BERGEN COUNTY
ADMINISTRATION OFFICE

ONE BERGEN COUNTY PLAZA
HACKENSACK, NJ, 07601

FACILITY ENERGY REPORT

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I. HISTORIC ENERGY CONSUMPTION/COST

The energy usage for the facility has been tabulated and plotted in graph form as depicted within this section. Each energy source has been identified and monthly consumption and cost noted per the information provided by the Owner.

Electric Utility Provider:	Public Service Electric & Gas
Electric Utility Rate Structure:	Large Power Light Service (LPLP)
Third Party Supplier:	None

Natural Gas Utility Provider:	Public Service Electric & Gas
Utility Rate Structure:	Large Volume Gas (LVG)
Third Party Supplier:	None

The electric usage profile represents the actual electrical usage for the facility. The electric utility measures consumption in kilowatt-hours (KWH) and maximum demand in kilowatts (KW). One KWH usage is equivalent to 1000 watts running for one hour. One KW of electric demand is equivalent to 1000 watts running at any given time. The basic usage charges are shown as generation service and delivery charges along with several non-utility generation charges. Rates used in this report reflect the historical data received for the facility.

The gas usage profile within each facility report shows the actual natural gas energy usage for the facility. The gas utility measures consumption in cubic feet x 100 (CCF), and converts the quantity into Therms of energy. One Therm is equivalent to 100,000 BTUs of energy.

Table 1
Electricity Billing Data

ELECTRIC USAGE SUMMARY

Utility Provider: PSE&G
Rate: LPLP
Meter No: 778019774
Account # 42 045 053 09
Third Party Utility Provider: -
TPS Meter / Acct No: -

MONTH OF USE	CONSUMPTION KWH	DEMAND	TOTAL BILL
Apr-10	448,706	845.0	$62,429
May-10	428,065	865.2	$50,847
Jun-10	552,954	1396.1	$87,372
Jul-10	571,612	1434.7	$72,779
Aug-10	413,029	858.5	$56,355
Sep-10	407,616	840.8	$53,753
Oct-10	465,733	1291.9	$51,600
Nov-10	427,750	829.9	$47,743
Dec-10	436,464	1335.6	$51,544
Jan-11	449,919	838.3	$59,189
Feb-11	405,216	856.8	$53,146
Mar-11	516,253	1755.8	$80,260
Totals	**5,523,317**	**1755.8 Max**	**$727,016**

AVERAGE DEMAND **1095.7 KW average**

AVERAGE RATE **$0.132 $/kWh**

Figure 1
Electricity Usage Profile

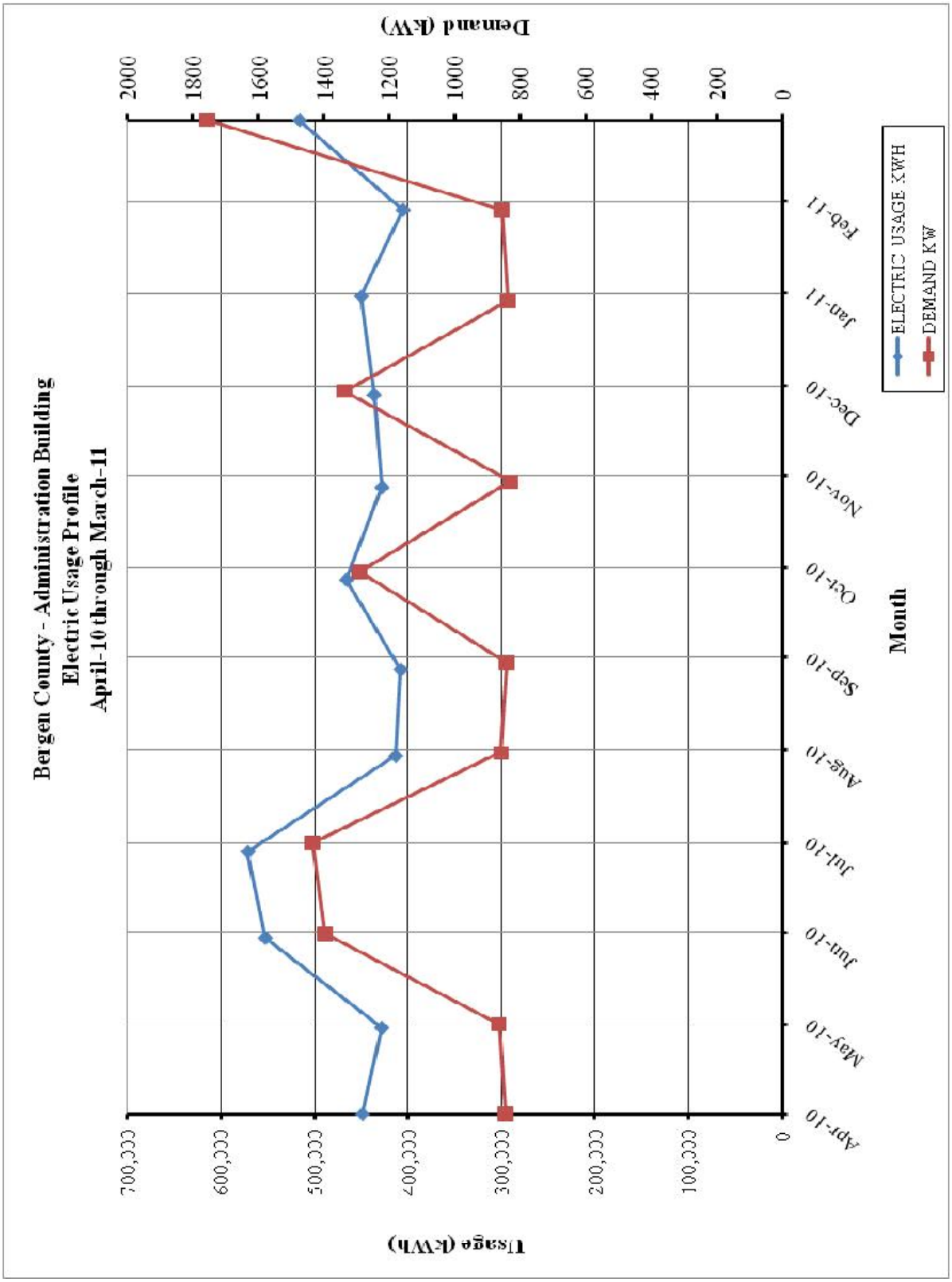
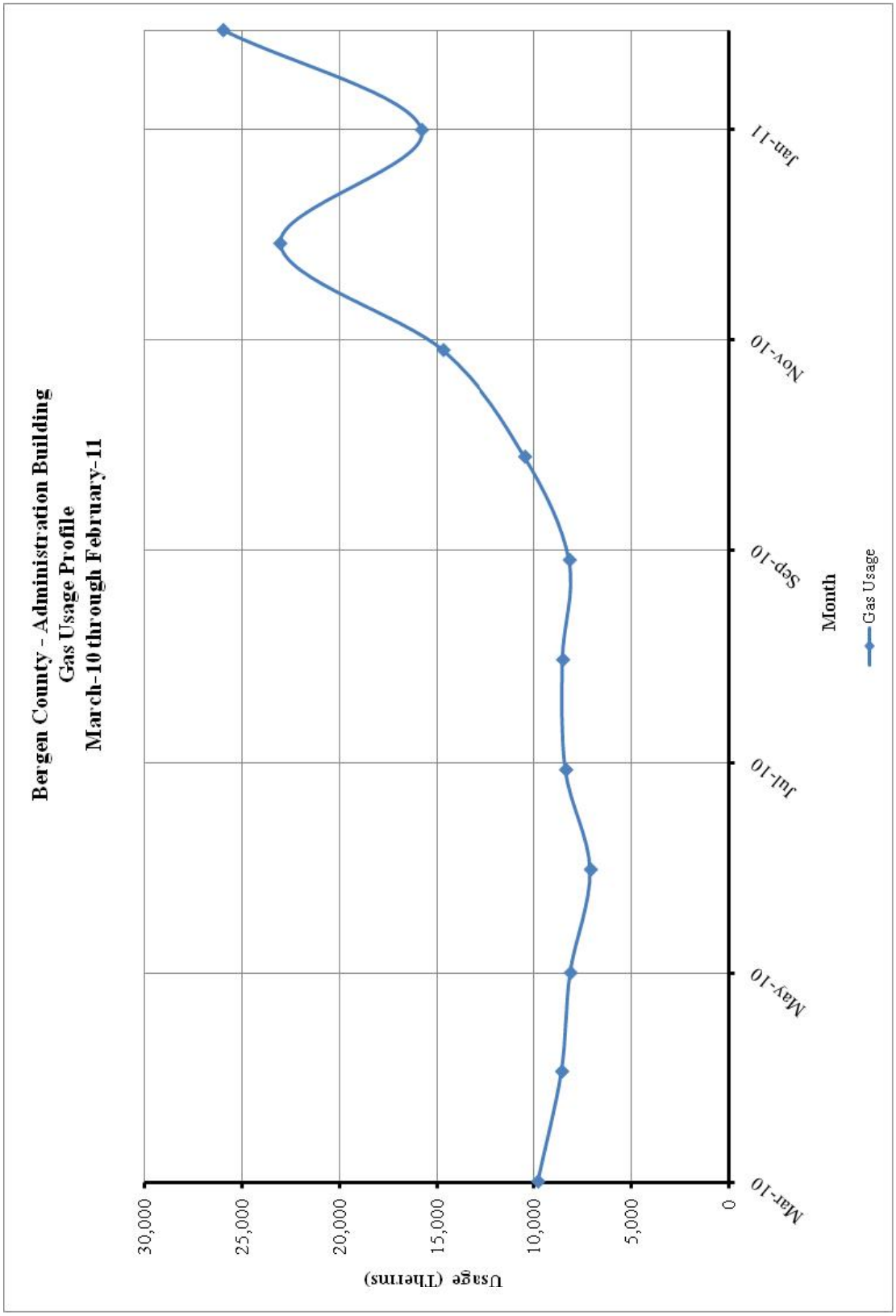


Table 2
Natural Gas Billing Data

NATURAL GAS USAGE SUMMARY		
Utility Provider:	PSE&G	
Rate:	LVG	
Meter No:	2917557	
Point of Delivery ID:	PG000010086023858145	
Third Party Utility Provider:	-	
TPS Meter No:	-	
MONTH OF USE	**CONSUMPTION (THERMS)**	**TOTAL BILL**
Mar-10	9,777.57	$8,042.37
Apr-10	8,561.96	$6,334.19
May-10	8,116.27	$6,376.80
Jun-10	7,090.46	$5,546.33
Jul-10	8,354.13	$7,086.97
Aug-10	8,507.41	$7,259.86
Sep-10	8,169.38	$5,986.26
Oct-10	10,447.91	$10,412.57
Nov-10	14,673.70	$13,358.25
Dec-10	23,012.34	$22,452.26
Jan-11	15,776.16	$16,133.70
Feb-11	25,919.69	$25,335.60
TOTALS	**148,406.98**	**$134,325.16**
AVERAGE RATE:	**$0.91**	**$/THERM**

Figure 2
Natural Gas Usage Profile



II. FACILITY DESCRIPTION

The Bergen County Administration Building is a 262,000 SF, 5-story facility with a penthouse floor. Exterior walls are constructed with estimated 2-inch insulation and concrete façade. The windows throughout the facility are in excellent condition and appear to be well maintained. Typical windows throughout the facility are double pane, ¼" tinted glass with insulated, non-operable aluminum frames. Blinds are utilized through the facility for occupant comfort. The blinds are valuable because they help to reduce heat loss in the winter and reduce solar heat gain in the summer.

The roof of this building is constructed of a built-up roof with rubber membrane covering. Estimated amount of insulation below the roofing is 2 inches. The building was built in 2000 with no additions since the original construction.

The facility houses the Bergen County departments and division offices. The facility has a large atrium in the center. The first five floors of the facility house large open office spaces towards the center and individual offices on the perimeter. The penthouse of the building houses the major HVAC equipment.

The typical occupied hours for this facility are between 8:00 am and 5:00 pm during the weekdays. Majority of the facility is closed on weekends. Cafeteria on 2nd floor is used for child visitation services and custodial services on Saturday and Sunday. The HVAC systems in the building will operate at occupied mode between the hours of 6:00 AM and 6:00 PM during the weekdays. The HVAC systems will stay in unoccupied mode during nights and weekends.

HVAC Systems

The New Administration Building heating and air conditioning is achieved via custom built central HVAC system located in the penthouse mechanical room. The system includes four (4) evaporative condensing units, four (4) air handling units, return fans, hot water boilers, pumps and control systems.

Cooling is achieved via four (4) custom-built, evaporative condensing units (ECU) made by Webco. Two of the units (AHU #1&3) have 200 Ton cooling capacity, while the remaining units (AHU #2&4) have 300 Ton cooling capacity. The evaporative condensing units include multiple screw compressors, condensing coils, condenser fan, water circulators and sprayers. Each condensing unit is connected to an adjacent, custom built air handling unit. ECU #1 and #3 are equipped with three (3) 60 HP Hitachi compressors and a 15 HP condenser fan each. ECU #2 and #4 are equipped with three (4) 60 HP Hitachi compressors and a 30 HP condenser fan each. R22 is used as the main refrigerant in all the ECU.

The heating for the building is achieved via five (5) 1,900 MBH Raypak, natural gas fired, water tube boilers located in the boiler room section of the penthouse. The boilers are original to the building and they are approximately 11 years old. The boilers are sized to provide heating hot water for the perimeter baseboard heaters and hot water reheat coils in the terminal VAV boxes. Heating hot water system is based on a primary/secondary distribution. Five (5) smaller pipe

mounted primary hot water circulators deliver hot water between each boiler and the secondary system.

Secondary system includes hot water baseboard heaters and VAV reheat coils. Two (2) 25 HP pumps (One operating, one stand-by) circulate hot water through the VAV reheat coils. Perimeter heating of the building is achieved via fin-tube perimeter baseboard heaters. A separate 5 HP hot water pump circulates hot water through the baseboard heaters.

The air handling units include direct expansion cooling coils, supply fans, dampers and filter housing. AHU #1 and #3 are equipped with two (2) 50HP variable speed supply fans while the AHU #2 and #4 are equipped with three (3) 50HP variable speed supply fans. Each supply fan motor is connected to a variable frequency drive. Return air is delivered back to each air handling unit via four (4) separate axial return air fans with variable pitch blades. The return fans #1 and 3 are driven with 40HP motors while the fans #2 and #4 are driven with 50HP fans. AHU-1 feeds the South side of the 4th and 5th floors, while AHU-3 feeds the North side of the 4th and 5th floors. Similarly, AHU-2 feeds the South side of the 1st, 2nd and 3rd floors, while AHU-4 feeds the North side of these floors.

All of the air handling units supply conditioned air to the corresponding zones through VAV boxes and a combination of linear and round diffusers. The system includes terminal variable air volume (VAV) boxes for office zoning. VAV boxes are equipped with direct digital controls (DDC) through the central energy management system. Local thermostats have limited override capability on each VAV box's airflow to regulate space temperature. Conditioned air is distributed to the offices through ductwork to ceiling diffusers.

Data Center

The Bergen County Administration building includes a computer data center and high capacity printing room. The data server room is conditioned by dedicated CRAC (computer room air conditioning) units through raised floor supply plenum and open return plenum. The CRAC units run 24/7 to cool the municipal building servers. The CRAC units are in fair condition and currently in the process of being replaced with newer and more efficient units made by Liebert. It was observed that some of the server cabinets were not placed based on hot-isle / cold-isle configuration, which is ideal for the raised floor air distribution system. A dedicated UPS (uninterruptible power supply) feed power to the data center and CRAC units. The total power draw of the data center and the cooling system through the UPS during the time of survey was approximately 61 kW.

Exhaust System

Air is exhausted from the toilet rooms through the two (2) dedicated roof exhausters. The exhaust fans are currently on mechanical time clocks and operate based on facility occupancy schedule

HVAC System Controls

The HVAC systems within the facility are controlled via METASYS central, direct digital control (DDC) Building Management System (BMS) made by Johnson Controls. The building management system currently controls all of the major HVAC systems. The boilers, evaporative condensing units, air handling units, pumps and the VAV boxes are monitored and controlled through the system. The system has full access and override capability over the VAV boxes' and corresponding zone temperatures. Each VAV zone has limited temperature override capability through zone thermostats. Each zone thermostat is equipped with a button, which can temporarily switch that zone into occupied during unoccupied hours.

The BMS currently does not control the lighting systems in the building. However, majority of the light fixtures in the building are controlled via occupancy sensors.

Domestic Hot Water

Domestic hot water for each restroom is provided with a small (approximately 10 gallon) electric hot water heater located in the ceiling of each bathroom (Total of 8 units). A separate 65 gallon electric hot water heater serves the machine shop and the first floor bathrooms.

All of the electric hot water heaters are made by A.O. Smith and they are in good condition. Each hot water heater is controlled with a time clock. The heaters shut down during unoccupied periods.

Lighting

Refer to the Investment Grade lighting Audit Appendix for a detailed list of the lighting throughout the facility and estimated operating hours per space.

III. MAJOR EQUIPMENT LIST

The equipment list contains major energy consuming equipment that through implementation of energy conservation measures could yield substantial energy savings. The list shows the major equipment in the facility and all pertinent information utilized in energy savings calculations. An approximate age was assigned to the equipment in some cases if a manufactures date was not shown on the equipment's nameplate. The ASHRAE service life for the equipment along with the remaining useful life is also shown in the Appendix.

Refer to the **Major Equipment List Appendix** for this facility.

IV. ENERGY CONSERVATION MEASURES

Energy Conservation Measures are developed specifically for this facility. The energy savings and calculations are highly dependent on the information received from the site survey and interviews with operations personnel. The assumptions and calculations should be reviewed by the owner to ensure accurate representation of this facility. The following ECMs were analyzed:

Table 3
ECM Financial Summary

ENERGY CONSERVATION MEASURES (ECM's)					
ECM NO.	**DESCRIPTION**	**NET INSTALLATION COST[A]**	**ANNUAL SAVINGS[B]**	**SIMPLE PAYBACK (Yrs)**	**SIMPLE LIFETIME ROI**
ECM #1	Lighting equipment upgrade	$47,887	$10,209	4.7	219.8%
ECM #2	Condensing Hot Water Boilers	$635,000	$18,878	33.6	-55.4%
ECM #3	Gas Fired Hot Water Heaters	$66,602	$12,197	5.5	174.7%
ECM #4	Nema Premium Efficiency Motors	$22,079	$461	47.9	-58.3%
ECM #5	Minimize/Eliminate Reheat in VAV Boxes	$6,000	$19,893	0.3	4873.3%
ECM #6	Energy recovery system	$800,000	$36,427	22.0	-31.7%

Notes: A. Cost takes into consideration applicable NJ Smart StartTM incentives.
B. Savings takes into consideration applicable maintenance savings.

Table 4
ECM Energy Summary

ENERGY CONSERVATION MEASURES (ECM's)				
ECM NO.	**DESCRIPTION**	**ANNUAL UTILITY REDUCTION**		
		ELECTRIC DEMAND (KW)	**ELECTRIC CONSUMPTION (KWH)**	**NATURAL GAS (THERMS)**
ECM #1	Lighting equipment upgrade	30.0	77,343	0
ECM #2	Condensing Hot Water Boilers	0	0	20,745
ECM #3	Gas Fired Hot Water Heaters	0.0	122,824	-4,413
ECM #4	Nema Premium Efficiency Motors	1.5	3,491	0
ECM #5	Minimize/Eliminate Reheat in VAV Boxes	0.0	0	23,952
ECM #6	Energy recovery system	0.0	151,869	18,001

Table 5
Facility Project Summary

ENERGY SAVINGS IMPROVEMENT PROGRAM - POTENTIAL PROJECT					
ENERGY CONSERVATION MEASURES	**ANNUAL ENERGY SAVINGS ($)**	**PROJECT COST ($)**	**SMART START INCENTIVES**	**CUSTOMER COST**	**SIMPLE PAYBACK**
Lighting equipment upgrade	$10,209	$47,887	$0	$47,887	4.7
Gas Fired Hot Water Heaters	$12,197	$67,000	$398	$66,602	5.5
Minimize/Eliminate Reheat in VAV Boxes	$19,893	$6,000	$0	$6,000	0.3
Energy recovery system	$36,427	$800,000	$0	$800,000	22.0
Design / Construction Extras (15%)		$138,133		*$138,133*	
Total Project	**$78,727**	**$1,059,020**	**$570**	**$1,058,622**	**13.4**

Design / Construction Extras is shown as an additional cost for the facility project summary. This cost is included to estimate the costs associated with construction management fees for a larger combined project.

ECM #1: Lighting Upgrade – Re-lamping

Description:

The majority of the interior lighting throughout the Administration Building is provided with fluorescent fixtures with older generation, 700 series 32W T8 lamps and electronic ballasts. Although 700 series T8 lamps are considered fairly efficient, further energy savings can be achieved by replacing the existing T8 lamps with new generation, 800 series 28W T8 lamps without compromising light output. CEG recommends, re-lamping all of the fixtures with 28W T8 lamps. In addition, some of the storage areas, locker room and gym areas, offices, auditorium, classrooms, restrooms and kitchen areas still have a variety of older fluorescent fixtures with magnetic ballasts and incandescent lamps. It is recommended to retrofit or replace all of the older fluorescent fixtures and the incandescent lights in these areas with high efficiency fluorescent T8 or T5 fixtures with electronic ballasts or compact fluorescent lamps.

This ECM includes re-lamping of the existing fluorescent fixtures with 800 series, 28W T8 lamps. The ECM also includes retrofit of all older fluorescent fixtures with T8 or T5 fluorescent fixtures with electronic ballasts in the building. The new, energy efficient T8 fixtures will provide adequate lighting and will save on electrical costs due to better performance of the lamp and ballasts.

Energy Savings Calculations:

The **Investment Grade Lighting Audit Appendix** outlines the hours of operation, proposed retrofits, costs, savings, and payback periods for each set of fixtures in the each building.

Rebates and Incentives:

There are no incentives available from NJ Smart Start® Program for the retrofits in this ECM.

Replacement and Maintenance Savings:

There is no significant replacement and maintenance savings due to implementation of this ECM.

Energy Savings Summary:

ECM #1 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$47,887
NJ Smart Start Equipment Incentive ($):	$0
Net Installation Cost ($):	$47,887
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$10,209
Total Yearly Savings ($/Yr):	$10,209
Estimated ECM Lifetime (Yr):	15
Simple Payback	4.7
Simple Lifetime ROI	219.8%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$153,140
Internal Rate of Return (IRR)	20%
Net Present Value (NPV)	$73,990.99

ECM #2: Condensing Boiler Installation

Description:

The existing standard efficiency, non-condensing, water tube boilers are used as the primary source of heat for the building. Although, approximately 11 years old and appear to be in good condition, the boilers can be replaced with condensing hot water boilers to achieve energy savings.

New condensing boilers could substantially improve the operating efficiency of the heating system of this building. Condensing boiler's peak efficiency tops out at 99% depending on return water temperature. Due to the operating conditions of the building, the annual average operating efficiency of the proposed condensing boiler is expected to be 93%. The existing boiler's efficiency is approximately 80%, which makes the condensing boilers an 13% increase in efficiency. This ECM is based on variable supply water temperature adjusted based on outdoor temperature. This feature will result in significant energy savings especially during the summer months when the boilers provide hot water to the reheat coils in the VAV boxes.

This ECM includes installation of five (5) condensing gas fired boilers to replace the existing water tube boilers. The basis for this ECM is Aerco Benchmark Series condensing boilers; model number BMK – 3.0. The boiler installation is based on a one for one replacement based on capacity of the existing boiler.

Energy Savings Calculations:

Existing Natural Gas Usage: 148,407 Therms (Year round gas usage due to VAV reheat)

$$\text{Bldg Heat Required} = \text{Existing Nat Gas}\,(\text{Therms}) \times \text{Heating Eff.}(\%) \times \text{Fuel Heat Value}\left(\frac{\text{BTU}}{\text{Therm}}\right)$$

$$\text{Proposed Heating Gas Usage} = \frac{\text{Bldg Heat Required}\,(\text{BTU})}{\text{Heating Eff.}(\%) \times \text{Fuel Heat Value}\left(\frac{\text{BTU}}{\text{Therm}}\right)}$$

$$\text{Energy Cost} = \text{Heating Gas Usage}(\text{Therms}) \times \text{Ave Fuel Cost}\left(\frac{\$}{\text{Therm}}\right)$$

CONDENSING BOILER CALCULATIONS			
ECM INPUTS	**EXISTING**	**PROPOSED**	**SAVINGS**
ECM INPUTS	Existing Cast Iron Boilers	New Condensing Boilers	
Existing Nat Gas (Therms)	148,407	0	
Boiler Efficiency (%)	80%	93%	13%
Nat Gas Heat Value (BTU/Therm)	100,000	100,000	
Equivalent Building Heat Usage (MMBTUs)	11,873	11,873	
Gas Cost ($/Therm)	0.91	0.91	
ENERGY SAVINGS CALCULATIONS			
ECM RESULTS	**EXISTING**	**PROPOSED**	**SAVINGS**
Natural Gas Usage (Therms)	148,407	127,662	20,745
Energy Cost ($)	$135,050	$116,172	$18,878
COMMENTS:			

Installation cost of the five (5) new condensing boilers, demolition, flue piping, boiler water piping modifications, gas piping modifications, electric, etc. is estimated to be $650,000.

From the **NJ Smart Start Appendix**, the installation of new condensing boilers warrants the following incentive: $1.00 per MBH.

$$\text{Smart Start}\circledR\ \text{Incentive} = (\text{Boiler MBH} \times \$1.00) = (5 \times 3{,}000 \times \$1.00) = \$15{,}000$$

Energy Savings Summary:

ECM #2 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$650,000
NJ Smart Start Equipment Incentive ($):	$15,000
Net Installation Cost ($):	$635,000
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$18,878
Total Yearly Savings ($/Yr):	$18,878
Estimated ECM Lifetime (Yr):	15
Simple Payback	33.6
Simple Lifetime ROI	-55.4%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$283,170
Internal Rate of Return (IRR)	-9%
Net Present Value (NPV)	($409,635.59)

ECM #3: High Efficiency Gas Hot Water Heater

Description:

Domestic hot water for the Bergen County Administration Building is provided with electric hot water heaters located in a nearby location for each bathroom. Electricity is one of the most expensive utilities if used for any sort of heating purposes including the domestic hot water heating.

This ECM will replace the electric domestic water heaters with a 98.5% thermal efficient Bradford White eF Series Natural Gas fired 199 MBH hot water heater and a 100 gallon domestic water retainer tank. Owner should retain a professional engineer to finalize the sizing and design of the system.

Energy Savings Calculations:

CONDENSING DOM. HOT WATER HEATER CALCULATIONS			
ECM INPUTS	**EXISTING**	**PROPOSED**	**SAVINGS**
ECM INPUTS	Existing Hot Water Heater	Bradford White High Efficiency	
Building Type	Office	Office	
Est. DHW Usage (kBtu/SF)	1.6	1.6	
Building Square-foot	262,000	262,000	
Domestic Water Usage, kBtu	419,200	419,200	
DHW Heating Fuel Type	Electric	Gas	
Heating Efficiency	100%	95%	-5%
Total Usage (kBTU)	419,200	441,263	-22,063
Electric Cost ($/kWh)	$ 0.132	$ 0.132	
Nat Gas Cost ($/Therm)	$ 0.910	$ 0.910	
ENERGY SAVINGS CALCULATIONS			
ECM RESULTS	**EXISTING**	**PROPOSED**	**SAVINGS**
Electric Usage (kWh)	122,824	0	122,824
Natural Gas Usage (Therms)	0	4,413	-4,413
Energy Cost ($)	$16,213	$4,015	$12,197
COMMENTS:	Savings are based on Energy Information Administration Commercial Building Energy Consumption Survey 2003 Information		

Energy Density for "Office" type building = 1.6 kBtu / SF / year

$$\text{DHW Heat Usage} = \text{Energy Density}\left(\frac{\text{kBtu yr}}{\text{SF}}\right) \times \text{Building Square Footage (SF)}$$

$$\text{DHW Total Usage} = \frac{\text{Dom HW Heat Cons.}(\text{Btu})}{\text{Heating Eff.}(\%) \times \text{Fuel Heat Value}\left(\frac{\text{BTU}}{\text{Fuel Unit}}\right)}$$

$$\text{Energy Cost} = \text{Heating Fuel Usage}(\text{Fuel Units}) \times \text{Ave Fuel Cost}\left(\frac{\$}{\text{Fuel Unit}}\right)$$

Cost, Rebates and Incentives

Installed cost for a 199 MBH condensing hot water heater with a retaining tank including hot water and gas piping is estimated to be $67,000.

From the NJ Smart Start® Program appendix, the hot water heater installation falls under the category "Gas Water Heating" and warrants an incentive as follows:

Smart Start ® Incentive: $2/MBH × Unit Capacity, MBH
(Water Heaters > 50 Gallons, up to 300 MBH)

199 MBH x $2/MBH = $398

Energy Savings Summary:

ECM #3 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$67,000
NJ Smart Start Equipment Incentive ($):	$398
Net Installation Cost ($):	$66,602
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$12,197
Total Yearly Savings ($/Yr):	$12,197
Estimated ECM Lifetime (Yr):	15
Simple Payback	5.5
Simple Lifetime ROI	174.7%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$182,960
Internal Rate of Return (IRR)	16%
Net Present Value (NPV)	$79,009.04

ECM #4: Install NEMA Premium® Efficiency Motors

Description:

The improved efficiency of the NEMA Premium® efficient motors is primarily due to better designs with use of better materials to reduce losses. Surprisingly, the electricity used to power a motor represents 95 % of its total lifetime operating cost. Because many motors operate continuously 24 hours a day, even small increases in efficiency can yield substantial energy and dollar savings.

The electric motors driving the hot water pumps are candidates for replacing with premium efficiency motors. These standard efficiency motors run considerable amount of time over a year.

This energy conservation measure replaces existing inefficient electric motors with NEMA Premium® efficiency motors. NEMA Premium® is the most efficient motor designation in the marketplace today.

IMPLEMENTATION SUMMARY					
EQMT ID	**FUNCTION**	**MOTOR HP**	**HOURS OF OPERATION**	**EXISTING EFFICIENCY**	**NEMA PREMIUM EFFICIENCY**
HWP #1	VAV - HW Reheat Loop	25	2,160	91.7%	93.6%
HWP #2	VAV - HW Reheat Loop	25	2,160	91.7%	93.6%
HWP #3	Perimeter Baseboard Loop	5	4,320	87.5%	90.2%
ECU #1	Condenser Pump	20	2,160	91.0%	93.0%
ECU #3	Condenser Pump	20	2,160	91.0%	93.0%

Energy Savings Calculations:

$$\text{Electric usage, kWh} = \frac{\text{HP} \times \text{LF} \times 0.746 \times \text{Hours of Operation}}{\text{Motor Efficiency}}$$

where, HP = Motor Nameplate Horsepower Rating

LF = Load Factor Motor Efficiency = Motor Nameplate Efficiency

$$\text{Electric Usage Savings, kWh} = \text{Electric Usage}_{\text{Existing}} - \text{Electric Usage}_{\text{Proposed}}$$

$$\text{Electric Usage Savings, kWh} = \text{Electric Usage}_{\text{Existing}} - \text{Electric Usage}_{\text{Proposed}}$$

$$\text{Electric cost savings} = \text{Electric Usage Savings} \times \text{Electric Rate} \left(\frac{\$}{\text{kWh}}\right)$$

The calculations were carried out and the results are tabulated in the table below:

PREMIUM EFFICIENCY MOTOR CALCULATIONS							
EQMT ID	MOTOR HP	LOAD FACTOR	EXISTING EFFICIENCY	NEMA PREMIUM EFFICIENCY	POWER SAVINGS kW	ENERGY SAVINGS kWH	COST SAVINGS
HWP #1	25	90%	91.7%	93.6%	0.37	807	$107
HWP #2	25	90%	91.7%	93.6%	0.37	807	$107
HWP #3	5	90%	87.5%	90.2%	0.11	499	$66
ECU #1	20	90%	91.0%	93.0%	0.32	689	$91
ECU #3	20	90%	91.0%	93.0%	0.32	689	$91
TOTAL					**1.5**	**3,491**	**$461**

Equipment Cost and Incentives

Below is a summary of SmartStart Building® incentives for premium efficiency motors:

INCENTIVES	
HORSE POWER	NJ SMART START INCENTIVE
5	$60
7.5	$90
10	$100
15	$115
20	$125
25	$130

The following table outlines the summary of motor replacement costs and incentives:

MOTOR REPLACEMENT SUMMARY						
EQMT ID	MOTOR POWER HP	INSTALLED COST	SMART START INCENTIVE	NET COST	TOTAL SAVINGS	SIMPLE PAYBACK
HWP #1	25	$5,930	$130	$5,800	$107	54.5
HWP #2	25	$5,930	$130	$5,800	$107	54.5
HWP #3	5	$1,519	$60	$1,459	$66	22.2
ECU #1	20	$4,635	$125	$4,510	$91	49.6
ECU #3	20	$4,635	$125	$4,510	$91	49.6
TOTAL	**Totals:**	**$22,649**	**$570**	**$22,079**	**$461**	**47.9**

Energy Savings Summary:

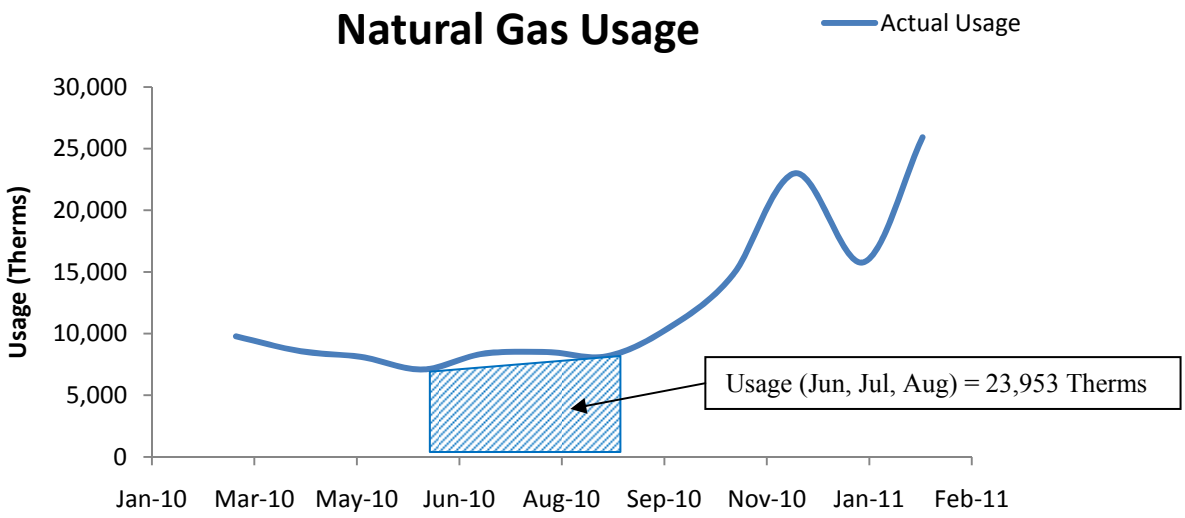
ECM #4 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$22,649
NJ Smart Start Equipment Incentive ($):	$570
Net Installation Cost ($):	$22,079
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$461
Total Yearly Savings ($/Yr):	$461
Estimated ECM Lifetime (Yr):	20
Simple Payback	47.9
Simple Lifetime ROI	-58.3%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$9,216
Internal Rate of Return (IRR)	-7%
Net Present Value (NPV)	($15,223.75)

ECM #5: Minimize/Eliminate Reheat in VAV Boxes

Description:

The Bergen County Administration Building is conditioned with a VAV (Variable Air Volume) air conditioning system. The system includes large air handling units in the penthouse mechanical room and VAV boxes and diffusers at the conditioned spaces. The air handling units cool the return air below the dew point to remove the moisture at the cooling coils. The cold air is then sent to the VAV boxes to be distributed to the spaces. The VAV boxes modulate the flow of conditioned supply air based on the space temperatures. Each VAV box includes a damper for flow modulation and hot water reheat coils to reheat the supply air to a comfortable temperature before introducing into the space. This is an inherently inefficient process because the reheat coils require running the hot water boilers in the summer and the boiler operation increases the cooling load of the building.

According to utility analysis, the natural gas consumption of the building remains high during the summer months. The building uses approximately 8,000 Therms per month for VAV reheat.



CEG recommends eliminating or minimizing the operation of hot water VAV reheat coils by reprogramming or shutting off the boilers between June and August.

This ECM includes reprogramming of the algorithms in the building automation system to minimize or eliminate the operation of VAV reheat coils during the cooling season between June and August.

Energy Savings Calculations:

Heating Energy Usage during cooling season: 23,952 Therms (June-August)

NATURAL GAS USAGE DURING COOLING SEASON		
MONTH OF USE	**CONSUMPTION (THERMS)**	**TOTAL BILL**
Jun-10	7,090.46	$5,546.33
Jul-10	8,354.13	$7,086.97
Aug-10	8,507.41	$7,259.86
TOTALS	**23,952.00**	**$19,893.16**
VERAGE RATE:	**$0.83**	**$/THERM**

Estimated cost of implementation of this ECM is $6,000, which involves retro-commissioning of the cooling system temperature controls through the Building Automation System in order to minimize or eliminate the operation of VAV hot water reheat coils during the high cooling season.

There is no **NJ Smart Start Incentives** for this ECM.
There is no significant maintenance savings with this ECM.

Energy Savings Summary:

ECM #5 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$6,000
NJ Smart Start Equipment Incentive ($):	$0
Net Installation Cost ($):	$6,000
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$19,893
Total Yearly Savings ($/Yr):	$19,893
Estimated ECM Lifetime (Yr):	15
Simple Payback	0.3
Simple Lifetime ROI	4873.3%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$298,397
Internal Rate of Return (IRR)	332%
Net Present Value (NPV)	$231,483.25

ECM #6: Energy Recovery Units

Description:

Bergen County Administration Building space heating, ventilation and air conditioning is provided with four (4) large custom built air handling systems located in the penthouse mechanical room. The units supply a combined 300,000 CFM of conditioned air to the offices in the five story building. The flow capacity of each unit is summarized below:

AHU SUPPLY CAPACITIES		
ECM INPUTS	**TOTAL FLOW CFM**	**MIN. FRESH AIR CFM**
AHU#1	60,000	10,000
AHU#2	90,000	15,000
AHU#3	60,000	10,000
AHU#4	90,000	15,000
TOTAL	300,000	50,000

Each system includes fresh air intake louvers, a dedicated return fan, motorized dampers and damper controls to modulate amount of fresh air to the corresponding zone. An energy recovery system can be integrated into each air handling system to recover the energy in the exhaust air stream and add into the supply stream via energy recovery wheels. Energy wheels are typically ducted between the return air exhaust and fresh air intake.

This ECM includes retrofitting the four (4) existing AHUs within the building to include outside air pre-conditioning through a total energy recovery wheel. The O.A. energy recovery unit would be connected to the outside air connection to each AHU. The return side of the energy recovery unit would be ducted to the existing exhaust fans' outlets.

The basis for this ECM is the Semco energy recovery wheel Series EP-28,000 energy recovery unit with an airflow gauge, hot water pre-heat coil, and rotation sensor.

It is recommended to perform airflow measurements of the existing equipment to verify the O.A. quantities prior to implementation of this ECM. It is also recommended to have a professional engineer provide further review of the equipment selection and load analysis prior to implementing this ECM. The energy savings calculations are based on the follow input data:

AHU Nominal Outside Airflow (CFM)	300,000
Occupied O.A. Flow (CFM)	50,000 (16.7%)
Unoccupied O.A. percentage =	0
Energy Recovery Efficiency	75%

Energy Savings Calculations:

Heating Energy Savings:

Total heating capacity is calculated with the equation below.

$$\text{Heating Load}, \frac{\text{BTU}}{\text{Hr}} = 1.08 \times \text{Airflow (CFM)} \times \text{O. A. \%} \times (\text{Indoor °F} - \text{Outdoor °F})$$

$$\text{Occ Ventilation Heating Energy} = \frac{\text{Occ Heating Load}}{\Delta\text{T} \times \text{Eff} \times \text{V}} (\text{Occ. HDD}_{68°\text{F}} \times \text{NonSetback Hrs}) \times (1 - \text{Energy Rec. Eff. \%})$$

$$\text{Unocc Ventilation Heating Energy} = \frac{\text{Unocc Heating Load}}{\Delta\text{T} \times \text{Eff} \times \text{V}} (\text{Unocc. HDD}_{60°\text{F}} \times \text{Setback Hrs}) \times (1 - \text{Energy Rec. Eff. \%})$$

Where:

HDD = number of Heating Degree Days as Specified Base Temperature
ΔT= Design temperature difference, º F
Eff = Efficiency of Energy Utilization (100%, Electric Heat)
V = Heating value of fuel, BTU/kWh (3,413 Btu = 1 kWh)

$$\text{Heating Cost Savings} = \text{Energy Savings (Therms)} \times \text{Cost of Gas} \left(\frac{\$}{\text{Therm}}\right)$$

Energy savings calculations are summarized in the table below.

Cooling Energy Savings:

Cooling Energy savings are based on the energy required to condition outside air during occupied hours only. The cooling energy required for minimal outside air at unoccupied hours are negligible and therefore not included in this calculation. Enthalpy difference is based on design cooling day (95°F DB, 78°F WB), and average room conditions (75°F, 50% RH).

$$\text{Cooling Load } \frac{\text{BTU}}{\text{Hr}} = 4.5 \times \text{Airflow (CFM)} \times \text{O. A. \%} \times \text{Enthalpy Diff}$$

$$\text{Cooling Energy kWh} = \text{Cooling Capacity}, \frac{\text{BTU}}{\text{Hr}} \times \left(\frac{1}{\text{EER}}\right) \times \frac{\text{Full Load Hrs}}{1000 \frac{\text{W}}{\text{kWh}}} \times (1 - \text{Energy Rec. Eff. \%})$$

$$\text{Cooling Cost Savings} = \text{Energy Savings, kWh} \times \text{Cost of Electricity}\left(\frac{\$}{\text{kWh}}\right)$$

ENERGY RECOVERY HEATING ENERGY CALCULATIONS			
ECM INPUTS	**EXISTING**	**PROPOSED**	**SAVINGS**
ECM INPUTS	No O.A. Preconditioning	Total O.A. Energy Recovery Wheel	
Total AHU Airflow (CFM)	300,000	300,000	
Occ. O.A. Percentage (%)	16.7%	16.7%	
Unocc. O.A. Percentage (%)	0%	0%	
Occ. Temp Diff (°F)	55	55	
Unocc. Temp Diff (°F)	65	65	
Heating Degree Days (68°F)	4,750	4,750	
Heating Degree Days (60°F)	3,704	3,704	
Hours of setback per day (ave)	12	12	
Heating System Efficiency (%)	100%	100%	
Heating Fuel Value	100,000	100,000	
Energy Recovery Sys Efficiency	0%	75%	75%
Occ O.A. Heating Load (Btu/Hr)	2,969,881	742,470	2,227,411
Unocc O.A. Heating Load (Btu/Hr)	0	0	
Occ O.A. Heating Energy (Therms)	24,001	6,000	18,001
Unocc O.A. Heating Energy (Therms)	0	0	
Gas Cost ($/Therm)	$0.91	$0.91	
ENERGY SAVINGS CALCULATIONS			
ECM RESULTS	**EXISTING**	**PROPOSED**	**SAVINGS**
O.A. Heating Energy (Therms)	24,001	6,000	18,001
Heating Energy Cost ($)	$21,841	$5,460	$16,381
COMMENTS:	Degree Days based on Newark, NJ.		

ENERGY RECOVERY COOLING ENERGY CALCULATIONS			
ECM INPUTS	**EXISTING**	**PROPOSED**	**SAVINGS**
ECM INPUTS	No O.A. Preconditioning	Total O.A. Energy Recovery Wheel	
Total AHU Airflow (CFM)	300,000	300,000	
Occ. O.A. Percentage (%)	17%	17%	
Occ. Enthalpy Diff (°F)	14	14	
Unocc. Enthalpy Diff (°F)	0	0	
Full Load Cooling Hrs	800	800	
Cooling System Efficiency (EER)	12.0	12.0	
Energy Recovery Sys Efficiency	0%	75%	
O.A. Cooling Load (Btu/Hr)	3,037,379	759,345	
Elec Cost ($/kWh)	$0.132	$0.132	
ENERGY SAVINGS CALCULATIONS			
ECM RESULTS	**EXISTING**	**PROPOSED**	**SAVINGS**
O.A. Cooling Energy (kWh)	202,492	50,623	151,869
Cooling Energy Cost ($)	$26,729	$6,682	$20,047
COMMENTS:	Degree Days based on McQuire AFB,NJ.		

Cost

Installation cost of four (4) energy recovery units providing O.A. preconditioning for the existing air handling units, ductwork modifications, electrical connections, and misc construction requirements, is estimated to be $800,000 ($500,000 Materials)

Energy Savings Summary:

ECM #6 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$800,000
NJ Smart Start Equipment Incentive ($):	$0
Net Installation Cost ($):	$800,000
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$36,427
Total Yearly Savings ($/Yr):	$36,427
Estimated ECM Lifetime (Yr):	15
Simple Payback	22.0
Simple Lifetime ROI	-31.7%
Simple Lifetime Maintenance Savings	0
Simple Lifetime Savings	$546,410
Internal Rate of Return (IRR)	-4%
Net Present Value (NPV)	($365,132.62)

REM: Renewable Energy Measures

Description:

Solar Energy Analysis:

Based on a structural analysis, the roof of the Administration Office building is not suitable for a solar system. Therefore, a solar photovoltaic system is not recommended. Nevertheless, the parking garage for this facility already has a substantial solar photovoltaic system under construction.

Wind Energy Analysis: Based on CEG's review of the applicability of wind energy for the facility; the low average wind speed, proximity to residential neighborhoods, and limited site space make this building a poor candidate for wind energy production.

V. ADDITIONAL RECOMMENDATIONS

The following recommendations include no cost/low cost measures, Operation & Maintenance (O&M) items, and water conservation measures with attractive paybacks. These measures are not eligible for the Smart Start Buildings incentives from the office of Clean Energy but save energy none the less.

A. Chemically clean the condenser and evaporator coils periodically to optimize efficiency. Poorly maintained heat transfer surfaces can reduce efficiency 5-10%.

B. Maintain all weather stripping on windows and doors.

C. Clean all light fixtures to maximize light output.

D. Provide more frequent air filter changes to decrease overall system power usage and maintain better IAQ.

E. Turn off computers when not in use. Ensure computers are not running in screen saver mode which saves the monitor screen not energy.

F. Ensure outside air dampers are functioning properly and only open during occupied mode.

ECM COST & SAVINGS BREAKDOWN

CONCORD ENGINEERING GROUP

Bergen County Administration Building

ECM ENERGY AND FINANCIAL COSTS AND SAVINGS SUMMARY

ECM NO.	DESCRIPTION	INSTALLATION COST				YEARLY SAVINGS			ECM LIFETIME	LIFETIME ENERGY SAVINGS	LIFETIME MAINTENANCE SAVINGS	LIFETIME ROI	SIMPLE PAYBACK	INTERNAL RATE OF RETURN (IRR)	NET PRESENT VALUE (NPV)
		MATERIAL	LABOR	REBATES, INCENTIVES	NET INSTALLATION COST	ENERGY	MAINT. / SREC	TOTAL		(Yearly Saving * ECM Lifetime)	(Yearly Maint Svaing * ECM Lifetime)	(Lifetime Savings - Net Cost) / (Net Cost)	(Net cost / Yearly Savings)	$\sum_{n=0}^{N} \frac{C_n}{(1+IRR)^n}$	$\sum_{n=0}^{N} \frac{C_n}{(1+DR)^n}$
		($)	($)	($)	($)	($/Yr)	($/Yr)	($/Yr)	(Yr)	($)	($)	(%)	(Yr)	($)	($)
ECM #1	Lighting equipment upgrade	$47,887	$0	$0	$47,887	$10,209	$0	$10,209	15	$153,140	$0	219.8%	4.7	19.92%	$73,990.99
ECM #2	Condensing Hot Water Boilers	$257,500	$392,500	$15,000	$635,000	$18,878	$0	$18,878	15	$283,170	$0	-55.4%	33.6	-8.73%	($409,635.59)
ECM #3	Gas Fired Hot Water Heaters	$35,000	$32,000	$398	$66,602	$12,197	$0	$12,197	15	$182,960	$0	174.7%	5.5	16.45%	$79,009.04
ECM #4	Nema Premium Efficiency Motors	$11,819	$10,830	$570	$22,079	$461	$0	$461	20	$9,216	$0	-58.3%	47.9	-7.19%	($15,223.75)
ECM #5	Minimize/Eliminate Reheat in VAV Boxes	$0	$6,000	$0	$6,000	$19,893	$0	$19,893	15	$298,397	$0	4873.3%	0.3	331.55%	$231,483.25
ECM #6	Energy recovery system	$500,000	$300,000	$0	$800,000	$36,427	$0	$36,427	15	$546,410	$0	-31.7%	22.0	-4.43%	($365,132.62)

Notes: 1) The variable Cn in the formulas for Internal Rate of Return and Net Present Value stands for the cash flow during each period.
2) The variable DR in the NPV equation stands for Discount Rate
3) For NPV and IRR calculations: From n=0 to N periods where N is the *lifetime of ECM* and Cn is the *cash flow during each period* .

Concord Engineering Group, Inc.

520 BURNT MILL ROAD
VOORHEES, NEW JERSEY 08043
PHONE: (856) 427-0200
FAX: (856) 427-6508

SmartStart Building Incentives

The NJ SmartStart Buildings Program offers financial incentives on a wide variety of building system equipment. The incentives were developed to help offset the initial cost of energy-efficient equipment. The following tables show the current available incentives as of February 15, 2011:

Electric Chillers

Water-Cooled Chillers	$12 - $170 per ton
Air-Cooled Chillers	$8 - $52 per ton

Energy Efficiency must comply with ASHRAE 90.1-2007

Gas Cooling

Gas Absorption Chillers	$185 - $400 per ton
Gas Engine-Driven Chillers	Calculated through custom measure path)

Desiccant Systems

$1.00 per cfm – gas or electric

Electric Unitary HVAC

Unitary AC and Split Systems	$73 - $92 per ton
Air-to-Air Heat Pumps	$73 - $92 per ton
Water-Source Heat Pumps	$81 per ton
Packaged Terminal AC & HP	$65 per ton
Central DX AC Systems	$40- $72 per ton
Dual Enthalpy Economizer Controls	$250
Occupancy Controlled Thermostat (Hospitality & Institutional Facility)	$75 per thermostat

Energy Efficiency must comply with ASHRAE 90.1-2007

Gas Heating

Gas Fired Boilers < 300 MBH	$300 per unit
Gas Fired Boilers ≥ 300 - 1500 MBH	$1.75 per MBH
Gas Fired Boilers ≥1500 - ≤ 4000 MBH	$1.00 per MBH
Gas Fired Boilers > 4000 MBH	(Calculated through Custom Measure Path)
Gas Furnaces	$300 - $400 per unit, AFUE ≥ 92%

Ground Source Heat Pumps

Closed Loop	$450 per ton, EER ≥ 16 $600 per ton, EER ≥ 18 $750 per ton, EER ≥ 20

Energy Efficiency must comply with ASHRAE 90.1-2007

Variable Frequency Drives

Variable Air Volume	$65 - $155 per hp
Chilled-Water Pumps	$60 per VFD rated hp
Compressors	$5,250 to $12,500 per drive
Cooling Towers ≥ 10 hp	$60 per VFD rated hp

Natural Gas Water Heating

Gas Water Heaters ≤ 50 gallons, 0.67 energy factor or better	$50 per unit
Gas-Fired Water Heaters > 50 gallons	$1.00 - $2.00 per MBH
Gas-Fired Booster Water Heaters	$17 - $35 per MBH
Gas Fired Tankless Water Heaters	$300 per unit

Prescriptive Lighting

Retro fit of T12 to T-5 or T-8 Lamps w/Electronic Ballast in Existing Facilities	$10 per fixture (1-4 lamps)
Replacement of T12 with new T-5 or T-8 Lamps w/Electronic Ballast in Existing Facilities	$25 per fixture (1-4 lamps)
Replacement of incandescent with screw-in PAR 38 or PAR 30 (CFL) bulb	$7 per bulb
T-8 reduced Wattage (28w/25w 4', 1-4 lamps) Lamp & ballast replacement	$10 per fixture
Hard-Wired Compact Fluorescent	$25 - $30 per fixture
Metal Halide w/Pulse Start Including Parking Lot	$25 per fixture
T-5 and T-8 High Bay Fixtures	$16 - $200 per fixture
HID ≥ 100w Retrofit with induction lamp, power coupler and generator (must be 30% less watts/fixture than HID system)	$50 per fixture
HID ≥ 100w Replacement with new HID ≥ 100w	$70 per fixture

Prescriptive Lighting - LED

LED New Exit Sign Fixture Existing Facility < 75 kw Existing Facility > 75 kw	 $20 per fixture $10 per fixture
LED Display Case Lighting	$30 per display case
LED Shelf-Mtd. Display & Task Lights	$15 per linear foot
LED Portable Desk Lamp	$20 per fixture
LED Wall-wash Lights	$30 per fixture
LED Recessed Down Lights	$35 per fixture
LED Outdoor Pole/Arm-Mounted Area and Roadway Luminaries	$175 per fixture
LED Outdoor Pole/Arm-Mounted Decorative Luminaries	$175 per fixture
LED Outdoor Wall-Mounted Area Luminaries	$100 per fixture
LED Parking Garage Luminaries	$100 per fixture
LED Track or Mono-Point Directional Lighting Fixtures	$50 per fixture
LED High-Bay and Low-Bay Fixtures for Commercial & Industrial Bldgs.	$150 per fixture
LED High-Bay-Aisle Lighting	$150 per fixture
LED Bollard Fixtures	$50 per fixture
LED Linear Panels (2x2 Troffers only)	$100 per fixture
LED Fuel Pump Canopy	$100 per fixture
LED Refrigerator/Freezer case lighting replacement of fluorescent in medium and low temperature display case	$42 per 5 foot $65 per 6 foot

Lighting Controls – Occupancy Sensors

Wall Mounted	$20 per control
Remote Mounted	$35 per control
Daylight Dimmers	$25 per fixture
Occupancy Controlled hi-low Fluorescent Controls	$25 per fixture controlled

Lighting Controls – HID or Fluorescent Hi-Bay Controls

Occupancy hi-low	$75 per fixture controlled
Daylight Dimming	$75 per fixture controlled
Daylight Dimming - office	$50 per fixture controlled

Premium Motors

Three-Phase Motors	$45 - $700 per motor
Fractional HP Motors Electronic Communicated Motors (replacing shaded pole motors in refrigerator/freezer cases)	$40 per electronic communicated motor

Other Equipment Incentives

Performance Lighting	$1.00 per watt per SF below program incentive threshold, currently 5% more energy efficient than ASHRAE 90.1-2007 for New Construction and Complete Renovation
Custom Electric and Gas Equipment Incentives	not prescriptive
Custom Measures	$0.16 KWh and $1.60/Therm of 1st year savings, or a buy down to a 1 year payback on estimated savings. Minimum required savings of 75,000 KWh or 1,500 Therms and a IRR of at least 10%.
Multi Measures Bonus	15%

OMB No. 2060-0347

STATEMENT OF ENERGY PERFORMANCE
Administration Building

Building ID: 2616385
For 12-month Period Ending: February 28, 2011[1]
Date SEP becomes ineligible: N/A

Date SEP Generated: May 16, 2011

Facility
Administration Building
One Bergen County Plaza
Hackensack, NJ 07601

Facility Owner
County of Bergen
One Bergen Plaza
Hackensack, NJ 07601

Primary Contact for this Facility
Thomas Connolly
One Bergen Plaza
Hackensack, NJ 07601

Year Built: 2000
Gross Floor Area (ft²): 262,000

Energy Performance Rating[2] (1-100) 41

Site Energy Use Summary[3]

Electricity - Grid Purchase(kBtu)	18,713,235
Natural Gas (kBtu)[4]	14,615,226
Total Energy (kBtu)	33,328,461

Energy Intensity[5]

Site (kBtu/ft²/yr)	127
Source (kBtu/ft²/yr)	297

Emissions (based on site energy use)

Greenhouse Gas Emissions ($MtCO_2e$/year)	3,427

Electric Distribution Utility
Public Service Electric & Gas Co

National Average Comparison

National Average Site EUI	116
National Average Source EUI	271
% Difference from National Average Source EUI	10%
Building Type	Office

Stamp of Certifying Professional

Based on the conditions observed at the time of my visit to this building, I certify that the information contained within this statement is accurate.

Meets Industry Standards[6] **for Indoor Environmental Conditions:**

Ventilation for Acceptable Indoor Air Quality	**N/A**
Acceptable Thermal Environmental Conditions	**N/A**
Adequate Illumination	**N/A**

Certifying Professional
Michael Fischette
520 S. Burnt Mill Rd.
Voorhees, NJ 08043

Notes:
1. Application for the ENERGY STAR must be submitted to EPA within 4 months of the Period Ending date. Award of the ENERGY STAR is not final until approval is received from EPA.
2. The EPA Energy Performance Rating is based on total source energy. A rating of 75 is the minimum to be eligible for the ENERGY STAR.
3. Values represent energy consumption, annualized to a 12-month period.
4. Values represent energy intensity, annualized to a 12-month period.
5. Based on Meeting ASHRAE Standard 62 for ventilation for acceptable indoor air quality, ASHRAE Standard 55 for thermal comfort, and IESNA Lighting Handbook for lighting quality.

ENERGY STAR® Data Checklist for Commercial Buildings

In order for a building to qualify for the ENERGY STAR, a Professional Engineer (PE) or a Registered Architect (RA) must validate the accuracy of the data underlying the building's energy performance rating. This checklist is designed to provide an at-a-glance summary of a property's physical and operating characteristics, as well as its total energy consumption, to assist the PE or RA in double-checking the information that the building owner or operator has entered into Portfolio Manager.

Please complete and sign this checklist and include it with the stamped, signed Statement of Energy Performance.
NOTE: You must check each box to indicate that each value is correct, OR include a note.

CRITERION	VALUE AS ENTERED IN PORTFOLIO MANAGER	VERIFICATION QUESTIONS	NOTES	☑
Building Name	Administration Building	Is this the official building name to be displayed in the ENERGY STAR Registry of Labeled Buildings?		☐
Type	Office	Is this an accurate description of the space in question?		☐
Location	One Bergen County Plaza, Hackensack, NJ 07601	Is this address accurate and complete? Correct weather normalization requires an accurate zip code.		☐
Single Structure	Single Facility	Does this SEP represent a single structure? SEPs cannot be submitted for multiple-building campuses (with the exception of acute care or children's hospitals) nor can they be submitted as representing only a portion of a building		☐
Office Spaces (Office)				
CRITERION	**VALUE AS ENTERED IN PORTFOLIO MANAGER**	**VERIFICATION QUESTIONS**	**NOTES**	☑
Gross Floor Area	262,000 Sq. Ft.	Does this square footage include all supporting functions such as kitchens and break rooms used by staff, storage areas, administrative areas, elevators, stairwells, atria, vent shafts, etc. Also note that existing atriums should only include the base floor area that it occupies. Interstitial (plenum) space between floors should not be included in the total. Finally gross floor area is not the same as leasable space. Leasable space is a subset of gross floor area.		☐
Weekly operating hours	50 Hours	Is this the total number of hours per week that the Office space is 75% occupied? This number should exclude hours when the facility is occupied only by maintenance, security, or other support personnel. For facilities with a schedule that varies during the year, "operating hours/week" refers to the total weekly hours for the schedule most often followed.		☐
Workers on Main Shift	1,000	Is this the number of employees present during the main shift? Note this is not the total number of employees or visitors who are in a building during an entire 24 hour period. For example, if there are two daily 8 hour shifts of 100 workers each, the Workers on Main Shift value is 100. The normal worker density ranges between 0.3 and 5.3 workers per 1000 square feet (92.8 square meters)		☐
Number of PCs	576 (Default)	Is this the number of personal computers in the Office?		☐
Percent Cooled	50% or more	Is this the percentage of the total floor space within the facility that is served by mechanical cooling equipment?		☐
Percent Heated	50% or more	Is this the percentage of the total floor space within the facility that is served by mechanical heating equipment?		☐

ENERGY STAR® Data Checklist for Commercial Buildings

Energy Consumption

Power Generation Plant or Distribution Utility: Public Service Electric & Gas Co

Fuel Type: Electricity

Meter: Electric (kWh (thousand Watt-hours))
Space(s): Entire Facility
Generation Method: Grid Purchase

Start Date	End Date	Energy Use (kWh (thousand Watt-hours))
01/05/2011	02/02/2011	405,216.00
12/03/2010	01/04/2011	449,919.00
11/02/2010	12/02/2010	436,464.00
10/02/2010	11/01/2010	427,750.00
09/02/2010	10/01/2010	465,733.00
08/04/2010	09/01/2010	407,616.00
07/03/2010	08/03/2010	413,029.00
06/04/2010	07/02/2010	571,612.00
05/05/2010	06/03/2010	552,954.00
04/06/2010	05/04/2010	428,065.00
03/03/2010	04/05/2010	448,706.00
Electric Consumption (kWh (thousand Watt-hours))		**5,007,064.00**
Electric Consumption (kBtu (thousand Btu))		**17,084,102.37**
Total Electricity (Grid Purchase) Consumption (kBtu (thousand Btu))		**17,084,102.37**
Is this the total Electricity (Grid Purchase) consumption at this building including all Electricity meters?		☐

Fuel Type: Natural Gas

Meter: Natural Gas (therms)
Space(s): Entire Facility

Start Date	End Date	Energy Use (therms)
01/05/2011	02/02/2011	15,776.16
12/03/2010	01/04/2011	23,012.34
11/02/2010	12/02/2010	14,673.70
10/02/2010	11/01/2010	10,447.91
09/02/2010	10/01/2010	8,169.38
08/04/2010	09/01/2010	8,507.41
07/03/2010	08/03/2010	8,354.12
06/04/2010	07/02/2010	7,090.46
05/05/2010	06/03/2010	8,116.27
04/06/2010	05/04/2010	8,561.96
03/04/2010	04/05/2010	9,777.57

Natural Gas Consumption (therms)	**122,487.28**
Natural Gas Consumption (kBtu (thousand Btu))	**12,248,728.00**
Total Natural Gas Consumption (kBtu (thousand Btu))	**12,248,728.00**
Is this the total Natural Gas consumption at this building including all Natural Gas meters?	☐

Additional Fuels	
Do the fuel consumption totals shown above represent the total energy use of this building? Please confirm there are no additional fuels (district energy, generator fuel oil) used in this facility.	☐

On-Site Solar and Wind Energy	
Do the fuel consumption totals shown above include all on-site solar and/or wind power located at your facility? Please confirm that no on-site solar or wind installations have been omitted from this list. All on-site systems must be reported.	☐

Certifying Professional

(When applying for the ENERGY STAR, the Certifying Professional must be the same PE or RA that signed and stamped the SEP.)

Name: _____ Date: _____

Signature: _____

Signature is required when applying for the ENERGY STAR.

FOR YOUR RECORDS ONLY. DO NOT SUBMIT TO EPA.

Please keep this Facility Summary for your own records; do not submit it to EPA. Only the Statement of Energy Performance (SEP), Data Checklist and Letter of Agreement need to be submitted to EPA when applying for the ENERGY STAR.

Facility
Administration Building
One Bergen County Plaza
Hackensack, NJ 07601

Facility Owner
County of Bergen
One Bergen Plaza
Hackensack, NJ 07601

Primary Contact for this Facility
Thomas Connolly
One Bergen Plaza
Hackensack, NJ 07601

General Information

Administration Building	
Gross Floor Area Excluding Parking: (ft^2)	262,000
Year Built	2000
For 12-month Evaluation Period Ending Date:	February 28, 2011

Facility Space Use Summary

Office Spaces	
Space Type	Office
Gross Floor Area(ft^2)	262,000
Weekly operating hours	50
Workers on Main Shift	1,000
Number of PCs[d]	576
Percent Cooled	50% or more
Percent Heated	50% or more

Energy Performance Comparison

	Evaluation Periods		Comparisons		
Performance Metrics	**Current** (Ending Date 02/28/2011)	**Baseline** (Ending Date 02/28/2011)	**Rating of 75**	**Target**	**National Average**
Energy Performance Rating	41	41	75	N/A	50
Energy Intensity					
Site (kBtu/ft^2)	127	127	86	N/A	116
Source (kBtu/ft^2)	297	297	200	N/A	271
Energy Cost					
$/year	$ 847,262.22	$ 847,262.22	$ 571,191.01	N/A	$ 772,333.36
$/$ft^2$/year	$ 3.23	$ 3.23	$ 2.18	N/A	$ 2.94
Greenhouse Gas Emissions					
$MtCO_2e$/year	3,427	3,427	2,310	N/A	3,124
$kgCO_2e/ft^2$/year	13	13	9	N/A	12

More than 50% of your building is defined as Office. Please note that your rating accounts for all of the spaces listed. The National Average column presents energy performance data your building would have if your building had an average rating of 50.

Notes:
o - This attribute is optional.
d - A default value has been supplied by Portfolio Manager.

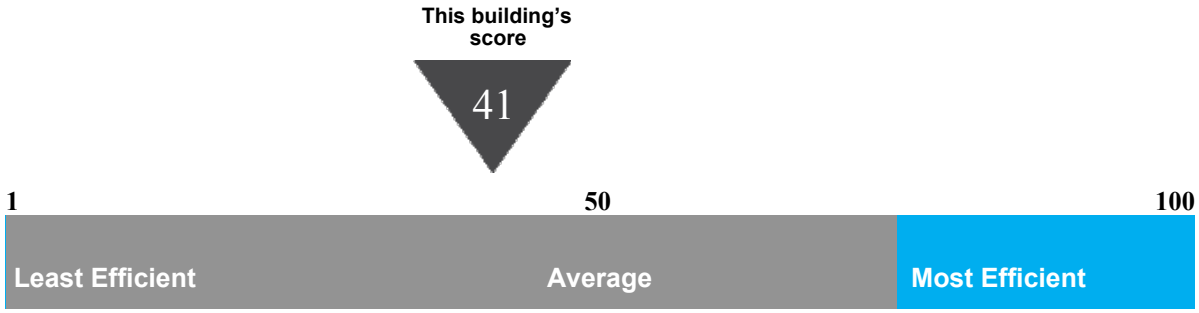
Statement of Energy Performance

2011

Administration Building
One Bergen County Plaza
Hackensack, NJ 07601

Portfolio Manager Building ID: 2616385

The energy use of this building has been measured and compared to other similar buildings using the Environmental Protection Agency's (EPA's) Energy Performance Scale of 1–100, with 1 being the least energy efficient and 100 the most energy efficient. For more information, visit energystar.gov/benchmark.



This building uses 297 kBtu per square foot per year.*

*Based on source energy intensity for the 12 month period ending February 2011

Buildings with a score of 75 or higher may qualify for EPA's ENERGY STAR.

I certify that the information contained within this statement is accurate and in accordance with U.S. Environmental Protection Agency's measurement standards, found at energystar.gov

Date of certification

EPA United States Environmental Protection Agency

Date Generated: 05/16/2011

MAJOR EQUIPMENT LIST

Concord Engineering Group

Bergen County - Administration Building

Boilers

Tag	Boiler-1 - 5	
Unit Type	Water tube atmospheric boilers	
Qty	5	
Location	Penthouse boiler room	
Area Served	AHUs, fin tube radiators and VAV reheat coils	
Manufacturer	Paypak	
Model #	H6-3001	
Serial #	0001166922, 0001166923, 0002167008, 0002167009	
Input Capacity (MBH)	3,000	
Rated Output Capacity (MBH)	2,460	
Approx. Efficiency %	82%	
Fuel	Natural Gas	
Approx Age	11	
ASHRAE Service Life	30	
Remaining Life	19	
Comments	Boilers are in good condition	

MAJOR EQUIPMENT LIST

Concord Engineering Group

Bergen County - Administration Building

Pumps

Tag	HWP-1 & 2	HWP - 3	HWP
Unit Type	Base mounted pumps	Base mounted pumps	Pipe mounted boiler circulators
Qty	2	1	5
Location	Penthouse MER	Penthouse MER	Boiler room
Area Served	VAV Reheat coils	Perimeter baseboard	Primary hot water loop
Manufacturer	Bell and Gossett	Bell and Gossett	Bell and Gossett
Model #	5E 9500 BF	2BC 8.125 BF	-
Serial #	2194079, 2194080	2134035	-
Horse Power	25	5	1.5
Flow	825 GPM @ 75 ft HD	160 GPM @ 60 ft HD	-
Motor Info	US Electric	Baldor Motor	Marathon Electric
Electrical Power	460/3/60	460/3/60	460/3/60
RPM	1775	1800	1150
Motor Efficiency %	91.7%	87.5%	76%
Approx Age	11	11	11
ASHRAE Service Life	20	20	15
Remaining Life	9	9	4
Comments	lead / lag operation		

MAJOR EQUIPMENT LIST

Concord Engineering Group

Bergen County - Administration Building

Evaporative Condensing Units

Tag	ECU-1 & 3	ECU-2 & 4	
Unit Type	Custom Built ECU	Custom Built ECU	
Qty	2	2	
Location	Penthouse MER	Penthouse MER	
Area Served	AHU 1 & 3	AHU 2 & 4	
Manufacturer	Webco	Webco	
Compressors	(2) Hitachi Screw Compressors per ECU	(3) Hitachi Screw Compressors per ECU	
Nomimal Compressor Input Power	180.9	236.8	
Refrigerant	R22	R22	
Cooling Capacity (Tons)	204	299	
Condenser Fans	20 HP	40 HP	
Condenser Fan Motor Efficiency	91%	93%	
Total power input	192 kW per ECU	260 kW per ECU	
System Efficiency (kW/Ton)	0.94	0.87	
Volts / Phase / Hz	460/3/60	460/3/60	
Condenser Water GPM	150 GPM	325 GPM	
Approx Age	11	11	
ASHRAE Service Life	20	20	
Remaining Life	9	9	
Comments			

MAJOR EQUIPMENT LIST

Concord Engineering Group

Bergen County - Administration Building

AC Units

Tag	AHU-1	AHU-2	AHU-3
Unit Type	Custom built AHU	Custom built AHU	Custom built AHU
Qty	1	1	1
Location	Penthouse MER	Penthouse MER	Penthouse MER
Area Served	4th & 5th floor South	1,2,3rd Floors South	4th & 5th floor North
Manufacturer	Webco	Webco	Webco
Model #	E-CUS-60	E-CUS-90	E-CUS-60
Serial #	E3437-W-04/00	E3439-W-04/00	E3438-W-04/00
Cooling Type	DX coils	DX coils	DX coils
Cooling Capacity (Tons)	204	299	204
Cooling Efficiency (SEER/EER)	-	-	-
Heating Type	None	None	None
Supply Flow (CFM)	60,000	90,000	60000
Min OA Flow (CFM)	10,000	15,000	10000
Supply Fan HP	2 x 50	3 x 50	2 x 50
Supply Fan Efficiency	94.5%	94.5%	95%
Approx Age	11	11	11
ASHRAE Service Life	20	20	20
Remaining Life	9	9	9
Comments	Supply Fans on VFD	Supply Fans on VFD	Supply Fans on VFD

MAJOR EQUIPMENT LIST

Concord Engineering Group

Bergen County - Administration Building

AC Units

Tag	AHU-4		
Unit Type	Custom built AHU		
Qty	1		
Location	Penthouse MER		
Area Served	1,2,3rd Floors North		
Manufacturer	Webco		
Model #	E-CUS-90		
Serial #	E3440-W-04/00		
Cooling Type	DX coils		
Cooling Capacity (Tons)	299		
Cooling Efficiency (SEER/EER)	-		
Heating Type	None		
Supply Flow (CFM)	90,000		
Min OA Flow (CFM)	15,000		
Supply Fan HP	3 x 50		
Supply Fan Efficiency	94.5%		
Approx Age	11		
ASHRAE Service Life	20		
Remaining Life	9		
Comments	Supply Fans on VFD		

MAJOR EQUIPMENT LIST

Concord Engineering Group

Bergen County - Administration Building

Fans

Tag	RF 1 & 3	RF 2 & 4	EF - 1
Type	Axial Fans	Axial Fans	Centrifugal roof ventilator
Location	Penthouse MER	Penthouse MER	Roof
Area Served	Return Fan for AHU 1 & 3	Return Fan for AHU 2 & 4	Toilets
Manufacturer	Greenheck	Greenheck	Cook
Qty.	2	2	1
Model #	VAB66F26	VAB72F26	-
Serial #	-	-	-
Fan HP	40	50	7.5
Motor Efficiency	94.5%	94.5%	N/A
Fan RPM	776	798	545
Capacity (CFM)	54,000	81,000	13,015
Volts	460	460	-
Phase	3	3	-
Approx. Age	11	11	11
ASHRAE Service Life	20	20	20
Remaining Life	9	9	9
Comments	Variable pitch blade control	Variable pitch blade control	

MAJOR EQUIPMENT LIST

Concord Engineering Group

Bergen County - Administration Building

Fans

Tag	EF - 2	EF-3.4	EF-5
Type	Centrifugal roof ventilator	Centrifugal roof ventilator	Centrifugal roof ventilator
Location	Roof	Roof	Roof
Area Served	Toilets	Load deck and electric room	Toilets
Manufacturer	Cook	Cook	Cook
Qty.	1	2	1
Model #	-	-	-
Serial #	-	-	-
Fan HP	5	3/4	2
Motor Efficiency	N/A	N/A	N/A
Fan RPM	715	1,050	970
Capacity (CFM)	7,130	2,500	5,475
Volts	-	-	-
Phase	-	-	-
Approx. Age	11	11	11
ASHRAE Service Life	20	20	20
Remaining Life	9	9	9
Comments			

MAJOR EQUIPMENT LIST

Concord Engineering Group

Bergen County - Administration Building

Domestic Water Heaters

Tag	HWH-1	HWH-2	
Unit Type	Tank	Tank	
Qty	1	8 (estimated)	
Location	1st Floor MER	Ceiling of each floor bathroom	
Area Served	Shops and 1st floor	Bathroom faucets	
Manufacturer	AO Smith	AO Smith	
Model #	DSE65-6	-	
Serial #	SE00-80764	-	
Size (Gallons)	65	10 Gal (Est)	
Input Capacity (MBH/KW)	6 kW	-	
Recovery (Gal/Hr)	-	-	
Efficiency %	-	-	
Fuel	-	-	
Approx Age	10	10	
ASHRAE Service Life	15	12	
Remaining Life	5	2	
Comments	Heater on time clock	Heaters on time clock	

MAJOR EQUIPMENT LIST

Concord Engineering Group

Bergen County - Administration Building

Hot Water Unit Heaters

Tag	UH		
Location	Various		
Qty	15 (Est)		
Manufacturer	Vulcan		
Model #	-		
Heating Capacity (MBH)	14 - 67 MBH		
CFM	230 - 1410		
Fan HP	Fractional		
GPM	1.7 - 8 GPM		
Approx Age	11		
ASHRAE Service Life	20		
Remaining Life	9		
Comments	UH's are furnished with 2 speed motors and thermostats		

Investment Grade Lighting Audit

CEG Job #: 9C10085

Project: Bergen County Administration Building
One Bergen Plaza
Hackensack, NJ

Bldg. Sq. Ft. 262,000

Bergen County Administration Building

KWH COST: $0.132

ECM #1: Lighting Upgrade - General

EXISTING LIGHTING										PROPOSED LIGHTING									SAVINGS			
CEG Type	Fixture Location	Yearly Usage	No. Fixts	No. Lamps	Fixture Type	Fixt Watts	Total kW	kWh/Yr Fixtures	Yearly $ Cost	No. Fixts	No. Lamps	Retro-Unit Description	Watts Used	Total kW	kWh/Yr Fixtures	Yearly $ Cost	Unit Cost (INSTALLED)	Total Cost	kW Savings	kWh/Yr Savings	Yearly $ Savings	Yearly Simple Payback
221.33	Open Office 5020	2600	42	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	2.44	6,333.6	$836.04	42	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	2.10	5460	$720.72	$14.00	$588.00	0.34	873.6	$115.32	5.10
232.22	Office 5031	2600	2	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.17	447.2	$59.03	2	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.14	374.4	$49.42	$21.00	$42.00	0.03	72.8	$9.61	4.37
232.22	Office 5030	2600	2	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.17	447.2	$59.03	2	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.14	374.4	$49.42	$21.00	$42.00	0.03	72.8	$9.61	4.37
232.22	Counter Area 5018	2600	4	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.34	894.4	$118.06	4	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.29	748.8	$98.84	$21.00	$84.00	0.06	145.6	$19.22	4.37
227.21	Lobby 5001	4400	12	2	2x2, 2 Lamp, 32w 700 series T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	65	0.78	3,432.0	$453.02	12	2	Sylvania Lamp FBO30/841XP/6//SS/ECO	49	0.59	2587.2	$341.51	$24.00	$288.00	0.19	844.8	$111.51	2.58
560		4400	33	1	Recessed Down Light, 26w CFL Lamp	26	0.86	3,775.2	$498.33	33	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
650		4400	8	2	Wall Sconce, (2) 13w PL Quad Lamp	26	0.21	915.2	$120.81	8	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.41	Lobby Restrooms	4400	10	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.58	2,552.0	$336.86	10	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.50	2200	$290.40	$14.00	$140.00	0.08	352	$46.46	3.01
563	Reception 5117	2600	8	2	Recessed Down Light, (2)26w Quad CFL Lamp	52	0.42	1,081.6	$142.77	8	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.33	Conference Room 5116	2600	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.23	603.2	$79.62	4	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.20	520	$68.64	$14.00	$56.00	0.03	83.2	$10.98	5.10
232.22	Office 5115	2600	2	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.17	447.2	$59.03	2	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.14	374.4	$49.42	$21.00	$42.00	0.03	72.8	$9.61	4.37
221.33	Clerk Office	2600	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.23	603.2	$79.62	4	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.20	520	$68.64	$14.00	$56.00	0.03	83.2	$10.98	5.10
221.33	Open Office 5113	2600	20	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	1.16	3,016.0	$398.11	20	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	1.00	2600	$343.20	$14.00	$280.00	0.16	416	$54.91	5.10
221.33	Library	2600	8	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.46	1,206.4	$159.24	8	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.40	1040	$137.28	$14.00	$112.00	0.06	166.4	$21.96	5.10
232.22	Managers Office 5110	2600	2	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.17	447.2	$59.03	2	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.14	374.4	$49.42	$21.00	$42.00	0.03	72.8	$9.61	4.37
232.22	Copy Room 5111	2600	3	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.26	670.8	$88.55	3	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.22	561.6	$74.13	$21.00	$63.00	0.04	109.2	$14.41	4.37
227.21	Corridor	2600	9	2	2x2, 2 Lamp, 32w 700 series T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	65	0.59	1,521.0	$200.77	9	2	Sylvania Lamp FBO30/841XP/6//SS/ECO	49	0.44	1146.6	$151.35	$24.00	$216.00	0.14	374.4	$49.42	4.37

Investment Grade Lighting Audit

ECM #1: Lighting Upgrade - General

EXISTING LIGHTING										PROPOSED LIGHTING									SAVINGS			
CEG Type	Fixture Location	Yearly Usage	No. Fixts	No. Lamps	Fixture Type	Fixt Watts	Total kW	kWh/Yr Fixtures	Yearly $ Cost	No. Fixts	No. Lamps	Retro-Unit Description	Watts Used	Total kW	kWh/Yr Fixtures	Yearly $ Cost	Unit Cost (INSTALLED)	Total Cost	kW Savings	kWh/Yr Savings	Yearly $ Savings	Yearly Simple Payback
232.22	Small Office/ Reception (7)	2600	15	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	1.29	3,354.0	$442.73	15	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	1.08	2808	$370.66	$21.00	$315.00	0.21	546	$72.07	4.37
221.33		2600	24	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	1.39	3,619.2	$477.73	24	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	1.20	3120	$411.84	$14.00	$336.00	0.19	499.2	$65.89	5.10
232.22	Files	2600	21	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	1.81	4,695.6	$619.82	21	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	1.51	3931.2	$518.92	$21.00	$441.00	0.29	764.4	$100.90	4.37
232.22	Storage	1200	6	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.52	619.2	$81.73	6	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.43	518.4	$68.43	$21.00	$126.00	0.08	100.8	$13.31	9.47
232.22	Office 5087-86	2600	3	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.26	670.8	$88.55	3	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.22	561.6	$74.13	$21.00	$63.00	0.04	109.2	$14.41	4.37
221.33		2600	8	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.46	1,206.4	$159.24	8	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.40	1040	$137.28	$14.00	$112.00	0.06	166.4	$21.96	5.10
232.22	Meeting Room	1400	10	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.86	1,204.0	$158.93	10	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.72	1008	$133.06	$21.00	$210.00	0.14	196	$25.87	8.12
560		1400	59	1	Recessed Down Light, 26w CFL Lamp	26	1.53	2,147.6	$283.48	59	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
232.22	Corridor/ Restrooms	2600	5	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.43	1,118.0	$147.58	5	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.36	936	$123.55	$21.00	$105.00	0.07	182	$24.02	4.37
221.33	Work Session Room	2600	20	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	1.16	3,016.0	$398.11	20	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	1.00	2600	$343.20	$14.00	$280.00	0.16	416	$54.91	5.10
560		2600	10	1	Recessed Down Light, 26w CFL Lamp	26	0.26	676.0	$89.23	10	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
232.22	Corridor	2600	6	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.52	1,341.6	$177.09	6	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.43	1123.2	$148.26	$21.00	$126.00	0.08	218.4	$28.83	4.37
227.21		2600	6	2	2x2, 2 Lamp, 32w 700 series T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	65	0.39	1,014.0	$133.85	6	2	Sylvania Lamp FBO30/841XP/6//SS/ECO	49	0.29	764.4	$100.90	$24.00	$144.00	0.10	249.6	$32.95	4.37
232.22	Servers 5084	2600	11	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.95	2,459.6	$324.67	11	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.79	2059.2	$271.81	$21.00	$231.00	0.15	400.4	$52.85	4.37
232.22	Computer Room	2600	25	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	2.15	5,590.0	$737.88	25	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	1.80	4680	$617.76	$21.00	$525.00	0.35	910	$120.12	4.37
232.22	Ramp	2600	3	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.26	670.8	$88.55	3	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.22	561.6	$74.13	$21.00	$63.00	0.04	109.2	$14.41	4.37
221.33	Open Officce 5080	2600	28	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	1.62	4,222.4	$557.36	28	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	1.40	3640	$480.48	$14.00	$392.00	0.22	582.4	$76.88	5.10
227.21	Corridor 5123	2600	18	2	2x2, 2 Lamp, 32w 700 series T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	65	1.17	3,042.0	$401.54	18	2	Sylvania Lamp FBO30/841XP/6//SS/ECO	49	0.88	2293.2	$302.70	$24.00	$432.00	0.29	748.8	$98.84	4.37
232.22	Corridor 5079 & 81	2600	7	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.60	1,565.2	$206.61	7	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.50	1310.4	$172.97	$21.00	$147.00	0.10	254.8	$33.63	4.37

Investment Grade Lighting Audit

ECM #1: Lighting Upgrade - General

EXISTING LIGHTING										PROPOSED LIGHTING									SAVINGS			
CEG Type	Fixture Location	Yearly Usage	No. Fixts	No. Lamps	Fixture Type	Fixt Watts	Total kW	kWh/Yr Fixtures	Yearly $ Cost	No. Fixts	No. Lamps	Retro-Unit Description	Watts Used	Total kW	kWh/Yr Fixtures	Yearly $ Cost	Unit Cost (INSTALLED)	Total Cost	kW Savings	kWh/Yr Savings	Yearly $ Savings	Yearly Simple Payback
232.22	Printing 5082	2600	10	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.86	2,236.0	$295.15	10	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.72	1872	$247.10	$21.00	$210.00	0.14	364	$48.05	4.37
232.22	Offices (4)	2600	8	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.69	1,788.8	$236.12	8	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.58	1497.6	$197.68	$21.00	$168.00	0.11	291.2	$38.44	4.37
221.33	Conference 5073	2600	8	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.46	1,206.4	$159.24	8	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.40	1040	$137.28	$14.00	$112.00	0.06	166.4	$21.96	5.10
232.22	Doc Library	2600	2	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.17	447.2	$59.03	2	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.14	374.4	$49.42	$21.00	$42.00	0.03	72.8	$9.61	4.37
232.22	Equip Storage	2600	2	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.17	447.2	$59.03	2	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.14	374.4	$49.42	$21.00	$42.00	0.03	72.8	$9.61	4.37
232.22	PC Repair	2600	4	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.34	894.4	$118.06	4	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.29	748.8	$98.84	$21.00	$84.00	0.06	145.6	$19.22	4.37
232.22	Paper Storage	1200	6	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.52	619.2	$81.73	6	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.43	518.4	$68.43	$21.00	$126.00	0.08	100.8	$13.31	9.47
232.22	Corridor 5078	2600	5	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.43	1,118.0	$147.58	5	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.36	936	$123.55	$21.00	$105.00	0.07	182	$24.02	4.37
232.22	Corridor 5059	2600	6	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.52	1,341.6	$177.09	6	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.43	1123.2	$148.26	$21.00	$126.00	0.08	218.4	$28.83	4.37
221.33	Reception 5058	2600	6	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.35	904.8	$119.43	6	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.30	780	$102.96	$14.00	$84.00	0.05	124.8	$16.47	5.10
221.33	Library	2600	8	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.46	1,206.4	$159.24	8	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.40	1040	$137.28	$14.00	$112.00	0.06	166.4	$21.96	5.10
232.22	Copy Room 5060	2600	3	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.26	670.8	$88.55	3	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.22	561.6	$74.13	$21.00	$63.00	0.04	109.2	$14.41	4.37
232.22	Small Offices (7)	2600	14	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	1.20	3,130.4	$413.21	14	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	1.01	2620.8	$345.95	$21.00	$294.00	0.20	509.6	$67.27	4.37
221.33	Open Area 5077	2600	24	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	1.39	3,619.2	$477.73	24	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	1.20	3120	$411.84	$14.00	$336.00	0.19	499.2	$65.89	5.10
221.33	Office 5065	2600	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.23	603.2	$79.62	4	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.20	520	$68.64	$14.00	$56.00	0.03	83.2	$10.98	5.10
227.21	Corridor	2600	6	2	2x2, 2 Lamp, 32w 700 series T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	65	0.39	1,014.0	$133.85	6	2	Sylvania Lamp FBO30/841XP/6//SS/ECO	49	0.29	764.4	$100.90	$24.00	$144.00	0.10	249.6	$32.95	4.37
232.22		2600	9	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.77	2,012.4	$265.64	9	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.65	1684.8	$222.39	$21.00	$189.00	0.13	327.6	$43.24	4.37
221.33		2600	8	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.46	1,206.4	$159.24	8	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.40	1040	$137.28	$14.00	$112.00	0.06	166.4	$21.96	5.10
221.33	Office 5051	2600	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt.,	58	0.23	603.2	$79.62	4	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.20	520	$68.64	$14.00	$56.00	0.03	83.2	$10.98	5.10

Investment Grade Lighting Audit

ECM #1: Lighting Upgrade - General

EXISTING LIGHTING										PROPOSED LIGHTING									SAVINGS			
CEG Type	Fixture Location	Yearly Usage	No. Fixts	No. Lamps	Fixture Type	Fixt Watts	Total kW	kWh/Yr Fixtures	Yearly $ Cost	No. Fixts	No. Lamps	Retro-Unit Description	Watts Used	Total kW	kWh/Yr Fixtures	Yearly $ Cost	Unit Cost (INSTALLED)	Total Cost	kW Savings	kWh/Yr Savings	Yearly $ Savings	Yearly Simple Payback
232.22	Office 5050	2600	2	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.17	447.2	$59.03	2	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.14	374.4	$49.42	$21.00	$42.00	0.03	72.8	$9.61	4.37
232.22	Office 5049	2600	2	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.17	447.2	$59.03	2	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.14	374.4	$49.42	$21.00	$42.00	0.03	72.8	$9.61	4.37
232.22	Files 5054	2600	17	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	1.46	3,801.2	$501.76	17	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	1.22	3182.4	$420.08	$21.00	$357.00	0.24	618.8	$81.68	4.37
221.33	Conference Room 5055	2600	8	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.46	1,206.4	$159.24	8	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.40	1040	$137.28	$14.00	$112.00	0.06	166.4	$21.96	5.10
560		2600	14	1	Recessed Down Light, 26w CFL Lamp	26	0.36	946.4	$124.92	14	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.33	Office 5054	2600	8	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.46	1,206.4	$159.24	8	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.40	1040	$137.28	$14.00	$112.00	0.06	166.4	$21.96	5.10
221.33	Conf. Rm.	2600	8	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.46	1,206.4	$159.24	8	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.40	1040	$137.28	$14.00	$112.00	0.06	166.4	$21.96	5.10
560		2600	10	1	Recessed Down Light, 26w CFL Lamp	26	0.26	676.0	$89.23	10	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.33	Conf. Room 5044	2600	8	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.46	1,206.4	$159.24	8	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.40	1040	$137.28	$14.00	$112.00	0.06	166.4	$21.96	5.10
560		2600	10	1	Recessed Down Light, 26w CFL Lamp	26	0.26	676.0	$89.23	10	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.33	Conf. Room 5043	2600	8	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.46	1,206.4	$159.24	8	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.40	1040	$137.28	$14.00	$112.00	0.06	166.4	$21.96	5.10
560		2600	14	1	Recessed Down Light, 26w CFL Lamp	26	0.36	946.4	$124.92	14	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.33	Open Office 5038	2600	12	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.70	1,809.6	$238.87	12	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.60	1560	$205.92	$14.00	$168.00	0.10	249.6	$32.95	5.10
560		2600	8	1	Recessed Down Light, 26w CFL Lamp	26	0.21	540.8	$71.39	8	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.33	Side Offices (2)	2600	8	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.46	1,206.4	$159.24	8	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.40	1040	$137.28	$14.00	$112.00	0.06	166.4	$21.96	5.10
232.22	Office 5039	2600	4	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.34	894.4	$118.06	4	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.29	748.8	$98.84	$21.00	$84.00	0.06	145.6	$19.22	4.37
221.33	Corridor 5033	2600	10	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.58	1,508.0	$199.06	10	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.50	1300	$171.60	$14.00	$140.00	0.08	208	$27.46	5.10
232.22	Side Offices (3)	2600	6	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.52	1,341.6	$177.09	6	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.43	1123.2	$148.26	$21.00	$126.00	0.08	218.4	$28.83	4.37
232.22	Lobby - Coffee Area	2600	4	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.34	894.4	$118.06	4	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.29	748.8	$98.84	$21.00	$84.00	0.06	145.6	$19.22	4.37
227.21	Employee Lobby	2600	5	2	2x2, 2 Lamp, 32w 700 series T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	65	0.33	845.0	$111.54	5	2	Sylvania Lamp FBO30/841XP/6//SS/ECO	49	0.25	637	$84.08	$24.00	$120.00	0.08	208	$27.46	4.37
560		2600	11	1	Recessed Down Light, 26w CFL Lamp	26	0.29	743.6	$98.16	11	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00

Investment Grade Lighting Audit

ECM #1: Lighting Upgrade - General

EXISTING LIGHTING										PROPOSED LIGHTING									SAVINGS			
CEG Type	Fixture Location	Yearly Usage	No. Fixts	No. Lamps	Fixture Type	Fixt Watts	Total kW	kWh/Yr Fixtures	Yearly $ Cost	No. Fixts	No. Lamps	Retro-Unit Description	Watts Used	Total kW	kWh/Yr Fixtures	Yearly $ Cost	Unit Cost (INSTALLED)	Total Cost	kW Savings	kWh/Yr Savings	Yearly $ Savings	Yearly Simple Payback
232.22	Files 5042	2600	4	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.34	894.4	$118.06	4	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.29	748.8	$98.84	$21.00	$84.00	0.06	145.6	$19.22	4.37
221.41	Men's Restroom	2600	5	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.29	754.0	$99.53	5	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.25	650	$85.80	$14.00	$70.00	0.04	104	$13.73	5.10
221.41	Women's Restroom	2600	5	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.29	754.0	$99.53	5	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.25	650	$85.80	$14.00	$70.00	0.04	104	$13.73	5.10
221.34	Electrical Room	1200	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.12	139.2	$18.37	2	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.10	120	$15.84	$14.00	$28.00	0.02	19.2	$2.53	11.05
221.33	Corridor 5027	2600	16	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.93	2,412.8	$318.49	16	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.80	2080	$274.56	$14.00	$224.00	0.13	332.8	$43.93	5.10
232.22	Storage	1200	1	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.09	103.2	$13.62	1	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.07	86.4	$11.40	$21.00	$21.00	0.01	16.8	$2.22	9.47
232.22	Office 5032	2600	2	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.17	447.2	$59.03	2	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.14	374.4	$49.42	$21.00	$42.00	0.03	72.8	$9.61	4.37
232.22	Conf. Room 5025	2600	8	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.69	1,788.8	$236.12	8	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.58	1497.6	$197.68	$21.00	$168.00	0.11	291.2	$38.44	4.37
232.22	Office 5029	2600	5	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.43	1,118.0	$147.58	5	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.36	936	$123.55	$21.00	$105.00	0.07	182	$24.02	4.37
232.22	Office 5024	2600	2	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.17	447.2	$59.03	2	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.14	374.4	$49.42	$21.00	$42.00	0.03	72.8	$9.61	4.37
232.22	Files 5021	2600	23	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	1.98	5,142.8	$678.85	23	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	1.66	4305.6	$568.34	$21.00	$483.00	0.32	837.2	$110.51	4.37
227.21		2600	2	2	2x2, 2 Lamp, 32w 700 series T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	65	0.13	338.0	$44.62	2	2	Sylvania Lamp FBO30/841XP/6//SS/ECO	49	0.10	254.8	$33.63	$24.00	$48.00	0.03	83.2	$10.98	4.37
227.21	Employee Lobby	2600	5	2	2x2, 2 Lamp, 32w 700 series T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	65	0.33	845.0	$111.54	5	2	Sylvania Lamp FBO30/841XP/6//SS/ECO	49	0.25	637	$84.08	$24.00	$120.00	0.08	208	$27.46	4.37
560		2600	11	1	Recessed Down Light, 26w CFL Lamp	26	0.29	743.6	$98.16	11	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.41	Men's Restroom	2600	5	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.29	754.0	$99.53	5	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.25	650	$85.80	$14.00	$70.00	0.04	104	$13.73	5.10
221.41	Women's Restroom	2600	5	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.29	754.0	$99.53	5	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.25	650	$85.80	$14.00	$70.00	0.04	104	$13.73	5.10
227.21	Corridor 4050	2600	10	2	2x2, 2 Lamp, 32w 700 series T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	65	0.65	1,690.0	$223.08	10	2	Sylvania Lamp FBO30/841XP/6//SS/ECO	49	0.49	1274	$168.17	$24.00	$240.00	0.16	416	$54.91	4.37
560		2600	5	1	Recessed Down Light, 26w CFL Lamp	26	0.13	338.0	$44.62	5	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
232.21	Mail	2600	4	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.34	894.4	$118.06	4	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.29	748.8	$98.84	$21.00	$84.00	0.06	145.6	$19.22	4.37

Investment Grade Lighting Audit

ECM #1: Lighting Upgrade - General

EXISTING LIGHTING										PROPOSED LIGHTING									SAVINGS			
CEG Type	Fixture Location	Yearly Usage	No. Fixts	No. Lamps	Fixture Type	Fixt Watts	Total kW	kWh/Yr Fixtures	Yearly $ Cost	No. Fixts	No. Lamps	Retro-Unit Description	Watts Used	Total kW	kWh/Yr Fixtures	Yearly $ Cost	Unit Cost (INSTALLED)	Total Cost	kW Savings	kWh/Yr Savings	Yearly $ Savings	Yearly Simple Payback
223.21	Printing 4045	2600	8	2	2x4, 2 Lamp, 32w 700 Series T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	0.46	1,206.4	$159.24	8	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.40	1040	$137.28	$14.00	$112.00	0.06	166.4	$21.96	5.10
221.33	Open Area 4032	2600	49	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	2.84	7,389.2	$975.37	49	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	2.45	6370	$840.84	$14.00	$686.00	0.39	1019.2	$134.53	5.10
232.22	Copy	2600	3	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.26	670.8	$88.55	3	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.22	561.6	$74.13	$21.00	$63.00	0.04	109.2	$14.41	4.37
232.22	Exam Rooms	2600	6	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.52	1,341.6	$177.09	6	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.43	1123.2	$148.26	$21.00	$126.00	0.08	218.4	$28.83	4.37
221.33	Comp. Room	2600	5	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.29	754.0	$99.53	5	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.25	650	$85.80	$14.00	$70.00	0.04	104	$13.73	5.10
232.22	Camera	2600	3	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.26	670.8	$88.55	3	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.22	561.6	$74.13	$21.00	$63.00	0.04	109.2	$14.41	4.37
221.33	Library	2600	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.23	603.2	$79.62	4	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.20	520	$68.64	$14.00	$56.00	0.03	83.2	$10.98	5.10
232.22	Traffic	2600	9	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.77	2,012.4	$265.64	9	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.65	1684.8	$222.39	$21.00	$189.00	0.13	327.6	$43.24	4.37
232.22	Eng. Arch.	2600	6	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.52	1,341.6	$177.09	6	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.43	1123.2	$148.26	$21.00	$126.00	0.08	218.4	$28.83	4.37
232.22	Parks Storage	2600	6	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.52	1,341.6	$177.09	6	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.43	1123.2	$148.26	$21.00	$126.00	0.08	218.4	$28.83	4.37
221.33	Library	2600	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.23	603.2	$79.62	4	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.20	520	$68.64	$14.00	$56.00	0.03	83.2	$10.98	5.10
221.33	Conf. Room 4031	2600	8	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.46	1,206.4	$159.24	8	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.40	1040	$137.28	$14.00	$112.00	0.06	166.4	$21.96	5.10
221.33	Open Area	2600	20	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	1.16	3,016.0	$398.11	20	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	1.00	2600	$343.20	$14.00	$280.00	0.16	416	$54.91	5.10
232.22	Side Offices (8)	2600	24	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	2.06	5,366.4	$708.36	24	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	1.73	4492.8	$593.05	$21.00	$504.00	0.34	873.6	$115.32	4.37
232.22	FE Lobby	2600	2	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.17	447.2	$59.03	2	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.14	374.4	$49.42	$21.00	$42.00	0.03	72.8	$9.61	4.37
221.34	Electrical Room	1200	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.12	139.2	$18.37	2	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.10	120	$15.84	$14.00	$28.00	0.02	19.2	$2.53	11.05
221.33	Monitor	2600	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.23	603.2	$79.62	4	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.20	520	$68.64	$14.00	$56.00	0.03	83.2	$10.98	5.10
232.21	Storage 4052	1200	8	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.69	825.6	$108.98	8	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.58	691.2	$91.24	$21.00	$168.00	0.11	134.4	$17.74	9.47
227.21	Corridor 4051	2600	5	2	2x2, 2 Lamp, 32w 700 series T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	65	0.33	845.0	$111.54	5	2	Sylvania Lamp FBO30/841XP/6//SS/ECO	49	0.25	637	$84.08	$24.00	$120.00	0.08	208	$27.46	4.37

Investment Grade Lighting Audit

ECM #1: Lighting Upgrade - General

EXISTING LIGHTING										PROPOSED LIGHTING									SAVINGS			
CEG Type	Fixture Location	Yearly Usage	No. Fixts	No. Lamps	Fixture Type	Fixt Watts	Total kW	kWh/Yr Fixtures	Yearly $ Cost	No. Fixts	No. Lamps	Retro-Unit Description	Watts Used	Total kW	kWh/Yr Fixtures	Yearly $ Cost	Unit Cost (INSTALLED)	Total Cost	kW Savings	kWh/Yr Savings	Yearly $ Savings	Yearly Simple Payback
221.33	Open Area 4048	2600	10	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.58	1,508.0	$199.06	10	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.50	1300	$171.60	$14.00	$140.00	0.08	208	$27.46	5.10
232.22	Side Offices (3)	2600	8	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.69	1,788.8	$236.12	8	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.58	1497.6	$197.68	$21.00	$168.00	0.11	291.2	$38.44	4.37
221.33	Conf. Room	2600	8	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.46	1,206.4	$159.24	8	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.40	1040	$137.28	$14.00	$112.00	0.06	166.4	$21.96	5.10
221.33	Training	2600	24	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	1.39	3,619.2	$477.73	24	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	1.20	3120	$411.84	$14.00	$336.00	0.19	499.2	$65.89	5.10
227.21	Coridor 4049	2600	9	2	2x2, 2 Lamp, 32w 700 series T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	65	0.59	1,521.0	$200.77	9	2	Sylvania Lamp FBO30/841XP/6//SS/ECO	49	0.44	1146.6	$151.35	$24.00	$216.00	0.14	374.4	$49.42	4.37
232.22	Conf. Rooms (8)	2600	6	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.52	1,341.6	$177.09	6	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.43	1123.2	$148.26	$21.00	$126.00	0.08	218.4	$28.83	4.37
221.33		2600	13	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.75	1,960.4	$258.77	13	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.65	1690	$223.08	$14.00	$182.00	0.10	270.4	$35.69	5.10
227.21	Lobby 4001	2600	10	2	2x2, 2 Lamp, 32w 700 series T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	65	0.65	1,690.0	$223.08	10	2	Sylvania Lamp FBO30/841XP/6//SS/ECO	49	0.49	1274	$168.17	$24.00	$240.00	0.16	416	$54.91	4.37
560		2600	5	1	Recessed Down Light, 26w CFL Lamp	26	0.13	338.0	$44.62	5	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.33	Office 4018 - 4020	2600	12	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.70	1,809.6	$238.87	12	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.60	1560	$205.92	$14.00	$168.00	0.10	249.6	$32.95	5.10
221.41	Men's Restroom	2600	5	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.29	754.0	$99.53	5	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.25	650	$85.80	$14.00	$70.00	0.04	104	$13.73	5.10
221.41	Women's Restroom	2600	5	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.29	754.0	$99.53	5	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.25	650	$85.80	$14.00	$70.00	0.04	104	$13.73	5.10
221.34	Electrical Room	1200	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.12	139.2	$18.37	2	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.10	120	$15.84	$14.00	$28.00	0.02	19.2	$2.53	11.05
221.34	Tel/Com Room	1200	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.06	69.6	$9.19	1	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.05	60	$7.92	$14.00	$14.00	0.01	9.6	$1.27	11.05
221.33	Corridor 4077	2600	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.23	603.2	$79.62	4	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.20	520	$68.64	$14.00	$56.00	0.03	83.2	$10.98	5.10
221.33	Side Ofices (3)	2600	18	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	1.04	2,714.4	$358.30	18	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.90	2340	$308.88	$14.00	$252.00	0.14	374.4	$49.42	5.10
221.33	Open Area 4069	2600	72	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	4.18	10,857.6	$1,433.20	72	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	3.60	9360	$1,235.52	$14.00	$1,008.00	0.58	1497.6	$197.68	5.10
221.33	Side Offices (5)	2600	10	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.58	1,508.0	$199.06	10	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.50	1300	$171.60	$14.00	$140.00	0.08	208	$27.46	5.10
232.22	Central Files	2600	32	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	2.75	7,155.2	$944.49	32	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	2.30	5990.4	$790.73	$21.00	$672.00	0.45	1164.8	$153.75	4.37

Investment Grade Lighting Audit

ECM #1: Lighting Upgrade - General

EXISTING LIGHTING										PROPOSED LIGHTING									SAVINGS			
CEG Type	Fixture Location	Yearly Usage	No. Fixts	No. Lamps	Fixture Type	Fixt Watts	Total kW	kWh/Yr Fixtures	Yearly $ Cost	No. Fixts	No. Lamps	Retro-Unit Description	Watts Used	Total kW	kWh/Yr Fixtures	Yearly $ Cost	Unit Cost (INSTALLED)	Total Cost	kW Savings	kWh/Yr Savings	Yearly $ Savings	Yearly Simple Payback
232.22	Offices 4070-4072	2600	6	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.52	1,341.6	$177.09	6	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.43	1123.2	$148.26	$21.00	$126.00	0.08	218.4	$28.83	4.37
221.33	Open Area 4065	2600	36	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	2.09	5,428.8	$716.60	36	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	1.80	4680	$617.76	$14.00	$504.00	0.29	748.8	$98.84	5.10
227.21	Employee Lobby	2600	5	2	2x2, 2 Lamp, 32w 700 series T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	65	0.33	845.0	$111.54	5	2	Sylvania Lamp FBO30/841XP/6//SS/ECO	49	0.25	637	$84.08	$24.00	$120.00	0.08	208	$27.46	4.37
560		2600	11	1	Recessed Down Light, 26w CFL Lamp	26	0.29	743.6	$98.16	11	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.41	Men's Restroom	2600	5	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.29	754.0	$99.53	5	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.25	650	$85.80	$14.00	$70.00	0.04	104	$13.73	5.10
221.41	Women's Restroom	2600	5	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.29	754.0	$99.53	5	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.25	650	$85.80	$14.00	$70.00	0.04	104	$13.73	5.10
227.21	Corridor	2600	10	2	2x2, 2 Lamp, 32w 700 series T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	65	0.65	1,690.0	$223.08	10	2	Sylvania Lamp FBO30/841XP/6//SS/ECO	49	0.49	1274	$168.17	$24.00	$240.00	0.16	416	$54.91	4.37
221.33	Open Office 3037	2600	8	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.46	1,206.4	$159.24	8	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.40	1040	$137.28	$14.00	$112.00	0.06	166.4	$21.96	5.10
221.33	Conf. Rm.	2600	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.23	603.2	$79.62	4	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.20	520	$68.64	$14.00	$56.00	0.03	83.2	$10.98	5.10
221.33	Open Area 3036	2600	23	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	1.33	3,468.4	$457.83	23	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	1.15	2990	$394.68	$14.00	$322.00	0.18	478.4	$63.15	5.10
232.22	Counter Area	2600	10	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.86	2,236.0	$295.15	10	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.72	1872	$247.10	$21.00	$210.00	0.14	364	$48.05	4.37
221.33	Conf. Room 3043	2600	8	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.46	1,206.4	$159.24	8	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.40	1040	$137.28	$14.00	$112.00	0.06	166.4	$21.96	5.10
232.22	Side Offices (5)	2600	10	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.86	2,236.0	$295.15	10	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.72	1872	$247.10	$21.00	$210.00	0.14	364	$48.05	4.37
221.33	Offices 3032 & 3038	2600	8	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.46	1,206.4	$159.24	8	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.40	1040	$137.28	$14.00	$112.00	0.06	166.4	$21.96	5.10
232.22	Side Offices (3)	2600	8	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.69	1,788.8	$236.12	8	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.58	1497.6	$197.68	$21.00	$168.00	0.11	291.2	$38.44	4.37
232.22	Hall	2600	8	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.69	1,788.8	$236.12	8	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.58	1497.6	$197.68	$21.00	$168.00	0.11	291.2	$38.44	4.37
221.33	Office 3027	2600	8	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.46	1,206.4	$159.24	8	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.40	1040	$137.28	$14.00	$112.00	0.06	166.4	$21.96	5.10
221.33	Open Area 3028	2600	81	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	4.70	12,214.8	$1,612.35	81	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	4.05	10530	$1,389.96	$14.00	$1,134.00	0.65	1684.8	$222.39	5.10
232.22	Copy Area	2600	2	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.17	447.2	$59.03	2	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.14	374.4	$49.42	$21.00	$42.00	0.03	72.8	$9.61	4.37

Investment Grade Lighting Audit

ECM #1: Lighting Upgrade - General

EXISTING LIGHTING										PROPOSED LIGHTING									SAVINGS			
CEG Type	Fixture Location	Yearly Usage	No. Fixts	No. Lamps	Fixture Type	Fixt Watts	Total kW	kWh/Yr Fixtures	Yearly $ Cost	No. Fixts	No. Lamps	Retro-Unit Description	Watts Used	Total kW	kWh/Yr Fixtures	Yearly $ Cost	Unit Cost (INSTALLED)	Total Cost	kW Savings	kWh/Yr Savings	Yearly $ Savings	Yearly Simple Payback
221.33	Conf. Rm. 3028	2600	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.23	603.2	$79.62	4	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.20	520	$68.64	$14.00	$56.00	0.03	83.2	$10.98	5.10
232.22	Lobby	2600	2	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.17	447.2	$59.03	2	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.14	374.4	$49.42	$21.00	$42.00	0.03	72.8	$9.61	4.37
221.34	Electrical Room	1200	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.12	139.2	$18.37	2	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.10	120	$15.84	$14.00	$28.00	0.02	19.2	$2.53	11.05
232.22	Corridor	2600	5	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.43	1,118.0	$147.58	5	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.36	936	$123.55	$21.00	$105.00	0.07	182	$24.02	4.37
221.33	Conf. Rm. 3048	2600	8	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.46	1,206.4	$159.24	8	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.40	1040	$137.28	$14.00	$112.00	0.06	166.4	$21.96	5.10
232.21	Storage	1200	4	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.34	412.8	$54.49	4	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.29	345.6	$45.62	$21.00	$84.00	0.06	67.2	$8.87	9.47
221.33	Office 3022	2600	8	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.46	1,206.4	$159.24	8	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.40	1040	$137.28	$14.00	$112.00	0.06	166.4	$21.96	5.10
227.21	Corridor 3047	2600	8	2	2x2, 2 Lamp, 32w 700 series T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	65	0.52	1,352.0	$178.46	8	2	Sylvania Lamp FBO30/841XP/6//SS/ECO	49	0.39	1019.2	$134.53	$24.00	$192.00	0.13	332.8	$43.93	4.37
221.33	Open Area 3018	2600	38	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	2.20	5,730.4	$756.41	38	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	1.90	4940	$652.08	$14.00	$532.00	0.30	790.4	$104.33	5.10
232.22	Office 3020	2600	2	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.17	447.2	$59.03	2	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.14	374.4	$49.42	$21.00	$42.00	0.03	72.8	$9.61	4.37
221.33	Office 3019	2600	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.23	603.2	$79.62	4	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.20	520	$68.64	$14.00	$56.00	0.03	83.2	$10.98	5.10
227.21	Reception	2600	4	2	2x2, 2 Lamp, 32w 700 series T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	65	0.26	676.0	$89.23	4	2	Sylvania Lamp FBO30/841XP/6//SS/ECO	49	0.20	509.6	$67.27	$24.00	$96.00	0.06	166.4	$21.96	4.37
227.21	Public Lobby	2600	12	2	2x2, 2 Lamp, 32w 700 series T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	65	0.78	2,028.0	$267.70	12	2	Sylvania Lamp FBO30/841XP/6//SS/ECO	49	0.59	1528.8	$201.80	$24.00	$288.00	0.19	499.2	$65.89	4.37
560		2600	7	1	Recessed Down Light, 26w CFL Lamp	26	0.18	473.2	$62.46	7	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.33	Conf. Rm. 3068	2600	6	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.35	904.8	$119.43	6	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.30	780	$102.96	$14.00	$84.00	0.05	124.8	$16.47	5.10
232.22	Office 3069	2600	2	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.17	447.2	$59.03	2	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.14	374.4	$49.42	$21.00	$42.00	0.03	72.8	$9.61	4.37
221.33	Open Office 3055	2600	54	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	3.13	8,143.2	$1,074.90	54	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	2.70	7020	$926.64	$14.00	$756.00	0.43	1123.2	$148.26	5.10
232.22	Side Offices (8)	2600	8	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.69	1,788.8	$236.12	8	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.58	1497.6	$197.68	$21.00	$168.00	0.11	291.2	$38.44	4.37
221.33	Corridor	2600	12	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.70	1,809.6	$238.87	12	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.60	1560	$205.92	$14.00	$168.00	0.10	249.6	$32.95	5.10

Investment Grade Lighting Audit

ECM #1: Lighting Upgrade - General

EXISTING LIGHTING										PROPOSED LIGHTING									SAVINGS			
CEG Type	Fixture Location	Yearly Usage	No. Fixts	No. Lamps	Fixture Type	Fixt Watts	Total kW	kWh/Yr Fixtures	Yearly $ Cost	No. Fixts	No. Lamps	Retro-Unit Description	Watts Used	Total kW	kWh/Yr Fixtures	Yearly $ Cost	Unit Cost (INSTALLED)	Total Cost	kW Savings	kWh/Yr Savings	Yearly $ Savings	Yearly Simple Payback
221.33	Open Area 3052	2600	33	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	1.91	4,976.4	$656.88	33	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	1.65	4290	$566.28	$14.00	$462.00	0.26	686.4	$90.60	5.10
232.22	Side offices (3)	2600	6	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.52	1,341.6	$177.09	6	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.43	1123.2	$148.26	$21.00	$126.00	0.08	218.4	$28.83	4.37
232.22	Copy Area	2600	4	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.34	894.4	$118.06	4	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.29	748.8	$98.84	$21.00	$84.00	0.06	145.6	$19.22	4.37
221.41	Men's Restroom	2600	5	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.29	754.0	$99.53	5	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.25	650	$85.80	$14.00	$70.00	0.04	104	$13.73	5.10
221.41	Women's Restroom	2600	5	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.29	754.0	$99.53	5	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.25	650	$85.80	$14.00	$70.00	0.04	104	$13.73	5.10
221.34	Electrical Room	1200	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.12	139.2	$18.37	2	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.10	120	$15.84	$14.00	$28.00	0.02	19.2	$2.53	11.05
221.34	Tel/Com Room	1200	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.06	69.6	$9.19	1	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.05	60	$7.92	$14.00	$14.00	0.01	9.6	$1.27	11.05
227.21	Reception	2600	6	2	2x2, 2 Lamp, 32w 700 series T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	65	0.39	1,014.0	$133.85	6	2	Sylvania Lamp FBO30/841XP/6//SS/ECO	49	0.29	764.4	$100.90	$24.00	$144.00	0.10	249.6	$32.95	4.37
221.33	Open Area 2044	2600	36	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	2.09	5,428.8	$716.60	36	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	1.80	4680	$617.76	$14.00	$504.00	0.29	748.8	$98.84	5.10
232.22	Side Offices (3)	2600	6	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.52	1,341.6	$177.09	6	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.43	1123.2	$148.26	$21.00	$126.00	0.08	218.4	$28.83	4.37
227.21	Employee Lobby	2600	5	2	2x2, 2 Lamp, 32w 700 series T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	65	0.33	845.0	$111.54	5	2	Sylvania Lamp FBO30/841XP/6//SS/ECO	49	0.25	637	$84.08	$24.00	$120.00	0.08	208	$27.46	4.37
560		2600	11	1	Recessed Down Light, 26w CFL Lamp	26	0.29	743.6	$98.16	11	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.41	Men's Restroom	2600	5	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.29	754.0	$99.53	5	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.25	650	$85.80	$14.00	$70.00	0.04	104	$13.73	5.10
221.41	Women's Restroom	2600	5	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.29	754.0	$99.53	5	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.25	650	$85.80	$14.00	$70.00	0.04	104	$13.73	5.10
560	Reception	2600	13	1	Recessed Down Light, 26w CFL Lamp	26	0.34	878.8	$116.00	13	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
232.22	Copy/Coffee	2600	10	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.86	2,236.0	$295.15	10	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.72	1872	$247.10	$21.00	$210.00	0.14	364	$48.05	4.37
232.21	FE Lobby	2600	2	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.17	447.2	$59.03	2	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.14	374.4	$49.42	$21.00	$42.00	0.03	72.8	$9.61	4.37
222.134	Electrical Room	1200	2	2	2x4, 2 Lamp, 32w 700 Series T8, Elect. Ballast, Surface Mnt., Prismatic Lens	62	0.12	148.8	$19.64	2	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.10	120	$15.84	$14.00	$28.00	0.02	28.8	$3.80	7.37
221.33	Corridor	2600	16	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.93	2,412.8	$318.49	16	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.80	2080	$274.56	$14.00	$224.00	0.13	332.8	$43.93	5.10

Investment Grade Lighting Audit

ECM #1: Lighting Upgrade - General

EXISTING LIGHTING										PROPOSED LIGHTING									SAVINGS			
CEG Type	Fixture Location	Yearly Usage	No. Fixts	No. Lamps	Fixture Type	Fixt Watts	Total kW	kWh/Yr Fixtures	Yearly $ Cost	No. Fixts	No. Lamps	Retro-Unit Description	Watts Used	Total kW	kWh/Yr Fixtures	Yearly $ Cost	Unit Cost (INSTALLED)	Total Cost	kW Savings	kWh/Yr Savings	Yearly $ Savings	Yearly Simple Payback
232.22	Offices 2035-2043	2600	20	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	1.72	4,472.0	$590.30	20	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	1.44	3744	$494.21	$21.00	$420.00	0.28	728	$96.10	4.37
227.21	Corridor 2075	2600	10	2	2x2, 2 Lamp, 32w 700 series T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	65	0.65	1,690.0	$223.08	10	2	Sylvania Lamp FBO30/841XP/6//SS/ECO	49	0.49	1274	$168.17	$24.00	$240.00	0.16	416	$54.91	4.37
232.22		2600	9	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.77	2,012.4	$265.64	9	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.65	1684.8	$222.39	$21.00	$189.00	0.13	327.6	$43.24	4.37
232.22	Storage	2600	18	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	1.55	4,024.8	$531.27	18	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	1.30	3369.6	$444.79	$21.00	$378.00	0.25	655.2	$86.49	4.37
221.33	Open Office 2055	2600	64	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	3.71	9,651.2	$1,273.96	64	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	3.20	8320	$1,098.24	$14.00	$896.00	0.51	1331.2	$175.72	5.10
232.22	Side Offices 2044-2049	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	1.03	2,683.2	$354.18	12	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.86	2246.4	$296.52	$21.00	$252.00	0.17	436.8	$57.66	4.37
232.22	Side Offices 2056-2064	2600	16	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	1.38	3,577.6	$472.24	16	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	1.15	2995.2	$395.37	$21.00	$336.00	0.22	582.4	$76.88	4.37
221.33	Office 2054	2600	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.23	603.2	$79.62	4	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.20	520	$68.64	$14.00	$56.00	0.03	83.2	$10.98	5.10
232.22	Offices 2051-2053	2600	6	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.52	1,341.6	$177.09	6	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.43	1123.2	$148.26	$21.00	$126.00	0.08	218.4	$28.83	4.37
221.34	Conf. Room	2600	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.23	603.2	$79.62	4	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.20	520	$68.64	$14.00	$56.00	0.03	83.2	$10.98	5.10
221.33	Conf. Rooms 2066 & 2065	2600	8	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.46	1,206.4	$159.24	8	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.40	1040	$137.28	$14.00	$112.00	0.06	166.4	$21.96	5.10
560	Corridor 2074	2600	10	1	Recessed Down Light, 26w CFL Lamp	26	0.26	676.0	$89.23	10	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.33	Conf. Rm. 2067	2600	12	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.70	1,809.6	$238.87	12	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.60	1560	$205.92	$14.00	$168.00	0.10	249.6	$32.95	5.10
560		2600	16	1	Recessed Down Light, 26w CFL Lamp	26	0.42	1,081.6	$142.77	16	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
232.22	Conf. Rms. (3)	2600	9	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.77	2,012.4	$265.64	9	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.65	1684.8	$222.39	$21.00	$189.00	0.13	327.6	$43.24	4.37
232.22	Reception	2600	2	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.17	447.2	$59.03	2	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.14	374.4	$49.42	$21.00	$42.00	0.03	72.8	$9.61	4.37
560		2600	3	1	Recessed Down Light, 26w CFL Lamp	26	0.08	202.8	$26.77	3	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
232.22	Side Offices (4)	2600	10	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.86	2,236.0	$295.15	10	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.72	1872	$247.10	$21.00	$210.00	0.14	364	$48.05	4.37
221.33	Open Area 2080	2600	36	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	2.09	5,428.8	$716.60	36	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	1.80	4680	$617.76	$14.00	$504.00	0.29	748.8	$98.84	5.10
232.22	Side Offices 2026-2036	2600	20	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	1.72	4,472.0	$590.30	20	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	1.44	3744	$494.21	$21.00	$420.00	0.28	728	$96.10	4.37

Investment Grade Lighting Audit

ECM #1: Lighting Upgrade - General

EXISTING LIGHTING										PROPOSED LIGHTING									SAVINGS			
CEG Type	Fixture Location	Yearly Usage	No. Fixts	No. Lamps	Fixture Type	Fixt Watts	Total kW	kWh/Yr Fixtures	Yearly $ Cost	No. Fixts	No. Lamps	Retro-Unit Description	Watts Used	Total kW	kWh/Yr Fixtures	Yearly $ Cost	Unit Cost (INSTALLED)	Total Cost	kW Savings	kWh/Yr Savings	Yearly $ Savings	Yearly Simple Payback
232.22	Treatment Rooms (6)	2600	16	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	1.38	3,577.6	$472.24	16	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	1.15	2995.2	$395.37	$21.00	$336.00	0.22	582.4	$76.88	4.37
560	Reception	2600	37	1	Recessed Down Light, 26w CFL Lamp	26	0.96	2,501.2	$330.16	37	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.33	Corridor	2600	20	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	1.16	3,016.0	$398.11	20	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	1.00	2600	$343.20	$14.00	$280.00	0.16	416	$54.91	5.10
227.21		2600	10	2	2x2, 2 Lamp, 32w 700 series T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	65	0.65	1,690.0	$223.08	10	2	Sylvania Lamp FBO30/841XP/6//SS/ECO	49	0.49	1274	$168.17	$24.00	$240.00	0.16	416	$54.91	4.37
232.22	Offices 2130-2137	2600	20	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	1.72	4,472.0	$590.30	20	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	1.44	3744	$494.21	$21.00	$420.00	0.28	728	$96.10	4.37
232.22	Treatment Rooms (7)	2600	15	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	1.29	3,354.0	$442.73	15	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	1.08	2808	$370.66	$21.00	$315.00	0.21	546	$72.07	4.37
221.33	Open Area 2118	2600	36	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	2.09	5,428.8	$716.60	36	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	1.80	4680	$617.76	$14.00	$504.00	0.29	748.8	$98.84	5.10
232.22	Offices 2124-2128	2600	10	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.86	2,236.0	$295.15	10	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.72	1872	$247.10	$21.00	$210.00	0.14	364	$48.05	4.37
232.22	Offices 2113-2116	2600	8	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.69	1,788.8	$236.12	8	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.58	1497.6	$197.68	$21.00	$168.00	0.11	291.2	$38.44	4.37
232.22	Offices 22096-2104	2600	19	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	1.63	4,248.4	$560.79	19	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	1.37	3556.8	$469.50	$21.00	$399.00	0.27	691.6	$91.29	4.37
232.22	Copy/Coffee	2600	6	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.52	1,341.6	$177.09	6	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.43	1123.2	$148.26	$21.00	$126.00	0.08	218.4	$28.83	4.37
232.21	Storage	1200	3	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.26	309.6	$40.87	3	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.22	259.2	$34.21	$21.00	$63.00	0.04	50.4	$6.65	9.47
560	Reception	2600	30	1	Recessed Down Light, 26w CFL Lamp	26	0.78	2,028.0	$267.70	30	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
232.22	Offices 2082-2087	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	1.03	2,683.2	$354.18	12	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.86	2246.4	$296.52	$21.00	$252.00	0.17	436.8	$57.66	4.37
232.22	Corridor 2092	2600	4	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.34	894.4	$118.06	4	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.29	748.8	$98.84	$21.00	$84.00	0.06	145.6	$19.22	4.37
221.33	Conf. R,. 2090	2600	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	0.23	603.2	$79.62	4	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.20	520	$68.64	$14.00	$56.00	0.03	83.2	$10.98	5.10
232.22	Files	2600	18	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	1.55	4,024.8	$531.27	18	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	1.30	3369.6	$444.79	$21.00	$378.00	0.25	655.2	$86.49	4.37
560	2001 Lobby	2600	26	1	Recessed Down Light, 26w CFL Lamp	26	0.68	1,757.6	$232.00	26	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.41	Men's Restroom	2600	5	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.29	754.0	$99.53	5	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.25	650	$85.80	$14.00	$70.00	0.04	104	$13.73	5.10
221.41	Women's Restroom	2600	5	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.29	754.0	$99.53	5	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.25	650	$85.80	$14.00	$70.00	0.04	104	$13.73	5.10

Investment Grade Lighting Audit

ECM #1: Lighting Upgrade - General

EXISTING LIGHTING										PROPOSED LIGHTING									SAVINGS			
CEG Type	Fixture Location	Yearly Usage	No. Fixts	No. Lamps	Fixture Type	Fixt Watts	Total kW	kWh/Yr Fixtures	Yearly $ Cost	No. Fixts	No. Lamps	Retro-Unit Description	Watts Used	Total kW	kWh/Yr Fixtures	Yearly $ Cost	Unit Cost (INSTALLED)	Total Cost	kW Savings	kWh/Yr Savings	Yearly $ Savings	Yearly Simple Payback
227.21	Lobby	2600	29	2	2x2, 2 Lamp, 32w 700 series T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	65	1.89	4,901.0	$646.93	29	2	Sylvania Lamp FBO30/841XP/6//SS/ECO	49	1.42	3694.6	$487.69	$24.00	$696.00	0.46	1206.4	$159.24	4.37
560		2600	25	1	Recessed Down Light, 26w CFL Lamp	26	0.65	1,690.0	$223.08	25	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
232.22		2600	6	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.52	1,341.6	$177.09	6	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.43	1123.2	$148.26	$21.00	$126.00	0.08	218.4	$28.83	4.37
232.22	Open Office	2600	216	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	18.58	48,297.6	$6,375.28	216	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	15.55	40435.2	$5,337.45	$21.00	$4,536.00	3.02	7862.4	$1,037.84	4.37
232.22	Office 1049	2600	15	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	1.29	3,354.0	$442.73	15	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	1.08	2808	$370.66	$21.00	$315.00	0.21	546	$72.07	4.37
221.41	Men's Restroom	2600	5	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.29	754.0	$99.53	5	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.25	650	$85.80	$14.00	$70.00	0.04	104	$13.73	5.10
221.41	Women's Restroom	2600	5	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.29	754.0	$99.53	5	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.25	650	$85.80	$14.00	$70.00	0.04	104	$13.73	5.10
232.22	FE Lobby	2600	2	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.17	447.2	$59.03	2	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.14	374.4	$49.42	$21.00	$42.00	0.03	72.8	$9.61	4.37
221.34	Electrical Room	1200	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.12	139.2	$18.37	2	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.10	120	$15.84	$14.00	$28.00	0.02	19.2	$2.53	11.05
232.21	Storage	1200	3	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.26	309.6	$40.87	3	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.22	259.2	$34.21	$21.00	$63.00	0.04	50.4	$6.65	9.47
232.22	Corridor 1037	2600	4	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.34	894.4	$118.06	4	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.29	748.8	$98.84	$21.00	$84.00	0.06	145.6	$19.22	4.37
221.34	Loading Dock	2600	6	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.35	904.8	$119.43	6	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.30	780	$102.96	$14.00	$84.00	0.05	124.8	$16.47	5.10
221.34	Meter Room	2600	6	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.35	904.8	$119.43	6	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.30	780	$102.96	$14.00	$84.00	0.05	124.8	$16.47	5.10
221.33	Open Area 1045	2600	42	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	2.44	6,333.6	$836.04	42	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	2.10	5460	$720.72	$14.00	$588.00	0.34	873.6	$115.32	5.10
232.22	Files 1057	2600	30	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	2.58	6,708.0	$885.46	30	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	2.16	5616	$741.31	$21.00	$630.00	0.42	1092	$144.14	4.37
221.33	MPR	2600	42	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	2.44	6,333.6	$836.04	42	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	2.10	5460	$720.72	$14.00	$588.00	0.34	873.6	$115.32	5.10
221.33	Open Area 1063	2600	30	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	58	1.74	4,524.0	$597.17	30	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	1.50	3900	$514.80	$14.00	$420.00	0.24	624	$82.37	5.10
232.22	Clerk Office	2600	22	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	1.89	4,919.2	$649.33	22	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	1.58	4118.4	$543.63	$21.00	$462.00	0.31	800.8	$105.71	4.37
560	Lobby 1001	2600	36	1	Recessed Down Light, 26w CFL Lamp	26	0.94	2,433.6	$321.24	36	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.41	Men's Restroom	2600	5	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.29	754.0	$99.53	5	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.25	650	$85.80	$14.00	$70.00	0.04	104	$13.73	5.10

Investment Grade Lighting Audit

ECM #1: Lighting Upgrade - General

EXISTING LIGHTING										PROPOSED LIGHTING									SAVINGS			
CEG Type	Fixture Location	Yearly Usage	No. Fixts	No. Lamps	Fixture Type	Fixt Watts	Total kW	kWh/Yr Fixtures	Yearly $ Cost	No. Fixts	No. Lamps	Retro-Unit Description	Watts Used	Total kW	kWh/Yr Fixtures	Yearly $ Cost	Unit Cost (INSTALLED)	Total Cost	kW Savings	kWh/Yr Savings	Yearly $ Savings	Yearly Simple Payback
221.41	Women's Restroom	2600	5	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.29	754.0	$99.53	5	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.25	650	$85.80	$14.00	$70.00	0.04	104	$13.73	5.10
221.34	Electrical Room	1200	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.12	139.2	$18.37	2	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.10	120	$15.84	$14.00	$28.00	0.02	19.2	$2.53	11.05
221.34	Tel/Com Room	1200	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.12	139.2	$18.37	2	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.10	120	$15.84	$14.00	$28.00	0.02	19.2	$2.53	11.05
232.22	Corridor	2600	6	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.52	1,341.6	$177.09	6	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.43	1123.2	$148.26	$21.00	$126.00	0.08	218.4	$28.83	4.37
232.22	Counter Area	2600	18	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	1.55	4,024.8	$531.27	18	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	1.30	3369.6	$444.79	$21.00	$378.00	0.25	655.2	$86.49	4.37
232.22	Registration	2600	10	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.86	2,236.0	$295.15	10	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.72	1872	$247.10	$21.00	$210.00	0.14	364	$48.05	4.37
221.34	Work Shops	2600	27	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	1.57	4,071.6	$537.45	27	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	1.35	3510	$463.32	$14.00	$378.00	0.22	561.6	$74.13	5.10
221.34	Electrical Room	1200	7	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.41	487.2	$64.31	7	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.35	420	$55.44	$14.00	$98.00	0.06	67.2	$8.87	11.05
221.34	Compactor Room	2600	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.23	603.2	$79.62	4	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.20	520	$68.64	$14.00	$56.00	0.03	83.2	$10.98	5.10
221.34	Receiving	2600	8	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.46	1,206.4	$159.24	8	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.40	1040	$137.28	$14.00	$112.00	0.06	166.4	$21.96	5.10
221.34	Corrridor	2600	12	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.70	1,809.6	$238.87	12	2	Relamp - Sylvania Lamp FO28/841/SS/ECO	50	0.60	1560	$205.92	$14.00	$168.00	0.10	249.6	$32.95	5.10
232.22	Side Offices (3)	2600	6	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.52	1,341.6	$177.09	6	3	Relamp - Sylvania Lamp FO28/841/SS/ECO	72	0.43	1123.2	$148.26	$21.00	$126.00	0.08	218.4	$28.83	4.37
	Totals		3,172	604				520,716	$68,735	3,172	576			160.6	413,619	$54,598		$47,887	30.0	77,343	$10,209	4.69