15.3%

SIR:

3.1

Fluor 4F-2L - 28W T8
Lamp Replacement 2XL



Type	Attribute	Value
Financial	Capital Cost	\$277.31
	Incentive	\$57.20
	Simple Payback	4.6
	1 Yr. Cost of Delay	\$47.36
	10 Yr. Cost of Delay	\$435.92
Environment	Hours On per Yr.	2350
	Energy Savings	207 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.11
Labor	Fewer Replacements	22
	Avoided Labor Hours	5.5
	Unit Cost	12.98
	Link to Purchase	N/A
Lighting	Wattage	56 W
	CRI	85
	Lumens	5200
	Lamp Type	F28T8/2XL
	Base Type	Medium Bipin

Tower, Lobby and Common - Private Office

Project Description:

Replace (2) T8 - 4 Foot 2 Lamp - 32W
Fluorescent - Rapid Start Ballast, NLO - 700
Series with (2) Fluor 4F-2L - 28W T8 Lamp
Replacement 2XL in the Private Office.



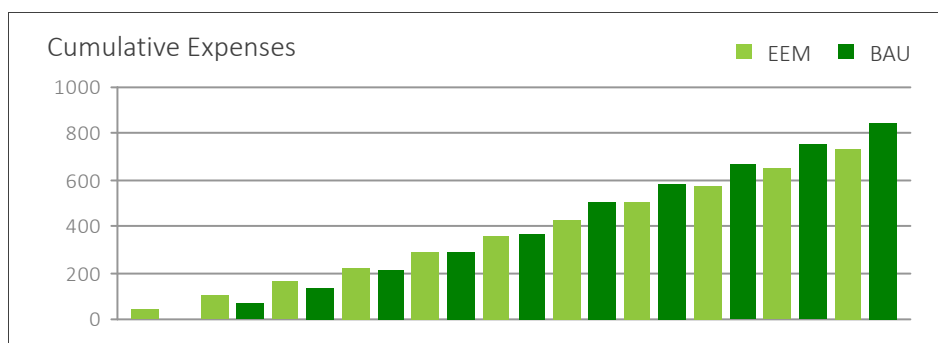
mIRR:

15.3%

SIR:

3.1

Fluor 4F-2L - 28W T8
Lamp Replacement 2XL



Type	Attribute	Value
Financial	Capital Cost	\$50.42
	Incentive	\$10.40
	Simple Payback	4.6
	1 Yr. Cost of Delay	\$8.61
	10 Yr. Cost of Delay	\$79.19
Environment	Hours On per Yr.	2350
	Energy Savings	38 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.11
Labor	Fewer Replacements	4
	Avoided Labor Hours	1
	Unit Cost	12.98
	Link to Purchase	N/A
Lighting	Wattage	56 W
	CRI	85
	Lumens	5200
	Lamp Type	F28T8/2XL
	Base Type	Medium Bipin

Tower, Lobby and Common - John & Henry's Office

Project Description:

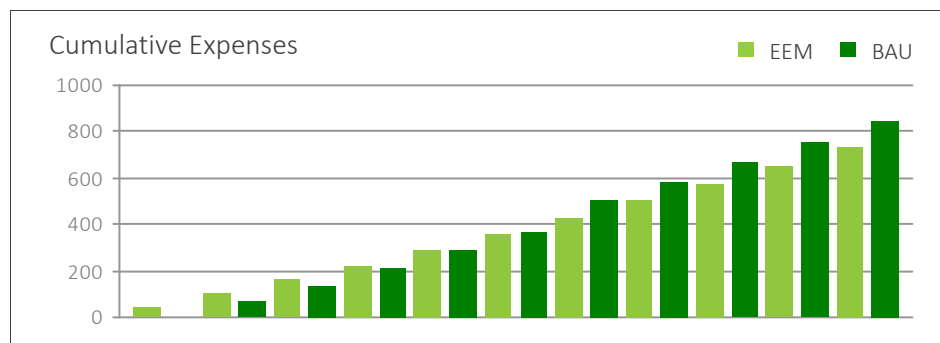
Replace (2) T8 - 4 Foot 2 Lamp - 32W
Fluorescent - Rapid Start Ballast, NLO - 700
Series with (2) Fluor 4F-2L - 28W T8 Lamp
Replacement 2XL in the John & Henry's Office.



mIRR:
15.3%

SIR:
3.1

Fluor 4F-2L - 28W T8
Lamp Replacement 2XL



Type	Attribute	Value
Financial	Capital Cost	\$50.42
	Incentive	\$10.40
	Simple Payback	4.6
	1 Yr. Cost of Delay	\$8.61
	10 Yr. Cost of Delay	\$79.19
Environment	Hours On per Yr.	2350
	Energy Savings	38 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.11
Labor	Fewer Replacements	4
	Avoided Labor Hours	1
	Unit Cost	12.98
	Link to Purchase	N/A
Lighting	Wattage	56 W
	CRI	85
	Lumens	5200
	Lamp Type	F28T8/2XL
	Base Type	Medium Bipin

Tower, Lobby and Common - Office

Project Description:

Replace (2) T8 - 4 Foot 2 Lamp - 32W
Fluorescent - Rapid Start Ballast, NLO - 700
Series with (2) Fluor 4F-2L - 28W T8 Lamp
Replacement 2XL in the Office.



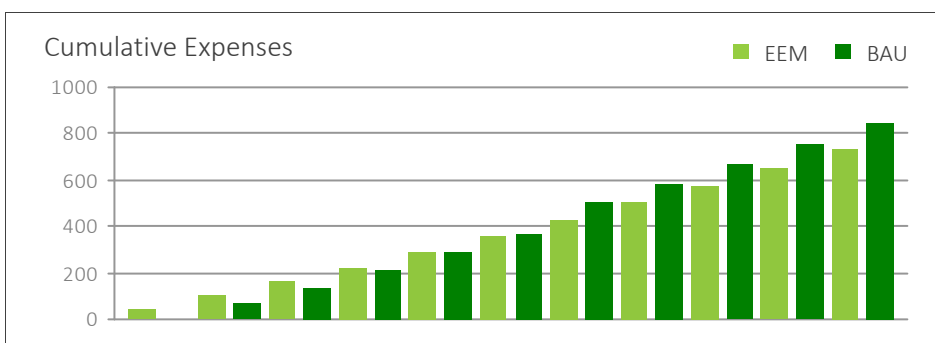
mIRR:

15.3%

SIR:

3.1

Fluor 4F-2L - 28W T8
Lamp Replacement 2XL



Type	Attribute	Value
Financial	Capital Cost	\$50.42
	Incentive	\$10.40
	Simple Payback	4.6
	1 Yr. Cost of Delay	\$8.61
	10 Yr. Cost of Delay	\$79.19
Environment	Hours On per Yr.	2350
	Energy Savings	38 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.11
Labor	Fewer Replacements	4
	Avoided Labor Hours	1
	Unit Cost	12.98
	Link to Purchase	N/A
Lighting	Wattage	56 W
	CRI	85
	Lumens	5200
	Lamp Type	F28T8/2XL
	Base Type	Medium Bipin

Tower, Lobby and Common - Office

Project Description:

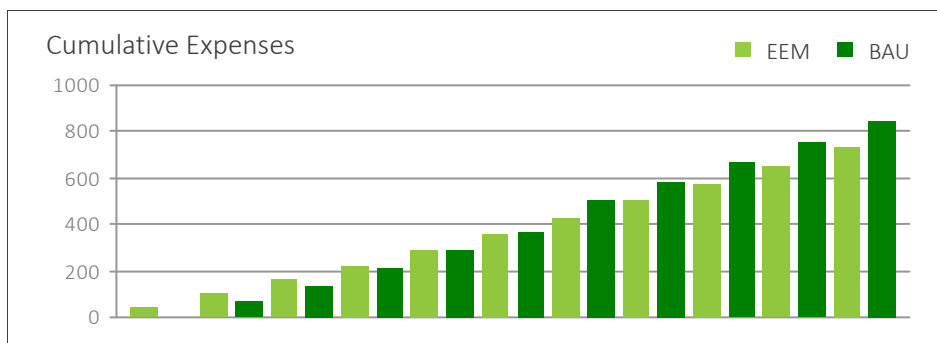
Replace (2) T8 - 4 Foot 2 Lamp - 32W
Fluorescent - Rapid Start Ballast, NLO - 700
Series with (2) Fluor 4F-2L - 28W T8 Lamp
Replacement 2XL in the Office.



mIRR:
15.3%

SIR:
3.1

Fluor 4F-2L - 28W T8
Lamp Replacement 2XL



Type	Attribute	Value
Financial	Capital Cost	\$50.42
	Incentive	\$10.40
	Simple Payback	4.6
	1 Yr. Cost of Delay	\$8.61
	10 Yr. Cost of Delay	\$79.19
Environment	Hours On per Yr.	2350
	Energy Savings	38 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.11
Labor	Fewer Replacements	4
	Avoided Labor Hours	1
	Unit Cost	12.98
	Link to Purchase	N/A
Lighting	Wattage	56 W
	CRI	85
	Lumens	5200
	Lamp Type	F28T8/2XL
	Base Type	Medium Bipin

Tower, Lobby and Common - Mail Floor

Project Description:

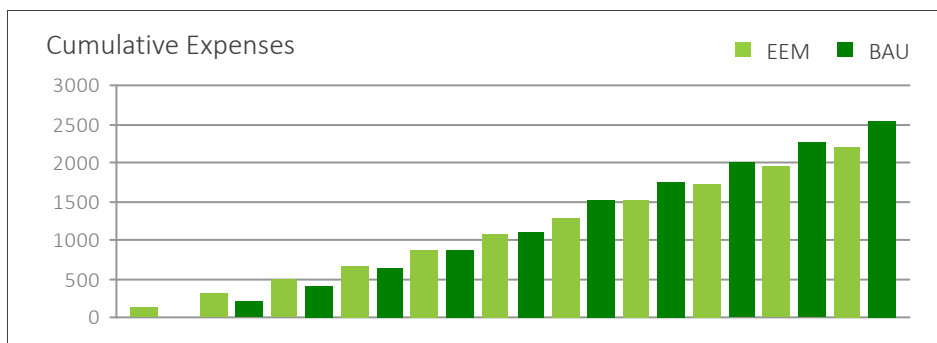
Replace (6) T8 - 4 Foot 2 Lamp - 32W
Fluorescent - Rapid Start Ballast, NLO - 700
Series with (6) Fluor 4F-2L - 28W T8 Lamp
Replacement 2XL in the Mail Floor.



mIRR:
15.3%

SIR:
3.1

Fluor 4F-2L - 28W T8
Lamp Replacement 2XL



Type	Attribute	Value
Financial	Capital Cost	\$151.26
	Incentive	\$31.20
	Simple Payback	4.6
	1 Yr. Cost of Delay	\$25.83
	10 Yr. Cost of Delay	\$237.54
Environment	Hours On per Yr.	2350
	Energy Savings	113 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.11
Labor	Fewer Replacements	12
	Avoided Labor Hours	3
	Unit Cost	12.98
	Link to Purchase	N/A
Lighting	Wattage	56 W
	CRI	85
	Lumens	5200
	Lamp Type	F28T8/2XL
	Base Type	Medium Bipin

Tower, Lobby and Common - Office 2

Project Description:

Replace (4) T8 - 4 Foot 2 Lamp - 32W
Fluorescent - Rapid Start Ballast, NLO - 700
Series with (4) Fluor 4F-2L - 28W T8 Lamp
Replacement 2XL in the Office 2.



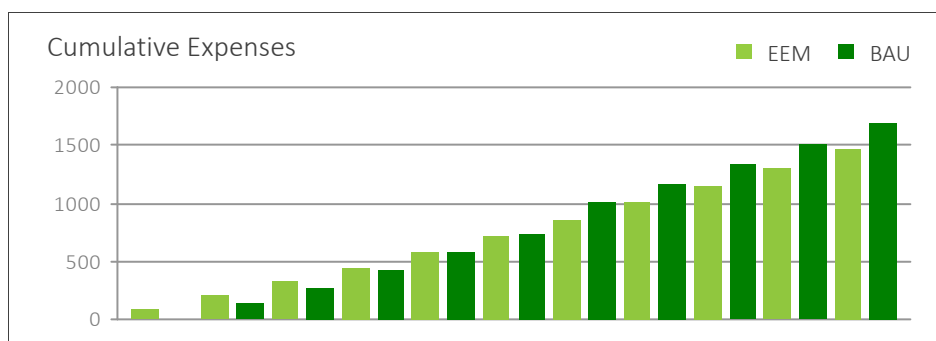
mIRR:

15.3%

SIR:

3.1

Fluor 4F-2L - 28W T8
Lamp Replacement 2XL



Type	Attribute	Value
Financial	Capital Cost	\$100.84
	Incentive	\$20.80
	Simple Payback	4.6
	1 Yr. Cost of Delay	\$17.22
	10 Yr. Cost of Delay	\$158.36
Environment	Hours On per Yr.	2350
	Energy Savings	75 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.11
Labor	Fewer Replacements	8
	Avoided Labor Hours	2
	Unit Cost	12.98
	Link to Purchase	N/A
Lighting	Wattage	56 W
	CRI	85
	Lumens	5200
	Lamp Type	F28T8/2XL
	Base Type	Medium Bipin

Tower, Lobby and Common - Office

Project Description:

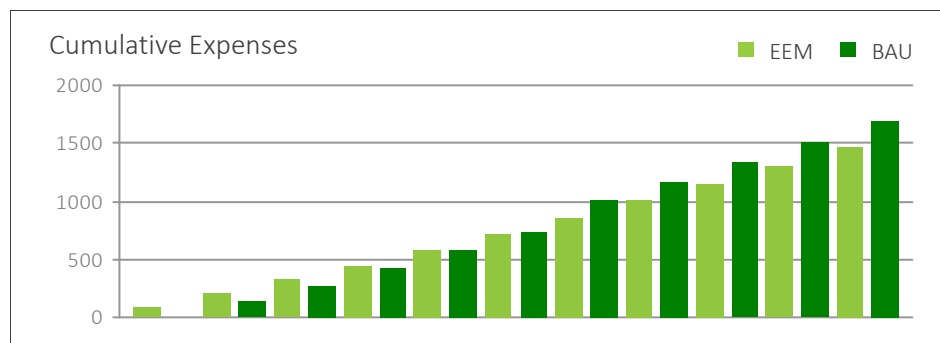
Replace (4) T8 - 4 Foot 2 Lamp - 32W
Fluorescent - Rapid Start Ballast, NLO - 700
Series with (4) Fluor 4F-2L - 28W T8 Lamp
Replacement 2XL in the Office.



mIRR:
15.3%

SIR:
3.1

Fluor 4F-2L - 28W T8
Lamp Replacement 2XL



Type	Attribute	Value
Financial	Capital Cost	\$100.84
	Incentive	\$20.80
	Simple Payback	4.6
	1 Yr. Cost of Delay	\$17.22
	10 Yr. Cost of Delay	\$158.36
Environment	Hours On per Yr.	2350
	Energy Savings	75 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.11
Labor	Fewer Replacements	8
	Avoided Labor Hours	2
	Unit Cost	12.98
	Link to Purchase	N/A
Lighting	Wattage	56 W
	CRI	85
	Lumens	5200
	Lamp Type	F28T8/2XL
	Base Type	Medium Bipin

Tower, Lobby and Common - Room Service Office

Project Description:

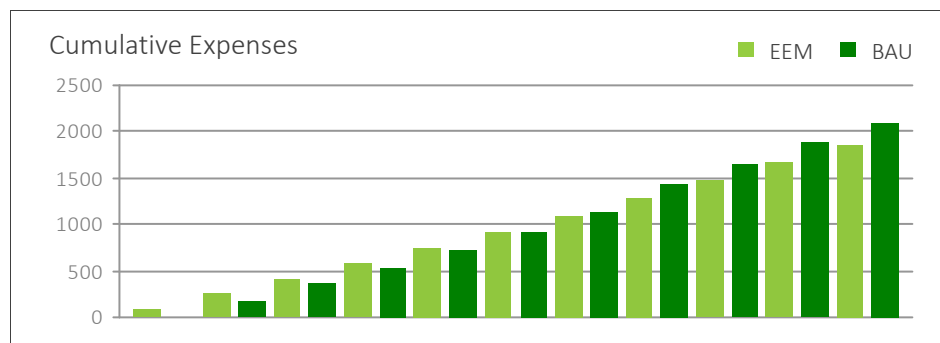
Replace (3) 85 CRI, 24,000 Hr. RSR, Fluorescent, (4) 48" T-8 lamp, Premium IS Ballast, NLO with (3) Fluor 4F-4L - 28W T8 Lamp Replacement (T8 Baseline) 2XL in the Room Service Office.



mIRR:
14.4%

SIR:
2.8

Fluor 4F-4L - 28W T8
Lamp Replacement (T8
Baseline) 2XL



Type	Attribute	Value
Financial	Capital Cost	\$114.57
	Incentive	\$23.40
	Simple Payback	4.7
	1 Yr. Cost of Delay	\$19.37
	10 Yr. Cost of Delay	\$158.94
Environment	Hours On per Yr.	2350
	Energy Savings	85 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.11
Labor	Fewer Replacements	12
	Avoided Labor Hours	3
	Unit Cost	25.96
	Link to Purchase	N/A
Lighting	Wattage	96 W
	CRI	85
	Lumens	10400
	Lamp Type	F28T8/2XL
	Base Type	Medium Bipin

Tower, Lobby and Common - Reservation Office

Project Description:

Replace (4) 85 CRI, 24,000 Hr. RSR, Fluorescent, (4) 48" T-8 lamp, Premium IS Ballast, NLO with (4) Fluor 4F-4L - 28W T8 Lamp Replacement (T8 Baseline) 2XL in the Reservation Office.



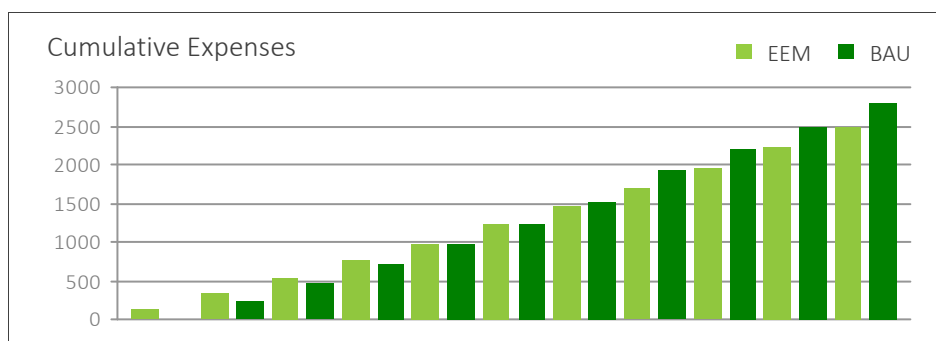
mIRR:

14.4%

SIR:

2.8

Fluor 4F-4L - 28W T8
Lamp Replacement (T8
Baseline) 2XL



Type	Attribute	Value
Financial	Capital Cost	\$152.76
	Incentive	\$31.20
	Simple Payback	4.7
	1 Yr. Cost of Delay	\$25.83
	10 Yr. Cost of Delay	\$211.35
Environment	Hours On per Yr.	2350
	Energy Savings	113 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.11
Labor	Fewer Replacements	16
	Avoided Labor Hours	4
	Unit Cost	25.96
	Link to Purchase	N/A
Lighting	Wattage	96 W
	CRI	85
	Lumens	10400
	Lamp Type	F28T8/2XL
	Base Type	Medium Bipin

Tower, Lobby and Common - Mail Floor

Project Description:

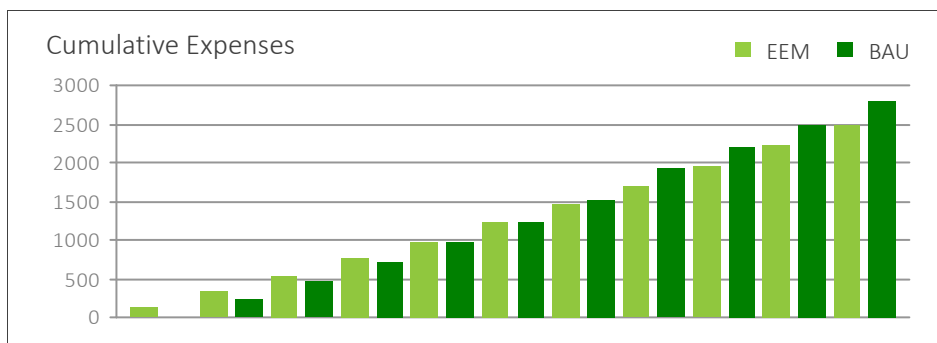
Replace (4) 85 CRI, 24,000 Hr. RSR, Fluorescent, (4) 48" T-8 lamp, Premium IS Ballast, NLO with (4) Fluor 4F-4L - 28W T8 Lamp Replacement (T8 Baseline) 2XL in the Mail Floor.



mIRR:
14.4%

SIR:
2.8

Fluor 4F-4L - 28W T8
Lamp Replacement (T8
Baseline) 2XL



Type	Attribute	Value
Financial	Capital Cost	\$152.76
	Incentive	\$31.20
	Simple Payback	4.7
	1 Yr. Cost of Delay	\$25.83
	10 Yr. Cost of Delay	\$211.35
Environment	Hours On per Yr.	2350
	Energy Savings	113 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.11
Labor	Fewer Replacements	16
	Avoided Labor Hours	4
	Unit Cost	25.96
	Link to Purchase	N/A
Lighting	Wattage	96 W
	CRI	85
	Lumens	10400
	Lamp Type	F28T8/2XL
	Base Type	Medium Bipin

Tower, Lobby and Common - Office

Project Description:

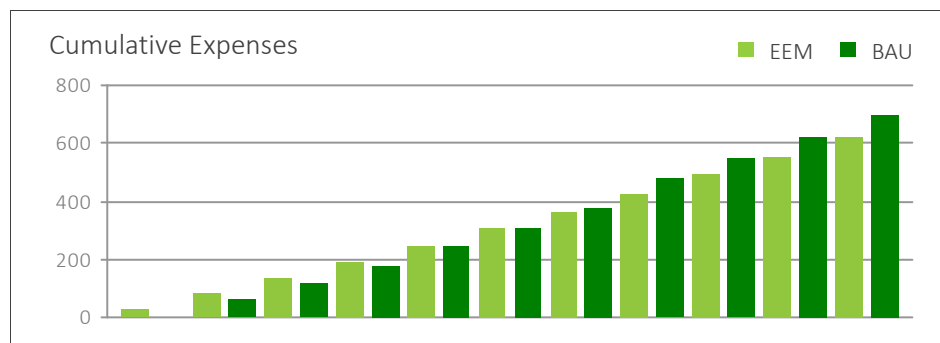
Replace (1) 85 CRI, 24,000 Hr. RSR, Fluorescent, (4) 48" T-8 lamp, Premium IS Ballast, NLO with (1) Fluor 4F-4L - 28W T8 Lamp Replacement (T8 Baseline) 2XL in the Office.



mIRR:
14.3%

SIR:
2.8

Fluor 4F-4L - 28W T8
Lamp Replacement (T8
Baseline) 2XL



Type	Attribute	Value
Financial	Capital Cost	\$38.19
	Incentive	\$7.80
	Simple Payback	4.7
	1 Yr. Cost of Delay	\$6.46
	10 Yr. Cost of Delay	\$52.40
Environment	Hours On per Yr.	2350
	Energy Savings	28 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.11
Labor	Fewer Replacements	4
	Avoided Labor Hours	1
	Unit Cost	25.96
	Link to Purchase	N/A
Lighting	Wattage	96 W
	CRI	85
	Lumens	10400
	Lamp Type	F28T8/2XL
	Base Type	Medium Bipin

Tower, Lobby and Common - Office

Project Description:

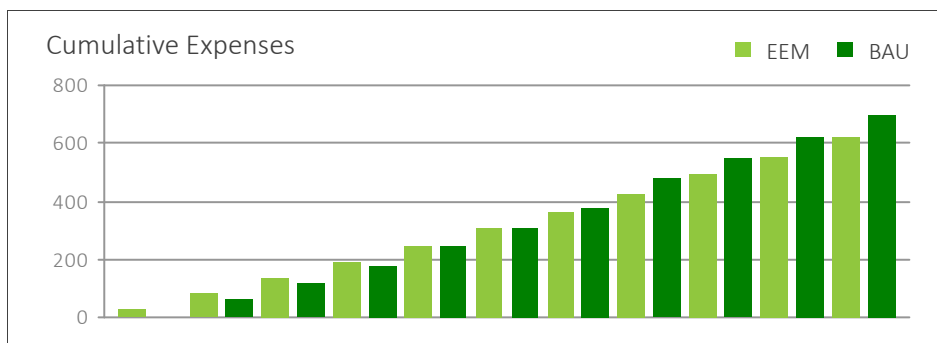
Replace (1) 85 CRI, 24,000 Hr. RSR, Fluorescent, (4) 48" T-8 lamp, Premium IS Ballast, NLO with (1) Fluor 4F-4L - 28W T8 Lamp Replacement (T8 Baseline) 2XL in the Office.



mIRR:
14.3%

SIR:
2.8

Fluor 4F-4L - 28W T8
Lamp Replacement (T8
Baseline) 2XL



Type	Attribute	Value
Financial	Capital Cost	\$38.19
	Incentive	\$7.80
	Simple Payback	4.7
	1 Yr. Cost of Delay	\$6.46
	10 Yr. Cost of Delay	\$52.40
Environment	Hours On per Yr.	2350
	Energy Savings	28 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.11
Labor	Fewer Replacements	4
	Avoided Labor Hours	1
	Unit Cost	25.96
	Link to Purchase	N/A
Lighting	Wattage	96 W
	CRI	85
	Lumens	10400
	Lamp Type	F28T8/2XL
	Base Type	Medium Bipin

Tower, Lobby and Common - Stair

Project Description:

Replace (2) Fluorescent, (1) 24", STD lamp with
(2) 1L T8 24inch 15W - 20W T12 equivalent in
the Stair.



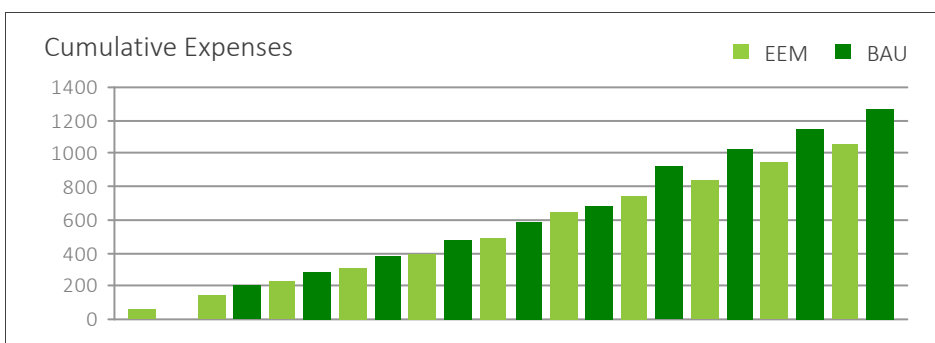
mIRR:

13.8%

SIR:

3.9

1L T8 24inch 15W - 20W
T12 equivalent



Type	Attribute	Value
Financial	Capital Cost	\$74.98
	Incentive	\$16.90
	Simple Payback	0.5
	1 Yr. Cost of Delay	\$117.55
	10 Yr. Cost of Delay	\$163.79
Environment	Hours On per Yr.	8760
	Energy Savings	228 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.09
Labor	Fewer Replacements	-2
	Avoided Labor Hours	-0.5
	Unit Cost	42.99
	Link to Purchase	N/A
Lighting	Wattage	15 W
	CRI	82
	Lumens	1035
	Lamp Type	T8
	Base Type	Bi-pin

Restaurant and Meeting Rooms - Big Ballroom Small Boxes - 6

Project Description:

Replace (72) T8 - 4 Foot 1 Lamp - 32W
Fluorescent - Rapid Start Ballast, NLO - 700
Series with (72) Fluor 4F-1L - 28W T8 Lamp
Replacement 2XL in the Big Ballroom Small
Boxes - 6.



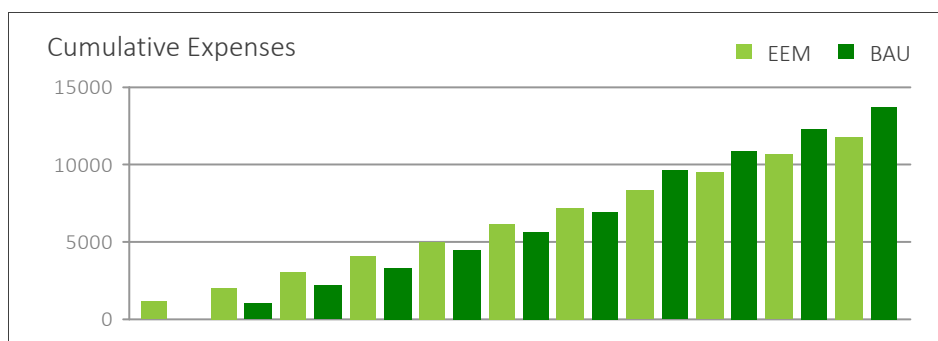
mIRR:

10.7%

SIR:

2

Fluor 4F-1L - 28W T8
Lamp Replacement 2XL



Type	Attribute	Value
Financial	Capital Cost	\$1,347.84
	Incentive	\$187.20
	Simple Payback	8.7
	1 Yr. Cost of Delay	\$133.16
	10 Yr. Cost of Delay	\$1,118.04
Environment	Hours On per Yr.	2139
	Energy Savings	616 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.09
Labor	Fewer Replacements	72
	Avoided Labor Hours	18
	Unit Cost	6.49
	Link to Purchase	N/A
Lighting	Wattage	28 W
	CRI	85
	Lumens	2600
	Lamp Type	F28T8/2XL
	Base Type	Medium Bipin

Restaurant and Meeting Rooms - Big Ballroom Big Boxes - 12

Project Description:

Replace (168) T8 - 4 Foot 1 Lamp - 32W
Fluorescent - Rapid Start Ballast, NLO - 700
Series with (168) Fluor 4F-1L - 28W T8 Lamp
Replacement 2XL in the Big Ballroom Big Boxes -
12.



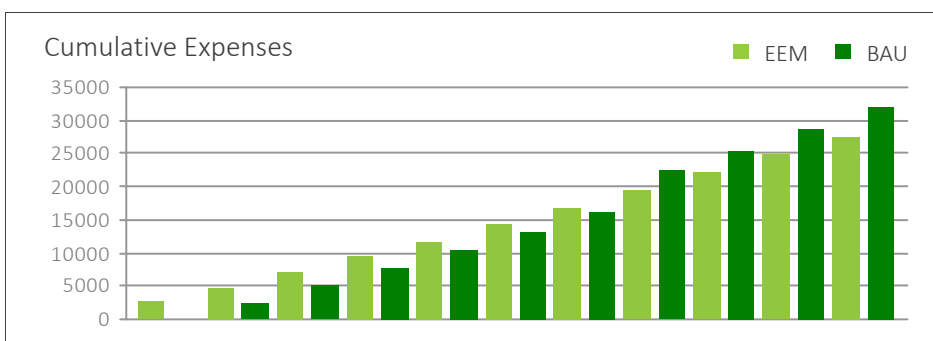
mIRR:

10.7%

SIR:

2

Fluor 4F-1L - 28W T8
Lamp Replacement 2XL



Type	Attribute	Value
Financial	Capital Cost	\$3,144.96
	Incentive	\$436.80
	Simple Payback	8.7
	1 Yr. Cost of Delay	\$310.70
	10 Yr. Cost of Delay	\$2,608.74
Environment	Hours On per Yr.	2139
	Energy Savings	1437 (kWh/Yr.)
	Demand Savings (kW)	1 kW
	Avoided Electricity Cost	\$0.09
Labor	Fewer Replacements	168
	Avoided Labor Hours	42
	Unit Cost	6.49
	Link to Purchase	N/A
Lighting	Wattage	28 W
	CRI	85
	Lumens	2600
	Lamp Type	F28T8/2XL
	Base Type	Medium Bipin

Tower, Lobby and Common - Linen room

Project Description:

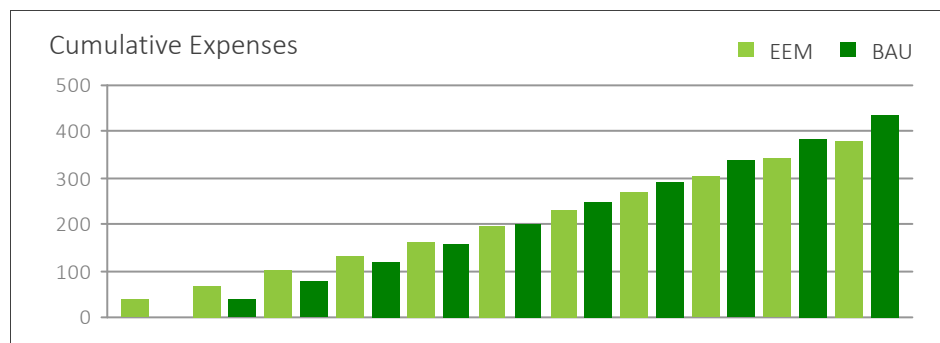
Replace (3) 85 CRI, 24,000 Hr. RSR, Fluorescent,
(1)48" T-8 lamp, Premium IS Ballast, NLO with
(3) Fluor 4F-1L - 28W T8 Lamp Replacement
2XL in the Linen room.



mIRR:
10%

SIR:
1.9

Fluor 4F-1L - 28W T8
Lamp Replacement 2XL



Type	Attribute	Value
Financial	Capital Cost	\$56.16
	Incentive	\$15.60
	Simple Payback	4.8
	1 Yr. Cost of Delay	\$8.45
	10 Yr. Cost of Delay	\$35.84
Environment	Hours On per Yr.	1096
	Energy Savings	26 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.07
Labor	Fewer Replacements	0
	Avoided Labor Hours	0
	Unit Cost	6.49
	Link to Purchase	N/A
Lighting	Wattage	28 W
	CRI	85
	Lumens	2600
	Lamp Type	F28T8/2XL
	Base Type	Medium Bipin

Tower, Lobby and Common - P-1 Men's Staff Locker Front

Project Description:

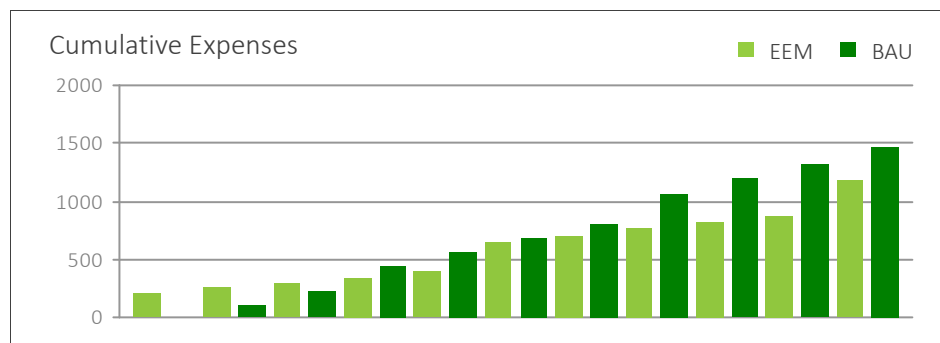
Replace (7) Fluorescent, (1) 24", STD lamp with
(7) 1L T8 24inch 15W - 20W T12 equivalent w/
Occupancy Sensor in the P-1 Men's Staff Locker
Front.



mIRR:
7.5%

SIR:
2.1

1L T8 24inch 15W - 20W
T12 equivalent w/
Occupancy Sensor



Type	Attribute	Value
Financial	Capital Cost	\$262.43
	Incentive	\$59.15
	Simple Payback	3.5
	1 Yr. Cost of Delay	\$58.65
	10 Yr. Cost of Delay	\$214.03
Environment	Hours On per Yr.	1527
	Energy Savings	300 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.11
Labor	Fewer Replacements	0
	Avoided Labor Hours	0
	Unit Cost	42.99
	Link to Purchase	N/A
Lighting	Wattage	15 W
	CRI	82
	Lumens	1035
	Lamp Type	T8
	Base Type	Bi-pin

Tower, Lobby and Common - P-1 Men's Staff Locker Back

Project Description:

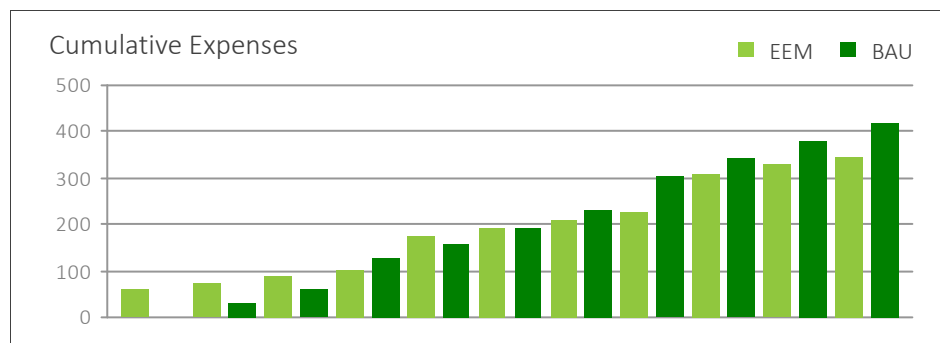
Replace (2) Fluorescent, (1) 24", STD lamp with
(2) 1L T8 24inch 15W - 20W T12 equivalent w/
Occupancy Sensor in the P-1 Men's Staff Locker
Back.



mIRR:
6.4%

SIR:
1.8

1L T8 24inch 15W - 20W
T12 equivalent w/
Occupancy Sensor



Type	Attribute	Value
Financial	Capital Cost	\$74.98
	Incentive	\$16.90
	Simple Payback	3.8
	1 Yr. Cost of Delay	\$15.18
	10 Yr. Cost of Delay	\$45.63
Environment	Hours On per Yr.	1997
	Energy Savings	72 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.11
Labor	Fewer Replacements	0
	Avoided Labor Hours	0
	Unit Cost	42.99
	Link to Purchase	N/A
Lighting	Wattage	15 W
	CRI	82
	Lumens	1035
	Lamp Type	T8
	Base Type	Bi-pin

Tower, Lobby and Common - Central Plant

Project Description:

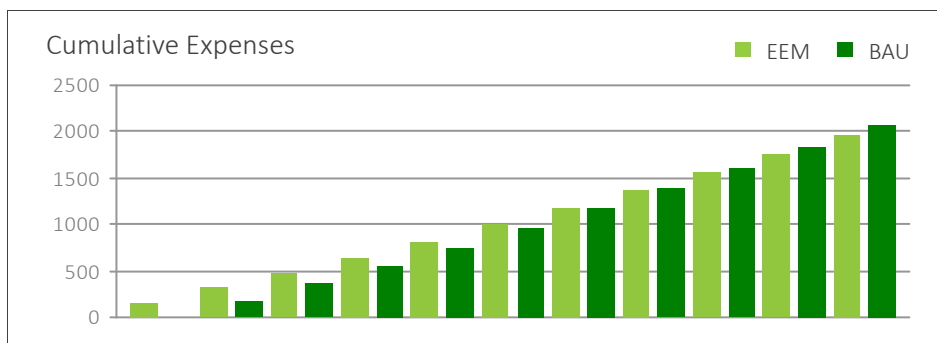
Replace (8) T8 - 4 Foot 2 Lamp - 32W
Fluorescent - Rapid Start Ballast, NLO - 700
Series with (8) Fluor 4F-2L - 28W T8 Lamp
Replacement 2XL in the Central Plant.



mIRR:
5.8%

SIR:
1.3

Fluor 4F-2L - 28W T8
Lamp Replacement 2XL



Type	Attribute	Value
Financial	Capital Cost	\$201.68
	Incentive	\$41.60
	Simple Payback	7.1
	1 Yr. Cost of Delay	\$22.54
	10 Yr. Cost of Delay	\$45.67
Environment	Hours On per Yr.	1096
	Energy Savings	70 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.07
Labor	Fewer Replacements	0
	Avoided Labor Hours	0
	Unit Cost	12.98
	Link to Purchase	N/A
Lighting	Wattage	56 W
	CRI	85
	Lumens	5200
	Lamp Type	F28T8/2XL
	Base Type	Medium Bipin

Restaurant and Meeting Rooms - Mtg Rooms AHU Room

Project Description:

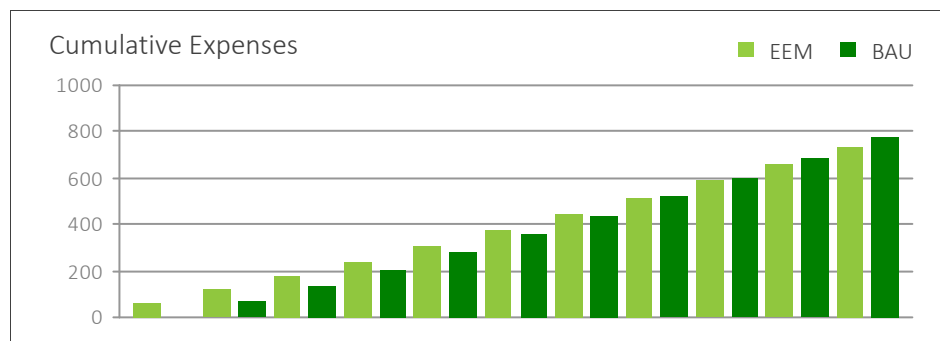
Replace (3) T8 - 4 Foot 2 Lamp - 32W
Fluorescent - Rapid Start Ballast, NLO - 700
Series with (3) Fluor 4F-2L - 28W T8 Lamp
Replacement 2XL in the Mtg Rooms AHU Room.



mIRR:
5.8%

SIR:
1.3

Fluor 4F-2L - 28W T8
Lamp Replacement 2XL



Type	Attribute	Value
Financial	Capital Cost	\$75.63
	Incentive	\$15.60
	Simple Payback	7.1
	1 Yr. Cost of Delay	\$8.45
	10 Yr. Cost of Delay	\$17.12
Environment	Hours On per Yr.	1096
	Energy Savings	26 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.07
Labor	Fewer Replacements	0
	Avoided Labor Hours	0
	Unit Cost	12.98
	Link to Purchase	N/A
Lighting	Wattage	56 W
	CRI	85
	Lumens	5200
	Lamp Type	F28T8/2XL
	Base Type	Medium Bipin

Tower, Lobby and Common - Small Chiller Room

Project Description:

Replace (6) T8 - 4 Foot 2 Lamp - 32W
Fluorescent - Rapid Start Ballast, NLO - 700
Series with (6) Fluor 4F-2L - 28W T8 Lamp
Replacement 2XL in the Small Chiller Room.



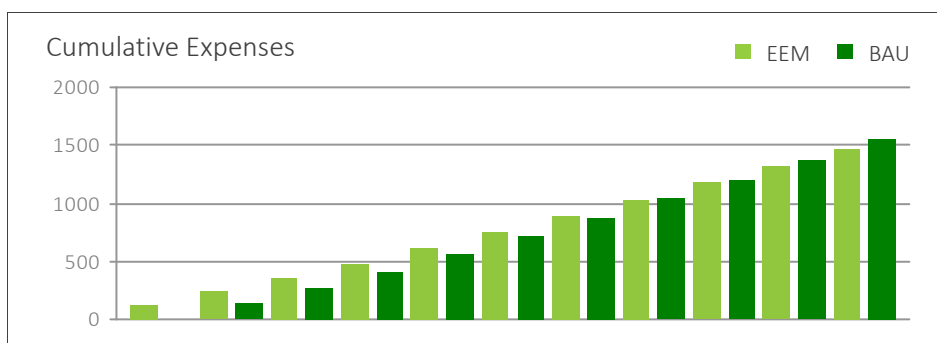
mIRR:

5.8%

SIR:

1.3

Fluor 4F-2L - 28W T8
Lamp Replacement 2XL



Type	Attribute	Value
Financial	Capital Cost	\$151.26
	Incentive	\$31.20
	Simple Payback	7.1
	1 Yr. Cost of Delay	\$16.90
	10 Yr. Cost of Delay	\$34.23
Environment	Hours On per Yr.	1096
	Energy Savings	53 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.07
Labor	Fewer Replacements	0
	Avoided Labor Hours	0
	Unit Cost	12.98
	Link to Purchase	N/A
Lighting	Wattage	56 W
	CRI	85
	Lumens	5200
	Lamp Type	F28T8/2XL
	Base Type	Medium Bipin

Tower, Lobby and Common - Storage

Project Description:

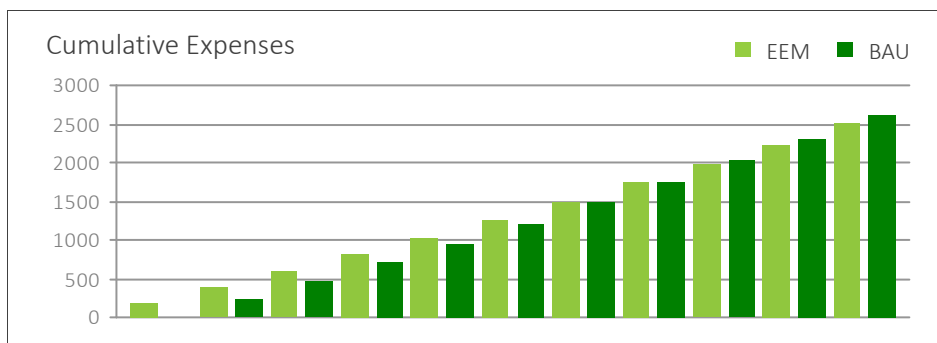
Replace (6) 85 CRI, 24,000 Hr. RSR, Fluorescent, (4) 48" T-8 lamp, Premium IS Ballast, NLO with (6) Fluor 4F-4L - 28W T8 Lamp Replacement (T8 Baseline) 2XL in the Storage.



mIRR:
5.7%

SIR:
1.3

Fluor 4F-4L - 28W T8
Lamp Replacement (T8
Baseline) 2XL



Type	Attribute	Value
Financial	Capital Cost	\$229.14
	Incentive	\$46.80
	Simple Payback	7.2
	1 Yr. Cost of Delay	\$25.35
	10 Yr. Cost of Delay	\$49.19
Environment	Hours On per Yr.	1096
	Energy Savings	79 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.07
Labor	Fewer Replacements	0
	Avoided Labor Hours	0
	Unit Cost	25.96
	Link to Purchase	N/A
Lighting	Wattage	96 W
	CRI	85
	Lumens	10400
	Lamp Type	F28T8/2XL
	Base Type	Medium Bipin

Tower, Lobby and Common - Basement

Project Description:

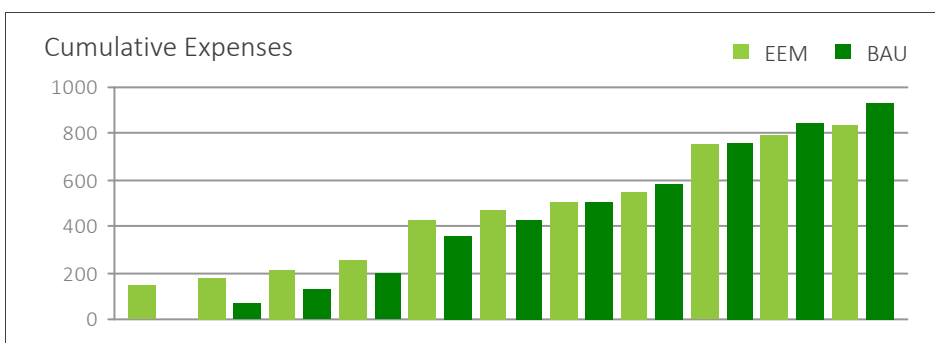
Replace (5) Fluorescent, (1) 24", STD lamp with
(5) 1L T8 24inch 15W - 20W T12 equivalent in
the Basement.



mIRR:
5.5%

SIR:
1.3

1L T8 24inch 15W - 20W
T12 equivalent



Type	Attribute	Value
Financial	Capital Cost	\$187.45
	Incentive	\$42.25
	Simple Payback	4.8
	1 Yr. Cost of Delay	\$30.05
	10 Yr. Cost of Delay	\$43.69
Environment	Hours On per Yr.	2139
	Energy Savings	139 (kWh/Yr.)
	Demand Savings (kW)	0 kW
	Avoided Electricity Cost	\$0.09
Labor	Fewer Replacements	0
	Avoided Labor Hours	0
	Unit Cost	42.99
	Link to Purchase	N/A
Lighting	Wattage	15 W
	CRI	82
	Lumens	1035
	Lamp Type	T8
	Base Type	Bi-pin

HVAC Energy Savings Summary

Tags	Project	Baseline (Energy/Yr)			Proposed (Energy/Yr)			Savings (Energy/Yr)		
		Heat KBTU	Cool KBTU	SupFan KWH	Heat KBTU	Cool KBTU	SupFan KWH	Heat KBTU	Cool kWh	SupFan KWH
HS-3/HE-3/HE-9	Fix Economizer Damper & Supply Fan VFD	240,370	55250	5930	172380	28080	5236	67,990	2,717	694
HS-4/Kitchen Hoods	Turn off when kitchen not in use.	1,444,970	163560	47050	587590	45200	19600	857,380	11,836	27,450
HS-2/HE-2/HE-8	Fix Economizer Damper & Supply Fan VFD	1,108,520	159360	30580	789785	81740	26620	318,735	7,762	3,960
HS-1/HE-1	Repair Economizer Damper. CO2 sensor in return air to module fan speed and OSA%. Add controller to turn off at night.	1,892,630	214230	56460	1353720	110100	38170	538,910	10,413	18,290
B-AH-1, [REDACTED] Exhaust	VAV to reduce speed to VFD, Install CO2 and Electronic Thermostat Controls.	139,420	35920	10470	103560	19170	9600	35,860	1,675	870
AHU-3/HE-2	VAV to reduce speed to 50% - controls fan controls with electronic thermostats and fan controller	145,940	33550	8630	104650	16980	7760	41,290	1,657	870
		6,188,000	833,000	193,000	3,112,000	301,000	107,000	1,860,000	36,000	52,000

HVAC Project Finance Summary

Tags	Project	Annual Savings (\$/yr)			Incentive			Totals \$		
		Heating	Cooling	Fans	Heating	Cooling	Fans	Savings (\$/Yr)	Incentive	Project Cost
HS-3/HE-3/HE-9	Fix Economizer Damper & Supply Fan VFD	\$ 650	\$ 380	\$ 110	\$ (650)	\$ (34)	\$ (10)	\$ 1,140	\$ (694)	\$ 10,250
HS-4/Kitchen Hoods	Turn off when kitchen not in use.	\$ 8,150	\$ 1,670	\$ 1,386	\$ (8,150)	\$ (150)	\$ (125)	\$ 11,206	\$ (8,425)	\$ 2,000
HS-2/HE-2/HE-8	Fix Economizer Damper & Supply Fan VFD	\$ 3,030	\$ 1,090	\$ 515	\$ (3,030)	\$ (98)	\$ (46)	\$ 4,635	\$ (3,174)	\$ 11,000
HS-1/HE-1	Repair Economizer Damper. CO2 sensor in return air to module fan speed and OSA%. Add controller to turn off at night.	\$ 5,120	\$ 1,470	\$ 870	\$ (5,120)	\$ (132)	\$ (78)	\$ 7,460	\$ (5,331)	\$ 13,500
B-AH-1, [REDACTED] Exhaust	VAV to reduce speed to VFD, Install CO2 and Electronic Thermostat Controls.	\$ -	\$ 240	\$ -	\$ -	\$ (22)	\$ -	\$ 240	\$ (22)	\$ 6,000
AHU-3/HE-2	VAV to reduce speed to 50% - controls fan controls with electronic thermostats and fan controller	\$ 340	\$ 230	\$ 58	\$ (340)	\$ (21)	\$ (5)	\$ 628	\$ (366)	\$ 5,250
		\$ 17,290	\$ 5,080	\$ 2,939	\$ (17,290)	\$ (457)	\$ (264)	\$ 25,309	\$ (18,012)	\$ 48,000



Thursday, April 24, 2014

11:37:35 AM

1, HS-6/HE-6, P-2, Sch D

binID	binOSAt emp	binOSApct	binHRperY ear	binMixAir Temp	binSupply AirTemp	binSupplyAi rPCT	binReturnA irPCT	binExhaust AirPCT	binHeatKBTU	binCoolKBTU	binSupFanKWH	binRetFanKWH	binExhFanKW
1	100	100.00%	0	100	40	100.00%	100.00%	100.00%	0	0	0	0	
2	95	100.00%	1	95	40	100.00%	100.00%	100.00%	0	143.81675	0.6714	0.40284	
3	90	100.00%	5	90	40	100.00%	100.00%	100.00%	0	653.7125	3.357	2.0142	
4	85	100.00%	44	85	40	100.00%	100.00%	100.00%	0	5177.403	29.5416	17.72496	
5	80	100.00%	82	80	45	100.00%	100.00%	100.00%	0	7504.6195	55.0548	33.03288	
6	75	100.00%	200	75	53	100.00%	100.00%	100.00%	0	11505.34	134.28	80.568	
7	70	100.00%	649	70	62	100.00%	100.00%	100.00%	0	13576.3012	435.7386	261.44316	
8	65	100.00%	1485	65	70	100.00%	100.00%	100.00%	19415.26125	0	997.029	598.2174	
9	60	100.00%	1715	60	78	100.00%	100.00%	100.00%	80720.4195	0	1151.451	690.8706	
10	55	100.00%	985	55	87	100.00%	100.00%	100.00%	82420.072	0	661.329	396.7974	
11	50	100.00%	517	50	95	100.00%	100.00%	100.00%	60834.48525	0	347.1138	208.26828	
12	45	100.00%	129	45	103	100.00%	100.00%	100.00%	19564.3077	0	86.6106	51.96636	
13	40	100.00%	28	40	112	100.00%	100.00%	100.00%	5271.5376	0	18.7992	11.27952	
14	35	100.00%	0	35	120	100.00%	100.00%	100.00%	0	0	0	0	
15	30	100.00%	0	30	120	100.00%	100.00%	100.00%	0	0	0	0	
16	25	100.00%	0	25	120	100.00%	100.00%	100.00%	0	0	0	0	
17	20	100.00%	0	20	120	100.00%	100.00%	100.00%	0	0	0	0	



Thursday, April 24, 2014

11:58:58 AM

2, HS-3/HE-3/HE-9, P-1 and Laundry, Sch C

binID	binOSAt emp	binOSApct	binHRperY ear	binMixAir Temp	binSupply AirTemp	binSupplyAi rPCT	binReturnA irPCT	binExhaust AirPCT	binHeatKBTU	binCoolKBTU	binSupFanKWH	binRetFanKWH	binExhFanKW
1	100	100.00%	0	100	40	100.00%	100.00%	100.00%	0	0	0	0	
2	95	100.00%	1	95	40	100.00%	100.00%	100.00%	0	217.81375	1.07424	0	0.4028
3	90	100.00%	5	90	40	100.00%	100.00%	100.00%	0	990.0625	5.3712	0	2.014
4	85	100.00%	44	85	40	100.00%	100.00%	100.00%	0	7841.295	47.26656	0	17.7249
5	80	100.00%	77	80	45	100.00%	100.00%	100.00%	0	10672.87375	82.71648	0	31.0186
6	75	100.00%	190	75	53	100.00%	100.00%	100.00%	0	16553.845	204.1056	0	76.539
7	70	100.00%	599	70	62	100.00%	100.00%	100.00%	0	18977.518	643.46976	0	241.3011
8	65	100.00%	1146	65	70	100.00%	100.00%	100.00%	22692.2325	0	1231.07904	0	461.6546
9	60	100.00%	1032	60	78	100.00%	100.00%	100.00%	73565.604	0	1108.61568	0	415.7308
10	55	100.00%	511	55	87	100.00%	100.00%	100.00%	64758.008	0	548.93664	0	205.8512
11	50	100.00%	304	50	95	100.00%	100.00%	100.00%	54176.22	0	326.56896	0	122.4633
12	45	100.00%	91	45	103	100.00%	100.00%	100.00%	20902.1995	0	97.75584	0	36.6584
13	40	100.00%	15	40	112	100.00%	100.00%	100.00%	4277.07	0	16.1136	0	6.042
14	35	100.00%	0	35	120	100.00%	100.00%	100.00%	0	0	0	0	
15	30	100.00%	0	30	120	100.00%	100.00%	100.00%	0	0	0	0	
16	25	100.00%	0	25	120	100.00%	100.00%	100.00%	0	0	0	0	
17	20	100.00%	0	20	120	100.00%	100.00%	100.00%	0	0	0	0	



Thursday, April 24, 2014

7:47:36 PM

3_HS-4 Kitchen Hoods_Big Kitchen_Sch A

binID	binOSAt emp	binOSApct	binHRperY ear	binMixAir Temp	binSupply AirTemp	binSupplyAi rPCT	binReturnA irPCT	binExhaust AirPCT	binHeatKBTU	binCoolKBTU	binSupFanKWH	binRetFanKWH	binExhFanKW
1	100	100.00%	0	100	40	100.00%	100.00%	100.00%	0	0	0	0	
2	95	100.00%	1	95	40	100.00%	100.00%	100.00%	0	608.685	4.0284	0	1.342
3	90	100.00%	5	90	40	100.00%	100.00%	100.00%	0	2766.75	20.142	0	6.71
4	85	100.00%	44	85	40	100.00%	100.00%	100.00%	0	21912.66	177.2496	0	59.083
5	80	100.00%	82	80	45	100.00%	100.00%	100.00%	0	31762.29	330.3288	0	110.109
6	75	100.00%	200	75	53	100.00%	100.00%	100.00%	0	48694.8	805.68	0	268.5
7	70	100.00%	653	70	62	100.00%	100.00%	100.00%	0	57814.008	2630.5452	0	876.848
8	65	100.00%	1639	65	68	100.00%	100.00%	100.00%	54416.439	0	6602.5476	0	2200.849
9	60	100.00%	2770	60	74	100.00%	100.00%	100.00%	429178.26	0	11158.668	0	3719.55
10	55	100.00%	1937	55	77	100.00%	100.00%	100.00%	471609.138	0	7803.0108	0	2601.003
11	50	100.00%	1083	50	79	100.00%	100.00%	100.00%	347581.269	0	4362.7572	0	1454.252
12	45	100.00%	290	45	81	100.00%	100.00%	100.00%	115539.48	0	1168.236	0	389.41
13	40	100.00%	56	40	83	100.00%	100.00%	100.00%	26649.336	0	225.5904	0	75.196
14	35	100.00%	0	35	85	100.00%	100.00%	100.00%	0	0	0	0	
15	30	100.00%	0	30	88	100.00%	100.00%	100.00%	0	0	0	0	
16	25	100.00%	0	25	90	100.00%	100.00%	100.00%	0	0	0	0	
17	20	100.00%	0	20	92	100.00%	100.00%	100.00%	0	0	0	0	



Thursday, April 24, 2014

12:05:11 PM

4, HS-2/HE-2/HE-8, Office [REDACTED] Lobby,
Mezzanine Sch D

binID	binOSAt emp	binOSApct	binHRperY ear	binMixAir Temp	binSupply AirTemp	binSupplyAi rPCT	binReturnA irPCT	binExhaust AirPCT	binHeatKBTU	binCoolKBTU	binSupFanKWH	binRetFanKWH	binExhFanKW
1	100	100.00%	0	100	40	100.00%	100.00%	100.00%	0	0	0	0	
2	95	100.00%	1	95	40	100.00%	100.00%	100.00%	0	594.363	4.0284	0.80568	0.4028
3	90	100.00%	5	90	40	100.00%	100.00%	100.00%	0	2701.65	20.142	4.0284	2.014
4	85	100.00%	44	85	40	100.00%	100.00%	100.00%	0	21397.068	177.2496	35.44992	17.7249
5	80	100.00%	82	80	45	100.00%	100.00%	100.00%	0	31014.942	330.3288	66.06576	33.0328
6	75	100.00%	200	75	53	100.00%	100.00%	100.00%	0	47549.04	805.68	161.136	80.56
7	70	100.00%	649	70	62	100.00%	100.00%	100.00%	0	56107.8672	2614.4316	522.88632	261.4431
8	65	100.00%	1485	65	70	100.00%	100.00%	100.00%	80239.005	0	5982.174	1196.4348	598.217
9	60	100.00%	1715	60	78	100.00%	100.00%	100.00%	333599.742	0	6908.706	1381.7412	690.870
10	55	100.00%	985	55	87	100.00%	100.00%	100.00%	340624.032	0	3967.974	793.5948	396.797
11	50	100.00%	517	50	95	100.00%	100.00%	100.00%	251415.549	0	2082.6828	416.53656	208.2682
12	45	100.00%	129	45	103	100.00%	100.00%	100.00%	80854.9812	0	519.6636	103.93272	51.9663
13	40	100.00%	28	40	112	100.00%	100.00%	100.00%	21786.1056	0	112.7952	22.55904	11.2795
14	35	100.00%	0	35	120	100.00%	100.00%	100.00%	0	0	0	0	
15	30	100.00%	0	30	120	100.00%	100.00%	100.00%	0	0	0	0	
16	25	100.00%	0	25	120	100.00%	100.00%	100.00%	0	0	0	0	
17	20	100.00%	0	20	120	100.00%	100.00%	100.00%	0	0	0	0	



Thursday, April 24, 2014

8:37:34 PM

5_HS-1 HE-1_Lobby & Hotel Offices & Balance of Garden
Level_Sch A

binID	binOSAt emp	binOSApct	binHRperY ear	binMixAir Temp	binSupply AirTemp	binSupplyAi rPCT	binReturnA irPCT	binExhaust AirPCT	binHeatKBTU	binCoolKBTU	binSupFanKWH	binRetFanKWH	binExhFanKW
1	100	100.00%	0	100	40	100.00%	100.00%	100.00%	0	0	0	0	
2	95	100.00%	1	95	40	100.00%	100.00%	100.00%	0	797.258	5.3712	0	1.0742
3	90	100.00%	5	90	40	100.00%	100.00%	100.00%	0	3623.9	26.856	0	5.371
4	85	100.00%	44	85	40	100.00%	100.00%	100.00%	0	28701.288	236.3328	0	47.2665
5	80	100.00%	82	80	45	100.00%	100.00%	100.00%	0	41602.372	440.4384	0	88.0876
6	75	100.00%	200	75	53	100.00%	100.00%	100.00%	0	63780.64	1074.24	0	214.84
7	70	100.00%	653	70	62	100.00%	100.00%	100.00%	0	75725.0144	3507.3936	0	701.4787
8	65	100.00%	1639	65	68	100.00%	100.00%	100.00%	71274.8652	0	8803.3968	0	1760.6793
9	60	100.00%	2770	60	74	100.00%	100.00%	100.00%	562139.368	0	14878.224	0	2975.644
10	55	100.00%	1937	55	77	100.00%	100.00%	100.00%	617715.4984	0	10404.0144	0	2080.8028
11	50	100.00%	1083	50	79	100.00%	100.00%	100.00%	455263.3092	0	5817.0096	0	1163.4019
12	45	100.00%	290	45	81	100.00%	100.00%	100.00%	151334.064	0	1557.648	0	311.529
13	40	100.00%	56	40	83	100.00%	100.00%	100.00%	34905.4048	0	300.7872	0	60.1574
14	35	100.00%	0	35	85	100.00%	100.00%	100.00%	0	0	0	0	
15	30	100.00%	0	30	88	100.00%	100.00%	100.00%	0	0	0	0	
16	25	100.00%	0	25	90	100.00%	100.00%	100.00%	0	0	0	0	
17	20	100.00%	0	20	92	100.00%	100.00%	100.00%	0	0	0	0	



Thursday, April 24, 2014

1:48:53 PM

6_FCU 1:160_ Sch E

binID	binOSAt emp	binOSApct	binHRperY ear	binMixAir Temp	binSupply AirTemp	binSupplyAi rPCT	binReturnA irPCT	binExhaust AirPCT	binHeatKBTU	binCoolKBTU	binSupFanKWH	binRetFanKWH	binExhFanKWH
1	100	20.00%	0	77.6	40	100.00%	100.00%	100.00%	0	0	0	0	0
2	95	20.00%	0	76.6	40	100.00%	100.00%	100.00%	0	0	0	0	0
3	90	20.00%	0	75.6	40	100.00%	100.00%	100.00%	0	0	0	0	0
4	85	20.00%	0	74.6	40	100.00%	100.00%	100.00%	0	0	0	0	0
5	80	20.00%	8	73.6	45	100.00%	100.00%	100.00%	0	109.22912	52175170056179	0	0
6	75	20.00%	25	72.6	53	100.00%	100.00%	100.00%	0	233.926	35054740642556	0	0
7	70	100.00%	141	70	62	100.00%	100.00%	100.00%	0	538.5072	1.2570873722401	0	0
8	65	100.00%	849	65	70	100.00%	100.00%	100.00%	2026.563	0	1.8245899222119	0	0
9	60	100.00%	2181	60	78	100.00%	100.00%	100.00%	18741.7692	0	15.061755736566	0	0
10	55	70.59%	1688	60	87	100.00%	100.00%	100.00%	21757.9824	0	18.708960881854	0	0
11	50	54.55%	973	60	95	100.00%	100.00%	100.00%	16257.857	0	1.4833050580827	0	0
12	45	44.44%	284	60	103	100.00%	100.00%	100.00%	5830.0088	0	1.7022185369943	0	0
13	40	37.50%	56	60	112	100.00%	100.00%	100.00%	1390.1888	0	26522619039325	0	0
14	35	32.43%	0	60	120	100.00%	100.00%	100.00%	0	0	0	0	0
15	30	28.57%	0	60	120	100.00%	100.00%	100.00%	0	0	0	0	0
16	25	25.53%	0	60	120	100.00%	100.00%	100.00%	0	0	0	0	0
17	20	23.08%	0	60	120	100.00%	100.00%	100.00%	0	0	0	0	0



Thursday, April 24, 2014

1:20:31 PM

7_B-AH-1

Sch B

binID	binOSAt emp	binOSApct	binHRperY ear	binMixAir Temp	binSupply AirTemp	binSupplyAi rPCT	binReturnA irPCT	binExhaust AirPCT	binHeatKBTU	binCoolKBTU	binSupFanKWH	binRetFanKWH	binExhFanKW
1	100	100.00%	0	100	40	100.00%	100.00%	100.00%	0	0	0	0	
2	95	100.00%	1	95	40	100.00%	100.00%	100.00%	0	358.05	4.0284	0	2.685
3	90	100.00%	4	90	40	100.00%	100.00%	100.00%	0	1302	16.1136	0	10.742
4	85	100.00%	13	85	40	100.00%	100.00%	100.00%	0	3808.35	52.3692	0	34.912
5	80	100.00%	26	80	45	100.00%	100.00%	100.00%	0	5924.1	104.7384	0	69.825
6	75	100.00%	76	75	53	100.00%	100.00%	100.00%	0	10884.72	306.1584	0	204.105
7	70	100.00%	262	70	62	100.00%	100.00%	100.00%	0	13644.96	1055.4408	0	703.627
8	65	100.00%	480	65	70	100.00%	100.00%	100.00%	15624	0	1933.632	0	1289.08
9	60	100.00%	384	60	78	100.00%	100.00%	100.00%	44997.12	0	1546.9056	0	1031.270
10	55	100.00%	186	55	87	100.00%	100.00%	100.00%	38747.52	0	749.2824	0	499.521
11	50	100.00%	100	50	95	100.00%	100.00%	100.00%	29295	0	402.84	0	268.5
12	45	100.00%	26	45	103	100.00%	100.00%	100.00%	9817.08	0	104.7384	0	69.825
13	40	100.00%	2	40	112	100.00%	100.00%	100.00%	937.44	0	8.0568	0	5.371
14	35	100.00%	0	35	120	100.00%	100.00%	100.00%	0	0	0	0	
15	30	100.00%	0	30	120	100.00%	100.00%	100.00%	0	0	0	0	
16	25	100.00%	0	25	120	100.00%	100.00%	100.00%	0	0	0	0	
17	20	100.00%	0	20	120	100.00%	100.00%	100.00%	0	0	0	0	



Thursday, April 24, 2014

1:24:11 PM

8_AH-3 RE-2_1 of 2_Sch B

binID	binOSAt emp	binOSApct	binHRperY ear	binMixAir Temp	binSupply AirTemp	binSupplyAi rPCT	binReturnA irPCT	binExhaust AirPCT	binHeatKBTU	binCoolKBTU	binSupFanKWH	binRetFanKWH	binExhFanKW
1	100	15.00%	0	76.2	40	100.00%	100.00%	100.00%	0	0	0	0	
2	95	15.00%	1	75.45	40	100.00%	100.00%	100.00%	0	76.9265	1.3428	0.26856	
3	90	15.00%	4	74.7	40	100.00%	100.00%	100.00%	0	301.196	5.3712	1.07424	
4	85	15.00%	13	73.95	40	100.00%	100.00%	100.00%	0	957.7295	17.4564	3.49128	
5	80	15.00%	26	73.2	45	100.00%	100.00%	100.00%	0	1591.044	34.9128	6.98256	
6	75	15.00%	76	72.45	53	100.00%	100.00%	100.00%	0	3207.694	102.0528	20.41056	
7	70	100.00%	262	70	62	100.00%	100.00%	100.00%	0	4548.32	351.8136	70.36272	
8	65	100.00%	480	65	70	100.00%	100.00%	100.00%	5208	0	644.544	128.9088	
9	60	100.00%	384	60	78	100.00%	100.00%	100.00%	14999.04	0	515.6352	103.12704	
10	55	70.59%	186	60	87	100.00%	100.00%	100.00%	10897.74	0	249.7608	49.95216	
11	50	54.55%	100	60	95	100.00%	100.00%	100.00%	7595	0	134.28	26.856	
12	45	44.44%	26	60	103	100.00%	100.00%	100.00%	2426.06	0	34.9128	6.98256	
13	40	37.50%	2	60	112	100.00%	100.00%	100.00%	225.68	0	2.6856	0.53712	
14	35	32.43%	0	60	120	100.00%	100.00%	100.00%	0	0	0	0	
15	30	28.57%	0	60	120	100.00%	100.00%	100.00%	0	0	0	0	
16	25	25.53%	0	60	120	100.00%	100.00%	100.00%	0	0	0	0	
17	20	23.08%	0	60	120	100.00%	100.00%	100.00%	0	0	0	0	



Thursday, April 24, 2014

1:27:21 PM

9_AH-4 RE-1 [REDACTED] 2 of 2_Sch B

binID	binOSAt emp	binOSApct	binHRperY ear	binMixAir Temp	binSupply AirTemp	binSupplyAi rPCT	binReturnA irPCT	binExhaust AirPCT	binHeatKBTU	binCoolKBTU	binSupFanKWH	binRetFanKWH	binExhFanKW
1	100	100.00%	0	100	40	100.00%	100.00%	100.00%	0	0	0	0	
2	95	100.00%	1	95	40	100.00%	100.00%	100.00%	0	594.363	4.0284	0.80568	0.4028
3	90	100.00%	5	90	40	100.00%	100.00%	100.00%	0	2701.65	20.142	4.0284	2.014
4	85	100.00%	44	85	40	100.00%	100.00%	100.00%	0	21397.068	177.2496	35.44992	17.7249
5	80	100.00%	82	80	45	100.00%	100.00%	100.00%	0	31014.942	330.3288	66.06576	33.0328
6	75	100.00%	200	75	53	100.00%	100.00%	100.00%	0	47549.04	805.68	161.136	80.56
7	70	100.00%	649	70	62	100.00%	100.00%	100.00%	0	56107.8672	2614.4316	522.88632	261.4431
8	65	100.00%	1485	65	70	100.00%	100.00%	100.00%	80239.005	0	5982.174	1196.4348	598.217
9	60	100.00%	1715	60	78	100.00%	100.00%	100.00%	333599.742	0	6908.706	1381.7412	690.870
10	55	100.00%	985	55	87	100.00%	100.00%	100.00%	340624.032	0	3967.974	793.5948	396.797
11	50	100.00%	517	50	95	100.00%	100.00%	100.00%	251415.549	0	2082.6828	416.53656	208.2682
12	45	100.00%	129	45	103	100.00%	100.00%	100.00%	80854.9812	0	519.6636	103.93272	51.9663
13	40	100.00%	28	40	112	100.00%	100.00%	100.00%	21786.1056	0	112.7952	22.55904	11.2795
14	35	100.00%	0	35	120	100.00%	100.00%	100.00%	0	0	0	0	
15	30	100.00%	0	30	120	100.00%	100.00%	100.00%	0	0	0	0	
16	25	100.00%	0	25	120	100.00%	100.00%	100.00%	0	0	0	0	
17	20	100.00%	0	20	120	100.00%	100.00%	100.00%	0	0	0	0	



Thursday, April 24, 2014

1:34:23 PM

10_AHU-3 HE-2_Office Area Downstairs_Sch C

binID	binOSAt emp	binOSApct	binHRperY ear	binMixAir Temp	binSupply AirTemp	binSupplyAi rPCT	binReturnA irPCT	binExhaust AirPCT	binHeatKBTU	binCoolKBTU	binSupFanKWH	binRetFanKWH	binExhFanKW
1	100	100.00%	0	100	40	100.00%	100.00%	100.00%	0	0	0	0	
2	95	100.00%	1	95	40	100.00%	100.00%	100.00%	0	132.2398	1.3428	0	0.8056
3	90	100.00%	5	90	40	100.00%	100.00%	100.00%	0	601.09	6.714	0	4.028
4	85	100.00%	44	85	40	100.00%	100.00%	100.00%	0	4760.6328	59.0832	0	35.4495
5	80	100.00%	77	80	45	100.00%	100.00%	100.00%	0	6479.7502	103.3956	0	62.0373
6	75	100.00%	190	75	53	100.00%	100.00%	100.00%	0	10050.2248	255.132	0	153.079
7	70	100.00%	599	70	62	100.00%	100.00%	100.00%	0	11521.69312	804.3372	0	482.6023
8	65	100.00%	1146	65	70	100.00%	100.00%	100.00%	13776.9828	0	1538.8488	0	923.3092
9	60	100.00%	1032	60	78	100.00%	100.00%	100.00%	44663.39136	0	1385.7696	0	831.4617
10	55	100.00%	511	55	87	100.00%	100.00%	100.00%	39316.09472	0	686.1708	0	411.7024
11	50	100.00%	304	50	95	100.00%	100.00%	100.00%	32891.6448	0	408.2112	0	244.9267
12	45	100.00%	91	45	103	100.00%	100.00%	100.00%	12690.21208	0	122.1948	0	73.3168
13	40	100.00%	15	40	112	100.00%	100.00%	100.00%	2596.7088	0	20.142	0	12.085
14	35	100.00%	0	35	120	100.00%	100.00%	100.00%	0	0	0	0	
15	30	100.00%	0	30	120	100.00%	100.00%	100.00%	0	0	0	0	
16	25	100.00%	0	25	120	100.00%	100.00%	100.00%	0	0	0	0	
17	20	100.00%	0	20	120	100.00%	100.00%	100.00%	0	0	0	0	



Thursday, April 24, 2014

1:50:44 PM

11_FCU 161:222_ Guest Rooms_Sch E

binID	binOSAt emp	binOSApct	binHRperY ear	binMixAir Temp	binSupply AirTemp	binSupplyAi rPCT	binReturnA irPCT	binExhaust AirPCT	binHeatKBTU	binCoolKBTU	binSupFanKWH	binRetFanKWH	binExhFanKW
1	100	100.00%	0	100	40	100.00%	100.00%	100.00%	0	0	0	0	
2	95	100.00%	1	95	40	100.00%	100.00%	100.00%	0	594.363	4.0284	0.80568	0.4028
3	90	100.00%	5	90	40	100.00%	100.00%	100.00%	0	2701.65	20.142	4.0284	2.014
4	85	100.00%	44	85	40	100.00%	100.00%	100.00%	0	21397.068	177.2496	35.44992	17.7249
5	80	100.00%	82	80	45	100.00%	100.00%	100.00%	0	31014.942	330.3288	66.06576	33.0328
6	75	100.00%	200	75	53	100.00%	100.00%	100.00%	0	47549.04	805.68	161.136	80.56
7	70	100.00%	649	70	62	100.00%	100.00%	100.00%	0	56107.8672	2614.4316	522.88632	261.4431
8	65	100.00%	1485	65	70	100.00%	100.00%	100.00%	80239.005	0	5982.174	1196.4348	598.217
9	60	100.00%	1715	60	78	100.00%	100.00%	100.00%	333599.742	0	6908.706	1381.7412	690.870
10	55	100.00%	985	55	87	100.00%	100.00%	100.00%	340624.032	0	3967.974	793.5948	396.797
11	50	100.00%	517	50	95	100.00%	100.00%	100.00%	251415.549	0	2082.6828	416.53656	208.2682
12	45	100.00%	129	45	103	100.00%	100.00%	100.00%	80854.9812	0	519.6636	103.93272	51.9663
13	40	100.00%	28	40	112	100.00%	100.00%	100.00%	21786.1056	0	112.7952	22.55904	11.2795
14	35	100.00%	0	35	120	100.00%	100.00%	100.00%	0	0	0	0	
15	30	100.00%	0	30	120	100.00%	100.00%	100.00%	0	0	0	0	
16	25	100.00%	0	25	120	100.00%	100.00%	100.00%	0	0	0	0	
17	20	100.00%	0	20	120	100.00%	100.00%	100.00%	0	0	0	0	



Thursday, April 24, 2014

8:41:31 PM

12__RS-1 RCE-1 [REDACTED] Basement_Sch A

binID	binOSAt emp	binOSApct	binHRperY ear	binMixAir Temp	binSupply AirTemp	binSupplyAi rPCT	binReturnA irPCT	binExhaust AirPCT	binHeatKBTU	binCoolKBTU	binSupFanKWH	binRetFanKWH	binExhFanKW
1	100	15.00%	0	76.2	40	100.00%	100.00%	100.00%	0	0	0	0	
2	95	15.00%	1	75.45	40	100.00%	100.00%	100.00%	0	92.3118	5.3712	0.80568	
3	90	15.00%	5	74.7	40	100.00%	100.00%	100.00%	0	451.794	26.856	4.0284	
4	85	15.00%	44	73.95	40	100.00%	100.00%	100.00%	0	3889.8552	236.3328	35.44992	
5	80	15.00%	82	73.2	45	100.00%	100.00%	100.00%	0	6021.4896	440.4384	66.06576	
6	75	15.00%	200	72.45	53	100.00%	100.00%	100.00%	0	10129.56	1074.24	161.136	
7	70	100.00%	653	70	62	100.00%	100.00%	100.00%	0	13603.296	3507.3936	526.10904	
8	65	100.00%	1639	65	68	100.00%	100.00%	100.00%	12803.868	0	8803.3968	1320.50952	
9	60	100.00%	2770	60	74	100.00%	100.00%	100.00%	100983.12	0	14878.224	2231.7336	
10	55	70.59%	1937	60	77	100.00%	100.00%	100.00%	85747.116	0	10404.0144	1560.60216	
11	50	54.55%	1083	60	79	100.00%	100.00%	100.00%	53582.508	0	5817.0096	872.55144	
12	45	44.44%	290	60	81	100.00%	100.00%	100.00%	15858.36	0	1557.648	233.6472	
13	40	37.50%	56	60	83	100.00%	100.00%	100.00%	3353.952	0	300.7872	45.11808	
14	35	32.43%	0	60	85	100.00%	100.00%	100.00%	0	0	0	0	
15	30	28.57%	0	60	88	100.00%	100.00%	100.00%	0	0	0	0	
16	25	25.53%	0	60	90	100.00%	100.00%	100.00%	0	0	0	0	
17	20	23.08%	0	60	92	100.00%	100.00%	100.00%	0	0	0	0	



Thursday, April 24, 2014

8:43:20 PM

13_VAV-1 REF-10_Lobby Front Desk Restaurant_Sch A

binID	binOSAt emp	binOSApct	binHRperY ear	binMixAir Temp	binSupply AirTemp	binSupplyAi rPCT	binReturnA irPCT	binExhaust AirPCT	binHeatKBTU	binCoolKBTU	binSupFanKWH	binRetFanKWH	binExhFanKW
1	100	20.00%	0	77.6	40	100.00%	100.00%	100.00%	0	0	0	0	
2	95	20.00%	1	76.6	40	100.00%	100.00%	100.00%	0	297.8325	4.0284	0.80568	
3	90	20.00%	5	75.6	40	100.00%	100.00%	100.00%	0	1448.475	20.142	4.0284	
4	85	20.00%	44	74.6	40	100.00%	100.00%	100.00%	0	12388.53	177.2496	35.44992	
5	80	20.00%	82	73.6	45	100.00%	100.00%	100.00%	0	19084.065	330.3288	66.06576	
6	75	20.00%	200	72.6	53	100.00%	100.00%	100.00%	0	31899	805.68	161.136	
7	70	100.00%	653	70	62	100.00%	100.00%	100.00%	0	42510.3	2630.5452	526.10904	
8	65	100.00%	1639	65	68	100.00%	100.00%	100.00%	40012.0875	0	6602.5476	1320.50952	
9	60	100.00%	2770	60	74	100.00%	100.00%	100.00%	315572.25	0	11158.668	2231.7336	
10	55	70.59%	1937	60	77	100.00%	100.00%	100.00%	267959.7375	0	7803.0108	1560.60216	
11	50	54.55%	1083	60	79	100.00%	100.00%	100.00%	167445.3375	0	4362.7572	872.55144	
12	45	44.44%	290	60	81	100.00%	100.00%	100.00%	49557.375	0	1168.236	233.6472	
13	40	37.50%	56	60	83	100.00%	100.00%	100.00%	10481.1	0	225.5904	45.11808	
14	35	32.43%	0	60	85	100.00%	100.00%	100.00%	0	0	0	0	
15	30	28.57%	0	60	88	100.00%	100.00%	100.00%	0	0	0	0	
16	25	25.53%	0	60	90	100.00%	100.00%	100.00%	0	0	0	0	
17	20	23.08%	0	60	92	100.00%	100.00%	100.00%	0	0	0	0	



Thursday, April 24, 2014

10:52:08 PM

Prop - 2_HS-3 HE-3 HE-9_P-1 & Laundry_Sch C

binID	binOSAt emp	binOSApct	binHRperY ear	binMixAir Temp	binSupply AirTemp	binSupplyAi rPCT	binReturnA irPCT	binExhaust AirPCT	binHeatKBTU	binCoolKBTU	binSupFanKWH	binRetFanKWH	binExhFanKW
1	100	20.00%	0	77.6	40	30.00%	100.00%	100.00%	0	0	0	0	
2	95	20.00%	1	76.6	40	30.00%	100.00%	100.00%	0	43.483545	119930942100884	0	0.4028
3	90	20.00%	5	75.6	40	30.00%	100.00%	100.00%	0	211.47735	599654710504421	0	2.014
4	85	20.00%	44	74.6	40	30.00%	100.00%	100.00%	0	1808.72538	.27696145243891	0	17.7249
5	80	20.00%	77	73.6	45	30.00%	100.00%	100.00%	0	2616.378765	.23468254176809	0	31.0186
6	75	20.00%	190	72.6	53	30.00%	100.00%	100.00%	0	4424.3913	22.786878999168	0	76.539
7	70	100.00%	599	70	62	100.00%	100.00%	100.00%	0	18977.518	75.694251445187	0	241.3011
8	65	100.00%	1146	65	70	100.00%	100.00%	100.00%	22692.2325	0	292.73057121233	0	461.6546
9	60	100.00%	1032	60	78	100.00%	100.00%	100.00%	73565.604	0	164.13433637969	0	415.7308
10	55	70.59%	511	60	87	80.00%	100.00%	100.00%	43711.6554	0	33.751764437683	0	205.8512
11	50	54.55%	304	60	95	60.00%	100.00%	100.00%	25282.236	0	9.6298521956352	0	122.4633
12	45	44.44%	91	60	103	40.00%	100.00%	100.00%	6198.5833	0	3.8158723811395	0	36.6584
13	40	37.50%	15	60	112	30.00%	100.00%	100.00%	926.6985	0	.79896413151326	0	6.042
14	35	32.43%	0	60	120	100.00%	100.00%	100.00%	0	0	0	0	
15	30	28.57%	0	60	120	100.00%	100.00%	100.00%	0	0	0	0	
16	25	25.53%	0	60	120	100.00%	100.00%	100.00%	0	0	0	0	
17	20	23.08%	0	60	120	100.00%	100.00%	100.00%	0	0	0	0	



Thursday, April 24, 2014

11:13:19 PM

Prop - 3_HS-4 Kitchen Hoods_Big Kitchen_Sch A

binID	binOSAt emp	binOSApct	binHRperY ear	binMixAir Temp	binSupply AirTemp	binSupplyAi rPCT	binReturnA irPCT	binExhaust AirPCT	binHeatKBTU	binCoolKBTU	binSupFanKWH	binRetFanKWH	binExhFanKW
1	100	100.00%	0	100	40	100.00%	100.00%	100.00%	0	0	0	0	
2	95	100.00%	1	95	40	100.00%	100.00%	100.00%	0	608.685	4.0284	0	1.342
3	90	100.00%	3	90	40	100.00%	100.00%	100.00%	0	1660.05	12.0852	0	4.028
4	85	100.00%	31	85	40	100.00%	100.00%	100.00%	0	15438.465	124.8804	0	41.626
5	80	100.00%	44	80	45	100.00%	100.00%	100.00%	0	17043.18	177.2496	0	59.083
6	75	100.00%	132	75	53	100.00%	100.00%	100.00%	0	32138.568	531.7488	0	177.249
7	70	100.00%	389	70	62	100.00%	100.00%	100.00%	0	34440.504	1567.0476	0	522.349
8	65	100.00%	812	65	70	100.00%	100.00%	100.00%	44932.02	0	3271.0608	0	1090.353
9	60	100.00%	986	60	78	100.00%	100.00%	100.00%	196417.116	0	3972.0024	0	1324.000
10	55	100.00%	616	55	87	100.00%	100.00%	100.00%	218152.704	0	2481.4944	0	827.164
11	50	100.00%	446	50	95	100.00%	100.00%	100.00%	222114.69	0	1796.6664	0	598.888
12	45	100.00%	150	45	103	100.00%	100.00%	100.00%	96282.9	0	604.26	0	201.4
13	40	100.00%	40	40	112	100.00%	100.00%	100.00%	31872.96	0	161.136	0	53.71
14	35	100.00%	0	35	120	100.00%	100.00%	100.00%	0	0	0	0	
15	30	100.00%	0	30	120	100.00%	100.00%	100.00%	0	0	0	0	
16	25	100.00%	0	25	120	100.00%	100.00%	100.00%	0	0	0	0	
17	20	100.00%	0	20	120	100.00%	100.00%	100.00%	0	0	0	0	



Thursday, April 24, 2014

11:57:15 PM

Prop - 4_HS-2 HE-2HE-8_Office & [REDACTED] & Lobby
& Mezzanine_Sch D

binID	binOSAt emp	binOSApct	binHRperY ear	binMixAir Temp	binSupply AirTemp	binSupplyAi rPCT	binReturnA irPCT	binExhaust AirPCT	binHeatKBTU	binCoolKBTU	binSupFanKWH	binRetFanKWH	binExhFanKW
1	100	15.00%	0	76.2	40	30.00%	100.00%	100.00%	0	0	0	0	
2	95	15.00%	1	75.45	40	30.00%	100.00%	100.00%	0	114.928191	149741032878316	0.80568	0.4028
3	90	15.00%	5	74.7	40	30.00%	100.00%	100.00%	0	562.48353	.24870516439158	4.0284	2.014
4	85	15.00%	44	73.95	40	30.00%	100.00%	100.00%	0	4842.869724	9.7886054466459	35.44992	17.7249
5	80	15.00%	82	73.2	45	30.00%	100.00%	100.00%	0	7496.754552	6.8787646960219	66.06576	33.0328
6	75	15.00%	200	72.45	53	30.00%	100.00%	100.00%	0	12611.3022	9.9482065756632	161.136	80.56
7	70	100.00%	649	70	62	100.00%	100.00%	100.00%	0	56107.8672	745.36040810472	522.88632	261.4431
8	65	100.00%	1485	65	70	100.00%	100.00%	100.00%	80239.005	0	281.75686600232	1196.4348	598.217
9	60	100.00%	1715	60	78	100.00%	100.00%	100.00%	333599.742	0	254.68890585453	1381.7412	690.870
10	55	70.59%	985	60	87	80.00%	100.00%	100.00%	229921.2216	0	412.51581192112	793.5948	396.797
11	50	54.55%	517	60	95	60.00%	100.00%	100.00%	117327.2562	0	35.386105079894	416.53656	208.2682
12	45	44.44%	129	60	103	40.00%	100.00%	100.00%	23977.68408	0	3.4442666414973	103.93272	51.9663
13	40	37.50%	28	60	112	30.00%	100.00%	100.00%	4720.32288	0	2.5927489205928	22.55904	11.2795
14	35	32.43%	0	60	120	0.00%	100.00%	100.00%	0	0	0	0	
15	30	28.57%	0	60	120	0.00%	100.00%	100.00%	0	0	0	0	
16	25	25.53%	0	60	120	0.00%	100.00%	100.00%	0	0	0	0	
17	20	23.08%	0	60	120	0.00%	100.00%	100.00%	0	0	0	0	



Thursday, April 24, 2014

11:54:37 PM

5_HS-1 HE-1_Lobby & Hotel Offices & Balance of
Level_Sch A

binID	binOSAt emp	binOSApct	binHRperY ear	binMixAir Temp	binSupply AirTemp	binSupplyAi rPCT	binReturnA irPCT	binExhaust AirPCT	binHeatKBTU	binCoolKBTU	binSupFanKWH	binRetFanKWH	binExhFanKW
1	100	15.00%	0	76.2	40	30.00%	100.00%	100.00%	0	0	0	0	
2	95	15.00%	1	75.45	40	30.00%	100.00%	100.00%	0	154.160706	99654710504421	0	1.0742
3	90	15.00%	5	74.7	40	30.00%	100.00%	100.00%	0	754.49598	.99827355252211	0	5.371
4	85	15.00%	44	73.95	40	30.00%	100.00%	100.00%	0	6496.058184	6.3848072621945	0	47.2665
5	80	15.00%	82	73.2	45	30.00%	100.00%	100.00%	0	10055.887632	9.1716862613625	0	88.0876
6	75	15.00%	200	72.45	53	30.00%	100.00%	100.00%	0	16916.3652	19.930942100884	0	214.84
7	70	100.00%	653	70	62	100.00%	100.00%	100.00%	0	75725.0144	683.04128709272	0	701.4787
8	65	100.00%	1574	65	70	100.00%	100.00%	100.00%	114080.372	0	877.65235204278	0	1690.8537
9	60	100.00%	2176	60	78	100.00%	100.00%	100.00%	567763.6608	0	2273.0441664835	0	2337.5462
10	55	70.59%	1373	60	87	80.00%	100.00%	100.00%	429893.11008	0	483.76881186829	0	1474.9315
11	50	54.55%	656	60	95	60.00%	100.00%	100.00%	199691.3856	0	074.95366842659	0	704.7014
12	45	44.44%	156	60	103	40.00%	100.00%	100.00%	38894.59392	0	118.42176326691	0	167.5814
13	40	37.50%	15	60	112	30.00%	100.00%	100.00%	3391.9704	0	.99482065756632	0	16.113
14	35	32.43%	0	60	120	100.00%	100.00%	100.00%	0	0	0	0	
15	30	28.57%	0	60	120	100.00%	100.00%	100.00%	0	0	0	0	
16	25	25.53%	0	60	120	100.00%	100.00%	100.00%	0	0	0	0	
17	20	23.08%	0	60	120	100.00%	100.00%	100.00%	0	0	0	0	



Friday, April 25, 2014

12:09:04 AM

Prop - 7_B-AH-1

_Sch B

binID	binOSAt emp	binOSApct	binHRperY ear	binMixAir Temp	binSupply AirTemp	binSupplyAi rPCT	binReturnA irPCT	binExhaust AirPCT	binHeatKBTU	binCoolKBTU	binSupFanKWH	binRetFanKWH	binExhFanKW
1	100	15.00%	0	76.2	40	30.00%	100.00%	100.00%	0	0	0	0	
2	95	15.00%	1	75.45	40	30.00%	100.00%	100.00%	0	114.928191	149741032878316	0.80568	0.4028
3	90	15.00%	5	74.7	40	30.00%	100.00%	100.00%	0	562.48353	.24870516439158	4.0284	2.014
4	85	15.00%	44	73.95	40	30.00%	100.00%	100.00%	0	4842.869724	9.7886054466459	35.44992	17.7249
5	80	15.00%	82	73.2	45	30.00%	100.00%	100.00%	0	7496.754552	6.8787646960219	66.06576	33.0328
6	75	15.00%	200	72.45	53	30.00%	100.00%	100.00%	0	12611.3022	9.9482065756632	161.136	80.56
7	70	100.00%	649	70	62	100.00%	100.00%	100.00%	0	56107.8672	745.36040810472	522.88632	261.4431
8	65	100.00%	1485	65	70	100.00%	100.00%	100.00%	80239.005	0	281.75686600232	1196.4348	598.217
9	60	100.00%	1715	60	78	100.00%	100.00%	100.00%	333599.742	0	254.68890585453	1381.7412	690.870
10	55	70.59%	985	60	87	80.00%	100.00%	100.00%	229921.2216	0	412.51581192112	793.5948	396.797
11	50	54.55%	517	60	95	60.00%	100.00%	100.00%	117327.2562	0	35.386105079894	416.53656	208.2682
12	45	44.44%	129	60	103	40.00%	100.00%	100.00%	23977.68408	0	3.4442666414973	103.93272	51.9663
13	40	37.50%	28	60	112	30.00%	100.00%	100.00%	4720.32288	0	2.5927489205928	22.55904	11.2795
14	35	32.43%	0	60	120	0.00%	100.00%	100.00%	0	0	0	0	
15	30	28.57%	0	60	120	0.00%	100.00%	100.00%	0	0	0	0	
16	25	25.53%	0	60	120	0.00%	100.00%	100.00%	0	0	0	0	
17	20	23.08%	0	60	120	0.00%	100.00%	100.00%	0	0	0	0	



Friday, April 25, 2014

12:15:29 AM

Prop - 10_AHU-3 HE-2_Office Area Downstairs_Sch C

binID	binOSAt emp	binOSApct	binHRperY ear	binMixAir Temp	binSupply AirTemp	binSupplyAi rPCT	binReturnA irPCT	binExhaust AirPCT	binHeatKBTU	binCoolKBTU	binSupFanKWH	binRetFanKWH	binExhFanKW
1	100	15.00%	0	76.2	40	30.00%	100.00%	100.00%	0	0	0	0	
2	95	15.00%	1	75.45	40	30.00%	100.00%	100.00%	0	25.5703686	149913677626105	0	0.8056
3	90	15.00%	5	74.7	40	30.00%	100.00%	100.00%	0	125.146938	749568388130526	0	4.028
4	85	15.00%	44	73.95	40	30.00%	100.00%	100.00%	0	1077.4898904	.59620181554863	0	35.4499
5	80	15.00%	77	73.2	45	30.00%	100.00%	100.00%	0	1566.2481912	1.5433531772101	0	62.0373
6	75	15.00%	190	72.45	53	30.00%	100.00%	100.00%	0	2665.593714	28.48359874896	0	153.079
7	70	100.00%	599	70	62	100.00%	100.00%	100.00%	0	11521.69312	44.617814306484	0	482.6023
8	65	100.00%	1146	65	70	100.00%	100.00%	100.00%	13776.9828	0	615.91321401541	0	923.3092
9	60	100.00%	1032	60	78	100.00%	100.00%	100.00%	44663.39136	0	455.16792047461	0	831.4617
10	55	70.59%	511	60	87	80.00%	100.00%	100.00%	26538.363936	0	17.189705547104	0	411.7024
11	50	54.55%	304	60	95	60.00%	100.00%	100.00%	15349.43424	0	24.537315244544	0	244.9267
12	45	44.44%	91	60	103	40.00%	100.00%	100.00%	3763.304272	0	7.2698404764244	0	73.3168
13	40	37.50%	15	60	112	30.00%	100.00%	100.00%	562.62024	0	.24870516439158	0	12.085
14	35	32.43%	0	60	120	100.00%	100.00%	100.00%	0	0	0	0	
15	30	28.57%	0	60	120	100.00%	100.00%	100.00%	0	0	0	0	
16	25	25.53%	0	60	120	100.00%	100.00%	100.00%	0	0	0	0	
17	20	23.08%	0	60	120	100.00%	100.00%	100.00%	0	0	0	0	

17

104654.096848

16981.742222

7759.272351036

HVAC Energy Savings Opportunities



Rheem RTGH-95DVLN Tankless Ultra Low Nox Condensing Water Heaters

DHW and Space Heating Boiler Replacement

Capital Cost:	NPV:	SIR:	SP:	mIRR:
\$65,600	\$180,469	520%	1.9	22.1%

Incentive Amt:	Energy Savings (Therms):	Energy Savings (\$):	Demand Savings:	Demand Savings (\$):
\$23,000	23,000	\$18,000	N/A	N/A

**Cost estimated for (19) tankless units. By implementing other recommended HVAC measures, heating load will decrease, thereby decreasing the number of units needed.*



The new degree of comfort.™

TANKLESS WATER HEATER C^oMMERCIAL APPLICATIONS



Rheem Tankless water heaters offer an energy efficient means to provide hot water for your business

All Rheem Tankless Water Heaters Feature:

- AHRI Listed
- 5-Year Limited Heat Exchanger Warranty* in Commercial Applications
- 5-Year Limited Parts Warranty*
- 1-Year Limited Labor Warranty*
- Digital Remote Control Included
- 10 ft. of Thermostat Wire Included
- Easy Access Remote Terminal Block
- High Altitude Capable up to 9,480 ft.
- EZ-Link™ Capable - two like units operate as one
- Multi-Unit Manifold Capable - up to 20 like units
- Self Diagnostic Electronic Control System
- Easy to Service System and Burner
- Freeze Protection to -30° F

Indoor Models Feature:

- Direct Vent System
 - Concentric Stainless Steel for Mid-Efficiency
 - Two-Pipe PVC for Condensing
- Condensate Trap or Collector
- Power Cord Included

Outdoor Models Feature:

- No Venting System Needed
- Outdoor Recess Enclosures Available
- Hardwire Electrical Connection

* See Commercial Warranty Certificate for complete information.

DESCRIPTION			FEATURES						ROUGHING IN DIMENSIONS (SHOWN IN INCHES)						ENERGY INFO.		
MODEL NUMBER	GAS INPUT BTU/H	TYPE	TEMP. RANGE*	MIN. FLOW/ACTIVATION GPM	GPM @ 77° RISE MAX.	GPM @ 45° RISE MAX.	MAX. GPM	CONNECTION WATER	GAS	HEIGHT	WIDTH	DEPTH	VENT DIAM.	SHIP. WEIGHT (LBS.)	ENERGY FACTOR	% OF RECOVERY EFFICIENCY	D.O.E. ANN. OR. COST NAT/LP
RTGH-95 PRESTIGE ULTRA LOW NOx CONDENSING SERIES FOR 3 BATHROOM HOMES																	
RTGH-95DVLN	11,000-199,900	Indoor Direct Vent	85° to 185° F	0.26/0.40	4.9	8.4	9.5	3/4	3/4	27-1/2	18-1/2	9-3/4	2" or 3" PVC 2-Pipe	82	.94	94%	\$194/326
RTGH-95XLN	11,000-199,900	Outdoor	85° to 185° F	0.26/0.40	4.9	8.4	9.5	3/4	3/4	27-1/2	18-1/2	9-3/4	N/A	82	.94	94%	\$194/326
RTGH-84 PRESTIGE ULTRA LOW NOx CONDENSING SERIES FOR 2-3 BATHROOM HOMES																	
RTGH-84DVLN	11,000-157,000	Indoor Direct Vent	85° to 185° F	0.26/0.40	3.9	6.6	8.4	3/4	3/4	27-1/2	18-1/2	9-3/4	2" or 3" PVC 2-Pipe	82	.94	94%	\$194/326
RTGH-84XLN	11,000-157,000	Outdoor	85° to 185° F	0.26/0.40	3.9	6.6	8.4	3/4	3/4	27-1/2	18-1/2	9-3/4	N/A	82	.92	93%	\$198/333
RTG-95 ULTRA LOW NOx SERIES FOR 3 BATHROOM HOMES																	
RTG-95DVLN	11,000-199,900	Indoor Direct Vent	85° to 185° F	0.26/0.40	4.3	7.4	9.5	3/4	3/4	25-5/8	13-7/8	9-7/8	3 by 5 CONCENTRIC	54	.82	84%	\$223/374
RTG-95XLN	11,000-199,900	Outdoor	85° to 185° F	0.26/0.40	4.3	7.4	9.5	3/4	3/4	23-5/8	13-7/8	8-7/8	N/A	54	.82	83%	\$223/374
RTG-84 ULTRA LOW NOx SERIES FOR 2-3 BATHROOM HOMES																	
RTG-84DVLN	11,000-180,000	Indoor Direct Vent	85° to 185° F	0.26/0.40	3.9	6.7	8.4	3/4	3/4	25-5/8	13-7/8	9-7/8	3 by 5 CONCENTRIC	54	.82	84%	\$223/374
RTG-84XLN	11,000-180,000	Outdoor	85° to 185° F	0.26/0.40	3.9	6.7	8.4	3/4	3/4	23-5/8	13-7/8	8-7/8	N/A	54	.82	83%	\$223/374

Energy Factor and Average Annual Operating Costs based on D.O.E. (Department of Energy) test procedures. D.O.E. national average fuel rate natural gas \$1.218/therm; LP \$1.87/gallon.

All models are available in Natural Gas and Propane (LP). For Propane replace the N with P when ordering.

All models are SCAQMD 1146.2 compliant.

*Temperature can be up to 185° F with a commercial conversion kit.

- Factory set maximum temperature is 120° F. See Use and Care Manual for setting.
- Consult factory for information on sizing the application.
- Add a "C" to the model number when ordering Canadian models. Outdoor models are only for seasonal use in Canada. Please contact Rheem Canada Ltd. for details.

Vent Termination Kits are required for Direct Vent models. Contact your distributor for details.

Proper gas pressure must be ensured to supply tankless gas water heaters – up to 199,900 Btu/h for RTGH-95 models, up to 157,000 Btu/h for RTGH-84 models, up to 199,900 Btu/h for RTG-95 models, and up to 180,000 Btu/h for RTG-84 models. (Consult your gas supplier)



Tankless Manifold Systems



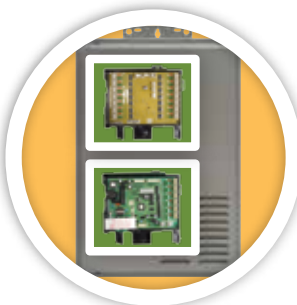
EZ-Link™ Cable

Connect two tankless water heaters together in a manifold.* This will allow two water heaters to communicate together and operate as a single unit. Perfect for when one tankless is just not enough.

• RTG20040

6 ft. long cable with connectors and wire support clamps.

*Only two units may be connected together with the EZ-Link cable.



MIC-185 Manifold Control System

Manifold and control up to 6 tankless models.* Includes installation cabinet for indoor or outdoor applications.

• RTG20126A

MICS-180 Manifold Controller Expansion Card

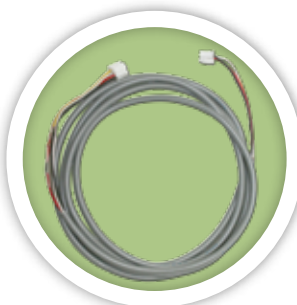
Add on to the MIC-185 for up to 20 units total.** Installations of 7 to 20 require this expansion card. Mounts inside the MIC-185 cabinet. Cables included to connect to the MIC-185 board.

• RTG20126B

Manifold Control Cables (Type Q)

Replacement board for the MICS-180 or MIC-185

• RTG20126WB – MIC-185 Board



Manifold Control Cables (Type K)

One required for each tankless water heater installed in a manifold. Connects a single tankless water heater to the MICS-180.

Notice: These cables will not fit the MIC-6.

- RTG20126C – MIC-K-16
16 ft. Control Cable
- RTG20126D – MIC-K-32
32 ft. Control Cable
- RTG20126E – MIC-K-65
65 ft. Control Cable



MIC-6 Manifold Control System

Connects up to 6 tankless water heaters together in a manifold. This kit mounts inside a single tankless unit and connects up to 5 additional units for a total of 6.

• RTG20213A

Manifold Control Cables (Type Q)

One required for each tankless water heater installed in a manifold. Connects a single tankless water heater to the MIC-6.

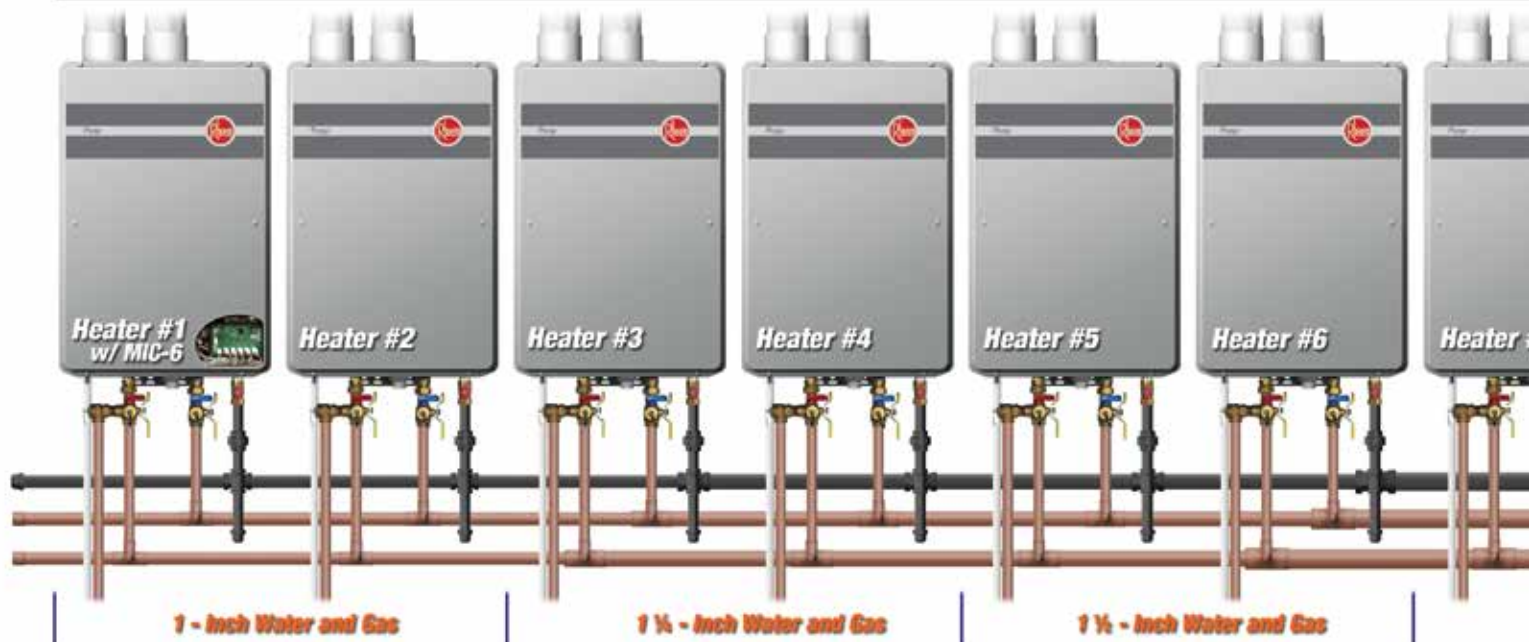
Notice: These cables will not fit the MIC-185 System.

- RTG20213B – MIC-Q-1
1 ft. Control Cable
- RTG20213C – MIC-Q-6
6 ft. Control Cable
- RTG20213CD – MIC-Q-18
18 ft. Control Cable

**This card provides control cable connection points for units 7-20 in multi-unit manifold.

MIC-6 Controller for up to 6 heaters

MIC-185 Controller for up to 6 heaters, with MICS-180 Controller Expansion for up to 20 heaters



Tankless Water Heaters

Tankless Multi-Unit Flow Rates

Manifold QTY	Total System BTU based on 199,900 Btu per Unit	Total System Gallons Per Minute (GPM) - Per Temperature Rise (ΔT)											
		35	45	50	60	70	77	80	90	100	110	120	140
1	199,900	9.5	8.4	7.5	6.3	5.4	4.9	4.7	4.2	3.8	3.4	3.1	2.7
2	399,800	19.0	16.7	15.0	12.5	10.7	9.8	9.4	8.4	7.5	6.8	6.3	5.4
3	599,700	28.5	25.1	22.5	18.8	16.1	14.6	14.1	12.5	11.3	10.2	9.4	8.1
4	799,600	38.0	33.4	30.1	25.1	21.5	19.5	18.8	16.7	15.0	13.7	12.5	10.7
5	999,500	47.5	41.8	37.6	31.3	26.8	24.4	23.5	20.9	18.8	17.1	15.7	13.4
6	1,199,400	57.0	50.1	45.1	37.6	32.2	29.3	28.2	25.1	22.5	20.5	18.8	16.1
7	1,399,300	66.5	58.5	52.6	43.8	37.6	34.2	32.9	29.2	26.3	23.9	21.9	18.8
8	1,599,200	76.0	66.8	60.1	50.1	42.9	39.0	37.6	33.4	30.1	27.3	25.1	21.5
9	1,799,100	85.5	75.2	67.6	56.4	48.3	43.9	42.3	37.6	33.8	30.7	28.2	24.2
10	1,999,000	95.0	83.5	75.2	62.6	53.7	48.8	47.0	41.8	37.6	34.2	31.3	26.8
11	2,198,900	104.5	91.9	82.7	68.9	59.1	53.7	51.7	45.9	41.3	37.6	34.4	29.5
12	2,398,800	114.0	100.2	90.2	75.2	64.4	58.6	56.4	50.1	45.1	41.0	37.6	32.2
13	2,598,700	123.5	108.6	97.7	81.4	69.8	63.4	61.1	54.3	48.9	44.4	40.7	34.9
14	2,798,600	133.0	116.9	105.2	87.7	75.2	68.3	65.8	58.5	52.6	47.8	43.8	37.6
15	2,998,500	142.5	125.3	112.7	94.0	80.5	73.2	70.5	62.6	56.4	51.2	47.0	40.3
16	3,198,400	152.0	133.6	120.3	100.2	85.9	78.1	75.2	66.8	60.1	54.7	50.1	42.9
17	3,398,300	161.5	142.0	127.8	106.5	91.3	83.0	79.9	71.0	63.9	58.1	53.2	45.6
18	3,598,200	171.0	150.3	135.3	112.7	96.6	87.9	84.6	75.2	67.6	61.5	56.4	48.3
19	3,798,100	180.5	158.7	142.8	119.0	102.0	92.7	89.3	79.3	71.4	64.9	59.5	51.0
20	3,998,000	190.0	167.0	150.3	125.3	107.4	97.6	94.0	83.5	75.2	68.3	62.6	53.7

Tankless Temperature Upgrade Kits

RTGH-95 Upgrade Kits

RTG20240A for RTGH-95DVLN
RTG20240B for RTGH-95DVLP
RTG20240C for RTGH-95XLN
RTG20240D for RTGH-95XLP

RTGH-84 Upgrade Kits

RTG20241A for RTGH-84DVLN
RTG20241B for RTGH-84DVLP
RTG20241C for RTGH-84XLN
RTG20241D for RTGH-84XLP

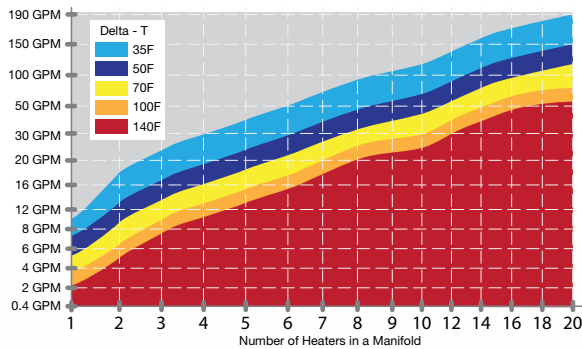
RTG-95 Upgrade Kits

RTG20236A for RTG-95DVLN
RTG20236B for RTG-95DVLP
RTG20236C for RTG-95XLN
RTG20236D for RTG-95XLP

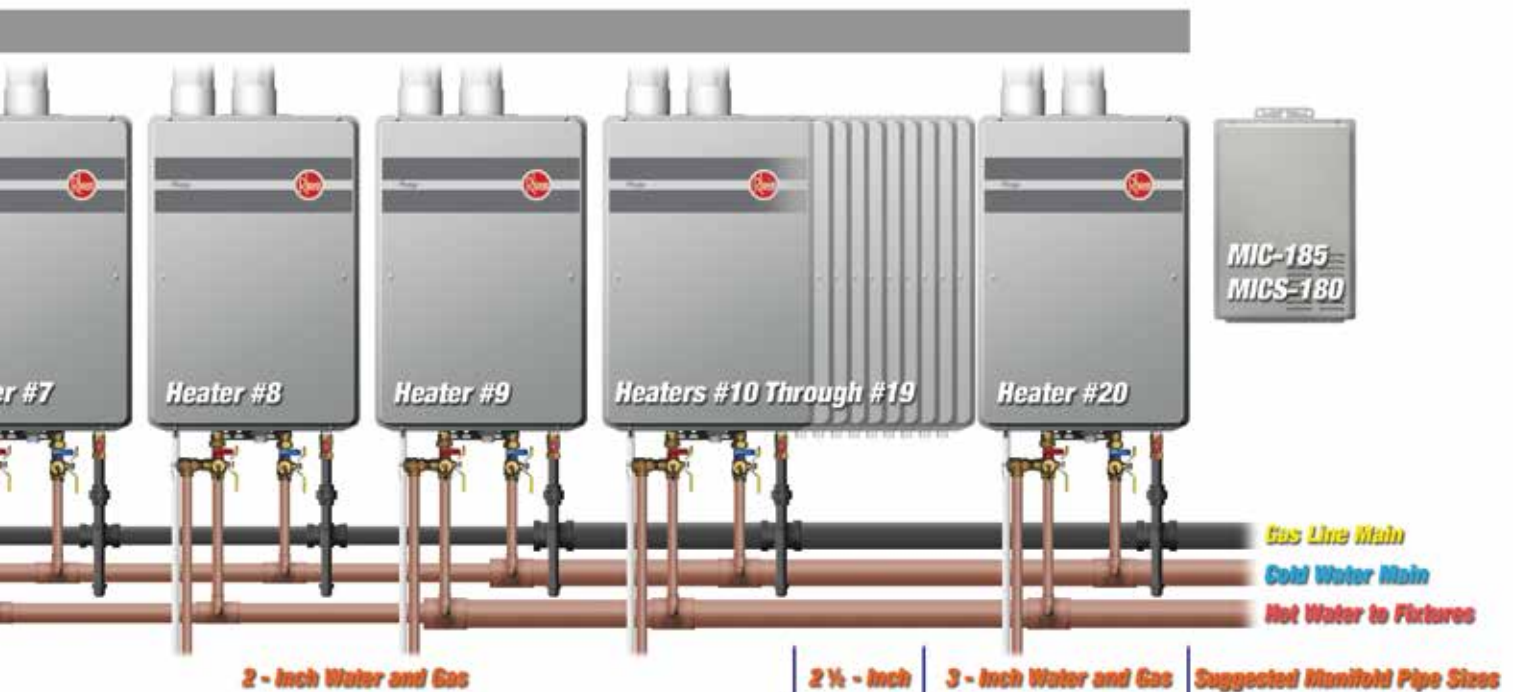
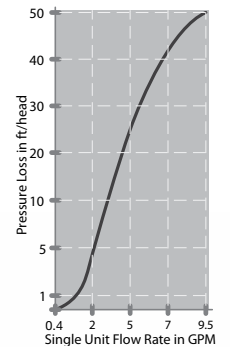
RTG-84 Upgrade Kits

RTG20237A for RTG-84DVLN
RTG20237B for RTG-84DVLP
RTG20237C for RTG-84XLN
RTG20237D for RTG-84XLP

Tankless Multi-Unit Flow Rate Curve



Tankless Head Curve



Recirculation Option - Direct Return

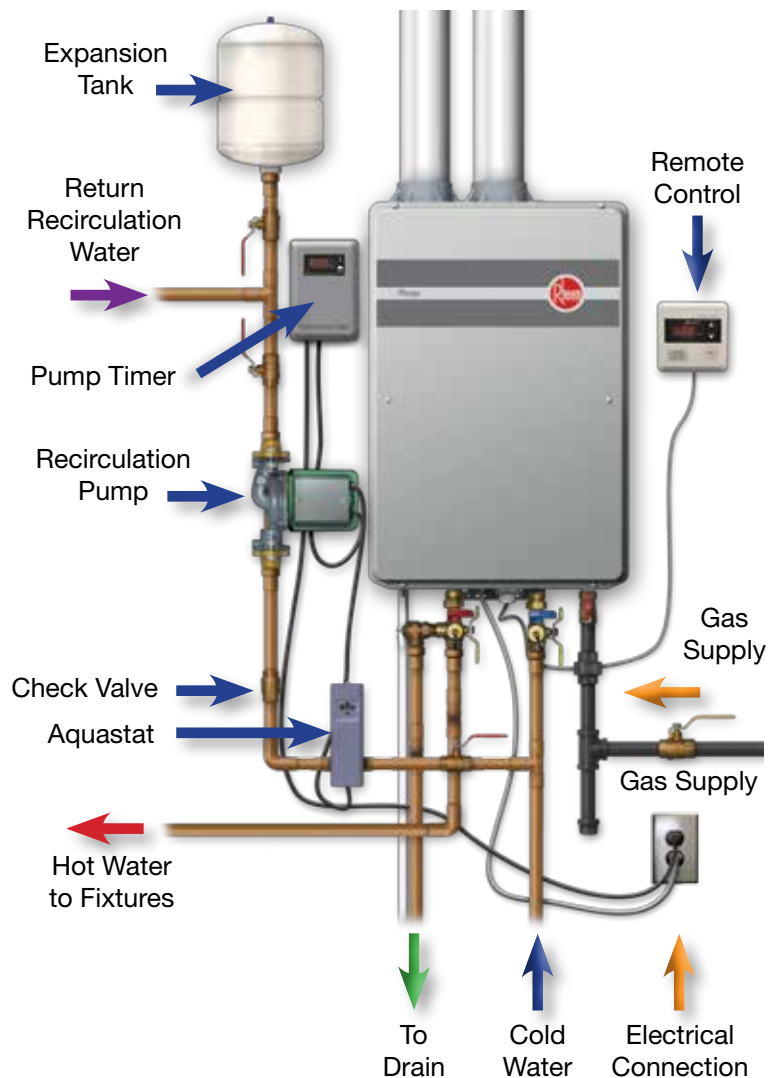
With the Rheem tankless you can supply a hot water recirculation system with the heater or system of heaters, without having to use a sacrificial unit or separate storage tank.

To operate this type of system without impacting the warranty coverage, the system must include a timer and aquastat that controls the pumps cycle time.

The aquastat should be installed in the return recirculation line and set at a minimum of 10° F below the thermostat setting of the water heater. The timer should be set to turn the pump off during off-peak times when hot water usage is not expected.

The pump should be sized to accommodate 5 GPM of flow rate at 25 ft. of head pressure plus the building head.

The timer and aquastat will turn the pump on, pushing water through the tankless unit where it is heated and passed through the hot water loop around the building. When the temperature of the return water reaches the set point of the aquastat the pump will shut off.



Tankless Manifold Pipe Sizing

Number of Units	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Cold Water - Manifold Header Size (inches)*	¾	1	1	1¼	1½	1½	2	2	2	2	2	2	2½	2½	2½	2½	3	3	3	3
Hot Water - Manifold Header Size (inches)*	¾	1	1	1¼	1½	1½	2	2	2	2	2	2	2½	2½	2½	2½	3	3	3	3
Natural Gas - Manifold Header Size (inches)†	¾	1	1¼	1¼	1¼	1½	1½	2	2	2	2½	2½	2½	2½	2½	3	3	3	3	3
Max System GPM**	9.5	19	28	38	47	57	66	76	85	95	104	114	123	133	142	152	161	171	180	190
Max System MBTU‡	199	399	599	799	999	1199	1399	1599	1799	1999	2198	2398	2598	2798	2998	3198	3398	3598	3798	3998
Manifold Accessories Needed																				
	EZ-Link Cable																			
	MIC-6 Controller																			
MIC-Q Cables	Inc	Inc	1	2	3	4														
	MIC-185 Controller with MICS-180 Expansion Card																			
MIC-K Cables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20



The new degree of comfort.™



Water

Commercial Gas
Tankless Water Heaters

H₂AC™ Rooftop Unit Featuring eSync™ Integration Technology

The new Integrated Air and Water System is the first and only system of its kind, and it's available exclusively from Rheem. Rheem's proprietary eSync Integration Technology brings a new level of savings and efficiency to full-service restaurants by using heat that is normally rejected into the atmosphere to heat water for the restaurant. With the highly efficient Integrated Air and Water System, you will experience:

- Lowest cooling and water heating operational costs available
- Up to 50% savings on your annual water heating costs
- Up to 20% savings on your annual energy costs
- Less than a two-year payback
- Reduced energy footprint
- A system that contributes to your environmental initiatives
- A one-source provider for air and water solutions
- Trusted Rheem quality and reliability



Rheem provides a full line of commercial product solutions for any application.



EZ•SPEC
Rheem Tankless Sizing Software

The quick, easy and accurate way to size tankless water heaters with only a few clicks you will know exactly what is required for a project and have a professional looking report to share with clients.

In keeping with its policy of continuous progress and product improvement, Rheem reserves the right to make changes without notice.

Rheem Water Heating • 101 Bell Road
Montgomery, Alabama 36117-4305 • 1.800.621.5622

Rheem Canada Ltd./Ltée • 125 Edgeware Road, Unit 1
Brampton, Ontario L6Y 0P5 • 1.800.268.6966



INTEGRATED AIR & WATER

Rheem.com

PRINTED IN U.S.A. 03/13 WP FORM NO. RR106 Rev. 12

- Water Savings Opportunities



American Standard Compact Cadet 3 FloWise 1-piece 1.28 GPF Elongated Toilet in White

Guest Room Toilet Replacement

Capital Cost:	NPV:	SIR:	SP:	mIRR:
\$88,800	\$130,251	320%	2.8	16.2%

Incentive Amt:	Water Savings (Gallons):	Water Savings (\$):	Demand Savings:	Demand Savings (\$):
\$27,750	1,124,696	\$21,369	N/A	N/A

POST AUDIT SURVEY

Thank you for choosing Bay Efficiency

1. Would you write a recommendation for Bay Efficiency?

If so, please check which of the following would apply?

☐ Yes, Bay Efficiency can post this review to Yelp on our behalf.

☐ Yes, we will post the review to Yelp ourselves.

☐ Yes, however, we do not want the recommendation published.

2. Do you have any friends or colleagues who could benefit from energy efficiency?

3. What can we improve on?

