



**LOCAL GOVERNMENT  
ENERGY AUDIT PROGRAM:  
ENERGY AUDIT REPORT**

**PREPARED FOR:**

**COUNTY OF HUDSON  
MEADOWVIEW COMPLEX  
BUILDINGS #1– 9 & 15  
595 COUNTY AVE., SECAUCUS, NJ**

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## I. EXECUTIVE SUMMARY

This report presents the findings of the energy audit conducted for:

County of Hudson  
 Meadowview Complex Buildings:  
 Hudson County Offices (Center Core Building and Buildings #1, #2 and #3)  
 Drug Treatment and Rehabilitation Programs (Buildings #4-9)  
 Building #15 (Hudson County Archives)

595 County Avenue  
 Secaucus, NJ, 07094

Municipal Contact Person: Kevin Barry  
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This audit is performed in connection with the New Jersey Clean Energy - Local Government Energy Audit Program. The energy audit is conducted to promote the mission of the office of Clean Energy, which is to use innovation and technology to solve energy and environmental problems in a way that improves the State's economy. This can be achieved through the wiser and more efficient use of energy.

The annual energy costs for the Hudson County Meadowview Campus are as follows:

Electricity	\$690,991
Natural Gas	\$675,114
<b>Total</b>	<b>\$1,366,105</b>

The annual energy costs for the Campus are provided in lieu of individual buildings based on the utility bills provided.

The potential annual energy cost savings for each energy conservation measure (ECM) and renewable energy measure (REM) are shown below in Table 1. Be aware that the ECM's and REM's are not additive because of the interrelation of some of the measures. This audit is consistent with an ASHRAE level 2 audit. The cost and savings for each measure is  $\pm 20\%$ . The evaluations are based on engineering estimations and industry standard calculation methods. More detailed analyses would require engineering simulation models, hard equipment specifications, and contractor bid pricing.

**Table 1**  
**Financial Summary Table**

<b>ENERGY CONSERVATION MEASURES (ECM's)</b>					
<b>ECM NO.</b>	<b>DESCRIPTION</b>	<b>NET INSTALLATION COST<sup>A</sup></b>	<b>ANNUAL SAVINGS<sup>B</sup></b>	<b>SIMPLE PAYBACK (Yrs)</b>	<b>SIMPLE LIFETIME ROI</b>
ECM #1	Lighting Equipment Upgrade	\$80,395	\$21,747	3.7	576.2%
ECM #2	Lighting Controls Upgrade	\$32,620	\$4,508	7.2	245.5%
ECM #3	Replace Packaged AC Units: Bldg #7, 8 & 9	\$13,806	\$775	17.8	-15.8%
ECM #4	Replace Packaged AC Units: Bldg #4 & 5	\$15,272	\$1,309	11.7	28.6%
ECM #5	Replace Split AC Units Bldg #1-3 & add economizer	\$141,960	\$4,225	33.6	-55.4%
ECM #6	Replace Window AC Units	\$278	\$53	5.2	187.0%
ECM #7	Install Ductless Split A/C Units (Bldg # 4-9)	\$50,688	\$8,421	6.0	149.2%
ECM #8	Kitchen Exhaust Hood Controls (Integrity, Inc.)	\$27,055	\$3,986	6.8	121.0%
ECM #9	Variable Speed Domestic Water Pumping	\$92,353	\$11,780	7.8	155.1%

**Notes:** A. Cost takes into consideration applicable NJ Smart Start<sup>TM</sup> incentives.  
B. Savings takes into consideration applicable maintenance savings.

The estimated demand and energy savings for each ECM and REM is shown below in Table 2. The descriptions in this table correspond to the ECM's and REM's listed in Table 1.

**Table 2**  
**Estimated Energy Savings Summary Table**

<b>ENERGY CONSERVATION MEASURES (ECM's)</b>				
<b>ECM NO.</b>	<b>DESCRIPTION</b>	<b>ANNUAL UTILITY REDUCTION</b>		
		<b>ELECTRIC DEMAND (KW)</b>	<b>ELECTRIC CONSUMPTION (KWH)</b>	<b>NATURAL GAS (THERMS)</b>
ECM #1	Lighting Equipment Upgrade	39.5	129,132	0
ECM #2	Lighting Controls Upgrade	0	30,306	0
ECM #3	Replace Packaged AC Units: Bldg #7, 8 & 9	5.8	4,640	0
ECM #4	Replace Packaged AC Units: Bldg #4 & 5	4.9	7,840	0
ECM #5	Replace Split AC Units Bldg #1-3 & add economizer	51.8	41,417	0
ECM #6	Replace Window AC Units	0.2	319	0
ECM #7	Install Ductless Split A/C Units (Bldg # 4-9)	50424.2	13	0
ECM #8	Kitchen Exhaust Hood Controls (Integrity, Inc.)	0	18,084	1,341
ECM #9	Variable Speed Domestic Water Pumping	0	115,490	0

Concord Engineering Group (CEG) recommends proceeding with the implementation of all ECM's that provide a calculated simple payback at or under ten (10) years. The following Energy Conservation Measures are recommended for the facility:

- **ECM #1:** Lighting Upgrade
- **ECM #2:** Lighting Controls
- **ECM #6:** Replace Inefficient Window AC Units
- **ECM #7:** Install Ductless Split AC Units (Bldg #4-9 Day Rooms)
- **ECM #8:** Kitchen Exhaust Hood Controls Upgrade (Integrity Inc.)
- **ECM #9:** Install Variable Speed Domestic Water Booster Pump

### **ECM #1: Lighting Upgrade**

The buildings #4-9 are primarily lit with T-12 fluorescent fixtures and magnetic ballasts. This ECM includes the replacement of the existing fixtures with T-8 bulbs and electronic ballasts as a very simple approach to improve the facility's energy efficiency. Since the operations of these buildings are 24/7, many of the rooms throughout the buildings are lit continuously. The extended hours of operation represents approximately 3 times greater benefit for a lighting upgrade compared to a typical commercial building. The buildings #1-3 are primarily lit with modern T-8 fluorescent fixtures and electronic ballasts. However, the basement spaces, mechanical spaces and the stairwells are still lit with a combination of older fixtures with T12 lamps and incandescent lamps. The savings as a result of upgrading the lighting in this facility is approximately 129,132 KWH per year which equates to a reduction in annual utility cost of \$21,747. This ECM is among the most advantageous approaches to the campus buildings to reduce cost and benefit from saving in a very short period of time. This ECM is highly recommended for the facility.

### **ECM #2: Lighting Controls**

Automatic lighting control is another area for improvement for the Meadowview Buildings #1-9. These buildings could benefit from occupancy sensors which automatically turn off lights when a space is unoccupied. This conservation measure in addition with continuing campus wide education on energy savings could save an additional 20% on lighting energy, approximately \$4,508 per year. This ECM is highly recommended and a simple retrofit that pays back quickly.

### **ECM #6: Replace Inefficient Window AC Units**

Air conditioning for buildings #4-9 is primarily provided with window air conditioning units. In addition, some of the basement spaces in buildings #1-3 are also conditioned with this type of units. Window units are practical solution for air conditioning where a central system is not available. It was observed that many of these AC units were older units with low efficiency

rating. It is recommended to replace older and inefficient window units with EER rating 9 or below with new, Energy Star rated window units. The payback term for a typical replacement is just over 5 years. Therefore, this ECM is also highly recommended.

#### **ECM #7: Install Ductless Split AC Units (Bldg #4-9 Day Rooms)**

Some of the day rooms in the buildings #4-9 are conditioned with large window air conditioning units (18,000 BTU/H or larger). Ductless split AC units provide significantly higher efficiency rating than large window air conditioning units. A typical high efficiency ductless split unit provides as 16 SEER rating, compared to the efficiency of the existing window units in the facility at 12 SEER. In addition, most of the large window units are installed permanently to the windows in this facility. This causes infiltration of cold air during winter months. It is recommended to replace larger window units and install ductless split systems in these spaces. This ECM is highly recommended for the day rooms with older window AC units.

#### **ECM #8: Kitchen Exhaust Hood Controls Upgrade (Integrity Inc.)**

This ECM includes the installation of sensors on the kitchen exhaust hoods as well as variable frequency drives on the make-up and exhaust fans. This ECM allows for the kitchen exhaust and make-up air system to change exhaust air quantities based on the variations in operating conditions of the kitchen equipment. This allows for a savings in fan horse power as well as make up air conditioning energy. The energy savings from this ECM is approximately \$4,000 annually which pays for the installation cost in less than 7 years. This ECM has a longer payback but provides valuable energy savings for the facility.

#### **ECM #9: Install Variable Speed Domestic Water Booster Pump**

Existing domestic water pressure booster pumps cycle based on the supply pressure. In addition, existing pumps are driven with standard efficiency motors. Replacing existing domestic cold water booster pump controls with new variable flow domestic booster controls and installing premium efficiency motors will provide significant energy savings for this facility. Estimated savings with this ECM is \$11,780. This is another ECM with less than 10 years payback and it is recommended.

#### **Incremental Cost Considerations for Split AC Unit Economizers**

Even though ECM #5 provides over 30 years payback, incremental cost of installing economizers pays back in 13 years. Air side economizers provide free cooling by simply introducing 100% outside air during cooler seasons. The additional ductwork to enable economizer functionality will remain in the mechanical rooms and it can be utilized even after future split unit replacements.

#### **Operations and Maintenance Considerations**

In addition to the ECMs, there are maintenance and operational measures that can provide significant energy savings and provide immediate benefit. The ECMs listed above represent investments that can be made to the facility which are justified by the savings seen overtime.

However, the maintenance items and small operational improvements below are typically achievable with on site staff or maintenance contractors and in turn have the potential to provide substantial operational savings compared to the costs associated. The following are recommendations which should be considered a priority in achieving an energy efficient building:

1. Chemically clean the condenser and evaporator coils periodically to optimize efficiency. Poorly maintained heat transfer surfaces can reduce efficiency 5-10%.
2. Maintain all weather stripping on entrance doors.
3. Maintain insulation on the hot water pipes.
4. Clean all light fixtures to maximize light output.
5. Provide more frequent air filter changes to decrease overall system power usage and maintain better IAQ.
6. Check and confirm thermostat settings for each air conditioning unit and remove any overrides.
7. Confirm that outside air economizers on the packaged AC units and air handling units are functioning properly to take advantage of free cooling and avoid excess outside air during occupied periods.
8. Installing thermostatic valves on the radiators in overheated spaces.
9. Implement a steam trap maintenance program. When steam traps fail, they will release steam which can accumulate to huge volumes of steam contributing to increased boiler plant flue costs. Steam traps should be inspected to ensure proper operation, or monitored with temperature sensors to alarm when steam is passing.

### **Renewable Energy Analysis**

Renewable Energy Measures (REMs) were also reviewed for implementation at the Hudson County Meadowview Buildings #1-9 and 15. Initial study shows that there is not an enough space on the roof of these buildings for a feasible solar PV system installation. However, some of the other buildings and parking lots in the Meadowview Campus have opportunities for solar energy applications.

### **Retro-Commissioning**

In addition to the above recommendations, based on the review of the facility's energy bills and discussions with the operations personnel, the energy audit team recommends Retro-Commissioning of the Meadowview buildings including the building #15 to meet the following objectives:

- Bring existing HVAC equipment to its proper operational state including air and water distribution systems
- Bring existing building automation system controls to its design state and eliminate mechanical cooling during winter months (Building #15)
- Reduce energy use and energy costs
- Improve indoor air quality

- Verify the installation and performance of identified system upgrades
- Address overall building energy use and demand and identify areas of highest energy use and demand
- Identify the location of the most comfort problems or trouble spots in the building
- Review current O&M practices

## **Conclusion**

Overall, the Meadowview Buildings #1-9 and 15 appear to be operating at a reasonable efficiency levels. With the implementation of the above recommended measures the Hudson County will realize further energy savings at the Meadowview Complex. Further details about the ECMs, energy savings calculations and results are presented in the Energy Conservation Measures Section. Hudson County should review all the funding options such as P4P or Direct Install before implementing these ECMs. Further details on the funding options can be found in the chapter 10 of this report.

## II. INTRODUCTION

The comprehensive energy audit covers the 273,052 square foot of the Hudson County Meadowview Complex Buildings, which includes the Buildings Center Core, 1, 2 and 3 (Hudson County Office Buildings), Buildings 4 to 9 (Drug Treatment Programs) and the Building 15 (Archives).

<b>SUMMARY OF BUILDINGS</b>		
<b>BUILDING</b>	<b>FUNCTION</b>	<b>AREA (Sqft)</b>
Center Core Building	Hudson County Offices	118,360
Building 1		
Building 2		
Building 3		
Building 4	Drug Treatment and Rehabilitation Programs	132,692
Building 5		
Building 6		
Building 7		
Building 8		
Building 9	Archives	22,000
Building 15		
<b>Total</b>		<b>273,052</b>

Electrical and natural gas utility information is collected and analyzed for one full year's energy use of the building. The utility information allows for analysis of the building's operational characteristics; calculate energy benchmarks for comparison to industry averages, estimated savings potential, and baseline usage/cost to monitor the effectiveness of implemented measures. A computer spreadsheet is used to calculate benchmarks and to graph utility information (see the utility profiles below).

The Energy Use Index (EUI) is established for the building. Energy Use Index (EUI) is expressed in British Thermal Units/square foot/year (BTU/ft<sup>2</sup>/yr), which is used to compare energy consumption to similar building types or to track consumption from year to year in the same building. The EUI is calculated by converting the annual consumption of all energy sources to BTU's and dividing by the area (gross square footage) of the building. Blueprints (where available) are utilized to verify the gross area of the facility. The EUI is a good indicator of the relative potential for energy savings. A low EUI indicates less potential for energy savings, while a high EUI indicates poor building performance therefore a high potential for energy savings.

Existing building architectural and engineering drawings (where available) are utilized for additional background information. The building envelope, lighting systems, HVAC equipment, and controls information gathered from building drawings allow for a more accurate and detailed

review of the building. The information is compared to the energy usage profiles developed from utility data. Through the review of the architectural and engineering drawings a building profile can be defined that documents building age, type, usage, major energy consuming equipment or systems, etc.

The preliminary audit information is gathered in preparation for the site survey. The site survey provides critical information in deciphering where energy is spent and opportunities exist within a facility. The entire site is surveyed to inventory the following to gain an understanding of how each facility operates:

- Building envelope (roof, windows, etc.)
- Heating, ventilation, and air conditioning equipment (HVAC)
- Lighting systems and controls
- Facility-specific equipment

The building site visit is performed to survey all major building components and systems. The site visit includes detailed inspection of energy consuming components. Summary of building occupancy schedules, operating and maintenance practices, and energy management programs provided by the building manager are collected along with the system and components to determine a more accurate impact on energy consumption.

### III. METHOD OF ANALYSIS

Post site visit work includes evaluation of the information gathered, researching possible conservation opportunities, organizing the audit into a comprehensive report, and making recommendations on HVAC, lighting and building envelope improvements. Data collected is processed using energy engineering calculations to anticipate energy usage for each of the proposed energy conservation measures (ECMs). The actual building's energy usage is entered directly from the utility bills provided by the owner. The anticipated energy usage is compared to the historical data to determine energy savings for the proposed ECMs.

It is pertinent to note, that the savings noted in this report are not additive. The savings for each recommendation is calculated as standalone energy conservation measures. Implementation of more than one ECM may in some cases affect the savings of each ECM. The savings may in some cases be relatively higher if an individual ECM is implemented in lieu of multiple recommended ECMs. For example implementing reduced operating schedules for inefficient lighting will result in a greater relative savings. Implementing reduced operating schedules for newly installed efficient lighting will result in a lower relative savings, because there is less energy to be saved. If multiple ECM's are recommended to be implemented, the combined savings is calculated and identified appropriately.

ECMs are determined by identifying the building's unique properties and deciphering the most beneficial energy saving measures available that meet the specific needs of the facility. The building construction type, function, operational schedule, existing conditions, and foreseen future plans are critical in the evaluation and final recommendations. Energy savings are calculated base on industry standard methods and engineering estimations. Energy consumption is calculated based on manufacturer's cataloged information when new equipment is proposed.

Cost savings are calculated based on the actual historical energy costs for the facility. Installation costs include labor and equipment costs to estimate the full up-front investment required to implement a change. Costs are derived from Means Cost Data, industry publications, and local contractors and equipment suppliers. The NJ Smart Start Building® program incentives savings (where applicable) are included for the appropriate ECM's and subtracted from the installed cost. Maintenance savings are calculated where applicable and added to the energy savings for each ECM. The life-time for each ECM is estimated based on the typical life of the equipment being replaced or altered. The costs and savings are applied and a simple payback, simple lifetime savings, and simple return on investment are calculated. See below for calculation methods:

ECM Calculation Equations:

$$\text{Simple Payback} = \left( \frac{\text{Net Cost}}{\text{Yearly Savings}} \right)$$

$$\text{Simple Lifetime Savings} = (\text{Yearly Savings} \times \text{ECM Lifetime})$$

$$\text{Simple Lifetime ROI} = \frac{(\text{Simple Lifetime Savings} - \text{Net Cost})}{\text{Net Cost}}$$

$$\text{Lifetime Maintenance Savings} = (\text{Yearly Maintenance Savings} \times \text{ECM Lifetime})$$

$$\text{Internal Rate of Return} = \sum_{n=0}^N \left( \frac{\text{Cash Flow of Period}}{(1 + \text{IRR})^n} \right)$$

$$\text{Net Present Value} = \sum_{n=0}^N \left( \frac{\text{Cash Flow of Period}}{(1 + \text{DR})^n} \right)$$

Net Present Value calculations based on Interest Rate of 3%.

#### IV. HISTORIC ENERGY CONSUMPTION/COST

##### A. Energy Usage / Tariffs

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.

The electric usage profile represents the actual electrical usage for the facility. Public Service Electric and Gas (PSE&G) provides electricity to the facility under their LPLS and LPLP rate structures. 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 shows the total actual natural gas energy usage for the facility. Public Service Electric and Gas (PSE&G) provides natural gas to three (3) delivery points in this facility under the TSGNF and GSG rate structures. 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.

The third party commodity provider HESS Energy Service Company is responsible for the supply of electricity to the Hospital, Power House, Juvenile Center and the Buildings 1 to 3. Commodity (Supply) and delivery is billed separately for the service. There is no third party supplier for the electric service to the buildings 4-9 and also for the entire gas utility.

The overall cost for utilities is calculated by dividing the total cost by the total usage. Based on the utility history provided, the average cost for utilities for the campus is as follows:

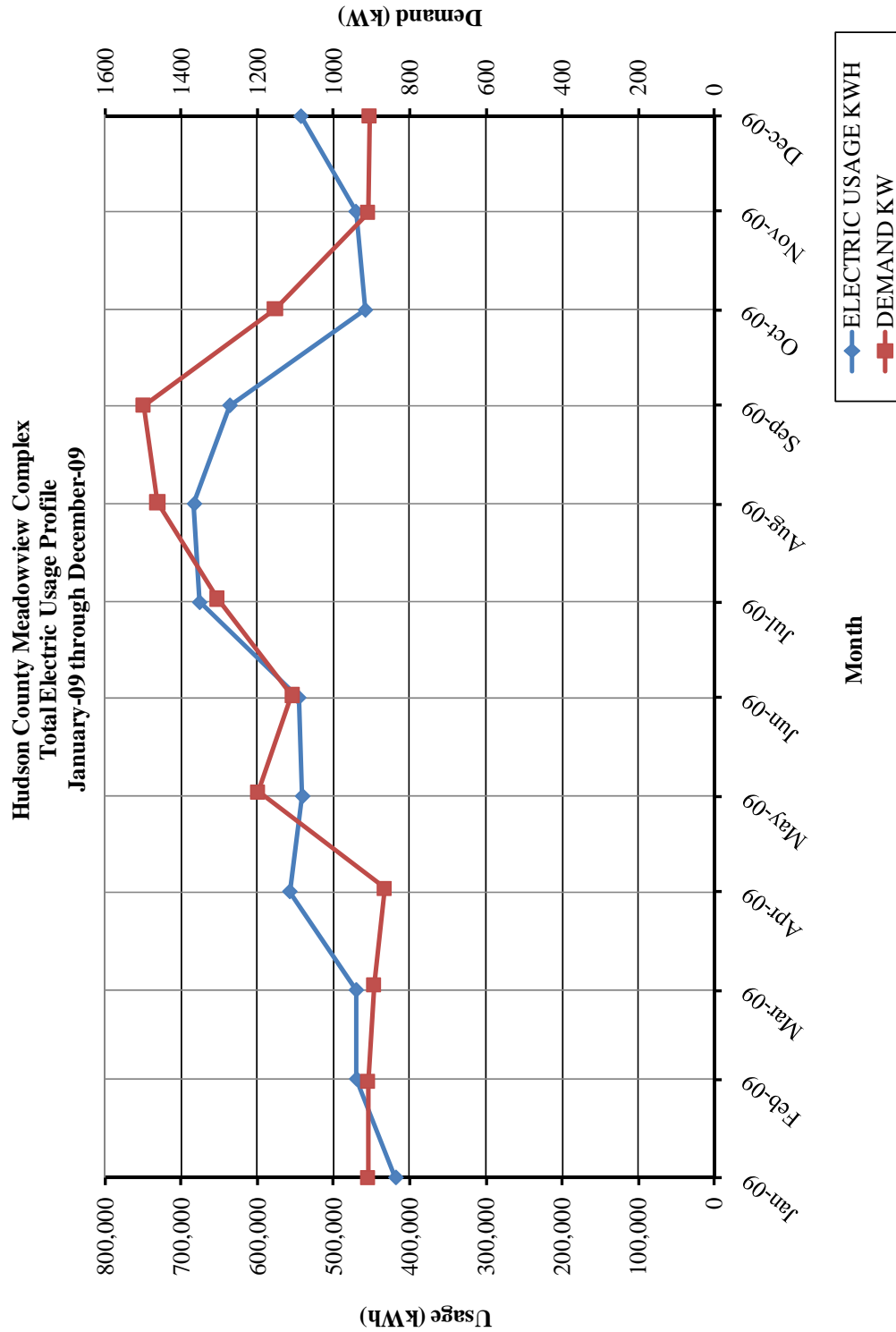
<u>Description</u>	<u>Average</u>
Electricity	10.7¢ / kWh
Natural Gas	\$0.72 / Therm

**Table 3**  
**Electricity Billing Data**

<b>ELECTRIC USAGE SUMMARY</b>			
Utility Provider: PSE&G			
Rate: LPLS, LPLP			
Meter No: 778009754, 778000991			
Customer ID No: 42 005 270 06, 42 000 410 06			
Third Party Utility HESS			
TPS Meter / Acct No: -			
<b>MONTH OF USE</b>	<b>CONSUMPTION KWH</b>	<b>DEMAND</b>	<b>TOTAL BILL</b>
Jan-09	417,913	910	\$51,689
Feb-09	469,519	909	\$50,414
Mar-09	470,033	894	\$45,657
Apr-09	557,483	866	\$53,420
May-09	540,674	1199	\$49,635
Jun-09	545,921	1109	\$61,460
Jul-09	676,135	1306	\$75,815
Aug-09	683,033	1462	\$81,500
Sep-09	636,318	1500	\$74,798
Oct-09	458,147	1154	\$45,255
Nov-09	470,521	911	\$47,289
Dec-09	542,851	906	\$54,059
<b>Totals</b>	<b>6,468,548</b>	<b>1500 Max</b>	<b>\$690,991</b>
<b>AVERAGE DEMAND</b>		<b>1094 KW average</b>	
<b>AVERAGE RATE</b>		<b>\$0.107 \$/kWh</b>	

Above table is a combination of two electric utility bills for two electric services. One service provides electricity for the Meadowview Buildings #4-9 at a rate of \$0.167/ kWh. The other service provides electricity for the rest of the campus at \$0.102/kWh. Corresponding rate is used for each ECM.

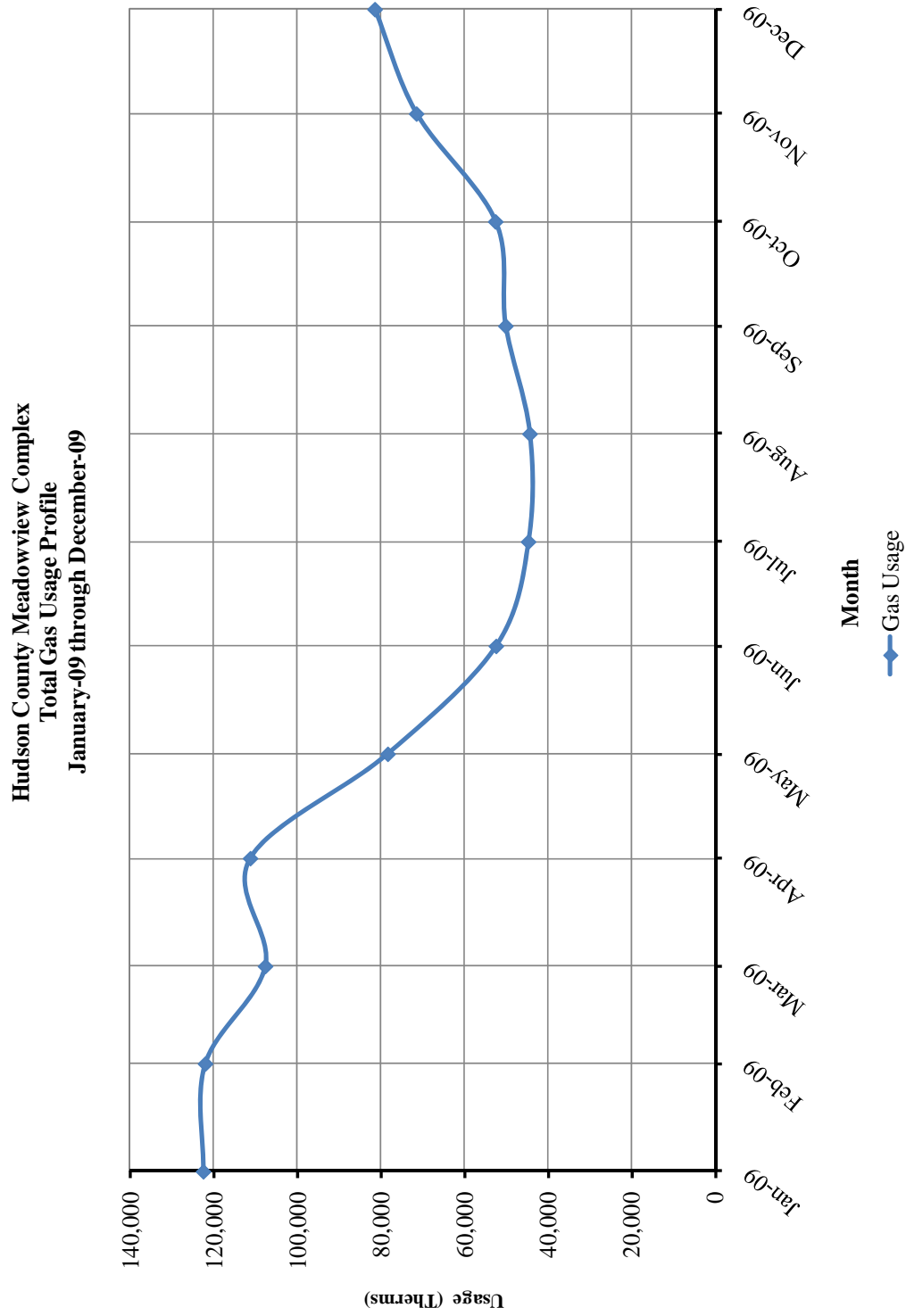
**Figure 1**  
**Electricity Usage Profile**



**Table 4  
Natural Gas Billing Data**

<b>NATURAL GAS USAGE SUMMARY</b>		
Utility Provider: PSE&G		
Rate: TSGNF, GSG		
Meter No: 1784801, 2369009, 2858907, 3007747		
Point of Delivery ID: PG000011545808543339, PG000011223037043339, PG000011223036243339		
Third Party Utility Provider: -		
TPS Meter No: -		
<b>MONTH OF USE</b>	<b>CONSUMPTION (THERMS)</b>	<b>TOTAL BILL</b>
Jan-09	122,573	\$128,718
Feb-09	122,095	\$117,923
Mar-09	107,714	\$77,430
Apr-09	111,312	\$14,899
May-09	78,362	\$52,911
Jun-09	52,403	\$33,832
Jul-09	44,680	\$29,540
Aug-09	44,326	\$31,337
Sep-09	50,127	\$32,454
Oct-09	52,558	\$30,830
Nov-09	71,497	\$49,301
Dec-09	81,464	\$75,939
<b>TOTALS</b>	<b>939,111.26</b>	<b>\$675,113.89</b>
<b>AVERAGE RATE:</b>	<b>\$0.72</b>	<b>\$/THERM</b>

**Figure 2**  
**Natural Gas Usage Profile**



**B. Energy Use Index (EUI)**

Energy Use Index (EUI) is a measure of a building's annual energy utilization per square foot of building. This calculation is completed by converting all utility usage consumed by a building for one year, to British Thermal Units (BTU) and dividing this number by the building square footage. EUI is a good measure of a building's energy use and is utilized regularly for comparison of energy performance for similar building types. The Oak Ridge National Laboratory (ORNL) Buildings Technology Center under a contract with the U.S. Department of Energy maintains a Benchmarking Building Energy Performance Program. The ORNL website determines how a building's energy use compares with similar facilities throughout the U.S. and in a specific region or state.

Source use differs from site usage when comparing a building's energy consumption with the national average. Site energy use is the energy consumed by the building at the building site only. Source energy use includes the site energy use as well as all of the losses to create and distribute the energy to the building. Source energy represents the total amount of raw fuel that is required to operate the building. It incorporates all transmission, delivery, and production losses, which allows for a complete assessment of energy efficiency in a building. The type of utility purchased has a substantial impact on the source energy use of a building. The EPA has determined that source energy is the most comparable unit for evaluation purposes and overall global impact. Both the site and source EUI ratings for the building are provided to understand and compare the differences in energy use.

The site and source EUI for this facility is calculated as follows:

$$\text{Building Site EUI} = \frac{(\text{Electric Usage in kBtu} + \text{Gas Usage in kBtu})}{\text{Building Square Footage}}$$

$$\text{Building Source EUI} = \frac{(\text{Electric Usage in kBtu} \times \text{SS Ratio} + \text{Gas Usage in kBtu} \times \text{SS Ratio})}{\text{Building Square Footage}}$$

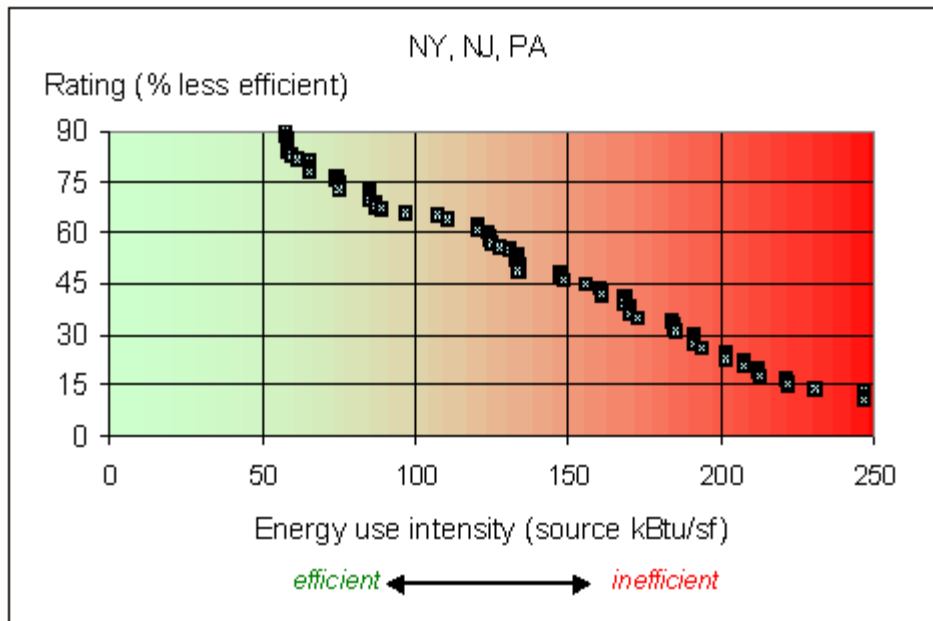
An energy use intensity index cannot be calculated for the Meadowview Campus or any of the individual buildings. This is because the campus power house provides steam and domestic hot water to the entire Meadowview Complex including buildings that are not analyzed in this report. In addition, the electric service to the campus is not sub-metered for each building. In order to obtain an energy use index for the campus, the utility information and the area of each building in the entire campus is required.

**Table 5  
Facility Energy Use Index (EUI) Calculation**

ENERGY USE INTENSITY CALCULATION						
ENERGY TYPE	BUILDING USE			SITE ENERGY	SITE-SOURCE RATIO	SOURCE ENERGY
	kWh	Therms	Gallons	kBtu		kBtu
ELECTRIC	6,468,548			22,083,624	3.340	73,759,304
NATURAL GAS		939,111		93,911,126	1.047	98,324,949
FUEL OIL			0.0	0	1.010	0
PROPANE			0.0	0	1.010	0
TOTAL				115,994,751		172,084,254
*Site - Source Ratio data is provided by the Energy Star Performance Rating Methodology for Incorporating Source Energy Use document issued Dec 2007.						
<b>TOTAL BUILDING AREA</b>		N/A		SQUARE FEET		
<b>BUILDING SITE EUI</b>		N/A		kBtu/SF/YR		
<b>BUILDING SOURCE EUI</b>		N/A		kBtu/SF/YR		

Figure 3 below depicts a national EUI grading for the source use of *Public Order Buildings*.

**Figure 3  
Source Energy Use Intensity Distributions: Office Buildings**



Meadowview Campus is made up of various occupancies and building types. Energy Use Intensity for typical office buildings are shown above for reference.

**C. EPA Energy Benchmarking System**

The United States Environmental Protection Agency (EPA) in an effort to promote energy management has created a system for benchmarking energy use amongst various end users. The benchmarking tool utilized for this analysis is entitled Portfolio Manager. The Portfolio Manager tool allows tracking and assessment of energy consumption via the template forms located on the ENERGY STAR website ([www.energystar.gov](http://www.energystar.gov)). The importance of benchmarking for local government municipalities is becoming more important as utility costs continue to increase and emphasis is being placed on carbon reduction, greenhouse gas emissions and other environmental impacts.

Based on information gathered from the ENERGY STAR website, Government agencies spend more than \$10 billion a year on energy to provide public services and meet constituent needs. Furthermore, energy use in commercial buildings and industrial facilities is responsible for more than 50 percent of U.S. carbon dioxide emissions. It is vital that local government municipalities assess facility energy usage, benchmark energy usage utilizing Portfolio Manager, set priorities and goals to lessen energy usage and move forward with priorities and goals.

In accordance with the Local Government Energy Audit Program, CEG has created an ENERGY STAR account for the municipality to access and monitoring the facility’s yearly energy usage as it compares to facilities of similar type. The login page for the account can be accessed at the following web address; the username and password are also listed below:

<https://www.energystar.gov/istar/pmpam/index.cfm?fuseaction=login.login>

User Name: hudsoncounty  
 Password: lgeaceg2009  
  
 Security Question: What city were you born in?  
 Security Answer: “hudson county”

The utility bills and other information gathered during the energy audit process are entered into the Portfolio Manager. The following is a summary of the results for the facility:

**Table 6  
 ENERGY STAR Performance Rating**

ENERGY STAR PERFORMANCE RATING		
FACILITY DESCRIPTION	ENERGY PERFORMANCE RATING	NATIONAL AVERAGE
Meadowview Campus	N/A	N/A

An Energy Performance Rating cannot be established for the Campus or individual buildings. The Energy Star program does not have enough bin data available to calculate a campus wide

Energy Performance Rating at this time. Also, individual building ratings cannot be established due to the design of the Campus wide electric and gas distribution system. One year of utility data must be entered for each building or facility, since reliable building energy meters do not exist, this approach cannot be taken.

## V. FACILITY DESCRIPTION

This audit report includes eleven (11) of the Hudson County Meadowview Complex buildings which are the Center Core, the buildings #1 through #9 and the building #15. The Center Core, the buildings #1, 2 and 3 house Hudson County offices. Buildings #4 to 9 houses various organizations running drug treatment and rehabilitation programs. The last building included in the audit report is the Building 15, which houses the Hudson County Archives.

The Meadowview Complex Buildings #1-9 and the Center Core Building were originally built in 1920's as a part of a psychiatric hospital campus. The buildings are interconnected and form a large square courtyard in the middle. The heating to the Meadowview Complex buildings are provided from a central steam boiler plant. The steam is delivered to the Building #9 through a steam pipe tunnel. The steam is used to generate heating hot water through steam to hot water heat exchangers located in the building #9 mechanical room. The heating hot water is circulated in a main hot water loop, which is piped through the basement corridor of the buildings #1-9 and the Center Core Building. Each building has a separate small pump station, which takes hot water from the main loop and circulates through the building. The pump station in building #6 provides heating hot water to the buildings #4 and #5 as well. Currently, there is no central cooling plant for these buildings. Building #15 (Archives) is located in a different location from the above buildings.

Individual buildings are discussed in the following section of the report.

### A. Center Core Building

The Center Core is an approximately 43,500 SF single story building with a basement. It is interconnected to the buildings #1 and #9 through conditioned first level and basement level corridors. The entry and exit to the building is through single spring loaded automatic doors.

The building houses Hudson County and New Jersey State Administrative Offices, conference rooms, computer training center in the first floor and storage spaces in the basement. The typical hours of operation for this facility are between 8:00 am and 4:30 pm. Exterior walls are brick construction. The amount of insulation within the walls is unknown.

The windows throughout the facility are in good condition and appear to be maintained. Typical windows throughout the facility are double pane, ¼" clear glass with double hung aluminum frames. Blinds are utilized through the facility per occupant comfort. The blinds are valuable because they help to reduce heat loss in the winter and reduce solar heat in the summer.

The building is has an intersecting type slate roof with asphalt shingles. There is a large attic space over the corridors between the buildings. Attic is insulated with loosely laid mineral fiber insulation material. The building was built in 1920s as a part of the psychiatric hospital campus and has been adapted over time for multiple uses. A number of moderate size holes and openings were observed in the roof of this structure. Although the attic is not in the thermal envelope of this building, it is recommended to inspect the roof for draft and leaks.

### HVAC Systems

Center Core building air conditioning is provided with two different air conditioning systems feeding the core of the building and the east end of the building towards the building #1.

The east end of the building air conditioning is provided by a 7.5 Ton York constant volume split system. The air handling unit is located in a first floor custodial room. The conditioned air is ducted to the east side offices towards the building #1. The York system is approximately 15 years old and in fair condition.

The core and the west side of the Center Core building cooling is provided with a 40 Ton air cooled water chiller and two (2) variable volume air handling units made by McQuay. The chiller has multiple reciprocating compressors for part load staging. The chilled water is pumped to the two indoor air handling units in the mechanical room via two 3 HP pumps. The insulation on the pumps is partly missing. Missing insulation on a chilled water system causes loss of significant amount of energy by sweating (condensation) on the pipes. In addition, it may cause the pump casing to prematurely rust and disintegrate. The two air handling units are located in the first floor mechanical room. Both units are equipped with supply fan, which are driven by variable frequency drives. The return air travels back to the mechanical room through the open plenum. Both units are equipped with chilled water coils and 3-way control valves. Smaller air handling unit feeds the Computer Training Room and the nearby offices. The smaller unit is equipped with hot water coil in order to temper the primary supply air. Both systems include constant volume supply fans and variable air volume (VAV) terminal boxes. Local thermostats control each VAV box's airflow to regulate space temperature. The air handling units are setup to be able to provide 100% outside air for the economizer functionality.

The computer server and telephone room is conditioned with a 13,000 BTU portable air conditioner made by Movincool. The rejected heat from the unit is directed to the ceiling plenum. The unit operates 24/7 and it is in good condition.

The heating hot water for the campus is generated via steam to hot water heat exchangers in the building #9 and circulated through the Meadowview buildings via a hot water main loop. Each of the buildings has local heating hot water loops branched off of the main loop. Each local loop consists of a set of two (2) hot water pumps in each pump room. The loop temperature in each temperature zone is controlled with a three-way control valve and modulated based on the inside and outside air temperatures. Each local loop feeds perimeter hot water baseboard radiators. There are three hot water perimeter heating zones in the Center Core building. Each zone has a dedicated hot water loop and a pump room. Each pump room has a set of two 1HP pumps for redundancy. The heating is achieved with fin-tube hot water baseboard radiators. The radiators are equipped with flow dampers for modulation. Heating hot water temperature is modulated with a 3-way mixing valve based on inside and outside air temperatures.

### Exhaust System

A 1 HP propeller type fan in the mechanical room provides exhaust relief in the mechanical room. Air is exhausted from the toilet rooms through local fans. The toilet room exhaust fans are interlocked with manual lights switches.

### HVAC System Controls

The York split system is controlled with a programmable thermostat located in the corresponding zone. The McQuay chiller, the two air handling units and variable frequency drives (VFD) are controlled with a Honeywell HVAC system controller. The control panel for this system is located in the mechanical room. The schedules and the set-points for the chiller and air handling units are entered through a keypad on the control panel. VAV boxes in the spaces are controlled with a variety of programmable and non-programmable thermostats.

Heating hot water supply temperature is modulated with a 3-way mixing valve based on inside and outside air temperatures. Inside air temperature sensor is located in the corridor on the first floor. The sensors are connected to the Carrier Network panel located in the pump room in the basement. The hot water supply temperature is re-set based on the outside air temperature. Carrier Network Controller shuts off the flow to the HW radiators when the outside air temperature reaches 50°F.

### Domestic Hot Water

Domestic hot water for the restrooms and office lounge is provided to the facility directly from the central steam plant, which is located in the west of the campus. The domestic hot water is circulated throughout the building by a hot water circulation pump. The circulation pump is controlled by an aqua stat. The domestic hot water piping insulation appeared to be in good condition.

### Lighting

Typical lighting throughout building is fluorescent tube lay-in fixtures with T-8 lamps and electronic ballasts. Storage rooms in the basement and closets are lit with a mixture of fluorescent tube fixtures with T-12 and T8 lamps, various incandescent lamps and compact fluorescent lamps. The lights in the offices are controlled manually via wall switches. Some of the offices and bathrooms have occupancy sensors. Typical hours of operation for this building are 9 AM – 5 PM Monday through Friday. Refer to the **Lighting Equipment List Appendix** for the details about this building.

**B. Building #1**

The Building #1 is approximately 25,500 SF, two story building with a basement. It is interconnected to building #2 and the Center Core through the first level and basement level corridors. The entry and exit to the building is through spring loaded automatic doors.

The building houses the Facility Management Offices and the Transcend Office in the first floor, Planning Department Office in the second floor and storage spaces in the basement. The typical hours of operation for this facility are between 8:00 am and 5:00 pm. Exterior walls are brick construction. The amount of insulation within the wall is unknown. The windows throughout the facility are in good condition and appear to be maintained. Typical windows throughout the facility are double pane, ¼” clear glass with double hung aluminum frames. Blinds are utilized through the facility per occupant comfort. The blinds are valuable because they help to reduce heat loss in the winter and reduce solar heat in the summer.

The building has slate roof with asphalt shingles. There is a large attic space over the corridors between the buildings. Attic is insulated with loosely laid mineral fiber insulation material. The building was built in 1920s as a part of the psychiatric hospital campus and has been adapted over time for multiple uses.

**HVAC Systems**

The air conditioning is provided to the building #1 with three (3) split air conditioning units. The split units are 7.5 York K4EU Units which are labeled A, B and D. The “A” and “B” air handling units are located in the first floor mechanical room, while the “D” air handling unit is located in the second floor mechanical room. Each AHU serves a single zone in the building without any variable air flow capability. The A, B and D units are equipped with direct expansion (DX) cooling coils. AHUs distribute conditioned air to the three (3) zones in the building through constant volume duct network via ceiling diffusers. The air handling units are ducted to provide only minimum amount of outside air. Therefore, currently the units are not equipped to have any economizer functionality.

There is another split air conditioning system, which is labeled as “Building #1 Unit C”. This unit is discussed in the Center Core building HVAC description due to its location.

Direct expansion cooling is achieved with multiple remote condensing units. There are a total of four (3) YORK condensing units located on the ground on the east of the building. Two of the units have 7.5 Ton cooling capacity and one has 15 Tons of cooling capacity. The major source of heating for the building #1 is the hot water baseboard on the perimeter offices.

Hot water is circulated throughout the building via two pumps located in the pump room in the basement. The pumps are approximately 15 years old but in good condition. The hot water supply temperature is reset based on the outside air temperature. The controller shuts off the flow to the HW radiators when the outside air temperature reaches 50°F. It was observed the insulation on the hot water pipes in the pump room were partly removed or missing.

### Exhaust System

Air is exhausted from the toilet rooms through local fans. The toilet room exhaust fans are interlocked with manual lights switches.

### HVAC System Controls

The three (3) split A/C systems are controlled with programmable thermostats in each temperature zone.

Heating hot water temperature is modulated with a 3-way mixing valve based on inside and outside air temperatures. Inside air temperature sensor is located in the corridor on the first floor. The sensors are connected to the Carrier Network panel located in the pump room in the basement. The hot water supply temperature is re-set based on the outside air temperature. Carrier Network Controller shuts off the flow to the HW radiators when the outside air temperature reaches 50°F.

### Domestic Hot Water

Domestic hot water for the restrooms and office lounge is provided to the facility directly from the central steam plant. The domestic hot water is circulated throughout the building by a hot water circulation pump. The circulation pump is controlled by an aqua stat. The domestic hot water piping insulation appeared to be in good condition.

### Lighting

Typical lighting throughout building is fluorescent tube lay-in fixtures with T-8 lamps and electronic ballasts. Storage rooms in the basement and closets are lit with a mixture of fluorescent tube fixtures with T-12 and T8 lamps, various incandescent lamps and compact fluorescent lamps. The lights in the offices are controlled manually via wall switches. Some of the offices and bathrooms have occupancy sensors. Typical hours of operation for this building are 9 AM – 5 PM Monday through Friday. Refer to the **Lighting Equipment List Appendix** for the details about this building.

### C. Building #2

The Building #2 is approximately 23,000 SF, two story building with a basement. It is interconnected to building #1 and building #2 through the first level and basement level corridors. The entry and exit to the building is through spring loaded automatic doors.

The building houses the County Department of Health and Human Services in the first and second floors and storage spaces in the basement. The typical hours of operation for this facility are between 8:00 am and 5:00 pm. Exterior walls are brick construction. The amount of insulation within the wall is unknown. The windows throughout the facility are in good condition and appear to be maintained. Typical windows throughout the facility are double pane, ¼” clear glass with double hung aluminum frames. Blinds are utilized through the facility per occupant comfort. The blinds are valuable because they help to reduce heat loss in the winter and reduce solar heat in the summer.

The building has slate roof with asphalt shingles. There is a large attic space over the corridors between the buildings. Attic is insulated with loosely laid mineral fiber insulation material. The building was built in 1920s as a part of the psychiatric hospital campus and has been adapted over time for multiple uses.

Building #2 houses the domestic water pumping station for buildings 1-9 and the Psychiatric Hospital in the basement. A set of three (3) 20 HP, uni-mount booster pumps provide city water to the campus. The pumps are enabled at all times and sequenced based on supply pressure.

There is also a maintenance shop in the second floor basement. The shop houses carpentry equipment with local exhaust hoods. The equipment and the hoods are seldom used operated. Service air is supplied to the shop via an Ingersoll Rand air compressor. The compressor was installed approximately five (5) years ago and it is in good condition.

#### HVAC Systems

The air conditioning is provided to the building #2 with four (4) split air conditioning units. The split units are ten (10) York K3EU Units which are labeled A, B, C and D. The “A” and “B” air handling units are located in the first floor mechanical room, while the “C” and “D” air handling units are located in the second floor mechanical room. Each AHU serves a single zone in the building without any variable air flow capability. The A, B, C and D units are equipped with direct expansion (DX) cooling coils and electric heating coils. Currently, electric preheat coils are disconnected and not used. AHU constant volume supply fans distribute conditioned air to the four (4) zones in the building through duct network and ceiling diffusers.

Direct expansion cooling is achieved with multiple remote condensing units. There are a total of four (4) YORK condensing units located on the ground on the east of the building. The condensing units have 10 Ton cooling capacity each. The major source of heating for the building #2 is the hot water baseboard on the perimeter offices. Hot water is circulated throughout the building via two pumps located in the pump room in the basement. The

condition of the insulation on the hot water pipes and the three-way valve is poor. The pumps are in good condition.

### Exhaust System

The carpenter shop in the basement has three (3) small dust hoods. The hoods are seldom operated. Toilet rooms are ventilated through the central air conditioning system with a supply and return grill per bathroom.

### HVAC System Controls

The four (4) split A/C systems are controlled via programmable thermostats in each temperature zone.

Heating hot water temperature is modulated with a 3-way mixing valve based on inside and outside air temperatures. Inside air temperature sensor is located in the corridor on the first floor. The sensors are connected to the Carrier Network panel located in the pump room in the basement. The hot water supply temperature is re-set based on the outside air temperature. Carrier Network Controller shuts off the flow to the HW radiators when the outside air temperature reaches 50°F.

The three-way valve is in poor condition. It is leaking through the stem. The insulation around the three-way valve is poor or missing.

### Domestic Hot Water

Domestic hot water for the restrooms and office lounge is provided to the facility directly from the central steam plant. The domestic hot water is circulated throughout the buildings by a hot water circulation pump. The circulation pump is controlled by an aqua stat. The domestic hot water piping insulation appeared to be in good condition.

### Lighting

Typical lighting throughout building is fluorescent tube lay-in fixtures with T-8 lamps and electronic ballasts. Storage rooms in the basement and closets are lit with a mixture of fluorescent tube fixtures with T-12 and T8 lamps, various incandescent lamps and compact fluorescent lamps. The lights in the offices are controlled manually via wall switches. Some of the offices and bathrooms have occupancy sensors. Typical hours of operation for this building are 9 AM – 5 PM Monday through Friday. Refer to the **Lighting Equipment List Appendix** for the details about this building.

**D. Building #3**

The Building #3 is approximately 25,000 SF, two story building with a basement. It is interconnected to building #2 and building #4 through the first level and basement level corridors. The entry and exit to the building is through spring loaded automatic doors. The auto closing mechanism for one of the exit door between the buildings #3 and #4 is broken and keeps the door open most of the time. This causes a lot of unconditioned air to enter into the corridor and the subsequent conditioned spaces.

The building houses The Hudson County Board of Education in the first floor, Hudson County Engineering Offices in the second floor and storage spaces in the basement. The typical hours of operation for this facility are between 8:00 am and 4:30 pm. Exterior walls are brick construction. The amount of insulation within the wall is unknown. The windows throughout the facility are in good condition and appear to be maintained. Typical windows throughout the facility are double pane, ¼” clear glass with double hung aluminum frames. Blinds are utilized through the facility per occupant comfort. The blinds are valuable because they help to reduce heat loss in the winter and reduce solar heat in the summer.

The building has slate roof with asphalt shingles. There is a large attic space over the corridors between the buildings. Attic is insulated with loosely laid mineral fiber insulation material.

The building was built in 1920s as a part of the psychiatric hospital campus and has been adapted over time for multiple uses. A recent addition was made to the building to expand the office of the County Architect on the second floor. A small air handling unit was added to supply heating and air conditioning to the new addition.

**HVAC Systems**

The air conditioning is provided to the building #3 with five (5) split air conditioning units. Four (4) of the split systems are 10 to 15 Ton York Units which are labeled A, B, C and D. The fifth unit is a recently added 3 Ton unit in the attic for the second floor expansion. The “A” and “B” air handling units are located in the first floor mechanical room, while the “C” and “D” air handling units are located in the second floor mechanical room. Each AHU serves a single zone in the building. There are two zones in the first floor office areas and three zones in the second floor office area.

The A, B, C and D units are equipped with direct expansion (DX) cooling coils and electric preheat coils. The electric coils are not used. The new small air handling unit for the second floor expansion is equipped with a DX coil and a hot water pre-heat coil, which it is the only source of heat for the corresponding space. AHU constant volume supply fans distribute conditioned air to the five (5) zones in the building through duct network and ceiling diffusers.

Direct expansion cooling is achieved with multiple remote condensing units. There are a total of four (4) YORK condensing units and one (1) small Carrier unit located on the ground on the east of the building between buildings #2 and #3. Three of the YORK units have 10 Ton

cooling capacity and one has 15 Tons of cooling capacity. The fifth condensing unit is a 3 Ton unit.

Similar to the rest of the campus building, the major source of heating for the building #3 is the fin-tube hot water baseboard on the perimeter offices. Hot water is circulated throughout the building via two pumps located in the pump room in the basement. The hot water pipes run through the basement ceiling to the baseboard radiators.

It was observed the insulation on the hot water pipes were partly removed or missing and causing overheating in the first floor offices. Many of the employees open windows due to overheating. One of the digital thermostats in the office indicated temperatures over 80°F. This may be due to balancing issues in the hot water piping.

#### Exhaust System

Air is exhausted from the toilet rooms through a local fan. The toilet room exhaust fans are interlocked with manual lights switches.

#### HVAC System Controls

The four (4) split A/C systems are controlled via programmable thermostats in each temperature zone.

Heating hot water temperature is modulated with a 3-way mixing valve based on inside and outside air temperatures. Inside air temperature sensor is located in the corridor on the first floor. The sensors are connected to the Carrier Network panel located in the pump room in the basement. The hot water supply temperature is re-set based on the outside air temperature. Carrier Network Controller shuts off the flow to the HW radiators when the outside air temperature reaches 50°F.

#### Domestic Hot Water

Domestic hot water for the restrooms and office lounge is provided to the facility directly from the Powerhouse Building. The domestic hot water is circulated throughout the building by a hot water circulation pump. The circulation pump is controlled by an aqua stat. The domestic hot water piping insulation appeared to be in good condition.

#### Lighting

Typical lighting throughout building is fluorescent tube lay-in fixtures with T-8 lamps and electronic ballasts. Storage rooms in the basement and closets are lit with a mixture of fluorescent tube fixtures with T-12 and T8 lamps, various incandescent lamps and compact fluorescent lamps. The addition on the second floor architects office is lit with incandescent flood lights. The lights in the offices are controlled manually via wall switches. Some of the offices and bathrooms have occupancy sensors. Typical hours of operation for this building are 9 AM – 5 PM Monday through Friday. Refer to the **Lighting Equipment List Appendix** for the details about this building.

## **E. Building #4**

The Building #4 is approximately 22,500 SF, two story building with a basement. It is interconnected to building #3 and building #5 through the first level and basement level corridors. The entry and exit to the building is through spring loaded automatic doors.

The building houses the Offices of Integrity, Inc. (Integrity House) and Cura, Inc., which are the two of the non-profit organizations running drug treatment and rehabilitation programs in the county. The building is comprised of day rooms, dormitory, laundry, kitchens, dining and storage areas and office spaces. This building operates 24/7. Exterior walls are brick construction. The amount of insulation within the wall is unknown. The windows throughout the facility are in good condition and appear to be maintained. Typical windows throughout the facility are double pane, 1/4" clear glass with double hung aluminum frames. Blinds are utilized through the facility per occupant comfort. The blinds are valuable because they help to reduce heat loss in the winter and reduce solar heat in the summer.

Majority of the first floor is dedicated to kitchen and the dining room for the Cura Inc. The kitchen has one (1) walk in freezer and two (2) refrigerators. Laundry facility in the first floor has two (2) sets of washers and driers. The basement of this building houses the Kitchen and the Dining Room of the Integrity House. The Integrity House Kitchen is equipped with two (2) standing commercial refrigerators, one (1) walk in refrigerator and (1) walk in freezer.

The building has slate roof with asphalt shingles. Attic is insulated with loosely laid mineral fiber insulation material. The building was built in 1920s as a part of the psychiatric hospital campus and has been adapted over time for multiple uses.

### HVAC Systems

The air conditioning is provided to the first and second floors of this building via window air conditioning (A/C) units. The A/C unit sizes vary between 6,000 BTU/h and 36,000 Btu/Hr. There are five (5) 35,000 BTU/h window AC units and two (2) 32,000 BTU/h feeding day rooms in this building.

It was observed that smaller window A/C units were removed during the winter months to be reinstalled in spring. The larger units are installed to the windows in a more permanent fashion. Some of the units were covered with A/C unit winter covers to eliminate draft.

The Integrity House dining room and kitchen in the basement are conditioned with two (2) American Standard packaged air conditioning units ground mounted outside of the building in the courtyard. The units have 5 tons of cooling capacity each. The units are controlled with non-programmable digital thermostats in locked enclosures.

The heating is provided to the building #4 via hot water radiators on the perimeter spaces. Hot water is circulated throughout the building from the pump station located in the building #6. The hot water is fed to the radiators from the attic down and collected in the basement.

Some of the return piping is routed through the floor, which causes maintenance issues when leaks occur.

### Exhaust System

Air is exhausted from the toilet rooms in the buildings #4, #5 and #6 and ducted to three (3) roof exhausters. The exhaust fans operate continuously. The kitchen is equipped with two exhaust hoods for the cooking ranges and the dishwasher. The size of the range hood is 5'x16' and the size of the dishwasher hood is 4'x8'. The hoods in both kitchens are operated manually with local switches.

### HVAC System Controls

Window A/C units are controlled manually by the occupants.

The packaged A/C units for the basement dining room and kitchen are controlled with non-programmable digital thermostats in locked enclosures.

Heating hot water supply temperature is modulated with a 3-way mixing valve based on inside and outside air temperatures. Inside air temperature sensor is located in the corridor on the first floor in the building #5. The sensor is connected to the Carrier Network panel located in the pump room in the building #6. The hot water supply temperature is re-set based on the outside air temperature. Carrier Network Controller shuts off the flow to the HW radiators when the outside air temperature reaches 50°F.

### Domestic Hot Water

Domestic hot water for the restrooms and office lounge is provided to the facility directly from the central steam plant. The domestic hot water is circulated throughout the building by a hot water circulation pump. The circulation pump is controlled by an aqua stat. The domestic hot water piping insulation appeared to be in good condition.

### Lighting

Typical lighting throughout building is ceiling or wall mounted fluorescent fixtures with T-12 lamps and magnetic ballasts. Some of the day rooms are equipped with ceiling fans and incandescent lights. Storage rooms in the basement and closets are lit with a mixture of fluorescent tube fixtures with T-12 lamps, various incandescent lamps and compact fluorescent lamps. Majority of the lights in this building are controlled via manual wall switches. Common area lights operate continuously. The lights in the office spaces operate during office hours. Kitchen, dining room, day rooms and dorm room lights operate based on a schedule. Refer to the **Lighting Equipment List Appendix** for the details about this building.

**F. Building #5**

The Building #5 is approximately 22,500 SF, two story building with a basement. It is interconnected to building #4 and building #6 through all levels. The entry and exit to the building is through spring loaded automatic doors.

The building houses the Offices of Integrity, Inc. (Integrity House) and Cura Inc., which are the two of the non-profit organizations running drug treatment and rehabilitation programs in the county. The building is comprised of day rooms, dormitory, workshops, library, laundry, gym, storage areas and office spaces. The building operates 24/7. Exterior walls are brick construction. The amount of insulation within the wall is unknown. The windows throughout the facility are in good condition and appear to be maintained. Typical windows throughout the facility are double pane, ¼” clear glass with double hung aluminum frames. Blinds are utilized through the facility per occupant comfort. The blinds are valuable because they help to reduce heat loss in the winter and reduce solar heat in the summer. The first floor of this building is dedicated to office spaces, laundry, visitor’s room and a dormitory for juveniles. The second floor is mostly used as dorm rooms and day rooms. Laundry facility in the first floor has two (2) sets of washers and driers.

The building has slate roof with asphalt shingles. Attic is insulated with loosely laid mineral fiber insulation material. The building was built in 1920s as a part of the psychiatric hospital campus and has been adapted over time for multiple uses.

**HVAC Systems**

The air conditioning is provided to the building via window air conditioning (A/C) units. The A/C unit sizes vary between 6,000 BTU/h and 18,000 Btu/Hr. It was observed that some of the smaller window A/C units were removed during the winter months to be reinstalled in spring. The larger units are installed to the windows in a more permanent fashion. Many of the units were covered with A/C unit covers to eliminate draft.

The Integrity House group room and the gym in the basement are conditioned with a 4 Ton American Standard packaged air conditioning unit ground mounted outside of the building in the courtyard. The unit is controlled with a non-programmable digital thermostat in a lock box.

The heating is provided to the building #5 via cast iron hot water heaters on the perimeter spaces. Hot water is circulated throughout the building from the pump station located in the building #6. The hot water is fed to the radiators from the attic and collected from the basement. Some of the return piping is routed through the floor, which causes maintenance issues when leaks occur.

**Exhaust System**

Air is exhausted from the toilet rooms in the buildings #4, #5 and #6 and ducted to three (3) roof exhausters. The exhaust fans operate continuously.

### HVAC System Controls

Window A/C units are controlled manually by the occupants.

The packaged A/C unit for the group room and the gym is controlled with a non-programmable digital thermostat in a locked enclosure.

Heating hot water supply temperature is modulated with a 3-way mixing valve based on inside and outside air temperatures. Inside air temperature sensor is located in the corridor on the first floor in the building #5. The sensor is connected to the Carrier Network panel located in the pump room in the building #6. The hot water supply temperature is re-set based on the outside air temperature. Carrier Network Controller shuts off the flow to the HW radiators when the outside air temperature reaches 50°F.

### Domestic Hot Water

Domestic hot water for the restrooms and office lounge is provided to the facility directly from the central steam plant. The domestic hot water is circulated throughout the building by a hot water circulation pump. The circulation pump is controlled by an aqua stat. The domestic hot water piping insulation appeared to be in good condition.

### Lighting

Typical lighting throughout building is ceiling or wall mounted fluorescent fixtures with T-12 lamps and magnetic ballasts. Storage rooms in the basement and closets are lit with a mixture of fluorescent tube fixtures with T-12 lamps, various incandescent lamps and compact fluorescent lamps. Majority of the lights in this building are controlled via manual wall switches. Common area lights operate continuously. The lights in the office spaces operate during office hours. Kitchen, dining room, day rooms and dorm room lights operate based on a schedule. Refer to the **Lighting Equipment List Appendix** for the details about this building.

## **G. Building #6**

The Building #6 is approximately 22,200 SF, two story building with a basement. It is interconnected to building #5 through all levels. The entry and exit to the building is through a vestibule.

The building houses the Office of Integrity Inc (Integrity House), which is one of the non-profit organizations running drug treatment and rehabilitation programs in the county. The building is comprised of day rooms, dormitory, laundry, kitchenette and storage areas, office spaces and mechanical rooms. The building operates 24/7 by nature. Exterior walls are brick construction. The amount of insulation within the wall is unknown. The windows throughout the facility are in good condition and appear to be maintained. Typical windows throughout the facility are double pane, 1/4" clear glass with double hung aluminum frames. Blinds are utilized through the facility per occupant comfort. The blinds are valuable because they help to reduce heat loss in the winter and reduce solar heat in the summer.

The building has slate roof with asphalt shingles. Attic is insulated with loosely laid mineral fiber insulation material. The building was built in 1920s as a part of the psychiatric hospital campus and has been adapted over time for multiple uses.

### HVAC Systems

The air conditioning is provided to the building via window air conditioning (A/C) units. The A/C unit sizes vary between 6,000 BTU/h and 18,000 Btu/Hr. It was observed that some of the smaller window A/C units were removed during the winter months to be reinstalled in spring. The larger units are installed to the windows in a more permanent fashion. Many of the units were covered with A/C unit covers to eliminate draft.

The heating is provided to the building #6 via cast iron hot water heaters on the perimeter spaces. Hot water is circulated throughout the building from the pump station in this building. The hot water is fed to the radiators from the attic and collected from the basement. Some of the return piping is routed through the floor, which causes maintenance issues when leaks occur.

The pump station room is located in the first level of this building, entered from the outside. A 10 HP circulates hot water through the buildings #4, 5 and 6. A 3-way valve modulates hot water supply temperature.

### Exhaust System

Air is exhausted from the toilet rooms in the buildings #4, 5 and 6 and ducted to three (3) roof exhausters. The exhaust fans operate continuously.

### HVAC System Controls

Window A/C units are controlled manually by the immediate occupants.

Heating hot water supply temperature is modulated with a 3-way mixing valve based on inside and outside air temperatures. Inside air temperature sensor is located in the corridor on the first floor in the building #5. The sensor is connected to the Carrier Network panel located in the pump room in the building #6. The hot water supply temperature is re-set based on the outside air temperature. Carrier Network Controller shuts off the flow to the HW radiators when the outside air temperature reaches 50°F.

#### Domestic Hot Water

Domestic hot water for the restrooms and office lounge is provided to the facility directly from the central steam plant. The domestic hot water is circulated throughout the building by a hot water circulation pump. The circulation pump is controlled by an aqua stat. The domestic hot water piping insulation appeared to be in good condition.

#### Lighting

Typical lighting throughout building is ceiling or wall mounted fluorescent fixtures with T-12 lamps and magnetic ballasts. Storage rooms in the basement and closets are lit with a mixture of fluorescent tube fixtures with T-12 lamps, various incandescent lamps and compact fluorescent lamps. Majority of the lights in this building are controlled via manual wall switches. Common area lights operate continuously. The lights in the office spaces operate during office hours. Kitchen, dining room, day rooms and dorm room lights operate based on a schedule. Refer to the **Lighting Equipment List Appendix** for the details about this building.

## **H. Building #7**

The Building #7 is approximately 22,000 SF, two story building with a basement. It is interconnected to the Building #8 through the first level and basement level corridors. The entry and exit to the building is through spring loaded automatic doors.

The building houses the Offices of New Hope Inc., which is one of the non-profit organizations running drug treatment and rehabilitation programs in the first and second floors. There are two different state and county offices, in the basement floor of this building. The building is comprised of day rooms, dormitory, two (2) laundry rooms, kitchenettes, storage areas and office spaces. The building operates 24/7. Exterior walls are brick construction. The amount of insulation within the wall is unknown. The windows throughout the facility are in good condition and appear to be maintained. Typical windows throughout the facility are double pane, 1/4" clear glass with double hung aluminum frames. Blinds are utilized through the facility per occupant comfort. The blinds are valuable because they help to reduce heat loss in the winter and reduce solar heat in the summer. There are two (2) laundry rooms in this building on each floor. There is one (1) washers and one (1) drier in each laundry room. There are also small kitchenettes and employee lounges in this building. Each kitchenette or lounge is equipped with essential equipment such as refrigerator, microwave, toaster and coffeemaker. There are two wending machines in this building.

The building has slate roof with asphalt shingles. There is a large attic space over the corridors between the buildings, which are used as storage spaces. The building was built in 1920s as a part of the psychiatric hospital campus and has been adapted over time for multiple uses.

### HVAC Systems

The air conditioning is provided to the building first and second levels of this building via window air conditioning (A/C) units. The A/C unit sizes vary between 6,000 BTU/h and 18,000 Btu/Hr. It was observed that some of the smaller window A/C units were removed during the winter months to be reinstalled in spring. The larger units are installed to the windows in a more permanent fashion. Many of the units were covered with A/C unit covers to eliminate draft.

There is a mixture of air conditioning systems in the basement of this building. The offices of the Department of Internal Affairs have two different ducted central air conditioning systems, which feeds a total of six offices in the basement. However, these units do not run very often due to problems in the electrical system. The units often blow fuses at even moderate loads. The office personal most often utilizes window air conditioners when the central system cannot be operated. The units are controlled via none programmable, mechanical thermostats.

The heating is provided to the building #7 via the hot water radiators on the perimeter rooms. Hot water is circulated throughout the building via two pumps located in the pump room.

### Exhaust System

Air is exhausted from the toilet rooms through local fans. The toilet room exhaust fans are interlocked with manual lights switches.

### HVAC System Controls

Window A/C units are controlled manually by the immediate occupants.

Central air conditioning units for the basement offices are controlled manually with non-programmable Honeywell T87 thermostats.

Heating hot water temperature is modulated with a 3-way mixing valve based on inside and outside air temperatures. Inside air temperature sensor is located in the corridor on the first floor. The sensors are connected to the Carrier Network panel located in the pump room in the basement. The hot water supply temperature is re-set based on the outside air temperature. Carrier Network Controller shuts off the flow to the HW radiators when the outside air temperature reaches 50°F.

### Domestic Hot Water

Domestic hot water for the restrooms and office lounge is provided to the facility directly from the central steam plant. The domestic hot water is circulated throughout the building by a hot water circulation pump. The circulation pump is controlled by an aqua stat. The domestic hot water piping insulation appeared to be in good condition.

### Lighting

Typical lighting throughout building is ceiling or wall mounted fluorescent fixtures with T-12 lamps and magnetic ballasts. Storage rooms in the basement and closets are lit with a mixture of fluorescent tube fixtures with T-12 lamps, various incandescent lamps and compact fluorescent lamps. Majority of the lights in this building are controlled via manual wall switches. Common area lights operate continuously. The lights in the office spaces operate during office hours. Kitchen, dining room, day rooms and dorm room lights operate based on a schedule. Refer to the **Lighting Equipment List Appendix** for the details about this building.

## **I. Building #8**

The Building #8 is approximately 21,500 SF, two story building with a basement. It is interconnected to building #7 and building #9 through the first level and basement level corridors. The entry and exit to the building is through spring loaded automatic doors.

The first and second floors of this building house two of the nonprofit organizations running drug treatment and rehabilitation programs in the county. In addition, the basement of this building houses some of the county department of internal affairs offices and storage areas and office spaces for the Marshalls office.

The building is comprised of day rooms, dormitory, laundry, kitchenettes, medication rooms, patient rooms, storage areas and office spaces. The building operates 24/7 by nature. Exterior walls are brick construction. The amount of insulation within the wall is unknown. The windows throughout the facility are in good condition and appear to be maintained. Typical windows throughout the facility are double pane, 1/4" clear glass with double hung aluminum frames. Blinds are utilized through the facility per occupant comfort. The blinds are valuable because they help to reduce heat loss in the winter and reduce solar heat in the summer. There are two (2) laundry rooms in this building on each floor. There are two (2) washers and one (1) drier in each laundry room. There are also two (2) kitchenettes in this building. Each kitchenette is equipped with essential equipment such as refrigerator, microwave, toaster and coffeemaker.

The building has slate roof with asphalt shingles. There is a large attic space over the corridors between the buildings, which are used as storage spaces. Attic floor is made of concrete slab. The building was built in 1920s as a part of the psychiatric hospital campus and has been adapted over time for multiple uses.

### HVAC Systems

The air conditioning is provided to the building via window air conditioning (A/C) units. The A/C unit sizes vary between 6,000 BTU/h and 18,000 Btu/Hr. It was observed that some of the smaller window A/C units were removed during the winter months to be reinstalled in spring. The larger units are installed to the windows in a more permanent fashion. Many of the units were covered with A/C unit covers to eliminate draft. The Marshalls office air conditioning is provided with a York Weathermaker packaged air conditioning unit located outside of the building.

The heating is provided to the building #8 via the fin-tube hot water radiators on the perimeter rooms. Hot water is circulated throughout the building via two pumps located in the pump room in the basement. The hot water pipes run through the basement ceiling to the baseboard radiators.

### Exhaust System

Air is exhausted from the toilet rooms through local fans. The toilet room exhaust fans are interlocked with manual lights switches.

### HVAC System Controls

Window A/C units are controlled manually by the immediate occupants. The central system for the Marshalls offices is controlled manually with a programmable thermostat. Heating hot water temperature is modulated with a 3-way mixing valve based on inside and outside air temperatures. Inside air temperature sensor is located in the corridor on the first floor. The sensors are connected to the Carrier Network panel located in the pump room in the basement. The hot water supply temperature is re-set based on the outside air temperature. Carrier Network Controller shuts off the flow to the HW radiators when the outside air temperature reaches 50°F.

### Domestic Hot Water

Domestic hot water for the restrooms and office lounge is provided to the facility directly from the central steam plant. The domestic hot water is circulated throughout the building by a hot water circulation pump. The circulation pump is controlled by an aqua stat. The domestic hot water piping insulation appeared to be in good condition.

### Lighting

Typical lighting throughout building is ceiling or wall mounted fluorescent fixtures with T-12 lamps and magnetic ballasts. Storage rooms in the basement and closets are lit with a mixture of fluorescent tube fixtures with T-12 lamps, various incandescent lamps and compact fluorescent lamps. Majority of the lights in this building are controlled via manual wall switches. Common area lights operate continuously. The lights in the office spaces operate during office hours. Kitchen, dining room, day rooms and dorm room lights operate based on a schedule. Refer to the **Lighting Equipment List Appendix** for the details about this building.

## **J. Building #9**

The Building #9 is approximately 21,500 SF, two story building with a basement. It is interconnected to Center Core building and building #8 through the first level and basement level corridors. The entry and exit to the building is through spring loaded automatic doors.

The building houses the office of Turning Point, Inc., which is a nonprofit organization running drug treatment and rehabilitation programs in the county. The building is comprised of day rooms, dormitory, laundry, kitchen, dining and storage areas and office spaces. The building operates 24/7 by nature. Exterior walls are brick construction. The amount of insulation within the wall is unknown. The windows throughout the facility are in good condition and appear to be maintained. Typical windows throughout the facility are double pane, 1/4" clear glass with double hung aluminum frames. Blinds are utilized through the facility per occupant comfort. The blinds are valuable because they help to reduce heat loss in the winter and reduce solar heat in the summer. There are two laundry rooms and two kitchenettes in this building.

The building has slate roof with asphalt shingles. There is a large attic space over the corridors between the buildings. Attic is insulated with loosely laid mineral fiber insulation material. The building was built in 1920s as a part of the psychiatric hospital campus and has been adapted over time for multiple uses.

### HVAC Systems

The air conditioning is provided to the building via window air conditioning (A/C) units. The A/C unit sizes vary between 6,000 BTU/h and 18,000 Btu/Hr. It was observed that some of the smaller window A/C units were removed during the winter months to be reinstalled in spring. The larger units are installed to the windows in a more permanent fashion. Many of the units were covered with A/C unit covers to eliminate draft

The heating is provided to the building #9 via cast iron hot water heaters on the perimeter spaces. Hot water is circulated throughout the building from the pump station located in the basement.

### Exhaust System

Air is exhausted from the toilet rooms through local fans. The toilet room exhaust fans are interlocked with manual lights switches.

### HVAC System Controls

Window A/C units are controlled manually by the immediate occupants. Heating hot water temperature is modulated with a 3-way mixing valve based on inside and outside air temperatures. Inside air temperature sensor is located in the corridor on the first floor. The sensors are connected to the Carrier Network panel located in the pump room in the basement. The hot water supply temperature is re-set based on the outside air temperature.

Carrier Network Controller shuts off the flow to the HW radiators when the outside air temperature reaches 50°F.

#### Domestic Hot Water

Domestic hot water for the restrooms and office lounge is provided to the facility directly from the central steam station. The domestic hot water is circulated throughout the building by a hot water circulation pump. The circulation pump is controlled by an aqua stat. The domestic hot water piping insulation appeared to be in good condition.

#### Lighting

Typical lighting throughout building is ceiling or wall mounted fluorescent fixtures with T-12 lamps and magnetic ballasts. Storage rooms in the basement and closets are lit with a mixture of fluorescent tube fixtures with T-12 lamps, various incandescent lamps and compact fluorescent lamps. Majority of the lights in this building are controlled via manual wall switches. Common area lights operate continuously. The lights in the office spaces operate during office hours. Kitchen, dining room, day rooms and dorm room lights operate based on a schedule. Refer to the **Lighting Equipment List Appendix** for the details about this building.

**K. Building #15 (Archives)**

The Building #15, also known as the archives building is approximately 22,000 SF, single story building with a basement. The building has a precast concrete walls and partly glass façade. The entry and exit to the building is through a vestibule.

The building houses primarily the Hudson County's archives in the first floor and the basement storage spaces. There are also a small number of office spaces, meeting room, a kitchenette, shredding room, microfilm room, server room, and mechanical rooms. The typical hours of operation for this facility are between 8:00 am and 5:00 pm. The windows throughout the facility are in good condition and appear to be maintained. Typical windows throughout the facility are double pane, ¼" clear glass with double hung aluminum frames. Blinds are utilized through the facility per occupant comfort. The blinds are valuable because they help to reduce heat loss in the winter and reduce solar heat in the summer.

The archives building roof is built up as flat roof with light stone covering, where the roof top air conditioners for the building are located. The building was built in 1924 and renovated around 1997.

**HVAC Systems**

The air conditioning is provided to the archives building with seven (7) roof top air conditioners. The roof top units (RTU) vary between 4 to 15 Tons in size and made by Trane. Each RTU serves a single zone in the building without any variable air flow capability. The units are equipped with direct expansion (DX) cooling coils. Constant volume units distribute conditioned air to the seven (7) zones in the building through duct network and ceiling diffusers.

The major source of heating for the building is the high pressure steam, which is delivered to the building from the central steam plant. The high pressure steam at approximately 120 psig is reduced to low pressure at 20 psig through two (2) Pressure Reducing Valves and this steam is used in two (2) Steam to Hot Water Heat Exchangers located in the pump room in the basement. Two steam pressure pumps send the condensate back to the power house.

Hot water is circulated throughout the building via two pumps located in the same room. The space heating is achieved via fin-tube hot water baseboard radiators. The heating hot water circulation pumps are in poor condition. Both of the pumps were found to be leaking.

**Exhaust System**

Air is exhausted from the toilet rooms, locker room, elevator room, pump room and the conference through roof and side wall exhausters. The pump room and elevator room exhaust fans are interlocked with thermostats in the space. The locker room and women's toilet ventilation is interlocked with the corresponding RTU. The first floor conference room and the basement toilet room exhaust fans are controlled with wall mounted switches.

### HVAC System Controls

The roof top units are scheduled and controlled via a proprietary Trane Tracer building management system. The units' start/stop times, economizer functionality and temperature set-points are entered through control panels located in the first floor of the building.

It was observed that some of the rooftop air conditioning units were running mechanical cooling while the outside air was near freezing temperatures. This may be due to heating and cooling temperature set-points in the corresponding spaces causing the units to fight each other. This not only causes waste of energy but also may damage the A/C unit.

The Trane system also controls the steam to hot water heat exchanger operation and the heating hot water supply temperatures. Heating hot water temperature is modulated through a steam control valve based on inside and outside air temperatures. The hot water supply temperature is re-set based on the outside air temperature.

### Domestic Hot Water

Domestic hot water for the restrooms and office lounge is provided by a 20 Gallon electric hot water heater located in the basement of this building.

### Lighting

Typical lighting throughout building is fluorescent tube lay-in fixtures with T-8 lamps and electronic ballasts. Majority of the lights in the offices are controlled via manual wall switches. Some of the storage spaces and employee locker room are equipped with occupancy sensors. Rest of the record storage spaces are equipped with manual control switches on each entrance. Lights in the office spaces operate during office hours. Remaining lights are shut off by the security personnel. Refer to the **Lighting Equipment List Appendix** for the details about this building.

## **VI. 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.

## VII. ENERGY CONSERVATION MEASURES

### ECM #1: Lighting Equipment Upgrade (Buildings #1 – 9 and CC)

#### Description:

The majority of the lighting throughout the building #1-3 and the Center Core are provided with modern fixtures with T8 lamps and electronic ballasts. However, the basement storage areas, custodial rooms, mechanical rooms, stairwells and basement corridors in the buildings #1-3 and the Center Core have a variety of older fixtures with T12 lamps with magnetic ballasts, incandescent lamps and compact fluorescent lamps. The lights in the stairwells and the basement corridors stay ON constantly. It is recommended to replace all of the T12 fixtures and the incandescent lights in these areas with higher efficiency fluorescent T8 fixtures with electronic ballasts or compact fluorescent lamps.

The majority of the lights in the buildings #4 – 9 are older T12 fixtures with magnetic ballasts. The buildings #4 - 9 operates 24 hours a day, 7 days a week. Therefore, the lights in the inner spaces remain ON during the day and night. Similar to the buildings #1-3, these buildings also have a variety of incandescent and compact fluorescent light fixtures in the storage spaces, closets etc. It is recommended to replace all the T12 fixtures in the buildings #4-9.

This ECM includes retrofit of all T12 fixtures with T8 fixtures with electronic ballasts in the Meadowview Complex buildings #1 – 9 and the Center Core. 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. This ECM also includes maintenance savings through the reduced number of lamps replaced per year. The expected lamp life of a T8 lamp is approximately 30,000 burn-hours, in comparison to the existing T12 lamps which is approximately 20,000 burn-hours. The facility will need approximately 33% less lamps replaced per year for each one for one fixture replaced.

The ECM also includes replacement of any incandescent lamps with compact fluorescent lamps. The energy usage of an incandescent compared to a compact fluorescent is approximately 3 to 4 times greater. In addition to the energy savings, compact fluorescent fixtures burn-hours are 8 to 15 times longer than incandescent fixtures ranging from 6,000 to 15,000 burn-hours compared to incandescent fixtures ranging from 750 to 1000 burn-hours.

#### 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.

There are incentives available from NJ Smart Start<sup>®</sup> Program for these retrofits. Incentives are calculated as follows:

From the Smart Start Incentive appendix, the retrofit of a T-12 fixture to a T-5 or T-8 fixture warrants the following incentive: T-5 or T-8 (1-4 lamp) = \$15 per fixture.

SmartStart® Incentive = (# of 1–4 lamp fixtures × \$15) = 930 × \$15 = \$13,950

Replacement and Maintenance Savings are calculated as follows:

$Savings = (\text{reduction in lamps replaced per year}) \times (\text{repackment } \$ \text{ per lamp} + \text{Labor } \$ \text{ per lamp})$

$Savings = (169 \times \$2 \text{ per lamp} + \$5 \text{ per lamp}) = \$1,188$

Summary of lighting equipment upgrades in each building:

Building	EXISTING			PROPOSED		
	Lighting Power, kW	Lighting Energy, kWh/Yr	Annual Cost of Operation	Lighting Power, kW	Lighting Energy, kWh/Yr	Annual Cost of Operation
CC	19.3	51,976	5,302	16.4	46,643	4,758
#1	25.0	66,879	6,822	22.7	62,721	6,398
#2	17.0	42,282	4,313	15.9	39,465	4,025
#3	19.3	52,763	5,382	18.8	49,587	5,058
#4	21.1	79,329	13,248	12.7	48,836	8,156
#5	5.6	22,827	3,812	3.5	15,152	2,530
#6	14.1	53,263	8,895	8.3	32,120	5,364
#7	11.0	40,522	6,767	7.1	27,020	4,512
#8	20.1	67,655	11,298	12.3	44,050	7,356
#9	11.8	48,073	8,028	7.2	30,844	5,151
<b>Total</b>	<b>164.4</b>	<b>525,568</b>	<b>73,866</b>	<b>124.8</b>	<b>396,436</b>	<b>53,308</b>

Summary of energy, demand and maintenance savings, as well as the project costs and payback:

<b>SAVINGS</b>								
<b>Building</b>	<b>Demand Savings, kW</b>	<b>Energy Savings, kWh/Yr</b>	<b>Operating Cost Savings</b>	<b>Maint. Savings</b>	<b>Smart Start Incentives</b>	<b>Cost of Retrofit</b>	<b>Net Cost</b>	<b>Simple Payback</b>
CC	2.8	5,333	\$544	\$58	\$1,005	\$6,815	\$5,810	9.7
#1	2.3	4,158	\$424	\$47	\$1,170	\$7,835	\$6,665	14.1
#2	1.1	2,817	\$287	\$30	\$480	\$3,223	\$2,743	8.6
#3	0.6	3,176	\$324	\$37	\$420	\$2,800	\$2,380	6.6
#4	8.5	30,493	\$5,092	\$246	\$2,610	\$17,569	\$14,959	2.8
#5	2.1	7,675	\$1,282	\$66	\$840	\$5,858	\$5,018	3.7
#6	5.8	21,143	\$3,531	\$190	\$1,875	\$12,550	\$10,675	2.9
#7	4.0	13,502	\$2,255	\$150	\$1,620	\$11,012	\$9,392	3.9
#8	7.8	23,605	\$3,942	\$195	\$2,385	\$16,355	\$13,970	3.4
#9	4.6	17,229	\$2,877	\$169	\$1,545	\$10,329	\$8,784	2.9
<b>Total</b>	<b>39.5</b>	<b>129,132</b>	<b>\$20,559</b>	<b>\$1,188</b>	<b>\$13,950</b>	<b>\$94,345</b>	<b>\$80,395</b>	<b>3.7</b>

**Energy Savings Summary:**

<b>ECM #1 - ENERGY SAVINGS SUMMARY</b>	
<b>Installation Cost (\$):</b>	\$94,345
<b>NJ Smart Start Equipment Incentive (\$):</b>	\$11,480
<b>Net Installation Cost (\$):</b>	\$82,865
<b>Maintenance Savings (\$/Yr):</b>	\$1,188
<b>Energy Savings (\$/Yr):</b>	\$20,559
<b>Total Yearly Savings (\$/Yr):</b>	\$21,747
<b>Estimated ECM Lifetime (Yr):</b>	15
<b>Simple Payback</b>	3.8
<b>Simple Lifetime ROI</b>	293.6%
<b>Simple Lifetime Maintenance Savings</b>	\$17,820
<b>Simple Lifetime Savings</b>	\$326,199
<b>Internal Rate of Return (IRR)</b>	25%
<b>Net Present Value (NPV)</b>	\$176,744.08

## ECM #2: Lighting Controls Upgrade

### Description:

In some areas the lighting is left ON unnecessarily. In many cases the lights are left ON because of the inconvenience to manually switch lights off when a room is left ON or when a room is first occupied. This is common in rooms that are occupied for only short periods and only a few times per day. In some instances lights are left ON due to the misconception that it is better to keep the lights ON rather than to continuously switch lights ON and OFF. Although increased switching reduces lamp life, the energy savings outweigh the lamp replacement costs. The payback timeframe for when to turn the lights off is approximately two minutes. If the lights are expected to be off for at least a two minute interval, then it pays to shut them OFF.

Lighting controls come in many forms. Sometimes an additional switch is adequate to provide reduced lighting levels when full light output is not needed. Occupancy sensors detect motion and will switch the lights ON when the room is occupied. Occupancy sensors can either be mounted in place of a current wall switch, or on the ceiling to cover large areas. Photocell control senses light levels and turn off or reduce lights when there is adequate daylight. Photocells are mostly used outside, but are becoming more popular in energy-efficient interior lighting designs as well.

The U.S. Department of Energy sponsored a study to analyze energy savings achieved through various types of building system controls. The referenced savings is based on the “Advanced Sensors and Controls for Building Applications: Market Assessment and Potential R&D Pathways,” document posted for public use April 2005. The study has found that commercial buildings have the potential to achieve significant energy savings through the use of building controls. The average energy savings are as follows based on the report:

- Occupancy Sensors for Lighting Control - 20%.

Energy savings achieved for “Occupancy Sensors for Lighting Control” average 20%. Savings resulting from the implementation of this ECM for energy management controls are estimated to be 20% of the total light energy controlled by occupancy sensors. The estimated savings is below the average listed above due to the continuous occupancy nature of college educational facilities. The majority of the savings is expected to be after office hours when rooms are left with lights ON.

The ECM includes installation of ceiling mounted occupancy sensors or replacement of standard wall switches with sensors wall switches for individual all offices, class rooms, and bathrooms. Sensors shall be manufactured by Sensorswitch, Watt Stopper or equivalent. See the “Investment Grade Lighting Audit” appendix for details.

The **Investment Grade Lighting Audit Appendix** of this report includes the summary of lighting controls implemented in this ECM and outlines the estimated hours of operation, proposed controls, costs, savings, and payback periods. The calculations adjust the lighting power usage by 20% for all areas that include occupancy sensors.

**Energy Savings Calculations:**

$$\text{Energy Savings} = 20\% \times \text{Occupancy Sensored Light Energy (kWh/Yr)}$$

$$\text{Savings.} = \text{Energy Savings (kWh)} \times \text{Ave Elec Cost} \left( \frac{\$}{\text{kWh}} \right)$$

Installation cost per dual-technology sensor (Basis: Sensor switch or equivalent) is \$160/unit including material and labor.

From the NJ Smart Start appendix, the installation of a lighting control device warrants the following incentive: occupancy = \$20 per fixture.

<b>ENERGY SAVINGS</b>						
<b>Building</b>	<b>Energy Savings, kWh/Yr</b>	<b>Operating Cost Savings</b>	<b>Cost of Retrofit</b>	<b>Smart Start Incentives</b>	<b>Net Cost</b>	<b>Simple Payback</b>
CC	1,706	\$174	\$1,440	\$180	\$1,260	7.2
#1	2,008	\$205	\$1,920	\$240	\$1,680	8.2
#2	2,814	\$287	\$2,240	\$280	\$1,960	6.8
#3	1,974	\$201	\$1,600	\$200	\$1,400	7.0
#4	6,618	\$1,105	\$12,000	\$1,500	\$10,500	9.5
#5	479	\$80	\$1,280	\$160	\$1,120	14.0
#6	5,085	\$849	\$5,440	\$680	\$4,760	5.6
#7	1,252	\$209	\$800	\$100	\$700	3.3
#8	3,660	\$611	\$4,960	\$620	\$4,340	7.1
#9	4,710	\$786	\$5,600	\$700	\$4,900	6.2
<b>Total</b>	<b>30,306</b>	<b>\$4,508</b>	<b>\$37,280</b>	<b>\$4,660</b>	<b>\$32,620</b>	<b>7.2</b>

**Energy Savings Summary:**

<b>ECM #2 - ENERGY SAVINGS SUMMARY</b>	
<b>Installation Cost (\$):</b>	\$37,280
<b>NJ Smart Start Equipment Incentive (\$):</b>	\$4,660
<b>Net Installation Cost (\$):</b>	\$32,620
<b>Maintenance Savings (\$/Yr):</b>	\$0
<b>Energy Savings (\$/Yr):</b>	\$4,508
<b>Total Yearly Savings (\$/Yr):</b>	\$4,508
<b>Estimated ECM Lifetime (Yr):</b>	15
<b>Simple Payback</b>	7.2
<b>Simple Lifetime ROI</b>	107.3%
<b>Simple Lifetime Maintenance Savings</b>	\$0
<b>Simple Lifetime Savings</b>	\$67,627
<b>Internal Rate of Return (IRR)</b>	11%
<b>Net Present Value (NPV)</b>	\$21,202.02

**ECM #3: Replace Packaged Air Conditioning Units: Building #7, 8 & 9**

**Description:**

There are three (3) Carrier Weathermaker packaged, cooling only packaged air conditioners on grade near the buildings #7, 8 and 9. Each of these units feed basement offices in the corresponding building, which houses state and county offices. The units run during office hours only. All of these units are over 15 years old and surpassed their useful lifetime. The efficiencies of the existing units are below today’s standards for cooling. The units do not have functional air side economizers.

This ECM is based on one for one replacement of the existing units with higher efficiency units. The owner should have a professional engineer verify heating and cooling loads prior to moving forward with this ECM.

This ECM includes installation of three (3) high efficient cooling only packaged air conditioning units. The ECM calculations are based on Trane Impack™ Packaged Rooftop Units with R410 refrigerants, SEER 14 (EER 12) or equivalent.

Existing Full Load Cooling Hrs (Offices) = 800 hrs/yr.  
 New Full Load Cooling Hrs (Offices) = 680 hrs/yr.

(It is assumed that the units’ full load operating hours will decrease by 15% due to air side economizer functionality)

Average Cost of Electricity = \$0.167/kWh

Summary of the efficiency of the existing units:

ECM SUMMARY				
Unit Tag	Model	Cooling Capacity (Tons)	Current Efficiency, EER	Proposed Efficiency, EER
Bldg 7	Carrier Weathermaker	4	9	12
Bldg 8		4	9	12
Bldg 9		4	9	12

**Energy Savings Calculations:**

Cooling Savings for 4 Ton Unit Replacement:

$$\text{Energy Savings, kWh} = \frac{\text{Cooling (Tons)} \times 12,000 \frac{\text{BTU}}{\text{TonHr}}}{1000 \frac{\text{W}}{\text{kWh}}} \times \left( \frac{\text{Hours}_{\text{Existing}}}{\text{EER}_{\text{Existing}}} - \frac{\text{Hours}_{\text{New}}}{\text{EER}_{\text{New}}} \right)$$

$$\text{Energy Savings, kWh} = \frac{4 \text{ (Tons)} \times 12,000 \frac{\text{BTU}}{\text{TonHr}}}{1000 \frac{\text{W}}{\text{kWh}}} \times \left( \frac{800}{9} - \frac{680}{12} \right)$$

$$= 1,547 \text{ kWh}$$

$$\text{Demand Savings, kW} = \frac{\text{Energy Savings (kWh)}}{\text{Hours of Cooling}}$$

$$\text{Demand Savings, kW} = \frac{1,547 \text{ kWh}}{800 \text{ Hours}} = 1.9 \text{ kW}$$

$$\text{Cooling Cost Savings} = 1,547 \times 0.167 \left( \frac{\$}{\text{kWh}} \right) = \$258$$

Estimated cost of installation of a 4 Ton unit including demolition is \$4,970

Rebates and Incentives:

From the NJ Smart Start<sup>®</sup> Program appendix, the packaged unit replacement falls under the category “Electric Unitary HVAC” and warrants an incentive based on efficiency (SEER) at or above 14 for this type of systems. The program incentives are calculated as follows:

$$\text{SmartStart}^{\text{®}} \text{ Incentive} = (\text{CoolingTons} \times \$/\text{Ton Incentive})$$

Unitary HVAC and Split Systems:  
5.4 tons or less, minimum 14 SEER, \$92/ton

The calculations are carried out for the rest of the units and the results are tabulated in the table below.

<b>ENERGY SAVINGS CALCULATIONS</b>							
<b>Tag</b>	<b>Cooling Capacity (Tons)</b>	<b>Energy Savings kWh</b>	<b>Demand Savings kW</b>	<b>Cooling Cost Savings</b>	<b>Total Cost</b>	<b>Smart Start Incentives</b>	<b>Net Cost</b>
Bldg 7	4	1547	1.9	\$258	\$4,970	\$368	\$4,602
Bldg 8	4	1547	1.9	\$258	\$4,970	\$368	\$4,602
Bldg 9	4	1547	1.9	\$258	\$4,970	\$368	\$4,602
<b>Total</b>	<b>12</b>	<b>4640</b>	<b>5.8</b>	<b>\$775</b>	<b>\$14,910</b>	<b>\$1,104</b>	<b>\$13,806</b>

**Energy Savings Summary:**

<b>ECM #3 - ENERGY SAVINGS SUMMARY</b>	
<b>Installation Cost (\$):</b>	\$14,910
<b>NJ Smart Start Equipment Incentive (\$):</b>	\$1,104
<b>Net Installation Cost (\$):</b>	\$13,806
<b>Maintenance Savings (\$/Yr):</b>	\$0
<b>Energy Savings (\$/Yr):</b>	\$775
<b>Total Yearly Savings (\$/Yr):</b>	\$775
<b>Estimated ECM Lifetime (Yr):</b>	15
<b>Simple Payback</b>	17.8
<b>Simple Lifetime ROI</b>	-15.8%
<b>Simple Lifetime Maintenance Savings</b>	\$0
<b>Simple Lifetime Savings</b>	\$11,623
<b>Internal Rate of Return (IRR)</b>	-2%
<b>Net Present Value (NPV)</b>	<b>(\$4,555.53)</b>

**ECM #4: Replace Packaged Air Conditioning Units: Building #4 & 5**

**Description:**

There are three (3) American Standard packaged, cooling only packaged air conditioners on grade near buildings #4 and 5. These units feed Integrity House kitchen, dining room, group room and gym areas. The units run continuously during summer months as well as warmer days of the spring and fall. The units are over 15 years old and surpassed their useful lifetime. The efficiencies of the existing units are below today’s standards for cooling. In addition, current units do not have functional air side economizers.

This ECM is based on one for one replacement of the existing units with higher efficiency units. The owner should have a professional engineer verify heating and cooling loads prior to moving forward with this ECM.

This ECM includes installation of three (3) high efficient cooling only packaged air conditioning units. The ECM calculations are based on Trane Impack™ Packaged Rooftop Units with R410 refrigerants, SEER 14 (EER 12) or equivalent. Means Costworks software is used to estimate demolition and labor costs for a generic rooftop AC unit replacement.

Existing Full Load Cooling Hrs = 1600 hrs/yr.  
 New Full Load Cooling Hrs = 1360 hrs/yr.

(It is assumed that the units’ full load operating hours will decrease by 15% due to air side economizer functionality)

Average Cost of Electricity = \$0.167/kWh

Summary of the efficiency of the existing units:

<b>ECM SUMMARY</b>				
<b>Unit Tag</b>	<b>Model</b>	<b>Cooling Capacity (Tons)</b>	<b>Current Efficiency, EER</b>	<b>Proposed Efficiency, EER</b>
Integrity Dining #1	American Standard	5	10	12
Integrity Dining #2		5	10	12
Integrity Gym		4	10	12

**Energy Savings Calculations:**

Cooling Savings for 5 Ton Unit Replacement:

$$\text{Energy Savings, kWh} = \frac{\text{Cooling (Tons)} \times 12,000 \frac{\text{BTU}}{\text{TonHr}}}{1000 \frac{\text{W}}{\text{kWh}}} \times \left( \frac{\text{Hours}_{\text{Existing}}}{\text{EER}_{\text{Existing}}} - \frac{\text{Hours}_{\text{New}}}{\text{EER}_{\text{New}}} \right)$$

$$\begin{aligned} \text{Energy Savings, kWh} &= \frac{5 \text{ (Tons)} \times 12,000 \frac{\text{BTU}}{\text{TonHr}}}{1000 \frac{\text{W}}{\text{kWh}}} \times \left( \frac{1600}{10} - \frac{1360}{12} \right) \\ &= 2,800 \text{ kWh} \end{aligned}$$

$$\text{Demand Savings, kW} = \frac{\text{Energy Savings (kWh)}}{\text{Hours of Cooling}}$$

$$\text{Demand Savings, kW} = \frac{2,800 \text{ kWh}}{1600 \text{ Hours}} = 1.8 \text{ kW}$$

$$\text{Cooling Cost Savings} = 2,800 \times 0.167 \left( \frac{\$}{\text{kWh}} \right) = \$468$$

Estimated cost of installation of a 5 Ton unit including demolition is \$5,795

Rebates and Incentives:

From the NJ Smart Start® Program appendix, the packaged unit replacement falls under the category “Electric Unitary HVAC” and warrants an incentive based on efficiency (SEER) at or above 14 for this type of systems. The program incentives are calculated as follows:

$$\text{SmartStart}^{\text{®}} \text{ Incentive} = (\text{CoolingTons} \times \$/\text{Ton Incentive})$$

Unitary HVAC and Split Systems:  
5.4 tons or less, minimum 14 SEER, \$92/ton

The calculations are carried out for the rest of the units and the results are tabulated in the table below.

ENERGY SAVINGS CALCULATIONS							
Tag	Cooling Capacity (Tons)	Energy Savings kWh	Demand Savings kW	Cooling Cost Savings	Total Cost	Smart Start Incentives	Net Cost
Integrity Dining #1	5	2800	1.8	\$468	\$5,795	\$460	\$5,335
Integrity Dining #2	5	2800	1.8	\$468	\$5,795	\$460	\$5,335
Integrity Gym	4	2240	1.4	\$374	\$4,970	\$368	\$4,602
<b>Total</b>	<b>14</b>	<b>7840</b>	<b>4.9</b>	<b>\$1,309</b>	<b>\$16,560</b>	<b>\$1,288</b>	<b>\$15,272</b>

**Energy Savings Summary:**

<b>ECM #4 - ENERGY SAVINGS SUMMARY</b>	
<b>Installation Cost (\$):</b>	\$16,560
<b>NJ Smart Start Equipment Incentive (\$):</b>	\$1,288
<b>Net Installation Cost (\$):</b>	\$15,272
<b>Maintenance Savings (\$/Yr):</b>	\$0
<b>Energy Savings (\$/Yr):</b>	\$1,309
<b>Total Yearly Savings (\$/Yr):</b>	\$1,309
<b>Estimated ECM Lifetime (Yr):</b>	15
<b>Simple Payback</b>	11.7
<b>Simple Lifetime ROI</b>	28.6%
<b>Simple Lifetime Maintenance Savings</b>	\$0
<b>Simple Lifetime Savings</b>	\$19,639
<b>Internal Rate of Return (IRR)</b>	3%
<b>Net Present Value (NPV)</b>	\$358.10

**ECM #5: Replace Split Air Conditioning Units (Buildings CC, #1, 2 and 3)****Description:**

The air conditioning is provided to the building #1, 2, 3 and the Center Core with split units. The split system units have 7.5, 10 and 15 Ton capacities. The air handling units are located in seven (7) mechanical rooms, which are on each floor of each building. The units are over 15 years old and have surpassed their useful lifetime. The efficiencies of the units are below today's standards for high efficient HVAC equipments. In addition, current units are not setup with air side economizers. CEG recommends replacing the split systems with high efficiency (EER 11 or higher) units with air side economizers and environment friendly R410a refrigerant. Below is a summary of existing units.

SUMMARY OF UNITS		
Unit	Quantity	Location
7.5 Ton	3	Center Core (1) Bldg 1 (2)
10 Ton	7	Bldg 2 (4) Bldg 3 (3)
15 Ton	2	Bldg 1 (1) Bldg 3 (1)

This ECM includes installation of twelve (12) high efficient cooling only split air conditioning systems. The ECM calculations are based on Trane Odyssey Split Air Conditioning Systems with R410 refrigerants or equivalent. The inlets of these units need to be ducted to the outside with mixing dampers so that the outside air enthalpy based economizer functionality can be utilized during cooler seasons. In addition, a relief fan should be installed in order to exhaust return air when the system is in economizer mode.

This ECM is based on one for one replacement of the existing units with higher efficiency units. The owner should have a professional engineer verify heating and cooling loads prior to moving forward with this ECM.

Existing Full Load Cooling Hrs = 800 hrs/yr.  
Full Load Cooling Hrs (with economizer) = 680 hrs/yr.

(It is assumed that the units' full load operating hours will decrease by 15% due to air side economizer functionality)

Average Cost of Electricity = \$0.102/kWh

**Energy Savings Calculations:**Cooling Savings for 7.5 Ton Unit Replacement:

$$\text{Energy Savings, kWh} = \frac{\text{Cooling (Tons)} \times 12,000 \frac{\text{BTU}}{\text{TonHr}}}{1000 \frac{\text{W}}{\text{kWh}}} \times \left( \frac{\text{Hours}_{\text{Existing}}}{\text{EER}_{\text{Existing}}} - \frac{\text{Hours}_{\text{New}}}{\text{EER}_{\text{New}}} \right)$$

$$\text{Energy Savings, kWh} = \frac{7.5 \text{ (Tons)} \times 12,000 \frac{\text{BTU}}{\text{TonHr}}}{1000 \frac{\text{W}}{\text{kWh}}} \times \left( \frac{800}{9} - \frac{680}{11.2} \right)$$

= 2,536 kWh

$$\text{Demand Savings, kW} = \frac{\text{Energy Savings (kWh)}}{\text{Hours of Cooling}}$$

$$\text{Demand Savings, kW} = \frac{2,536 \text{ kWh}}{800 \text{ Hours}} = 3.2 \text{ kW}$$

$$\text{Cooling Cost Savings} = 2,536 \times 0.102 \left( \frac{\$}{\text{kWh}} \right) = \$259$$

The calculations are carried out for the rest of the units and the results are tabulated in the table below.

<b>ENERGY SAVINGS CALCULATIONS</b>				
<b>Unit</b>	<b>Quantity</b>	<b>Energy Savings, kWh</b>	<b>Demand Savings, kW</b>	<b>Cooling Cost Savings</b>
7.5 Ton	3	7,607	9.5	\$776
10 Ton	7	23,667	29.6	\$2,414
15 Ton	2	10,143	12.7	\$1,035
<b>Total</b>		<b>41,417</b>	<b>51.8</b>	<b>\$4,225</b>

Estimated total cost of this ECM is \$142,000, which includes replacement of the existing systems with the proposed systems as well as the modifications to ductwork to enable outside air economizer functionality by bringing 100% outside air to each air handling unit and installing relief fans in each mechanical room for return air exhaust.

Incremental Analysis

The above calculations include modifications to the mechanical room ductwork to enable the air conditioning systems to bring 100% outside air during the cooler season. Estimated cost of this

modification is approximately \$21,000 for the seven (7) mechanical rooms and creates additional savings by operating the units without mechanical cooling during cooler seasons. An incremental analysis is performed to calculate benefit of this additional cost, which is summarized below.

<b>INCREMENTAL ANALYSIS</b>						
<b>Unit</b>	<b>Quantity</b>	<b>Savings with Economizer</b>	<b>Savings without Economizer*</b>	<b>Incremental Savings</b>	<b>Incremental Cost</b>	<b>Payback</b>
7.5 Ton	3	\$776	\$481	\$295	\$21,000	13.1
10 Ton	7	\$2,414	\$1,496	\$918		
15 Ton	2	\$1,035	\$641	\$393		
<b>Total</b>		<b>\$4,225</b>	<b>\$2,618</b>	<b>\$1,607</b>	<b>\$21,000</b>	<b>13.1</b>

#### Energy Savings Summary:

<b>ECM #5 - ENERGY SAVINGS SUMMARY</b>	
<b>Installation Cost (\$):</b>	\$141,960
<b>NJ Smart Start Equipment Incentive (\$):</b>	\$0
<b>Net Installation Cost (\$):</b>	\$141,960
<b>Maintenance Savings (\$/Yr):</b>	\$0
<b>Energy Savings (\$/Yr):</b>	\$4,225
<b>Total Yearly Savings (\$/Yr):</b>	\$4,225
<b>Estimated ECM Lifetime (Yr):</b>	15
<b>Simple Payback</b>	33.6
<b>Simple Lifetime ROI</b>	-55.4%
<b>Simple Lifetime Maintenance Savings</b>	\$0
<b>Simple Lifetime Savings</b>	\$63,368
<b>Internal Rate of Return (IRR)</b>	-9%
<b>Net Present Value (NPV)</b>	<b>(\$91,528.19)</b>

Note: ECM #5 Energy Savings Summary is based on the total construction cost including the unit replacement.

## ECM #6: Replace Window Air Conditioning Units

### Description:

Meadowview complex buildings #4 to 9 perimeter rooms are conditioned with various sizes of window air conditioners.

While some of the units are new, most of the units are significantly old and inefficient. CEG recommends replacing any of the units which has efficiency less than 9 EER with a new Energy Star rated unit.

This ECM replaces old and inefficient window air conditioners with new, Energy Star rated units.

Qualifying product list can be found at Energy Star website at: [www.energystar.gov/products](http://www.energystar.gov/products)

### Energy Savings Calculations:

Calculation for an 8,000 BTU/H unit:

Estimated Full Load Hours of Unit: 1,600/Year

$$\text{Energy Savings, kWh} = \text{Cooling Capacity, } \frac{\text{BTU}}{\text{Hr}} \times \left( \frac{1}{\text{EER}_{\text{Old}}} - \frac{1}{\text{EER}_{\text{New}}} \right) \times \frac{\text{Full Load Hours}}{1000 \frac{\text{W}}{\text{kWh}}}$$

$$\text{Energy Savings, kWh} = 8,000 \frac{\text{BTU}}{\text{Hr}} \times \left( \frac{1}{9} - \frac{1}{11} \right) \times 1,600 \text{ Hr}$$

$$\text{Energy Savings, kWh} = 259 \text{ kWh}$$

$$\text{Demand Savings, kW} = \frac{\text{Energy Savings (kWh)}}{\text{Hours of Cooling}}$$

$$\text{Demand Savings, kW} = \frac{259 \text{ kWh}}{1600 \text{ Hours}} = 0.16 \text{ kW}$$

$$\text{Cooling Cost Savings} = 259 \times 0.167 \left( \frac{\$}{\text{kWh}} \right) = \$43$$

Approximate installed cost of an 8,000 BTU/H window unit is \$200

Energy savings calculations are shown below for a variety of capacities:

<b>ENERGY SAVINGS CALCULATIONS</b>								
<b>Capacity BTU/H</b>	<b>Full Load Hours</b>	<b>Current Effcy, EER</b>	<b>New Effcy, EER</b>	<b>Energy Savings, kWh</b>	<b>Demand Savings, kW</b>	<b>Cooling Cost Savings</b>	<b>Net Installed Cost</b>	<b>Payback</b>
5,200	1,600	9	11	168	0.11	\$28	\$160	5.7
6,000	1,600	9	11	194	0.12	\$32	\$180	5.6
8,000	1,600	9	11	259	0.16	\$43	\$200	4.6
10,000	1,600	9	11	323	0.20	\$54	\$280	5.2
12,000	1,600	9	11	388	0.24	\$65	\$350	5.4
18,000	1,600	9	11	582	0.36	\$97	\$500	5.1
<b>Average</b>	<b>1,600</b>	<b>9</b>	<b>11</b>	<b>319</b>	<b>0.20</b>	<b>\$53</b>	<b>\$278</b>	<b>5.3</b>

It should be noted that this audit was performed during the winter when most of the window A/C units were removed. Therefore an actual number of low efficiency window units in the facility are not known. The above table can be utilized to evaluate each individual replacement.

#### Energy Savings Summary:

<b>ECM #6 - ENERGY SAVINGS SUMMARY</b>	
<b>Installation Cost (\$):</b>	\$278
<b>NJ Smart Start Equipment Incentive (\$):</b>	\$0
<b>Net Installation Cost (\$):</b>	\$278
<b>Maintenance Savings (\$/Yr):</b>	\$0
<b>Energy Savings (\$/Yr):</b>	\$53
<b>Total Yearly Savings (\$/Yr):</b>	\$53
<b>Estimated ECM Lifetime (Yr):</b>	15
<b>Simple Payback</b>	5.2
<b>Simple Lifetime ROI</b>	187.0%
<b>Simple Lifetime Maintenance Savings</b>	0
<b>Simple Lifetime Savings</b>	\$799
<b>Internal Rate of Return (IRR)</b>	17%
<b>Net Present Value (NPV)</b>	\$357.48

**ECM #7: Install Ductless Split Air Conditioners (Buildings 4 – 9)****Description:**

The air conditioning is provided to the buildings #4 - 9 via various size window air conditioning units. The smaller spaces such as offices are conditioned with smaller window units with capacities up to 10,000 BTU/H, while larger spaces such as the day rooms are conditioned with larger (18,000 to 36,000 BTU/Hr) units. Most of the larger window A/C units in the day rooms are older units with standard efficiencies. In addition, most of these units are attached to the windows in a permanent fashion such that they cannot be easily removed from the windows during winter months. This causes infiltration of significant amount of unconditioned cold air into the spaces in the heating season. An alternative method of air conditioning for the day rooms is the ductless split air conditioning systems. Typical system of this type is comprised of a single or multiple indoor fan coil unit(s) and an outdoor condensing unit. Efficiencies of typical systems vary between SEER 13 - 20.

This ECM includes replacing two (2) 18,000BTU/H window air conditioning units in a typical day room with a single wall mounted, 36,000 BTU/H ductless split air conditioning system. The basis for this ECM is Daikin SkyAir Series split system with wall mounted indoor unit; model number FTXS36HVJU - RXS36HVJU. The replacement installation is based on capacity of an existing day room. The owner should have a professional engineer verify heating and cooling loads prior to moving forward with this ECM.

**Energy Savings Calculations:**Cooling Savings in a typical day room:

Existing Window Unit Capacity:	$2 \times 18,000 \frac{BTU}{Hr} = 36,000 \frac{BTU}{Hr}$
Existing Window unit Efficiency (SEER):	11 (Estimated based on 9.5 EER)
Proposed System Efficiency (SEER):	16
Total Cooling Hours:	4000 Hours (Approximately 6 Months 24/7)
Cost of Electricity in Buildings #4 - 9:	\$0.167/kWh

$$\text{Energy Savings, kWh} = \text{Cooling Capacity, } \frac{BTU}{Hr} \times \left( \frac{1}{SEER_{Old}} - \frac{1}{SEER_{New}} \right) \times \frac{\text{Operation Hours}}{1000 \frac{W}{kWh}}$$

$$\text{Energy Savings, kWh} = 36,000 \frac{BTU}{Hr} \times \left( \frac{1}{11} - \frac{1}{16} \right) \times 4,000 \text{ Hr}$$

$$\text{Energy Savings, kWh} = 4,202 \text{ kWh (per day room)}$$

$$\text{Demand Savings, kW} = \frac{\text{Energy Savings (kWh)}}{\text{Hours of Cooling}}$$

$$\text{Demand Savings, kW} = \frac{4,202 \text{ kWh}}{4000 \text{ Hours}} = 1.05 \text{ kW (per Day room)}$$

$$\text{Cooling Cost Savings} = 4,202 \times 0.167 \left( \frac{\$}{\text{kWh}} \right) = \$702 \text{ (per Day room)}$$

Approximate installed cost for a 36,000 BTU/H ductless split system is \$4,500

#### Rebates and Incentives:

From the NJ Smart Start<sup>®</sup> Program appendix, the packaged unit replacement falls under the category “Electric Unitary HVAC” and warrants an incentive based on efficiency (SEER) at or above 14 for this type of systems. The program incentives are calculated as follows:

$$\text{SmartStart}^{\text{®}} \text{ Incentive} = (\text{CoolingTons} \times \$/\text{Ton Incentive})$$

Unitary HVAC and Split Systems:

5.4 tons or less, minimum 14 SEER, \$92/ton

There are twelve (12) day rooms in the buildings #4 to 9. Therefore, below table can be tabulated for the total cost and the savings for this ECM.

$$\text{Total Energy Savings} = 12 \times 4,538 \text{ kWh} = 50,424 \text{ kWh}$$

$$\text{Total Energy Cost Savings} = 12 \times \$702 = \$8,421$$

$$\text{Total Demand Savings} = 12 \times 1.05 \text{ kW} = 12.6 \text{ kW}$$

$$\text{Total Incentives} = 12 \times 3 \text{ Tons} \times \$92/\text{Ton} = \$3,312$$

**Energy Savings Summary:**

<b>ECM #7 - ENERGY SAVINGS SUMMARY</b>	
<b>Installation Cost (\$):</b>	\$54,000
<b>NJ Smart Start Equipment Incentive (\$):</b>	\$3,312
<b>Net Installation Cost (\$):</b>	\$50,688
<b>Maintenance Savings (\$/Yr):</b>	\$0
<b>Energy Savings (\$/Yr):</b>	\$8,421
<b>Total Yearly Savings (\$/Yr):</b>	\$8,421
<b>Estimated ECM Lifetime (Yr):</b>	15
<b>Simple Payback</b>	6.0
<b>Simple Lifetime ROI</b>	149.2%
<b>Simple Lifetime Maintenance Savings</b>	\$0
<b>Simple Lifetime Savings</b>	\$126,313
<b>Internal Rate of Return (IRR)</b>	14%
<b>Net Present Value (NPV)</b>	\$49,839.54

**ECM #8: Kitchen Exhaust Hood Controls (Integrity House Kitchen)****Description:**

The Integrity House kitchen is equipped with an exhaust hood for the cooking ranges. The size of the range hood is 5'x16'. The kitchen exhaust fan is controlled manually by a switch on the kitchen hood.

Standard kitchen hood controls consist of switches and relays that interlock the kitchen grease hood exhaust fan(s) with the 100% outside air unit that provides make-up air for this system. Normal occupation of kitchen hood system is limited to occupied hours. During the site inspection it was noted that the kitchen exhaust fan runs for approximately 14 hours a day. Based on the operation, there is great potential energy savings through better controls of the hood exhaust fan and make-up air unit. It should be noted that make up air is supplied via transfer air from the food line area and adjacent corridors.

This energy conservation measure involves installing a Melink Kitchen Hood Variable Air Volume Controller; variable frequency drive on the kitchen hood exhaust fan; and turn off all the kitchen hood exhaust systems when the kitchen is closed. When the cooking appliances are turned on, the hood exhaust fan speed will increase based on the hood exhaust temperature. During actual cooking, the kitchen hood exhaust fan increases to 100% speed until the smoke/vapor is removed. Energy savings are also realized when the kitchen equipment is operating at less than full load due to minimal cooking operations. During these times the fan speed decreases, removing only the necessary amount of air, saving energy.

**Energy Calculations Summary:**

Detailed calculations for the proposed kitchen hood control system can be found in Kitchen Exhaust Controls Calculation Appendix. It is pertinent to note that the calculation assumes the exhaust fans and make-up air unit are manually turned off for approximately 6 hours per day

Installed cost of the kitchen hood control system is \$27,055. The calculated energy savings equals approximately \$3,986 per year.

**Energy Savings Summary:**

<b>ECM #8 - ENERGY SAVINGS SUMMARY</b>	
<b>Installation Cost (\$):</b>	\$27,055
<b>NJ Smart Start Equipment Incentive (\$):</b>	\$0
<b>Net Installation Cost (\$):</b>	\$27,055
<b>Maintenance Savings (\$/Yr):</b>	\$0
<b>Energy Savings (\$/Yr):</b>	\$3,986
<b>Total Yearly Savings (\$/Yr):</b>	\$3,986
<b>Estimated ECM Lifetime (Yr):</b>	15
<b>Simple Payback</b>	6.8
<b>Simple Lifetime ROI</b>	121.0%
<b>Simple Lifetime Maintenance Savings</b>	\$0
<b>Simple Lifetime Savings</b>	\$59,788
<b>Internal Rate of Return (IRR)</b>	12%
<b>Net Present Value (NPV)</b>	\$20,527.75

## ECM #9: Variable Speed Domestic Water Pumping

### Description:

Domestic Water is supplied to the campus buildings via a set of three (3) domestic water pumps. The pump skid is fairly old and the pump motors are standard efficiency motors. The pump set operates 24/7. Modern domestic water booster pump systems utilize variable frequency drives and advanced controls in order to vary flow based on the facility water demand.

This ECM replaces the existing domestic cold water booster pump set with a new variable flow domestic booster pump set. The new pump set includes new pumps, premium efficiency motors, variable frequency drives and controls.

### Energy Calculations Summary:

It is assumed that currently one of the domestic water pump runs continuously for 8,500 hours per year and two additional pump run for 5000 hours and 3000 hours based on operating characteristics obtained during site survey. Detailed calculations for the proposed system can be found in **Variable Speed Domestic Water Booster Pump Calculations Appendix**.

Installed cost of a Variable Speed Domestic Water Pumping system is estimated to be \$92,353 based on a recent quote. The calculated energy savings equals approximately \$11,780 per year.

### Energy Savings Summary:

<b>ECM #9 - ENERGY SAVINGS SUMMARY</b>	
<b>Installation Cost (\$):</b>	\$92,353
<b>NJ Smart Start Equipment Incentive (\$):</b>	\$0
<b>Net Installation Cost (\$):</b>	\$92,353
<b>Maintenance Savings (\$/Yr):</b>	\$0
<b>Energy Savings (\$/Yr):</b>	\$11,780
<b>Total Yearly Savings (\$/Yr):</b>	\$11,780
<b>Estimated ECM Lifetime (Yr):</b>	15
<b>Simple Payback</b>	7.8
<b>Simple Lifetime ROI</b>	91.3%
<b>Simple Lifetime Maintenance Savings</b>	\$0
<b>Simple Lifetime Savings</b>	\$176,699
<b>Internal Rate of Return (IRR)</b>	9%
<b>Net Present Value (NPV)</b>	\$48,275.33

## VIII. RENEWABLE/DISTRIBUTED ENERGY MEASURES

Globally, renewable energy has become a priority affecting international and domestic energy policy. The State of New Jersey has taken a proactive approach, and has recently adopted in its Energy Master Plan a goal of 30% renewable energy by 2020. To help reach this goal New Jersey created the Office of Clean Energy under the direction of the Board of Public Utilities and instituted a Renewable Energy Incentive Program to provide additional funding to private and public entities for installing qualified renewable technologies. A renewable energy source can greatly reduce a building's operating expenses while producing clean environmentally friendly energy. CEG has assessed the feasibility of installing renewable energy measures (REM) for the Hudson County Meadowview Complex utilizing renewable technologies and concluded that there is not a potential for solar energy or wind energy at the buildings mentioned in this report. The following are the conclusions that have been drawn:

- *Solar Energy Analysis:* The Meadowview Buildings #1-9 are interconnected buildings with consecutive high and low roofs. The architecture of the roof of the buildings and the surrounding trees limit the available roof space for a solar PV panel installation.
- Even though there are small (Approximately 100SF) roof spaces facing south on each building, installation of multiple small arrays would require multiple inverters and large amounts of wiring. The minimal production of this size arrays is not worth the investment cost for the Owner. Therefore, a solar photovoltaic system is not recommended for the Meadowview Buildings #1-9.
- The Archives building (#15) roof houses the rooftop air conditioning units. In addition, the building roof is shaded by the next building. For these reasons, a solar panel installation on the roof of the Archives building is not recommended.
- *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 the Meadowview Campus Buildings poor candidates for wind energy production.

## **IX. ENERGY PURCHASING AND PROCUREMENT STRATEGY**

### **Load Profile:**

Load Profile analysis was performed to determine the seasonal energy usage of the facility. Irregularities in the load profile will indicate potential problems within the facility. Consequently based on the profile a recommendation will be made to remedy the irregularity in energy usage. For this report, the facility's energy consumption data was gathered in table format and plotted in graph form to create the load profile. Refer to The Electric and Natural Gas Usage Profiles included within this report to reference the respective electricity and natural gas usage load profiles.

#### Electricity:

The Total Electric Usage Profile of the Meadowview Complex demonstrates a fairly flat electrical load profile. The summer (May-August) demonstrates increased consumption typical to air conditioning load as exemplified by the various types of packaged air conditioning units, split system AC units, chillers, and window air conditioning units throughout the campus. The monthly energy consumption peaks around August when the space cooling load is the largest. Most of the cooling is achieved in the campus buildings via air cooled equipment. Air cooled air conditioners are significantly less efficient than water cooled equipment, which increases the electric power demand of the facility as well as the consumption. There is a fairly steady yearlong electric load most likely attributable to the 24 hour operation of many of the buildings in the campus, such as the County Psychiatric Hospital, Juvenile Detention Center and the Rehabilitation Programs.

#### Natural Gas:

The Natural Gas Usage Profile demonstrates a somewhat typical heating load profile. An increase in consumption is observed October through May during the standard heating season. However, significant gas consumption remains throughout year. This is because the majority of the facilities in this complex operates 24/7 and requires natural gas for hot water production and cooking. Heating and domestic hot water are supplied to the entire complex by a central steam boiler plant. The plant provides hot water to a large nursing home complex, not owned by the county. This, along with the other facility's constant need for domestic hot water, creates a large baseline natural gas load for the campus.

### **Tariff Analysis:**

#### Electricity:

The facility receives electric service through Public Service Electric and Gas Company (PSE&G) on two different rate structures. Buildings #4-9 receives the service on Large Power and Lighting Service (LPLS) rate schedules. LPLS is the secondary service to the facilities between 150 - 750 kW demand ranges. The service for the rest of the campus buildings receive the service on Large

Power and Lighting Service (LPLP) rate schedules, which is the secondary service for the facilities with electrical demand above 750KW.

For electric supply (generation), the customer can elect to use the utility's Basic Generation Service (BGS) or a Third Party Supplier (TPS). This facility uses a Third Party Supplier for the buildings #1-3, 10, 12, 15 and the Basic Generation Service (BGS) from the PSE&G for buildings #4-9. They pay according to the BGS default service for only buildings #4-9 and the TPS for the rest of the campus. The Delivery Service includes the following charges: Annual Demand Charge (kW Demand all months), Summer Demand Charge (kW Demand June – Sept), Distribution Kilowatt-hour Charge (kWh Usage), as well as other supplemental charges.

#### Natural Gas:

This facility receives natural gas service through Public Service Electric and Gas Company (PSE&G) on GSG (General Service Gas) and TSG-NF (Non-Firm Transportation Gas Service) rates. GSG is a firm delivery service (higher level of delivery) for general purposes where customer does not qualify for RSG (residential) and customer's usage does not exceed 3,000 therms in any month. Customers may either purchase gas supply from a Third Party (TPS) or from Public Services Basic Gas Supply Service (BGSS) default service as detailed in the rate schedule. Currently this facility receives the commodity supply from PSEG at BGSS default rates. This service is used at the Meadowview buildings for low consumption purposes such as cooking and laundry. The service described above has a much higher priority of delivery, based on the pipeline capacity. The "firm" service is the highest priority, and does not get interrupted.

TSG-NF is an interruptible delivery for general purposes where the maximum requirement for interruptible gas is not less than 150 Therms per hour and where the customer has the installed capability to utilize an alternate type of fuel, except as provided for in Special Provisions. Customers may either purchase gas supply from a Third Party Supplier (TPS) or from Public Service's Basic Gas Supply Service default service as detailed in this rate schedule. This service is used mainly at the central steam plant, which delivers steam to the various buildings throughout the campus. Currently this facility receives the commodity supply from PSEG at BGSS default rates. The service described above has a lower priority of delivery, based on the pipeline capacity. If the gas demand in the pipeline increases, this facility can switch to oil as primary fuel for the boilers because the plant is capable of utilizing oil as boiler fuel.

Both of these rate schedules have a Delivery Charge Mechanism which includes: Balancing Charge, Societal Benefits Charge, Realignment Adjustment Charge, Margin Adjustment Charge, RGGI Charge and Customer Account Service Charge. The customer can elect to have the Supply Charge (Commodity Charge) serviced through the utility or by a Third Party Supplier (TPS).

Note: Should the TPS not deliver, the customer may receive service from PSE&G under Emergency Sales Service. Emergency Sales Service carries an extremely high penalty cost of service. Should the TPS un-deliver to the utility on behalf of the client, the utility will automatically supply this default service to the client. Imbalances occur when Third Party Suppliers are used to supply natural gas, full-delivery is not made, and when a new supplier is contracted or the customer returns to the utility. It is important when utilizing a Third Party

Supplier, that an experienced regional supplier is used. Otherwise, imbalances can occur, jeopardizing economics and scheduling.

**Recommendations:**

CEG recommends a global approach that will be consistent with all facilities within the County. One area for potential improvement is seen in the electric costs. The average price per kWh (kilowatt hour) for the electrical service to the buildings #4-9 is \$0.11/kWh, (this is the average “price to compare” if the client intends to shop for energy) based on the default BGS supply charges. The price per kWh (kilowatt hour) for the rest of the campus is \$0.69/kWh based on the default TPS supply charges (This is the average “price to compare”). It is recommended to shop for pricing based on the combined load profile for all buildings owned by the County. The more diversified the load patterns, the more advantageous the load profile becomes.

The load factor for this facility is slightly below 50% which will allow for Hudson County Correctional Center to procure fairly competitive pricing. The higher the load factor, the more advantageous. Although many additional factors play a role in energy procurement, having a load factor above 50% is beneficial.

The average price per dekatherm for natural gas is \$ 7.20 / dth (dth, dekatherm is the common unit of measure). Energy commodities are among the most volatile of all commodities, however at this point and time, energy is competitive. Based on this facility’s average annual natural gas costs Hudson County Correctional Center is already receiving extremely competitive natural gas costs. It is recommended that the County receive further advisement on these prices through an energy advisor. The County should also consider procuring energy (natural gas) through alternative supply sources as well.

It is recommended that the County schedule a meeting with the current utility providers to review their utility charges and current tariff structures for electricity and natural gas. This meeting would provide insight regarding alternative procurement options that are currently available. Through its meeting with the Local Distribution Company (LDC), the municipality can learn more about the competitive supply process. Hudson County can acquire a list of approved Third Party Suppliers from the New Jersey Board of Public Utilities website at [www.nj.gov/bpu](http://www.nj.gov/bpu). Hudson County should consider using a billing-auditing service to further analyze the utility invoices, manage the data and use the information for ongoing demand-side management projects. Furthermore, special attention should be given to credit mechanisms, imbalances, balancing charges and commodity charges when meeting with the utility representative. The County should ask the utility representative about alternative billing options, such as consolidated billing when utilizing the service of a Third Party Supplier. Finally, if the supplier for energy (natural gas) is changed, closely monitor balancing, particularly when the contract is close to termination. This could be performed with the aid of an “energy advisor”.

## X. INSTALLATION FUNDING OPTIONS

CEG has reviewed various funding options for the facility owner to utilize in subsidizing the costs for installing the energy conservation measures noted within this report. Below are a few alternative funding methods:

- i. *Energy Savings Improvement Program (ESIP)* – Public Law 2009, Chapter 4 authorizes government entities to make energy related improvements to their facilities and pay for the costs using the value of energy savings that result from the improvements. The “Energy Savings Improvement Program (ESIP)” law provides a flexible approach that can allow all government agencies in New Jersey to improve and reduce energy usage with minimal expenditure of new financial resources.
- ii. *Municipal Bonds* – Municipal bonds are a bond issued by a city or other local government, or their agencies. Potential issuers of municipal bonds include cities, counties, redevelopment agencies, school districts, publicly owned airports and seaports, and any other governmental entity (or group of governments) below the state level. Municipal bonds may be general obligations of the issuer or secured by specified revenues. Interest income received by holders of municipal bonds is often exempt from the federal income tax and from the income tax of the state in which they are issued, although municipal bonds issued for certain purposes may not be tax exempt.
- iii. *Power Purchase Agreement* – Public Law 2008, Chapter 3 authorizes contractor of up to fifteen (15) years for contracts commonly known as “power purchase agreements.” These are programs where the contracting unit (Owner) procures a contract for, in most cases, a third party to install, maintain, and own a renewable energy system. These renewable energy systems are typically solar panels, windmills or other systems that create renewable energy. In exchange for the third party’s work of installing, maintaining and owning the renewable energy system, the contracting unit (Owner) agrees to purchase the power generated by the renewable energy system from the third party at agreed upon energy rates.
- iv. *Pay For Performance* – The New Jersey Smart Start Pay for Performance program includes incentives based on savings resulted from implemented ECMs. The program is available for all buildings that were audited as part of the NJ Clean Energy’s Local Government Energy Audit Program. The facility’s participation in the program is assisted by an approved program partner. An “Energy Reduction Plan” is created with the facility and approved partner to show at least 15% reduction in the building’s current energy use. Multiple energy conservation measures implemented together are applicable toward the total savings of at least 15%. No more than 50% of the total energy savings can result from lighting upgrades / changes.

Total incentive is capped at 50% of the project cost. The program savings is broken down into three benchmarks; Energy Reduction Plan, Project Implementation, and Measurement and Verification. Each step provides additional incentives as the energy reduction project continues. The benchmark incentives are as follows:

1. Energy Reduction Plan – Upon completion of an energy reduction plan by an approved program partner, the incentive will grant \$0.10 per square foot between \$5,000 and \$50,000, and not to exceed 50% of the facility’s annual energy expense. (Benchmark #1 is not provided in addition to the local government energy audit program incentive.)
2. Project Implementation – Upon installation of the recommended measures along with the “Substantial Completion Construction Report,” the incentive will grant savings per KWH or Therm based on the program’s rates. Minimum saving must be 15%. (Example \$0.11 / kWh for 15% savings, \$0.12/ kWh for 17% savings, ... and \$1.10 / Therm for 15% savings, \$1.20 / Therm for 17% saving, ...) Increased incentives result from projected savings above 15%.
3. Measurement and Verification – Upon verification 12 months after implementation of all recommended measures, that actual savings have been achieved, based on a completed verification report, the incentive will grant additional savings per kWh or Therm based on the program’s rates. Minimum savings must be 15%. (Example \$0.07 / kWh for 15% savings, \$0.08/ kWh for 17% savings, ... and \$0.70 / Therm for 15% savings, \$0.80 / Therm for 17% saving, ...) Increased incentives result from verified savings above 15%.

CEG recommends the Owner review the use of the above-listed funding options in addition to utilizing their standard method of financing for facilities upgrades in order to fund the proposed energy conservation measures.

## **XI. 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. Confirm that outside air economizers on the rooftop units and air handling units are functioning properly to take advantage of free cooling and avoid excess outside air during occupied periods.
- F. Installing thermostatic valves on the radiators in the overheated spaces.
- G. Check steam traps and make sure they are not leaking. Develop an annual steam trap check and replacement program.

In addition to the recommendations above, implementing Retro-Commissioning would be beneficial for the buildings in this facility. Retro-Commissioning is a means to verify your current equipment is operating at its designed efficiency, capacity, airflow, and overall performance. Retro-Commissioning provides valuable insight into systems or components not performing correctly or efficiently. The commissioning process defines the original system design parameters and recommends revisions to the current system operating characteristics.

## XII. ENERGY AUDIT ASSUMPTIONS

The assumptions utilized in this energy audit include but are not limited to following:

- A. Cost Estimates noted within this report are based on industry accepted costing data such as RS Means<sup>TM</sup> Cost Data, contractor pricing and engineering estimates. All cost estimates for this level of auditing are +/- 20%. Prevailing wage rates for the specified region has been utilized to calculate installation costs. The cost estimates indicated within this audit should be utilized by the owner for prioritizing further project development post the energy audit. Project development would include investment grade auditing and detailed engineering.
- B. Energy savings noted within this audit are calculated utilizing industry standard procedures and accepted engineering assumptions. For this level of auditing, energy savings are not guaranteed.
- C. Information gathering for each facility is strongly based on interviews with operations personnel. Information dependent on verbal feedback is used for calculation assumptions including but not limited to the following:
  - a. operating hours
  - b. equipment type
  - c. control strategies
  - d. scheduling
- D. Information contained within the major equipment list is based on the existing owner documentation where available (drawings, O&M manuals, etc.). If existing owner documentation is not available, catalog information is utilized to populate the required information.
- E. Equipment incentives and energy credits are based on current pricing and status of rebate programs. Rebate availability is dependent on the individual program funding and applicability.
- F. Equipment (HVAC, Plumbing, Electrical, & Lighting) noted within an ECM recommendation is strictly noted as a **basis for calculation** of energy savings. The owner should use this equipment information as a benchmark when pursuing further investment grade project development and detailed engineering for specific energy conservation measures.
- G. Utility bill annual averages are utilized for calculation of all energy costs unless otherwise noted. Accuracy of the utility energy usage and costs are based on the information provided. Utility information including usage and costs is estimated where incomplete data is provided.

**ECM COST & SAVINGS BREAKDOWN**  
CONCORD ENGINEERING GROUP

Hudson County - Meadowview Complex Buildings 1 - 9 and Center Core

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	NET PRESENT VALUE (NPV)
		MATERIAL	LABOR	REBATES, INCENTIVES	NET INSTALLATION COST	ENERGY	MAINT. / SREC	TOTAL		(Yearly Saving * ECM Lifetime)	(Yearly Maint Saving * 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	\$37,738	\$56,607	\$13,950	\$80,395	\$20,559	\$1,188	\$21,747	25	\$543,665	\$29,700	576.2%	3.7	26.98%	\$298,281.26
ECM #2	Lighting Controls Upgrade	\$14,912	\$22,368	\$4,660	\$32,620	\$4,508	\$0	\$4,508	25	\$112,712	\$0	245.5%	7.2	13.20%	\$45,886.94
ECM #3	Replace Packaged AC Units: Bldg #7, 8 & 9	\$14,910	\$0	\$1,104	\$13,806	\$775	\$0	\$775	15	\$11,623	\$0	-15.8%	17.8	-2.08%	(\$4,555.53)
ECM #4	Replace Packaged AC Units: Bldg #4 & 5	\$16,560	\$0	\$1,288	\$15,272	\$1,309	\$0	\$1,309	15	\$19,639	\$0	28.6%	11.7	3.32%	\$358.10
ECM #5	Replace Split AC Units Bldg #1-3 & add economizer	\$141,960	\$0	\$0	\$141,960	\$4,225	\$0	\$4,225	15	\$63,368	\$0	-55.4%	33.6	-8.72%	(\$91,528.19)
ECM #6	Replace Window AC Units	\$278	\$0	\$0	\$278	\$53	\$0	\$53	15	\$799	\$0	187.0%	5.2	17.41%	\$357.48
ECM #7	Install Ductless Split A/C Units (Bldg #4-9)	\$36,000	\$18,000	\$3,312	\$50,688	\$8,421	\$0	\$8,421	15	\$126,313	\$0	149.2%	6.0	14.41%	\$49,839.54
ECM #8	Kitchen Exhaust Hood Controls (Integrity, Inc.)	\$27,055	\$0	\$0	\$27,055	\$3,986	\$0	\$3,986	15	\$59,788	\$0	121.0%	6.8	12.06%	\$20,527.75
ECM #9	Variable Speed Domestic Water Pumping	\$50,753	\$41,600	\$0	\$92,353	\$11,780	\$0	\$11,780	20	\$235,599	\$0	155.1%	7.8	11.24%	\$82,902.98

- Notes: 1) The variable C<sub>n</sub> 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 C<sub>n</sub> is the cash flow during each period.



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## 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, 2010:

### **Electric Chillers**

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

Energy Efficiency must comply with ASHRAE 90.1-2004

### **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 - \$93 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 90.1-2004

### **Ground Source Heat Pumps**

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

Energy Efficiency must comply with ASHRAE 90.1-2004

### 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%

### Variable Frequency Drives

Variable Air Volume	\$65 - \$155 per hp
Chilled-Water Pumps	\$60 per hp
Compressors	\$5,250 to \$12,500 per drive

### Natural Gas Water Heating

Gas Water Heaters ≤ 50 gallons	\$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	\$15 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 (1-2 lamps) \$30 per fixture (3-4 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	\$25 per fixture
LED Exit Signs	\$10 - \$20 per fixture
T-5 and T-8 High Bay Fixtures	\$16 - \$284 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
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 90.1-2004 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%

**Portfolio Manager “Statement of Energy Performance”**

An Energy Performance Rating cannot be established for the Campus or individual buildings. The Energy Star program does not have enough bin data available to calculate a campus wide Energy Performance Rating at this time. Also, individual building ratings cannot be established due to the design of the Campus wide electric and gas distribution system. One year of utility data must be entered for each building or facility, since reliable building energy meters do not exist, this approach cannot be taken.

# MAJOR EQUIPMENT LIST

## Concord Engineering Group

### "Meadowview Complex - Center Core Building"

#### Liquid Chillers

Tag	Chiller - 1		
Type	Air Cooled Reciprocating Chiller		
Location	Outdoor / Ground Mounted		
Area Served	Center Core Building		
Manufacturer	McQuay		
Qty.	1		
Model #	AGR070AS12-ER10		
Serial #	STNU011000012		
Nominal Tons	67.5		
Refrigerant	R134A		
Service	Regular		
EWT	55		
LWT	45		
GPM	~100		
Efficiency (EER)	~10.5		
Volt / Phase	208 / 3		
Approx. Age	9		
ASHRAE Service Life	20		
Remaining Life	11		
Notes			

**MAJOR EQUIPMENT LIST****Concord Engineering Group****"Meadowview Complex - Center Core Building"****Air Handling Units**

<b>Tag</b>	<b>AHU - 1</b>	<b>AHU - 2</b>	
<b>Location</b>	Mechanical Room	Mechanical Room	
<b>Area Served</b>	Center Core west and center offices		
<b>Manufacturer</b>	McQuay	McQuay	
<b>Qty</b>	1	1	
<b>Model #</b>	CAH006FDAC	CAH025FVA	
<b>Serial #</b>	FBOU010900487	FBOU010900488	
<b>Cooling Coil</b>	Chilled Water	Chilled Water	
<b>Cooling Capacity, Mbh</b>	136	285	
<b>Supply Flow, CFM</b>	2,000	10,000	
<b>Heating Type</b>	Hot Water	None	
<b>Input (MBh)</b>	100	-	
<b>Output (MBh)</b>	-	-	
<b>Heating Eff. (%)</b>	-	-	
<b>Ecomonizer</b>	Air side 100% OA	100% OA	
<b>Supply Motor HP</b>	10 HP	5 HP	
<b>Supply Motor Efficiency</b>	Premium	Premium	
<b>Volts / Phase</b>	208 / 3	208 / 3	
<b>Approx. Age</b>	9	9	
<b>ASHRAE Service Life</b>	15	15	
<b>Remaining Life</b>	6	6	
<b>Notes</b>	Return air through plenum. Relief fan for plenum exhaust.	Return air through plenum. Relief fan for plenum exhaust.	

**MAJOR EQUIPMENT LIST****Concord Engineering Group****"Meadowview Complex - Center Core Building"****Split A/C Systems****Air Handling Unit**

<b>Tag</b>	<b>Bldg #1 Unit-C</b>		
<b>Location</b>	Custodial Room		
<b>Area Served</b>	Centercore east offices		
<b>Manufacturer</b>	York		
<b>Qty</b>	1		
<b>Model #</b>	K4EU090A33A		
<b>Serial #</b>	NHBS015954		
<b>Cooling Coil</b>	DX		
<b>Cooling Capacity, Mbh</b>	90		
<b>Supply Flow, CFM</b>	~2000		
<b>Heating Type</b>	None		
<b>Input (MBh)</b>	-		
<b>Ecomonizer</b>	None		
<b>Supply Motor HP</b>	1.5HP		
<b>Supply Motor Efficiency</b>	Standard		
<b>Volts / Phase</b>	208/3		
<b>Approx. Age</b>	17		
<b>ASHRAE Service Life</b>	15		
<b>Remaining Life</b>	(2)		
<b>Notes</b>			

**Condensing Units**

<b>Qty</b>	1		
<b>Location</b>	Grade		
<b>Manufacturer</b>	York		
<b>Model #</b>	H4CE090A46A		
<b>Serial #</b>	NFBM041383		
<b>Cooling Capacity, MBH</b>	90		
<b>Cooling Eff., EER</b>	-		
<b>Refrigerant</b>	R22		
<b>Volts / Phase / Amps</b>	460/3		
<b>Approx Age</b>	17		
<b>ASHRAE Service Life</b>	15		
<b>Remaining Life</b>	(2)		
<b>Comments</b>			

# MAJOR EQUIPMENT LIST

## Concord Engineering Group

### "Meadowview Complex - Center Core Building"

#### Supplemental AC Units

Tag	Portable AC		
<b>Unit Type</b>	Portable Network Cooling Equipment		
<b>Location</b>	Server Room		
<b>Area Served</b>	Server Room		
<b>Manufacturer</b>	MovinCool		
<b>Qty.</b>	1		
<b>Model #</b>	ClassicPlus 14		
<b>Serial #</b>	0706 2327140		
<b>Cooling Capacity, BTU/h</b>	13200		
<b>Dehumidifier Capacity</b>	-		
<b>Air Flow, CFM</b>	~600		
<b>Refrigerant</b>	R22		
<b>Volts / Phase</b>	120/1		
<b>Approx. Age</b>	2		
<b>ASHRAE Service Life</b>	15		
<b>Remaining Life</b>	13		
<b>Notes</b>			

**MAJOR EQUIPMENT LIST**  
**Concord Engineering Group**  
**"Meadowview Complex - Center Core Building"**

**Pumps**

<b>Tag</b>	<b>Chilled Water Pumps</b>	<b>Hot Water Pumps</b>	<b>Hot Water Pumps</b>
<b>Location</b>	Outside Ground	Centercore	Stoke Room and B2D Room
<b>Area Served</b>	Air Handling Units	Perimeter Baseboard	Perimeter Baseboard
<b>Manufacturer</b>	Armstrong	-	-
<b>Qty.</b>	2	2	4
<b>Model #</b>	4280	-	-
<b>Serial #</b>	443070	-	-
<b>HP</b>	3	1 HP Each	2 x 1HP, 2 x 3/4HP
<b>RPM</b>	1,730	1,750	1,750
<b>GPM</b>	~100	-	-
<b>Ft. Hd</b>	-	-	-
<b>Motor Frame Size</b>	182JM	-	-
<b>Motor Efficiency</b>	85.50%	Standard	Standard
<b>Volts / Phase</b>	208/3	230/460	230/460
<b>Approx. Age</b>	5	5	5
<b>ASHRAE Service Life</b>	10	10	10
<b>Remaining Life</b>	5	5	5
<b>Notes</b>	Insulation partially missing on the pumps and the piping	Pumps are rebuilt as needed	

**MAJOR EQUIPMENT LIST****Concord Engineering Group****"Meadowview Complex - Building #1"****Pumps**

<b>Hot Water Line Pumps</b>			
<b>Tag</b>			
<b>Location</b>	Pump Room #3		
<b>Area Served</b>	Building #1 Perimeter Baseboard		
<b>Manufacturer</b>	Taco		
<b>Qty.</b>	2		
<b>Model #</b>	-		
<b>Serial #</b>	-		
<b>HP</b>	1 HP Each		
<b>RPM</b>	1,750		
<b>GPM</b>	-		
<b>Ft. Hd</b>	-		
<b>Motor Frame Size</b>	-		
<b>Motor Efficiency</b>	Standard		
<b>Volts / Phase</b>	230/460		
<b>Approx. Age</b>	5		
<b>ASHRAE Service Life</b>	10		
<b>Remaining Life</b>	5		
<b>Notes</b>	The hot water pipe insulation missing in various sections.		

**MAJOR EQUIPMENT LIST****Concord Engineering Group****"Meadowview Complex - Building #1"****Split A/C Systems****Air Handling Unit**

<b>Tag</b>	<b>Unit A</b>	<b>Unit B</b>	<b>Unit D</b>
<b>Location</b>	First Floor MER	First Floor MER	Second Floor MER
<b>Area Served</b>	First Floor Offices	First Floor Offices	Second Floor Offices
<b>Manufacturer</b>	York	York	York
<b>Qty</b>	1	1	1
<b>Model #</b>	K4EU090A33A	K4EU090A33A	K1EU180A33A
<b>Serial #</b>	NFBS015955	NFBS015952	NEBS014255
<b>Cooling Coil</b>	Direct Expansion	Direct Expansion	Direct Expansion
<b>Cooling Capacity, Mbh</b>	90	90	180
<b>Supply Flow, CFM</b>	~3000	~3000	6,000
<b>Heating Type</b>	-	-	-
<b>Input (MBh)</b>	-	-	-
<b>Ecomonizer</b>	None	None	None
<b>Supply Motor HP</b>	1.5	2	3
<b>Supply Motor Efficiency</b>	Standard	Standard	Standard
<b>Volts / Phase</b>	460/3	460/3	460/3
<b>Approx. Age</b>	17	17	17
<b>ASHRAE Service Life</b>	15	15	15
<b>Remaining Life</b>	(2)	(2)	(2)
<b>Notes</b>			

**Condensing Units**

<b>Qty</b>	2		1
<b>Location</b>	Grade		Grade
<b>Manufacturer</b>	York		York
<b>Model #</b>	H4CE090A46A	H4CE090A46A	H1CA150A46D
<b>Serial #</b>	NFBM041393	NFBM041379	NEBM029244
<b>Cooling Capacity, MBH</b>	90	90	150
<b>Cooling Eff., EER</b>	~9	~9	~9
<b>Refrigerant</b>	R22		
<b>Volts / Phase / Amps</b>	460/3		
<b>Approx Age</b>	17		
<b>ASHRAE Service Life</b>	15		
<b>Remaining Life</b>	(2)		
<b>Comments</b>			

## MAJOR EQUIPMENT LIST

### Concord Engineering Group "Meadowview Complex - Building #2"

#### **Pumps**

Tag	Hot Water Pumps	Domestic Water Booster Pump-Set	
<b>Location</b>	Pump Room #2	Water Pressure Room	
<b>Area Served</b>	Building #2 Perimeter Baseboard	Buildings 1-9, Center Core	
<b>Manufacturer</b>	Taco	Ironheart	Ironheart
<b>Qty.</b>	2	1	2
<b>Model #</b>	-	-	-
<b>Serial #</b>	-	-	-
<b>HP</b>	1 HP & 3/4 HP	20 HP	20 HP
<b>RPM</b>	1,750	1,750	1,750
<b>GPM</b>	-	-	-
<b>Ft. Hd</b>	-	-	-
<b>Motor Frame Size</b>	-	256JM	256JM
<b>Motor Efficiency</b>	-	Pump #1: 88.5%	Pump #2: 88.5%
<b>Volts / Phase</b>	230	460/3	460/3
<b>Approx. Age</b>	5	15	5
<b>ASHRAE Service Life</b>	10	20	20
<b>Remaining Life</b>	5	5	15
<b>Notes</b>	The hot water pipes in the pump room needs insulation	Pumps sequence based on pressure. Two of the pumps are newer. All of the pumps are standard efficiency pumps	

**MAJOR EQUIPMENT LIST****Concord Engineering Group  
"Meadowview Complex - Building #2"****Split A/C Systems****Air Handling Unit**

<b>Tag</b>	<b>Unit A, B</b>	<b>Unit C, D</b>	
<b>Location</b>	First Floor MER	First Floor MER	
<b>Area Served</b>	First Floor Offices	First Floor Offices	
<b>Manufacturer</b>	York	York	
<b>Qty</b>	2	2	
<b>Model #</b>	K3EU120A33B	K3EU120A33B	
<b>Serial #</b>	NBDS003742, NBDS003739	NBDS003737, NBDS003738	
<b>Cooling Coil</b>	Direct Expansion	Direct Expansion	
<b>Cooling Capacity, Mbh</b>	120	120	
<b>Supply Flow, CFM</b>	4,000	4,000	
<b>Heating Type</b>	Electric	Electric	
<b>Input (MBh)</b>	~25kW	~25kW	
<b>Ecomonizer</b>	None	None	
<b>Supply Motor HP</b>	2	2	
<b>Supply Motor Efficiency</b>	Standard	Standard	
<b>Volts / Phase</b>	460/3	460/3	
<b>Approx. Age</b>	17	17	
<b>ASHRAE Service Life</b>	15	15	
<b>Remaining Life</b>	(2)	(2)	
<b>Notes</b>	Electric heat disconnected		

**Condensing Units**

<b>Qty</b>	3	1
<b>Location</b>	Grade	Grade
<b>Manufacturer</b>	York	York
<b>Model #</b>	H3CE120A46A, HA120C00A4AAA1A,	H1CE150A46A
<b>Serial #</b>	N0G6657793, NCMM026144, NH0M070151	NH0M070151
<b>Cooling Capacity, MBH</b>	120	150
<b>Cooling Eff., EER</b>		
<b>Refrigerant</b>	R22	R22
<b>Volts / Phase / Amps</b>	460/3	460/3
<b>Approx Age</b>	5	15
<b>ASHRAE Service Life</b>	15	15
<b>Remaining Life</b>	10	0
<b>Comments</b>		Older unit

## MAJOR EQUIPMENT LIST

### Concord Engineering Group "Meadowview Complex - Building #2"

#### Air Compressor

<b>Tag</b>	-		
<b>Location</b>	Basement		
<b>Area Served</b>	Machine Shop		
<b>Manufacturer</b>	Ingersoll Rand		
<b>Qty.</b>	1		
<b>Model #</b>	2340		
<b>Serial #</b>	23555		
<b>HP</b>	3		
<b>Pressure</b>	100		
<b>Capacity</b>	50		
<b>Volts / Phase</b>	12		
<b>FLA</b>	-		
<b>Approx. Age</b>	1		
<b>ASHRAE Service Life</b>	20		
<b>Remaining Life</b>	19		
<b>Notes</b>	Relatively new unit. Low usage		

# MAJOR EQUIPMENT LIST

## Concord Engineering Group "Meadowview Complex - Building #3"

### **Pumps**

<b>Hot Water Line Pumps</b>			
<b>Tag</b>			
<b>Location</b>	Pump Room #1		
<b>Area Served</b>	Building #3 Perimeter Baseboard		
<b>Manufacturer</b>	Taco		
<b>Qty.</b>	2		
<b>Model #</b>	-		
<b>Serial #</b>	-		
<b>HP</b>	1 HP Each		
<b>RPM</b>	1,750		
<b>GPM</b>	-		
<b>Ft. Hd</b>	-		
<b>Motor Frame Size</b>	-		
<b>Motor Efficiency</b>	Standard		
<b>Volts / Phase</b>	230/460		
<b>Approx. Age</b>	5		
<b>ASHRAE Service Life</b>	10		
<b>Remaining Life</b>	5		
<b>Notes</b>			

**MAJOR EQUIPMENT LIST****Concord Engineering Group  
"Meadowview Complex - Building #3"****Split A/C Systems****Air Handling Unit**

<b>Tag</b>	<b>Unit A, B &amp; C</b>	<b>Unit D</b>	<b>Attic AHU</b>
<b>Location</b>	Mechanical Room	Mechanical Room	Storage near Attic
<b>Area Served</b>	1st & 2nd Floors	2nd Floor	Architects Addition
<b>Manufacturer</b>	York	York	Airtherm MFG
<b>Qty</b>	3	1	1
<b>Model #</b>	-	K3EU180A33A	36 AVX
<b>Serial #</b>	-	NBJS001030	9700220
<b>Cooling Coil</b>	Direct Expansion	Direct Expansion	Direct Expansion
<b>Cooling Capacity, Mbh</b>	120,000	180,000	36,000
<b>Supply Flow, CFM</b>	~ 4000	6,000	~1200
<b>Heating Type</b>	Electric Coil	Electric Coil	Hot Water
<b>Input (MBh)</b>	Unit D: 26 kW	Unit D: 36 kW	-
<b>Ecomonizer</b>	None	None	None
<b>Supply Motor HP</b>	~1 HP	~2 HP	Fractional
<b>Volts / Phase</b>	460/3	460 / 3	120 / 1
<b>Approx. Age</b>	12	11	5
<b>ASHRAE Service Life</b>	15	15	15
<b>Remaining Life</b>	3	4	10
<b>Notes</b>	All units: Electric preheat disconnected	Outside Air Damper linkage disconnected.	

**Condensing Units**

<b>Qty</b>	3	1	1
<b>Location</b>	Grade	Grade	Grade
<b>Manufacturer</b>	York	York	Carrier
<b>Model #</b>	H2CE120A46D	H3CE180A46A	38CKC042550
<b>Serial #</b>	NGHM099659, NGHM088348, NKGM124038	NAHM007841	4403E)5722
<b>Cooling Capacity, MBH</b>	120	180	38
<b>Cooling Eff., EER</b>			
<b>Refrigerant</b>	R22	R22	R22
<b>Volts / Phase / Amps</b>	460/3	460/3	208/3
<b>Approx Age</b>	12	11	5
<b>ASHRAE Service Life</b>	15	15	15
<b>Remaining Life</b>	3	4	10
<b>Comments</b>			

**MAJOR EQUIPMENT LIST****Concord Engineering Group  
"Meadowview Complex - Building #4"****Packaged Air Conditioning Units**

<b>Tag</b>	-	-	
<b>Location</b>	Ground mounted outside building #4		
<b>Area Served</b>	Integrity House Kitchen & Dining Room		
<b>Manufacturer</b>	American Standard		
<b>Qty</b>	2		
<b>Model #</b>	TCC060F300AB		
<b>Serial #</b>	G27165329	G27165326	
<b>Supply Flow, CFM</b>	2000		
<b>Min. Outside Air, CFM</b>	20% (Estimated)		
<b>Cooling Coil</b>	DX		
<b>Cooling Capacity, Tons</b>	5		
<b>Cooling Efficiency, EER</b>	9.3		
<b>Heating Type</b>	Electric, 7.5 kW		
<b>Supply Fan HP</b>	1/2		
<b>Volts / Phase</b>	208/1		
<b>Approx. Age</b>	18		
<b>ASHRAE Service Life</b>	15		
<b>Remaining Life</b>	(3)		
<b>Notes</b>	Units are old and near the end of their useful life		

**MAJOR EQUIPMENT LIST****Concord Engineering Group  
"Meadowview Complex - Building #5"****Packaged Air Conditioning Units**

<b>Tag</b>	-		
<b>Location</b>	Outside building #5		
<b>Area Served</b>	Gym & Group Home		
<b>Manufacturer</b>	American Standard		
<b>Qty</b>	1		
<b>Model #</b>	TCC048F300AB		
<b>Serial #</b>	G25163606		
<b>Supply Flow, CFM</b>	1600		
<b>Min. Outside Air, CFM</b>	20% (Estimated)		
<b>Cooling Coil</b>	DX		
<b>Cooling Capacity, Tons</b>	4		
<b>Cooling Efficiency, EER</b>	10		
<b>Heating Type</b>	Electric, 7.5 kW		
<b>Supply Fan HP</b>	1/2		
<b>Volts / Phase</b>	208/1		
<b>Approx. Age</b>	18		
<b>ASHRAE Service Life</b>	15		
<b>Remaining Life</b>	(3)		
<b>Notes</b>	Unit is old		

## MAJOR EQUIPMENT LIST

### Concord Engineering Group "Meadowview Complex - Building #6"

#### Pumps

Tag	Hot Water Pumps		
<b>Location</b>	Pump Room		
<b>Area Served</b>	Building #8 Perimeter Baseboard		
<b>Manufacturer</b>	Taco		
<b>Qty.</b>	2		
<b>Model #</b>	-		
<b>Serial #</b>	-		
<b>HP</b>	10 HP		
<b>RPM</b>	1,750		
<b>GPM</b>	-		
<b>Ft. Hd</b>	-		
<b>Motor Frame Size</b>	215T		
<b>Motor Efficiency</b>	85.5%		
<b>Volts / Phase</b>	230/460		
<b>Approx. Age</b>	5		
<b>ASHRAE Service Life</b>	20		
<b>Remaining Life</b>	15		
<b>Notes</b>	Hot water pipe insulation partly missing.		

**MAJOR EQUIPMENT LIST**

**Concord Engineering Group**  
**"Meadowview Complex - Building #7"**

**Split A/C Systems****Air Handling Unit**

<b>Tag</b>	<b>Small Split</b>		
<b>Location</b>	Ceiling		
<b>Area Served</b>	Offices in basement		
<b>Manufacturer</b>	York		
<b>Qty</b>	1		
<b>Model #</b>	-		
<b>Serial #</b>	-		
<b>Cooling Coil</b>	DX		
<b>Cooling Capacity, Mbh</b>	42		
<b>Supply Flow, CFM</b>	1400		
<b>Heating Type</b>	None		
<b>Input (MBh)</b>	-		
<b>Ecomonizer</b>	None		
<b>Supply Motor HP</b>	Fractional		
<b>Supply Motor Efficiency</b>	Standard		
<b>Volts / Phase</b>	208/1		
<b>Approx. Age</b>	10		
<b>ASHRAE Service Life</b>	15		
<b>Remaining Life</b>	5		
<b>Notes</b>			

**Condensing Units**

<b>Qty</b>	1		
<b>Location</b>	Grade		
<b>Manufacturer</b>	York		
<b>Model #</b>	AC042X1021A		
<b>Serial #</b>	WDLM031185		
<b>Cooling Capacity, MBH</b>	42		
<b>Cooling Eff., EER</b>	~10		
<b>Refrigerant</b>	R22		
<b>Volts / Phase / Amps</b>	208/3		
<b>Approx Age</b>	10		
<b>ASHRAE Service Life</b>	15		
<b>Remaining Life</b>	10		
<b>Comments</b>			

**MAJOR EQUIPMENT LIST****Concord Engineering Group  
"Meadowview Complex - Building #7"****Packaged Air Conditioning Units**

<b>Tag</b>	-		
<b>Location</b>	Outside building #7		
<b>Area Served</b>	Basement		
<b>Manufacturer</b>	Carrier		
<b>Qty</b>	1		
<b>Model #</b>	50LJ005520		
<b>Serial #</b>	Not legible		
<b>Supply Flow, CFM</b>	1600		
<b>Min. Outside Air, CFM</b>	20% (Estimated)		
<b>Cooling Coil</b>	DX		
<b>Cooling Capacity, Tons</b>	4		
<b>Cooling Efficiency, EER</b>	8.5		
<b>Heating Type</b>	Electric		
<b>Supply Fan HP</b>	1/2		
<b>Volts / Phase</b>	208/1		
<b>Approx. Age</b>	15		
<b>ASHRAE Service Life</b>	15		
<b>Remaining Life</b>	0		
<b>Notes</b>	Unit is old.		

# MAJOR EQUIPMENT LIST

## Concord Engineering Group "Meadowview Complex - Building #7"

### Pumps

Tag	Hot Water Pumps		
Location	Pump Room		
Area Served	Building #7 Perimeter Baseboard		
Manufacturer	Taco		
Qty.	2		
Model #	-		
Serial #	-		
HP	1HP & 3/4 HP		
RPM	1,750		
GPM	-		
Ft. Hd	-		
Motor Frame Size	-		
Motor Efficiency	-		
Volts / Phase	230/460		
Approx. Age	5		
ASHRAE Service Life	10		
Remaining Life	5		
Notes			

**MAJOR EQUIPMENT LIST****Concord Engineering Group  
"Meadowview Complex - Building #8"****Packaged Air Conditioning Units**

<b>Tag</b>	-		
<b>Location</b>	Outside building #8		
<b>Area Served</b>	Basement		
<b>Manufacturer</b>	Carrier		
<b>Qty</b>	1		
<b>Model #</b>	50LJ005520		
<b>Serial #</b>	Not legible		
<b>Supply Flow, CFM</b>	1600		
<b>Min. Outside Air, CFM</b>	20% (Estimated)		
<b>Cooling Coil</b>	DX		
<b>Cooling Capacity (Tons)</b>	4		
<b>Cooling Efficiency (EER)</b>	8.95		
<b>Heating Type</b>	Electric		
<b>Supply Fan HP</b>	1/2		
<b>Volts / Phase</b>	208/1		
<b>Approx. Age</b>	15		
<b>ASHRAE Service Life</b>	15		
<b>Remaining Life</b>	0		
<b>Notes</b>	Unit is old		

## MAJOR EQUIPMENT LIST

### Concord Engineering Group "Meadowview Complex - Building #8"

#### Pumps

Tag	Hot Water Pumps		
Location	Pump Room		
Area Served	line pump for building perimeter baseboard		
Manufacturer	Taco		
Qty.	2		
Model #	-		
Serial #	-		
HP	3/4 HP		
RPM	1,750		
GPM	-		
Ft. Hd	-		
Motor Frame Size	-		
Motor Efficiency	-		
Volts / Phase	230/460		
Approx. Age	5		
ASHRAE Service Life	10		
Remaining Life	5		
Notes	-		

**MAJOR EQUIPMENT LIST****Concord Engineering Group  
"Meadowview Complex - Building #9"****Packaged Air Conditioning Units**

<b>Tag</b>	-		
<b>Location</b>	Outside building #9		
<b>Area Served</b>	Basement		
<b>Manufacturer</b>	Carrier		
<b>Qty</b>	1		
<b>Model #</b>	50LJ005520		
<b>Serial #</b>	1493G51074		
<b>Supply Flow, CFM</b>	1600		
<b>Min. Outside Air, CFM</b>	20% (Estimated)		
<b>Cooling Coil</b>	DX		
<b>Cooling Capacity (Tons)</b>	4		
<b>Cooling Efficiency (EER)</b>	8.95		
<b>Heating Type</b>	Electric		
<b>Supply Fan HP</b>	1/2		
<b>Volts / Phase</b>	208/1		
<b>Approx. Age</b>	15		
<b>ASHRAE Service Life</b>	15		
<b>Remaining Life</b>	0		
<b>Notes</b>	"Through the wall" installation		

## MAJOR EQUIPMENT LIST

### Concord Engineering Group "Meadowview Complex - Building #9"

#### **Pumps**

Tag	Steam to HW Converter	Hot Water Main Loop Pumps	
<b>Location</b>	Pump Room #7	Pump Room #7	
<b>Area Served</b>	Heating Hot Water Generator	Main HW Loop for the Campus	
<b>Manufacturer</b>	Taco	Taco	Taco
<b>Qty.</b>	2	1	1
<b>Model #</b>	-	-	-
<b>Serial #</b>	-	-	-
<b>HP</b>	1 HP & 3/4 HP	50	50
<b>RPM</b>	1,750	1,770	1,760
<b>GPM</b>	-	-	-
<b>Ft. Hd</b>	-	-	-
<b>Motor Frame Size</b>	-	M2543T	M2543T
<b>Motor Efficiency</b>	Standard	93%	91.7%
<b>Volts / Phase</b>	230	460/3	460/3
<b>Approx. Age</b>	5	5	5
<b>ASHRAE Service Life</b>	20	20	20
<b>Remaining Life</b>	15	15	15
<b>Notes</b>			

#### **Condensate Pumps**

Tag	Pressure Powered Condensate Pump		
<b>Location</b>	Pump Room #7		
<b>Area Served</b>	Steam Converter		
<b>Manufacturer</b>	Sprirax Sarco		
<b>Qty.</b>	2		
<b>Model #</b>	-		
<b>Serial #</b>	-		
<b>GPM</b>	-		
<b>Approx. Age</b>	10		
<b>ASHRAE Service Life</b>	15		
<b>Remaining Life</b>	5		
<b>Notes</b>	Tag not legible. Equipment in appeared to be in good condition with no leaks.		

# MAJOR EQUIPMENT LIST

## Concord Engineering Group "Meadowview Complex - Building #9"

### Heat Exchangers

<b>Tag</b>	<b>Steam to HW Converter</b>		
<b>Location</b>	Pump Room #7		
<b>Area Served</b>	Heating Hot Water Generator		
<b>Manufacturer</b>	-		
<b>Qty</b>	2		
<b>Model #</b>	-		
<b>Serial #</b>	-		
<b>Input (MBh)</b>	-		
<b>Recovery Gal/h</b>	-		
<b>Capacity (Gal)</b>	-		
<b>Efficiency (%)</b>	-		
<b>Fuel</b>	None		
<b>Tube Surface Area (sqft)</b>	-		
<b>Water (GPM)</b>	-		
<b>Steam (lb/hr)</b>	-		
<b>Working pressure</b>	150		
<b>Test Pressure</b>	-		
<b>Approx. Age</b>	15		
<b>ASHRAE Service Life</b>	24		
<b>Remaining Life</b>	9		
<b>Notes</b>	Converter for heating hot water. Limited information		

**MAJOR EQUIPMENT LIST****Concord Engineering Group****"Meadowview Complex - Building #15 - Archives"****Rooftop Air Conditioning Units**

Tag	AC - 1	AC - 2	AC - 3
Location	Roof	Roof	Roof
Area Served	Main Vault	Records Storage	Records Staging
Manufacturer	Trane	Trane	Trane
Model #	TCD048C30CBD	TCD060C30CBD	TCD060C30CBD
Serial #	R40104029D	R40104007D	R40104034D
Supply Flow, CFM	1200	1530	1895
Min. Outside Air, CFM	240	310	380
Cooling Coil	DX	DX	DX
Cooling Capacity, Tons	4	5	5
Cooling Efficiency, EER	10	10	10
Heating Type	-	-	-
Supply Fan HP	1	1.5	2
Exhaust Fan HP	-	-	-
Volts / Phase	208/3	208/3	208/3
Approx. Age	13	13	13
ASHRAE Service Life	15	15	15
Remaining Life	2	2	2
Notes			

Tag	AC - 4	AC - 5	AC - 6
Location	Roof	Roof	Roof
Area Served	Records Storage	1st Floor Interior	1st Floor Perimeter
Manufacturer	Trane	Trane	Trane
Model #	N/A	TCD048C30CBD	TCD150C30CCA
Serial #	N/A	R40104040D	R41100572D
Supply Flow, CFM	4500	1815	3670
Min. Outside Air, CFM	920	500	900
Cooling Coil	DX	DX	DX
Cooling Capacity, Tons	15	4	12.5
Cooling Efficiency, EER	11	10	11
Heating Type	-	-	-
Supply Fan HP	3	2	3
Exhaust Fan HP	-	-	-
Volts / Phase	208/3	208/3	208/3
Approx. Age	13	13	13
ASHRAE Service Life	15	15	15
Remaining Life	2	2	2
Notes			

**MAJOR EQUIPMENT LIST****Concord Engineering Group****"Meadowview Complex - Building #15 - Archives"****Rooftop Air Conditioning Units**

<b>Tag</b>	<b>AC - 7</b>		
<b>Location</b>	Roof		
<b>Area Served</b>	Storage		
<b>Manufacturer</b>	Trane		
<b>Model #</b>	TCD048C30CBD		
<b>Serial #</b>	R40103999D		
<b>Supply Flow, CFM</b>	1200		
<b>Min. Outside Air, CFM</b>	240		
<b>Cooling Coil</b>	DX		
<b>Cooling Capacity, Tons</b>	4		
<b>Cooling Efficiency, EER</b>	10		
<b>Heating Type</b>	-		
<b>Supply Fan HP</b>	1		
<b>Exhaust Fan HP</b>			
<b>Volts / Phase</b>	208/3		
<b>Approx. Age</b>	13		
<b>ASHRAE Service Life</b>	1500%		
<b>Remaining Life</b>	2		
<b>Notes</b>			

# MAJOR EQUIPMENT LIST

## Concord Engineering Group

"Meadowview Complex - Building #15 - Archives"

### Heat Exchangers

<b>Tag</b>	<b>HX-1</b>		
<b>Location</b>	Mechanical Room		
<b>Area Served</b>	Service Hot Water		
<b>Manufacturer</b>	-		
<b>Qty</b>	1		
<b>Model #</b>	-		
<b>Serial #</b>	-		
<b>Input (MBh)</b>	Aprox: 1100 Mbh		
<b>Recovery Gal/h</b>	-		
<b>Capacity (Gal)</b>	-		
<b>Efficiency (%)</b>	-		
<b>Tube Surface Area (sqft)</b>	83		
<b>Water (GPM)</b>	95		
<b>Steam (lb/hr)</b>	1224		
<b>Working pressure</b>	150		
<b>Test Pressure</b>	-		
<b>Approx. Age</b>	13		
<b>ASHRAE Service Life</b>	24		
<b>Remaining Life</b>	11		
<b>Notes</b>	Converters for heating hot water. Model/serial # not accessible		

# MAJOR EQUIPMENT LIST

## Concord Engineering Group

"Meadowview Complex - Building #15 - Archives"

### Supplemental AC Units

Tag	Portable AC		
<b>Unit Type</b>	Portable Network Cooling Equipment		
<b>Location</b>	Server Room		
<b>Area Served</b>	Server Room		
<b>Manufacturer</b>	NetworkAir 4000		
<b>Qty.</b>	1		
<b>Model #</b>	ASPA4000		
<b>Serial #</b>	YK0530123384		
<b>Cooling Capacity, BTU/h</b>	13311		
<b>Dehumidifier Capacity</b>	0.26 GPH		
<b>Air Flow, CFM</b>	600		
<b>Refrigerant</b>	R22		
<b>Volts / Phase</b>	120/1		
<b>Approx. Age</b>	2		
<b>ASHRAE Service Life</b>	15		
<b>Remaining Life</b>	13		
<b>Notes</b>	-		

**MAJOR EQUIPMENT LIST****Concord Engineering Group****"Meadowview Complex - Building #15 - Archives"****Hot Water Pumps**

<b>P1,P2: Hot Water Line</b>			
<b>Tag</b>	<b>Pumps</b>		
<b>Location</b>	Mechanical Room		
<b>Area Served</b>	Perimeter Baseboard		
<b>Manufacturer</b>	B&G		
<b>Qty.</b>	2		
<b>Model #</b>	2.5X9.5B 7.25		
<b>Serial #</b>	2238551		
<b>HP</b>	3 HP Each		
<b>RPM</b>	1,750		
<b>GPM</b>	122		
<b>Ft. Hd</b>	45		
<b>Motor Frame Size</b>	182JVM-95		
<b>Motor Efficiency</b>	84%		
<b>Volts / Phase</b>	208/3		
<b>Approx. Age</b>	10		
<b>ASHRAE Service Life</b>	10		
<b>Remaining Life</b>	0		
<b>Notes</b>	Pumps are in very poor condition and needs to be replaced soon.		

**Condensate Pumps**

<b>Tag</b>	<b>Pressure Powered Condensate Pump</b>		
<b>Location</b>	Mechanical Room		
<b>Area Served</b>	Steam Converters		
<b>Manufacturer</b>	Spirax Sarco		
<b>Qty.</b>	2		
<b>Model #</b>	-		
<b>Serial #</b>	-		
<b>GPM</b>	-		
<b>Approx. Age</b>	13		
<b>ASHRAE Service Life</b>	15		
<b>Remaining Life</b>	2		
<b>Notes</b>	Tag not legible. Equipment in appeared to be in good condition with no leaks.		

**Investment Grade Lighting Audit**

CEG Job #: 9C09162

Project: HUDSON COUNTY IMPROVEMENT AUTHORITY ENERGY AUDIT

Center Core Building

KWH COST: 0.102

Address: 595 County Ave.

Secaucus, NJ. 07094

Building SF: 43,500

**ECM: Center Core Building Lighting Upgrade - General**

EXISTING LIGHTING						PROPOSED LIGHTING													SAVINGS				
CEG Type	Floor	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
232.21	1	Rm 1	2600	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.08	213.2	\$21.75	1	0	No Change	82	0.08	213.2	\$21.75	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Rm 2	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.16	426.4	\$43.49	2	0	No Change	82	0.16	426.4	\$43.49	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Rm 3	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.33	852.8	\$86.99	4	0	No Change	82	0.33	852.8	\$86.99	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Conference Rm	2600	8	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.66	1,705.6	\$173.97	8	0	No Change	82	0.66	1705.6	\$173.97	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Training Rm	1000	10	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.82	820.0	\$83.64	10	0	No Change	82	0.82	820	\$83.64	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Rm 6	2600	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.08	213.2	\$21.75	1	0	No Change	82	0.08	213.2	\$21.75	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Rm 7	2600	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.08	213.2	\$21.75	1	0	No Change	82	0.08	213.2	\$21.75	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Rm 8	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.33	852.8	\$86.99	4	0	No Change	82	0.33	852.8	\$86.99	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Rm 9	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.33	852.8	\$86.99	4	0	No Change	82	0.33	852.8	\$86.99	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Rm 10	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.33	852.8	\$86.99	4	0	No Change	82	0.33	852.8	\$86.99	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Rm 11	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.33	852.8	\$86.99	4	0	No Change	82	0.33	852.8	\$86.99	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Rm 12	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.16	426.4	\$43.49	2	0	No Change	82	0.16	426.4	\$43.49	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Rm 13	2600	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.08	213.2	\$21.75	1	0	No Change	82	0.08	213.2	\$21.75	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Rm 14	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.16	426.4	\$43.49	2	0	No Change	82	0.16	426.4	\$43.49	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Rm 15	2600	3	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.25	639.6	\$65.24	3	0	No Change	82	0.25	639.6	\$65.24	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Rm 16	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.33	852.8	\$86.99	4	0	No Change	82	0.33	852.8	\$86.99	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Rm 17	2600	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.08	213.2	\$21.75	1	0	No Change	82	0.08	213.2	\$21.75	\$0.00	\$0.00	0.00	0	\$0.00	0.00

**Investment Grade Lighting Audit**

232.21	1	Rm 18	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.33	852.8	\$86.99	4	0	No Change	82	0.33	852.8	\$86.99	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Biology Lab	2600	8	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.66	1,705.6	\$173.97	8	0	No Change	82	0.66	1705.6	\$173.97	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Rm 20	2600	3	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.25	639.6	\$65.24	3	0	No Change	82	0.25	639.6	\$65.24	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Rm 21	2600	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.08	213.2	\$21.75	1	0	No Change	82	0.08	213.2	\$21.75	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Rm 22	2600	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.08	213.2	\$21.75	1	0	No Change	82	0.08	213.2	\$21.75	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Rm 23	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.16	426.4	\$43.49	2	0	No Change	82	0.16	426.4	\$43.49	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Rm 24	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.16	426.4	\$43.49	2	0	No Change	82	0.16	426.4	\$43.49	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Men's Rm	2600	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.08	213.2	\$21.75	1	0	No Change	82	0.08	213.2	\$21.75	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Ladies Rm	2600	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.08	213.2	\$21.75	1	0	No Change	82	0.08	213.2	\$21.75	\$0.00	\$0.00	0.00	0	\$0.00	0.00
222.14	1	Rm 27	2600	3	2	2-Lamp, T8, Electronic Ballast, Surface Mounted, No Lens	58	0.17	452.4	\$46.14	3	0	No Change	58	0.17	452.4	\$46.14	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Rm 28	2600	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.08	213.2	\$21.75	1	0	No Change	82	0.08	213.2	\$21.75	\$0.00	\$0.00	0.00	0	\$0.00	0.00
222.31	1	Stairs	8760	3	2	2-Lamp, T8, Electronic Ballast, Pendant Mounted, Prismatic Lens	58	0.17	1,524.2	\$155.47	3	0	No Change	58	0.17	1524.24	\$155.47	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Rm 30	2600	6	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.49	1,279.2	\$130.48	6	0	No Change	82	0.49	1279.2	\$130.48	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Rm 31	2600	6	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.49	1,279.2	\$130.48	6	0	No Change	82	0.49	1279.2	\$130.48	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Server Rm (32)	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.33	852.8	\$86.99	4	0	No Change	82	0.33	852.8	\$86.99	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Copy Rm (34)	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.16	426.4	\$43.49	2	0	No Change	82	0.16	426.4	\$43.49	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Rm 35	2600	6	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.49	1,279.2	\$130.48	6	0	No Change	82	0.49	1279.2	\$130.48	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Rm 36	2600	6	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.49	1,279.2	\$130.48	6	0	No Change	82	0.49	1279.2	\$130.48	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Rm 37	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.33	852.8	\$86.99	4	0	No Change	82	0.33	852.8	\$86.99	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Corridors	2600	26	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	2.13	5,543.2	\$565.41	26	0	No Change	82	2.13	5543.2	\$565.41	\$0.00	\$0.00	0.00	0	\$0.00	0.00

Investment Grade Lighting Audit

303	B	403	260	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.10	26.0	\$2.65	1	0	26 W CFL Lamp	26	0.03	6.76	\$0.69	\$5.75	\$5.75	0.07	19.24	\$1.96	2.93
303	B	Rm 408	260	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.10	26.0	\$2.65	1	0	26 W CFL Lamp	26	0.03	6.76	\$0.69	\$5.75	\$5.75	0.07	19.24	\$1.96	2.93
303	B	Rm 406	260	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.10	26.0	\$2.65	1	0	26 W CFL Lamp	26	0.03	6.76	\$0.69	\$5.75	\$5.75	0.07	19.24	\$1.96	2.93
303	B	Rm 404	260	2	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.20	52.0	\$5.30	2	0	26 W CFL Lamp	26	0.05	13.52	\$1.38	\$5.75	\$11.50	0.15	38.48	\$3.92	2.93
303	B	Rm 401	260	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.10	26.0	\$2.65	1	0	26 W CFL Lamp	26	0.03	6.76	\$0.69	\$5.75	\$5.75	0.07	19.24	\$1.96	2.93
303	B	Rm 402	260	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.10	26.0	\$2.65	1	0	26 W CFL Lamp	26	0.03	6.76	\$0.69	\$5.75	\$5.75	0.07	19.24	\$1.96	2.93
121.14	B	Entry	8760	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., No Lens	75	0.08	657.0	\$67.01	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	481.8	\$49.14	\$100.00	\$100.00	0.02	175.2	\$17.87	5.60
121.14	B	Entry	8760	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., No Lens	75	0.08	657.0	\$67.01	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	481.8	\$49.14	\$100.00	\$100.00	0.02	175.2	\$17.87	5.60
121.14	B	Rm 1	260	12	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., No Lens	75	0.90	234.0	\$23.87	12	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.66	171.6	\$17.50	\$100.00	\$1,200.00	0.24	62.4	\$6.36	188.54
303	B	Rm 2	260	2	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.20	52.0	\$5.30	2	0	26 W CFL Lamp	26	0.05	13.52	\$1.38	\$5.75	\$11.50	0.15	38.48	\$3.92	2.93
303	B	Rm 3	260	2	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.20	52.0	\$5.30	2	0	26 W CFL Lamp	26	0.05	13.52	\$1.38	\$5.75	\$11.50	0.15	38.48	\$3.92	2.93
303	B	Rm 4	260	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.10	26.0	\$2.65	1	0	26 W CFL Lamp	26	0.03	6.76	\$0.69	\$5.75	\$5.75	0.07	19.24	\$1.96	2.93
303	B	Rm 6	260	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.10	26.0	\$2.65	1	0	26 W CFL Lamp	26	0.03	6.76	\$0.69	\$5.75	\$5.75	0.07	19.24	\$1.96	2.93
303	B	Rm 8	260	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.10	26.0	\$2.65	1	0	26 W CFL Lamp	26	0.03	6.76	\$0.69	\$5.75	\$5.75	0.07	19.24	\$1.96	2.93
407	B	Rm 9	260	3	1	1-Lamp Compact Fluorescent	23	0.07	17.9	\$1.83	3	0	No Change	23	0.07	17.94	\$1.83	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.14	B	Rm 10	260	3	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., No Lens	75	0.23	58.5	\$5.97	3	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.17	42.9	\$4.38	\$100.00	\$300.00	0.06	15.6	\$1.59	188.54

**Investment Grade Lighting Audit**

121.11	B	Maintenance Rm (5)	2600	20	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	1.50	3,900.0	\$397.80	20	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	1.10	2860	\$291.72	\$100.00	\$2,000.00	0.40	1040	\$106.08	18.85
121.14	B	Rm 12	260	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., No Lens	75	0.08	19.5	\$1.99	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	14.3	\$1.46	\$100.00	\$100.00	0.02	5.2	\$0.53	188.54
121.14	B	Transformer	260	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., No Lens	75	0.08	19.5	\$1.99	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	14.3	\$1.46	\$100.00	\$100.00	0.02	5.2	\$0.53	188.54
121.14	B	Rm 16	260	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., No Lens	75	0.08	19.5	\$1.99	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	14.3	\$1.46	\$100.00	\$100.00	0.02	5.2	\$0.53	188.54
121.14	B	Rm 18	260	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., No Lens	75	0.08	19.5	\$1.99	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	14.3	\$1.46	\$100.00	\$100.00	0.02	5.2	\$0.53	188.54
121.14	B	Laundry	2600	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., No Lens	75	0.15	390.0	\$39.78	2	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.11	286	\$29.17	\$100.00	\$200.00	0.04	104	\$10.61	18.85
407	B	Laundry	2600	2	1	1-Lamp Compact Fluorescent	23	0.05	119.6	\$12.20	2	0	No Change	23	0.05	119.6	\$12.20	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.14	B	Corridors	8760	18	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., No Lens	75	1.35	11,826.0	\$1,206.25	18	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.99	8672.4	\$884.58	\$100.00	\$1,800.00	0.36	3153.6	\$321.67	5.60
211.14	B	Corridors	8760	8	2	1-Lamp, T8, Electronic Ballast, Surface Mounted, No Lens	32	0.26	2,242.6	\$228.74	8	0	No Change	32	0.26	2242.56	\$228.74	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.14	B	Rm 20	260	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., No Lens	75	0.08	19.5	\$1.99	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	14.3	\$1.46	\$100.00	\$100.00	0.02	5.2	\$0.53	188.54
303	B	Rm 22	260	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.10	26.0	\$2.65	1	0	26 W CFL Lamp	26	0.03	6.76	\$0.69	\$5.75	\$5.75	0.07	19.24	\$1.96	2.93
303	B	Rm 23	260	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.10	26.0	\$2.65	1	0	26 W CFL Lamp	26	0.03	6.76	\$0.69	\$5.75	\$5.75	0.07	19.24	\$1.96	2.93
303	B	Rm 24	260	3	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.30	78.0	\$7.96	3	0	26 W CFL Lamp	26	0.08	20.28	\$2.07	\$5.75	\$17.25	0.22	57.72	\$5.89	2.93
303	B	Rm 101	260	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.10	26.0	\$2.65	1	0	26 W CFL Lamp	26	0.03	6.76	\$0.69	\$5.75	\$5.75	0.07	19.24	\$1.96	2.93
121.11	B	Rm 102	260	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	19.5	\$1.99	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	14.3	\$1.46	\$100.00	\$100.00	0.02	5.2	\$0.53	188.54
121.14	B	Exit to Courtyard	8760	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., No Lens	75	0.08	657.0	\$67.01	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	481.8	\$49.14	\$100.00	\$100.00	0.02	175.2	\$17.87	5.60

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121.14	B	Rm 104	260	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., No Lens	75	0.08	19.5	\$1.99	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	14.3	\$1.46	\$100.00	\$100.00	0.02	5.2	\$0.53	188.54
121.14	B	Rm 106	260	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., No Lens	75	0.15	39.0	\$3.98	2	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.11	28.6	\$2.92	\$100.00	\$200.00	0.04	10.4	\$1.06	188.54
211.14	B	Rm 108	260	1	2	1-Lamp, T8, Electronic Ballast, Surface Mounted, No Lens	32	0.03	8.3	\$0.85	1	0	No Change	32	0.03	8.32	\$0.85	\$0.00	\$0.00	0.00	0	\$0.00	0.00
<b>Totals</b>				247				19.26	51,976.1	\$5,301.56	247	32			16.436	46643.26	\$4,757.61		\$6,815.00	2.82	5332.8	\$543.95	12.53

**NOTES:** 1. Simple Payback noted in this spreadsheet does not include Maintenance Savings and NJ Smart Start Incentives.

2. Lamp totals only include T-12 tube replacement calculations

**Investment Grade Lighting Audit**

CEG Job #: 9C09162

Project: HUDSON COUNTY IMPROVEMENT AUTHORITY ENERGY AUDIT

Center Core Building

KWH COST: \$0.102

Address: 595 County Ave.

Secaucus, NJ. 07094

Building SF: 43,500

**ECM: Center Core Building Lighting Controls**

EXISTING LIGHTING						PROPOSED LIGHTING CONTROLS														SAVINGS				
CEG Type	Floor	Fixture Location	Yearly Usage	No. Fixts	No. Lamps	Fixture Type	Fixt Watts	Total kW	kWh/Yr Fixtures	Yearly \$ Cost	No. Fixts	No. Lamps	Controls Description	Watts Used	Total kW	Reduction (%)	kWh/Yr Fixtures	Yearly \$ Cost	Unit Cost (INSTALLED)	Total Cost	kW Savings	kWh/Yr Savings	Yearly \$ Savings	Yearly Simple Payback
232.2	1	Rm 1	2600	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.082	213.2	21.7464	1	0		82	0.08	0%	213.2	\$21.75	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	1	Rm 2	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.164	426.4	43.4928	2	0		82	0.16	0%	426.4	\$43.49	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	1	Rm 3	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.328	852.8	86.9856	4	0		82	0.33	0%	852.8	\$86.99	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	1	Conference Rm	2600	8	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.656	1705.6	173.9712	8	0	Dual Technology Occupancy Sensor	82	0.66	20%	1364.48	\$139.18	\$160.00	\$160.00	0	341.12	\$34.79	4.60
232.2	1	Training Rm	1000	10	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.82	820	83.64	10	0		82	0.82	0%	820	\$83.64	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	1	Rm 6	2600	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.082	213.2	21.7464	1	0		82	0.08	0%	213.2	\$21.75	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	1	Rm 7	2600	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.082	213.2	21.7464	1	0		82	0.08	0%	213.2	\$21.75	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	1	Rm 8	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.328	852.8	86.9856	4	0		82	0.33	0%	852.8	\$86.99	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	1	Rm 9	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.328	852.8	86.9856	4	0		82	0.33	0%	852.8	\$86.99	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	1	Rm 10	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.328	852.8	86.9856	4	0	Dual Technology Occupancy Sensor	82	0.33	20%	682.24	\$69.59	\$160.00	\$160.00	0	170.56	\$17.40	9.20
232.2	1	Rm 11	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.328	852.8	86.9856	4	0		82	0.33	0%	852.8	\$86.99	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	1	Rm 12	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.164	426.4	43.4928	2	0		82	0.16	0%	426.4	\$43.49	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	1	Rm 13	2600	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.082	213.2	21.7464	1	0		82	0.08	0%	213.2	\$21.75	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	1	Rm 14	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.164	426.4	43.4928	2	0	Dual Technology Occupancy Sensor	82	0.16	20%	341.12	\$34.79	\$160.00	\$160.00	0	85.28	\$8.70	18.39
232.2	1	Rm 15	2600	3	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.246	639.6	65.2392	3	0	Dual Technology Occupancy Sensor	82	0.25	20%	511.68	\$52.19	\$160.00	\$160.00	0	127.92	\$13.05	12.26
232.2	1	Rm 16	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.328	852.8	86.9856	4	0	Dual Technology Occupancy Sensor	82	0.33	20%	682.24	\$69.59	\$160.00	\$160.00	0	170.56	\$17.40	9.20
232.2	1	Rm 17	2600	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.082	213.2	21.7464	1	0		82	0.08	0%	213.2	\$21.75	\$0.00	\$0.00	0	0	\$0.00	0.00

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232.2	1	Rm 18	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.328	852.8	86.9856	4	0		82	0.33	0%	852.8	\$86.99	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	1	Biology Lab	2600	8	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.656	1705.6	173.9712	8	0	Dual Technology Occupancy Sensor	82	0.66	20%	1364.48	\$139.18	\$160.00	\$160.00	0	341.12	\$34.79	4.60
232.2	1	Rm 20	2600	3	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.246	639.6	65.2392	3	0	Dual Technology Occupancy Sensor	82	0.25	20%	511.68	\$52.19	\$160.00	\$160.00	0	127.92	\$13.05	12.26
232.2	1	Rm 21	2600	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.082	213.2	21.7464	1	0		82	0.08	0%	213.2	\$21.75	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	1	Rm 22	2600	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.082	213.2	21.7464	1	0		82	0.08	0%	213.2	\$21.75	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	1	Rm 23	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.164	426.4	43.4928	2	0		82	0.16	0%	426.4	\$43.49	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	1	Rm 24	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.164	426.4	43.4928	2	0		82	0.16	0%	426.4	\$43.49	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	1	Men's Rm	2600	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.082	213.2	21.7464	1	0		82	0.08	0%	213.2	\$21.75	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	1	Ladies Rm	2600	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.082	213.2	21.7464	1	0		82	0.08	0%	213.2	\$21.75	\$0.00	\$0.00	0	0	\$0.00	0.00
222.1	1	Rm 27	2600	3	2	2-Lamp, T8, Electronic Ballast, Surface Mounted, No Lens	58	0.174	452.4	46.1448	3	0		58	0.17	0%	452.4	\$46.14	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	1	Rm 28	2600	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.082	213.2	21.7464	1	0		82	0.08	0%	213.2	\$21.75	\$0.00	\$0.00	0	0	\$0.00	0.00
222.3	1	Stairs	8760	3	2	2-Lamp, T8, Electronic Ballast, Pendant Mounted, Prismatic Lens	58	0.174	1524.24	155.4725	3	0		58	0.17	0%	1524.24	\$155.47	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	1	Rm 30	2600	6	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.492	1279.2	130.4784	6	0		82	0.49	0%	1279.2	\$130.48	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	1	Rm 31	2600	6	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.492	1279.2	130.4784	6	0		82	0.49	0%	1279.2	\$130.48	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	1	Server Rm (32)	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.328	852.8	86.9856	4	0		82	0.33	0%	852.8	\$86.99	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	1	Copy Rm (34)	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.164	426.4	43.4928	2	0	Dual Technology Occupancy Sensor	82	0.16	20%	341.12	\$34.79	\$160.00	\$160.00	0	85.28	\$8.70	18.39
232.2	1	Rm 35	2600	6	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.492	1279.2	130.4784	6	0		82	0.49	0%	1279.2	\$130.48	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	1	Rm 36	2600	6	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.492	1279.2	130.4784	6	0	Dual Technology Occupancy Sensor	82	0.49	20%	1023.36	\$104.38	\$160.00	\$160.00	0	255.84	\$26.10	6.13
232.2	1	Rm 37	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.328	852.8	86.9856	4	0		82	0.33	0%	852.8	\$86.99	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	1	Corridors	2600	26	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	2.132	5543.2	565.4064	26	0		82	2.13	0%	5543.2	\$565.41	\$0.00	\$0.00	0	0	\$0.00	0.00

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303	B	403	260	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.1	26	2.652	1	0		100	0.10	0%	26	\$2.65	\$0.00	\$0.00	0	0	\$0.00	0.00
303	B	Rm 408	260	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.1	26	2.652	1	0		100	0.10	0%	26	\$2.65	\$0.00	\$0.00	0	0	\$0.00	0.00
303	B	Rm 406	260	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.1	26	2.652	1	0		100	0.10	0%	26	\$2.65	\$0.00	\$0.00	0	0	\$0.00	0.00
303	B	Rm 404	260	2	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.2	52	5.304	2	0		100	0.20	0%	52	\$5.30	\$0.00	\$0.00	0	0	\$0.00	0.00
303	B	Rm 401	260	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.1	26	2.652	1	0		100	0.10	0%	26	\$2.65	\$0.00	\$0.00	0	0	\$0.00	0.00
303	B	Rm 402	260	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.1	26	2.652	1	0		100	0.10	0%	26	\$2.65	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B	Entry	8760	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., No Lens	75	0.075	657	67.014	1	2		75	0.08	0%	657	\$67.01	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B	Entry	8760	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., No Lens	75	0.075	657	67.014	1	2		75	0.08	0%	657	\$67.01	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B	Rm 1	260	12	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., No Lens	75	0.9	234	23.868	12	2		75	0.90	0%	234	\$23.87	\$0.00	\$0.00	0	0	\$0.00	0.00
303	B	Rm 2	260	2	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.2	52	5.304	2	0		100	0.20	0%	52	\$5.30	\$0.00	\$0.00	0	0	\$0.00	0.00
303	B	Rm 3	260	2	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.2	52	5.304	2	0		100	0.20	0%	52	\$5.30	\$0.00	\$0.00	0	0	\$0.00	0.00
303	B	Rm 4	260	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.1	26	2.652	1	0		100	0.10	0%	26	\$2.65	\$0.00	\$0.00	0	0	\$0.00	0.00
303	B	Rm 6	260	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.1	26	2.652	1	0		100	0.10	0%	26	\$2.65	\$0.00	\$0.00	0	0	\$0.00	0.00
303	B	Rm 8	260	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.1	26	2.652	1	0		100	0.10	0%	26	\$2.65	\$0.00	\$0.00	0	0	\$0.00	0.00
407	B	Rm 9	260	3	1	1-Lamp Compact Fluorescent	23	0.069	17.94	1.82988	3	0		23	0.07	0%	17.94	\$1.83	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B	Rm 10	260	3	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., No Lens	75	0.225	58.5	5.967	3	2		75	0.23	0%	58.5	\$5.97	\$0.00	\$0.00	0	0	\$0.00	0.00

**Investment Grade Lighting Audit**

121.1	B	Maintenance Rm (5)	2600	20	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	1.5	3900	397.8	20	2		75	1.50	0%	3900	\$397.80	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B	Rm 12	260	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., No Lens	75	0.075	19.5	1.989	1	2		75	0.08	0%	19.5	\$1.99	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B	Transformer	260	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., No Lens	75	0.075	19.5	1.989	1	2		75	0.08	0%	19.5	\$1.99	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B	Rm 16	260	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., No Lens	75	0.075	19.5	1.989	1	2		75	0.08	0%	19.5	\$1.99	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B	Rm 18	260	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., No Lens	75	0.075	19.5	1.989	1	2		75	0.08	0%	19.5	\$1.99	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B	Laundry	2600	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., No Lens	75	0.15	390	39.78	2	2		75	0.15	0%	390	\$39.78	\$0.00	\$0.00	0	0	\$0.00	0.00
407	B	Laundry	2600	2	1	1-Lamp Compact Fluorescent	23	0.046	119.6	12.1992	2	0		23	0.05	0%	119.6	\$12.20	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B	Corridors	8760	18	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., No Lens	75	1.35	11826	1206.252	18	2		75	1.35	0%	11826	\$1,206.25	\$0.00	\$0.00	0	0	\$0.00	0.00
211.1	B	Corridors	8760	8	2	1-Lamp, T8, Electronic Ballast, Surface Mounted, No Lens	32	0.256	2242.56	228.7411	8	0		32	0.26	0%	2242.56	\$228.74	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B	Rm 20	260	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., No Lens	75	0.075	19.5	1.989	1	2		75	0.08	0%	19.5	\$1.99	\$0.00	\$0.00	0	0	\$0.00	0.00
303	B	Rm 22	260	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.1	26	2.652	1	0		100	0.10	0%	26	\$2.65	\$0.00	\$0.00	0	0	\$0.00	0.00
303	B	Rm 23	260	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.1	26	2.652	1	0		100	0.10	0%	26	\$2.65	\$0.00	\$0.00	0	0	\$0.00	0.00
303	B	Rm 24	260	3	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.3	78	7.956	3	0		100	0.30	0%	78	\$7.96	\$0.00	\$0.00	0	0	\$0.00	0.00
303	B	Rm 101	260	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.1	26	2.652	1	0		100	0.10	0%	26	\$2.65	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B	Rm 102	260	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	19.5	1.989	1	2		75	0.08	0%	19.5	\$1.99	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B	Exit to Courtyard	8760	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., No Lens	75	0.075	657	67.014	1	2		75	0.08	0%	657	\$67.01	\$0.00	\$0.00	0	0	\$0.00	0.00

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121.1	B	Rm 106	260	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., No Lens	75	0.15	39	3.978	2	2		75	0.15	0%	39	\$3.98	\$0.00	\$0.00	0	0	\$0.00	0.00
211.1	B	Rm 108	260	1	2	1-Lamp, T8, Electronic Ballast, Surface Mounted, No Lens	32	0.032	8.32	0.84864	1	0		32	0.03	0%	8.32	\$0.85	\$0.00	\$0.00	0	0	\$0.00	0.00
<b>Totals</b>				246	160			19.18	51,956.6	\$5,299.57	246			19.181			50250.96	\$5,125.60		\$1,440.00	0	1705.6	\$173.97	8.28

**NOTES:** 1. Simple Payback noted in this spreadsheet does not include Maintenance Savings and NJ Smart Start Incentives.

2. Lamp totals only include T-12 tube replacment calculations

**Investment Grade Lighting Audit**

CEG Job #: 9C09162  
 Project: HUDSON COUNTY IMPROVEMENT AUTHORITY ENERGY AUDIT  
 Address: 595 County Ave.  
 Secaucus, NJ. 07094  
 Building SF: 25,500

Building - 1

KWH COST: **\$0.102**

**ECM: Lighting Upgrade - General**

EXISTING LIGHTING						PROPOSED LIGHTING										SAVINGS							
CEG Type	Floor	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
232.21	1	Hudson Regional Health Commission	2600	12	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.98	2,558.4	\$260.96	12	0	No Change	82	0.98	2558.4	\$260.96	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Water Room	200	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.08	16.4	\$1.67	1	0	No Change	82	0.08	16.4	\$1.67	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.34	1	House Keeping	200	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Pendant Mnt., No Lens	75	0.15	30.0	\$3.06	2	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.11	22	\$2.24	\$100.00	\$200.00	0.04	8	\$0.82	245.10
232.21	1	Office	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.33	852.8	\$86.99	4	0	No Change	82	0.33	852.8	\$86.99	\$0.00	\$0.00	0.00	0	\$0.00	0.00
224.21	1	Bathroom	5000	2	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.15	730.0	\$74.46	2	0	No Change	73	0.15	730	\$74.46	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Office	200	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.33	65.6	\$6.69	4	0	No Change	82	0.33	65.6	\$6.69	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Office	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.33	852.8	\$86.99	4	0	No Change	82	0.33	852.8	\$86.99	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Office	5000	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.33	1,640.0	\$167.28	4	0	No Change	82	0.33	1640	\$167.28	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Office	200	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.16	32.8	\$3.35	2	0	No Change	82	0.16	32.8	\$3.35	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Office	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.16	426.4	\$43.49	2	0	No Change	82	0.16	426.4	\$43.49	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Entrance	8760	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.08	718.3	\$73.27	1	0	No Change	82	0.08	718.32	\$73.27	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Mail Room	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.16	426.4	\$43.49	2	0	No Change	82	0.16	426.4	\$43.49	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Main Corridor	3120	23	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	1.89	5,884.3	\$600.20	23	0	No Change	82	1.89	5884.32	\$600.20	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Facility Management Office	2600	8	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.66	1,705.6	\$173.97	8	0	No Change	82	0.66	1705.6	\$173.97	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Facility Management Lobby	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.33	852.8	\$86.99	4	0	No Change	82	0.33	852.8	\$86.99	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Facility Management Conference Room	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.33	852.8	\$86.99	4	0	No Change	82	0.33	852.8	\$86.99	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	X-ray office	2600	3	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.25	639.6	\$65.24	3	0	No Change	82	0.25	639.6	\$65.24	\$0.00	\$0.00	0.00	0	\$0.00	0.00

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224.21	1	X-ray office	2600	1	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.07	189.8	\$19.36	1	0	No Change	73	0.07	189.8	\$19.36	\$0.00	\$0.00	0.00	0	\$0.00	0.00
402	1	X-ray office	2600	1	1	1-Lamp Compact Fluorescent	13	0.01	33.8	\$3.45	1	0	No Change	13	0.01	33.8	\$3.45	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.34	1	Stairs	8760	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Pendant Mnt., No Lens	75	0.08	657.0	\$67.01	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	481.8	\$49.14	\$100.00	\$100.00	0.02	175.2	\$17.87	5.60
121.14	1	Stairs	8760	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., No Lens	75	0.15	1,314.0	\$134.03	2	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.11	963.6	\$98.29	\$100.00	\$200.00	0.04	350.4	\$35.74	5.60
232.21	1	Mosquito Control	2600	10	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.82	2,132.0	\$217.46	10	0	No Change	82	0.82	2132	\$217.46	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.34	1	Mechanical Room	260	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Pendant Mnt., No Lens	75	0.15	39.0	\$3.98	2	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.11	28.6	\$2.92	\$100.00	\$200.00	0.04	10.4	\$1.06	188.54
232.21	1	Office	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.16	426.4	\$43.49	2	0	No Change	82	0.16	426.4	\$43.49	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Office	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.16	426.4	\$43.49	2	0	No Change	82	0.16	426.4	\$43.49	\$0.00	\$0.00	0.00	0	\$0.00	0.00
224.21	1	Men's Room	2600	2	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.15	379.6	\$38.72	2	0	No Change	73	0.15	379.6	\$38.72	\$0.00	\$0.00	0.00	0	\$0.00	0.00
224.21	1	Ladies Room	2600	2	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.15	379.6	\$38.72	2	0	No Change	73	0.15	379.6	\$38.72	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Kitchenette	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.33	852.8	\$86.99	4	0	No Change	82	0.33	852.8	\$86.99	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.34	1	Utility Room	520	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Pendant Mnt., No Lens	75	0.08	39.0	\$3.98	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	28.6	\$2.92	\$100.00	\$100.00	0.02	10.4	\$1.06	94.27
121.34	1	Copy Room	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Pendant Mnt., No Lens	75	0.08	195.0	\$19.89	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	143	\$14.59	\$100.00	\$100.00	0.02	52	\$5.30	18.85
232.21	1	Office Area	2600	32	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	2.62	6,822.4	\$695.88	32	0	No Change	82	2.62	6822.4	\$695.88	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Weights and Measures	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.16	426.4	\$43.49	2	0	No Change	82	0.16	426.4	\$43.49	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Sherriff's Office	2600	5	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.41	1,066.0	\$108.73	5	0	No Change	82	0.41	1066	\$108.73	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Stairs near Weights and Measures	8760	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.16	1,436.6	\$146.54	2	0	No Change	82	0.16	1436.64	\$146.54	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	Corridor	2600	5	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.41	1,066.0	\$108.73	5	0	No Change	82	0.41	1066	\$108.73	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.34	2	Mechanical Room	260	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Pendant Mnt., No Lens	75	0.15	39.0	\$3.98	2	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.11	28.6	\$2.92	\$100.00	\$200.00	0.04	10.4	\$1.06	188.54
232.21	2	Office	2600	5	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.41	1,066.0	\$108.73	5	0	No Change	82	0.41	1066	\$108.73	\$0.00	\$0.00	0.00	0	\$0.00	0.00

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232.21	2	Kitchenette	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.33	852.8	\$86.99	4	0	No Change	82	0.33	852.8	\$86.99	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.34	2	Utility Room	520	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Pendant Mnt., No Lens	75	0.08	39.0	\$3.98	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	28.6	\$2.92	\$100.00	\$100.00	0.02	10.4	\$1.06	94.27
232.21	2	Copy Room	2600	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.08	213.2	\$21.75	1	0	No Change	82	0.08	213.2	\$21.75	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	Men's Room	2600	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.08	213.2	\$21.75	1	0	No Change	82	0.08	213.2	\$21.75	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	Ladies Room	2600	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.08	213.2	\$21.75	1	0	No Change	82	0.08	213.2	\$21.75	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	Dept of Parks, Eng, Planning Lobby	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.33	852.8	\$86.99	4	0	No Change	82	0.33	852.8	\$86.99	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	Office	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.33	852.8	\$86.99	4	0	No Change	82	0.33	852.8	\$86.99	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	Office	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.33	852.8	\$86.99	4	0	No Change	82	0.33	852.8	\$86.99	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	Office	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.16	426.4	\$43.49	2	0	No Change	82	0.16	426.4	\$43.49	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	Office	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.16	426.4	\$43.49	2	0	No Change	82	0.16	426.4	\$43.49	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	Directors Office	2600	8	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.66	1,705.6	\$173.97	8	0	No Change	82	0.66	1705.6	\$173.97	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	Bathroom	200	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.08	16.4	\$1.67	1	0	No Change	82	0.08	16.4	\$1.67	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	Lobby	2600	12	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.98	2,558.4	\$260.96	12	0	No Change	82	0.98	2558.4	\$260.96	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	Storage Area	2600	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.08	213.2	\$21.75	1	0	No Change	82	0.08	213.2	\$21.75	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	Office	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.33	852.8	\$86.99	4	0	No Change	82	0.33	852.8	\$86.99	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	Office	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.16	426.4	\$43.49	2	0	No Change	82	0.16	426.4	\$43.49	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	Conference Room	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.33	852.8	\$86.99	4	0	No Change	82	0.33	852.8	\$86.99	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.11	B	Pump Room - 4 and storage	260	3	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.23	58.5	\$5.97	3	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.17	42.9	\$4.38	\$100.00	\$300.00	0.06	15.6	\$1.59	188.54
121.11	B	Storage Room - 19	260	3	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.23	58.5	\$5.97	3	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.17	42.9	\$4.38	\$100.00	\$300.00	0.06	15.6	\$1.59	188.54
303	B	Storage Room (Across 19)	260	3	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.30	78.0	\$7.96	3	0	26 W CFL Lamp	26	0.08	20.28	\$2.07	\$5.75	\$17.25	0.22	57.72	\$5.89	2.93
303	B	Storage Room	260	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.10	26.0	\$2.65	1	0	26 W CFL Lamp	26	0.03	6.76	\$0.69	\$5.75	\$5.75	0.07	19.24	\$1.96	2.93

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303	B	Storage Room	260	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.10	26.0	\$2.65	1	0	26 W CFL Lamp	26	0.03	6.76	\$0.69	\$5.75	\$5.75	0.07	19.24	\$1.96	2.93
303	B	Storage Room	260	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.10	26.0	\$2.65	1	0	26 W CFL Lamp	26	0.03	6.76	\$0.69	\$5.75	\$5.75	0.07	19.24	\$1.96	2.93
402	B	Storage	260	1	1	1-Lamp Compact Fluorescent	13	0.01	3.4	\$0.34	1	0	No Change	13	0.01	3.38	\$0.34	\$0.00	\$0.00	0.00	0	\$0.00	0.00
142.11	B	Storage	260	1	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	44.7	\$4.56	1	3	3-Lamp 32W T-8, Elect Ballast; retrofit	91	0.09	23.66	\$2.41	\$100.00	\$100.00	0.08	21.06	\$2.15	46.55
211.11	B	Corridor (Near Center Core)	8760	4	2	1-Lamp, T8, Electronic Ballast, Surface Mounted, Prismatic Lens	32	0.13	1,121.3	\$114.37	4	0	No Change	32	0.13	1121.28	\$114.37	\$0.00	\$0.00	0.00	0	\$0.00	0.00
211.14	B	Corridor	8760	1	2	1-Lamp, T8, Electronic Ballast, Surface Mounted, No Lens	32	0.03	280.3	\$28.59	1	0	No Change	32	0.03	280.32	\$28.59	\$0.00	\$0.00	0.00	0	\$0.00	0.00
222.11	B	Corridor	8760	2	2	2-Lamp, T8, Electronic Ballast, Surface Mounted, Prismatic Lens	58	0.12	1,016.2	\$103.65	2	0	No Change	58	0.12	1016.16	\$103.65	\$0.00	\$0.00	0.00	0	\$0.00	0.00
400	B	Corridor	8760	5	2	2-Lamp, Compact Fluorescent, Vanity Light	36	0.18	1,576.8	\$160.83	5	0	No Change	36	0.18	1576.8	\$160.83	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.11	B	Corridor	8760	7	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.53	4,599.0	\$469.10	7	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.39	3372.6	\$344.01	\$100.00	\$700.00	0.14	1226.4	\$125.09	5.60
222.14	B	Corridor	8760	2	2	2-Lamp, T8, Electronic Ballast, Surface Mounted, No Lens	58	0.12	1,016.2	\$103.65	2	0	No Change	58	0.12	1016.16	\$103.65	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.14	B	Corridor	8760	4	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., No Lens	75	0.30	2,628.0	\$268.06	4	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.22	1927.2	\$196.57	\$100.00	\$400.00	0.08	700.8	\$71.48	5.60
121.14	B	Shop	2600	20	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., No Lens	75	1.50	3,900.0	\$397.80	20	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	1.10	2860	\$291.72	\$100.00	\$2,000.00	0.40	1040	\$106.08	18.85
121.14	B	Kitchenette in Shop	2600	4	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., No Lens	75	0.30	780.0	\$79.56	4	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.22	572	\$58.34	\$100.00	\$400.00	0.08	208	\$21.22	18.85
121.11	B	Compressor Room	260	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	19.5	\$1.99	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	14.3	\$1.46	\$100.00	\$100.00	0.02	5.2	\$0.53	188.54
142.11	B	Utility	260	1	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	44.7	\$4.56	1	3	3-Lamp 32W T-8, Elect Ballast; retrofit	91	0.09	23.66	\$2.41	\$100.00	\$100.00	0.08	21.06	\$2.15	46.55
232.21	B	Elevator Machine Room	260	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.08	21.3	\$2.17	1	0	No Change	82	0.08	21.32	\$2.17	\$0.00	\$0.00	0.00	0	\$0.00	0.00
402	B	Bathroom	2600	4	1	1-Lamp Compact Fluorescent	13	0.05	135.2	\$13.79	4	0	No Change	13	0.05	135.2	\$13.79	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.11	B	Storage Across Elevator	260	3	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.23	58.5	\$5.97	3	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.17	42.9	\$4.38	\$100.00	\$300.00	0.06	15.6	\$1.59	188.54
121.11	B	Storage Room near Room 31	260	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	19.5	\$1.99	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	14.3	\$1.46	\$100.00	\$100.00	0.02	5.2	\$0.53	188.54

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121.11	B	Room 31	260	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	19.5	\$1.99	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	14.3	\$1.46	\$100.00	\$100.00	0.02	5.2	\$0.53	188.54
121.11	B	Youth House	260	6	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.45	117.0	\$11.93	6	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.33	85.8	\$8.75	\$100.00	\$600.00	0.12	31.2	\$3.18	188.54
121.11	B	Storage Room Near Youth House Storage Room	260	6	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.45	117.0	\$11.93	6	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.33	85.8	\$8.75	\$100.00	\$600.00	0.12	31.2	\$3.18	188.54
121.11	B	Storage Room Across Youth H. Storage Room	260	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.15	39.0	\$3.98	2	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.11	28.6	\$2.92	\$100.00	\$200.00	0.04	10.4	\$1.06	188.54
401	B	Room 23	260	2	1	1-Lamp Compact Fluorescent	28	0.06	14.6	\$1.49	2	0	No Change	28	0.06	14.56	\$1.49	\$0.00	\$0.00	0.00	0	\$0.00	0.00
222.14	B	Room 23	260	1	2	2-Lamp, T8, Electronic Ballast, Surface Mounted, No Lens	58	0.06	15.1	\$1.54	1	0	No Change	58	0.06	15.08	\$1.54	\$0.00	\$0.00	0.00	0	\$0.00	0.00
222.11	B	Storage	260	3	2	2-Lamp, T8, Electronic Ballast, Surface Mounted, Prismatic Lens	58	0.17	45.2	\$4.61	3	0	No Change	58	0.17	45.24	\$4.61	\$0.00	\$0.00	0.00	0	\$0.00	0.00
142.31	B	Storage	260	3	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Pendant Mnt., Prismatic Lens	172	0.52	134.2	\$13.68	3	3	3-Lamp 32W T-8, Elect Ballast; retrofit	91	0.27	70.98	\$7.24	\$100.00	\$300.00	0.24	63.18	\$6.44	46.55
<b>Totals</b>				320				25.03	66,879.2	\$6,821.68	320	51			22.721	62720.84	\$6,397.53		\$7,834.50	2.31	4158.3	\$424.15	18.47

NOTES: 1. Simple Payback noted in this spreadsheet does not include Maintenance Savings and NJ Smart Start Incentives.

2. Lamp totals only include T-12 tube replacement calculations

**Investment Grade Lighting Audit**

CEG Job #: 9C09162  
 Project: HUDSON COUNTY IMPROVEMENT AUTHORITY ENERGY AUDIT  
 Address: 595 County Ave.  
 Secaucus, NJ, 07094  
 Building SF: 25,500

Building - 1

KWH COST: \$0.102

**ECM: Lighting Controls**

EXISTING LIGHTING						PROPOSED LIGHTING CONTROLS														SAVINGS				
CEG Type	Floor	Fixture Location	Yearly Usage	No. Fixts	No. Lamps	Fixture Type	Fixt Watts	Total kW	kWh/Yr Fixtures	Yearly \$ Cost	No. Fixts	No. Lamps	Controls Description	Watts Used	Total kW	Reduction (%)	kWh/Yr Fixtures	Yearly \$ Cost	Unit Cost (INSTALLED)	Total Cost	kW Savings	kWh/Yr Savings	Yearly \$ Savings	Yearly Simple Payback
232.2	1	Hudson Regional Health Commission	2600	12	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.984	2558.4	260.9568	12	0		82	0.98	0%	2558.4	\$260.96	\$0	\$0	0	0	\$0.00	0.00
232.2	1	Water Room	200	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.082	16.4	1.6728	1	0		82	0.08	0%	16.4	\$1.67	\$0	\$0	0	0	\$0.00	0.00
121.3	1	House Keeping	200	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Pendant Mnt., No Lens	75	0.15	30	3.06	2	2		75	0.15	0%	30	\$3.06	\$0	\$0	0	0	\$0.00	0.00
232.2	1	Office	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.328	852.8	86.9856	4	0	Dual Technology Occupancy Sensor	82	0.33	20%	682.24	\$69.59	\$160	\$160	0	170.56	\$17.40	9.20
224.2	1	Bathroom	5000	2	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.146	730	74.46	2	0	Dual Technology Occupancy Sensor	73	0.15	20%	584	\$59.57	\$160	\$160	0	146	\$14.89	10.74
232.2	1	Office	200	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.328	65.6	6.6912	4	0		82	0.33	0%	65.6	\$6.69	\$0	\$0	0	0	\$0.00	0.00
232.2	1	Office	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.328	852.8	86.9856	4	0		82	0.33	0%	852.8	\$86.99	\$0	\$0	0	0	\$0.00	0.00
232.2	1	Office	5000	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.328	1640	167.28	4	0		82	0.33	0%	1640	\$167.28	\$0	\$0	0	0	\$0.00	0.00
232.2	1	Office	200	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.164	32.8	3.3456	2	0		82	0.16	0%	32.8	\$3.35	\$0	\$0	0	0	\$0.00	0.00
232.2	1	Office	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.164	426.4	43.4928	2	0	Dual Technology Occupancy Sensor	82	0.16	20%	341.12	\$34.79	\$160	\$160	0	85.28	\$8.70	18.39
232.2	1	Entrance	8760	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.082	718.32	73.26864	1	0		82	0.08	0%	718.32	\$73.27	\$0	\$0	0	0	\$0.00	0.00
232.2	1	Mail Room	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.164	426.4	43.4928	2	0	Dual Technology Occupancy Sensor	82	0.16	20%	341.12	\$34.79	\$160	\$160	0	85.28	\$8.70	18.39

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232.2	1	Main Corridor	3120	23	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	1.886	5884.32	600.20064	23	0		82	1.89	0%	5884.32	\$600.20	\$0	\$0	0	0	\$0.00	0.00
232.2	1	Facility Management Office	2600	8	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.656	1705.6	173.9712	8	0	Dual Technology Occupancy Sensor	82	0.66	20%	1364.48	\$139.18	\$160	\$160	0	341.12	\$34.79	4.60
232.2	1	Facility Management Lobby	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.328	852.8	86.9856	4	0		82	0.33	0%	852.8	\$86.99	\$0	\$0	0	0	\$0.00	0.00
232.2	1	Facility Management Conference Room	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.328	852.8	86.9856	4	0	Dual Technology Occupancy Sensor	82	0.33	20%	682.24	\$69.59	\$160	\$160	0	170.56	\$17.40	9.20
232.2	1	X-ray office	2600	3	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.246	639.6	65.2392	3	0		82	0.25	0%	639.6	\$65.24	\$0	\$0	0	0	\$0.00	0.00
224.2	1	X-ray office	2600	1	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.073	189.8	19.3596	1	0		73	0.07	0%	189.8	\$19.36	\$0	\$0	0	0	\$0.00	0.00
402	1	X-ray office	2600	1	1	1-Lamp Compact Fluorescent	13	0.013	33.8	3.4476	1	0		13	0.01	0%	33.8	\$3.45	\$0	\$0	0	0	\$0.00	0.00
121.3	1	Stairs	8760	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Pendant Mnt., No Lens	75	0.075	657	67.014	1	2		75	0.08	0%	657	\$67.01	\$0	\$0	0	0	\$0.00	0.00
121.1	1	Stairs	8760	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., No Lens	75	0.15	1314	134.028	2	2		75	0.15	0%	1314	\$134.03	\$0	\$0	0	0	\$0.00	0.00
232.2	1	Mosquito Control	2600	10	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.82	2132	217.464	10	0		82	0.82	0%	2132	\$217.46	\$0	\$0	0	0	\$0.00	0.00
121.3	1	Mechanical Room	260	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Pendant Mnt., No Lens	75	0.15	39	3.978	2	2		75	0.15	0%	39	\$3.98	\$0	\$0	0	0	\$0.00	0.00
232.2	1	Office	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.164	426.4	43.4928	2	0		82	0.16	0%	426.4	\$43.49	\$0	\$0	0	0	\$0.00	0.00
232.2	1	Office	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.164	426.4	43.4928	2	0		82	0.16	0%	426.4	\$43.49	\$0	\$0	0	0	\$0.00	0.00
224.2	1	Men's Room	2600	2	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.146	379.6	38.7192	2	0		73	0.15	0%	379.6	\$38.72	\$0	\$0	0	0	\$0.00	0.00

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224.2	1	Ladies Room	2600	2	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.146	379.6	38.7192	2	0		73	0.15	0%	379.6	\$38.72	\$0	\$0	0	0	\$0.00	0.00
232.2	1	Kitchenette	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.328	852.8	86.9856	4	0		82	0.33	0%	852.8	\$86.99	\$0	\$0	0	0	\$0.00	0.00
121.3	1	Utility Room	520	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Pendant Mnt., No Lens	75	0.075	39	3.978	1	2		75	0.08	0%	39	\$3.98	\$0	\$0	0	0	\$0.00	0.00
121.3	1	Copy Room	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Pendant Mnt., No Lens	75	0.075	195	19.89	1	2		75	0.08	0%	195	\$19.89	\$0	\$0	0	0	\$0.00	0.00
232.2	1	Office Area	2600	32	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	2.624	6822.4	695.8848	32	0		82	2.62	0%	6822.4	\$695.88	\$0	\$0	0	0	\$0.00	0.00
232.2	1	Weights and Measures	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.164	426.4	43.4928	2	0		82	0.16	0%	426.4	\$43.49	\$0	\$0	0	0	\$0.00	0.00
232.2	1	Sherriff's Office	2600	5	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.41	1066	108.732	5	0		82	0.41	0%	1066	\$108.73	\$0	\$0	0	0	\$0.00	0.00
232.2	1	Stairs near Weights and Measures	8760	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.164	1436.64	146.53728	2	0		82	0.16	0%	1436.64	\$146.54	\$0	\$0	0	0	\$0.00	0.00
232.2	2	Corridor	2600	5	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.41	1066	108.732	5	0		82	0.41	0%	1066	\$108.73	\$0	\$0	0	0	\$0.00	0.00
121.3	2	Mechanical Room	260	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Pendant Mnt., No Lens	75	0.15	39	3.978	2	2		75	0.15	0%	39	\$3.98	\$0	\$0	0	0	\$0.00	0.00
232.2	2	Office	2600	5	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.41	1066	108.732	5	0		82	0.41	0%	1066	\$108.73	\$0	\$0	0	0	\$0.00	0.00
232.2	2	Kitchenette	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.328	852.8	86.9856	4	0		82	0.33	0%	852.8	\$86.99	\$0	\$0	0	0	\$0.00	0.00
121.3	2	Utility Room	520	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Pendant Mnt., No Lens	75	0.075	39	3.978	1	2		75	0.08	0%	39	\$3.98	\$0	\$0	0	0	\$0.00	0.00
232.2	2	Copy Room	2600	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.082	213.2	21.7464	1	0		82	0.08	0%	213.2	\$21.75	\$0	\$0	0	0	\$0.00	0.00

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232.2	2	Men's Room	2600	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.082	213.2	21.7464	1	0		82	0.08	0%	213.2	\$21.75	\$0	\$0	0	0	\$0.00	0.00
232.2	2	Ladies Room	2600	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.082	213.2	21.7464	1	0		82	0.08	0%	213.2	\$21.75	\$0	\$0	0	0	\$0.00	0.00
232.2	2	Dept of Parks, Eng, Planning Lobby	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.328	852.8	86.9856	4	0	Dual Technology Occupancy Sensor	82	0.33	20%	682.24	\$69.59	\$160	\$160	0	170.56	\$17.40	9.20
232.2	2	Office	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.328	852.8	86.9856	4	0	Dual Technology Occupancy Sensor	82	0.33	20%	682.24	\$69.59	\$160	\$160	0	170.56	\$17.40	9.20
232.2	2	Office	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.328	852.8	86.9856	4	0	Dual Technology Occupancy Sensor	82	0.33	20%	682.24	\$69.59	\$160	\$160	0	170.56	\$17.40	9.20
232.2	2	Office	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.164	426.4	43.4928	2	0		82	0.16	0%	426.4	\$43.49	\$0	\$0	0	0	\$0.00	0.00
232.2	2	Office	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.164	426.4	43.4928	2	0		82	0.16	0%	426.4	\$43.49	\$0	\$0	0	0	\$0.00	0.00
232.2	2	Directors Office	2600	8	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.656	1705.6	173.9712	8	0		82	0.66	0%	1705.6	\$173.97	\$0	\$0	0	0	\$0.00	0.00
232.2	2	Bathroom	200	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.082	16.4	1.6728	1	0		82	0.08	0%	16.4	\$1.67	\$0	\$0	0	0	\$0.00	0.00
232.2	2	Lobby	2600	12	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.984	2558.4	260.9568	12	0		82	0.98	0%	2558.4	\$260.96	\$0	\$0	0	0	\$0.00	0.00
232.2	2	Storage Area	2600	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.082	213.2	21.7464	1	0		82	0.08	0%	213.2	\$21.75	\$0	\$0	0	0	\$0.00	0.00
232.2	2	Office	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.328	852.8	86.9856	4	0	Dual Technology Occupancy Sensor	82	0.33	20%	682.24	\$69.59	\$160	\$160	0	170.56	\$17.40	9.20
232.2	2	Office	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.164	426.4	43.4928	2	0		82	0.16	0%	426.4	\$43.49	\$0	\$0	0	0	\$0.00	0.00
232.2	2	Conference Room	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.328	852.8	86.9856	4	0	Dual Technology Occupancy Sensor	82	0.33	20%	682.24	\$69.59	\$160	\$160	0	170.56	\$17.40	9.20

Investment Grade Lighting Audit

121.1	B	Pump Room - 4 and storage	260	3	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.225	58.5	5.967	3	2		75	0.23	0%	58.5	\$5.97	\$0	\$0	0	0	\$0.00	0.00
121.1	B	Storage Room - 19	260	3	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.225	58.5	5.967	3	2		75	0.23	0%	58.5	\$5.97	\$0	\$0	0	0	\$0.00	0.00
303	B	Storage Room (Across 19)	260	3	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.3	78	7.956	3	0		100	0.30	0%	78	\$7.96	\$0	\$0	0	0	\$0.00	0.00
303	B	Storage Room	260	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.1	26	2.652	1	0		100	0.10	0%	26	\$2.65	\$0	\$0	0	0	\$0.00	0.00
303	B	Storage Room	260	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.1	26	2.652	1	0		100	0.10	0%	26	\$2.65	\$0	\$0	0	0	\$0.00	0.00
303	B	Storage Room	260	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.1	26	2.652	1	0		100	0.10	0%	26	\$2.65	\$0	\$0	0	0	\$0.00	0.00
402	B	Storage	260	1	1	1-Lamp Compact Fluorescent	13	0.013	3.38	0.34476	1	0		13	0.01	0%	3.38	\$0.34	\$0	\$0	0	0	\$0.00	0.00
142.1	B	Storage	260	1	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.172	44.72	4.56144	1	3		172	0.17	0%	44.72	\$4.56	\$0	\$0	0	0	\$0.00	0.00
211.1	B	Corridor (Near Center Core)	8760	4	2	1-Lamp, T8, Electronic Ballast, Surface Mounted, Prismatic Lens	32	0.128	1121.28	114.37056	4	0		32	0.13	0%	1121.28	\$114.37	\$0	\$0	0	0	\$0.00	0.00
211.1	B	Corridor	8760	1	2	1-Lamp, T8, Electronic Ballast, Surface Mounted, No Lens	32	0.032	280.32	28.59264	1	0		32	0.03	0%	280.32	\$28.59	\$0	\$0	0	0	\$0.00	0.00
222.1	B	Corridor	8760	2	2	2-Lamp, T8, Electronic Ballast, Surface Mounted, Prismatic Lens	58	0.116	1016.16	103.64832	2	0		58	0.12	0%	1016.16	\$103.65	\$0	\$0	0	0	\$0.00	0.00
400	B	Corridor	8760	5	2	2-Lamp, Compact Fluorescent, Vanity Light	36	0.18	1576.8	160.8336	5	0		36	0.18	0%	1576.8	\$160.83	\$0	\$0	0	0	\$0.00	0.00
121.1	B	Corridor	8760	7	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.525	4599	469.098	7	2		75	0.53	0%	4599	\$469.10	\$0	\$0	0	0	\$0.00	0.00
222.1	B	Corridor	8760	2	2	2-Lamp, T8, Electronic Ballast, Surface Mounted, No Lens	58	0.116	1016.16	103.64832	2	0		58	0.12	0%	1016.16	\$103.65	\$0	\$0	0	0	\$0.00	0.00

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121.1	B	Corridor	8760	4	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., No Lens	75	0.3	2628	268.056	4	2		75	0.30	0%	2628	\$268.06	\$0	\$0	0	0	\$0.00	0.00
121.1	B	Shop	2600	20	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., No Lens	75	1.5	3900	397.8	20	2		75	1.50	0%	3900	\$397.80	\$0	\$0	0	0	\$0.00	0.00
121.1	B	Kitchenette in Shop	2600	4	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., No Lens	75	0.3	780	79.56	4	2	Dual Technology Occupancy Sensor	75	0.30	20%	624	\$63.65	\$160	\$160	0	156	\$15.91	10.06
121.1	B	Compressor Room	260	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	19.5	1.989	1	2		75	0.08	0%	19.5	\$1.99	\$0	\$0	0	0	\$0.00	0.00
142.1	B	Utility	260	1	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.172	44.72	4.56144	1	3		172	0.17	0%	44.72	\$4.56	\$0	\$0	0	0	\$0.00	0.00
232.2	B	Elevator Machine Room	260	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.082	21.32	2.17464	1	0		82	0.08	0%	21.32	\$2.17	\$0	\$0	0	0	\$0.00	0.00
402	B	Bathroom	2600	4	1	1-Lamp Compact Fluorescent	13	0.052	135.2	13.7904	4	0		13	0.05	0%	135.2	\$13.79	\$0	\$0	0	0	\$0.00	0.00
121.1	B	Storage Across Elevator	260	3	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.225	58.5	5.967	3	2		75	0.23	0%	58.5	\$5.97	\$0	\$0	0	0	\$0.00	0.00
121.1	B	Storage Room near Room 31	260	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	19.5	1.989	1	2		75	0.08	0%	19.5	\$1.99	\$0	\$0	0	0	\$0.00	0.00
121.1	B	Room 31	260	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	19.5	1.989	1	2		75	0.08	0%	19.5	\$1.99	\$0	\$0	0	0	\$0.00	0.00
121.1	B	Youth House	260	6	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.45	117	11.934	6	2		75	0.45	0%	117	\$11.93	\$0	\$0	0	0	\$0.00	0.00
121.1	B	Storage Room Near Youth House Storage Room	260	6	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.45	117	11.934	6	2		75	0.45	0%	117	\$11.93	\$0	\$0	0	0	\$0.00	0.00
121.1	B	Storage Room Across Youth H. Storage Room	260	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.15	39	3.978	2	2		75	0.15	0%	39	\$3.98	\$0	\$0	0	0	\$0.00	0.00
401	B	Room 23	260	2	1	1-Lamp Compact Fluorescent	28	0.056	14.56	1.48512	2	0		28	0.06	0%	14.56	\$1.49	\$0	\$0	0	0	\$0.00	0.00

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222.1	B	Room 23	260	1	2	2-Lamp, T8, Electronic Ballast, Surface Mounted, No Lens	58	0.058	15.08	1.53816	1	0		58	0.06	0%	15.08	\$1.54	\$0	\$0	0	0	\$0.00	0.00
222.1	B	Storage	260	3	2	2-Lamp, T8, Electronic Ballast, Surface Mounted, Prismatic Lens	58	0.174	45.24	4.61448	3	0		58	0.17	0%	45.24	\$4.61	\$0	\$0	0	0	\$0.00	0.00
142.3	B	Storage	260	3	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Pendant Mnt., Prismatic Lens	172	0.516	134.16	13.68432	3	3		172	0.52	0%	134.16	\$13.68	\$0	\$0	0	0	\$0.00	0.00
<b>Totals</b>				320				25.03	66,879.2	\$6,821.68	320			25.03			64871.58	\$6,616.90		\$1,920	0	2007.6	\$204.78	9.38

**NOTES:** 1. Simple Payback noted in this spreadsheet does not include Maintenance Savings and NJ Smart Start Incentives.  
2. Lamp totals only include T-12 tube replacement calculations

**Investment Grade Lighting Audit**

CEG Job #: 9C09162

Project: HUDSON COUNTY IMPROVEMENT AUTHORITY ENERGY AUDIT

Building - 2

KWH COST: \$0.102

Address: 595 County Ave.

Secaucus, NJ. 07094

Building SF: 23,000

**ECM: Lighting Upgrade - General**

EXISTING LIGHTING											PROPOSED LIGHTING											SAVINGS			
CEG Type	Floor	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		
232.21	1	Corridor	2600	18	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	1.48	3,837.6	\$391.44	18	0	No Change	82	1.48	3837.6	\$391.44	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
232.21	1	Dispatch Office	2600	3	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.25	639.6	\$65.24	3	0	No Change	82	0.25	639.6	\$65.24	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
224.21	1	Dispatch Office	2600	3	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.22	569.4	\$58.08	3	0	No Change	73	0.22	569.4	\$58.08	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
224.21	1	Bathroom	2600	3	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.22	569.4	\$58.08	3	0	No Change	73	0.22	569.4	\$58.08	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
232.21	1	Payroll	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.16	426.4	\$43.49	2	0	No Change	82	0.16	426.4	\$43.49	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
232.21	1	Scheduling Office	2600	7	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.57	1,492.4	\$152.22	7	0	No Change	82	0.57	1492.4	\$152.22	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
232.21	1	Main Office	2600	9	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.74	1,918.8	\$195.72	9	0	No Change	82	0.74	1918.8	\$195.72	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
232.21	1	Kitchenette	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.33	852.8	\$86.99	4	0	No Change	82	0.33	852.8	\$86.99	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
232.21	1	Conference Room	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.33	852.8	\$86.99	4	0	No Change	82	0.33	852.8	\$86.99	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
232.21	1	Office across Conference Room	2600	3	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.25	639.6	\$65.24	3	0	No Change	82	0.25	639.6	\$65.24	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
232.21	1	Office across Conference Room	2600	3	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.25	639.6	\$65.24	3	0	No Change	82	0.25	639.6	\$65.24	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
400	1	Bathroom in the Office	2600	1	2	2-Lamp, Compact Fluorescent, Vanity Light	36	0.04	93.6	\$9.55	1	0	No Change	36	0.04	93.6	\$9.55	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
232.21	1	A/C Room	260	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.16	42.6	\$4.35	2	0	No Change	82	0.16	42.64	\$4.35	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
232.21	1	Office	2600	3	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.25	639.6	\$65.24	3	0	No Change	82	0.25	639.6	\$65.24	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
232.21	1	File Room	260	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.16	42.6	\$4.35	2	0	No Change	82	0.16	42.64	\$4.35	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
232.21	1	Men's Room	260	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.08	21.3	\$2.17	1	0	No Change	82	0.08	21.32	\$2.17	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
232.21	1	Ladies Room	260	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.08	21.3	\$2.17	1	0	No Change	82	0.08	21.32	\$2.17	\$0.00	\$0.00	0.00	0	\$0.00	0.00		

**Investment Grade Lighting Audit**

232.21	1	Communications Room	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.16	426.4	\$43.49	2	0	No Change	82	0.16	426.4	\$43.49	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Copy Room	1000	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.08	82.0	\$8.36	1	0	No Change	82	0.08	82	\$8.36	\$0.00	\$0.00	0.00	0	\$0.00	0.00
224.21	1	Copy Room	1000	1	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.07	73.0	\$7.45	1	0	No Change	73	0.07	73	\$7.45	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Human Services Directors Office Lobby	2600	6	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.49	1,279.2	\$130.48	6	0	No Change	82	0.49	1279.2	\$130.48	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Conference Room	2600	5	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.41	1,066.0	\$108.73	5	0	No Change	82	0.41	1066	\$108.73	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Directors Office	2600	7	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.57	1,492.4	\$152.22	7	0	No Change	82	0.57	1492.4	\$152.22	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Office	2600	3	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.25	639.6	\$65.24	3	0	No Change	82	0.25	639.6	\$65.24	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	East Wing Lobby	2600	8	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.66	1,705.6	\$173.97	8	0	No Change	82	0.66	1705.6	\$173.97	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	East Wing Office 1	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.33	852.8	\$86.99	4	0	No Change	82	0.33	852.8	\$86.99	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	East Wing Office 2	2600	3	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.25	639.6	\$65.24	3	0	No Change	82	0.25	639.6	\$65.24	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	East Wing Office 3	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.33	852.8	\$86.99	4	0	No Change	82	0.33	852.8	\$86.99	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	East Wing Office 4	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.33	852.8	\$86.99	4	0	No Change	82	0.33	852.8	\$86.99	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	East Wing Office 5	2600	3	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.25	639.6	\$65.24	3	0	No Change	82	0.25	639.6	\$65.24	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	East Wing Office 6	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.33	852.8	\$86.99	4	0	No Change	82	0.33	852.8	\$86.99	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	Corridor	2600	6	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.49	1,279.2	\$130.48	6	0	No Change	82	0.49	1279.2	\$130.48	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	Men's Room	2600	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.08	213.2	\$21.75	1	0	No Change	82	0.08	213.2	\$21.75	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	Ladies Room	2600	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.08	213.2	\$21.75	1	0	No Change	82	0.08	213.2	\$21.75	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	Office	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.16	426.4	\$43.49	2	0	No Change	82	0.16	426.4	\$43.49	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	Housekeeping	260	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.16	42.6	\$4.35	2	0	No Change	82	0.16	42.64	\$4.35	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	Office	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.16	426.4	\$43.49	2	0	No Change	82	0.16	426.4	\$43.49	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	Copy Room	2600	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.08	213.2	\$21.75	1	0	No Change	82	0.08	213.2	\$21.75	\$0.00	\$0.00	0.00	0	\$0.00	0.00

**Investment Grade Lighting Audit**

121.14	2	Stairs	8760	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Recessed Mnt., No Lens	75	0.15	1,314.0	\$134.03	2	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.11	963.6	\$98.29	\$100.00	\$200.00	0.04	350.4	\$35.74	5.60
121.34	2	Stairs	8760	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Pendant Mnt., No Lens	75	0.08	657.0	\$67.01	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	481.8	\$49.14	\$100.00	\$100.00	0.02	175.2	\$17.87	5.60
232.21	2	West Wing Main Office	2600	12	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.98	2,558.4	\$260.96	12	0	No Change	82	0.98	2558.4	\$260.96	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	Closet	260	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.08	21.3	\$2.17	1	0	No Change	82	0.08	21.32	\$2.17	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	Office	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.33	852.8	\$86.99	4	0	No Change	82	0.33	852.8	\$86.99	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	Office	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.16	426.4	\$43.49	2	0	No Change	82	0.16	426.4	\$43.49	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	Office	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.16	426.4	\$43.49	2	0	No Change	82	0.16	426.4	\$43.49	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	Office	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.16	426.4	\$43.49	2	0	No Change	82	0.16	426.4	\$43.49	\$0.00	\$0.00	0.00	0	\$0.00	0.00
222.31	B	Room 203	260	6	2	2-Lamp, T8, Electronic Ballast, Pendant Mounted, Prismatic Lens	58	0.35	90.5	\$9.23	6	0	No Change	58	0.35	90.48	\$9.23	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	B	Paint Room	1000	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.08	82.0	\$8.36	1	0	No Change	82	0.08	82	\$8.36	\$0.00	\$0.00	0.00	0	\$0.00	0.00
142.31	B	Paint Room	1000	1	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Pendant Mnt., Prismatic Lens	172	0.17	172.0	\$17.54	1	3	3-Lamp 32W T-8, Elect Ballast; retrofit	91	0.09	91	\$9.28	\$100.00	\$100.00	0.08	81	\$8.26	12.10
407	B	Pump Room 2B	260	3	1	1-Lamp Compact Fluorescent	23	0.07	17.9	\$1.83	3	0	No Change	23	0.07	17.94	\$1.83	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.11	B	Storage Room	260	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.15	39.0	\$3.98	2	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.11	28.6	\$2.92	\$100.00	\$200.00	0.04	10.4	\$1.06	188.54
121.11	B	Storage Room	260	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.15	39.0	\$3.98	2	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.11	28.6	\$2.92	\$100.00	\$200.00	0.04	10.4	\$1.06	188.54
121.11	B	Corridor	8760	9	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.68	5,913.0	\$603.13	9	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.50	4336.2	\$442.29	\$100.00	\$900.00	0.18	1576.8	\$160.83	5.60
232.21	B	Elevator Rm	260	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.08	21.3	\$2.17	1	0	No Change	82	0.08	21.32	\$2.17	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.11	B	Utility Room	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$19.89	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	143	\$14.59	\$100.00	\$100.00	0.02	52	\$5.30	18.85
142.11	B	Utility Room	2600	2	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.34	894.4	\$91.23	2	3	3-Lamp 32W T-8, Elect Ballast; retrofit	91	0.18	473.2	\$48.27	\$100.00	\$200.00	0.16	421.2	\$42.96	4.66
408	B	Utility Room	2600	1	1	1-Lamp Compact Fluorescent	80	0.08	208.0	\$21.22	1	0	No Change	80	0.08	208	\$21.22	\$0.00	\$0.00	0.00	0	\$0.00	0.00

**Investment Grade Lighting Audit**

121.11	B	Domestic Water Pump Room	260	12	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.90	234.0	\$23.87	12	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.66	171.6	\$17.50	\$100.00	\$1,200.00	0.24	62.4	\$6.36	188.54
402	B	Training Room	260	6	1	1-Lamp Compact Fluorescent	13	0.08	20.3	\$2.07	6	0	No Change	13	0.08	20.28	\$2.07	\$0.00	\$0.00	0.00	0	\$0.00	0.00
303	B	Domestic Water Pump Room Storage	260	4	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.40	104.0	\$10.61	4	0	26 W CFL Lamp	26	0.10	27.04	\$2.76	\$5.75	\$23.00	0.30	76.96	\$7.85	2.93
<b>Totals</b>				216				17.01	42,281.5	\$4,312.71	216				15.886	39464.74	\$4,025.40		\$3,223.00	1.12	2816.8	\$287.31	11.22

**NOTES:** 1. Simple Payback noted in this spreadsheet does not include Maintenance Savings and NJ Smart Start Incentives.  
2. Lamp totals only include T-12 tube replacement calculations

**Investment Grade Lighting Audit**

CEG Job #: 9C09162

Project: HUDSON COUNTY IMPROVEMENT AUTHORITY ENERGY AUDIT

Address: 595 County Ave.

Secaucus, NJ. 07094

Building SF: 23,000

Building - 2

KWH COST: \$0.102

**ECM: Lighting Controls**

EXISTING LIGHTING										PROPOSED LIGHTING CONTROLS										SAVINGS					
CEG Type	Floor	Fixture Location	Yearly Usage	No. Fixts	No. Lamps	Fixture Type	Fixt Watts	Total kW	kWh/Yr Fixtures	Yearly \$ Cost	No. Fixts	No. Lamps	Controls Description	Watts Used	Total kW	Reduction (%)	kWh/Yr Fixtures	Yearly \$ Cost	Unit Cost (INSTALLED)	Total Cost	kW Savings	kWh/Yr Savings	Yearly \$ Savings	Yearly Simple Payback	
232.2	1	Corridor	2600	18	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	1.476	3837.6	391.4352	18	0	Dual Technology Occupancy Sensor	82	1.48	20%	3070.08	\$313.15	\$160.00	\$160.00	0	767.52	\$78.29	2.04	
232.2	1	Dispatch Office	2600	3	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.246	639.6	65.2392	3	0		82	0.25	0%	639.6	\$65.24	\$0.00	\$0.00	0	0	\$0.00	0.00	
224.2	1	Dispatch Office	2600	3	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.219	569.4	58.0788	3	0		73	0.22	0%	569.4	\$58.08	\$0.00	\$0.00	0	0	\$0.00	0.00	
224.2	1	Bathroom	2600	3	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.219	569.4	58.0788	3	0		73	0.22	0%	569.4	\$58.08	\$0.00	\$0.00	0	0	\$0.00	0.00	
232.2	1	Payroll	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.164	426.4	43.4928	2	0		82	0.16	0%	426.4	\$43.49	\$0.00	\$0.00	0	0	\$0.00	0.00	
232.2	1	Scheduling Office	2600	7	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.574	1492.4	152.2248	7	0		82	0.57	0%	1492.4	\$152.22	\$0.00	\$0.00	0	0	\$0.00	0.00	
232.2	1	Main Office	2600	9	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.738	1918.8	195.7176	9	0		82	0.74	0%	1918.8	\$195.72	\$0.00	\$0.00	0	0	\$0.00	0.00	
232.2	1	Kitchenette	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.328	852.8	86.9856	4	0		82	0.33	0%	852.8	\$86.99	\$0.00	\$0.00	0	0	\$0.00	0.00	
232.2	1	Conference Room	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.328	852.8	86.9856	4	0		82	0.33	0%	852.8	\$86.99	\$0.00	\$0.00	0	0	\$0.00	0.00	
232.2	1	Office across Conference Room	2600	3	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.246	639.6	65.2392	3	0		82	0.25	0%	639.6	\$65.24	\$0.00	\$0.00	0	0	\$0.00	0.00	
232.2	1	Office across Conference Room	2600	3	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.246	639.6	65.2392	3	0		82	0.25	0%	639.6	\$65.24	\$0.00	\$0.00	0	0	\$0.00	0.00	
400	1	Bathroom in the Office	2600	1	2	2-Lamp, Compact Fluorescent, Vanity Light	36	0.036	93.6	9.5472	1	0		36	0.04	0%	93.6	\$9.55	\$0.00	\$0.00	0	0	\$0.00	0.00	
232.2	1	A/C Room	260	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.164	42.64	4.34928	2	0		82	0.16	0%	42.64	\$4.35	\$0.00	\$0.00	0	0	\$0.00	0.00	
232.2	1	Office	2600	3	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.246	639.6	65.2392	3	0		82	0.25	0%	639.6	\$65.24	\$0.00	\$0.00	0	0	\$0.00	0.00	
232.2	1	File Room	260	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.164	42.64	4.34928	2	0		82	0.16	0%	42.64	\$4.35	\$0.00	\$0.00	0	0	\$0.00	0.00	
232.2	1	Men's Room	260	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.082	21.32	2.17464	1	0		82	0.08	0%	21.32	\$2.17	\$0.00	\$0.00	0	0	\$0.00	0.00	
232.2	1	Ladies Room	260	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.082	21.32	2.17464	1	0		82	0.08	0%	21.32	\$2.17	\$0.00	\$0.00	0	0	\$0.00	0.00	

**Investment Grade Lighting Audit**

232.2	1	Communications Room	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.164	426.4	43.4928	2	0		82	0.16	0%	426.4	\$43.49	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	1	Copy Room	1000	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.082	82	8.364	1	0		82	0.08	0%	82	\$8.36	\$0.00	\$0.00	0	0	\$0.00	0.00
224.2	1	Copy Room	1000	1	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.073	73	7.446	1	0		73	0.07	0%	73	\$7.45	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	1	Human Services Directors Office Lobby	2600	6	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.492	1279.2	130.4784	6	0		82	0.49	0%	1279.2	\$130.48	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	1	Conference Room	2600	5	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.41	1066	108.732	5	0	Dual Technology Occupancy Sensor	82	0.41	20%	852.8	\$86.99	\$160.00	\$160.00	0	213.2	\$21.75	7.36
232.2	1	Directors Office	2600	7	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.574	1492.4	152.2248	7	0	Dual Technology Occupancy Sensor	82	0.57	20%	1193.92	\$121.78	\$160.00	\$160.00	0	298.48	\$30.44	5.26
232.2	1	Office	2600	3	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.246	639.6	65.2392	3	0	Dual Technology Occupancy Sensor	82	0.25	20%	511.68	\$52.19	\$160.00	\$160.00	0	127.92	\$13.05	12.26
232.2	2	East Wing Lobby	2600	8	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.656	1705.6	173.9712	8	0	Dual Technology Occupancy Sensor	82	0.66	20%	1364.48	\$139.18	\$160.00	\$160.00	0	341.12	\$34.79	4.60
232.2	2	East Wing Office 1	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.328	852.8	86.9856	4	0	Dual Technology Occupancy Sensor	82	0.33	20%	682.24	\$69.59	\$160.00	\$160.00	0	170.56	\$17.40	9.20
232.2	2	East Wing Office 2	2600	3	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.246	639.6	65.2392	3	0	Dual Technology Occupancy Sensor	82	0.25	20%	511.68	\$52.19	\$160.00	\$160.00	0	127.92	\$13.05	12.26
232.2	2	East Wing Office 3	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.328	852.8	86.9856	4	0	Dual Technology Occupancy Sensor	82	0.33	20%	682.24	\$69.59	\$160.00	\$160.00	0	170.56	\$17.40	9.20
232.2	2	East Wing Office 4	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.328	852.8	86.9856	4	0	Dual Technology Occupancy Sensor	82	0.33	20%	682.24	\$69.59	\$160.00	\$160.00	0	170.56	\$17.40	9.20
232.2	2	East Wing Office 5	2600	3	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.246	639.6	65.2392	3	0	Dual Technology Occupancy Sensor	82	0.25	20%	511.68	\$52.19	\$160.00	\$160.00	0	127.92	\$13.05	12.26
232.2	2	East Wing Office 6	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.328	852.8	86.9856	4	0	Dual Technology Occupancy Sensor	82	0.33	20%	682.24	\$69.59	\$160.00	\$160.00	0	170.56	\$17.40	9.20
232.2	2	Corridor	2600	6	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.492	1279.2	130.4784	6	0		82	0.49	0%	1279.2	\$130.48	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	2	Men's Room	2600	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.082	213.2	21.7464	1	0	Dual Technology Occupancy Sensor	82	0.08	20%	170.56	\$17.40	\$160.00	\$160.00	0	42.64	\$4.35	36.79
232.2	2	Ladies Room	2600	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.082	213.2	21.7464	1	0	Dual Technology Occupancy Sensor	82	0.08	20%	170.56	\$17.40	\$160.00	\$160.00	0	42.64	\$4.35	36.79
232.2	2	Office	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.164	426.4	43.4928	2	0		82	0.16	0%	426.4	\$43.49	\$160.00	\$0.00	0	0	\$0.00	0.00
232.2	2	Housekeeping	260	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.164	42.64	4.34928	2	0		82	0.16	0%	42.64	\$4.35	\$160.00	\$0.00	0	0	\$0.00	0.00
232.2	2	Office	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.164	426.4	43.4928	2	0		82	0.16	0%	426.4	\$43.49	\$160.00	\$0.00	0	0	\$0.00	0.00
232.2	2	Copy Room	2600	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.082	213.2	21.7464	1	0	Dual Technology Occupancy Sensor	82	0.08	20%	170.56	\$17.40	\$160.00	\$160.00	0	42.64	\$4.35	36.79

**Investment Grade Lighting Audit**

121.1	2	Stairs	8760	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Recessed Mnt., No Lens	75	0.15	1314	134.028	2	2		75	0.15	0%	1314	\$134.03	\$160.00	\$0.00	0	0	\$0.00	0.00
121.3	2	Stairs	8760	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Pendant Mnt., No Lens	75	0.075	657	67.014	1	2		75	0.08	0%	657	\$67.01	\$160.00	\$0.00	0	0	\$0.00	0.00
232.2	2	West Wing Main Office	2600	12	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.984	2558.4	260.9568	12	0		82	0.98	0%	2558.4	\$260.96	\$160.00	\$0.00	0	0	\$0.00	0.00
232.2	2	Closet	260	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.082	21.32	2.17464	1	0		82	0.08	0%	21.32	\$2.17	\$160.00	\$0.00	0	0	\$0.00	0.00
232.2	2	Office	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.328	852.8	86.9856	4	0		82	0.33	0%	852.8	\$86.99	\$160.00	\$0.00	0	0	\$0.00	0.00
232.2	2	Office	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.164	426.4	43.4928	2	0		82	0.16	0%	426.4	\$43.49	\$160.00	\$0.00	0	0	\$0.00	0.00
232.2	2	Office	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.164	426.4	43.4928	2	0		82	0.16	0%	426.4	\$43.49	\$160.00	\$0.00	0	0	\$0.00	0.00
232.2	2	Office	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.164	426.4	43.4928	2	0		82	0.16	0%	426.4	\$43.49	\$160.00	\$0.00	0	0	\$0.00	0.00
222.3	B	Room 203	260	6	2	2-Lamp, T8, Electronic Ballast, Pendant Mounted, Prismatic Lens	58	0.348	90.48	9.22896	6	0		58	0.35	0%	90.48	\$9.23	\$160.00	\$0.00	0	0	\$0.00	0.00
232.2	B	Paint Room	1000	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.082	82	8.364	1	0		82	0.08	0%	82	\$8.36	\$160.00	\$0.00	0	0	\$0.00	0.00
142.3	B	Paint Room	1000	1	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Pendant Mnt., Prismatic Lens	172	0.172	172	17.544	1	3		172	0.17	0%	172	\$17.54	\$160.00	\$0.00	0	0	\$0.00	0.00
407	B	Pump Room 2B	260	3	1	1-Lamp Compact Fluorescent	23	0.069	17.94	1.82988	3	0		23	0.07	0%	17.94	\$1.83	\$160.00	\$0.00	0	0	\$0.00	0.00
121.1	B	Storage Room	260	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.15	39	3.978	2	2		75	0.15	0%	39	\$3.98	\$160.00	\$0.00	0	0	\$0.00	0.00
121.1	B	Storage Room	260	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.15	39	3.978	2	2		75	0.15	0%	39	\$3.98	\$160.00	\$0.00	0	0	\$0.00	0.00
121.1	B	Corridor	8760	9	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.675	5913	603.126	9	2		75	0.68	0%	5913	\$603.13	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	B	Elevator Rm	260	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.082	21.32	2.17464	1	0		82	0.08	0%	21.32	\$2.17	\$160.00	\$0.00	0	0	\$0.00	0.00
121.1	B	Utility Room	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	19.89	1	2		75	0.08	0%	195	\$19.89	\$160.00	\$0.00	0	0	\$0.00	0.00
142.1	B	Utility Room	2600	2	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.344	894.4	91.2288	2	3		172	0.34	0%	894.4	\$91.23	\$160.00	\$0.00	0	0	\$0.00	0.00
408	B	Utility Room	2600	1	1	1-Lamp Compact Fluorescent	80	0.08	208	21.216	1	0		80	0.08	0%	208	\$21.22	\$160.00	\$0.00	0	0	\$0.00	0.00

**Investment Grade Lighting Audit**

121.1	B	Domestic Water Pump Room	260	12	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.9	234	23.868	12	2		75	0.90	0%	234	\$23.87	\$160.00	\$0.00	0	0	\$0.00	0.00
402	B	Training Room	260	6	1	1-Lamp Compact Fluorescent	13	0.078	20.28	2.06856	6	0		13	0.08	0%	20.28	\$2.07	\$0.00	\$0.00	0	0	\$0.00	0.00
303	B	Domestic Water Pump Room Storage	260	4	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.4	104	10.608	4	0		100	0.40	0%	104	\$10.61	\$0.00	\$0.00	0	0	\$0.00	0.00
<b>Totals</b>				216	162			17.01	42,281.5	\$4,312.71	216				17.005		39467.26	\$4,025.66		\$2,240.00	0	2814.2	\$287.05	7.80

**NOTES:** 1. Simple Payback noted in this spreadsheet does not include Maintenance Savings and NJ Smart Start Incentives.  
2. Lamp totals only include T-12 tube replacement calculations

Investment Grade Lighting Audit

CEG Job #: 9C09162

Project: HUDSON COUNTY IMPROVEMENT AUTHORITY ENERGY AUDIT

Building - 3

KWH COST: \$0.102

Address: 595 County Ave.

Secaucus, NJ. 07094

Building SF: 25,000

**ECM: Lighting Upgrade - General**

EXISTING LIGHTING						PROPOSED LIGHTING											SAVINGS						
CEG Type	Floor	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
232.21	1	Conference Room	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.33	852.8	\$86.99	4	0	No Change	82	0.33	852.8	\$86.99	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Certification Back Office	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.33	852.8	\$86.99	4	0	No Change	82	0.33	852.8	\$86.99	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Certification Back Office	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.16	426.4	\$43.49	2	0	No Change	82	0.16	426.4	\$43.49	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Certification Office	2600	10	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.82	2,132.0	\$217.46	10	0	No Change	82	0.82	2132	\$217.46	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Certification Office	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.33	852.8	\$86.99	4	0	No Change	82	0.33	852.8	\$86.99	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Storage Room	260	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.33	85.3	\$8.70	4	0	No Change	82	0.33	85.28	\$8.70	\$0.00	\$0.00	0.00	0	\$0.00	0.00
222.11	1	Entry / Exit	8760	1	2	2-Lamp, T8, Electronic Ballast, Surface Mounted, Prismatic Lens	58	0.06	508.1	\$51.82	1	0	No Change	58	0.06	508.08	\$51.82	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	House Keeping	260	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.08	21.3	\$2.17	1	0	No Change	82	0.08	21.32	\$2.17	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.34	1	Stairs	8760	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Pendant Mnt., No Lens	75	0.08	657.0	\$67.01	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	481.8	\$49.14	\$100.00	\$100.00	0.02	175.2	\$17.87	5.60
121.14	1	Stairs	8760	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., No Lens	75	0.15	1,314.0	\$134.03	2	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.11	963.6	\$98.29	\$100.00	\$200.00	0.04	350.4	\$35.74	5.60
232.21	1	Education Specialist	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.33	852.8	\$86.99	4	0	No Change	82	0.33	852.8	\$86.99	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Kitchenette	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.16	426.4	\$43.49	2	0	No Change	82	0.16	426.4	\$43.49	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Server	260	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.08	21.3	\$2.17	1	0	No Change	82	0.08	21.32	\$2.17	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Storage	260	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.16	42.6	\$4.35	2	0	No Change	82	0.16	42.64	\$4.35	\$0.00	\$0.00	0.00	0	\$0.00	0.00

Investment Grade Lighting Audit

224.21	1	Men's Room	2600	2	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.15	379.6	\$38.72	2	0	No Change	73	0.15	379.6	\$38.72	\$0.00	\$0.00	0.00	0	\$0.00	0.00
224.21	1	Ladies Room	2600	2	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.15	379.6	\$38.72	2	0	No Change	73	0.15	379.6	\$38.72	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Superintendent of Schools - Main	2600	9	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.74	1,918.8	\$195.72	9	0	No Change	82	0.74	1918.8	\$195.72	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	School Business Admin	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.33	852.8	\$86.99	4	0	No Change	82	0.33	852.8	\$86.99	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Technician	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.16	426.4	\$43.49	2	0	No Change	82	0.16	426.4	\$43.49	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Office	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.16	426.4	\$43.49	2	0	No Change	82	0.16	426.4	\$43.49	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Office	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.16	426.4	\$43.49	2	0	No Change	82	0.16	426.4	\$43.49	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Superintendents Office	2600	7	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.57	1,492.4	\$152.22	7	0	No Change	82	0.57	1492.4	\$152.22	\$0.00	\$0.00	0.00	0	\$0.00	0.00
224.21	1	Restroom	260	1	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.07	19.0	\$1.94	1	0	No Change	73	0.07	18.98	\$1.94	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Corridors	2600	10	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.82	2,132.0	\$217.46	10	0	No Change	82	0.82	2132	\$217.46	\$0.00	\$0.00	0.00	0	\$0.00	0.00
600	1	Corridors and Offices	8760	10	1	Exit Sign - LED	10	0.10	876.0	\$89.35	10	0	No Change	10	0.10	876	\$89.35	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.11	1	Mechanical Room	260	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	19.5	\$1.99	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	14.3	\$1.46	\$100.00	\$100.00	0.02	5.2	\$0.53	188.54
232.21	2	Engineering	2600	13	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	1.07	2,771.6	\$282.70	13	0	No Change	82	1.07	2771.6	\$282.70	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	Engineering Offices	2600	11	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.90	2,345.2	\$239.21	11	0	No Change	82	0.90	2345.2	\$239.21	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	New Addition	2600	10	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.82	2,132.0	\$217.46	10	0	No Change	82	0.82	2132	\$217.46	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	Copier Room	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.16	426.4	\$43.49	2	0	No Change	82	0.16	426.4	\$43.49	\$0.00	\$0.00	0.00	0	\$0.00	0.00

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232.21	2	Copier Supply Area	2600	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.08	213.2	\$21.75	1	0	No Change	82	0.08	213.2	\$21.75	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	Assistant County Engineer	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.33	852.8	\$86.99	4	0	No Change	82	0.33	852.8	\$86.99	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	Corridor	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.33	852.8	\$86.99	4	0	No Change	82	0.33	852.8	\$86.99	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	Lounge Room	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.16	426.4	\$43.49	2	0	No Change	82	0.16	426.4	\$43.49	\$0.00	\$0.00	0.00	0	\$0.00	0.00
211.11	2	Janitors Closet	260	1	1	1-Lamp, T8, Electronic Ballast, Surface Mounted, Prismatic Lens	32	0.03	8.3	\$0.85	1	0	No Change	32	0.03	8.32	\$0.85	\$0.00	\$0.00	0.00	0	\$0.00	0.00
211.11	2	Mechanical Equipment Room	260	1	1	1-Lamp, T8, Electronic Ballast, Surface Mounted, Prismatic Lens	32	0.03	8.3	\$0.85	1	0	No Change	32	0.03	8.32	\$0.85	\$0.00	\$0.00	0.00	0	\$0.00	0.00
224.21	2	Copy Room	2600	1	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.07	189.8	\$19.36	1	0	No Change	73	0.07	189.8	\$19.36	\$0.00	\$0.00	0.00	0	\$0.00	0.00
224.21	2	Men's Room	2600	2	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.15	379.6	\$38.72	2	0	No Change	73	0.15	379.6	\$38.72	\$0.00	\$0.00	0.00	0	\$0.00	0.00
224.21	2	Ladies Room	2600	2	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.15	379.6	\$38.72	2	0	No Change	73	0.15	379.6	\$38.72	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	Conference Room	2600	3	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.25	639.6	\$65.24	3	0	No Change	82	0.25	639.6	\$65.24	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	Architectural Office/Designs	2600	6	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.49	1,279.2	\$130.48	6	0	No Change	82	0.49	1279.2	\$130.48	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	Secretaries	2600	6	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.49	1,279.2	\$130.48	6	0	No Change	82	0.49	1279.2	\$130.48	\$0.00	\$0.00	0.00	0	\$0.00	0.00
224.21	2	Secretaries	2600	2	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.15	379.6	\$38.72	2	0	No Change	73	0.15	379.6	\$38.72	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	Office	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.16	426.4	\$43.49	2	0	No Change	82	0.16	426.4	\$43.49	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	2	County Engineer Office	2600	7	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.57	1,492.4	\$152.22	7	0	No Change	82	0.57	1492.4	\$152.22	\$0.00	\$0.00	0.00	0	\$0.00	0.00
402	B	Room 302	260	4	1	1-Lamp Compact Fluorescent	13	0.05	13.5	\$1.38	4	0	No Change	13	0.05	13.52	\$1.38	\$0.00	\$0.00	0.00	0	\$0.00	0.00

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121.11	B	303	260	3	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.23	58.5	\$5.97	3	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.17	42.9	\$4.38	\$100.00	\$300.00	0.06	15.6	\$1.59	188.54
121.11	B	305	260	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	19.5	\$1.99	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	14.3	\$1.46	\$100.00	\$100.00	0.02	5.2	\$0.53	188.54
224.21	B	306	260	4	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.29	75.9	\$7.74	4	0	No Change	73	0.29	75.92	\$7.74	\$0.00	\$0.00	0.00	0	\$0.00	0.00
242.21	B	307	260	4	4	4-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	110	0.44	114.4	\$11.67	4	0	No Change	110	0.44	114.4	\$11.67	\$0.00	\$0.00	0.00	0	\$0.00	0.00
242.21	B	309	260	4	4	4-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	110	0.44	114.4	\$11.67	4	0	No Change	110	0.44	114.4	\$11.67	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.11	B	310	260	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	19.5	\$1.99	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	14.3	\$1.46	\$100.00	\$100.00	0.02	5.2	\$0.53	188.54
402	B	314	260	1	1	1-Lamp Compact Fluorescent	13	0.01	3.4	\$0.34	1	0	No Change	13	0.01	3.38	\$0.34	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.11	B	Corridor	8760	6	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.45	3,942.0	\$402.08	6	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.33	2890.8	\$294.86	\$100.00	\$600.00	0.12	1051.2	\$107.22	5.60
121.11	B	Corridor	8760	4	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.30	2,628.0	\$268.06	4	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.22	1927.2	\$196.57	\$100.00	\$400.00	0.08	700.8	\$71.48	5.60
121.31	B	Corridor	8760	4	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Pendant Mnt., Prismatic Lens	75	0.30	2,628.0	\$268.06	4	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.22	1927.2	\$196.57	\$100.00	\$400.00	0.08	700.8	\$71.48	5.60
232.21	B	Elevator Room	260	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.08	21.3	\$2.17	1	0	No Change	82	0.08	21.32	\$2.17	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.31	B	Glazer	260	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Pendant Mnt., Prismatic Lens	75	0.08	19.5	\$1.99	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	14.3	\$1.46	\$100.00	\$100.00	0.02	5.2	\$0.53	188.54
121.31	B	Janitors	260	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Pendant Mnt., Prismatic Lens	75	0.08	19.5	\$1.99	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	14.3	\$1.46	\$100.00	\$100.00	0.02	5.2	\$0.53	188.54
121.31	B	Storage	2600	3	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Pendant Mnt., Prismatic Lens	75	0.23	585.0	\$59.67	3	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.17	429	\$43.76	\$100.00	\$300.00	0.06	156	\$15.91	18.85
224.21	B	Storage	2600	2	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.15	379.6	\$38.72	2	0	No Change	73	0.15	379.6	\$38.72	\$0.00	\$0.00	0.00	0	\$0.00	0.00
224.21	B	Storage	2600	2	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.15	379.6	\$38.72	2	0	No Change	73	0.15	379.6	\$38.72	\$0.00	\$0.00	0.00	0	\$0.00	0.00

Investment Grade Lighting Audit

242.31	B	Shop	2600	16	4	4-Lamp, T8, Electronic Ballast, Pendant, Prismatic Lens	110	1.76	4,576.0	\$466.75	16	0	No Change	110	1.76	4576	\$466.75	\$0.00	\$0.00	0.00	0	\$0.00	0.00
242.31	B	Carpenter Supply	2600	4	4	4-Lamp, T8, Electronic Ballast, Pendant, Prismatic Lens	110	0.44	1,144.0	\$116.69	4	0	No Change	110	0.44	1144	\$116.69	\$0.00	\$0.00	0.00	0	\$0.00	0.00
242.31	B	Locker Room	2600	4	4	4-Lamp, T8, Electronic Ballast, Pendant, Prismatic Lens	110	0.44	1,144.0	\$116.69	4	0	No Change	110	0.44	1144	\$116.69	\$0.00	\$0.00	0.00	0	\$0.00	0.00
<b>Totals</b>				244				19.34	52,762.6	\$5,381.79	244	24			18.779	49586.6	\$5,058		\$2,800	0.56	3176.0	\$323.95	8.64

NOTES: 1. Simple Payback noted in this spreadsheet does not include Maintenance Savings and NJ Smart Start Incentives.  
2. Lamp totals only include T-12 tube replacement calculations

**Investment Grade Lighting Audit**

CEG Job #: 9C09162

Project: HUDSON COUNTY IMPROVEMENT AUTHORITY ENERGY AUDIT

Address: 595 County Ave.

Secaucus, NJ. 07094

Building SF: 25,000

Building - 3

KWH COST: \$0.102

**ECM: Lighting Controls**

EXISTING LIGHTING						PROPOSED LIGHTING CONTROLS											SAVINGS							
CEG Type	Floor	Fixture Location	Yearly Usage	No. Fixts	No. Lamps	Fixture Type	Fixt Watts	Total kW	kWh/Yr Fixtures	Yearly \$ Cost	No. Fixts	No. Lamps	Controls Description	Watts Used	Total kW	Reduction (%)	kWh/Yr Fixtures	Yearly \$ Cost	Unit Cost (INSTALLED)	Total Cost	kW Savings	kWh/Yr Savings	Yearly \$ Savings	Yearly Simple Payback
232.2	1	Conference Room	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.328	852.8	86.9856	4	0	Dual Technology Occupancy Sensor	82	0.33	20%	682.24	\$69.59	\$160.00	\$160.00	0	170.56	\$17.40	9.20
232.2	1	Certification Back Office	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.328	852.8	86.9856	4	0	Dual Technology Occupancy Sensor	82	0.33	20%	682.24	\$69.59	\$160.00	\$160.00	0	170.56	\$17.40	9.20
232.2	1	Certification Back Office	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.164	426.4	43.4928	2	0		82	0.16	0%	426.4	\$43.49	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	1	Certification Office	2600	10	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.82	2132	217.464	10	0		82	0.82	0%	2132	\$217.46	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	1	Certification Office	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.328	852.8	86.9856	4	0		82	0.33	0%	852.8	\$86.99	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	1	Storage Room	260	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.328	85.28	8.69856	4	0		82	0.33	0%	85.28	\$8.70	\$0.00	\$0.00	0	0	\$0.00	0.00
222.1	1	Entry / Exit	8760	1	2	2-Lamp, T8, Electronic Ballast, Surface Mounted, Prismatic Lens	58	0.058	508.08	51.82416	1	0		58	0.06	0%	508.08	\$51.82	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	1	House Keeping	260	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.082	21.32	2.17464	1	0		82	0.08	0%	21.32	\$2.17	\$0.00	\$0.00	0	0	\$0.00	0.00
121.3	1	Stairs	8760	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Pendant Mnt., No Lens	75	0.075	657	67.014	1	2		75	0.08	0%	657	\$67.01	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	1	Stairs	8760	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., No Lens	75	0.15	1314	134.028	2	2		75	0.15	0%	1314	\$134.03	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	1	Education Specialist	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.328	852.8	86.9856	4	0		82	0.33	0%	852.8	\$86.99	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	1	Kitchenette	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.164	426.4	43.4928	2	0		82	0.16	0%	426.4	\$43.49	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	1	Server	260	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.082	21.32	2.17464	1	0		82	0.08	0%	21.32	\$2.17	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	1	Storage	260	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.164	42.64	4.34928	2	0		82	0.16	0%	42.64	\$4.35	\$0.00	\$0.00	0	0	\$0.00	0.00

Investment Grade Lighting Audit

224.2	1	Men's Room	2600	2	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.146	379.6	38.7192	2	0		73	0.15	0%	379.6	\$38.72	\$0.00	\$0.00	0	0	\$0.00	0.00
224.2	1	Ladies Room	2600	2	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.146	379.6	38.7192	2	0		73	0.15	0%	379.6	\$38.72	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	1	Superintendent of Schools - Main	2600	9	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.738	1918.8	195.7176	9	0		82	0.74	0%	1918.8	\$195.72	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	1	School Business Admin	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.328	852.8	86.9856	4	0	Dual Technology Occupancy Sensor	82	0.33	20%	682.24	\$69.59	\$160.00	\$160.00	0	170.56	\$17.40	9.20
232.2	1	Technician	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.164	426.4	43.4928	2	0		82	0.16	0%	426.4	\$43.49	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	1	Office	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.164	426.4	43.4928	2	0		82	0.16	0%	426.4	\$43.49	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	1	Office	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.164	426.4	43.4928	2	0		82	0.16	0%	426.4	\$43.49	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	1	Superintendents Office	2600	7	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.574	1492.4	152.2248	7	0	Dual Technology Occupancy Sensor	82	0.57	20%	1193.92	\$121.78	\$160.00	\$160.00	0	298.48	\$30.44	5.26
224.2	1	Restroom	260	1	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.073	18.98	1.93596	1	0		73	0.07	0%	18.98	\$1.94	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	1	Corridors	2600	10	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.82	2132	217.464	10	0		82	0.82	0%	2132	\$217.46	\$0.00	\$0.00	0	0	\$0.00	0.00
600	1	Corridors and Offices	8760	10	1	Exit Sign - LED	10	0.1	876	89.352	10	0		10	0.10	0%	876	\$89.35	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	1	Mechanical Room	260	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	19.5	1.989	1	2		75	0.08	0%	19.5	\$1.99	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	2	Engineering	2600	13	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	1.066	2771.6	282.7032	13	0	Dual Technology Occupancy Sensor	82	1.07	20%	2217.28	\$226.16	\$160.00	\$160.00	0	554.32	\$56.54	2.83
232.2	2	Engineering Offices	2600	11	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.902	2345.2	239.2104	11	0		82	0.90	0%	2345.2	\$239.21	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	2	New Addition	2600	10	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.82	2132	217.464	10	0		82	0.82	0%	2132	\$217.46	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	2	Copier Room	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.164	426.4	43.4928	2	0	Dual Technology Occupancy Sensor	82	0.16	20%	341.12	\$34.79	\$160.00	\$160.00	0	85.28	\$8.70	18.39
232.2	2	Copier Supply Area	2600	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.082	213.2	21.7464	1	0		82	0.08	0%	213.2	\$21.75	\$0.00	\$0.00	0	0	\$0.00	0.00

Investment Grade Lighting Audit

232.2	2	Assistant County Engineer	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.328	852.8	86.9856	4	0		82	0.33	0%	852.8	\$86.99	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	2	Corridor	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.328	852.8	86.9856	4	0		82	0.33	0%	852.8	\$86.99	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	2	Lounge Room	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.164	426.4	43.4928	2	0		82	0.16	0%	426.4	\$43.49	\$0.00	\$0.00	0	0	\$0.00	0.00
211.1	2	Janitors Closet	260	1	1	1-Lamp, T8, Electronic Ballast, Surface Mounted, Prismatic Lens	32	0.032	8.32	0.84864	1	0		32	0.03	0%	8.32	\$0.85	\$0.00	\$0.00	0	0	\$0.00	0.00
211.1	2	Mechanical Equipment Room	260	1	1	1-Lamp, T8, Electronic Ballast, Surface Mounted, Prismatic Lens	32	0.032	8.32	0.84864	1	0		32	0.03	0%	8.32	\$0.85	\$0.00	\$0.00	0	0	\$0.00	0.00
224.2	2	Copy Room	2600	1	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.073	189.8	19.3596	1	0		73	0.07	0%	189.8	\$19.36	\$0.00	\$0.00	0	0	\$0.00	0.00
224.2	2	Men's Room	2600	2	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.146	379.6	38.7192	2	0	Dual Technology Occupancy Sensor	73	0.15	20%	303.68	\$30.98	\$160.00	\$160.00	0	75.92	\$7.74	20.66
224.2	2	Ladies Room	2600	2	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.146	379.6	38.7192	2	0	Dual Technology Occupancy Sensor	73	0.15	20%	303.68	\$30.98	\$160.00	\$160.00	0	75.92	\$7.74	20.66
232.2	2	Conference Room	2600	3	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.246	639.6	65.2392	3	0		82	0.25	0%	639.6	\$65.24	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	2	Architectural Office/Designs	2600	6	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.492	1279.2	130.4784	6	0	Dual Technology Occupancy Sensor	82	0.49	20%	1023.36	\$104.38	\$160.00	\$160.00	0	255.84	\$26.10	6.13
232.2	2	Secretaries	2600	6	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.492	1279.2	130.4784	6	0		82	0.49	0%	1279.2	\$130.48	\$0.00	\$0.00	0	0	\$0.00	0.00
224.2	2	Secretaries	2600	2	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.146	379.6	38.7192	2	0		73	0.15	0%	379.6	\$38.72	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	2	Office	2600	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.164	426.4	43.4928	2	0		82	0.16	0%	426.4	\$43.49	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	2	County Engineer Office	2600	7	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.574	1492.4	152.2248	7	0		82	0.57	0%	1492.4	\$152.22	\$0.00	\$0.00	0	0	\$0.00	0.00
402	B	Room 302	260	4	1	1-Lamp Compact Fluorescent	13	0.052	13.52	1.37904	4	0		13	0.05	0%	13.52	\$1.38	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B	303	260	3	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.225	58.5	5.967	3	2		75	0.23	0%	58.5	\$5.97	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B	305	260	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	19.5	1.989	1	2		75	0.08	0%	19.5	\$1.99	\$0.00	\$0.00	0	0	\$0.00	0.00

**Investment Grade Lighting Audit**

224.2	B	306	260	4	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.292	75.92	7.74384	4	0		73	0.29	0%	75.92	\$7.74	\$0.00	\$0.00	0	0	\$0.00	0.00
242.2	B	307	260	4	4	4-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	110	0.44	114.4	11.6688	4	0		110	0.44	0%	114.4	\$11.67	\$0.00	\$0.00	0	0	\$0.00	0.00
242.2	B	309	260	4	4	4-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	110	0.44	114.4	11.6688	4	0		110	0.44	0%	114.4	\$11.67	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B	310	260	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	19.5	1.989	1	2		75	0.08	0%	19.5	\$1.99	\$0.00	\$0.00	0	0	\$0.00	0.00
402	B	314	260	1	1	1-Lamp Compact Fluorescent	13	0.013	3.38	0.34476	1	0		13	0.01	0%	3.38	\$0.34	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B	Corridor	8760	6	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.45	3942	402.084	6	2		75	0.45	0%	3942	\$402.08	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B	Corridor	8760	4	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.3	2628	268.056	4	2		75	0.30	0%	2628	\$268.06	\$0.00	\$0.00	0	0	\$0.00	0.00
121.3	B	Corridor	8760	4	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Pendant Mnt., Prismatic Lens	75	0.3	2628	268.056	4	2		75	0.30	0%	2628	\$268.06	\$0.00	\$0.00	0	0	\$0.00	0.00
232.2	B	Elevator Room	260	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.082	21.32	2.17464	1	0		82	0.08	0%	21.32	\$2.17	\$0.00	\$0.00	0	0	\$0.00	0.00
121.3	B	Glazer	260	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Pendant Mnt., Prismatic Lens	75	0.075	19.5	1.989	1	2		75	0.08	0%	19.5	\$1.99	\$0.00	\$0.00	0	0	\$0.00	0.00
121.3	B	Janitors	260	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Pendant Mnt., Prismatic Lens	75	0.075	19.5	1.989	1	2		75	0.08	0%	19.5	\$1.99	\$0.00	\$0.00	0	0	\$0.00	0.00
121.3	B	Storage	2600	3	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Pendant Mnt., Prismatic Lens	75	0.225	585	59.67	3	2	Dual Technology Occupancy Sensor	75	0.23	20%	468	\$47.74	\$160.00	\$160.00	0	117	\$11.93	13.41
224.2	B	Storage	2600	2	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.146	379.6	38.7192	2	0		73	0.15	0%	379.6	\$38.72	\$0.00	\$0.00	0	0	\$0.00	0.00
224.2	B	Storage	2600	2	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.146	379.6	38.7192	2	0		73	0.15	0%	379.6	\$38.72	\$0.00	\$0.00	0	0	\$0.00	0.00
242.3	B	Shop	2600	16	4	4-Lamp, T8, Electronic Ballast, Pendant, Prismatic Lens	110	1.76	4576	466.752	16	0		110	1.76	0%	4576	\$466.75	\$0.00	\$0.00	0	0	\$0.00	0.00
242.3	B	Carpenter Supply	2600	4	4	4-Lamp, T8, Electronic Ballast, Pendant, Prismatic Lens	110	0.44	1144	116.688	4	0		110	0.44	0%	1144	\$116.69	\$0.00	\$0.00	0	0	\$0.00	0.00
242.3	B	Locker Room	2600	4	4	4-Lamp, T8, Electronic Ballast, Pendant, Prismatic Lens	110	0.44	1144	116.688	4	0		110	0.44	0%	1144	\$116.69	\$0.00	\$0.00	0	0	\$0.00	0.00
		<b>Totals</b>		244	167			19.34	52,762.6	\$5,382	244			19.339			50788.16	\$5,180.39	\$1,600.00	\$1,600.00	0	1974.4	\$201.39	7.94

NOTES: 1. Simple Payback noted in this spreadsheet does not include Maintenance Savings and NJ Smart Start Incentives.

2. Lamp totals only include T-12 tube replacement calculations

**Investment Grade Lighting Audit**

CEG Job #: 9C09162

Project: HUDSON COUNTY IMPROVEMENT AUTHORITY ENERGY AUDIT

Building - 4

KWH COST: \$0.167

Address: 595 County Ave.

Secaucus, NJ. 07094

Building SF: 22,500

**ECM: Lighting Upgrade - General**

EXISTING LIGHTING						PROPOSED LIGHTING											SAVINGS						
CEG Type	Floor	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
121.11	1	Corridors	8760	7	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.53	4,599.0	\$768.03	7	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.39	3372.6	\$563.22	\$100.00	\$700.00	0.14	1226.4	\$204.81	3.42
121.11	1	Dining Room	2600	11	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.83	2,145.0	\$358.22	11	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.61	1573	\$262.69	\$100.00	\$1,100.00	0.22	572	\$95.52	11.52
142.11	1	Dining Room	2600	4	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.69	1,788.8	\$298.73	4	3	3-Lamp 32W T-8, Elect Ballast; retrofit	91	0.36	946.4	\$158.05	\$100.00	\$400.00	0.32	842.4	\$140.68	2.84
305	1	Rm# 181: Supply Room	260	1	1	1 Lamp Incandescent, 150 Watt Bulbs, Surface Mounted, Direct	150	0.15	39.0	\$6.51	1	1	42 W CFL Lamp	42	0.04	10.92	\$1.82	\$20.00	\$20.00	0.11	28.08	\$4.69	4.26
121.11	1	183: Welfare Office	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	1	168: Nurse's Station	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	1	182: Nurse's Station	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
303	1	182: Nurse's Station	520	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.10	52.0	\$8.68	1	1	26 W CFL Lamp	26	0.03	13.52	\$2.26	\$5.75	\$5.75	0.07	38.48	\$6.43	0.89
305	1	181: Supply Room	260	1	1	1 Lamp Incandescent, 150 Watt Bulbs, Surface Mounted, Direct	150	0.15	39.0	\$6.51	1	1	42 W CFL Lamp	42	0.04	10.92	\$1.82	\$20.00	\$20.00	0.11	28.08	\$4.69	4.26
121.11	1	180: Laundry	8760	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	657.0	\$109.72	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	481.8	\$80.46	\$100.00	\$100.00	0.02	175.2	\$29.26	3.42
121.11	1	169: Hobby workshop	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
725.14	1	170: Pantry	260	1	2	2-Lamp, Round T9, Electronic Ballast, Surface Mount, No Lens	40	0.04	10.4	\$1.74	1	0	No Change	40	0.04	10.4	\$1.74	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.11	1	Rm. 179: Men's Room	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52

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121.11	1	Rm. 171: Supply Room	260	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	19.5	\$3.26	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	14.3	\$2.39	\$100.00	\$100.00	0.02	5.2	\$0.87	115.15
121.11	1	Rm. 175: Day Room / TV Room	5096	6	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.45	2,293.2	\$382.96	6	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.33	1681.68	\$280.84	\$100.00	\$600.00	0.12	611.52	\$102.12	5.88
301	1	Rm. 175A: Pantry	260	1	1	1-Lamp Incandescent, 75 Watt Bulbs, Surface Mounted, Direct	75	0.08	19.5	\$3.26	1	1	18 W CFL Lamp	18	0.02	4.68	\$0.78	\$5.75	\$5.75	0.06	14.82	\$2.47	2.32
306	1	Rm. 175: Day Room / TV Room	2600	3	1	Ceiling Fan with 3x75W incandescent lamps, Direct	225	0.68	1,755.0	\$293.09	3	1	(3) 18 W CFL Lamp	54	0.16	421.2	\$70.34	\$17.25	\$51.75	0.51	1333.8	\$222.74	0.23
121.34	1	Rm. 152: Office	2600	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Pendant Mnt., No Lens	75	0.15	390.0	\$65.13	2	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.11	286	\$47.76	\$100.00	\$200.00	0.04	104	\$17.37	11.52
304	1	Rm. 152: Storage Room within Office	260	1	1	1 Lamp Incandescent, 60 Watt Bulbs, Surface Mounted, Direct	60	0.06	15.6	\$2.61	1	1	18 W CFL Lamp	18	0.02	4.68	\$0.78	\$5.75	\$5.75	0.04	10.92	\$1.82	3.15
305	1	150: Men's Room	2600	1	1	1 Lamp Incandescent, 150 Watt Bulbs, Surface Mounted, Direct	150	0.15	390.0	\$65.13	1	1	42 W CFL Lamp	42	0.04	109.2	\$18.24	\$20.00	\$20.00	0.11	280.8	\$46.89	0.43
121.11	1	151: Ladies Room	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
142.21	B	Corridors	8760	7	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	172	1.20	10,547.0	\$1,761.36	7	3	3-Lamp 32W T-8, Elect Ballast; retrofit	91	0.64	5580.12	\$931.88	\$100.00	\$700.00	0.57	4966.92	\$829.48	0.84
141.11	B	A34: Group Room	2600	4	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.69	1,788.8	\$298.73	4	3	3-Lamp 32W T-8, Elect Ballast; retrofit	91	0.36	946.4	\$158.05	\$100.00	\$400.00	0.32	842.4	\$140.68	2.84
121.11	B	Gym	2600	8	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.60	1,560.0	\$260.52	8	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.44	1144	\$191.05	\$100.00	\$800.00	0.16	416	\$69.47	11.52
141.11	B	Occupational Shop	2600	2	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.34	894.4	\$149.36	2	3	3-Lamp 32W T-8, Elect Ballast; retrofit	91	0.18	473.2	\$79.02	\$100.00	\$200.00	0.16	421.2	\$70.34	2.84
141.11	B	A32: Bathroom	2600	2	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.34	894.4	\$149.36	2	3	3-Lamp 32W T-8, Elect Ballast; retrofit	91	0.18	473.2	\$79.02	\$100.00	\$200.00	0.16	421.2	\$70.34	2.84
121.11	B	Dormitory	2600	12	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.90	2,340.0	\$390.78	12	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.66	1716	\$286.57	\$100.00	\$1,200.00	0.24	624	\$104.21	11.52
224.21	B	A30: Bathroom	2600	2	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.15	379.6	\$63.39	2	0	No Change	73	0.15	379.6	\$63.39	\$0.00	\$0.00	0.00	0	\$0.00	0.00
141.11	B	A27: Family Counselor	2600	2	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.34	894.4	\$149.36	2	3	3-Lamp 32W T-8, Elect Ballast; retrofit	91	0.18	473.2	\$79.02	\$100.00	\$200.00	0.16	421.2	\$70.34	2.84

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142.21	B	A27: Family Counselor	2600	1	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	172	0.17	447.2	\$74.68	1	3	3-Lamp 32W T-8, Elect Ballast; retrofit	91	0.09	236.6	\$39.51	\$100.00	\$100.00	0.08	210.6	\$35.17	2.84
304	B	A27: Family Counselor	2600	3	1	1 Lamp Incandescent, 60 Watt Bulbs, Surface Mounted, Direct	60	0.18	468.0	\$78.16	3	1	18 W CFL Lamp	18	0.05	140.4	\$23.45	\$5.75	\$17.25	0.13	327.6	\$54.71	0.32
121.11	B	Stairs	8760	4	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.30	2,628.0	\$438.88	4	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.22	1927.2	\$321.84	\$100.00	\$400.00	0.08	700.8	\$117.03	3.42
121.11	B	A18 Carpentry Shop	2600	4	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.30	780.0	\$130.26	4	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.22	572	\$95.52	\$100.00	\$400.00	0.08	208	\$34.74	11.52
141.11	B	A19 Storage	520	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	89.4	\$14.94	1	3	3-Lamp 32W T-8, Elect Ballast; retrofit	91	0.09	47.32	\$7.90	\$100.00	\$100.00	0.08	42.12	\$7.03	14.22
121.11			520	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	39.0	\$6.51	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	28.6	\$4.78	\$100.00	\$100.00	0.02	10.4	\$1.74	57.58
121.11	B	A17 Restroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
142.21	B	A20 Conference Room	2600	8	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	172	1.38	3,577.6	\$597.46	8	3	3-Lamp 32W T-8, Elect Ballast; retrofit	91	0.73	1892.8	\$316.10	\$100.00	\$800.00	0.65	1684.8	\$281.36	2.84
800	B	Women's Restroom	2600	1	1	Exhaust Fan/Light Combo, (1) 75w A19 Lamp	75	0.08	195.0	\$32.57	1	1	18w CFL Lamp	18	0.02	46.8	\$7.82	\$5.75	\$5.75	0.06	148.2	\$24.75	0.23
142.21	B	A20 Closet	520	1	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	172	0.17	89.4	\$14.94	1	3	3-Lamp 32W T-8, Elect Ballast; retrofit	91	0.09	47.32	\$7.90	\$100.00	\$100.00	0.08	42.12	\$7.03	14.22
121.11	B	Restroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
141.11	B	A16 Storage	2600	2	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.34	894.4	\$149.36	2	3	3-Lamp 32W T-8, Elect Ballast; retrofit	91	0.18	473.2	\$79.02	\$100.00	\$200.00	0.16	421.2	\$70.34	2.84
141.11	B	A23 Lab	2600	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	447.2	\$74.68	1	3	3-Lamp 32W T-8, Elect Ballast; retrofit	91	0.09	236.6	\$39.51	\$100.00	\$100.00	0.08	210.6	\$35.17	2.84
121.11	B	A23 Medical Room	2600	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.15	390.0	\$65.13	2	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.11	286	\$47.76	\$100.00	\$200.00	0.04	104	\$17.37	11.52
121.34	B	A14 Phone/Computer Room	2600	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Pendant Mnt., No Lens	75	0.15	390.0	\$65.13	2	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.11	286	\$47.76	\$100.00	\$200.00	0.04	104	\$17.37	11.52
121.11			2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52

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142.21	B	A36 Dining Room	4600	16	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	172	2.75	12,659.2	\$2,114.09	16	3	3-Lamp 32W T-8, Elect Ballast; retrofit	91	1.46	6697.6	\$1,118.50	\$100.00	\$1,600.00	1.30	5961.6	\$995.59	1.61
128.34	B	Kitchen	4600	8	2	8 Foot, 2-Lamp, 75w T12, Mag. Ballast, Pendant Mnt., No Lens	142	1.14	5,225.6	\$872.68	8	4	4 lamp, 32w T8, Elect Ballast, Pendant Mnt., No Lens	104	0.83	3827.2	\$639.14	\$100.00	\$800.00	0.30	1398.4	\$233.53	3.43
141.11	B	Pantry	4600	2	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.34	1,582.4	\$264.26	2	3	3-Lamp 32W T-8, Elect Ballast; retrofit	91	0.18	837.2	\$139.81	\$100.00	\$200.00	0.16	745.2	\$124.45	1.61
121.11	B		4600	5	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.38	1,725.0	\$288.08	5	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.28	1265	\$211.26	\$100.00	\$500.00	0.10	460	\$76.82	6.51
121.11	B	Kitchen Office	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
303	B	Electrical Shop	2600	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.10	260.0	\$43.42	1	1	26 W CFL Lamp	26	0.03	67.6	\$11.29	\$5.75	\$5.75	0.07	192.4	\$32.13	0.18
303	B	A12 Water Valve	2600	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.10	260.0	\$43.42	1	1	26 W CFL Lamp	26	0.03	67.6	\$11.29	\$5.75	\$5.75	0.07	192.4	\$32.13	0.18
141.34	B	Maintenance Office	2600	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	447.2	\$74.68	1	3	3-Lamp 32W T-8, Elect Ballast; retrofit	91	0.09	236.6	\$39.51	\$100.00	\$100.00	0.08	210.6	\$35.17	2.84
121.34	B	Plumbing Shop	2600	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Pendant Mnt., No Lens	75	0.15	390.0	\$65.13	2	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.11	286	\$47.76	\$100.00	\$200.00	0.04	104	\$17.37	11.52
141.34	B	Laundry	2600	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	447.2	\$74.68	1	3	3-Lamp 32W T-8, Elect Ballast; retrofit	91	0.09	236.6	\$39.51	\$100.00	\$100.00	0.08	210.6	\$35.17	2.84
121.11	2	2nd Fl. Corridor	8760	4	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.30	2,628.0	\$438.88	4	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.22	1927.2	\$321.84	\$100.00	\$400.00	0.08	700.8	\$117.03	3.42
121.11	2	C33 Group Room	2600	4	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.30	780.0	\$130.26	4	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.22	572	\$95.52	\$100.00	\$400.00	0.08	208	\$34.74	11.52
121.11	2	Staff Office	2600	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.15	390.0	\$65.13	2	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.11	286	\$47.76	\$100.00	\$200.00	0.04	104	\$17.37	11.52
121.11	2	Office	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
141.11	2	C31 Bedroom	2600	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	447.2	\$74.68	1	3	3-Lamp 32W T-8, Elect Ballast; retrofit	91	0.09	236.6	\$39.51	\$100.00	\$100.00	0.08	210.6	\$35.17	2.84
121.11	2	C17 Office	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52

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121.11	2	Office	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
303	2	Custodial Closet	520	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.10	52.0	\$8.68	1	1	26 W CFL Lamp	26	0.03	13.52	\$2.26	\$5.75	\$5.75	0.07	38.48	\$6.43	0.89
121.11	2	C18 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	2	C29 Bathroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	2	C19 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	2	C28 Bathroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	2	C20 Laundry	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	2	C22 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	2	C23 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	2	C24 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	2	C25 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	2	C26 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	2	C27 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	2	C21 Dorm Day Room	2600	4	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.30	780.0	\$130.26	4	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.22	572	\$95.52	\$100.00	\$400.00	0.08	208	\$34.74	11.52
121.11	2	Stairwell	8760	4	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.30	2,628.0	\$438.88	4	2	2-Lamp 32W T-8, Elect Ballast; retrofit	55	0.22	1927.2	\$321.84	\$100.00	\$400.00	0.08	700.8	\$117.03	3.42
<b>Totals</b>				193				21.12	79,328.7	\$13,247.90	193	155			12.664	48835.78	\$8,155.58		\$17,569.25	8.45	30492.9	\$5,092.32	3.45

**NOTES:** 1. Simple Payback noted in this spreadsheet does not include Maintenance Savings and NJ Smart Start Incentives.

2. Lamp totals only include T-12 tube replacement calculations

**Investment Grade Lighting Audit**

CEG Job #: 9C09162

Project: HUDSON COUNTY IMPROVEMENT AUTHORITY ENERGY AUDIT

Address: 595 County Ave.

Secaucus, NJ, 07094

Building SF: 22,500

Building - 4

KWH COST: \$0.167

**ECM: Lighting Controls**

EXISTING LIGHTING						PROPOSED LIGHTING CONTROLS														SAVINGS					
CEG Type	Floor	Fixture Location	Yearly Usage	No. Fixts	No. Lamps	Fixture Type	Fixt Watts	Total kW	kWh/Yr Fixtures	Yearly \$ Cost	No. Fixts	No. Lamps	Controls Description	Watts Used	Total kW	Reduction (%)	kWh/Yr Fixtures	Yearly \$ Cost	Unit Cost (INSTALLED)	Total Cost	kW Savings	kWh/Yr Savings	Yearly \$ Savings	Yearly Simple Payback	
121.1	1	Corridors	8760	7	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.525	4599	768.033	7	2	Dual Technology Occupancy Sensor	75	0.53	20%	3679.2	\$614.43	\$160.00	\$160	0	919.8	\$153.61	1.04	
121.1	1	Dining Room	2600	11	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.825	2145	358.215	11	2	Dual Technology Occupancy Sensor	75	0.83	20%	1716	\$286.57	\$160.00	\$160	0	429	\$71.64	2.23	
142.1	1	Dining Room	2600	4	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.688	1788.8	298.7296	4	3	Dual Technology Occupancy Sensor	172	0.69	20%	1431.04	\$238.98	\$160.00	\$160	0	357.76	\$59.75	2.68	
305	1	Rm# 181: Supply Room	260	1	1	1 Lamp Incandescent, 150 Watt Bulbs, Surface Mounted, Direct	150	0.15	39	6.513	1	1		150	0.15	0%	39	\$6.51	\$160.00	\$160	0	0	\$0.00	0.00	
121.1	1	183: Welfare Office	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$160.00	\$160	0	0	\$0.00	0.00	
121.1	1	168: Nurse's Station	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$160.00	\$160	0	0	\$0.00	0.00	
121.1	1	182: Nurse's Station	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$160.00	\$160	0	0	\$0.00	0.00	
303	1	182: Nurse's Station	520	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.1	52	8.684	1	1		100	0.10	0%	52	\$8.68	\$160.00	\$160	0	0	\$0.00	0.00	
305	1	181: Supply Room	260	1	1	1 Lamp Incandescent, 150 Watt Bulbs, Surface Mounted, Direct	150	0.15	39	6.513	1	1		150	0.15	0%	39	\$6.51	\$160.00	\$160	0	0	\$0.00	0.00	
121.1	1	180: Laundry	8760	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	657	109.719	1	2	Dual Technology Occupancy Sensor	75	0.08	20%	525.6	\$87.78	\$160.00	\$160	0	131.4	\$21.94	7.29	
121.1	1	169: Hobby workshop	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$160.00	\$160	0	0	\$0.00	0.00	
725.1	1	170: Pantry	260	1	2	2-Lamp, Round T9, Electronic Ballast, Surface Mount, No Lens	40	0.04	10.4	1.7368	1	0		40	0.04	0%	10.4	\$1.74	\$160.00	\$160	0	0	\$0.00	0.00	
121.1	1	Rm. 179: Men's Room	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2	Dual Technology Occupancy Sensor	75	0.08	20%	156	\$26.05	\$160.00	\$160	0	39	\$6.51	24.57	

**Investment Grade Lighting Audit**

121.1	1	Rm. 171: Supply Room	260	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	19.5	3.2565	1	2		75	0.08	0%	19.5	\$3.26	\$160.00	\$160	0	0	\$0.00	0.00
121.1	1	Rm. 175: Day Room / TV Room	5096	6	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.45	2293.2	382.9644	6	2	Dual Technology Occupancy Sensor	75	0.45	20%	1834.56	\$306.37	\$160.00	\$160	0	458.64	\$76.59	2.09
301	1	Rm. 175A: Pantry	260	1	1	1-Lamp Incandescent, 75 Watt Bulbs, Surface Mounted, Direct	75	0.075	19.5	3.2565	1	1		75	0.08	0%	19.5	\$3.26	\$160.00	\$160	0	0	\$0.00	0.00
306	1	Rm. 175: Day Room / TV Room	2600	3	1	Ceiling Fan with 3x75W incandescent lamps, Direct	225	0.675	1755	293.085	3	1	Dual Technology Occupancy Sensor	225	0.68	20%	1404	\$234.47	\$160.00	\$160	0	351	\$58.62	2.73
121.3	1	Rm. 152: Office	2600	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Pendant Mnt., No Lens	75	0.15	390	65.13	2	2		75	0.15	0%	390	\$65.13	\$160.00	\$160	0	0	\$0.00	0.00
304	1	Rm. 152: Storage Room within Office	260	1	1	1 Lamp Incandescent, 60 Watt Bulbs, Surface Mounted, Direct	60	0.06	15.6	2.6052	1	1		60	0.06	0%	15.6	\$2.61	\$160.00	\$160	0	0	\$0.00	0.00
305	1	150: Men's Room	2600	1	1	1 Lamp Incandescent, 150 Watt Bulbs, Surface Mounted, Direct	150	0.15	390	65.13	1	1		150	0.15	0%	390	\$65.13	\$160.00	\$160	0	0	\$0.00	0.00
121.1	1	151: Ladies Room	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$160.00	\$160	0	0	\$0.00	0.00
142.2	B	Corridors	8760	7	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	172	1.204	10547.04	1761.3557	7	3		172	1.20	0%	10547.04	\$1,761.36	\$160.00	\$160	0	0	\$0.00	0.00
141.1	B	A34: Group Room	2600	4	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.688	1788.8	298.7296	4	3		172	0.69	0%	1788.8	\$298.73	\$160.00	\$160	0	0	\$0.00	0.00
121.1	B	Gym	2600	8	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.6	1560	260.52	8	2		75	0.60	0%	1560	\$260.52	\$160.00	\$160	0	0	\$0.00	0.00
141.1	B	Occupational Shop	2600	2	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.344	894.4	149.3648	2	3		172	0.34	0%	894.4	\$149.36	\$160.00	\$160	0	0	\$0.00	0.00
141.1	B	A32: Bathroom	2600	2	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.344	894.4	149.3648	2	3	Dual Technology Occupancy Sensor	172	0.34	20%	715.52	\$119.49	\$160.00	\$160	0	178.88	\$29.87	5.36
121.1	B	Dormitory	2600	12	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.9	2340	390.78	12	2		75	0.90	0%	2340	\$390.78	\$160.00	\$160	0	0	\$0.00	0.00
224.2	B	A30: Bathroom	2600	2	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.146	379.6	63.3932	2	0	Dual Technology Occupancy Sensor	73	0.15	20%	303.68	\$50.71	\$160.00	\$160	0	75.92	\$12.68	12.62
141.1	B	A27: Family Counselor	2600	2	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.344	894.4	149.3648	2	3		172	0.34	0%	894.4	\$149.36	\$160.00	\$160	0	0	\$0.00	0.00

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142.2	B	A27: Family Counselor	2600	1	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	172	0.172	447.2	74.6824	1	3		172	0.17	0%	447.2	\$74.68	\$160.00	\$160	0	0	\$0.00	0.00
304	B	A27: Family Counselor	2600	3	1	1 Lamp Incandescent, 60 Watt Bulbs, Surface Mounted, Direct	60	0.18	468	78.156	3	1		60	0.18	0%	468	\$78.16	\$160.00	\$160	0	0	\$0.00	0.00
121.1	B	Stairs	8760	4	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.3	2628	438.876	4	2		75	0.30	0%	2628	\$438.88	\$160.00	\$160	0	0	\$0.00	0.00
121.1	B	A18 Carpentry Shop	2600	4	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.3	780	130.26	4	2		75	0.30	0%	780	\$130.26	\$160.00	\$160	0	0	\$0.00	0.00
141.1	B	A19 Storage	520	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.172	89.44	14.93648	1	3		172	0.17	0%	89.44	\$14.94	\$160.00	\$160	0	0	\$0.00	0.00
121.1	0	0	520	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	39	6.513	1	2		75	0.08	0%	39	\$6.51	\$160.00	\$160	0	0	\$0.00	0.00
121.1	B	A17 Restroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2	Dual Technology Occupancy Sensor	75	0.08	20%	156	\$26.05	\$160.00	\$160	0	39	\$6.51	24.57
142.2	B	A20 Conference Room	2600	8	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	172	1.376	3577.6	597.4592	8	3	Dual Technology Occupancy Sensor	172	1.38	20%	2862.08	\$477.97	\$160.00	\$160	0	715.52	\$119.49	1.34
142.2	B	A20 Closet	520	1	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	172	0.172	89.44	14.93648	1	3		172	0.17	0%	89.44	\$14.94	\$160.00	\$160	0	0	\$0.00	0.00
121.1	B	Restroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$160.00	\$160	0	0	\$0.00	0.00
141.1	B	A16 Storage	2600	2	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.344	894.4	149.3648	2	3		172	0.34	0%	894.4	\$149.36	\$160.00	\$160	0	0	\$0.00	0.00
141.1	B	A23 Lab	2600	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.172	447.2	74.6824	1	3		172	0.17	0%	447.2	\$74.68	\$160.00	\$160	0	0	\$0.00	0.00
121.1	B	A23 Medical Room	2600	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.15	390	65.13	2	2		75	0.15	0%	390	\$65.13	\$160.00	\$160	0	0	\$0.00	0.00
121.3	B	A14 Phone/Computer Room	2600	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Pendant Mnt., No Lens	75	0.15	390	65.13	2	2		75	0.15	0%	390	\$65.13	\$160.00	\$160	0	0	\$0.00	0.00
121.1	0	0	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$160.00	\$160	0	0	\$0.00	0.00
142.2	B	A36 Dining Room	4600	16	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	172	2.752	12659.2	2114.0864	16	3	Dual Technology Occupancy Sensor	172	2.75	20%	10127.36	\$1,691.27	\$160.00	\$160	0	2531.84	\$422.82	0.38

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128.3	B	Kitchen	4600	8	2	8 Foot, 2-Lamp, 75w T12, Mag. Ballast, Pendant Mnt., No Lens	142	1.136	5225.6	872.6752	8	4		142	1.14	0%	5225.6	\$872.68	\$160.00	\$160	0	0	\$0.00	0.00
141.1	B	Pantry	4600	2	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.344	1582.4	264.2608	2	3		172	0.34	0%	1582.4	\$264.26	\$160.00	\$160	0	0	\$0.00	0.00
121.1	B	0	4600	5	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.375	1725	288.075	5	2		75	0.38	0%	1725	\$288.08	\$160.00	\$160	0	0	\$0.00	0.00
121.1	B	Kitchen Office	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$160.00	\$160	0	0	\$0.00	0.00
303	B	Electrical Shop	2600	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.1	260	43.42	1	1		100	0.10	0%	260	\$43.42	\$160.00	\$160	0	0	\$0.00	0.00
303	B	A12 Water Valve	2600	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.1	260	43.42	1	1		100	0.10	0%	260	\$43.42	\$160.00	\$160	0	0	\$0.00	0.00
141.3	B	Maintenace Office	2600	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.172	447.2	74.6824	1	3		172	0.17	0%	447.2	\$74.68	\$160.00	\$160	0	0	\$0.00	0.00
121.3	B	Plumbing Shop	2600	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Pendant Mnt., No Lens	75	0.15	390	65.13	2	2		75	0.15	0%	390	\$65.13	\$160.00	\$160	0	0	\$0.00	0.00
141.3	B	Laundry	2600	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.172	447.2	74.6824	1	3		172	0.17	0%	447.2	\$74.68	\$160.00	\$160	0	0	\$0.00	0.00
121.1	2	2nd Fl. Corridor	8760	4	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.3	2628	438.876	4	2		75	0.30	0%	2628	\$438.88	\$160.00	\$160	0	0	\$0.00	0.00
121.1	2	C33 Group Room	2600	4	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.3	780	130.26	4	2	Dual Technology Occupancy Sensor	75	0.30	20%	624	\$104.21	\$160.00	\$160	0	156	\$26.05	6.14
121.1	2	Staff Office	2600	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.15	390	65.13	2	2	Dual Technology Occupancy Sensor	75	0.15	20%	312	\$52.10	\$160.00	\$160	0	78	\$13.03	12.28
121.1	2	Office	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$160.00	\$160	0	0	\$0.00	0.00
141.1	2	C31 Bedroom	2600	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.172	447.2	74.6824	1	3		172	0.17	0%	447.2	\$74.68	\$160.00	\$160	0	0	\$0.00	0.00
121.1	2	C17 Office	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$160.00	\$160	0	0	\$0.00	0.00
121.1	2	Office	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$160.00	\$160	0	0	\$0.00	0.00

**Investment Grade Lighting Audit**

303	2	Custodial Closet	520	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.1	52	8.684	1	1		100	0.10	0%	52	\$8.68	\$160.00	\$160	0	0	\$0.00	0.00
121.1	2	C18 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$160.00	\$160	0	0	\$0.00	0.00
121.1	2	C29 Bathroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$160.00	\$160	0	0	\$0.00	0.00
121.1	2	C19 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$160.00	\$160	0	0	\$0.00	0.00
121.1	2	C28 Bathroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$160.00	\$160	0	0	\$0.00	0.00
121.1	2	C20 Laundry	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$160.00	\$160	0	0	\$0.00	0.00
121.1	2	C22 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$160.00	\$160	0	0	\$0.00	0.00
121.1	2	C23 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$160.00	\$160	0	0	\$0.00	0.00
121.1	2	C24 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$160.00	\$160	0	0	\$0.00	0.00
121.1	2	C25 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$160.00	\$160	0	0	\$0.00	0.00
121.1	2	C26 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$160.00	\$160	0	0	\$0.00	0.00
121.1	2	C27 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$160.00	\$160	0	0	\$0.00	0.00
121.1	2	C21 Dorm Day Room	2600	4	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.3	780	130.26	4	2	Dual Technology Occupancy Sensor	75	0.30	20%	624	\$104.21	\$160.00	\$160	0	156	\$26.05	6.14
121.1	2	Stairwell	8760	4	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.3	2628	438.876	4	2		75	0.30	0%	2628	\$438.88	\$160.00	\$160	0	0	\$0.00	0.00
<b>Totals</b>				192	173			21	79,134	\$13,215	192				21.044		72516	\$12,110	\$12,000	\$12,000	0	6617.8	\$1,105.17	10.86

**NOTES:** 1. Simple Payback noted in this spreadsheet does not include Maintenance Savings and NJ Smart Start Incentives.  
2. Lamp totals only include T-12 tube replacement calculations

**Investment Grade Lighting Audit**

CEG Job #: 9C09162

Project: HUDSON COUNTY IMPROVEMENT AUTHORITY ENERGY AUDIT

Building - 5

KWH COST: \$0.167

Address: 595 County Ave.

Secaucus, NJ, 07094

Building SF: 22,500

**ECM: Lighting Upgrade - General**

EXISTING LIGHTING							PROPOSED LIGHTING										SAVINGS						
CEG Type	Floor	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
121.11	2	Corridors	8760	8	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.60	5,256.0	\$877.75	8	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.44	3854.4	\$643.68	\$100.00	\$800.00	0.16	1401.6	\$234.07	3.42
302	2	Rm C35: Dorm Room	2600	1	4	4 Lamp Incandescent, 75 Watt Bulbs, Surface Mounted, Direct	300	0.30	780.0	\$130.26	1	1	(4) 18 W CFL Lamp	72	0.07	187.2	\$31.26	\$23.00	\$23.00	0.23	592.8	\$99.00	0.23
601	2	C36: Dorm Room	2600	1	1	Exit Sign - Incandescent	25	0.03	65.0	\$10.86	1	1	Exit Sign - LED	2	0.00	5.2	\$0.87	\$65.00	\$65.00	0.02	59.8	\$9.99	6.51
121.11	2	C37: Dorm Room	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
141.11	2	C16: Office	2600	3	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.52	1,341.6	\$224.05	3	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.27	709.8	\$118.54	\$100.00	\$300.00	0.24	631.8	\$105.51	2.84
121.11	2	C38: Day Room	2600	4	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.30	780.0	\$130.26	4	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.22	572	\$95.52	\$100.00	\$400.00	0.08	208	\$34.74	11.52
304	2	C2: Dorm Room	2600	1	1	1 Lamp Incandescent, 60 Watt Bulbs, Surface Mounted, Direct	60	0.06	156.0	\$26.05	1	1	18 W CFL Lamp	18	0.02	46.8	\$7.82	\$5.75	\$5.75	0.04	109.2	\$18.24	0.32
304	2	C2: Dorm Room Bathroom	2600	1	1	1 Lamp Incandescent, 60 Watt Bulbs, Surface Mounted, Direct	60	0.06	156.0	\$26.05	1	1	18 W CFL Lamp	18	0.02	46.8	\$7.82	\$5.75	\$5.75	0.04	109.2	\$18.24	0.32
303	2	Janitors Closet	260	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.10	26.0	\$4.34	1	1	26 W CFL Lamp	26	0.03	6.76	\$1.13	\$5.75	\$5.75	0.07	19.24	\$3.21	1.79
121.11	2	C15: Directors Office	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
304	2	C14: Dorm Room	2600	1	1	1 Lamp Incandescent, 60 Watt Bulbs, Surface Mounted, Direct	60	0.06	156.0	\$26.05	1	1	18 W CFL Lamp	18	0.02	46.8	\$7.82	\$5.75	\$5.75	0.04	109.2	\$18.24	0.32
304	2	C13: Dorm Room	2600	1	1	1 Lamp Incandescent, 60 Watt Bulbs, Surface Mounted, Direct	60	0.06	156.0	\$26.05	1	1	18 W CFL Lamp	18	0.02	46.8	\$7.82	\$5.75	\$5.75	0.04	109.2	\$18.24	0.32
121.11	2	C4: Bathroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	2	C5: Bathroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52

Investment Grade Lighting Audit

121.11	2	C12: Bathroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	2	C6: Dorm Room	2600	4	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.30	780.0	\$130.26	4	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.22	572	\$95.52	\$100.00	\$400.00	0.08	208	\$34.74	11.52
601	2	C6: Dorm Room	8760	2	1	Exit Sign - Incandescent	25	0.05	438.0	\$73.15	2	1	Exit Sign - LED	2	0.00	35.04	\$5.85	\$65.00	\$130.00	0.05	402.96	\$67.29	1.93
121.11	2	C7: Dorm Room	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	2	C8: Dorm Room	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	2	C9: Dorm Room	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	2	C11: Dorm Room	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	2	C10: Dorm Room	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	1	Corridor Between 4 5	8760	4	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.30	2,628.0	\$438.88	4	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.22	1927.2	\$321.84	\$100.00	\$400.00	0.08	700.8	\$117.03	3.42
121.34	1	130: Telephone Room	260	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Pendant Mnt., No Lens	75	0.15	39.0	\$6.51	2	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.11	28.6	\$4.78	\$100.00	\$200.00	0.04	10.4	\$1.74	115.15
121.11	1	148: Stairs	8760	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.15	1,314.0	\$219.44	2	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.11	963.6	\$160.92	\$100.00	\$200.00	0.04	350.4	\$58.52	3.42
121.31	1	148: Stairs	8760	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Pendant Mnt., Prismatic Lens	75	0.08	657.0	\$109.72	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	481.8	\$80.46	\$100.00	\$100.00	0.02	175.2	\$29.26	3.42
121.11	1	147: Visitors Lounge	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	1	133: Office	2600	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.15	390.0	\$65.13	2	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.11	286	\$47.76	\$100.00	\$200.00	0.04	104	\$17.37	11.52
303	1	133: Office	2600	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.10	260.0	\$43.42	1	1	26 W CFL Lamp	26	0.03	67.6	\$11.29	\$5.75	\$5.75	0.07	192.4	\$32.13	0.18
141.11	1	146: Counselors Room	2600	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	447.2	\$74.68	1	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.09	236.6	\$39.51	\$100.00	\$100.00	0.08	210.6	\$35.17	2.84
303	1	134: Janitors Closet	260	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.10	26.0	\$4.34	1	1	26 W CFL Lamp	26	0.03	6.76	\$1.13	\$5.75	\$5.75	0.07	19.24	\$3.21	1.79

**Investment Grade Lighting Audit**

142.21	1	135: Office	2600	1	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	172	0.17	447.2	\$74.68	1	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.09	236.6	\$39.51	\$100.00	\$100.00	0.08	210.6	\$35.17	2.84
121.11	1	145: Showers	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	1	136: Men's Room	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	1	144: Laundry	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	1	Corridor	8760	4	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.30	2,628.0	\$438.88	4	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.22	1927.2	\$321.84	\$100.00	\$400.00	0.08	700.8	\$117.03	3.42
121.11	1	137: Dormitory	2600	4	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.30	780.0	\$130.26	4	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.22	572	\$95.52	\$100.00	\$400.00	0.08	208	\$34.74	11.52
121.11	1	137A: Game Room /TV	2600	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.15	390.0	\$65.13	2	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.11	286	\$47.76	\$100.00	\$200.00	0.04	104	\$17.37	11.52
<b>Totals</b>				67				5.60	22,827.0	\$3,812.11	67	69			3,488	15151.56	\$2,530.31		\$5,858.25	2.11	7675.4	\$1,281.80	4.57

NOTES: 1. Simple Payback noted in this spreadsheet does not include Maintenance Savings and NJ Smart Start Incentives.

2. Lamp totals only include T-12 tube replacement calculations

Investment Grade Lighting Audit

CEG Job #: 9C09162

Project: HUDSON COUNTY IMPROVEMENT AUTHORITY ENERGY AUDIT

Address: 595 County Ave.

Secaucus, NJ. 07094

Building SF: 22,500

Building - 5

KWH COST \$0.167

**ECM: Lighting Controls**

EXISTING LIGHTING						PROPOSED LIGHTING CONTROLS														SAVINGS				
CEG Type	Floor	Fixture Location	Yearly Usage	No. Fixts	No. Lamps	Fixture Type	Fixt Watts	Total kW	kWh/Yr Fixtures	Yearly \$ Cost	No. Fixts	No. Lamps	Controls Description	Watts Used	Total kW	Reduction (%)	kWh/Yr Fixtures	Yearly \$ Cost	Unit Cost (INSTALLED)	Total Cost	kW Savings	kWh/Yr Savings	Yearly \$ Savings	Yearly Simple Payback
121.1	2	Corridors	8760	8	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.6	5256	877.752	8	2		75	0.60	0%	5256	\$877.75	\$0	\$0.00	0	0	\$0.00	0.00
302	2	Rm C35: Dorm Room	2600	1	4	4 Lamp Incandescent, 75 Watt Bulbs, Surface Mounted, Direct	300	0.3	780	130.26	1	1		300	0.30	0%	780	\$130.26	\$0	\$0.00	0	0	\$0.00	0.00
601	2	C36: Dorm Room	2600	1	1	Exit Sign - Incandescent	25	0.025	65	10.855	1	1		25	0.03	0%	65	\$10.86	\$0	\$0.00	0	0	\$0.00	0.00
121.1	2	C37: Dorm Room	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0	\$0.00	0	0	\$0.00	0.00
141.1	2	C16: Office	2600	3	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.516	1341.6	224.0472	3	3		172	0.52	0%	1341.6	\$224.05	\$0	\$0.00	0	0	\$0.00	0.00
121.1	2	C38: Day Room	2600	4	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.3	780	130.26	4	2	Dual Technology Occupancy Sensor	75	0.30	20%	624	\$104.21	\$160	\$160.00	0	156	\$26.05	6.14
304	2	C2: Dorm Room	2600	1	1	1 Lamp Incandescent, 60 Watt Bulbs, Surface Mounted, Direct	60	0.06	156	26.052	1	1		60	0.06	0%	156	\$26.05	\$0	\$0.00	0	0	\$0.00	0.00
304	2	C2: Dorm Room Bathroom	2600	1	1	1 Lamp Incandescent, 60 Watt Bulbs, Surface Mounted, Direct	60	0.06	156	26.052	1	1		60	0.06	0%	156	\$26.05	\$0	\$0.00	0	0	\$0.00	0.00
303	2	Janitors Closet	260	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.1	26	4.342	1	1		100	0.10	0%	26	\$4.34	\$0	\$0.00	0	0	\$0.00	0.00
121.1	2	C15: Directors Office	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0	\$0.00	0	0	\$0.00	0.00
304	2	C14: Dorm Room	2600	1	1	1 Lamp Incandescent, 60 Watt Bulbs, Surface Mounted, Direct	60	0.06	156	26.052	1	1		60	0.06	0%	156	\$26.05	\$0	\$0.00	0	0	\$0.00	0.00
304	2	C13: Dorm Room	2600	1	1	1 Lamp Incandescent, 60 Watt Bulbs, Surface Mounted, Direct	60	0.06	156	26.052	1	1		60	0.06	0%	156	\$26.05	\$0	\$0.00	0	0	\$0.00	0.00
121.1	2	C4: Bathroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2	Dual Technology Occupancy Sensor	75	0.08	20%	156	\$26.05	\$160	\$160.00	0	39	\$6.51	24.57
121.1	2	C5: Bathroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2	Dual Technology Occupancy Sensor	75	0.08	20%	156	\$26.05	\$160	\$160.00	0	39	\$6.51	24.57

Investment Grade Lighting Audit

121.1	2	C12: Bathroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2	Dual Technology Occupancy Sensor	75	0.08	20%	156	\$26.05	\$160	\$160.00	0	39	\$6.51	24.57
121.1	2	C6: Dorm Room	2600	4	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.3	780	130.26	4	2		75	0.30	0%	780	\$130.26	\$0	\$0.00	0	0	\$0.00	0.00
601	2	C6: Dorm Room	8760	2	1	Exit Sign - Incandescent	25	0.05	438	73.146	2	1		25	0.05	0%	438	\$73.15	\$0	\$0.00	0	0	\$0.00	0.00
121.1	2	C7: Dorm Room	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0	\$0.00	0	0	\$0.00	0.00
121.1	2	C8: Dorm Room	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0	\$0.00	0	0	\$0.00	0.00
121.1	2	C9: Dorm Room	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0	\$0.00	0	0	\$0.00	0.00
121.1	2	C11: Dorm Room	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0	\$0.00	0	0	\$0.00	0.00
121.1	2	C10: Dorm Room	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0	\$0.00	0	0	\$0.00	0.00
121.1	1	Corridor Between 4 5	8760	4	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.3	2628	438.876	4	2		75	0.30	0%	2628	\$438.88	\$0	\$0.00	0	0	\$0.00	0.00
121.3	1	130: Telephone Room	260	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Pendant Mnt., No Lens	75	0.15	39	6.513	2	2		75	0.15	0%	39	\$6.51	\$0	\$0.00	0	0	\$0.00	0.00
121.1	1	148: Stairs	8760	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.15	1314	219.438	2	2		75	0.15	0%	1314	\$219.44	\$0	\$0.00	0	0	\$0.00	0.00
121.3	1	148: Stairs	8760	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Pendant Mnt., Prismatic Lens	75	0.075	657	109.719	1	2		75	0.08	0%	657	\$109.72	\$0	\$0.00	0	0	\$0.00	0.00
121.1	1	147: Visitors Lounge	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0	\$0.00	0	0	\$0.00	0.00
121.1	1	133: Office	2600	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.15	390	65.13	2	2		75	0.15	0%	390	\$65.13	\$0	\$0.00	0	0	\$0.00	0.00
303	1	133: Office	2600	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.1	260	43.42	1	1		100	0.10	0%	260	\$43.42	\$0	\$0.00	0	0	\$0.00	0.00
141.1	1	146: Counselors Room	2600	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.172	447.2	74.6824	1	3	Dual Technology Occupancy Sensor	172	0.17	20%	357.76	\$59.75	\$160	\$160.00	0	89.44	\$14.94	10.71

Investment Grade Lighting Audit

303	1	134: Janitors Closet	260	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.1	26	4.342	1	1		100	0.10	0%	26	\$4.34	\$0	\$0.00	0	0	\$0.00	0.00
142.2	1	135: Office	2600	1	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	172	0.172	447.2	74.6824	1	3		172	0.17	0%	447.2	\$74.68	\$0	\$0.00	0	0	\$0.00	0.00
121.1	1	145: Showers	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2	Dual Technology Occupancy Sensor	75	0.08	20%	156	\$26.05	\$160	\$160.00	0	39	\$6.51	24.57
121.1	1	136: Men's Room	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2	Dual Technology Occupancy Sensor	75	0.08	20%	156	\$26.05	\$160	\$160.00	0	39	\$6.51	24.57
121.1	1	144: Laundry	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2	Dual Technology Occupancy Sensor	75	0.08	20%	156	\$26.05	\$160	\$160.00	0	39	\$6.51	24.57
121.1	1	Corridor	8760	4	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.3	2628	438.876	4	2		75	0.30	0%	2628	\$438.88	\$0	\$0.00	0	0	\$0.00	0.00
121.1	1	137: Dormitory	2600	4	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.3	780	130.26	4	2		75	0.30	0%	780	\$130.26	\$0	\$0.00	0	0	\$0.00	0.00
121.1	1	137A: Game Room /TV	2600	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.15	390	65.13	2	2		75	0.15	0%	390	\$65.13	\$0	\$0.00	0	0	\$0.00	0.00
<b>Totals</b>				67	75			5.60	22,827.0	\$3,812.11	67				5.6		22347.56	\$3,732.04	\$1,280.00	\$0	479.4	\$80.07	15.99	

**NOTES:** 1. Simple Payback noted in this spreadsheet does not include Maintenance Savings and NJ Smart Start Incentives.  
2. Lamp totals only include T-12 tube replacement calculations

Investment Grade Lighting Audit

CEG Job #: 9C09162  
 Project: HUDSON COUNTY IMPROVEMENT AUTHORITY ENERGY AUDIT  
 Address: 595 County Ave.  
 Secaucus, NJ. 07094  
 Building SF: 22,200

Building - 6

KWH COST: \$0.167

**ECM: 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
142.21	Basement Corridor	8760	5	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	172	0.86	7,533.6	\$1,258	5	3	3 lamp, 32w T8, Elect. Ballast; retrofit	86	0.43	3767	629	\$100.00	\$500.00	0.43	3766.8	\$629.06	0.79
142.11		8760	4	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.69	6,026.9	\$1,006	4	3	3 lamp, 32w T8, Elect. Ballast; retrofit	86	0.34	3013	503	\$100.00	\$400.00	0.34	3013.44	\$503.24	0.79
142.11	A3 Men's Restroom	2600	1	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	447.2	\$74.68	1	3	3 lamp, 32w T8, Elect. Ballast; retrofit	86	0.09	223.6	\$37.34	\$100.00	\$100.00	0.09	223.6	\$37.34	2.68
121.11	A9 Custodial Closet	520	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	39.0	\$6.51	1	2	2 lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	28.6	\$4.78	\$100.00	\$100.00	0.02	10.4	\$1.74	57.58
121.11	A8 Office	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
142.11	A7 Print Shop/Grp Rm.	2600	3	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.52	1,341.6	\$224.05	3	3	3 lamp, 32w T8, Elect. Ballast; retrofit	86	0.26	670.8	\$112.02	\$100.00	\$300.00	0.26	670.8	\$112.02	2.68
121.11	A6 Education	2600	10	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.75	1,950.0	\$325.65	10	2	2 lamp, 32w T8, Elect. Ballast; retrofit	55	0.55	1430	\$238.81	\$100.00	\$1,000.00	0.20	520	\$86.84	11.52
141.11		2600	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	447.2	\$74.68	1	3	3 lamp, 32w T8, Elect. Ballast; retrofit	86	0.09	223.6	\$37.34	\$100.00	\$100.00	0.09	223.6	\$37.34	2.68
306	A2 Paper Storage	520	1	1	(1) 200W Incandescent Lamp, Pendant Mnt., Industrial Reflector	200	0.20	104.0	\$17.37	1	1	46w CFL	46	0.05	23.92	\$3.99	\$15.00	\$15.00	0.15	80.08	\$13.37	1.12
141.11	A10 Conference Room	2600	2	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.34	894.4	\$149.36	2	3	3 lamp, 32w T8, Elect. Ballast; retrofit	86	0.17	447.2	\$74.68	\$100.00	\$200.00	0.17	447.2	\$74.68	2.68
142.21	Reception	2600	1	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	172	0.17	447.2	\$74.68	1	3	3 lamp, 32w T8, Elect. Ballast; retrofit	86	0.09	223.6	\$37.34	\$100.00	\$100.00	0.09	223.6	\$37.34	2.68
303	A43 Meter Room	520	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.10	52.0	\$8.68	1	1	26 W CFL Lamp	26	0.03	13.52	\$2.26	\$5.75	\$5.75	0.07	38.48	\$6.43	0.89
303	A42 Tunnel Access	2600	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.10	260.0	\$43.42	1	1	26 W CFL Lamp	26	0.03	67.6	\$11.29	\$5.75	\$5.75	0.07	192.4	\$32.13	0.18

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121.11	A41 Acquisition Dept.	2600	6	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.45	1,170.0	\$195.39	6	2	2 lamp, 32w T8, Elect. Ballast; retrofit	55	0.33	858	\$143.29	\$100.00	\$600.00	0.12	312	\$52.10	11.52
121.11	Stairwell	8760	5	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.38	3,285.0	\$548.60	5	2	2 lamp, 32w T8, Elect. Ballast; retrofit	55	0.28	2409	\$402.30	\$100.00	\$500.00	0.10	876	\$146.29	3.42
121.11	Storage	520	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.15	78.0	\$13.03	2	2	2 lamp, 32w T8, Elect. Ballast; retrofit	55	0.11	57.2	\$9.55	\$100.00	\$200.00	0.04	20.8	\$3.47	57.58
121.11	B2 Office	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
142.21	B3 Office	2600	1	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	172	0.17	447.2	\$74.68	1	3	3 lamp, 32w T8, Elect. Ballast; retrofit	86	0.09	223.6	\$37.34	\$100.00	\$100.00	0.09	223.6	\$37.34	2.68
700	B1 Office	2600	2	1	Pendant Mnt., Globe, 75w A19 Incandescent	75	0.15	390.0	\$65.13	2	1	18w CFL Lamp	18	0.04	93.6	\$15.63	\$5.75	\$11.50	0.11	296.4	\$49.50	0.23
142.11		2600	1	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	447.2	\$74.68	1	3	3 lamp, 32w T8, Elect. Ballast; retrofit	86	0.09	223.6	\$37.34	\$100.00	\$100.00	0.09	223.6	\$37.34	2.68
142.21	B4 Office	2600	2	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	172	0.34	894.4	\$149.36	2	3	3 lamp, 32w T8, Elect. Ballast; retrofit	86	0.17	447.2	\$74.68	\$100.00	\$200.00	0.17	447.2	\$74.68	2.68
121.41	1st Floor Corridor	8760	7	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Wall Mnt., Prismatic Lens	75	0.53	4,599.0	\$768.03	7	2	2 lamp, 32w T8, Elect. Ballast; retrofit	55	0.39	3372.6	\$563.22	\$100.00	\$700.00	0.14	1226.4	\$204.81	3.42
141.11	B8 Office	2600	3	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.52	1,341.6	\$224.05	3	3	3 lamp, 32w T8, Elect. Ballast; retrofit	86	0.26	670.8	\$112.02	\$100.00	\$300.00	0.26	670.8	\$112.02	2.68
121.11		2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
142.11	B6 Office	2600	2	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.34	894.4	\$149.36	2	3	3 lamp, 32w T8, Elect. Ballast; retrofit	86	0.17	447.2	\$74.68	\$100.00	\$200.00	0.17	447.2	\$74.68	2.68
121.11	Copy Room	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
141.11	B7 Intake	2600	2	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.34	894.4	\$149.36	2	3	3 lamp, 32w T8, Elect. Ballast; retrofit	86	0.17	447.2	\$74.68	\$100.00	\$200.00	0.17	447.2	\$74.68	2.68
700	Supply Closet	520	1	1	Pendant Mnt., Globe, 75w A19 Incandescent	75	0.08	39.0	\$6.51	1	1	18w CFL Lamp	18	0.02	9.36	\$1.56	\$5.75	\$5.75	0.06	29.64	\$4.95	1.16
141.11	B9 Office	2600	2	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.34	894.4	\$149.36	2	3	3 lamp, 32w T8, Elect. Ballast; retrofit	86	0.17	447.2	\$74.68	\$100.00	\$200.00	0.17	447.2	\$74.68	2.68

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121.11	B10 Women's Restroom	2600	3	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.23	585.0	\$97.70	3	2	2 lamp, 32w T8, Elect. Ballast; retrofit	55	0.17	429	\$71.64	\$100.00	\$300.00	0.06	156	\$26.05	11.52
121.11	B12 Bedroom	2600	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.15	390.0	\$65.13	2	2	2 lamp, 32w T8, Elect. Ballast; retrofit	55	0.11	286	\$47.76	\$100.00	\$200.00	0.04	104	\$17.37	11.52
121.11	B20 Bedroom	2600	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.15	390.0	\$65.13	2	2	2 lamp, 32w T8, Elect. Ballast; retrofit	55	0.11	286	\$47.76	\$100.00	\$200.00	0.04	104	\$17.37	11.52
121.11	B11 Men's Restroom	2600	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.15	390.0	\$65.13	2	2	2 lamp, 32w T8, Elect. Ballast; retrofit	55	0.11	286	\$47.76	\$100.00	\$200.00	0.04	104	\$17.37	11.52
121.11	B19 Laundry	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
141.11	B12 Dorm Day Room	2600	4	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.69	1,788.8	\$298.73	4	3	3 lamp, 32w T8, Elect. Ballast; retrofit	86	0.34	894.4	\$149.36	\$100.00	\$400.00	0.34	894.4	\$149.36	2.68
121.11	B13 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	B14 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	B15 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	B16 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	B17 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	B18 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.41	2rd Floor Corridor	8760	7	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Wall Mnt., Prismatic Lens	75	0.53	4,599.0	\$768.03	7	2	2 lamp, 32w T8, Elect. Ballast; retrofit	55	0.39	3372.6	\$563.22	\$100.00	\$700.00	0.14	1226.4	\$204.81	3.42
121.11	B22 Office	2600	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.15	390.0	\$65.13	2	2	2 lamp, 32w T8, Elect. Ballast; retrofit	55	0.11	286	\$47.76	\$100.00	\$200.00	0.04	104	\$17.37	11.52
121.11	B34 Bedroom	2600	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.15	390.0	\$65.13	2	2	2 lamp, 32w T8, Elect. Ballast; retrofit	55	0.11	286	\$47.76	\$100.00	\$200.00	0.04	104	\$17.37	11.52
121.11	B23 Bedroom	2600	3	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.23	585.0	\$97.70	3	2	2 lamp, 32w T8, Elect. Ballast; retrofit	55	0.17	429	\$71.64	\$100.00	\$300.00	0.06	156	\$26.05	11.52

Investment Grade Lighting Audit

141.11	B24 Finance	2600	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	447.2	\$74.68	1	3	3 lamp, 32w T8, Elect. Ballast; retrofit	86	0.09	223.6	\$37.34	\$100.00	\$100.00	0.09	223.6	\$37.34	2.68
141.11	B23A Office	2600	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	447.2	\$74.68	1	3	3 lamp, 32w T8, Elect. Ballast; retrofit	86	0.09	223.6	\$37.34	\$100.00	\$100.00	0.09	223.6	\$37.34	2.68
141.11	B23B Office	2600	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	447.2	\$74.68	1	3	3 lamp, 32w T8, Elect. Ballast; retrofit	86	0.09	223.6	\$37.34	\$100.00	\$100.00	0.09	223.6	\$37.34	2.68
141.11	B25 Office	2600	3	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.52	1,341.6	\$224.05	3	3	3 lamp, 32w T8, Elect. Ballast; retrofit	86	0.26	670.8	\$112.02	\$100.00	\$300.00	0.26	670.8	\$112.02	2.68
142.21	B26 Copy Room	2600	1	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	172	0.17	447.2	\$74.68	1	3	3 lamp, 32w T8, Elect. Ballast; retrofit	86	0.09	223.6	\$37.34	\$100.00	\$100.00	0.09	223.6	\$37.34	2.68
121.11	B27 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	B42 Office	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	B28 Office	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
303	B29 Custodial Closet	520	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.10	52.0	\$8.68	1	1	26 W CFL Lamp	26	0.03	13.52	\$2.26	\$5.75	\$5.75	0.07	38.48	\$6.43	0.89
121.11	B41 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	B42 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	B30 Shower	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	B40 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	B31 Women's Restroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	Dorm Day Room	2600	4	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.30	780.0	\$130.26	4	2	2 lamp, 32w T8, Elect. Ballast; retrofit	55	0.22	572	\$95.52	\$100.00	\$400.00	0.08	208	\$34.74	11.52
121.11	B37 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52

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121.11	B38 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	B36 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	B35 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	B34 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	B33 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	B39 Laundry		1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	0.0	\$0.00	1	2	2 lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	0	\$0.00	\$100.00	\$100.00	0.02	0	\$0.00	0.00
<b>Totals</b>				132			14.08	53,262.9	\$8,894.90	132	148		8.324	32119.96	\$5,364.03		\$12,549.50	5.75	21142.9	\$3,530.87	3.55	

NOTES: 1. Simple Payback noted in this spreadsheet does not include Maintenance Savings and NJ Smart Start Incentives.

2. Lamp totals only include T-12 tube replacement calculations

**Investment Grade Lighting Audit**

CEG Job #: 9C09162  
 Project: HUDSON COUNTY IMPROVEMENT AUTHORITY ENERGY AUDIT  
 Address: 595 County Ave.  
 Secaucus, NJ. 07094  
 Building SF: 22,200

Building - 6

KWH COST: \$0.167

**ECM #2: Lighting Controls**

EXISTING LIGHTING										PROPOSED CONTROLS					SAVINGS							
CEG Type	Fixture Location	Yearly Usage	No. Fixts	No. Lamps	Fixture Type	Fixt Watts	Total kW	kWh/Yr Fixtures	Yearly \$ Cost	No. Controls	Controls Description	Watts Used	Total kW	Reduction (%)	kWh/Yr Fixtures	Yearly \$ Cost	Unit Cost (INSTALLED)	Total Cost	kW Savings	kWh/Yr Savings	Yearly \$ Savings	Yearly Simple Payback
142.2	Basement Corridor	8760	5	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	172	0.86	7533.6	\$1,258	0	No Change	172	0.86	0%	7534	1258	\$0.00	\$0.00	0	0	\$0.00	0.00
142.1		8760	4	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.69	6026.88	\$1,006	0	No Change	172	0.69	0%	6027	1006	\$0.00	\$0.00	0	0	\$0.00	0.00
142.1	A3 Men's Restroom	2600	1	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	447.2	\$74.68	1	Dual Technology Occupancy Sensor	172	0.17	20%	357.76	\$59.75	\$160.00	\$160.00	0	89.44	\$14.94	10.71
121.1	A9 Custodial Closet	520	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	39	\$6.51	0	No Change	75	0.08	0%	39	\$6.51	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	A8 Office	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195	\$32.57	1	Dual Technology Occupancy Sensor	75	0.08	20%	156	\$26.05	\$160.00	\$160.00	0	39	\$6.51	24.57
142.1	A7 Print Shop/Grp Rm.	2600	3	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.52	1341.6	\$224.05	1	Dual Technology Occupancy Sensor	172	0.52	20%	1073.28	\$179.24	\$160.00	\$160.00	0	268.32	\$44.81	3.57
121.1	A6 Education	2600	10	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.75	1950	\$325.65	1	Dual Technology Occupancy Sensor	75	0.75	20%	1560	\$260.52	\$160.00	\$160.00	0	390	\$65.13	2.46
141.1		2600	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	447.2	\$74.68	0	No Change	172	0.17	0%	447.2	\$74.68	\$0.00	\$0.00	0	0	\$0.00	0.00
306	A2 Paper Storage	520	1	1	(1) 200W Incandescent Lamp, Pendant Mnt., Industrial Reflector	200	0.20	104	\$17.37	0	No Change	200	0.20	0%	104	\$17.37	\$0.00	\$0.00	0	0	\$0.00	0.00
141.1	A10 Conference Room	2600	2	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.34	894.4	\$149.36	1	Dual Technology Occupancy Sensor	172	0.34	20%	715.52	\$119.49	\$160.00	\$160.00	0	178.88	\$29.87	5.36
142.2	Reception	2600	1	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	172	0.17	447.2	\$74.68	1	Dual Technology Occupancy Sensor	172	0.17	20%	357.76	\$59.75	\$160.00	\$160.00	0	89.44	\$14.94	10.71
303	A43 Meter Room	520	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.10	52	\$8.68	0	No Change	100	0.10	0%	52	\$8.68	\$0.00	\$0.00	0	0	\$0.00	0.00

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303	A42 Tunnel Access	2600	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.10	260	\$43.42	0	No Change	100	0.10	0%	260	\$43.42	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	A41 Acquisition Dept.	2600	6	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.45	1170	\$195.39	1	Dual Technology Occupancy Sensor	75	0.45	20%	936	\$156.31	\$160.00	\$160.00	0	234	\$39.08	4.09
121.1	Stairwell	8760	5	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.38	3285	\$548.60	0	No Change	75	0.38	0%	3285	\$548.60	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	Storage	520	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.15	78	\$13.03	0	No Change	75	0.15	0%	78	\$13.03	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B2 Office	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195	\$32.57	1	Dual Technology Occupancy Sensor	75	0.08	20%	156	\$26.05	\$160.00	\$160.00	0	39	\$6.51	24.57
142.2	B3 Office	2600	1	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	172	0.17	447.2	\$74.68	1	Dual Technology Occupancy Sensor	172	0.17	20%	357.76	\$59.75	\$160.00	\$160.00	0	89.44	\$14.94	10.71
700	B1 Office	2600	2	1	Pendant Mnt., Globe, 75w A19 Incandescent	75	0.15	390	\$65.13	1	Dual Technology Occupancy Sensor	75	0.15	20%	312	\$52.10	\$160.00	\$160.00	0	78	\$13.03	12.28
142.1		2600	1	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	447.2	\$74.68	0	No Change	172	0.17	0%	447.2	\$74.68	\$0.00	\$0.00	0	0	\$0.00	0.00
142.2	B4 Office	2600	2	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	172	0.34	894.4	\$149.36	1	Dual Technology Occupancy Sensor	172	0.34	20%	715.52	\$119.49	\$160.00	\$160.00	0	178.88	\$29.87	5.36
121.4	1st Floor Corridor	8760	7	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Wall Mnt., Prismatic Lens	75	0.53	4599	\$768.03	0	No Change	75	0.53	0%	4599	\$768.03	\$0.00	\$0.00	0	0	\$0.00	0.00
141.1	B8 Office	2600	3	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.52	1341.6	\$224.05	1	Dual Technology Occupancy Sensor	172	0.52	20%	1073.28	\$179.24	\$160.00	\$160.00	0	268.32	\$44.81	3.57
121.1	0	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195	\$32.57	0	No Change	75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0	0	\$0.00	0.00
142.1	B6 Office	2600	2	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.34	894.4	\$149.36	1	Dual Technology Occupancy Sensor	172	0.34	20%	715.52	\$119.49	\$160.00	\$160.00	0	178.88	\$29.87	5.36
121.1	Copy Room	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195	\$32.57	1	Dual Technology Occupancy Sensor	75	0.08	20%	156	\$26.05	\$160.00	\$160.00	0	39	\$6.51	24.57
141.1	B7 Intake	2600	2	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.34	894.4	\$149.36	1	Dual Technology Occupancy Sensor	172	0.34	20%	715.52	\$119.49	\$160.00	\$160.00	0	178.88	\$29.87	5.36

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700	Supply Closet	520	1	1	Pendant Mnt., Globe, 75w A19 Incandescent	75	0.08	39	\$6.51	0	No Change	75	0.08	0%	39	\$6.51	\$0.00	\$0.00	0	0	\$0.00	0.00
141.1	B9 Office	2600	2	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.34	894.4	\$149.36	1	Dual Technology Occupancy Sensor	172	0.34	20%	715.52	\$119.49	\$160.00	\$160.00	0	178.88	\$29.87	5.36
121.1	B10 Women's Restroom	2600	3	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.23	585	\$97.70	1	Dual Technology Occupancy Sensor	75	0.23	20%	468	\$78.16	\$160.00	\$160.00	0	117	\$19.54	8.19
121.1	B12 Bedroom	2600	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.15	390	\$65.13	0	No Change	75	0.15	0%	390	\$65.13	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B20 Bedroom	2600	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.15	390	\$65.13	0	No Change	75	0.15	0%	390	\$65.13	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B11 Men's Restroom	2600	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.15	390	\$65.13	1	Dual Technology Occupancy Sensor	75	0.15	20%	312	\$52.10	\$160.00	\$160.00	0	78	\$13.03	12.28
121.1	B19 Laundry	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195	\$32.57	1	Dual Technology Occupancy Sensor	75	0.08	20%	156	\$26.05	\$160.00	\$160.00	0	39	\$6.51	24.57
141.1	B12 Dorm Day Room	2600	4	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.69	1788.8	\$298.73	1	Dual Technology Occupancy Sensor	172	0.69	20%	1431.04	\$238.98	\$160.00	\$160.00	0	357.76	\$59.75	2.68
121.1	B13 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195	\$32.57	0	No Change	75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B14 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195	\$32.57	0	No Change	75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B15 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195	\$32.57	0	No Change	75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B16 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195	\$32.57	0	No Change	75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B17 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195	\$32.57	0	No Change	75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B18 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195	\$32.57	0	No Change	75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0	0	\$0.00	0.00
121.4	2rd Floor Corridor	8760	7	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Wall Mnt., Prismatic Lens	75	0.53	4599	\$768.03	1	Dual Technology Occupancy Sensor	75	0.53	20%	3679.2	\$614.43	\$160.00	\$160.00	0	919.8	\$153.61	1.04

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121.1	B22 Office	2600	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.15	390	\$65.13	1	Dual Technology Occupancy Sensor	75	0.15	20%	312	\$52.10	\$160.00	\$160.00	0	78	\$13.03	12.28
121.1	B34 Bedroom	2600	2	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.15	390	\$65.13	0	No Change	75	0.15	0%	390	\$65.13	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B23 Bedroom	2600	3	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.23	585	\$97.70	0	No Change	75	0.23	0%	585	\$97.70	\$0.00	\$0.00	0	0	\$0.00	0.00
141.1	B24 Finance	2600	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	447.2	\$74.68	1	Dual Technology Occupancy Sensor	172	0.17	20%	357.76	\$59.75	\$160.00	\$160.00	0	89.44	\$14.94	10.71
141.1	B23A Office	2600	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	447.2	\$74.68	1	Dual Technology Occupancy Sensor	172	0.17	20%	357.76	\$59.75	\$160.00	\$160.00	0	89.44	\$14.94	10.71
141.1	B23B Office	2600	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	447.2	\$74.68	1	Dual Technology Occupancy Sensor	172	0.17	20%	357.76	\$59.75	\$160.00	\$160.00	0	89.44	\$14.94	10.71
141.1	B25 Office	2600	3	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.52	1341.6	\$224.05	1	Dual Technology Occupancy Sensor	172	0.52	20%	1073.28	\$179.24	\$160.00	\$160.00	0	268.32	\$44.81	3.57
142.2	B26 Copy Room	2600	1	4	2x4, 4-Lamp, 40w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	172	0.17	447.2	\$74.68	1	Dual Technology Occupancy Sensor	172	0.17	20%	357.76	\$59.75	\$160.00	\$160.00	0	89.44	\$14.94	10.71
121.1	B27 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195	\$32.57	1	Dual Technology Occupancy Sensor	75	0.08	20%	156	\$26.05	\$160.00	\$160.00	0	39	\$6.51	24.57
121.1	B42 Office	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195	\$32.57	1	Dual Technology Occupancy Sensor	75	0.08	20%	156	\$26.05	\$160.00	\$160.00	0	39	\$6.51	24.57
121.1	B28 Office	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195	\$32.57	1	Dual Technology Occupancy Sensor	75	0.08	20%	156	\$26.05	\$160.00	\$160.00	0	39	\$6.51	24.57
303	B29 Custodial Closet	520	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.10	52	\$8.68	0	No Change	100	0.10	0%	52	\$8.68	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B41 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195	\$32.57	0	No Change	75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B42 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195	\$32.57	0	No Change	75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B30 Shower	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195	\$32.57	1	Dual Technology Occupancy Sensor	75	0.08	20%	156	\$26.05	\$160.00	\$160.00	0	39	\$6.51	24.57

Investment Grade Lighting Audit

121.1	B40 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195	\$32.57	0	No Change	75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B31 Women's Restroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195	\$32.57	1	Dual Technology Occupancy Sensor	75	0.08	20%	156	\$26.05	\$160.00	\$160.00	0	39	\$6.51	24.57
121.1	Dorm Day Room	2600	4	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.30	780	\$130.26	1	Dual Technology Occupancy Sensor	75	0.30	20%	624	\$104.21	\$160.00	\$160.00	0	156	\$26.05	6.14
121.1	B37 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195	\$32.57	0	No Change	75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B38 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195	\$32.57	0	No Change	75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B36 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195	\$32.57	0	No Change	75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B35 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195	\$32.57	0	No Change	75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B34 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195	\$32.57	0	No Change	75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B33 Bedroom	2600	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195	\$32.57	0	No Change	75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B39 Laundry	0	1	2	1x4, 2-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	0	\$0.00	1	Dual Technology Occupancy Sensor	75	0.08	20%	0	\$0.00	\$160.00	\$160.00	0	0	\$0.00	0.00
<b>Totals</b>			132	168			14.08	53,262.9	\$8,895	34					48178	\$8,046		\$5,440.00	0	5085.0	\$849.20	6.41

NOTES: 1. Simple Payback noted in this spreadsheet does not include Maintenance Savings and NJ Smart Start Incentives.

2. Lamp totals only include T-12 tube replacement calculations

CEG Job #: 9C09162

Project: HUDSON COUNTY IMPROVEMENT AUTHORITY ENERGY AUDIT

Building - 7

KWH COST: **\$0.167**

Address: 595 County Ave.

Secaucus, NJ. 07094

Building SF: 22,000

**ECM: Lighting Upgrade - General**

EXISTING LIGHTING										PROPOSED LIGHTING										SAVINGS			
CEG Type	Floor	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
<b>Bldg. 7 - 2nd Floor - "New Hope"</b>																							
141.11	2	Dorm Day Room	2600	4	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.69	1,788.8	\$298.73	4	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.36	946.4	\$158.05	\$100.00	\$400.00	0.32	842.4	\$140.68	2.84
121.11	2	291 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	2	290 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	2	298 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	2	287 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	2	286 Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	2	285 Nurse	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
224.21	2	Men's Restroom	2600	1	2	2x2, 2-Lamp, 32w T8 U, Elect. Ballast, Recessed Mnt., Prismatic Lens	65	0.07	169.0	\$28.22	1	0	No Change	65	0.07	169	\$28.22	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.41	2	Laundry	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Wall Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	2	283 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
303	2	Utility Closet	520	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.10	52.0	\$8.68	1	1	26 W CFL Lamp	26	0.03	13.52	\$2.26	\$5.75	\$5.75	0.07	38.48	\$6.43	0.89
224.21	2	Restroom	2600	1	2	2x2, 2-Lamp, 32w T8 U, Elect. Ballast, Recessed Mnt., Prismatic Lens	65	0.07	169.0	\$28.22	1	0	No Change	65	0.07	169	\$28.22	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.11	2	Kitchen	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52

121.11	2	281 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52	
121.11	2	298 Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52	
121.41	2	Corridor	8760	5	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Wall Mnt., Prismatic	75	0.38	3,285.0	\$548.60	5	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.28	2409	\$402.30	\$100.00	\$500.00	0.10	876	\$146.29	3.42	
141.11	2	Girl's Day Room	2600	3	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.52	1,341.6	\$224.05	3	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.27	709.8	\$118.54	\$100.00	\$300.00	0.24	631.8	\$105.51	2.84	
601	2		8760	1	1	Exit Sign - Incandescent	25	0.03	219.0	\$36.57	1	1	Exit Sign - LED	2	0.00	17.52	\$2.93	\$65.00	\$65.00	0.02	201.48	\$33.65	1.93	
121.11	2	280 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52	
121.11	2	Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52	
121.11	2	Storage Closet	520	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	39.0	\$6.51	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	28.6	\$4.78	\$100.00	\$100.00	0.02	10.4	\$1.74	57.58	
121.11	2	Attic Storage Area	8760	3	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.23	1,971.0	\$329.16	3	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.17	1445.4	\$241.38	\$100.00	\$300.00	0.06	525.6	\$87.78	3.42	
121.11	2	279 Office	2600	3	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.23	585.0	\$97.70	3	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.17	429	\$71.64	\$100.00	\$300.00	0.06	156	\$26.05	11.52	
<b>Bldg. 7 - 1st Floor - "Straight and Narrow"</b>																								
121.11	1	169 Bedroom	2600	2	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.15	390.0	\$65.13	2	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.11	286	\$47.76	\$100.00	\$200.00	0.04	104	\$17.37	11.52	
121.11	1	183 Women's Restroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52	
121.11	1	Restroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52	
121.11	1	168 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52	
121.11	1	167 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52	
121.11	1	166 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52	

121.11	1	165 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	1	164 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	1	163 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	1	175 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	1	176 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	1	177 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	1	178 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	1	179 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	1	181 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
141.11	1	171 Day room	2600	4	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.69	1,788.8	\$298.73	4	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.36	946.4	\$158.05	\$100.00	\$400.00	0.32	842.4	\$140.68	2.84
121.11	1	173 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	1	172 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.41	1	Corridor	8760	11	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Wall Mnt., Prismatic	75	0.83	7,227.0	\$1,206.91	11	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.61	5299.8	\$885.07	\$100.00	\$1,100.00	0.22	1927.2	\$321.84	3.42
601	1		8760	1	1	Exit Sign - Incandescent	25	0.03	219.0	\$36.57	1	1	Exit Sign - LED	2	0.00	17.52	\$2.93	\$65.00	\$65.00	0.02	201.48	\$33.65	1.93
121.11	1	174 Storage	520	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	39.0	\$6.51	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	28.6	\$4.78	\$100.00	\$100.00	0.02	10.4	\$1.74	57.58
121.11	1	199 Nurse	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52

121.11	1	198 Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	1	184 Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	1	197 Kitchen	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	1	185 Restroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	1	186 Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
303	1	Custodial Closet	520	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.10	52.0	\$8.68	1	1	26 W CFL Lamp	26	0.03	13.52	\$2.26	\$5.75	\$5.75	0.07	38.48	\$6.43	0.89
121.11	1	196 Restroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.41	1	187 Laundry	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Wall Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	1	195 Restroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	1	189 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
141.11	1	193 Day Room	2600	4	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.69	1,788.8	\$298.73	4	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.36	946.4	\$158.05	\$100.00	\$400.00	0.32	842.4	\$140.68	2.84
121.11	1	190 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	1	191 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	1	192 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
<b>Bldg. 7 - Basement Level - "Straight and Narrow"</b>																							
121.11	B	170 Foyer	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.41	B	Corridor	8760	3	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Wall Mnt., Prismatic	75	0.23	1,971.0	\$329.16	3	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.17	1445.4	\$241.38	\$100.00	\$300.00	0.06	525.6	\$87.78	3.42

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141.11	B	B98 Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.17	447.2	\$74.68	1	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.09	236.6	\$39.51	\$100.00	\$100.00	0.08	210.6	\$35.17	2.84
141.11	B	B86 Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.17	447.2	\$74.68	1	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.09	236.6	\$39.51	\$100.00	\$100.00	0.08	210.6	\$35.17	2.84
141.11	B	B96 Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.17	447.2	\$74.68	1	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.09	236.6	\$39.51	\$100.00	\$100.00	0.08	210.6	\$35.17	2.84
303	B	Custodial Closet	520	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.10	52.0	\$8.68	1	1	26 W CFL Lamp	26	0.03	13.52	\$2.26	\$5.75	\$5.75	0.07	38.48	\$6.43	0.89
141.11	B	B87 Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.17	447.2	\$74.68	1	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.09	236.6	\$39.51	\$100.00	\$100.00	0.08	210.6	\$35.17	2.84
121.11	B	B97 Restroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11		#7 Stairwell	8760	5	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.38	3,285.0	\$548.60	5	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.28	2409	\$402.30	\$100.00	\$500.00	0.10	876	\$146.29	3.42
601			8760	1	1	Exit Sign - Incandescent	25	0.03	219.0	\$36.57	1	1	Exit Sign - LED	2	0.00	17.52	\$2.93	\$65.00	\$65.00	0.02	201.48	\$33.65	1.93
121.11	B	B95 Laundry	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	B	B88 Restroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	B	B89 Restroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.41	B	B94 Waiting Area	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Wall Mnt., Prismatic	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	B	B94A Storage	520	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.08	39.0	\$6.51	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	28.6	\$4.78	\$100.00	\$100.00	0.02	10.4	\$1.74	57.58

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141.11	B	B92 Office	2600	2	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.34	894.4	\$149.36	2	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.18	473.2	\$79.02	\$100.00	\$200.00	0.16	421.2	\$70.34	2.84
141.11	B	B93 Office	2600	2	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.34	894.4	\$149.36	2	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.18	473.2	\$79.02	\$100.00	\$200.00	0.16	421.2	\$70.34	2.84
141.11	B	B91 Office	2600	2	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.34	894.4	\$149.36	2	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.18	473.2	\$79.02	\$100.00	\$200.00	0.16	421.2	\$70.34	2.84
141.11	B	Day Room	2600	9	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	1.55	4,024.8	\$672.14	9	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.82	2129.4	\$355.61	\$100.00	\$900.00	0.73	1895.4	\$316.53	2.84
<b>Totals</b>				116				11.03	40,522.0	\$6,767.17	116	155			7.054	27019.52	\$4,512.26		\$11,012.25	3.98	13502.5	\$2,254.91	4.88

NOTES: 1. Simple Payback noted in this spreadsheet does not include Maintenance Savings and NJ Smart Start Incentives.  
2. Lamp totals only include T-12 tube replacement calculations

CEG Job #: 9C09162

Project: HUDSON COUNTY IMPROVEMENT AUTHORITY ENERGY AUDIT

Building - 7

KWH COST: \$0.167

Address: 595 County Ave.  
Secaucus, NJ. 07094

Building SF: 22,000

**ECM: Lighting Controls**

EXISTING LIGHTING						PROPOSED LIGHTING CONTROLS														SAVINGS				
CEG Type	Floor	Fixture Location	Yearly Usage	No. Fixts	No. Lamps	Fixture Type	Fixt Watts	Total kW	kWh/Yr Fixtures	Yearly \$ Cost	No. Fixts	No. Lamps	Controls Description	Watts Used	Total kW	Reduction (%)	kWh/Yr Fixtures	Yearly \$ Cost	Unit Cost (INSTALLED)	Total Cost	kW Savings	kWh/Yr Savings	Yearly \$ Savings	Yearly Simple Payback
141.1	2	Dorm Day Room	2600	4	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.688	1788.8	298.7296	4	3	Dual Technology Occupancy Sensor	172	0.69	20%	1431.04	\$238.98	\$160.00	\$160.00	0.00	357.76	\$59.75	2.68
121.1	2	291 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	2	290 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	2	298 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	2	287 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	2	286 Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	2	285 Nurse	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
224.2	2	Men's Restroom	2600	1	2	2x2, 2-Lamp, 32w T8 U, Elect. Ballast, Recessed Mnt., Prismatic Lens	65	0.065	169	28.223	1	0		65	0.07	0%	169	\$28.22	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.4	2	Laundry	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Wall Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	2	283 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
303	2	Utility Closet	520	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.1	52	8.684	1	1		100	0.10	0%	52	\$8.68	\$0.00	\$0.00	0.00	0	\$0.00	0.00
224.2	2	Restroom	2600	1	2	2x2, 2-Lamp, 32w T8 U, Elect. Ballast, Recessed Mnt., Prismatic Lens	65	0.065	169	28.223	1	0		65	0.07	0%	169	\$28.22	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	2	Kitchen	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	2	281 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00

121.1	2	298 Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.4	2	Corridor	8760	5	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Wall Mnt., Prismatic	75	0.375	3285	548.595	5	2		75	0.38	0%	3285	\$548.60	\$0.00	\$0.00	0.00	0	\$0.00	0.00
141.1	2	Girl's Day Room	2600	3	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.516	1341.6	224.0472	3	3		172	0.52	0%	1341.6	\$224.05	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	2	280 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	2	Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	2	Storage Closet	520	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	39	6.513	1	2		75	0.08	0%	39	\$6.51	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	2	Attic Storage Area	8760	3	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.225	1971	329.157	3	2		75	0.23	0%	1971	\$329.16	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	2	279 Office	2600	3	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.225	585	97.695	3	2		75	0.23	0%	585	\$97.70	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	1	169 Bedroom	2600	2	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.15	390	65.13	2	2		75	0.15	0%	390	\$65.13	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	1	183 Women's Restroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	1	Restroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	1	168 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	1	167 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	1	166 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	1	165 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	1	164 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00

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121.1	1	163 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	1	175 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	1	176 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	1	177 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	1	178 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	1	179 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	1	181 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
141.1	1	171 Day room	2600	4	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.688	1788.8	298.7296	4	3		172	0.69	0%	1788.8	\$298.73	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	1	173 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	1	172 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.4	1	Corridor	8760	11	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Wall Mnt., Prismatic	75	0.825	7227	1206.909	11	2		75	0.83	0%	7227	\$1,206.91	\$0.00	\$0.00	0.00	0	\$0.00	0.00
601	1	0	8760	1	1	Exit Sign - Incandescent	25	0.025	219	36.573	1	1		25	0.03	0%	219	\$36.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	1	174 Storage	520	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	39	6.513	1	2		75	0.08	0%	39	\$6.51	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	1	199 Nurse	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	1	198 Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	1	184 Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	1	197 Kitchen	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00

Investment Grade Lighting Audit

121.1	1	185 Restroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	1	186 Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
303	1	Custodial Closet	520	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.1	52	8.684	1	1		100	0.10	0%	52	\$8.68	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	1	196 Restroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.4	1	187 Laundry	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Wall Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	1	195 Restroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	1	189 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
141.1	1	193 Day Room	2600	4	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.688	1788.8	298.7296	4	3	Dual Technology Occupancy Sensor	172	0.69	20%	1431.04	\$238.98	\$160.00	\$160.00	0.00	357.76	\$59.75	2.68
121.1	1	190 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	1	191 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	1	192 Bedroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	B	170 Foyer	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.4	B	Corridor	8760	3	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Wall Mnt., Prismatic	75	0.225	1971	329.157	3	2		75	0.23	0%	1971	\$329.16	\$0.00	\$0.00	0.00	0	\$0.00	0.00
141.1	B	B98 Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.172	447.2	74.6824	1	3		172	0.17	0%	447.2	\$74.68	\$0.00	\$0.00	0.00	0	\$0.00	0.00
141.1	B	B86 Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.172	447.2	74.6824	1	3		172	0.17	0%	447.2	\$74.68	\$0.00	\$0.00	0.00	0	\$0.00	0.00
141.1	B	B96 Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.172	447.2	74.6824	1	3		172	0.17	0%	447.2	\$74.68	\$0.00	\$0.00	0.00	0	\$0.00	0.00
303	B	Custodial Closet	520	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.1	52	8.684	1	1		100	0.10	0%	52	\$8.68	\$0.00	\$0.00	0.00	0	\$0.00	0.00

**Investment Grade Lighting Audit**

141.1	B	B87 Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.172	447.2	74.6824	1	3		172	0.17	0%	447.2	\$74.68	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	B	B97 Restroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	0	#7 Stairwell	8760	5	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.375	3285	548.595	5	2		75	0.38	0%	3285	\$548.60	\$0.00	\$0.00	0.00	0	\$0.00	0.00
601	0	0	8760	1	1	Exit Sign - Incandescent	25	0.025	219	36.573	1	1		25	0.03	0%	219	\$36.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	B	B95 Laundry	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	B	B88 Restroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	B	B89 Restroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.4	B	B94 Waiting Area	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Wall Mnt., Prismatic	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.1	B	B94A Storage	520	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	75	0.075	39	6.513	1	2		75	0.08	0%	39	\$6.51	\$0.00	\$0.00	0.00	0	\$0.00	0.00
141.1	B	B92 Office	2600	2	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.344	894.4	149.3648	2	3	Dual Technology Occupancy Sensor	172	0.34	20%	715.52	\$119.49	\$160.00	\$160.00	0.00	178.88	\$29.87	5.36
141.1	B	B93 Office	2600	2	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.344	894.4	149.3648	2	3	Dual Technology Occupancy Sensor	172	0.34	20%	715.52	\$119.49	\$160.00	\$160.00	0.00	178.88	\$29.87	5.36
141.1	B	B91 Office	2600	2	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.344	894.4	149.3648	2	3	Dual Technology Occupancy Sensor	172	0.34	20%	715.52	\$119.49	\$160.00	\$160.00	0.00	178.88	\$29.87	5.36
<b>Totals</b>				115	169			11.01	40,303.0	\$6,730.60	115				11.005		39050.84	\$6,521.49	\$800.00	0.00	1252.2	\$209.11	3.83	

**NOTES:** 1. Simple Payback noted in this spreadsheet does not include Maintenance Savings and NJ Smart Start Incentives.  
2. Lamp totals only include T-12 tube replacment calculations

**Investment Grade Lighting Audit**

CEG Job #: 9C09162

Project: HUDSON COUNTY IMPROVEMENT AUTHORITY ENERGY AUDIT

Building - 8

KWH COST: \$0.167

Address: 595 County Ave.

Secaucus, NJ. 07094

Building SF: 21,500

**ECM: Lighting Upgrade - General**

EXISTING LIGHTING						PROPOSED LIGHTING										SAVINGS							
CEG Type	Floor	Fixture Location	Yearly Usage	No. Fixts	No. Lamps	Fixture Type	Fixt Wats	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
121.41	1	Corridors	8760	12	2	Wall Mnt., 2 Lamp, 40w T12, Mag. Ballast, Prismatic Lens	75	0.90	7,884.0	\$1,316.63	12	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.66	5781.6	\$965.53	\$100.00	\$1,200.00	0.24	2102.4	\$351.10	3.42
141.11	1	Rm 155: Day Room	2600	4	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.69	1,788.8	\$298.73	4	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.36	946.4	\$158.05	\$100.00	\$400.00	0.32	842.4	\$140.68	2.84
301	1	155: Day Room	1820	3	1	1-Lamp Incandescent, 75 Watt Bulbs, Surface Mounted, Direct	75	0.23	409.5	\$68.39	3	1	18 W CFL Lamp	18	0.05	98.28	\$16.41	\$5.75	\$17.25	0.17	311.22	\$51.97	0.33
121.11	1	152: Dorm Room	1820	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	136.5	\$22.80	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	100.1	\$16.72	\$100.00	\$100.00	0.02	36.4	\$6.08	16.45
121.11	1	153: Dorm Room	1820	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	136.5	\$22.80	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	100.1	\$16.72	\$100.00	\$100.00	0.02	36.4	\$6.08	16.45
121.11	1	154: Dorm Room	1820	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	136.5	\$22.80	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	100.1	\$16.72	\$100.00	\$100.00	0.02	36.4	\$6.08	16.45
121.11	1	156: Dorm Room	1820	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	136.5	\$22.80	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	100.1	\$16.72	\$100.00	\$100.00	0.02	36.4	\$6.08	16.45
121.11	1	157: Dorm Room	1820	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	136.5	\$22.80	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	100.1	\$16.72	\$100.00	\$100.00	0.02	36.4	\$6.08	16.45
121.11	1	149: Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	1	158: Bathroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	1	159: Bathroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	1	148: Laundry	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	1	147: Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
301	1	147: Office	1820	3	1	1-Lamp Incandescent, 75 Watt Bulbs, Surface Mounted, Direct	75	0.23	409.5	\$68.39	3	1	18 W CFL Lamp	18	0.05	98.28	\$16.41	\$5.75	\$17.25	0.17	311.22	\$51.97	0.33
305	1	151A: Closet	260	1	1	1 Lamp Incandescent, 150 Watt Bulbs, Surface Mounted, Direct	150	0.15	39.0	\$6.51	1	1	42 W CFL Lamp	42	0.04	10.92	\$1.82	\$20.00	\$20.00	0.11	28.08	\$4.69	4.26
121.11	1	160: Kitchenette	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	1	146: Men's Room	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	1	145: Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52

Investment Grade Lighting Audit

121.11	1	161: Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	1	162: Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
141.11	1	134: Staff Day Room	2600	4	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.69	1,788.8	\$298.73	4	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.36	946.4	\$158.05	\$100.00	\$400.00	0.32	842.4	\$140.68	2.84
121.11	1	133B: Bathroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	1	135: Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	1	135A: Medication Room	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.41	1	135A: Medication Room	2600	1	2	Wall Mnt., 2 Lamp, 40w T12, Mag. Ballast, Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	1	144: Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	1	143: Men's Room	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
141.11	1	132: Day Room	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.17	447.2	\$74.68	1	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.09	236.6	\$39.51	\$100.00	\$100.00	0.08	210.6	\$35.17	2.84
304	1	132: Day Room	2600	3	1	1 Lamp Incandescent, 60 Watt Bulbs, Surface Mounted, Direct	60	0.18	468.0	\$78.16	3	1	18 W CFL Lamp	18	0.05	140.4	\$23.45	\$5.75	\$17.25	0.13	327.6	\$54.71	0.32
141.11	1	142A: Male Patient Dorm Room	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.17	447.2	\$74.68	1	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.09	236.6	\$39.51	\$100.00	\$100.00	0.08	210.6	\$35.17	2.84
141.11	1	142: Telecom Room	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.17	447.2	\$74.68	1	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.09	236.6	\$39.51	\$100.00	\$100.00	0.08	210.6	\$35.17	2.84
141.11	1	132: Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.17	447.2	\$74.68	1	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.09	236.6	\$39.51	\$100.00	\$100.00	0.08	210.6	\$35.17	2.84
121.11	1	141: Exit	8760	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	657.0	\$109.72	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	481.8	\$80.46	\$100.00	\$100.00	0.02	175.2	\$29.26	3.42
141.11	1	140: Male Patient Room	1820	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.17	313.0	\$52.28	1	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.09	165.62	\$27.66	\$100.00	\$100.00	0.08	147.42	\$24.62	4.06
121.11	1	131: Male Patient Room	1820	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	136.5	\$22.80	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	100.1	\$16.72	\$100.00	\$100.00	0.02	36.4	\$6.08	16.45
141.11	1	139: Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.17	447.2	\$74.68	1	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.09	236.6	\$39.51	\$100.00	\$100.00	0.08	210.6	\$35.17	2.84
141.11	1	130: Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.17	447.2	\$74.68	1	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.09	236.6	\$39.51	\$100.00	\$100.00	0.08	210.6	\$35.17	2.84
121.11	1	133: Office	2600	2	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.15	390.0	\$65.13	2	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.11	286	\$47.76	\$100.00	\$200.00	0.04	104	\$17.37	11.52
121.11	1	150: Office	2600	4	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.30	780.0	\$130.26	4	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.22	572	\$95.52	\$100.00	\$400.00	0.08	208	\$34.74	11.52
121.41	2	Corridor	8760	4	2	Wall Mnt., 2 Lamp, 40w T12, Mag. Ballast, Prismatic Lens	75	0.30	2,628.0	\$438.88	4	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.22	1927.2	\$321.84	\$100.00	\$400.00	0.08	700.8	\$117.03	3.42

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121.11	2	259: Male Patient Room	1820	4	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.30	546.0	\$91.18	4	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.22	400.4	\$66.87	\$100.00	\$400.00	0.08	145.6	\$24.32	16.45
121.11	2	256: Dorm Room	1820	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	136.5	\$22.80	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	100.1	\$16.72	\$100.00	\$100.00	0.02	36.4	\$6.08	16.45
121.11	2	257: Dorm Room	1820	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	136.5	\$22.80	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	100.1	\$16.72	\$100.00	\$100.00	0.02	36.4	\$6.08	16.45
121.11	2	228: Dorm Room	1820	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	136.5	\$22.80	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	100.1	\$16.72	\$100.00	\$100.00	0.02	36.4	\$6.08	16.45
121.11	2	260: Dorm Room	1820	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	136.5	\$22.80	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	100.1	\$16.72	\$100.00	\$100.00	0.02	36.4	\$6.08	16.45
121.11	2	261: Dorm Room	1820	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	136.5	\$22.80	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	100.1	\$16.72	\$100.00	\$100.00	0.02	36.4	\$6.08	16.45
121.11	2	255: Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
304	2	255: Office	2600	3	1	1 Lamp Incandescent, 60 Watt Bulbs, Surface Mounted, Direct	60	0.18	468.0	\$78.16	3	1	18 W CFL Lamp	18	0.05	140.4	\$23.45	\$5.75	\$17.25	0.13	327.6	\$54.71	0.32
121.11	2	263: Bathroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	2	264: Bathroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	2	254: Laundry	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	2	Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
305	2	Closet	260	1	1	1 Lamp Incandescent, 150 Watt Bulbs, Surface Mounted, Direct	150	0.15	39.0	\$6.51	1	1	42 W CFL Lamp	42	0.04	10.92	\$1.82	\$20.00	\$20.00	0.11	28.08	\$4.69	4.26
121.11	2	Kitchenette	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	2	252: Bathroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	2	251: Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	2	266: Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	2	267: Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	2	243: Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	2	268: Storage Room	260	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	19.5	\$3.26	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	14.3	\$2.39	\$100.00	\$100.00	0.02	5.2	\$0.87	115.15
121.11	2	244: Storage Room	260	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	19.5	\$3.26	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	14.3	\$2.39	\$100.00	\$100.00	0.02	5.2	\$0.87	115.15
305	2	245: Telecom Room	260	1	1	1 Lamp Incandescent, 150 Watt Bulbs, Surface Mounted, Direct	150	0.15	39.0	\$6.51	1	1	42 W CFL Lamp	42	0.04	10.92	\$1.82	\$20.00	\$20.00	0.11	28.08	\$4.69	4.26

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121.11	2	246: Dorm Room	1820	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	136.5	\$22.80	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	100.1	\$16.72	\$100.00	\$100.00	0.02	36.4	\$6.08	16.45
121.11	2	247: Dorm Room	1820	4	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.30	546.0	\$91.18	4	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.22	400.4	\$66.87	\$100.00	\$400.00	0.08	145.6	\$24.32	16.45
121.11	2	248: Dorm Room	1820	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	136.5	\$22.80	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	100.1	\$16.72	\$100.00	\$100.00	0.02	36.4	\$6.08	16.45
121.11	2	249: Dorm Room	1820	2	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.15	273.0	\$45.59	2	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.11	200.2	\$33.43	\$100.00	\$200.00	0.04	72.8	\$12.16	16.45
121.11	2	Attic	260	2	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.15	39.0	\$6.51	2	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.11	28.6	\$4.78	\$100.00	\$200.00	0.04	10.4	\$1.74	115.15
305	2	Attic	260	3	1	1 Lamp Incandescent, 150 Watt Bulbs, Surface Mounted, Direct	150	0.45	117.0	\$19.54	3	1	42 W CFL Lamp	42	0.13	32.76	\$5.47	\$20.00	\$60.00	0.32	84.24	\$14.07	4.26
<b>Basement - Corrections/Internal Affairs (extends beyond Bldg. 8)</b>																							
242.21	B	B59 Office	2600	5	4	2x4, 4-Lamp, 32w T8, Elect. Ballast, Recessed, Prismatic Lens	106	0.53	1,378.0	\$230.13	5	0	No Change	82	0.41	1066	\$178.02	\$0.00	\$0.00	0.12	312	\$52.10	0.00
242.21	B	B57 Office	2600	2	4	2x4, 4-Lamp, 32w T8, Elect. Ballast, Recessed, Prismatic Lens	106	0.21	551.2	\$92.05	2	0	No Change	82	0.16	426.4	\$71.21	\$0.00	\$0.00	0.05	124.8	\$20.84	0.00
242.21	B	B58 Office	2600	2	4	2x4, 4-Lamp, 32w T8, Elect. Ballast, Recessed, Prismatic Lens	106	0.21	551.2	\$92.05	2	0	No Change	82	0.16	426.4	\$71.21	\$0.00	\$0.00	0.05	124.8	\$20.84	0.00
242.21	B	B56 Interview Room	2600	2	4	2x4, 4-Lamp, 32w T8, Elect. Ballast, Recessed, Prismatic Lens	106	0.21	551.2	\$92.05	2	0	No Change	82	0.16	426.4	\$71.21	\$0.00	\$0.00	0.05	124.8	\$20.84	0.00
121.11	B	B51 Fax Room	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	B	B52 Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	B	B53 Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	B	B54 Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	B	B55 Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
242.21	B	Corridor (new area)	8760	6	4	2x4, 4-Lamp, 32w T8, Elect. Ballast, Recessed, Prismatic Lens	106	0.64	5,571.4	\$930.42	6	0	No Change	82	0.49	4309.92	\$719.76	\$0.00	\$0.00	0.14	1261.44	\$210.66	0.00
603	B		8760	1	1	Exit Sign - Incandescent	25	0.03	219.0	\$36.57	1	1	Exit Sign - LED	2	0.00	17.52	\$2.93	\$65.00	\$65.00	0.02	201.48	\$33.65	1.93
121.41	B	Corridor	8760	4	2	Wall Mnt., 2 Lamp, 40w T12, Mag. Ballast, Prismatic Lens	75	0.30	2,628.0	\$438.88	4	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.22	1927.2	\$321.84	\$100.00	\$400.00	0.08	700.8	\$117.03	3.42
603	B		8760	2	1	Exit Sign - Incandescent	25	0.05	438.0	\$73.15	2	1	Exit Sign - LED	2	0.00	35.04	\$5.85	\$65.00	\$130.00	0.05	402.96	\$67.29	1.93
121.11	B	B48 Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
603	B		8760	1	1	Exit Sign - Incandescent	25	0.03	219.0	\$36.57	1	1	Exit Sign - LED	2	0.00	17.52	\$2.93	\$65.00	\$65.00	0.02	201.48	\$33.65	1.93

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121.11	B	B60 Restroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	B	B61 Restroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	B	B46 Utilities	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
303	B	B47 Utility Closet	650	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.10	65.0	\$10.86	1	1	26 W CFL Lamp	26	0.03	16.9	\$2.82	\$5.75	\$5.75	0.07	48.1	\$8.03	0.72
121.11	B	B45 Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	B	B44 Restroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
141.11	B	B62 Kitchen	2600	2	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.34	894.4	\$149.36	2	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.18	473.2	\$79.02	\$100.00	\$200.00	0.16	421.2	\$70.34	2.84
121.11	B	B43 Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	B	B63 Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
121.11	B	B50 Stairway	8760	5	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.38	3,285.0	\$548.60	5	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.28	2409	\$402.30	\$100.00	\$500.00	0.10	876	\$146.29	3.42
121.41	B	Corridor	8760	6	2	Wall Mnt., 2 Lamp, 40w T12, Mag. Ballast, Prismatic Lens	75	0.45	3,942.0	\$658.31	6	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.33	2890.8	\$482.76	\$100.00	\$600.00	0.12	1051.2	\$175.55	3.42
141.11	B	B64 Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.17	447.2	\$74.68	1	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.09	236.6	\$39.51	\$100.00	\$100.00	0.08	210.6	\$35.17	2.84
121.11	B	B31 Office	2600	4	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.30	780.0	\$130.26	4	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.22	572	\$95.52	\$100.00	\$400.00	0.08	208	\$34.74	11.52
141.11	B	B30 Training Room	2600	2	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.34	894.4	\$149.36	2	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.18	473.2	\$79.02	\$100.00	\$200.00	0.16	421.2	\$70.34	2.84
141.11	B	B42 File Room	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.17	447.2	\$74.68	1	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.09	236.6	\$39.51	\$100.00	\$100.00	0.08	210.6	\$35.17	2.84
141.11	B	B41 Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.17	447.2	\$74.68	1	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.09	236.6	\$39.51	\$100.00	\$100.00	0.08	210.6	\$35.17	2.84
141.11	B	B28 Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.17	447.2	\$74.68	1	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.09	236.6	\$39.51	\$100.00	\$100.00	0.08	210.6	\$35.17	2.84
141.11	B	B28A Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.17	447.2	\$74.68	1	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.09	236.6	\$39.51	\$100.00	\$100.00	0.08	210.6	\$35.17	2.84
141.11	B	B40 Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.17	447.2	\$74.68	1	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.09	236.6	\$39.51	\$100.00	\$100.00	0.08	210.6	\$35.17	2.84
121.11	B	B84 Evidence Room	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
141.11	B	B82 Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.17	447.2	\$74.68	1	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.09	236.6	\$39.51	\$100.00	\$100.00	0.08	210.6	\$35.17	2.84
141.11	B	B82A Office	2600	2	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.34	894.4	\$149.36	2	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.18	473.2	\$79.02	\$100.00	\$200.00	0.16	421.2	\$70.34	2.84

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141.11	B	B83 Interview Room	8760	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.17	1,506.7	\$251.62	1	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.09	797.16	\$133.13	\$100.00	\$100.00	0.08	709.56	\$118.50	0.84
141.11	B	B83 Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.17	447.2	\$74.68	1	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.09	236.6	\$39.51	\$100.00	\$100.00	0.08	210.6	\$35.17	2.84
121.11	B	B84 Valve Room	650	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	48.8	\$8.14	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	35.75	\$5.97	\$100.00	\$100.00	0.02	13	\$2.17	46.06
141.11	B	B81 Files	2600	4	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.69	1,788.8	\$298.73	4	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.36	946.4	\$158.05	\$100.00	\$400.00	0.32	842.4	\$140.68	2.84
141.11	B	B78 Office	2600	2	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.34	894.4	\$149.36	2	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.18	473.2	\$79.02	\$100.00	\$200.00	0.16	421.2	\$70.34	2.84
141.11	B	B73 Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.17	447.2	\$74.68	1	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.09	236.6	\$39.51	\$100.00	\$100.00	0.08	210.6	\$35.17	2.84
141.11	B	B72 Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.17	447.2	\$74.68	1	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.09	236.6	\$39.51	\$100.00	\$100.00	0.08	210.6	\$35.17	2.84
141.11	B	B71 Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.17	447.2	\$74.68	1	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.09	236.6	\$39.51	\$100.00	\$100.00	0.08	210.6	\$35.17	2.84
141.11	B	B70 Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.17	447.2	\$74.68	1	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.09	236.6	\$39.51	\$100.00	\$100.00	0.08	210.6	\$35.17	2.84
121.11	B	B69 Copy Room	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
141.11	B	B77 Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.17	447.2	\$74.68	1	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.09	236.6	\$39.51	\$100.00	\$100.00	0.08	210.6	\$35.17	2.84
141.11	B	B76 Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.17	447.2	\$74.68	1	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.09	236.6	\$39.51	\$100.00	\$100.00	0.08	210.6	\$35.17	2.84
141.11	B	B68 Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.17	447.2	\$74.68	1	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.09	236.6	\$39.51	\$100.00	\$100.00	0.08	210.6	\$35.17	2.84
141.11	B	B65-67	2600	3	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.52	1,341.6	\$224.05	3	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	91	0.27	709.8	\$118.54	\$100.00	\$300.00	0.24	631.8	\$105.51	2.84
121.11	B	B75 Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	195.0	\$32.57	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	55	0.06	143	\$23.88	\$100.00	\$100.00	0.02	52	\$8.68	11.52
<b>Totals</b>				199			20.10	67,654.8	\$11,298	199	249			12.297	44050.01	\$7,356.35		\$16,354.75	7.80	23604.8	\$3,941.99	4.15	

NOTES: 1. Simple Payback noted in this spreadsheet does not include Maintenance Savings and NJ Smart Start Incentives.  
2. Lamp totals only include T-12 tube replacement calculations

**Investment Grade Lighting Audit**

CEG Job #: 9C09162

Project: HUDSON COUNTY IMPROVEMENT AUTHORITY ENERGY AUDIT

Address: 595 County Ave.

Secaucus, NJ. 07094

Building SF: 21,500

Building - 8

KWH COST: \$0.167

**ECM: Lighting Controls**

EXISTING LIGHTING						PROPOSED LIGHTING CONTROLS														SAVINGS				
CEG Type	Floor	Fixture Location	Yearly Usage	No. Fixts	No. Lamps	Fixture Type	Fixt Watts	Total kW	kWh/Yr Fixtures	Yearly \$ Cost	No. Fixts	No. Lamps	Controls Description	Watts Used	Total kW	Reduction (%)	kWh/Yr Fixtures	Yearly \$ Cost	Unit Cost (INSTALLED)	Total Cost	kW Savings	kWh/Yr Savings	Yearly \$ Savings	Yearly Simple Payback
121.4	1	Corridors	8760	12	2	Wall Mnt., 2 Lamp, 40w T12, Mag. Ballast, Prismatic Lens	75	0.9	7884	1316.628	12	2	Dual Technology Occupancy Sensor	75	0.90	20%	6307.2	\$1,053.30	\$160.00	\$160.00	0	1576.8	\$263.33	0.61
141.1	1	Rm 155: Day Room	2600	4	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.688	1788.8	298.7296	4	3		172	0.69	0%	1788.8	\$298.73	\$0.00	\$0.00	0	0	\$0.00	0.00
301	1	155: Day Room	1820	3	1	1-Lamp Incandescent, 75 Watt Bulbs, Surface Mounted, Direct	75	0.225	409.5	68.3865	3	1		75	0.23	0%	409.5	\$68.39	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	1	152: Dorm Room	1820	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	136.5	22.7955	1	2		75	0.08	0%	136.5	\$22.80	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	1	153: Dorm Room	1820	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	136.5	22.7955	1	2		75	0.08	0%	136.5	\$22.80	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	1	154: Dorm Room	1820	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	136.5	22.7955	1	2		75	0.08	0%	136.5	\$22.80	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	1	156: Dorm Room	1820	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	136.5	22.7955	1	2		75	0.08	0%	136.5	\$22.80	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	1	157: Dorm Room	1820	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	136.5	22.7955	1	2		75	0.08	0%	136.5	\$22.80	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	1	149: Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2	Dual Technology Occupancy Sensor	75	0.08	20%	156	\$26.05	\$160.00	\$160.00	0	39	\$6.51	24.57
121.1	1	158: Bathroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2	Dual Technology Occupancy Sensor	75	0.08	20%	156	\$26.05	\$160.00	\$160.00	0	39	\$6.51	24.57
121.1	1	159: Bathroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2	Dual Technology Occupancy Sensor	75	0.08	20%	156	\$26.05	\$160.00	\$160.00	0	39	\$6.51	24.57
121.1	1	148: Laundry	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2	Dual Technology Occupancy Sensor	75	0.08	20%	156	\$26.05	\$160.00	\$160.00	0	39	\$6.51	24.57
121.1	1	147: Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0	0	\$0.00	0.00
301	1	147: Office	1820	3	1	1-Lamp Incandescent, 75 Watt Bulbs, Surface Mounted, Direct	75	0.225	409.5	68.3865	3	1		75	0.23	0%	409.5	\$68.39	\$0.00	\$0.00	0	0	\$0.00	0.00
305	1	151A: Closet	260	1	1	1 Lamp Incandescent, 150 Watt Bulbs, Surface Mounted, Direct	150	0.15	39	6.513	1	1		150	0.15	0%	39	\$6.51	\$0.00	\$0.00	0	0	\$0.00	0.00

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121.1	1	160: Kitchenette	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2	Dual Technology Occupancy Sensor	75	0.08	20%	156	\$26.05	\$160.00	\$160.00	0	39	\$6.51	24.57
121.1	1	146: Men's Room	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2	Dual Technology Occupancy Sensor	75	0.08	20%	156	\$26.05	\$160.00	\$160.00	0	39	\$6.51	24.57
121.1	1	145: Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2	Dual Technology Occupancy Sensor	75	0.08	20%	156	\$26.05	\$160.00	\$160.00	0	39	\$6.51	24.57
121.1	1	161: Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2	Dual Technology Occupancy Sensor	75	0.08	20%	156	\$26.05	\$160.00	\$160.00	0	39	\$6.51	24.57
121.1	1	162: Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2	Dual Technology Occupancy Sensor	75	0.08	20%	156	\$26.05	\$160.00	\$160.00	0	39	\$6.51	24.57
141.1	1	134: Staff Day Room	2600	4	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.688	1788.8	298.7296	4	3	Dual Technology Occupancy Sensor	172	0.69	20%	1431.04	\$238.98	\$160.00	\$160.00	0	357.76	\$59.75	2.68
121.1	1	133B: Bathroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2	Dual Technology Occupancy Sensor	75	0.08	20%	156	\$26.05	\$160.00	\$160.00	0	39	\$6.51	24.57
121.1	1	135: Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	1	135A: Medication Room	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2	Dual Technology Occupancy Sensor	75	0.08	20%	156	\$26.05	\$160.00	\$160.00	0	39	\$6.51	24.57
121.4	1	135A: Medication Room	2600	1	2	Wall Mnt., 2 Lamp, 40w T12, Mag. Ballast, Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	1	144: Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2	Dual Technology Occupancy Sensor	75	0.08	20%	156	\$26.05	\$160.00	\$160.00	0	39	\$6.51	24.57
121.1	1	143: Men's Room	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2	Dual Technology Occupancy Sensor	75	0.08	20%	156	\$26.05	\$160.00	\$160.00	0	39	\$6.51	24.57
141.1	1	132: Day Room	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.172	447.2	74.6824	1	3		172	0.17	0%	447.2	\$74.68	\$0.00	\$0.00	0	0	\$0.00	0.00
304	1	132: Day Room	2600	3	1	1 Lamp Incandescent, 60 Watt Bulbs, Surface Mounted, Direct	60	0.18	468	78.156	3	1		60	0.18	0%	468	\$78.16	\$0.00	\$0.00	0	0	\$0.00	0.00
141.1	1	142A: Male Patient Dorm Room	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.172	447.2	74.6824	1	3		172	0.17	0%	447.2	\$74.68	\$0.00	\$0.00	0	0	\$0.00	0.00
141.1	1	142: Telecom Room	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.172	447.2	74.6824	1	3	Dual Technology Occupancy Sensor	172	0.17	20%	357.76	\$59.75	\$160.00	\$160.00	0	89.44	\$14.94	10.71

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141.1	1	132: Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.172	447.2	74.6824	1	3		172	0.17	0%	447.2	\$74.68	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	1	141: Exit	8760	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	657	109.719	1	2	Dual Technology Occupancy Sensor	75	0.08	20%	525.6	\$87.78	\$160.00	\$160.00	0	131.4	\$21.94	7.29
141.1	1	140: Male Patient Room	1820	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.172	313.04	52.27768	1	3		172	0.17	0%	313.04	\$52.28	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	1	131: Male Patient Room	1820	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	136.5	22.7955	1	2		75	0.08	0%	136.5	\$22.80	\$0.00	\$0.00	0	0	\$0.00	0.00
141.1	1	139: Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.172	447.2	74.6824	1	3		172	0.17	0%	447.2	\$74.68	\$0.00	\$0.00	0	0	\$0.00	0.00
141.1	1	130: Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.172	447.2	74.6824	1	3		172	0.17	0%	447.2	\$74.68	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	1	133: Office	2600	2	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.15	390	65.13	2	2	Dual Technology Occupancy Sensor	75	0.15	20%	312	\$52.10	\$160.00	\$160.00	0	78	\$13.03	12.28
121.1	1	150: Office	2600	4	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.3	780	130.26	4	2		75	0.30	0%	780	\$130.26	\$0.00	\$0.00	0	0	\$0.00	0.00
121.4	2	Corridor	8760	4	2	Wall Mnt., 2 Lamp, 40w T12, Mag. Ballast, Prismatic Lens	75	0.3	2628	438.876	4	2		75	0.30	0%	2628	\$438.88	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	2	259: Male Patient Room	1820	4	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.3	546	91.182	4	2	Dual Technology Occupancy Sensor	75	0.30	20%	436.8	\$72.95	\$160.00	\$160.00	0	109.2	\$18.24	8.77
121.1	2	256: Dorm Room	1820	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	136.5	22.7955	1	2		75	0.08	0%	136.5	\$22.80	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	2	257: Dorm Room	1820	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	136.5	22.7955	1	2		75	0.08	0%	136.5	\$22.80	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	2	228: Dorm Room	1820	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	136.5	22.7955	1	2		75	0.08	0%	136.5	\$22.80	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	2	260: Dorm Room	1820	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	136.5	22.7955	1	2		75	0.08	0%	136.5	\$22.80	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	2	261: Dorm Room	1820	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	136.5	22.7955	1	2		75	0.08	0%	136.5	\$22.80	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	2	255: Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0	0	\$0.00	0.00
304	2	255: Office	2600	3	1	1 Lamp Incandescent, 60 Watt Bulbs, Surface Mounted, Direct	60	0.18	468	78.156	3	1		60	0.18	0%	468	\$78.16	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	2	263: Bathroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2	Dual Technology Occupancy Sensor	75	0.08	20%	156	\$26.05	\$160.00	\$160.00	0	39	\$6.51	24.57
121.1	2	264: Bathroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2	Dual Technology Occupancy Sensor	75	0.08	20%	156	\$26.05	\$160.00	\$160.00	0	39	\$6.51	24.57
121.1	2	254: Laundry	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2	Dual Technology Occupancy Sensor	75	0.08	20%	156	\$26.05	\$160.00	\$160.00	0	39	\$6.51	24.57
121.1	2	Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2	Dual Technology Occupancy Sensor	75	0.08	20%	156	\$26.05	\$160.00	\$160.00	0	39	\$6.51	24.57
305	2	Closet	260	1	1	1 Lamp Incandescent, 150 Watt Bulbs, Surface Mounted, Direct	150	0.15	39	6.513	1	1		150	0.15	20%	31.2	\$5.21	\$0.00	\$0.00	0	7.8	\$1.30	0.00

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121.1	2	Kitchenette	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	20%	156	\$26.05	\$0.00	\$0.00	0	39	\$6.51	0.00						
121.1	2	252: Bathroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2	Dual Technology Occupancy Sensor	75	0.08	20%	156	\$26.05	\$160.00	\$160.00	0	39	\$6.51	24.57						
121.1	2	251: Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2	Dual Technology Occupancy Sensor	75	0.08	20%	156	\$26.05	\$160.00	\$160.00	0	39	\$6.51	24.57						
121.1	2	266: Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2	Dual Technology Occupancy Sensor	75	0.08	20%	156	\$26.05	\$160.00	\$160.00	0	39	\$6.51	24.57						
121.1	2	267: Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	20%	156	\$26.05	\$0.00	\$0.00	0	39	\$6.51	0.00						
121.1	2	243: Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2	Dual Technology Occupancy Sensor	75	0.08	20%	156	\$26.05	\$160.00	\$160.00	0	39	\$6.51	24.57						
121.1	2	268: Storage Room	260	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	19.5	3.2565	1	2		75	0.08	0%	19.5	\$3.26	\$0.00	\$0.00	0	0	\$0.00	0.00						
121.1	2	244: Storage Room	260	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	19.5	3.2565	1	2		75	0.08	0%	19.5	\$3.26	\$0.00	\$0.00	0	0	\$0.00	0.00						
305	2	245: Telecom Room	260	1	1	1 Lamp Incandescent, 150 Watt Bulbs, Surface Mounted, Direct	150	0.15	39	6.513	1	1		150	0.15	0%	39	\$6.51	\$0.00	\$0.00	0	0	\$0.00	0.00						
121.1	2	246: Dorm Room	1820	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	136.5	22.7955	1	2		75	0.08	0%	136.5	\$22.80	\$0.00	\$0.00	0	0	\$0.00	0.00						
121.1	2	247: Dorm Room	1820	4	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.3	546	91.182	4	2		75	0.30	0%	546	\$91.18	\$0.00	\$0.00	0	0	\$0.00	0.00						
121.1	2	248: Dorm Room	1820	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	136.5	22.7955	1	2		75	0.08	0%	136.5	\$22.80	\$0.00	\$0.00	0	0	\$0.00	0.00						
121.1	2	249: Dorm Room	1820	2	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.15	273	45.591	2	2		75	0.15	0%	273	\$45.59	\$0.00	\$0.00	0	0	\$0.00	0.00						
121.1	2	Attic	260	2	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.15	39	6.513	2	2		75	0.15	0%	39	\$6.51	\$0.00	\$0.00	0	0	\$0.00	0.00						
305	2	Attic	260	3	1	1 Lamp Incandescent, 150 Watt Bulbs, Surface Mounted, Direct	150	0.45	117	19.539	3	1		150	0.45	0%	117	\$19.54	\$0.00	\$0.00	0	0	\$0.00	0.00						
<b>Basement - Corrections/Internal Affairs (extends beyond Bldg. 8)</b>																														
242.2	B	B59 Office	2600	5	4	2x4, 4-Lamp, 32w T8, Elect. Ballast, Recessed, Prismatic Lens	106	0.53	1378	230.126	5	0		106	0.53	0%	1378	\$230.13	\$0.00	\$0.00	0	0	\$0.00	0.00						
242.2	B	B57 Office	2600	2	4	2x4, 4-Lamp, 32w T8, Elect. Ballast, Recessed, Prismatic Lens	106	0.212	551.2	92.0504	2	0		106	0.21	0%	551.2	\$92.05	\$0.00	\$0.00	0	0	\$0.00	0.00						
242.2	B	B58 Office	2600	2	4	2x4, 4-Lamp, 32w T8, Elect. Ballast, Recessed, Prismatic Lens	106	0.212	551.2	92.0504	2	0		106	0.21	0%	551.2	\$92.05	\$0.00	\$0.00	0	0	\$0.00	0.00						
242.2	B	B56 Interview Room	2600	2	4	2x4, 4-Lamp, 32w T8, Elect. Ballast, Recessed, Prismatic Lens	106	0.212	551.2	92.0504	2	0		106	0.21	0%	551.2	\$92.05	\$0.00	\$0.00	0	0	\$0.00	0.00						
121.1	B	B51 Fax Room	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0	0	\$0.00	0.00						

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121.1	B	B52 Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B	B53 Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B	B54 Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B	B55 Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0	0	\$0.00	0.00
242.2	B	Corridor (new area)	8760	6	4	2x4, 4-Lamp, 32w T8, Elect. Ballast, Recessed, Prismatic Lens	106	0.636	5571.36	930.4171	6	0		106	0.64	0%	5571.36	\$930.42	\$0.00	\$0.00	0	0	\$0.00	0.00
603	B	0	8760	1	1	Exit Sign - Incandescent	25	0.025	219	36.573	1	1		25	0.03	0%	219	\$36.57	\$0.00	\$0.00	0	0	\$0.00	0.00
121.4	B	Corridor	8760	4	2	Wall Mnt., 2 Lamp, 40w T12, Mag. Ballast, Prismatic Lens	75	0.3	2628	438.876	4	2		75	0.30	0%	2628	\$438.88	\$0.00	\$0.00	0	0	\$0.00	0.00
603	B	0	8760	2	1	Exit Sign - Incandescent	25	0.05	438	73.146	2	1		25	0.05	0%	438	\$73.15	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B	B48 Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0	0	\$0.00	0.00
603	B	0	8760	1	1	Exit Sign - Incandescent	25	0.025	219	36.573	1	1		25	0.03	0%	219	\$36.57	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B	B60 Restroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2	Dual Technology Occupancy Sensor	75	0.08	20%	156	\$26.05	\$160.00	\$160.00	0	39	\$6.51	24.57
121.1	B	B61 Restroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B	B46 Utilities	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0	0	\$0.00	0.00
303	B	B47 Utility Closet	650	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.1	65	10.855	1	1		100	0.10	0%	65	\$10.86	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B	B45 Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B	B44 Restroom	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2	Dual Technology Occupancy Sensor	75	0.08	20%	156	\$26.05	\$160.00	\$160.00	0	39	\$6.51	24.57
141.1	B	B62 Kitchen	2600	2	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.344	894.4	149.3648	2	3	Dual Technology Occupancy Sensor	172	0.34	20%	715.52	\$119.49	\$160.00	\$160.00	0	178.88	\$29.87	5.36
121.1	B	B43 Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B	B63 Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B	B50 Stairway	8760	5	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.375	3285	548.595	5	2		75	0.38	0%	3285	\$548.60	\$0.00	\$0.00	0	0	\$0.00	0.00
121.4	B	Corridor	8760	6	2	Wall Mnt., 2 Lamp, 40w T12, Mag. Ballast, Prismatic Lens	75	0.45	3942	658.314	6	2		75	0.45	0%	3942	\$658.31	\$0.00	\$0.00	0	0	\$0.00	0.00
141.1	B	B64 Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.172	447.2	74.6824	1	3		172	0.17	0%	447.2	\$74.68	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B	B31 Office	2600	4	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.3	780	130.26	4	2	Dual Technology Occupancy Sensor	75	0.30	20%	624	\$104.21	\$160.00	\$160.00	0	156	\$26.05	6.14

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141.1	B	B30 Training Room	2600	2	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.344	894.4	149.3648	2	3		172	0.34	0%	894.4	\$149.36	\$0.00	\$0.00	0	0	\$0.00	0.00
141.1	B	B42 File Room	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.172	447.2	74.6824	1	3		172	0.17	0%	447.2	\$74.68	\$0.00	\$0.00	0	0	\$0.00	0.00
141.1	B	B41 Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.172	447.2	74.6824	1	3		172	0.17	0%	447.2	\$74.68	\$0.00	\$0.00	0	0	\$0.00	0.00
141.1	B	B28 Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.172	447.2	74.6824	1	3		172	0.17	0%	447.2	\$74.68	\$0.00	\$0.00	0	0	\$0.00	0.00
141.1	B	B28A Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.172	447.2	74.6824	1	3		172	0.17	0%	447.2	\$74.68	\$0.00	\$0.00	0	0	\$0.00	0.00
141.1	B	B40 Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.172	447.2	74.6824	1	3		172	0.17	0%	447.2	\$74.68	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B	B84 Evidence Room	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0	0	\$0.00	0.00
141.1	B	B82 Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.172	447.2	74.6824	1	3		172	0.17	0%	447.2	\$74.68	\$0.00	\$0.00	0	0	\$0.00	0.00
141.1	B	B82A Office	2600	2	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.344	894.4	149.3648	2	3		172	0.34	0%	894.4	\$149.36	\$0.00	\$0.00	0	0	\$0.00	0.00
141.1	B	B83 Interview Room	8760	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.172	1506.72	251.6222	1	3		172	0.17	0%	1506.72	\$251.62	\$0.00	\$0.00	0	0	\$0.00	0.00
141.1	B	B83 Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.172	447.2	74.6824	1	3		172	0.17	0%	447.2	\$74.68	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B	B84 Valve Room	650	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	48.75	8.14125	1	2		75	0.08	0%	48.75	\$8.14	\$0.00	\$0.00	0	0	\$0.00	0.00
141.1	B	B81 Files	2600	4	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.688	1788.8	298.7296	4	3		172	0.69	0%	1788.8	\$298.73	\$0.00	\$0.00	0	0	\$0.00	0.00
141.1	B	B78 Office	2600	2	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.344	894.4	149.3648	2	3		172	0.34	0%	894.4	\$149.36	\$0.00	\$0.00	0	0	\$0.00	0.00
141.1	B	B73 Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.172	447.2	74.6824	1	3		172	0.17	0%	447.2	\$74.68	\$0.00	\$0.00	0	0	\$0.00	0.00
141.1	B	B72 Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.172	447.2	74.6824	1	3		172	0.17	0%	447.2	\$74.68	\$0.00	\$0.00	0	0	\$0.00	0.00
141.1	B	B71 Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.172	447.2	74.6824	1	3		172	0.17	0%	447.2	\$74.68	\$0.00	\$0.00	0	0	\$0.00	0.00
141.1	B	B70 Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.172	447.2	74.6824	1	3		172	0.17	0%	447.2	\$74.68	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B	B69 Copy Room	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0	0	\$0.00	0.00
141.1	B	B77 Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.172	447.2	74.6824	1	3		172	0.17	0%	447.2	\$74.68	\$0.00	\$0.00	0	0	\$0.00	0.00
141.1	B	B76 Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.172	447.2	74.6824	1	3		172	0.17	0%	447.2	\$74.68	\$0.00	\$0.00	0	0	\$0.00	0.00
141.1	B	B68 Office	2600	1	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.172	447.2	74.6824	1	3		172	0.17	0%	447.2	\$74.68	\$0.00	\$0.00	0	0	\$0.00	0.00
141.1	B	B65-67	2600	3	4	1x4, 4 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic	172	0.516	1341.6	224.0472	3	3		172	0.52	0%	1341.6	\$224.05	\$0.00	\$0.00	0	0	\$0.00	0.00

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121.1	B	B75 Office	2600	1	2	1x4, 2 Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.075	195	32.565	1	2		75	0.08	0%	195	\$32.57	\$0.00	\$0.00	0	0	\$0.00	0.00
<b>Totals</b>				199	300			20.10	67,654.8	\$11,298	199			20.099		63994.49	\$10,687.08		\$4,960.00	0	3660.3	\$611.27	8.11	

**NOTES:** 1. Simple Payback noted in this spreadsheet does not include Maintenance Savings and NJ Smart Start Incentives.  
2. Lamp totals only include T-12 tube replacment calculations

Investment Grade Lighting Audit

CEG Job #: 9C09162  
Project: HUDSON COUNTY IMPROVEMENT AUTHORITY ENERGY AUDIT  
Address: 595 County Ave.  
Secaucus, NJ. 07094  
Building SF: 21,500

Building - 9

KWH COST: \$0.167

**ECM: 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
141.11	B19 Office	3600	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	619.2	\$103.41	1	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	86	0.09	309.6	\$51.70	\$100.00	\$100.00	0.09	309.6	\$51.70	1.93
121.11		3600	3	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.23	810.0	\$135.27	3	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.17	626.4	\$104.61	\$100.00	\$300.00	0.05	183.6	\$30.66	9.78
141.11	B11 Office	3600	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	619.2	\$103.41	1	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	86	0.09	309.6	\$51.70	\$100.00	\$100.00	0.09	309.6	\$51.70	1.93
141.11	B9 Bedroom	3600	2	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.34	1,238.4	\$206.81	2	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	86	0.17	619.2	\$103.41	\$100.00	\$200.00	0.17	619.2	\$103.41	1.93
121.11	B16 Nurse	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270.0	\$45.09	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.06	208.8	\$34.87	\$100.00	\$100.00	0.02	61.2	\$10.22	9.78
121.11	B8 Utility Room	520	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	39.0	\$6.51	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.06	30.16	\$5.04	\$100.00	\$100.00	0.02	8.84	\$1.48	67.74
121.11	B15 Exam Room	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270.0	\$45.09	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.06	208.8	\$34.87	\$100.00	\$100.00	0.02	61.2	\$10.22	9.78
121.11	B14 Office	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270.0	\$45.09	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.06	208.8	\$34.87	\$100.00	\$100.00	0.02	61.2	\$10.22	9.78
303	B12 Custodial Closet	520	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.10	52.0	\$8.68	1	1	26 W CFL Lamp	26	0.03	13.52	\$2.26	\$5.75	\$5.75	0.07	38.48	\$6.43	0.89
121.11	B13 Laundry	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270.0	\$45.09	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.06	208.8	\$34.87	\$100.00	\$100.00	0.02	61.2	\$10.22	9.78
141.11	B7 Shower	3600	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	619.2	\$103.41	1	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	86	0.09	309.6	\$51.70	\$100.00	\$100.00	0.09	309.6	\$51.70	1.93
121.11	B6 Staff Restroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270.0	\$45.09	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.06	208.8	\$34.87	\$100.00	\$100.00	0.02	61.2	\$10.22	9.78
141.11	B1 Reception/Waiting Area	3600	4	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.69	2,476.8	\$413.63	4	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	86	0.34	1238.4	\$206.81	\$100.00	\$400.00	0.34	1238.4	\$206.81	1.93
121.11	B5 Bedroom	3600	2	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.15	540.0	\$90.18	2	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.12	417.6	\$69.74	\$100.00	\$200.00	0.03	122.4	\$20.44	9.78
700	B5 Bathroom	520	1	1	Pendant Mnt., Globe, 75w A19 Incandescent	75	0.08	39.0	\$6.51	1	1	18w CFL Lamp	18	0.02	9.36	\$1.56	\$5.75	\$5.75	0.06	29.64	\$4.95	1.16

Investment Grade Lighting Audit

121.11	B6 Bedroom	3600	2	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.15	540.0	\$90.18	2	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.12	417.6	\$69.74	\$100.00	\$200.00	0.03	122.4	\$20.44	9.78
700	B6 Bathroom	3600	1	1	Pendant Mnt., Globe, 75w A19 Incandescent	75	0.08	270.0	\$45.09	1	1	18w CFL Lamp	18	0.02	64.8	\$10.82	\$5.75	\$5.75	0.06	205.2	\$34.27	0.17
121.11	B3A Bedroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270.0	\$45.09	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.06	208.8	\$34.87	\$100.00	\$100.00	0.02	61.2	\$10.22	9.78
121.11	B3B Bedroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270.0	\$45.09	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.06	208.8	\$34.87	\$100.00	\$100.00	0.02	61.2	\$10.22	9.78
701	B1D Bathroom	3600	1	1	Pendant Mnt., Globe, 18w CFL	18	0.02	64.8	\$10.82	1	0	No Change	18	0.02	64.8	\$10.82	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.11	B1E Restroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270.0	\$45.09	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.06	208.8	\$34.87	\$100.00	\$100.00	0.02	61.2	\$10.22	9.78
121.11	B2A Kitchen	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270.0	\$45.09	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.06	208.8	\$34.87	\$100.00	\$100.00	0.02	61.2	\$10.22	9.78
121.11	Storage Room 1	520	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	39.0	\$6.51	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.06	30.16	\$5.04	\$100.00	\$100.00	0.02	8.84	\$1.48	67.74
141.11	B2 Lunch Room	3600	3	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.52	1,857.6	\$310.22	3	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	86	0.26	928.8	\$155.11	\$100.00	\$300.00	0.26	928.8	\$155.11	1.93
701	B1C Restroom	3600	1	1	Pendant Mnt., Globe, 18w CFL	18	0.02	64.8	\$10.82	1	0	No Change	18	0.02	64.8	\$10.82	\$0.00	\$0.00	0.00	0	\$0.00	0.00
121.41	Basement Corridor	8760	4	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Wall Mnt., Prismatic Lens	75	0.30	2,628.0	\$438.88	4	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.23	2032.32	\$339.40	\$100.00	\$400.00	0.07	595.68	\$99.48	4.02
121.11	Stairwell	8760	5	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.38	3,285.0	\$548.60	5	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.29	2540.4	\$424.25	\$100.00	\$500.00	0.09	744.6	\$124.35	4.02
121.41	1st Floor Corridor	8760	8	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Wall Mnt., Prismatic Lens	75	0.60	5,256.0	\$877.75	8	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.46	4064.64	\$678.79	\$100.00	\$800.00	0.14	1191.36	\$198.96	4.02
141.11	138 Office	3600	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	619.2	\$103.41	1	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	86	0.09	309.6	\$51.70	\$100.00	\$100.00	0.09	309.6	\$51.70	1.93
141.11	129 Office	3600	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	619.2	\$103.41	1	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	86	0.09	309.6	\$51.70	\$100.00	\$100.00	0.09	309.6	\$51.70	1.93
141.11	137 Office	3600	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	619.2	\$103.41	1	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	86	0.09	309.6	\$51.70	\$100.00	\$100.00	0.09	309.6	\$51.70	1.93
141.11	126 Storage	520	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	89.4	\$14.94	1	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	86	0.09	44.72	\$7.47	\$100.00	\$100.00	0.09	44.72	\$7.47	13.39
121.11	125 Bedroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270.0	\$45.09	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.06	208.8	\$34.87	\$100.00	\$100.00	0.02	61.2	\$10.22	9.78
121.11	123 Bedroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270.0	\$45.09	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.06	208.8	\$34.87	\$100.00	\$100.00	0.02	61.2	\$10.22	9.78
121.11	122 Bedroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270.0	\$45.09	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.06	208.8	\$34.87	\$100.00	\$100.00	0.02	61.2	\$10.22	9.78

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141.11	Dorm Day Room	3600	4	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.69	2,476.8	\$413.63	4	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	86	0.34	1238.4	\$206.81	\$100.00	\$400.00	0.34	1238.4	\$206.81	1.93
121.11	121 First Aid	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270.0	\$45.09	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.06	208.8	\$34.87	\$100.00	\$100.00	0.02	61.2	\$10.22	9.78
141.11	Office	3600	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	619.2	\$103.41	1	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	86	0.09	309.6	\$51.70	\$100.00	\$100.00	0.09	309.6	\$51.70	1.93
121.11	102 Office	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270.0	\$45.09	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.06	208.8	\$34.87	\$100.00	\$100.00	0.02	61.2	\$10.22	9.78
141.11	118 Office	3600	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	619.2	\$103.41	1	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	86	0.09	309.6	\$51.70	\$100.00	\$100.00	0.09	309.6	\$51.70	1.93
121.11	103 Kitchen	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270.0	\$45.09	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.06	208.8	\$34.87	\$100.00	\$100.00	0.02	61.2	\$10.22	9.78
303	103A Custodial Closet	520	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.10	52.0	\$8.68	1	1	26 W CFL Lamp	26	0.03	13.52	\$2.26	\$5.75	\$5.75	0.07	38.48	\$6.43	0.89
141.11	116 Office	3600	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	619.2	\$103.41	1	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	86	0.09	309.6	\$51.70	\$100.00	\$100.00	0.09	309.6	\$51.70	1.93
121.11	104 Restroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270.0	\$45.09	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.06	208.8	\$34.87	\$100.00	\$100.00	0.02	61.2	\$10.22	9.78
121.11	105 Restroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270.0	\$45.09	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.06	208.8	\$34.87	\$100.00	\$100.00	0.02	61.2	\$10.22	9.78
141.11	Dorm Day Room	3600	4	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.69	2,476.8	\$413.63	4	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	86	0.34	1238.4	\$206.81	\$100.00	\$400.00	0.34	1238.4	\$206.81	1.93
121.11	Bedroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270.0	\$45.09	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.06	208.8	\$34.87	\$100.00	\$100.00	0.02	61.2	\$10.22	9.78
121.11	Bedroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270.0	\$45.09	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.06	208.8	\$34.87	\$100.00	\$100.00	0.02	61.2	\$10.22	9.78
121.11	Bedroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270.0	\$45.09	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.06	208.8	\$34.87	\$100.00	\$100.00	0.02	61.2	\$10.22	9.78
121.11	115 Laundry Room	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270.0	\$45.09	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.06	208.8	\$34.87	\$100.00	\$100.00	0.02	61.2	\$10.22	9.78
121.41	3rd Floor Corridor	8760	3	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Wall Mnt., Prismatic Lens	75	0.23	1,971.0	\$329.16	3	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.17	1524.24	\$254.55	\$100.00	\$300.00	0.05	446.76	\$74.61	4.02
141.11	221 Aide Office	3600	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	619.2	\$103.41	1	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	86	0.09	309.6	\$51.70	\$100.00	\$100.00	0.09	309.6	\$51.70	1.93
141.11	224 Dorm Day Room	3600	4	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.69	2,476.8	\$413.63	4	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	86	0.34	1238.4	\$206.81	\$100.00	\$400.00	0.34	1238.4	\$206.81	1.93

**Investment Grade Lighting Audit**

121.11	Bedroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270.0	\$45.09	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.06	208.8	\$34.87	\$100.00	\$100.00	0.02	61.2	\$10.22	9.78
121.11	Bedroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270.0	\$45.09	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.06	208.8	\$34.87	\$100.00	\$100.00	0.02	61.2	\$10.22	9.78
121.11	Bedroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270.0	\$45.09	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.06	208.8	\$34.87	\$100.00	\$100.00	0.02	61.2	\$10.22	9.78
121.11	228 Property	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270.0	\$45.09	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.06	208.8	\$34.87	\$100.00	\$100.00	0.02	61.2	\$10.22	9.78
121.11	201 Office	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270.0	\$45.09	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.06	208.8	\$34.87	\$100.00	\$100.00	0.02	61.2	\$10.22	9.78
121.11	202 Office	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270.0	\$45.09	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.06	208.8	\$34.87	\$100.00	\$100.00	0.02	61.2	\$10.22	9.78
121.11	216 Office	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270.0	\$45.09	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.06	208.8	\$34.87	\$100.00	\$100.00	0.02	61.2	\$10.22	9.78
141.11	203 Kitchen	3600	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	619.2	\$103.41	1	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	86	0.09	309.6	\$51.70	\$100.00	\$100.00	0.09	309.6	\$51.70	1.93
303	203A Custodial Closet	520	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.10	52.0	\$8.68	1	1	26 W CFL Lamp	26	0.03	13.52	\$2.26	\$5.75	\$5.75	0.07	38.48	\$6.43	0.89
121.11	214 Office	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270.0	\$45.09	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.06	208.8	\$34.87	\$100.00	\$100.00	0.02	61.2	\$10.22	9.78
121.11	215 Restroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270.0	\$45.09	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.06	208.8	\$34.87	\$100.00	\$100.00	0.02	61.2	\$10.22	9.78
121.11	213 Laundry	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270.0	\$45.09	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.06	208.8	\$34.87	\$100.00	\$100.00	0.02	61.2	\$10.22	9.78
121.11	204 Restroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270.0	\$45.09	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.06	208.8	\$34.87	\$100.00	\$100.00	0.02	61.2	\$10.22	9.78
121.11	204A Restroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270.0	\$45.09	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.06	208.8	\$34.87	\$100.00	\$100.00	0.02	61.2	\$10.22	9.78
121.11	212 Office	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270.0	\$45.09	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.06	208.8	\$34.87	\$100.00	\$100.00	0.02	61.2	\$10.22	9.78
141.11	Dorm Day Room	3600	4	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.69	2,476.8	\$413.63	4	3	3 Lamp, 32w T8, Elect. Ballast; retrofit	86	0.34	1238.4	\$206.81	\$100.00	\$400.00	0.34	1238.4	\$206.81	1.93
121.11	Bedroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270.0	\$45.09	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.06	208.8	\$34.87	\$100.00	\$100.00	0.02	61.2	\$10.22	9.78
121.11	Bedroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270.0	\$45.09	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.06	208.8	\$34.87	\$100.00	\$100.00	0.02	61.2	\$10.22	9.78
121.11	Bedroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270.0	\$45.09	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.06	208.8	\$34.87	\$100.00	\$100.00	0.02	61.2	\$10.22	9.78
<b>Totals</b>			110	175			11.80	48,073.2	\$8,028.23	110			7.16	30843.76	\$5,150.91		\$10,328.75	4.64	17229.5	\$2,877.32	3.59	

NOTES: 1. Simple Payback noted in this spreadsheet does not include Maintenance Savings and NJ Smart Start Incentives.

2. Lamp totals only include T-12 tube replacement calculations

Investment Grade Lighting Audit

CEG Job #: 9C09162  
 Project: HUDSON COUNTY IMPROVEMENT AUTHORITY ENERGY AUDIT  
 Address: 595 County Ave.  
 Secaucus, NJ. 07094  
 Building SF: 21,500

Building - 9

KWH COST: \$0.167

**ECM: Lighting Controls**

EXISTING LIGHTING					PROPOSED CONTROLS							SAVINGS										
CEG Type	Fixture Location	Yearly Usage	No. Fixts	No. Lamps	Fixture Type	Fixt Watts	Total kW	kWh/Yr Fixtures	Yearly \$ Cost	No. Controls	Controls Description	Watts Used	Total kW	Reduction (%)	kWh/Yr Fixtures	Yearly \$ Cost	Unit Cost (INSTALLED)	Total Cost	kW Savings	kWh/Yr Savings	Yearly \$ Savings	Yearly Simple Payback
141.1	B19 Office	3600	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	619.2	\$103.41	0	No Change	172	0.17	0%	619.2	\$103.41	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1		3600	3	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.23	810	\$135.27	1	Dual Technology Occupancy Sensor	75	0.23	20%	648	\$108.22	\$160.00	\$160.00	0	162	\$27.05	5.91
141.1	B11 Office	3600	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	619.2	\$103.41	1	Dual Technology Occupancy Sensor	172	0.17	20%	495.36	\$82.73	\$160.00	\$160.00	0	123.84	\$20.68	7.74
141.1	B9 Bedroom	3600	2	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.34	1238.4	\$206.81	0	No Change	172	0.34	0%	1238.4	\$206.81	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B16 Nurse	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270	\$45.09	1	Dual Technology Occupancy Sensor	75	0.08	20%	216	\$36.07	\$160.00	\$160.00	0	54	\$9.02	17.74
121.1	B8 Utility Room	520	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	39	\$6.51	0	No Change	75	0.08	0%	39	\$6.51	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B15 Exam Room	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270	\$45.09	0	No Change	75	0.08	0%	270	\$45.09	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B14 Office	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270	\$45.09	0	No Change	75	0.08	0%	270	\$45.09	\$0.00	\$0.00	0	0	\$0.00	0.00
303	B12 Custodial Closet	520	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.10	52	\$8.68	0	No Change	100	0.10	0%	52	\$8.68	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B13 Laundry	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270	\$45.09	0	No Change	75	0.08	0%	270	\$45.09	\$0.00	\$0.00	0	0	\$0.00	0.00
141.1	B7 Shower	3600	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	619.2	\$103.41	0	No Change	172	0.17	0%	619.2	\$103.41	\$0.00	\$0.00	0	0	\$0.00	0.00

Investment Grade Lighting Audit

121.1	B6 Staff Restroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270	\$45.09	0	No Change	75	0.08	0%	270	\$45.09	\$0.00	\$0.00	0	0	\$0.00	0.00
141.1	B1 Reception/Waiting Area	3600	4	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.69	2476.8	\$413.63	0	No Change	172	0.69	0%	2476.8	\$413.63	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B5 Bedroom	3600	2	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.15	540	\$90.18	0	No Change	75	0.15	0%	540	\$90.18	\$0.00	\$0.00	0	0	\$0.00	0.00
700	B5 Bathroom	520	1	1	Pendant Mnt., Globe, 75w A19 Incandescent	75	0.08	39	\$6.51	0	No Change	75	0.08	0%	39	\$6.51	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B6 Bedroom	3600	2	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.15	540	\$90.18	0	No Change	75	0.15	0%	540	\$90.18	\$0.00	\$0.00	0	0	\$0.00	0.00
700	B6 Bathroom	3600	1	1	Pendant Mnt., Globe, 75w A19 Incandescent	75	0.08	270	\$45.09	1	Dual Technology Occupancy Sensor	75	0.08	20%	216	\$36.07	\$160.00	\$160.00	0	54	\$9.02	17.74
121.1	B3A Bedroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270	\$45.09	0	No Change	75	0.08	0%	270	\$45.09	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B3B Bedroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270	\$45.09	0	No Change	75	0.08	0%	270	\$45.09	\$0.00	\$0.00	0	0	\$0.00	0.00
701	B1D Bathroom	3600	1	1	Pendant Mnt., Globe, 18w CFL	18	0.02	64.8	\$10.82	0	No Change	18	0.02	0%	64.8	\$10.82	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	B1E Restroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270	\$45.09	1	Dual Technology Occupancy Sensor	75	0.08	20%	216	\$36.07	\$160.00	\$160.00	0	54	\$9.02	17.74
121.1	B2A Kitchen	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270	\$45.09	1	Dual Technology Occupancy Sensor	75	0.08	20%	216	\$36.07	\$160.00	\$160.00	0	54	\$9.02	17.74
121.1	Storage Room 1	520	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	39	\$6.51	0	No Change	75	0.08	0%	39	\$6.51	\$0.00	\$0.00	0	0	\$0.00	0.00
141.1	B2 Lunch Room	3600	3	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.52	1857.6	\$310.22	1	Dual Technology Occupancy Sensor	172	0.52	20%	1486.08	\$248.18	\$160.00	\$160.00	0	371.52	\$62.04	2.58

Investment Grade Lighting Audit

701	B1C Restroom	3600	1	1	Pendant Mnt., Globe, 18w CFL	18	0.02	64.8	\$10.82	0	No Change	18	0.02	0%	64.8	\$10.82	\$0.00	\$0.00	0	0	\$0.00	0.00
121.4	Basement Corridor	8760	4	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Wall Mnt., Prismatic Lens	75	0.30	2628	\$438.88	0	No Change	75	0.30	0%	2628	\$438.88	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	Stairwell	8760	5	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.38	3285	\$548.60	0	No Change	75	0.38	0%	3285	\$548.60	\$0.00	\$0.00	0	0	\$0.00	0.00
121.4	1st Floor Corridor	8760	8	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Wall Mnt., Prismatic Lens	75	0.60	5256	\$877.75	0	No Change	75	0.60	0%	5256	\$877.75	\$0.00	\$0.00	0	0	\$0.00	0.00
141.1	138 Office	3600	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	619.2	\$103.41	1	Dual Technology Occupancy Sensor	172	0.17	20%	495.36	\$82.73	\$160.00	\$160.00	0	123.84	\$20.68	7.74
141.1	129 Office	3600	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	619.2	\$103.41	1	Dual Technology Occupancy Sensor	172	0.17	20%	495.36	\$82.73	\$160.00	\$160.00	0	123.84	\$20.68	7.74
141.1	137 Office	3600	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	619.2	\$103.41	1	Dual Technology Occupancy Sensor	172	0.17	20%	495.36	\$82.73	\$160.00	\$160.00	0	123.84	\$20.68	7.74
141.1	126 Storage	520	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	89.44	\$14.94	0	No Change	172	0.17	0%	89.44	\$14.94	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	125 Bedroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270	\$45.09	0	No Change	75	0.08	0%	270	\$45.09	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	123 Bedroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270	\$45.09	0	No Change	75	0.08	0%	270	\$45.09	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	122 Bedroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270	\$45.09	0	No Change	75	0.08	0%	270	\$45.09	\$0.00	\$0.00	0	0	\$0.00	0.00
141.1	Dorm Day Room	3600	4	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.69	2476.8	\$413.63	1	Dual Technology Occupancy Sensor	172	0.69	20%	1981.44	\$330.90	\$160.00	\$160.00	0	495.36	\$82.73	1.93
121.1	121 First Aid	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270	\$45.09	1	Dual Technology Occupancy Sensor	75	0.08	20%	216	\$36.07	\$160.00	\$160.00	0	54	\$9.02	17.74

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141.1	Office	3600	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	619.2	\$103.41	1	Dual Technology Occupancy Sensor	172	0.17	20%	495.36	\$82.73	\$160.00	\$160.00	0	123.84	\$20.68	7.74
121.1	102 Office	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270	\$45.09	1	Dual Technology Occupancy Sensor	75	0.08	20%	216	\$36.07	\$160.00	\$160.00	0	54	\$9.02	17.74
141.1	118 Office	3600	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	619.2	\$103.41	1	Dual Technology Occupancy Sensor	172	0.17	20%	495.36	\$82.73	\$160.00	\$160.00	0	123.84	\$20.68	7.74
121.1	103 Kitchen	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270	\$45.09	1	Dual Technology Occupancy Sensor	75	0.08	20%	216	\$36.07	\$160.00	\$160.00	0	54	\$9.02	17.74
303	103A Custodial Closet	520	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.10	52	\$8.68	0	No Change	100	0.10	0%	52	\$8.68	\$0.00	\$0.00	0	0	\$0.00	0.00
141.1	116 Office	3600	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	619.2	\$103.41	1	Dual Technology Occupancy Sensor	172	0.17	20%	495.36	\$82.73	\$160.00	\$160.00	0	123.84	\$20.68	7.74
121.1	104 Restroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270	\$45.09	1	Dual Technology Occupancy Sensor	75	0.08	20%	216	\$36.07	\$160.00	\$160.00	0	54	\$9.02	17.74
121.1	105 Restroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270	\$45.09	1	Dual Technology Occupancy Sensor	75	0.08	20%	216	\$36.07	\$160.00	\$160.00	0	54	\$9.02	17.74
141.1	Dorm Day Room	3600	4	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.69	2476.8	\$413.63	1	Dual Technology Occupancy Sensor	172	0.69	20%	1981.44	\$330.90	\$160.00	\$160.00	0	495.36	\$82.73	1.93
121.1	Bedroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270	\$45.09	0	No Change	75	0.08	0%	270	\$45.09	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	Bedroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270	\$45.09	0	No Change	75	0.08	0%	270	\$45.09	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	Bedroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270	\$45.09	0	No Change	75	0.08	0%	270	\$45.09	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	115 Laundry Room	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270	\$45.09	1	Dual Technology Occupancy Sensor	75	0.08	20%	216	\$36.07	\$160.00	\$160.00	0	54	\$9.02	17.74

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121.4	3rd Floor Corridor	8760	3	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Wall Mnt., Prismatic Lens	75	0.23	1971	\$329.16	0	No Change	75	0.23	0%	1971	\$329.16	\$0.00	\$0.00	0	0	\$0.00	0.00
141.1	221 Aide Office	3600	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	619.2	\$103.41	1	Dual Technology Occupancy Sensor	172	0.17	20%	495.36	\$82.73	\$160.00	\$160.00	0	123.84	\$20.68	7.74
141.1	224 Dorm Day Room	3600	4	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.69	2476.8	\$413.63	1	Dual Technology Occupancy Sensor	172	0.69	20%	1981.44	\$330.90	\$160.00	\$160.00	0	495.36	\$82.73	1.93
121.1	Bedroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270	\$45.09	0	No Change	75	0.08	0%	270	\$45.09	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	Bedroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270	\$45.09	0	No Change	75	0.08	0%	270	\$45.09	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	Bedroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270	\$45.09	0	No Change	75	0.08	0%	270	\$45.09	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	228 Property	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270	\$45.09	1	Dual Technology Occupancy Sensor	75	0.08	20%	216	\$36.07	\$160.00	\$160.00	0	54	\$9.02	17.74
121.1	201 Office	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270	\$45.09	1	Dual Technology Occupancy Sensor	75	0.08	20%	216	\$36.07	\$160.00	\$160.00	0	54	\$9.02	17.74
121.1	202 Office	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270	\$45.09	1	Dual Technology Occupancy Sensor	75	0.08	20%	216	\$36.07	\$160.00	\$160.00	0	54	\$9.02	17.74
121.1	216 Office	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270	\$45.09	1	Dual Technology Occupancy Sensor	75	0.08	20%	216	\$36.07	\$160.00	\$160.00	0	54	\$9.02	17.74
141.1	203 Kitchen	3600	1	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.17	619.2	\$103.41	1	Dual Technology Occupancy Sensor	172	0.17	20%	495.36	\$82.73	\$160.00	\$160.00	0	123.84	\$20.68	7.74
303	203A Custodial Closet	520	1	1	1 Lamp Incandescent, 100 Watt Bulbs, Surface Mounted, Direct	100	0.10	52	\$8.68	0	No Change	100	0.10	0%	52	\$8.68	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	214 Office	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270	\$45.09	1	Dual Technology Occupancy Sensor	75	0.08	20%	216	\$36.07	\$160.00	\$160.00	0	54	\$9.02	17.74

Investment Grade Lighting Audit

121.1	215 Restroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270	\$45.09	1	Dual Technology Occupancy Sensor	75	0.08	20%	216	\$36.07	\$160.00	\$160.00	0	54	\$9.02	17.74
121.1	213 Laundry	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270	\$45.09	1	Dual Technology Occupancy Sensor	75	0.08	20%	216	\$36.07	\$160.00	\$160.00	0	54	\$9.02	17.74
121.1	204 Restroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270	\$45.09	1	Dual Technology Occupancy Sensor	75	0.08	20%	216	\$36.07	\$160.00	\$160.00	0	54	\$9.02	17.74
121.1	204A Restroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270	\$45.09	1	Dual Technology Occupancy Sensor	75	0.08	20%	216	\$36.07	\$160.00	\$160.00	0	54	\$9.02	17.74
121.1	212 Office	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270	\$45.09	1	Dual Technology Occupancy Sensor	75	0.08	20%	216	\$36.07	\$160.00	\$160.00	0	54	\$9.02	17.74
141.1	Dorm Day Room	3600	4	4	1x4, 4-Lamp, 40w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	172	0.69	2476.8	\$413.63	1	Dual Technology Occupancy Sensor	172	0.69	20%	1981.44	\$330.90	\$160.00	\$160.00	0	495.36	\$82.73	1.93
121.1	Bedroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270	\$45.09	0	No Change	75	0.08	0%	270	\$45.09	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	Bedroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270	\$45.09	0	No Change	75	0.08	0%	270	\$45.09	\$0.00	\$0.00	0	0	\$0.00	0.00
121.1	Bedroom	3600	1	2	1x4, 2 Lamp, 40w T12 Mag. Ballast, Surface Mnt., Prismatic Lens	75	0.08	270	\$45.09	0	No Change	75	0.08	0%	270	\$45.09	\$0.00	\$0.00	0	0	\$0.00	0.00
<b>Totals</b>			110				0.17	48,073.2	\$8,028.23	35			11.80		43363.72	\$7,241.74	\$5,600.00	\$5,600.00	0	4709.5	\$786.49	7.12

NOTES: 1. Simple Payback noted in this spreadsheet does not include Maintenance Savings and NJ Smart Start Incentives.

2. Lamp totals only include T-12 tube replacment calculations

Investment Grade Lighting Audit

CEG Job #: 9C09162

Project: HUDSON COUNTY IMPROVEMENT AUTHORITY ENERGY AUDIT

Building - 15

KWH COST: \$0.102

Address: 595 County Ave.

Secaucus, NJ. 07094

Building SF: 22,000

**ECM: Lighting Upgrade - General**

EXISTING LIGHTING						PROPOSED LIGHTING						SAVINGS											
CEG Type	Floor	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
232.21	1	MIS Room	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.33	852.8	\$86.99	4	0	No Change	82	0.33	852.8	\$86.99	\$0.00	\$0.00	0.00	0	\$0.00	0.00
224.21	1	Main Office	2600	10	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.73	1,898.0	\$193.60	10	0	No Change	73	0.73	1898	\$193.60	\$0.00	\$0.00	0.00	0	\$0.00	0.00
224.21	1	Lobby	2600	6	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.44	1,138.8	\$116.16	6	0	No Change	73	0.44	1138.8	\$116.16	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Lobby	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.33	852.8	\$86.99	4	0	No Change	82	0.33	852.8	\$86.99	\$0.00	\$0.00	0.00	0	\$0.00	0.00
224.21	1	Corridor	2600	5	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.37	949.0	\$96.80	5	0	No Change	73	0.37	949	\$96.80	\$0.00	\$0.00	0.00	0	\$0.00	0.00
224.21	1	Shredder Room	2600	2	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.15	379.6	\$38.72	2	0	No Change	73	0.15	379.6	\$38.72	\$0.00	\$0.00	0.00	0	\$0.00	0.00
224.21	1	Conference Room	2600	4	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.29	759.2	\$77.44	4	0	No Change	73	0.29	759.2	\$77.44	\$0.00	\$0.00	0.00	0	\$0.00	0.00
224.21	1	Microfilm Room	2600	6	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.44	1,138.8	\$116.16	6	0	No Change	73	0.44	1138.8	\$116.16	\$0.00	\$0.00	0.00	0	\$0.00	0.00
224.21	1	Court Record Office	2600	1	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.07	189.8	\$19.36	1	0	No Change	73	0.07	189.8	\$19.36	\$0.00	\$0.00	0.00	0	\$0.00	0.00
224.21	1	Ladies Room	2600	2	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.15	379.6	\$38.72	2	0	No Change	73	0.15	379.6	\$38.72	\$0.00	\$0.00	0.00	0	\$0.00	0.00
224.21	1	Lunch Room	2600	6	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.44	1,138.8	\$116.16	6	0	No Change	73	0.44	1138.8	\$116.16	\$0.00	\$0.00	0.00	0	\$0.00	0.00
224.21	1	Men's Room	2600	2	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.15	379.6	\$38.72	2	0	No Change	73	0.15	379.6	\$38.72	\$0.00	\$0.00	0.00	0	\$0.00	0.00
224.21	1	Locker Room	2600	2	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.15	379.6	\$38.72	2	0	No Change	73	0.15	379.6	\$38.72	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	District Courthouse Record Storage Room	1000	28	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	2.30	2,296.0	\$234.19	28	0	No Change	82	2.30	2296	\$234.19	\$0.00	\$0.00	0.00	0	\$0.00	0.00

Investment Grade Lighting Audit

232.21	1	District Courthouse Record Storage Room Extension	1000	34	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	2.79	2,788.0	\$284.38	34	0	No Change	82	2.79	2788	\$284.38	\$0.00	\$0.00	0.00	0	\$0.00	0.00
224.21	1	District Courthouse Record Storage Room Extension	1000	2	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.15	146.0	\$14.89	2	0	No Change	73	0.15	146	\$14.89	\$0.00	\$0.00	0.00	0	\$0.00	0.00
224.21	1	Back Corridor	8760	2	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.15	1,279.0	\$130.45	2	0	No Change	73	0.15	1278.96	\$130.45	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	1	Stairwell	8760	3	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.25	2,155.0	\$219.81	3	0	No Change	82	0.25	2154.96	\$219.81	\$0.00	\$0.00	0.00	0	\$0.00	0.00
601	1	Stairwell	8760	1	1	Exit Sign - Incandescent	25	0.03	219.0	\$22.34	1	1	Exit Sign - LED	2	0.00	17.52	\$1.79	\$65.00	\$65.00	0.02	201.48	\$20.55	3.16
221.34	B	Electrical Room	260	4	2	2-Lamp, T8, Electronic Ballast, Pendant Mounted, No Lens	58	0.23	60.3	\$6.15	4	0	No Change	58	0.23	60.32	\$6.15	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	B	Back Corridor	8760	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.16	1,436.6	\$146.54	2	0	No Change	82	0.16	1436.64	\$146.54	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	B	Vault	1000	27	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	2.21	2,214.0	\$225.83	27	0	No Change	82	2.21	2214	\$225.83	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	B	Holding Area	1000	5	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.41	410.0	\$41.82	5	0	No Change	82	0.41	410	\$41.82	\$0.00	\$0.00	0.00	0	\$0.00	0.00
221.34	B	Pump Room	260	2	2	2-Lamp, T8, Electronic Ballast, Pendant Mounted, No Lens	58	0.12	30.2	\$3.08	2	0	No Change	58	0.12	30.16	\$3.08	\$0.00	\$0.00	0.00	0	\$0.00	0.00
224.21	B	Elevator Room	260	1	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.07	19.0	\$1.94	1	0	No Change	73	0.07	18.98	\$1.94	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	B	Loading Dock / Storage	1000	8	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.66	656.0	\$66.91	8	0	No Change	82	0.66	656	\$66.91	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	B	Loading Dock / Bathroom	260	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.08	21.3	\$2.17	1	0	No Change	82	0.08	21.32	\$2.17	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	B	Prosecutors Storage	260	30	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	2.46	639.6	\$65.24	30	0	No Change	82	2.46	639.6	\$65.24	\$0.00	\$0.00	0.00	0	\$0.00	0.00
		<b>Totals</b>		204	66			16.07	24,806.3	\$2,530.25	204	1			16.045	24604.86	\$2,509.70		\$65.00	0.02	201.5	\$20.55	3.16

NOTES: 1. Simple Payback noted in this spreadsheet does not include Maintenance Savings and NJ Smart Start Incentives.

2. Lamp totals only include T-12 tube replacement calculations

Investment Grade Lighting Audit

CEG Job #: 9C09162  
Project: HUDSON COUNTY IMPROVEMENT AUTHORITY ENERGY AUDIT  
Address: 595 County Ave.  
Secaucus, N.J. 07094  
Building SF: 22,000

Building - 15

KWH COST: \$0.102

**ECM: Lighting Controls**

EXISTING LIGHTING						PROPOSED LIGHTING CONTROLS											SAVINGS							
CEG Type	Floor	Fixture Location	Yearly Usage	No. Fixts	No. Lamps	Fixture Type	Fixt Watts	Total kW	kWh/Yr Fixtures	Yearly \$ Cost	No. Fixts	No. Lamps	Controls Description	Watts Used	Total kW	Reduction (%)	kWh/Yr Fixtures	Yearly \$ Cost	Unit Cost (INSTALLED)	Total Cost	kW Savings	kWh/Yr Savings	Yearly \$ Savings	Yearly Simple Payback
232.2	1	MIS Room	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.328	852.8	86.9856	4	0		82	0.33	0%	852.8	\$86.99	\$0.00	\$0.00	0.00	0	\$0.00	0.00
224.2	1	Main Office	2600	10	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.73	1898	193.596	10	0		73	0.73	0%	1898	\$193.60	\$0.00	\$0.00	0.00	0	\$0.00	0.00
224.2	1	Lobby	2600	6	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.438	1138.8	116.1576	6	0		73	0.44	0%	1138.8	\$116.16	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.2	1	Lobby	2600	4	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.328	852.8	86.9856	4	0		82	0.33	0%	852.8	\$86.99	\$0.00	\$0.00	0.00	0	\$0.00	0.00
224.2	1	Corridor	2600	5	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.365	949	96.798	5	0		73	0.37	0%	949	\$96.80	\$0.00	\$0.00	0.00	0	\$0.00	0.00
224.2	1	Shredder Room	2600	2	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.146	379.6	38.7192	2	0		73	0.15	0%	379.6	\$38.72	\$0.00	\$0.00	0.00	0	\$0.00	0.00
224.2	1	Conference Room	2600	4	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.292	759.2	77.4384	4	0		73	0.29	0%	759.2	\$77.44	\$0.00	\$0.00	0.00	0	\$0.00	0.00
224.2	1	Microfilm Room	2600	6	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.438	1138.8	116.1576	6	0		73	0.44	0%	1138.8	\$116.16	\$0.00	\$0.00	0.00	0	\$0.00	0.00
224.2	1	Court Record Office	2600	1	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.073	189.8	19.3596	1	0		73	0.07	0%	189.8	\$19.36	\$0.00	\$0.00	0.00	0	\$0.00	0.00
224.2	1	Ladies Room	2600	2	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.146	379.6	38.7192	2	0		73	0.15	0%	379.6	\$38.72	\$0.00	\$0.00	0.00	0	\$0.00	0.00
224.2	1	Lunch Room	2600	6	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.438	1138.8	116.1576	6	0		73	0.44	0%	1138.8	\$116.16	\$0.00	\$0.00	0.00	0	\$0.00	0.00
224.2	1	Men's Room	2600	2	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.146	379.6	38.7192	2	0		73	0.15	0%	379.6	\$38.72	\$0.00	\$0.00	0.00	0	\$0.00	0.00
224.2	1	Locker Room	2600	2	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.146	379.6	38.7192	2	0		73	0.15	0%	379.6	\$38.72	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.2	1	District Courthouse Record Storage Room	1000	28	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	2.296	2296	234.192	28	0		82	2.30	0%	2296	\$234.19	\$0.00	\$0.00	0.00	0	\$0.00	0.00

Investment Grade Lighting Audit

232.2	1	District Courthouse Record Storage Room Extension	1000	34	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	2.788	2788	284.376	34	0		82	2.79	0%	2788	\$284.38	\$0.00	\$0.00	0.00	0	\$0.00	0.00
224.2	1	District Courthouse Record Storage Room Extension	1000	2	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.146	146	14.892	2	0		73	0.15	0%	146	\$14.89	\$0.00	\$0.00	0.00	0	\$0.00	0.00
224.2	1	Back Corridor	8760	2	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.146	1278.96	130.4539	2	0		73	0.15	0%	1278.96	\$130.45	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.2	1	Stairwell	8760	3	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.246	2154.96	219.8059	3	0		82	0.25	0%	2154.96	\$219.81	\$0.00	\$0.00	0.00	0	\$0.00	0.00
601	1	Stairwell	8760	1	1	Exit Sign - Incandescent	25	0.025	219	22.338	1	1		25	0.03	0%	219	\$22.34	\$0.00	\$0.00	0.00	0	\$0.00	0.00
221.3	B	Electrical Room	260	4	2	2-Lamp, T8, Electronic Ballast, Pendant Mounted, No Lens	58	0.232	60.32	6.15264	4	0		58	0.23	0%	60.32	\$6.15	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.2	B	Back Corridor	8760	2	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.164	1436.64	146.5373	2	0		82	0.16	0%	1436.64	\$146.54	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.2	B	Vault	1000	27	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	2.214	2214	225.828	27	0		82	2.21	0%	2214	\$225.83	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.2	B	Holding Area	1000	5	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.41	410	41.82	5	0		82	0.41	0%	410	\$41.82	\$0.00	\$0.00	0.00	0	\$0.00	0.00
221.3	B	Pump Room	260	2	2	2-Lamp, T8, Electronic Ballast, Pendant Mounted, No Lens	58	0.116	30.16	3.07632	2	0		58	0.12	0%	30.16	\$3.08	\$0.00	\$0.00	0.00	0	\$0.00	0.00
224.2	B	Elevator Room	260	1	2	2-Lamp, T8, U-Lamp, Electronic Ballast, Recessed Mounted, Prismatic Lens	73	0.073	18.98	1.93596	1	0		73	0.07	0%	18.98	\$1.94	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.2	B	Loading Dock / Storage	1000	8	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.656	656	66.912	8	0		82	0.66	0%	656	\$66.91	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.2	B	Loading Dock / Bathroom	260	1	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	0.082	21.32	2.17464	1	0		82	0.08	0%	21.32	\$2.17	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.2	B	Prosecutors Storage	260	30	3	3-Lamp, T8, Electronic Ballast, Recessed, Prismatic Lens	82	2.46	639.6	65.2392	30	0		82	2.46	0%	639.6	\$65.24	\$0.00	\$0.00	0.00	0	\$0.00	0.00
<b>Totals</b>				204	66			16.07	24,806.3	\$2,530.25	204	1			16.068		24806.34	\$2,530.25	\$0.00	\$0.00	0.00	0	\$0.00	#DIV/0!

NOTES: 1. Simple Payback noted in this spreadsheet does not include Maintenance Savings and NJ Smart Start Incentives.  
2. Lamp totals only include T-12 tube replacement calculations

# MELINK CORPORATION

## INTELLI-HOOD VARIABLE EXHAUST CONTROLLER

### *ENERGY SAVINGS REPORT*

COMPANY:	CEG	RETROFIT
ADDRESS:	Integrity, Inc. (Integrity House)	
	Secaucus, NJ	Mar-18-09
APPLICATION:	Kitchen Hood Controls	
- MOTOR OPERATING SAVINGS:		\$994 /YEAR
- HEATING SAVINGS:		\$966 /YEAR
- COOLING SAVINGS:		\$2,026 /YEAR
- TOTAL SAVINGS:		\$3,986 /YEAR
- INSTALLED COST:		\$27,055
- PAYBACK PERIOD:		6.8 YEARS
- RATE OF RETURN -	5 YEARS:	-16.0 %
	10 YEARS:	9.1 %

The projected savings shown above are based on the above store's operating hours, HVAC system, cooking load, and geographic location.

## I. MOTOR OPERATING SAVINGS

### INPUT DATA:

A Operating Hours Per Day	14	HRS/DAY
B Operating Days Per Week	7	DAYS/WK
C Operating Weeks Per Year	52	WKS/YR
D Horsepower of Fan Motor(s)	3	HP
E Load Factor of Fan Motor(s)	0.88	
F Cost Per Kilowatt Hour	0.167	\$/KWHR

### CONSTANT EXHAUST VOLUME ANALYSIS:

G Total Time (A x B x C)	5096	HRS/YR
H Total KWHR/HP/YR (0.746/0.9 x G)	4224.0	KWHR/HP/YR

### VARIABLE EXHAUST VOLUME ANALYSIS:

<u>% Rated RPM H</u>	<u>% Run Time I</u>	<u>Time HRS/YR J=FxI</u>	<u>Output KW/HP K</u>	<u>System Effic. L</u>	<u>Input KW/HP M=K/L</u>	<u>KWHR/ HP/YR N=JxM</u>
100	18.75	955.5	0.746	0.9	0.829	792.0
90	12.5	637	0.544	0.9	0.604	385.0
80	25	1274	0.382	0.9	0.424	540.7
70	0	0	0.256	0.9	0.284	0.0
60	18.75	955.5	0.161	0.9	0.179	170.9
50	12.5	637	0.093	0.9	0.103	65.8
40	0	0	0.048	0.9	0.053	0.0
30	12.5	637	0.020	0.9	0.022	14.2
20	0	0	0.015	0.9	0.017	0.0
10	0	0	0.010	0.90	0.011	0.0

O Total KWH/HP/YR (Total of Column N)	1968.7
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### CALCULATION:

$$\text{SAVINGS} = (H - O) \times D \times E \times F = \text{\$994 /YEAR}$$

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## II. CONDITIONED MAKE-UP AIR - HEATING

### INPUT DATA:

A Previous Net Exhaust Volume	12000	CFM
B New Net Exhaust Volume (1)	8550	CFM
C Winter Building Temperature	68	F
D Previous Net Heat Load (2)	544320	kBTU
E New Net Heat Load (2)	387828	kBTU
F Operating Hours Per Day	14	HRS/DAY
G Operating Days Per Week	7	DAYS/WK
- Heating Fuel Type	Steam	
H Cost Per Fuel Unit (3)	7.2	\$/UNIT
J BTU Per Fuel Unit (4)	1,000	kBTU/UNIT
K System Efficiency (4)	0.7	

### CALCULATION:

$$\text{SAVINGS} = (D - E) \times 0.6 \times H / (J \times K)$$

$$= \quad \$966 \text{ /YEAR}$$

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### NOTES:

(1) Determine the New Exhaust Volume by completing TABLE 1. The New Exhaust Volume equals the AVG % RPM x the Previous Exhaust Volume.

(2) Using design weather data via the Outdoor Airload Calculator and multiplied by days/year ratio.

(3) Using local energy costs.

(4) Using typical system efficiency.

TABLE 1

% Rated RPM (F)	% Run Time (I)	F x I
100	19	19
90	13	11
80	25	20
70	0	0
60	19	11
50	13	6
40	0	0
30	13	4
20	0	0
10	0	0
AVG % RPM =		71%

### III. CONDITIONED MAKE-UP AIR SAVINGS - COOLING

#### INPUT DATA:

A Previous Net Exhaust Volume	12000 CFM
B New Net Exhaust Volume (1)	8550 CFM
C Previous Net Cooling Load (2)	240000 kBTU
D New Net Cooling Load (2)	171000 kBTU
E AC Correction Factor (3)	1
F Cost Per Fuel Unit (5)	0.167 \$/kWH
G COP (6)	1

#### CALCULATION:

$$\text{SAVINGS} = (C - D) \times 0.6 \times E \times F / (3.413 \times G)$$

$$= \quad \quad \quad \$2,026 \text{ /YEAR}$$

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#### NOTES:

(1) Using New Exhaust Volume from CONDITIONED MAKE-UP AIR SAVINGS - HEATING on page 2. See Note 1.

(2) Obtained from Outdoor Airload Calculator

(3) Using design weather data.

(4) The multiplier corrects for actual % outside air.

(5) Using local energy costs.

(6) Using typical system efficiency.

### AFTER-TAX CASH FLOW ANALYSIS

#### INPUT DATA:

FIRST YEAR SAVINGS	\$3,986 /YEAR
INITIAL COST PLUS INSTALLATION	\$27,055
MARGINAL TAX RATE	0%
ESTIMATED ANNUAL INCREASE IN ENERGY COSTS	3%

<u>YEAR</u>	<u>SAVINGS</u>	<u>DEPREC. COST</u>	<u>DEPREC. %</u>	<u>DEPREC. \$</u>	<u>NET AFTER-TAX CASH FLOW</u>
0		-27,055			-27,055
1	3986	-	29	7846	3986
2	4105	-			
3	4229	-	13	3517	4229
4	4355	-	10	2705	4355
5	4486	-	9	2435	4486
6	4621	-	9	2435	4621
7	4759	-	9	2435	4759
8	4902	-			4902
9	5049	-			5049
10	5201	-			5201

#### CALCULATIONS:

NET PRESENT VALUE = -\$13,011 ;                      INTERNAL RATE OF RETURN (IRR) = -16.0 %  
5 YEARS @ 15%

NET PRESENT VALUE = -\$4,901 ;                      INTERNAL RATE OF RETURN (IRR) = 9.1 %  
10 YEARS @ 15%

#### NOTE:

Net After-tax Cash Flow is calculated as follows:

$$\text{NATCF} = \text{SAVINGS} - \text{COSTS} - \text{TAX RATE}(\text{SAVINGS} - \text{COSTS} - \text{DEPRECIATION})$$

Net Present Value is calculated as follows:

$$\text{NPV} = \text{C}(0) + \text{C}(1)/(1 + r) + \text{C}(2)/(1 + r)^2 + \dots + \text{C}(n)/(1 + r)^n$$

(where C(n) is the net cash flow for the nth year

and r is the opportunity cost of capital)

IRR is calculated by trial and error using the formula:

$$\text{NPV} = \text{C}(0) + \text{C}(1)/(1 + \text{IRR}) + \text{C}(2)/(1 + \text{IRR})^2 + \dots + \text{C}(n)/(1 + \text{IRR})^n$$

County of Hudson – Meadowview Complex - Buildings #1 – 9, 15 Energy Audit

**DOMESTIC COLD WATER VARIABLE SPEED PUMPING**

Assumptions: Assumed one (1) pump runs all year (8500 Hrs), second pump runs 5000 Hrs and third pump runs 3000 Hrs

													\$0.1020 per kWh					
Building	Equip ID	Purpose	Motor Mnc.	Horse Power	Power Factor	RPM	Frame Type	Hours/Year	Existing Efficiency	Existing kWh Annual	Existing Electric Cost, \$	Proposed Efficiency		% Full Load	% Run Hours at Load	Hours/yr at Load	Load kWh Annual	Proposed Electric Cost, \$
Building #2	DWP-1	Domestic Cold Water Pumps	Unimount	20	85.9	3535	256JM	8,500	88.5%	144,068	\$14,695	92.40%	-		100%	8,500	97,157	\$9,910
													Calcs	100%	40%	3,400	55,195	\$5,630
														90%	20%	1,700	20,119	\$2,052
														80%	20%	1,700	14,130	\$1,441
														70%	10%	850	4,733	\$483
														60%	10%	850	2,981	\$304
														50%	0%	0	0	\$0
														40%	0%	0	0	\$0
														30%	0%	0	0	\$0
Building #2	DWP-2	Domestic Cold Water Pumps	Emerson	20	85.9	3535	256JM	5,000	88.5%	84,746	\$8,644	92.40%	-		100%	5,000	46,282	\$4,721
													Calcs	100%	20%	1,000	16,234	\$1,656
														90%	25%	1,250	14,793	\$1,509
														80%	20%	1,000	8,312	\$848
														70%	15%	750	4,176	\$426
														60%	10%	500	1,753	\$179
														50%	10%	500	1,015	\$103
														40%	0%	0	0	\$0
														30%	0%	0	0	\$0
Building #2	DWP-3	Domestic Cold Water Pumps	U.S. Electric	20	85.9	3535	256JM	3,000	88.5%	50,847	\$5,186	92.40%	-		100.00%	3,000	20,732	\$2,115
													Calcs	100%	10%	300	4,870	\$497
														90%	20%	600	7,101	\$724
														80%	20%	600	4,987	\$509
														70%	10%	300	1,670	\$170
														60%	10%	300	1,052	\$107
														50%	10%	300	609	\$62
														40%	10%	300	312	\$32
														30%	10%	300	131	\$13
Total										279,661	\$28,525					164,171	\$16,745	

kWh = HP \* 0.75(Conversion Factor) \* Hours of Op / Motor Efficiency  
 kWh = HP \* (%Full Load)^3 \* 0.75(Conversion Factor) \* Hours of Op at Load/ Motor Efficiency

V/PH/HZ: 460/3/60

Summary	Annual Energy Savings, kWh	115,490
	Annual Energy Cost	\$11,780
	Estimated Total Cost of The System:	\$92,353
	Simple Payback	7.84