LOCAL GOVERNMENT ENERGY AUDIT PROGRAM: ENERGY AUDIT REPORT

PREPARED FOR: **BURLINGTON TOWNSHIP BOARD OF EDUCATION**

B. BERNICE YOUNG ELEMENTARY SCHOOL

1203 Neck Road
Burlington, NJ 08016

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TABLE OF CONTENTS

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I. EXECUTIVE SUMMARY

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

Burlington Township Board of Education
Burlington Township B. Bernice Young Elementary School
1203 Neck Road
Burlington, NJ 08016

Municipal Contact Person: Mrs. Mary Ann Bell, Business Administrator/ Board Secretary
Facility Contact Person: Mr. John Mangino, Director of Facilities

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 at this facility are as follows:

Electricity	$ 129,519
Natural Gas	$ 54,753
Total	$ 184,272

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 ± 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

ENERGY CONSERVATION MEASURES (ECM's)					
ECM NO.	**DESCRIPTION**	**NET INSTALLATION COST[A]**	**ANNUAL SAVINGS[B]**	**SIMPLE PAYBACK (Yrs)**	**SIMPLE LIFETIME ROI**
ECM #1	Split System Upgrade	$110,641	$2,442	45.3	-66.9%
ECM #2	Water Heater Upgrade	$12,650	$504	25.1	-52.2%
ECM #3	Install Premium Efficient Pump Motor	$7,136	$106	67.3	-85.1%
ECM #4	Upgrade Air Compressor Motor	$2,708	$29	94.3	-84.1%
ECM #5	Computer Monitor Upgrade	$900	$138	6.5	130.0%
ECM #6	Lighting Upgrade - General	$5,061	$2,828	1.8	738.2%
ECM #7	Lighting Upgrade - De-Lamping	$1,408	$736	1.9	684.0%
ECM #8	Lighting Controls	$5,330	$922	5.8	159.5%
RENEWABLE ENERGY MEASURES (REM's)					
ECM NO.	**DESCRIPTION**	**NET INSTALLATION COST**	**ANNUAL SAVINGS**	**SIMPLE PAYBACK (Yrs)**	**SIMPLE LIFETIME ROI**
REM #1	Install Solar PV 262.89KW System	$2,366,010	$164,313	14.4	73.6%

Notes: A. Cost takes into consideration applicable NJ Smart StartTM 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

ENERGY CONSERVATION MEASURES (ECM's)				
ECM NO.	DESCRIPTION	ANNUAL UTILITY REDUCTION		
		ELECTRIC DEMAND (KW)	ELECTRIC CONSUMPTION (KWH)	NATURAL GAS (THERMS)
ECM #1	Split System Upgrade	14.1	15,961	0
ECM #2	Water Heater Upgrade	0.0	0	454
ECM #3	Install Premium Efficient Pump Motor	0.2	690	0
ECM #4	Upgrade Air Compressor Motor	0.1	188	0
ECM #5	Computer Monitor Upgrade	0.5	900	0
ECM #6	Lighting Upgrade - General	5.3	16,012	0
ECM #7	Lighting Upgrade - De-Lamping	1.2	4,810	0
ECM #8	Lighting Controls	2.3	6,028	0
RENEWABLE ENERGY MEASURES (REM's)				
ECM NO.	DESCRIPTION	ANNUAL UTILITY REDUCTION		
		ELECTRIC DEMAND (KW)	ELECTRIC CONSUMPTION (KWH)	NATURAL GAS (THERMS)
REM #1	Install Solar PV 262.89KW System	263	326,666	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 #5:** CRT Computer Monitor Upgrade
- **ECM #6:** Lighting Upgrade – General
- **ECM #7:** Lighting Upgrade – De-Lamping
- **ECM #8:** Lighting Controls

ECM #5 Computer Monitor Upgrade

Some of the computers in the building utilize CRT (cathode ray tube) computer monitors. This type of computer monitor is outdated and has several disadvantages such as; significantly increased energy consumption, large amount of desk space usage, poor picture quality, distortions and flickering image, secular glare problems, and high weight, and electromagnetic emissions. Many of the drawbacks are difficult to quantify except for the energy use. CRT monitors use considerably more energy than an alternative flat panel LCD monitor. Replacement of the existing CRT monitors with LCD monitors saves considerable energy as well as provides other ergonomic benefits as well. This ECM has a simple payback in 7.3 years and it is recommended for the building.

ECM #6 Lighting Upgrade – General

The B. Bernice Young Elementary School building has Exit signs that use fluorescent lamps, some incandescent lamp fixtures, and T12 fluorescent fixtures with magnetic ballasts and some metal halide lamped fixtures. The light-emitting-diode (LED) exit sign saves approximately 87% of power consumption per fixture. The LED is recommended because it is used continuously and will provide a substantial savings.

T8 lamps with electronic ballasts use less energy while providing longer equipment life. In addition, compact fluorescent lamps provide a simple and easy way to reduce electrical energy incandescent lamps use. CEG recommends retrofitting remaining T12 fixtures with T8 lamps and electronic ballasts and replacing all of the incandescent lamps with compact fluorescent lamps.

The existing metal halide fixtures in the Lobby, Library and multi-purpose room provide adequate light for the space, however there are a few drawbacks that should be considered. In addition to the color, and operability drawbacks, the metal halide fixtures use approximately 30% more energy than a CFL lamp or T-5 HO fixture to provide the equivalent light.

These general lighting upgrades will have a combined simple payback of 2.8 years and are recommended for this facility.

ECM #7 Lighting Upgrade – De-Lamping

There are several locations in the B. Bernice Young Elementary School that have efficient T8 fluorescent lighting with electronic ballasts. The lighting provided for these areas are in excess of normal lighting levels. There is no ballast change required and the removal of only 1 lamp per fixture in the over lit areas will save a substantial amount of energy. This ECM is recommended for this facility and has a simple payback of 1.9 years.

ECM #8 Lighting Controls

Lighting controls provide a simple and effective solution to the problem of lights being unnecessarily left on. Occupancy sensors provide fast payback since there is no retrofit needed for the existing lighting. Daylight Sensors were included in this ECM to show the relative effect of daylight harvesting in addition to occupancy sensors. The combination of both options still pays back in approximately 5.8 years and therefore it is recommended.

Other Energy Conservation Measures

ECM #1 does not provide a payback less than 10 years. However, CEG recommends the board to review the list of split system air conditioners mentioned in this ECM and when the existing units fail, replace them with the recommended high efficiency units listed in the ECM #1.

ECM #2 does not provide a payback less than 10 years. However, CEG recommends the board to review the domestic water heater mentioned in this ECM and when the existing unit is near failing, replace it with the recommended high efficiency unit listed in the ECM #2.

CEG considered an ECM to convert the antiquated pneumatic HVAC controls to a DDC system. There is an existing DDC system in the 2006 building addition with the remaining portion of the building on the pneumatic control system. The DDC system uses its time clock function to control the pneumatic system's occupied/unoccupied function. Since there is an automatic control function, there would be little energy savings. CEG recommends as aged equipment is scheduled for replacement, that the new equipment be tied into the existing DDC backbone in order to take advantage of the DDC functionality. This would allow the eventual decommissioning of the air compressor and remaining pneumatic controls.

Renewable Energy Analysis

Renewable Energy Measures (REMs) were also reviewed for implementation at the B. Bernice Young Elementary School. CEG utilized a parking lot canopy mounted solar array to house a substantial PV system. The recommended 262.89 kW PV system will produce approximately 326,666 kWh of electricity annually and will reduce the schools electrical consumption from the grid by 38.6%. The system's calculated simple payback of 14.4 years is past the standard 10 year simple payback threshold; however, with alternative funding this payback could be reduced. CEG recommends the Owner review all funding options before deciding to not implement this renewable energy measure.

Operation 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. Clean all light fixtures to maximize light output.
4. Provide more frequent air filter changes to decrease overall system power usage and maintain better IAQ.
5. Confirm that outside air economizers on the rooftop units are functioning properly to take advantage of free cooling and avoid excess outside air during occupied periods.

Overall, the B. Bernice Young Elementary School appears to be operating at a lower efficiency level compared to other schools in the region. With the implementation of the above recommended measures the Burlington Township BOE will realize further energy savings at the B. Bernice Young Elementary School.

II. INTRODUCTION

The comprehensive energy audit covers the 108,000 square foot B. Bernice Young Elementary School *Building*, which includes the following spaces: classrooms, offices, corridors, cafeteria, computer room, multi-purpose room, gymnasium, faculty lounge, fitness center, kitchen, library, storage, restrooms and mechanical room.

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^2/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:

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

$$Simple\ Lifetime\ Savings = \left(Yearly\ Savings \times ECM\ Lifetime \right)$$

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

$$Lifetime\ Ma\,\mathrm{int}\,enance\ Savings = \left(Yearly\ Ma\,\mathrm{int}\,enance\ Savings \times ECM\ Lifetime \right)$$

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

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

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. The facilities receive electric distribution service through Public Service Electric & Gas (PSE&G) on rate schedule Basic General Service - LPLS rate structure. The school has contracted South Jersey Energy, a **Third Party Supplier** (TPS), to provide electric commodity supply (generation) service. 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 actual natural gas energy usage for the facility. South Jersey Gas (SJG) provides natural gas to the facility under the Basic Gas Supply Service (BGSS) - Firm Transportation (LVG) rate structure. The school has contracted Hess Corporation, a **Third Party Supplier** (TPS) to provide natural gas commodity supply (generation) service. 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 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 at this facility is as follows:

Description	Average
Electricity	15.3¢ / kWh
Natural Gas	$1.11 / Therm

Table 3
Electricity Billing Data

ELECTRIC USAGE SUMMARY

Utility Provider: PSE&G
Rate: LPLS
Meter No: 778010518
Account No. 42 003 847 01
Third Party Utility South Jersey Energy
TPS Meter / Acct No:

MONTH OF USE	CONSUMPTION	DEMAND	TOTAL BILL
Mar-09	85,560	218.4	$16,963
Apr-09	66,600	258.0	$7,988
May-09	72,360	241.2	$9,593
Jun-09	62,280	252.0	$11,116
Jul-09	46,440	141.6	$7,905
Aug-09	50,040	211.2	$9,149
Sep-09	75,120	283.2	$10,987
Oct-09	71,400	224.4	$10,306
Nov-09	79,560	223.8	$11,372
Dec-09	79,560	223.8	$11,372
Jan-10	77,880	223.2	$11,304
Feb-10	78,960	229.2	$11,465
Totals	**845,761**	**283.2 Max**	**$129,519**

AVERAGE DEMAND 227.5 KW average
AVERAGE RATE $0.153 $/kWh

Figure 1
Electricity Usage Profile

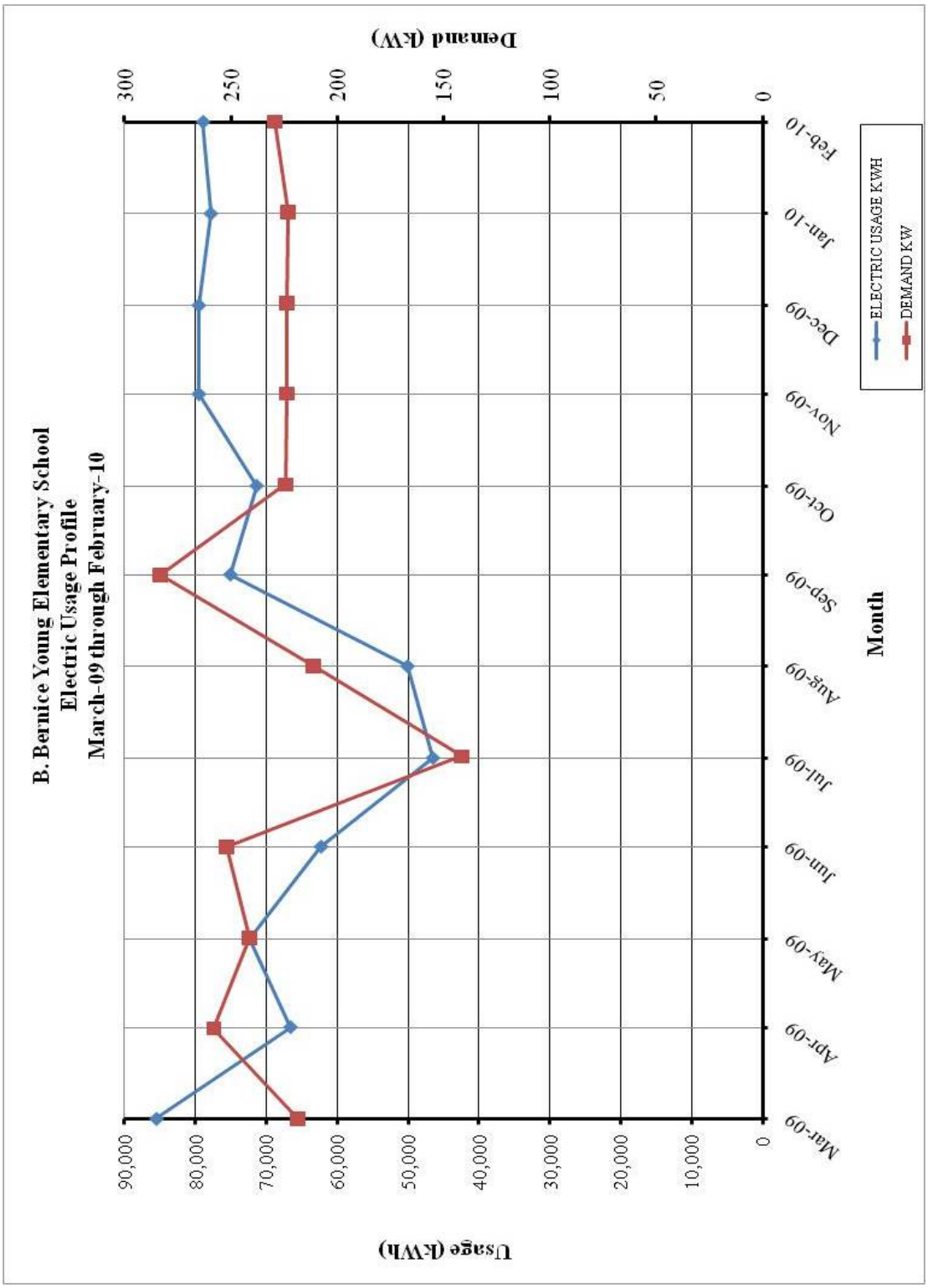
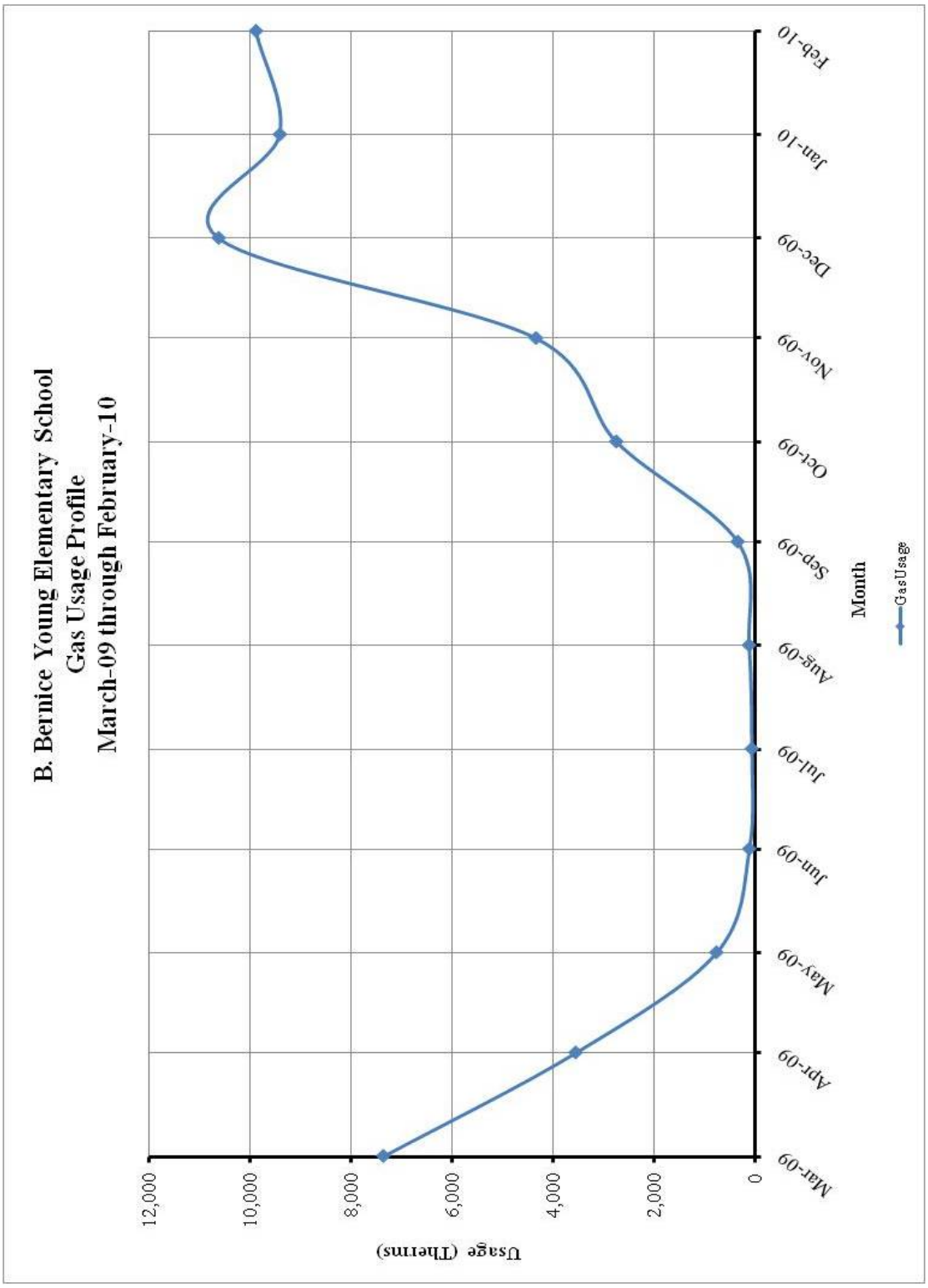


Table 4
Natural Gas Billing Data

NATURAL GAS USAGE SUMMARY		
Utility Provider:	PSE&G	
Rate:	LVG	
Meter No:	2523557 and 3229059	
Account No.	PG000009627868479250 and PG000008898218636720	
Third Party Utility Provider:	Hess Corp	
TPS Meter No:	349100/349725	
MONTH OF USE	**CONSUMPTION (THERMS)**	**TOTAL BILL**
Mar-09	7,360.82	$7,017.48
Apr-09	3,551.68	$3,294.75
May-09	763.14	$838.72
Jun-09	111.41	$274.58
Jul-09	61.61	$233.43
Aug-09	115.99	$265.84
Sep-09	341.27	$419.07
Oct-09	2,745.31	$2,758.95
Nov-09	4,335.62	$5,497.67
Dec-09	10,621.69	$11,729.91
Jan-10	9,409.37	$11,252.02
Feb-10	9,881.51	$11,170.59
TOTALS	**49,299.43**	**$54,753.01**
AVERAGE RATE:	**$1.11**	**$/THERM**

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:

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

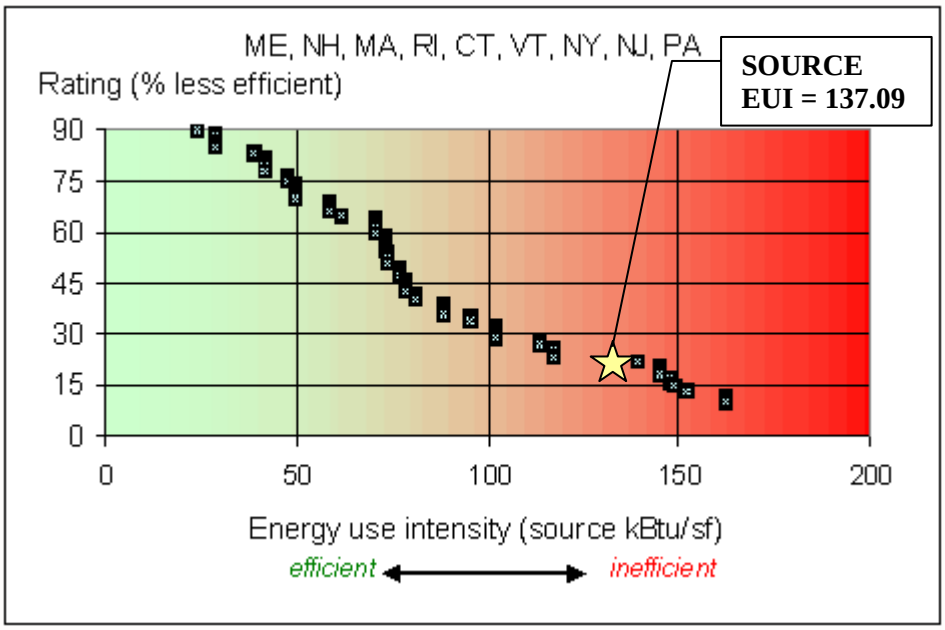
$$Building\ \ Source\ EUI = \frac{(Electric\ Usage\ in\ kBtu\ \ X\ \ SS\ \ Ratio + Gas\ Usage\ in\ kBtu\ \ X\ \ SS\ \ Ratio)}{Building\ \ Square\ \ Footage}$$

Table 5
Facility Energy Use Index (EUI) Calculation

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

ENERGY USE INTENSITY CALCULATION						
ENERGY TYPE	**BUILDING USE**			**SITE ENERGY**	**SITE-SOURCE RATIO**	**SOURCE ENERGY**
	kWh	**Therms**	**Gallons**	**kBtu**		**kBtu**
ELECTRIC	845,761			2,887,428	3.340	9,644,010
NATURAL GAS		49,299		4,929,943	1.047	5,161,650
FUEL OIL			0	0	1.010	0
PROPANE			0	0	1.010	0
TOTAL				7,817,371		14,805,660
*Site - Source Ratio data is provided by the Energy Star Performance Rating Methodology for Incorporating Source Energy Use document issued Dec 2007.						
BUILDING AREA		108,000	SQUARE FEET			
BUILDING SITE EUI		*72.4*	kBtu/SF/YR			
BUILDING SOURCE EUI		*137.1*	kBtu/SF/YR			

Figure 3
Source Energy Use Intensity Distributions: Elementary School Buildings



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). 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: burlingtonboe
Password: lgeaceg2010

Security Question: What city were you born in?
Security Answer: "burlington"

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**
Bernice Young Elementary School	40	50

Refer to **Statement of Energy Performance Appendix** for the detailed energy summary.

V. FACILITY DESCRIPTION

The 108,000 SF B. Bernice Young Elementary School Building is a one story facility comprised of classrooms, offices, corridors, cafeteria, computer room, multi-purpose room, gymnasium, faculty lounge, fitness center, kitchen, library, storage, restrooms and mechanical room.

The total number of occupancy at the B. Bernice Young Elementary School building is approximately 1,265 including students, teachers and the custodial staff. The facility is open between the hours of 5:30 AM and 11:30 PM for school hours, afterschool programs and custodial services. The school hours of operation are typical for a school; between 7:00AM and 3:30 PM. The facility is closed on weekends. A portion of the facility remains open during summer months for various social programs and activities in the building. Actual occupancy use is minimal. However, the owner keeps the building at design temperature to control the temperature and humidity for staff and the programs that are occurring at the facility.

Exterior walls are block and face brick construction with minimum insulation typical of the time period. 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 aluminum frames. Roll down shades are utilized through the facility per occupant comfort. The shades are valuable because they help to reduce heat loss in the winter and reduce solar heat in the summer. The majority of the roof is a flat built up roof with stone ballast. A small portion of the roof is constructed of a pitched shingle roof. The amount of insulation below the roofing is unknown. The original building, Wings A and D was built in 1962. Wing B was added in 1968, Wing C in 1987, Wing D was renovated and Wing E was built in 1994 and Wing F was added in 2005.

HVAC Systems

There are eight (8) split systems with direct expansion condensing units that use R-22 refrigerant. There capacities range from 2.5 Tons to 26 Tons nominal cooling. The units serve air handling units (AHUs) 1 through 8. The condensing units are seventeen (17) years old, in fair to poor condition and are two (2) years past their expected ASHRAE useful service life. Please refer to **Major Equipment List Appendix** for additional equipment details.

Air handling units (AHU) 1 and 2 serve the multi-purpose room. They condensing units are Snyder General model ALPO27C with a cooling capacity of 26.2 tons nominal. The AHU has a matching cooling coil and a hot water coil heating capacity of 485.8 MBH. They are seventeen (17) years old, in fair condition and are two (2) years past their expected ASHRAE useful service life.

Air handling units (AHU) 3 and 4 serve computer room 150 and 151 respectively. The condensing units are Inter City Products Corporation model AD048FD with a cooling capacity of 4 tons nominal. The AHU has a matching cooling coil and a hot water coil heating capacity of 34.3 MBH and 37.3 MBH respectively. They are seventeen (17) years old, in fair condition and are two (2) years past their expected ASHRAE useful service life.

Air handling units (AHU) 5 serves the media room. The condensing unit is an Inter City Products Corporation model C100G1 with a cooling capacity of 4 tons nominal. The AHU has a matching cooling coil and a hot water coil heating capacity of 34.3 MBH and 37.3 MBH respectively. They are seventeen (17) years old, in fair condition and are two (2) years past their expected ASHRAE useful service life.

Classrooms are primarily conditioned with classroom unit ventilators with heating hot water coil and wall radiation. A few classrooms have a direct expansion cooling coil in the unit ventilator.

The computer room is conditioned by a direct expansion split system heat pump made by Airedale. The computer room unit runs 24/7 to cool the HVAC controls and IT closet. The unit is six (6) years old and in good condition.

Entrance doorways/corridors are heated via hot water cabinet heaters.

Exhaust System

Exhaust fans and supply fans as scheduled on drawing H-5 of the 1993 drawings list all of the fans as fractional horsepower fan motors. All of the scheduled fans except three are controlled to run during occupied mode or are interlocked with another piece of equipment to run only when the controlling equipment is called to run. The fans controlled by occupancy alone are controlling 8,980 CFM.

The three fans that are not interlocked or controlled with occupancy schedule are manually controlled for summer use. The fan schedule calls them out as: EF-7A, 8A, 15 and EF-E-5 for a total of 14,470 CFM.

HVAC System Controls

The HVAC systems within the facility are controlled via pneumatic and DDC control. The mechanical room in Wing E has a Honeywell pneumatic Excel 5000 system. This system controls the equipment serving Wings A, B, C, D and E. This system includes a duplex air compressor with an 80 gallon tank and two (2) 3 hp 84% nominal NEMA Efficient compressor motors. The system was installed in 1994 and is past its ASHRAE expected useful service life.

The mechanical room in the F wing is a Honeywell Excel 5000 DDC system. This system controls equipment serving the F Wing. The system was installed in 2005.

Domestic Hot Water

Domestic hot water for Wing E is provided by a 96 gallon A.O. Smith model BT 200 840 with 199 MBH natural gas input. The domestic hot water is circulated throughout the building by a hot water re-circ pump. The circulation pump is controlled by an aqua stat. The domestic hot water piping insulation appeared to be in good condition.

Domestic hot water for Wing A is provided by a 23 gallon AERCO model KC with 1,000 MBH natural gas input water boiler. The domestic hot water is circulated throughout the building by a

hot water re-circ pump. The circulation pump is controlled by an aqua stat. The domestic hot water piping insulation appeared to be in good condition.

Domestic hot water for Wing F is provided by a 48 gallon Bradford White Hydrojet model 50T-65FB-3N with 65 MBH natural gas input. The domestic hot water is circulated throughout the building by a hot water re-circ 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. The F corridor display case has a T-12 lamp with magnetic ballast. The kitchen hood and small restrooms are lit with incandescent lamps. The Library, Multi Purpose room and Lobby are lit with Metal Halide lamps. Exit signs have compact fluorescent lamps.

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: Split System Replacement

Description:

The Burlington Township B. Bernice Young Elementary School has eight split systems with hot water heating coils. The existing unit's cooling capacities and efficiencies are as shown below. All of these existing units have surpassed their useful service life. The units are in fair to poor condition and in need of replacement. The efficiencies of the existing units are below today's standards for cooling efficiency. The proposed units are high efficiency one-for-one replacements of the existing 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 eight (8) high efficient split systems air conditioners. The ECM calculations are based on Trane models as listed below with R-410A refrigerant or equivalent. Means Costworks software is used to estimate demolition and labor costs for a generic AC system replacement.

Full Load Cooling Hrs = 1,129 hrs/yr.
Average Cost of Electricity = $0.153/kWh

TAG	MANUF.	QTY.	MODEL #	COOLING CAPACITY (TONS)	CURRENT SEER	NEW EER
CU-1	Trane	1	PCC-17 & RAUC20	20.0	10.7	11.6
CU-2	Trane	1	PCC-17 & RAUC20	20.0	10.7	11.6
CU-3	Trane	1	4TTM3048 & 4TEC3F48	4.0	9.1	13.25
CU-4	Trane	1	4TTM3048 & 4TEC3F48	4.0	9.1	13.25
CU-5	Trane	1	TT120E & TWE120E	10.0	8.5	11.2
CU-6	Trane	1	4TTM3030 & 4TEC3F30	2.5	9.7	13.25
CU-7	Trane	1	TTA090E & TWE072E	6.0	9.7	11.2
CU-8	Trane	1	4TTA3060 & 4TEC3F60	5.0	8.9	13

Energy Savings Calculations:
Cooling Savings for 10 Ton Unit Replacement:

$$EnergySavings = \frac{Cooling(Tons) \times 12{,}000\left(\frac{Btu}{Ton\ hr}\right)}{1000\left(\frac{Wh}{kWh}\right)} \times \left(\frac{1}{EER_{OLD}} - \frac{1}{EER_{NEW}}\right) \times Full\ Load\ Hrs.$$

$$EnergySavings = \frac{10\,(Tons)\times 12{,}000\left(\frac{Btu}{Ton\ hr}\right)}{1000\left(\frac{Wh}{kWh}\right)} \times \left(\frac{1}{8.5\left(\frac{Btu}{W}\right)} - \frac{1}{11.2\left(\frac{Btu}{W}\right)}\right) \times 1129\ hours$$

$$= 3{,}842.4\ kWh$$

$$Demand\ Savings = \frac{Energy\ Savings\,(kWh)}{Hrs\ of\ Cooling}$$

$$Demand\ Savings = \frac{3{,}842.4\,(kWh)}{1{,}129\ Hrs.} = 3.40\ KW$$

$$Cooling\ Cost\ Savings = 3{,}842.4kWh \times 0.153\left(\frac{\$}{kWh}\right) = \$588$$

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

TAG	MANUF.	QTY.	MODEL #	COOLING CAPACITY (TONS)	CURRENT SEER	NEW EER	ENERGY SAVINGS (KWH)	DEMAND SAVINGS (KW)	COOLING COSTS SAVINGS
CU-1	Trane	1	PCC-17 & RAUC20	20.0	10.7	11.6	1,964.7	1.74	$301
CU-2	Trane	1	PCC-17 & RAUC20	20.0	10.7	11.6	1,964.7	1.74	$301
CU-3	Trane	1	4TTM3048 & 4TEC3F48	4.0	9.1	13.25	1,865.2	1.65	$285
CU-4	Trane	1	4TTM3048 & 4TEC3F48	4.0	9.1	13.25	1,865.2	1.65	$285
CU-5	Trane	1	TT120E & TWE120E	10.0	8.5	11.2	3,842.4	3.40	$588
CU-6	Trane	1	4TTM3030 & 4TEC3F30	2.5	9.7	13.25	935.5	0.83	$143
CU-7	Trane	1	TTA090E & TWE072E	6.0	9.7	11.2	1,122.3	0.99	$172
CU-8	Trane	1	4TTA3060 & 4TEC3F60	5.0	8.9	13	2,400.5	2.13	$367
TOTAL				71.5			15,960.6	14.14	$2,442

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 (EER) at or above 11.5. The program incentives are calculated as follows:

$$\text{Smart Start®}\ Incentive = (Cooling\ Tons \times\ \$/Ton\ Incentive)$$

Central DX AC Systems

<5.4 tons, minimum 14.0 SEER,	$92/ton
>5.4 tons to 11.25 tons, minimum 11.5 EER,	$73/ton
>11.25 tons to 20 tons, minimum 11.5 EER,	$79/ton

Most of the units selected do not qualify for an incentive based on EER.

The installed cost of one 10 ton unit is $12,300 less eligible incentive of $0 for a net installed cost of $12,300.

Simple Payback = cost/savings = $12,300 / $588 = 20.9 years

The summary of savings is below:

TAG	MANUF.	QTY.	MODEL #	TOTAL ENERGY SAVINGS	TOTAL INSTALLED COSTS	INCENTIVES	NET INSTALLED COST	SIMPLE PAYBACK
CU-1	Trane	1	PCC-17 & RAUC20	$301	$33,975	$1,580	$32,395	107.8
CU-2	Trane	1	PCC-17 & RAUC20	$301	$33,975	$1,580	$32,395	107.8
CU-3	Trane	1	4TTM3048 & 4TEC3F48	$285	$6,015	$0	$6,015	21.1
CU-4	Trane	1	4TTM3048 & 4TEC3F48	$285	$6,015	$0	$6,015	21.1
CU-5	Trane	1	TT120E & TWE120E	$588	$12,300	$0	$12,300	20.9
CU-6	Trane	1	4TTM3030 & 4TEC3F30	$143	$5,328	$0	$5,328	37.2
CU-7	Trane	1	TTA090E & TWE072E	$172	$8,430	$0	$8,430	49.1
CU-8	Trane	1	4TTA3060 & 4TEC3F60	$367	$7,763	$0	$7,763	21.1
TOTAL				$2,442	$113,801	$3,160	$110,641	45.3

Energy Savings Summary:

ECM #1 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$113,801
NJ Smart Start Equipment Incentive ($):	$3,160
Net Installation Cost ($):	$110,641
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$2,442
Total Yearly Savings ($/Yr):	$2,442
Estimated ECM Lifetime (Yr):	15
Simple Payback	45.3
Simple Lifetime ROI	-66.9%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$36,630
Internal Rate of Return (IRR)	-11%
Net Present Value (NPV)	($81,488.56)

ECM #2: Domestic Water Heater Replacement

Description:

The existing domestic water heater is an A.O. Smith model BT 200 840 with 199,000 BTUH input natural gas heater with 80% thermal efficiency.

This energy conservation measure will replace the existing natural gas domestic water heater with a 95% thermal efficient A.O. Smith model BTH-199 gas fired domestic hot water heater having 199.9 MBH input and 100-gallon storage capacity or equivalent. CEG advises the owner to contact the utility provider regarding the installation of this ECM.

Energy Savings Calculations:

Existing Natural Gas DW Heater
Rated Capacity = 199.0 MBH input
Combustion Efficiency = 80%
Age & Radiation Losses = 5%
Thermal Efficiency = 75%

Proposed Natural Gas-Fired, High-Efficiency DW Heater
Rated Capacity = 199.9 MBH input; 100 gallons storage
Thermal Efficiency = 95%
Radiation Losses = 0.5%
Net Efficiency = 94.5%

Operating Data for DW Heater

Estimated Consumption will be approximated based on the average gas usage in June through September and multiplied by 12 months.

Gas Usage = (130.21+68.91+120.09+413.77)/4 Therms = 183.24 Therms

Annual Fuel Consumption = 183.24 Therms / month x 12 months = 2,198.9 Therms / yr.

$$Energy\ Savings = Fuel\ Consumption \times \left(1 - (\ DWH\ Eff.old\ /\ DWH\ Eff.new)\right)$$

Heating Energy Savings = 2198.9 Therms/ yr. x (1-(75% / 94.5%)) = 453.7 Therms/yr.

Average Cost of Natural Gas = $1.11 Therm

Yearly Savings = 453.7 Therm x $1.11 / Therm = $504/year

Cost of (1) one Commercial Domestic Water Heater and Installation = $13,050

Smart Start Incentive = $2.00/MBh x 199.9 MBh /installed MBh = $400.

Simple Payback = ($13,050-$400) / $504 = 25.1 years

Energy Savings Summary:

ECM #2 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$13,050
NJ Smart Start Equipment Incentive ($):	$400
Net Installation Cost ($):	$12,650
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$504
Total Yearly Savings ($/Yr):	$504
Estimated ECM Lifetime (Yr):	12
Simple Payback	25.1
Simple Lifetime ROI	-52.2%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$6,048
Internal Rate of Return (IRR)	-10%
Net Present Value (NPV)	($7,633.18)

ECM #3: Install NEMA Premium Efficient Pump Motor

Description:

Replacing the old system circulator pump motor with new efficient motor is a simple change that can provide substantial savings.

Existing electric motors equal to or greater than one horsepower ranged from 78% to 93% efficient. The improved efficiency of the NEMA premium efficient motors is primarily due to better designs with use of better materials to reduce losses. Surprisingly, the electricity used to power a motor represents 95 % of its total lifetime operating cost. Because many motors operate 40-80 hours per week, even small increases in efficiency can yield substantial energy and dollar savings.

This energy conservation measure would replace all motors equal to or greater than 1 HP with NEMA Premium® Efficient Motors. NEMA Premium® is the most efficient motor designation in the marketplace today. Using MotorMaster+, Version 4, the energy & cost savings were calculated for the pump motors in this facility that are greater than or equal to 1 HP.

Energy Savings Calculations:

Existing: A 2 HP system circulation pump Motor with the following characteristics:
Existing Motor Efficiency = 84%
Annual Hours of Operations = 4500 (Average)
1 HP = 0.746 Watt
Load Factor = 75%
Cost of electricity = $0.153 / kWh

Existing 2HP Motor Operating Cost =
{0.746 Watt/HP x Motor HP x Load Factor x Hours of Operation x Cost of Electricity] ÷ Motor Efficiency
= [0.746 x 2 x 0.75 x 4,500 x 0.153] ÷ 0.78 = $917 / Year

New NEMA Premium Motor Efficiency = 89.5%

New NEMA Premium Efficiency Motor Operating Cost =
{0.746 x 2 x 0.75 x 4,500 x 0.153} ÷ 0.895 = $860 / Year

Savings = $917 - $860 = $57 / Year

Installed Cost of two 2 HP NEMA Premium® Efficiency Motor = $3,796 minus the SmartStart Building® incentive of 2hp x $60/motor is $3,676.

Simple Payback = $3,676 / $114 = 32.2 Years

kWh saved = $114 / $0.153/kWh = 745.1 kWh

kW saved = 745.1 kWh / 4,500 hrs./yr. = 0.17 kW

The calculation for the 5 hp motor is similar. The 5 hp pumps are primary/standby where only one of the pumps will run at any one time.

The following table outlines the motor replacement plan for this facility:

NEMA Premium Efficient Motor Replacement						
Equipment Tag	**Motor HP**	**Existing Efficiency**	**NEMA Premium Efficiency**	**kW Savings**	**kWh Savings**	**Cost Savings**
	5	87.5%	89.5%	0.07	332	$51
standby	5	87.5%	89.5%	0.00	0	$0
	2	84.0%	86.5%	0.04	179	$27
	2	84.0%	86.5%	0.04	179	$27
Total Savings				**0.15**	**690**	**$106**

MOTOR REPLACEMENT PLAN							
Motor HP	**QTY**	**ENCL. TYPE**	**No. of POLEs**	**INSTALLED Cost ****	**TOTAL COST**	**TOTAL SAVINGS**	**Simple Payback**
5	1	TEFC	4-Pole	$1,898	$1,898	$50.84	37.3
5	0	TEFC	4-Pole	$1,898	$1,898	$0.00	-
2	1	TEFC	4-Pole	$1,670	$1,670	$27.40	61.0
2	1	TEFC	4-Pole	$1,670	$1,670	$27.40	61.0
				Totals:	*$7,136*	*$106*	*67.6*

**** Net Cost after the SmartStart Buildings® incentive is applied.**

Energy Savings Summary:

ECM #3 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$7,376
NJ Smart Start Equipment Incentive ($):	$240
Net Installation Cost ($):	$7,136
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$106
Total Yearly Savings ($/Yr):	$106
Estimated ECM Lifetime (Yr):	10
Simple Payback	67.3
Simple Lifetime ROI	-85.1%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$1,060
Internal Rate of Return (IRR)	-25%
Net Present Value (NPV)	($6,231.80)

ECM #4: Install NEMA Premium Efficient Air Compressor Motor

Description:

Replacing the old system duplex air compressor motor with new efficient motor is a simple change that can provide substantial savings.

Existing electric motors equal to or greater than one horsepower ranged from 78 to 93% efficient. The improved efficiency of the NEMA premium efficient motors is primarily due to better designs with use of better materials to reduce losses. Surprisingly, the electricity used to power a motor represents 95 % of its total lifetime operating cost. Because many motors operate 40-80 hours per week, even small increases in efficiency can yield substantial energy and dollar savings.

This energy conservation measure would replace all motors equal to or greater than 1 HP with NEMA Premium® Efficient Motors. NEMA Premium® is the most efficient motor designation in the marketplace today. Using MotorMaster+, Version 4, the energy & cost savings were calculated for the pump motors in this facility that are greater than or equal to 1 HP.

Energy Savings Calculations:

Existing: A 3 HP system air compressor Motor with the following characteristics:
Existing Motor Efficiency = 87.5%
Annual Hours of Operations = 8760x25% = 2190 (Average)
1 HP = 0.746 Watt
Load Factor = 75%
Cost of electricity = $0.153 / kWh

Existing 2HP Motor Operating Cost =
{0.746 Watt/HP x Motor HP x Load Factor x Hours of Operation x Cost of Electricity] ÷ Motor Efficiency
= [0.746 x 3 x 0.75 x 2,190 x 0.153] ÷ 0.875 = $642.8 / Year

New NEMA Premium Motor Efficiency = 89.5%

New NEMA Premium Efficiency Motor Operating Cost =
{0.746 x 3 x 0.75 x 2,190 x 0.153} ÷ 0.895 = $628.4 / Year

Savings = $642.8 - $628.4 = $14.4 / Year

Installed Cost of two 3 HP NEMA Premium® Efficiency Motor = $2,828 minus the SmartStart Building® incentive of 3hp x $60/motor is $2,708.

Simple Payback = $2,708 / $28.8 = 94 Years

kWh saved = $28.8 / $0.153/kWh = 188 kWh

kW saved = 188 kWh / 2,190 hrs./yr. = 0.085kW

The following table outlines the motor replacement plan for this facility:

NEMA Premium Efficient Motor Replacement						
Equipment Tag	**Motor HP**	**Existing Efficiency**	**NEMA Premium Efficiency**	**kW Savings**	**kWh Savings**	**Cost Savings**
-	3	87.5%	89.5%	0.04	94	$14
-	3	87.5%	89.5%	0.04	94	$14
Total Savings				**0.09**	**188**	**$29**

MOTOR REPLACEMENT PLAN							
Motor HP	**QTY**	**ENCL. TYPE**	**No. of POLEs**	**INSTALLED Cost ****	**TOTAL COST**	**TOTAL SAVINGS**	**Simple Payback**
3	1	TEFC	4-Pole	$1,414	$1,414	$14.36	98.4
3	1	TEFC	4-Pole	$1,414	$1,414	$14.36	98.4
				Totals:	*$2,828*	*$29*	*98.4*

**** Net Cost after the SmartStart Buildings® incentive is applied.**

Energy Savings Summary:

ECM #4 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$2,828
NJ Smart Start Equipment Incentive ($):	$120
Net Installation Cost ($):	$2,708
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$29
Total Yearly Savings ($/Yr):	$29
Estimated ECM Lifetime (Yr):	15
Simple Payback	94.3
Simple Lifetime ROI	-84.1%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$431
Internal Rate of Return (IRR)	-17%
Net Present Value (NPV)	($2,365.14)

ECM #5: Computer Monitor Replacement

Description:

The computers throughout the facility utilize a mixture of CRT computer monitors and LCD computer monitors. Computers are located in the offices, computer labs, lounges, and classrooms. The CRT computer monitors are outdated and have several disadvantages such as; significantly increased higher energy consumption, uses large amount of desk space, poor picture quality, distortions and flickering image, secular glare problems, and high weight, and electromagnetic emissions. Many of these drawbacks are difficult to quantify except for the energy use. CRT monitors use considerably more energy than an alternative flat panel LCD monitor. Replacement of the existing CRT monitors with LCD monitors saves considerable energy as well as provides other ergonomic benefits.

Based on the site survey it was noted that in some conditions the computers were left on and allowed to run 24 / 7, while in other rooms the computers were shut down. Some of the monitors were left in screen saver mode, which is deceiving since this mode only saves the computer screen from image burn in, however it does not save on energy consumption. The average operating hours for all computers and monitors is estimated based on the site survey observations. Energy consumption of computer monitors is based on manufacture's specifications.

This ECM includes replacement of all existing CRT monitors with LCD flat panel monitors throughout the school. Installation costs were neglected for this ECM with the intention that this ECM would be replaced by the school employees. The calculations are based on the following operating assumptions:

Energy Savings Calculations:

No. of CRT Monitors:	9
Weeks per Yr:	40
Hrs per Week:	50 (10 hrs per day cumulative average)

$$Electric\,Usage = \frac{\#\,of\ Computers \times Monitor\ Power\,(W) \times Operation\,(Hrs)}{1000\left(\frac{W}{KW}\right)}$$

$$Energy\ Cost = Electric\,Usage(kWh) \times Ave\ Elec\ Cost\left(\frac{\$}{kWh}\right)$$

COMPUTER MONITOR CALCULATIONS			
ECM INPUTS	**EXISTING**	**PROPOSED**	**SAVINGS**
ECM INPUTS	CRT Monitors	LCD Monitor	
# of Computers	9	9	
Monitor Power Cons. (W)	75	25	
Operating Hrs per Week	50	50	
Operating Weeks per Yr	40	40	
Elec Cost ($/kWh)	0.153	0.153	
ENERGY SAVINGS CALCULATIONS			
ECM RESULTS	**EXISTING**	**PROPOSED**	**SAVINGS**
Electric Usage (kWh)	1,350	450	900
Energy Cost ($)	$207	$69	$138
COMMENTS:	CRT Monitor consumption based on Dell CRT monitor M/N: CRT-E771MM. Operating hours based on estimated average.		

Installation cost of new monitors is estimated based on current pricing for a 17" LCD monitor on the market today. No labor costs were included for replacing the existing monitors with the new monitors. No incentives are available for installation of computer monitors. Net cost per monitor was estimated to be $100.

Installation Costs: # Monitors X Cost per Monitor
9 Monitors X $100 per Monitor
$900

Energy Savings Summary:

ECM #5 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$900
NJ Smart Start Equipment Incentive ($):	$0
Net Installation Cost ($):	$900
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$138
Total Yearly Savings ($/Yr):	$138
Estimated ECM Lifetime (Yr):	15
Simple Payback	6.5
Simple Lifetime ROI	130.0%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$2,070
Internal Rate of Return (IRR)	13%
Net Present Value (NPV)	$747.44

ECM #6: Lighting Upgrade – General Upgrade

Description:

LED Exit Signs

LED is an acronym for light-emitting-diode. LED's are small light sources that are readily associated with electronic equipment. LED exit signs have been manufactured in a variety of shapes and sizes. There are also retrofit kits that allow for simply modification of existing exit signs to accommodate LED technology. The benefits of LED technology are substantial. LED exit signs will last for 20-30 years without maintenance. This results in tremendous maintenance savings considering that incandescent or fluorescent lamps need to be replaced at a rate of 1-5 times per year. Lamp costs ($2-$7 each) and labor costs ($4-$10 per lamp) add up rapidly. Additionally, LED exit lights only uses 2 Watts. In comparison, conventional exit signs use 10-40 Watts. It is recommended that samples of the products be installed to confirm that they are compatible with the existing electrical system.

This ECM replaces all exit signs with incandescent lamps or compact fluorescent lamp (CFL) with new exit signs containing LED technology.

CFL Lamps

This ECM also includes replacement of all incandescent lamps to compact fluorescent lamps. The energy usage of an incandescent compared to a compact fluorescent 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.

T12 to T8 with Electronic Ballast

This ECM includes replacement of the existing fixtures containing T12 lamps and magnetic ballasts with fixtures containing T8 lamps and electronic ballasts. The new energy efficient, T8 fixtures will provide adequate lighting and will save the owner on electrical costs due to the better performance of the lamp and ballasts. This ECM will also provide 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 33% less lamps replaced per year.

Metal Halide (MH) to fluorescent lamp

The Library and Lobby utilize 50W metal halide down light fixtures for its lighting. The Multi-purpose room utilizes 400W metal halide fixtures with prismatic lenses for its lighting. Metal halide bulbs provide a reasonably efficient option for bay lighting however a few draw-backs that are common. Metal halide fixtures often have poor overall efficacy which limits the amount of light actually leaving the fixture. Also metal halide bulbs require a significant warm-up period and even longer cool down period eliminating the potential for occupancy sensors frequent

switching. This symptom encourages the gymnasium lighting to be left on continuously during the day. Another drawback is the reduced lumen output (Lumen Maintenance) of the metal halide bulb over its life time. Average bulb output or "mean lumens," is approximately 25% less than the bulb's initial lumens for typical metal halide lamps. In addition the most rapid rate of light output decline is during the beginning of its life, approximately 15-20% light loss within the first 20% of its rated life. It is important to note that the light loss has no savings in energy used; therefore the overall light efficiency is continuously decreasing with age. The final drawback is the light quality or Color Rendering Index (CRI). Typical values for metal halide bulbs is 65, which is a measure of how close the light is to true "full spectrum" light produced by sunlight or incandescent lighting. Metal halide bulbs also show noticeable color shifting when the bulb is reaching the end of its life.

Utilizing fluorescent fixtures in low and high bay spaces is a superior option over metal halide fixtures in all areas described above. Although metal halide fixtures provide light very efficiently at the start of the bulb life, the average efficiency over the life is below that of fluorescent fixtures.

This ECM includes replacement of each of the existing Library and Lobby metal halide down lamps with compact fluorescent lamps (CFL) and the Multi-purpose room high bay metal halide light fixtures with T5HO fixtures with reflective lenses. The replacement for the metal halide down light fixture lamps includes a one for one lamp replacement. The retrofit for the metal halide high bay fixtures includes a one for one fixture replacement. The fluorescent fixtures selected will provide equivalent light compared to the average light output of the existing metal halide fixtures. The bulb replacement cost for the CFL and the T-5 HO lamps compared to the existing metal halide lamps were found to be approximately equal and therefore not included in the savings calculations.

Energy Savings Calculations:

The **Investment Grade Lighting Audit Appendix E-1** outlines the proposed retrofits, costs, savings, and payback periods. An example calculation for LED Exit sign savings and summary of results by replacement type is listed below:

<u>LED Exit sign</u>
(16 watts-2 watts) x 1 kW/1000 watts x 8760 hrs/yr x 27 fixtures = 3,311.3 kWh/yr. saved

3,311.3 kWh/yr x $0.153/kWh = $507 / yr. saved

SUMMARY	Total Cost	kW Savings	kWh/Yr Savings	Yearly $ Savings	Yearly Simple Payback
LED Exit Signs	$1,755	0.4	3,311	$507	3.46
CFL Lamps	$156	0.6	1,341	$205	0.76
T12 to T8 and EB	$480	0.1	370	$57	8.49
MH TO CFL	$900	0.8	2,059	$315	2.86
MH to T5HO	$3,600	3.4	8,931	$1,366	2.63
ECM #6 TOTAL	$6,891	5.3	16,012	$2,450	2.81

Yearly Simple Payback without incentives or maintenance savings.

NJ Smart Start® Program Incentive Calculations:

From the **Smart Start Incentive Appendix**, the following incentives are warranted:

For the LED Exit Sign: $20/LED Exit sign (≤75kW facility connected load) and $10/LED Exit sign (≥75kW facility connected load).
Smart Start ® Incentive = (# of LED Exit fixtures x $10 per fixture)
Smart Start ® Incentive = 27 fixtures x $10 per fixture = $270.

For CFL lamps (no reflector) there is no eligible Smart Start ® Incentive.

For replacement of T12 with T8 with electronic ballast is $10 per fixture.
Smart Start ® Incentive = (# of T8w/EB fixtures x $10 per fixture)
Smart Start ® Incentive = 6 fixtures x $10 per fixture = $60.

For replacement Metal Halide to CFL there is no eligible Smart Start ® Incentive.

For replacement of HID (400-999W) with new T-5 or T-8 fixtures = $100/Fixture

$$\text{Smart Start® Incentive} = (\#\ \text{of 400W Metal Halide Fixture Replaced} \times \$100)$$

$$\text{Smart Start® Incentive} = (15 \times \$100) = \$1{,}500$$

Total Incentive:

$$\text{Total Smart Start® } \textit{Incentive} = \$270 + \$0 + \$60 + \$0 + \$1{,}500 = \underline{\$1{,}830}$$

Replacement and Maintenance Calculations:
LED Exit Signs
Maintenance savings = 27 fixtures x 2 bulbs/fixture x ($3/bulb + $4/bulb installation) = $378/yr

There is no other significant replacement or maintenance savings generated with this ECM.

Energy Savings Summary:

ECM #6 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$6,891
NJ Smart Start Equipment Incentive ($):	$1,830
Net Installation Cost ($):	$5,061
Maintenance Savings ($/Yr):	$378
Energy Savings ($/Yr):	$2,450
Total Yearly Savings ($/Yr):	$2,828
Estimated ECM Lifetime (Yr):	15
Simple Payback	1.8
Simple Lifetime ROI	738.2%
Simple Lifetime Maintenance Savings	$5,670
Simple Lifetime Savings	$42,420
Internal Rate of Return (IRR)	56%
Net Present Value (NPV)	$28,699.48

ECM #7: LIGHTING UPGRADE – De-lamping

Description:

The lighting in the facility is primarily made up of fluorescent fixtures with T-8 lamps and electronic ballasts; and some remaining Metal Halide lamps. These metal halide lamps consume a large amount of power while on and can be replaced with a much more energy efficient fixture. Refer to ECM #6 for the metal halide upgrade.

There are several locations in the B. Bernice Young Elementary School that have efficient T8 fluorescent lighting with electronic ballasts. The lighting provided for these areas are in excess of normal lighting levels. Therefore, this ECM will de-lamp the fixtures in the over lit areas. There is no ballast change required and the removal of only 1 lamp will save a substantial amount of energy.

Energy Savings Calculations:

The detailed **Investment Grade Lighting Audit Appendix** outlines the proposed retrofits, costs, savings, and payback periods.

Energy Savings Summary:

Interior Spaces

The lighting throughout the B. Bernice Young Elementary School building is provided with modern fixtures with T8 lamps and electronic ballasts. There are several spaces where lighting is excessive and should be de-lamped. The over lit spaces are: Connecting Corridor F, Faculty Lounge, Corridor F, and SGI.

Rebates and Incentives:

NJ Smart Start® Program Incentives are calculated as follows:

From the **Smart Start Incentive Appendix**, the following incentives are warranted:

De-lamping without changing the ballast does not qualify for an incentive.

There is no significant replacement and Maintenance Savings generated by this replacement.

SUMMARY	Total Cost	kW Savings	kWh/Yr Savings	Yearly $ Savings	Yearly Simple Payback
Remove 1 Lamp - No Ballast Change Required	$1,408	1.15	4,809.6	$735.87	1.91

Energy Savings Summary:

ECM #7 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$1,408
NJ Smart Start Equipment Incentive ($):	$0
Net Installation Cost ($):	$1,408
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$736
Total Yearly Savings ($/Yr):	$736
Estimated ECM Lifetime (Yr):	15
Simple Payback	1.9
Simple Lifetime ROI	684.0%
Simple Lifetime Maintenance Savings	0
Simple Lifetime Savings	$11,038
Internal Rate of Return (IRR)	52%
Net Present Value (NPV)	$7,376.77

ECM #8: Lighting Controls Upgrade

Description:

Some of the lights in the B. Bernice Young Elementary School building are 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 or on 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.

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% - 28% energy savings.

Savings resulting from the implementation of this ECM for energy management controls are estimated to be 10% of the total light energy controlled by occupancy sensors and daylight sensors (The majority of the savings is expected to be after school hours when rooms are left with lights on)

This ECM includes installation of ceiling type sensors for individual offices, classrooms, large bathrooms, and libraries. Sensors shall be manufactured by Sensorswitch, Watt Stopper or equivalent. The **Investment Grade Lighting Audit Appendix** of this report includes the summary of lighting controls implemented in this ECM and outlines the proposed controls, costs, savings, and payback periods. The calculations adjust the lighting power usage by the applicable percent savings for each area that includes lighting controls.

Energy Savings Calculations:

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

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

Cost and Incentives:

Installation cost per dual-technology sensors (Basis: Sensor switch or equivalent) are as follows:

Dual Technology Occupancy switch Mounted Sensor	$75 per installation
Dual Technology Occupancy Remote Mounted Sensor	$160 per installation
2 Pole Power Pack w/Dual Tech. Occupancy Sensor	$225 per installation
Daylight Sensor	$160 per installation

Cost includes material and labor.

From the **NJ Smart Start® Program Incentives Appendix**, the installation of a lighting control device warrants the following incentive:

Occupancy Sensor Wall Mounted (existing facility only) = $20 per sensor
Occupancy Sensor Remote Mounted (existing facility only) = $35 per sensor
Daylight sensor: Does not qualify for an incentive.

$$\text{Smart Start® Incentive} = (\#\ \text{of wall mount} \times \$\ 20) + (\#\ \text{of ceiling mount} \times \$35)$$
$$\text{Smart Start® Incentive} = (14\ \text{wall mount} \times \$\ 20) + (24\ \text{ceiling mount} \times \$35) = \$1{,}120$$

Energy Savings Summary:

ECM #8 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$6,450
NJ Smart Start Equipment Incentive ($):	$1,120
Net Installation Cost ($):	$5,330
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$922
Total Yearly Savings ($/Yr):	$922
Estimated ECM Lifetime (Yr):	15
Simple Payback	5.8
Simple Lifetime ROI	159.5%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$13,830
Internal Rate of Return (IRR)	15%
Net Present Value (NPV)	$5,676.78

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 Burlington Township B. Bernice Young Elementary School utilizing renewable technologies and concluded that there is potential for solar energy generation. The solar photovoltaic system calculation summary will be concluded as **REM#1** within this report.

Solar Generation

Solar energy produces clean energy and reduces a building's carbon footprint. This is accomplished via photovoltaic panels which are mounted on all south and southwestern facades of the building. Flat roof, as well as sloped areas can be utilized; flat areas will have the panels turned to an optimum solar absorbing angle. (A structural survey of the roof would be necessary before the installation of PV panels is considered). Parking lots can also be utilized for the installation of a solar array. A truss system can be installed that is high enough to park vehicles under the array and no parking lot area is lost.

The state of NJ has instituted a program in which one Solar Renewable Energy Certificate (SREC) is given to the Owner for every 1000 kWh of generation. SREC's can be sold anytime on the market at their current market value. The value of the credit varies upon the current need of the power companies. The average value per credit is around $350, this value was used in our financial calculations. This equates to $0.35 per kWh generated.

CEG has reviewed the existing roof area and site of Burlington Township B. Bernice Young Elementary School for the purposes of determining a potential for a photovoltaic system. CEG believes a ground mounted parking lot canopy system is best suited for this site. An area of 16,800 S.F. can be utilized for a PV system as depicted in the **Renewable / Distributed Energy Measures Calculation Appendix**. Using this square footage it was determined that a system size of 262.89 kilowatts could be installed. A system of this size has an estimated kilowatt hour production of 326,666 KWh annually, reducing the overall utility bill by approximately 38.6% percent. A detailed financial analysis can be found in the **Renewable / Distributed Energy Measures Calculation Appendix**. This analysis illustrates the payback of the system over a 25 year period. The eventual degradation of the solar panels and the price of accumulated SREC's are factored into the payback.

The proposed photovoltaic array layout is designed based on the specifications for the Sun Power SPR-230 panel. This panel has a "DC" rated full load output of 230 watts, and has a total panel conversion efficiency of 18%. Although panels rated at higher wattages are available through Sun Power and other various manufacturers, in general most manufacturers who produce

commercially available solar panels produce a similar panel in the 200 to 250 watt range. This provides more manufacturer options to the public entity if they wish to pursue the proposed solar recommendation without losing significant system capacity.

The array system capacity was sized on available parking lot space at the existing facility. Estimated solar array generation was then calculated based on the National Renewable Energy Laboratory PVWatts Version 1.0 Calculator. In order to calculate the array generation an appropriate location with solar data on file must be selected. In addition the system DC rated kilowatt (kW) capacity must be inputted, a DC to AC de-rate factor, panel tilt angle, and array azimuth angle. The DC to AC de-rate factor is based on the panel nameplate DC rating, inverter and transformer efficiencies (95%), mismatch factor (98%), diodes and connections (100%), dc and ac wiring(98%, 99%), soiling, (95%), system availability (95%), shading (if applicable), and age(new/100%). The overall DC to AC de-rate factor has been calculated at an overall rating of 81%. The PVWatts Calculator program then calculates estimated system generation based on average monthly solar irradiance and user provided inputs. The monthly energy generation and offset electric costs from the PVWatts calculator is shown in the **Renewable/Distributed Energy Measures Calculation Appendix**.

The proposed solar array is qualified by the New Jersey Board of Public Utilities Net Metering Guidelines as a Class I Renewable Energy Source. These guidelines allow onsite customer generation using renewable energy sources such as solar and wind with a capacity of 2 megawatts (MW) or less. This limits a customer system design capacity to being a net user and not a net generator of electricity on an annual basis. Although these guidelines state that if a customer does net generate (produce more electricity than they use), the customer will be credited those kilowatt-hours generated to be carried over for future usage on a month to month basis. Then, on an annual basis if the customer is a net generator the customer will then be compensated by the utility the average annual PJM Grid LMP price per kilowatt-hour for the over generation. Due to the aforementioned legislation, the customer is at limited risk if they generate more than they use at times throughout the year. With the inefficiency of today's energy storage systems, such as batteries, the added cost of storage systems is not warranted and was not considered in the proposed design.

Direct purchase involves the school paying for 100% of the total project cost upfront via one of the methods noted in the Installation Funding Options section below. Calculations include a utility inflation rate as well as the degradation of the solar panels over time. Based on our calculations the following is the payback period:

Table 7
Financial Summary – Photovoltaic System

FINANCIAL SUMMARY - PHOTOVOLTAIC SYSTEM			
PAYMENT TYPE	**SIMPLE PAYBACK**	**SIMPLE ROI**	**INTERNAL RATE OF RETURN**
Direct Purchase	14.4 Years	6.9%	5.4%

*The solar energy measure is shown for reference in the executive summary Renewable

Energy Measure (REM) table

Given the large amount of capital required by the school to invest in a solar system through a Direct Purchase CEG does not recommend the school pursue this route. It would be more advantageous for the school to solicit Power Purchase Agreement (PPA) Providers who will own, operate, and maintain the system for a period of 15 years. During this time the PPA Provider would sell all of the electric generated by Solar Arrays to the school at a reduced rate compared to their existing electric rate.

Wind Generation

In addition to the Solar Analysis, CEG also conducted a review of the applicability of wind energy for the facility. Wind energy production is another option available through the Renewable Energy Incentive Program. Wind turbines of various types can be utilized to produce clean energy on a per building basis. Cash incentives are available per kWh of electric usage. Based on CEG's review of the applicability of wind energy for the facility, it was determined that the average wind speed is not adequate for purchase of a commercial wind turbine. Therefore, wind energy is not a viable option to implement.

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 electricity usage profile demonstrates a both a summer cooling and winter heating load profile. Historical usage is relatively steady throughout the year with an average monthly usage of 70,480kWh and an average monthly demand of 228kW. Largest consumption months were November, December and March.

The historical usage profile is beneficial and will allow for more competitive energy prices when shopping for alternative suppliers mainly due to the relatively steady year-long load profile. Third Party Supplier (TPS) electric commodity contracts that offer's a firm, fixed price for 100% of the facilities electric requirements and are lower than the PSE&G's BGS-FP default rate are recommended.

Natural Gas:

The Natural Gas Usage Profile demonstrates a very typical natural gas (heat load) profile. The summer months have little consumption. The average winter (Nov-Mar) consumption is 8,322 therms and the average summer (Apr-Oct) consumption is 1,099 therms. The largest consumption month is December at 10,622 therms.

This load profile will yield less favorable natural gas pricing when shopping for alternative suppliers. This is because the higher winter month consumption will yield higher pricing which will not be offset by similar summer month consumption. Nymex commodity pricing is generally higher in the winter months of November – March and lower in the summer months of April – October. Obtaining a flat load profile, (usage is similar each month), will yield optimum natural gas pricing when shopping for alternative suppliers. Third Party Supplier (TPS) natural gas commodity contracts that offer product structures that include either a firm, fixed price or market based rate with basis lock in for 100% of the facilities natural gas requirements are recommended due to current low market pricing.

Tariff Analysis:

Electricity:

The facilities receive electric distribution service through Public Service Electric & Gas Company (PSE&G) on rate schedule LPLS (Large Power and Light Secondary). The facility is currently contracted with a Third Party Supplier (TPS) to provide electric commodity service. For electric supply (generation) service, the client has a choice to either use PSE&G's default service rate BGS-FP or contract with a Third Party Supplier (TPS) to supply electric.

Each year since 2002, the four New Jersey Electric Distribution Companies (EDCs) - Public Service Gas & Electric Company (PSE&G), Atlantic City Electric Company (ACE), Jersey Central Power & Light Company (JCP&L), and Rockland Electric Company (RECO) - have procured several billion dollars of electric supply to serve their Basic Generation Service (BGS) customers through a statewide auction process held in February.

BGS refers to the service of customers who are not served by a third party supplier or competitive retailer. This service is sometimes known as Standard Offer Service, Default Service, or Provider of Last Resort Service.

The Auction Process has consisted of two auctions that are held concurrently, one for larger customers on an hourly price plan (BGS-CIEP) and one for smaller commercial and residential customers on a fixed-price plan (BGS-FP). This facility's rate structure is based on the fixed-price plan (BGS-FP).

The utility, PSE&G will continue to be responsible for maintaining the existing network of wires, pipes and poles that make up the delivery system, which will serve all consumers, regardless of whom they choose to purchase their electricity or natural gas from. PSE&G's delivery service rate includes the following charges: Customer Service Charge, Distribution Charge (kWh and Demand), Societal Benefits Charge (SBC), and Securitization Transition Charge.

Natural Gas:

This facility currently receives natural gas distribution service through PSE&G on rate schedule LVG (Large Volume General Service) and has contracted a Third Party Supplier (TPS) to provide firm natural gas commodity service.

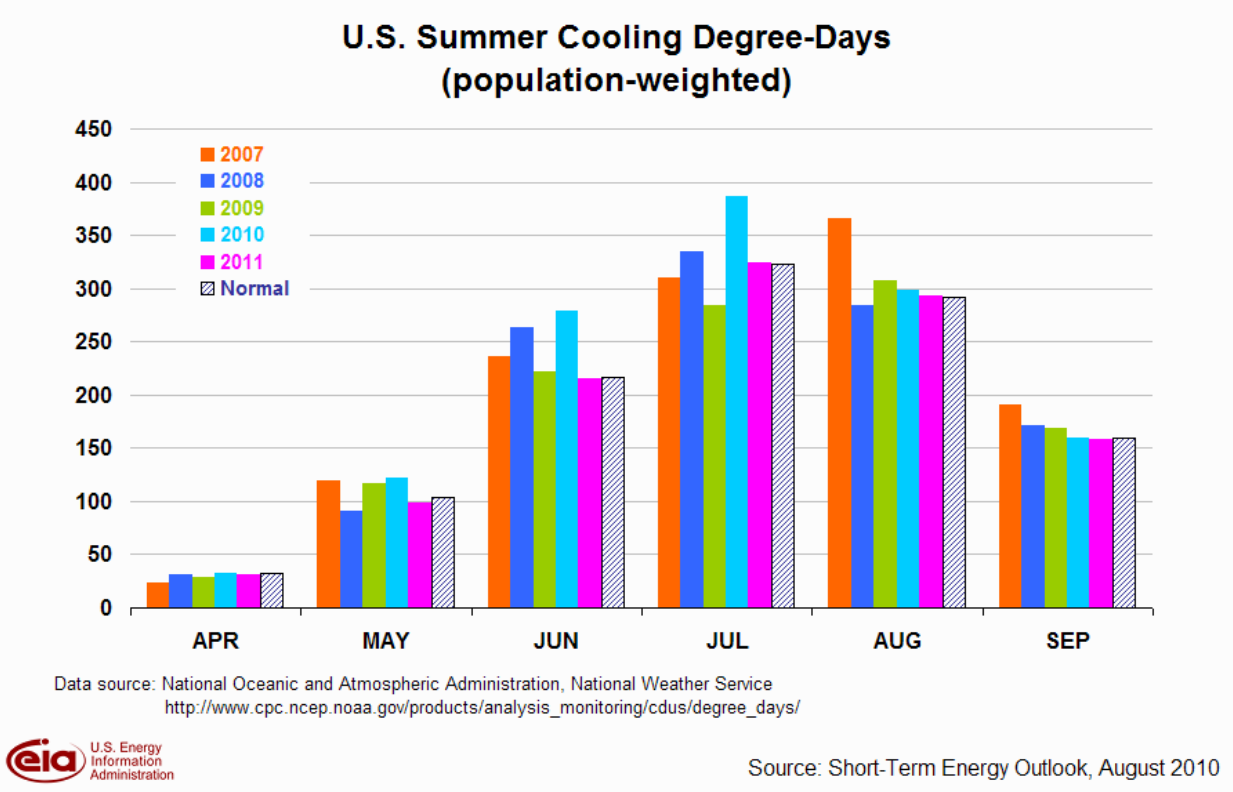
PSE&G provides basic gas supply service (BGSS) to customers who choose not to shop from a Third Party Supplier (TPS) for natural gas commodity. The option is essential to protect the reliability of service to consumers as well as protecting consumers if a third party supplier defaults or fails to provide commodity service. Please refer to the link below for a recap of natural gas BGSS charges from PSE&G for rate schedule LVG. http://www.pseg.com/companies/pseandg/schedules/pdf/commodity.pdf

The utility, PSE&G is responsible for maintaining the existing network of wires, pipes and poles that make up the delivery system, which will serve all consumers, regardless of whom they choose to purchase their electricity or natural gas from. PSE&G's delivery service rate includes the following charges: Customer Service Charge, Distribution Charge, & Societal Benefits Charge (SBC).

Electric and Natural Gas Commodities Market Overview:

Current electricity and natural gas market pricing has remained relatively stable over the last year. Commodity pricing in 2008 marked historical highs in both natural gas and electricity commodity. Commodity pricing commencing spring of 2009 continuing through 2010, has decreased dramatically over 2008 historic highs and continues to be favorable for locking in long term (2-5 year) contracts with 3rd Party Supplier's for both natural gas and electricity supply requirements.

It is important to note that both natural gas and electric commodity market prices are moved by supply and demand, political conditions, market technicals and trader sentiment. This market is continuously changing. Energy commodity pricing is also correlated to weather forecasts. Because weather forecasts are dependable only in the short-term, prolonged temperature extremes can really cause extreme price swings.



Short Term Energy Outlook - US Energy Information Administration (10/13/2010):

U.S. Natural Gas Prices. *The Henry Hub spot price averaged $3.89 per MMBtu in September, $0.43 per MMBtu lower than the average spot price in August. Prices are expected to remain below $4 per MMBtu in October but rise to $4.68 per MMBtu by January as space-heating demand increases this winter. EIA has revised its projections for natural gas prices downward through 2011. Expectations are now for a price of $4.16 per MMBtu for the last quarter of 2010, $0.27 per MMBtu (6 percent) lower than last month's Outlook, based on several weeks of strong inventory builds. Price expectations for 2011 are $4.58 per MMBtu, which is $0.18 per MMBtu (4 percent) lower than last month's forecast, primarily due to a stronger domestic production forecast.*

Uncertainty over future natural gas prices is lower this year compared with last year at this time. Natural gas futures for December 2010 delivery for the 5-day period ending October 7 averaged $4.07 per MMBtu, and the average implied volatility over the same period was 39 percent. This produced lower and upper bounds for the 95-percent confidence interval of $3.09 per MMBtu and $5.37 per MMBtu, respectively. At this time last year, the natural gas December 2009 futures contract averaged $5.59 per MMBtu and implied volatility averaged 56 percent. The corresponding lower and upper limits of the 95-percent confidence interval were $3.70 per MMBtu and $8.50 per MMBtu.

U.S. Electricity Consumption. *The summer months of 2010 were warmer than normal, especially in the regions east of the Mississippi. Cooling degree-days in the east during June, July, and August ranged from 26 percent (in the South Atlantic region) to 46 percent (in New England) higher than normal. In contrast, cooling degree-days in the East as a whole were 7 percent lower than normal during 2009. The large year-over-year increase in cooling degree-days should help push up total 2010 consumption of electricity by 5 percent over last year's level. Total consumption is expected to fall slightly in 2011 as forecast temperatures return to near-normal levels*

U.S. Electricity Retail Prices. *Although the average U.S. residential retail price of electricity fell by nearly 1 percent during the first half of 2010 compared with the same period last year, prices are expected to increase by 1.5 percent year-over-year during the second half of 2010. Higher generation fuel costs this year are expected to be passed through to retail consumers during 2011, pushing up residential prices by 1.4 percent next year.*

Recommendations:

1. CEG recommends a continued aggregated approach for 3rd party commodity supply procurement strategies for both electric and natural gas supply service. Currently most Burlington Twp BOE facilities are procuring electric & natural gas supply from a TPS. By aggregating all sites in the BOE for electricity and natural gas procurement, the BOE could continue to realize a significant reduction in energy supply costs. Energy commodities are among the most volatile of all commodities, however at this point and time, energy is extremely competitive. This

facility could realize up to a 20% reduction in energy supply costs for natural gas, if it were to aggregate usage with other schools and take advantage of these current market prices quickly, before energy increases.

The below recommendations presented by CEG are based on current information provided by the BOE for its utility usage, any savings presented with these recommendations are estimates only based on that information. It is recommended that further analysis and review of more recent utility data and any current 3rd party supply contracts be performed prior to performing any of the presented recommendations.

Overall, after review of the utility consumption, billing, and current commodity pricing outlook, CEG recommends that the Burlington Twp BOE Facilities utilize the advisement of 3rd party unbiased Energy Consulting Firm experienced in the aggregation of facilities and procurement of retail natural gas and electricity commodity. The Energy Consulting Firm should incorporate a rational, defensible strategy for purchasing commodity in volatile markets based upon the following:

- Budgets that reflect sound market intelligence
- An understanding of historical prices and trends
- Awareness of seasonal opportunities (e.g. shoulder months)
- Negotiation of fair contractual terms
- An aggressive, market based price

2. CEG recommends that the Burlington Twp BOE consider utilizing a third party utility billing-auditing service to further analyze historical utility invoices such as water, sewer, electric and natural gas for incorrect billings and rate tariff optimization services. This service could provide refunds on potential over billings experienced by the BOE.

3. CEG recommends that the Burlington Twp BOE explore Demand Response Programs that may be available in aggregate for its facilities. Demand response is the action of end users lowering their demand for electric (reducing consumption) in order to help balance supply and demand on the electric grid and ensure stability. The greatest need for demand response typically occurs during times of peak electricity demand, between the hours of 11 am and 6 pm, when extra strain is placed on the grid from situations such as increased air conditioning use on hot days or downed power lines resulting from a storm. Significant incentives are available for clients enrolled in demand response programs. It is strongly recommended that the BOE utilize an experienced 3rd party unbiased energy consulting firm prior to initiating any demand response programs. This is recommended due to the potential conflicts with existing and/or future electric supply service agreements and transparency created by the evaluation of current programs and incentives available.

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 par 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 shown 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%.

v. *Direct Install Program* – The New Jersey Clean Energy's Direct Install Program is a state funded program that targets small commercial and industrial facilities with peak demand of less than 200 kW. This turnkey program is aimed at providing owners a seamless, comprehensive process for analysis, equipment replacement and financial incentives to reduce consumption, lower utility costs and improve profitability. The program covers up to 60% of the cost for eligible upgrades including lighting, lighting controls, refrigeration, HVAC, motors, variable speed drives, natural gas and food service. Participating contractors (refer to www.njcleanenergy.com) conduct energy assessments in addition to your standard local government energy audit and install the cost-effective measures.

vi. *Energy Efficiency and Conservation Block Grants* – The EECGB rebate provides supplemental funding up to $20,000 for counties and local government entities to implement energy conservation measures. The EECGB funding is provided through the American Recovery and Reinvestment Act (ARRA). The local

government must be among the eligible local government entities listed on the NJ Clean Energy website as follows - http://njcleanenergy.com/commercial-industrial/programs/eecbg-eligible-entities. This program is limited to municipalities and counties that have not already received grants directly through the US department of Energy.

This incentive is provided in addition to the other NJ Clean Energy program funding. This program's incentive is considered the entity's capital and therefore can be applied to the LGEA program's requirements to implement the recommended energy conservation measures totaling at least 25% of the energy audit cost. Additional requirements of this program are as follows:

1. The entity must utilize additional funding through one or more of the NJ Clean Energy programs such as Smart Start, Direct Install, and Pay for Performance.

2. The EECBG funding in combination with other NJ Clean Energy programs may not exceed the total cost of the energy conservation measures being implemented.

3. Envelope measures are applicable only if recommended by the LGEA energy audit and if the energy audit was completed within the past 12 months.

4. New construction and previously installed measures are not eligible for the EECBG rebate.

5. Energy conservation measures eligible for the EECBG must fall within the list of approved energy conservation measures. The complete list of eligible measures and other program requirements are included in the "EECBG Complete Application Package." The application package is available on the NJ Clean Energy website - http://njcleanenergy.com/commercial-industrial/programs/energy-efficiency-and-conservation-block-grants.

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 are functioning properly to take advantage of free cooling and avoid excess outside air during occupied periods.

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™ 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.

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

B. Bernice Young Elementary School

ECM NO.	DESCRIPTION	INSTALLATION COST				YEARLY SAVINGS			ECM LIFETIME	LIFETIME ENERGY SAVINGS	LIFETIME MAINTENANCE SAVINGS	LIFETIME ROI	SIMPLE PAYBACK	INTERNAL RATE OF RETURN (IRR)	NET PRESENT VALUE (NPV)
		MATERIAL	LABOR	REBATES, INCENTIVES	NET INSTALLATION COST	ENERGY	MAINT. / SREC	TOTAL		(Yearly Saving * ECM Lifetime)	(Yearly Maint Svaing * ECM Lifetime)	(Lifetime Savings - Net Cost) / (Net Cost)	(Net cost / Yearly Savings)	$\sum_{n=0}^{N} \frac{C_n}{(1+IRR)^n}$	$\sum_{n=0}^{N} \frac{C_n}{(1+DR)^n}$
		($)	($)	($)	($)	($/Yr)	($/Yr)	($/Yr)	(Yr)	($)	($)	(%)	(Yr)	($)	($)
ECM #1	Split System Upgrade	$113,801	$0	$3,160	$110,641	$2,442	$0	$2,442	15	$36,630	$0	-66.9%	45.3	-11.43%	($81,488.56)
ECM #2	Water Heater Upgrade	$13,050	$0	$400	$12,650	$504	$0	$504	12	$6,048	$0	-52.2%	25.1	-9.86%	($7,633.18)
ECM #3	Install Premium Efficient Pump Motor	$7,376	$0	$240	$7,136	$106	$0	$106	10	$1,060	$0	-85.1%	67.3	-25.04%	($6,231.80)
ECM #4	Upgrade Air Compressor Motor	$2,828	$0	$120	$2,708	$29	$0	$29	15	$431	$0	-84.1%	94.3	-17.32%	($2,365.14)
ECM #5	Computer Monitor Upgrade	$900	$0	$0	$900	$138	$0	$138	15	$2,070	$0	130.0%	6.5	12.82%	$747.44
ECM #6	Lighting Upgrade - General	$6,891	$0	$1,830	$5,061	$2,450	$378	$2,828	15	$42,420	$5,670	738.2%	1.8	55.81%	$28,699.48
ECM #7	Lighting Upgrade - De-Lamping	$0	$1,408	$0	$1,408	$736	$0	$736	15	$11,038	$0	684.0%	1.9	52.17%	$7,376.77
ECM #8	Lighting Controls	$6,450	$0	$1,120	$5,330	$922	$0	$922	15	$13,830	$0	159.5%	5.8	15.24%	$5,676.78
REM RENEWABLE ENERGY AND FINANCIAL COSTS AND SAVINGS SUMMARY															
REM #1	Install Solar PV 262.89KW System	$2,366,010	$0	$0	$2,366,010	$49,980	$114,333	$164,313	25	$4,107,825	$2,858,325	73.6%	14.4	4.79%	$495,196.54

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

Concord Engineering Group, Inc.

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

SmartStart Building Incentives

The NJ SmartStart Buildings Program offers financial incentives on a wide variety of building system equipment. The incentives were developed to help offset the initial cost of energy-efficient equipment. The following tables show the current available incentives as of February, 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	$10 per fixture (1-4 lamps)
Replacement of T12 with new T-5 or T-8 Lamps w/Electronic Ballast in Existing Facilities	$25 per fixture (1-2 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%

STATEMENT OF ENERGY PERFORMANCE
Bernice Young Elementary School

Building ID: 2475300
For 12-month Period Ending: February 28, 2010[1]
Date SEP becomes ineligible: N/A
Date SEP Generated: November 05, 2010

Facility
Bernice Young Elementary School
1203 Neck Road
Burlington, NJ 08016

Facility Owner
Burlington Board of Education
700 Jacksonville Road Hopkins Building
Burlington, NJ 08016

Primary Contact for this Facility
Mary Ann Bell
700 Jacksonville Road Hopkins Building
Burlington, NJ 08016

Year Built: 1960
Gross Floor Area (ft²): 108,000

Energy Performance Rating[2] (1-100) 47

Site Energy Use Summary[3]

Electricity - Grid Purchase(kBtu)	2,616,322
Natural Gas (kBtu)[4]	4,929,942
Total Energy (kBtu)	7,546,264

Energy Intensity[5]

Site (kBtu/ft²/yr)	70
Source (kBtu/ft²/yr)	129

Emissions (based on site energy use)

Greenhouse Gas Emissions ($MtCO_2e$/year)	661

Electric Distribution Utility
Public Service Elec & Gas Co

National Average Comparison

National Average Site EUI	69
National Average Source EUI	126
% Difference from National Average Source EUI	2%
Building Type	K-12 School

Stamp of Certifying Professional

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

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

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

Certifying Professional
Michael Fischette
520 South Burnt Mill Road
Voorhees, NJ 08043

Notes:
1. Application for the ENERGY STAR must be submitted to EPA within 4 months of the Period Ending date. Award of the ENERGY STAR is not final until approval is received from EPA.
2. The EPA Energy Performance Rating is based on total source energy. A rating of 75 is the minimum to be eligible for the ENERGY STAR.
3. Values represent energy consumption, annualized to a 12-month period.
4. Natural Gas values in units of volume (e.g. cubic feet) are converted to kBtu with adjustments made for elevation based on Facility zip code.
5. Values represent energy intensity, annualized to a 12-month period.
6. Based on Meeting ASHRAE Standard 62 for ventilation for acceptable indoor air quality, ASHRAE Standard 55 for thermal comfort, and IESNA Lighting Handbook for lighting quality.

ENERGY STAR® Data Checklist for Commercial Buildings

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

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

CRITERION	VALUE AS ENTERED IN PORTFOLIO MANAGER	VERIFICATION QUESTIONS	NOTES	☑
Building Name	Bernice Young Elementary School	Is this the official building name to be displayed in the ENERGY STAR Registry of Labeled Buildings?		☐
Type	K-12 School	Is this an accurate description of the space in question?		☐
Location	1203 Neck Road, Burlington, NJ 08016	Is this address accurate and complete? Correct weather normalization requires an accurate zip code.		☐
Single Structure	Single Facility	Does this SEP represent a single structure? SEPs cannot be submitted for multiple-building campuses (with the exception of acute care or children's hospitals) nor can they be submitted as representing only a portion of a building		☐
Bernice Young Elementary School (K-12 School)				
CRITERION	**VALUE AS ENTERED IN PORTFOLIO MANAGER**	**VERIFICATION QUESTIONS**	**NOTES**	☑
Gross Floor Area	108,000 Sq. Ft.	Does this square footage include all supporting functions such as kitchens and break rooms used by staff, storage areas, administrative areas, elevators, stairwells, atria, vent shafts, etc. Also note that existing atriums should only include the base floor area that it occupies. Interstitial (plenum) space between floors should not be included in the total. Finally gross floor area is not the same as leasable space. Leasable space is a subset of gross floor area.		☐
Open Weekends?	No	Is this building normally open at all on the weekends? This includes activities beyond the work conducted by maintenance, cleaning, and security personnel. Weekend activity could include any time when the space is used for classes, performances or other school or community activities. If the building is open on the weekend as part of the standard schedule during one or more seasons, the building should select ?yes? for open weekends. The ?yes? response should apply whether the building is open for one or both of the weekend days.		☐
Number of PCs	189 (Default)	Is this the number of personal computers in the K12 School?		☐
Number of walk-in refrigeration/freezer units	0	Is this the total number of commercial walk-in type freezers and coolers? These units are typically found in storage and receiving areas.		☐
Presence of cooking facilities	Yes	Does this school have a dedicated space in which food is prepared and served to students? If the school has space in which food for students is only kept warm and/or served to students, or has only a galley that is used by teachers and staff then the answer is "no".		☐
Percent Cooled	90 %	Is this the percentage of the total floor space within the facility that is served by mechanical cooling equipment?		☐
Percent Heated	90 %	Is this the percentage of the total floor space within the facility that is served by mechanical heating equipment?		☐
Months	10(Optional)	Is this school in operation for at least 8 months of the year?		☐

High School?	No	Is this building a high school (teaching grades 10, 11, and/or 12)? If the building teaches to high school students at all, the user should check 'yes' to 'high school'. For example, if the school teaches to grades K-12 (elementary/middle and high school), the user should check 'yes' to 'high school'.		

ENERGY STAR® Data Checklist for Commercial Buildings

Energy Consumption

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

Fuel Type: Electricity

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

Start Date	End Date	Energy Use (kWh (thousand Watt-hours))
02/01/2010	02/28/2010	0.00
01/01/2010	01/31/2010	77,880.00
12/01/2009	12/31/2009	159,120.00
11/01/2009	11/30/2009	0.00
10/01/2009	10/31/2009	71,400.00
09/01/2009	09/30/2009	75,120.00
08/01/2009	08/31/2009	50,040.00
07/01/2009	07/31/2009	46,440.00
06/01/2009	06/30/2009	62,280.00
05/01/2009	05/31/2009	72,360.00
04/01/2009	04/30/2009	66,600.00
03/01/2009	03/31/2009	85,560.00
Electric Consumption (kWh (thousand Watt-hours))		**766,800.00**
Electric Consumption (kBtu (thousand Btu))		**2,616,321.60**
Total Electricity (Grid Purchase) Consumption (kBtu (thousand Btu))		**2,616,321.60**
Is this the total Electricity (Grid Purchase) consumption at this building including all Electricity meters?		☐

Fuel Type: Natural Gas

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

Start Date	End Date	Energy Use (therms)
02/01/2010	02/28/2010	9,881.51
01/01/2010	01/31/2010	9,409.37
12/01/2009	12/31/2009	10,621.69
11/01/2009	11/30/2009	4,335.62
10/01/2009	10/31/2009	2,745.31
09/01/2009	09/30/2009	341.27
08/01/2009	08/31/2009	115.99
07/01/2009	07/31/2009	61.61
06/01/2009	06/30/2009	111.41
05/01/2009	05/31/2009	763.14

04/01/2009	04/30/2009	3,551.68
03/01/2009	03/31/2009	7,360.82
Gas Consumption (therms)		**49,299.42**
Gas Consumption (kBtu (thousand Btu))		**4,929,942.00**
Total Natural Gas Consumption (kBtu (thousand Btu))		**4,929,942.00**
Is this the total Natural Gas consumption at this building including all Natural Gas meters?		☐

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

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

Certifying Professional

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

Name: _____ Date: _____

Signature: _____

Signature is required when applying for the ENERGY STAR.

FOR YOUR RECORDS ONLY. DO NOT SUBMIT TO EPA.

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

Facility
Bernice Young Elementary School
1203 Neck Road
Burlington, NJ 08016

Facility Owner
Burlington Board of Education
700 Jacksonville Road Hopkins Building
Burlington, NJ 08016

Primary Contact for this Facility
Mary Ann Bell
700 Jacksonville Road Hopkins Building
Burlington, NJ 08016

General Information

Bernice Young Elementary School	
Gross Floor Area Excluding Parking: (ft^2)	108,000
Year Built	1960
For 12-month Evaluation Period Ending Date:	February 28, 2010

Facility Space Use Summary

Bernice Young Elementary School	
Space Type	K-12 School
Gross Floor Area(ft^2)	108,000
Open Weekends?	No
Number of PCs[d]	189
Number of walk-in refrigeration/freezer units	0
Presence of cooking facilities	Yes
Percent Cooled	90
Percent Heated	90
Months[o]	10
High School?	No
School District[o]	Burlington

Energy Performance Comparison

	Evaluation Periods		Comparisons		
Performance Metrics	**Current** (Ending Date 02/28/2010)	**Baseline** (Ending Date 02/28/2010)	**Rating of 75**	**Target**	**National Average**
Energy Performance Rating	47	47	75	N/A	50
Energy Intensity					
Site (kBtu/ft^2)	70	70	54	N/A	69
Source (kBtu/ft^2)	129	129	99	N/A	126
Energy Cost					
$/year	$ 172,809.01	$ 172,809.01	$ 132,766.39	N/A	$ 169,766.86
$/$ft^2$/year	$ 1.60	$ 1.60	$ 1.23	N/A	$ 1.57
Greenhouse Gas Emissions					
$MtCO_2e$/year	661	661	508	N/A	649
$kgCO_2e/ft^2$/year	6	6	5	N/A	6

More than 50% of your building is defined as K-12 School. Please note that your rating accounts for all of the spaces listed. The National Average column presents energy performance data your building would have if your building had an average rating of 50.

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

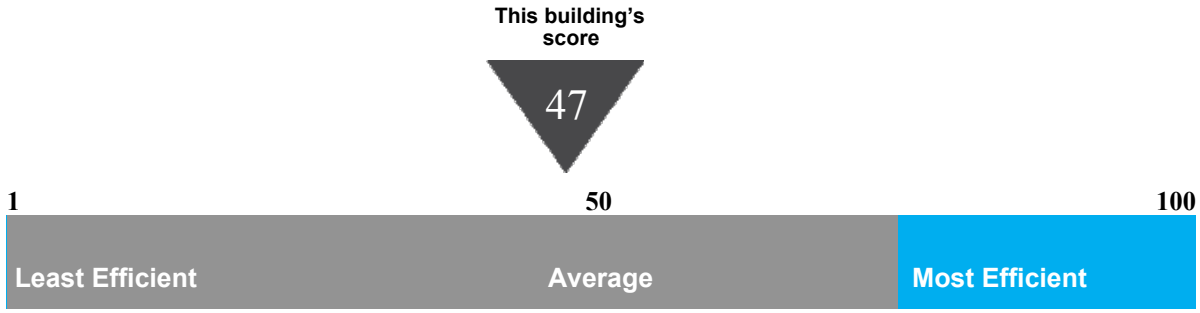
Statement of Energy Performance

2010

Bernice Young Elementary School
1203 Neck Road
Burlington, NJ 08016

Portfolio Manager Building ID: 2475300

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



This building uses 129 kBtu per square foot per year.*

*Based on source energy intensity for the 12 month period ending February 2010

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

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

Date of certification

EPA United States Environmental Protection Agency

Date Generated: 11/05/2010

MAJOR EQUIPMENT LIST

Concord Engineering Group

B. Bernice Young Elementary School

Rooftop / AC Units

Tag	AC-8	AC-7	AC-6
Unit Type	SPLIT SYSTEM COND. UNIT	SPLIT SYSTEM COND. UNIT	SPLIT SYSTEM COND. UNIT
Qty	1	1	1
Location	ROOF	ROOF	ROOF
Area Served	Exterior Admin.	Interior Admin.	Nurse, E-Wing
Manufacturer	AFF INTER-CITY PRODUCTS CORP	AFF INTER-CITY PRODUCTS CORP	INTER-CITY PRODUCTS CORP
Model #	AD060FD	AD060FD	AD036FD
Serial #	L934974452	L934974539	L934163456
Cooling Type	DX, R-22	DX, R-22	DX, R-22
Cooling Capacity (Tons)	5	5	3
Cooling Efficiency (SEER/EER)	8.9	8.9	9.7
Heating Type	HW	HW	HW
Heating Input (MBH)	59	40	17.9
Efficiency	-	-	-
Fuel	-	-	
Approx Age	1993	1993	1993
ASHRAE Service Life	15	15	15
Remaining Life	(2)	(2)	(2)
Comments	-	-	-

Rooftop / AC Units

Tag	AC-5	AC-4	AC-3
Unit Type	SPLIT SYSTEM COND. UNIT	SPLIT SYSTEM COND. UNIT	SPLIT SYSTEM COND. UNIT
Qty	1	1	1
Location	ROOF	ROOF	ROOF
Area Served	Media Center	Comp Rm	Comp Rm
Manufacturer	INTER-CITY PRODUCTS CORP	INTER-CITY PRODUCTS CORP	INTER-CITY PRODUCTS CORP
Model #	C100G1	AD048FD	AD0486FD
Serial #	B924616825	L940246218	L940246221
Cooling Type	DX, R-22	DX, R-22	DX, R-22
Cooling Capacity (Tons)	8.5	4	4
Cooling Efficiency (SEER/EER)	9.5	9.1	9.1
Heating Type	HW	HW	HW
Heating Input (MBH)	71.9	37.3	34.3
Efficiency	-	-	-
Fuel	-	-	-
Approx Age	1993	1994	1994
ASHRAE Service Life	15	15	15
Remaining Life	(2)	(1)	(1)
Comments	-	-	-

Rooftop / AC Units

Tag	AC-1	AC-2	AC-
Unit Type	SPLIT SYSTEM COND. UNIT	SPLIT SYSTEM COND. UNIT	SPLIT SYSTEM COND. UNIT
Qty	1	1	8
Location	ROOF	ROOF	ROOF
Area Served	Wing E Multi Purpose / AHU-1	Wing E Multi Purpose / AHU-2	WING B
Manufacturer	SNYDER GENERAL	SNYDER GENERAL	TRANE
Model #	ALPO27C	ALPO27C	4TTA30
Serial #	5ZB8502401	5ZB8502501	10274A5T2F
Cooling Type	DX, R-22	DX, R-22	DX, R-410A
Cooling Capacity (Tons)	26.2	26.2	2.5
Cooling Efficiency (SEER/EER)	10.7	10.7	13
Heating Type	HW	HW	-
Heating Input (MBH)	485.8	485.8	-
Efficiency	-	-	-
Fuel	-	-	-
Approx Age	1993	1994	2010
ASHRAE Service Life	15	15	15
Remaining Life	(2)	(1)	15
Comments	25 HP COMP.	-	200/230V-3-60

Rooftop / AC Units

Tag	CU	RTU-1	RTU-2
Unit Type	SPLIT SYSTEM COND. UNIT	ROOF TOP UNIT	ROOF TOP UNIT
Qty	1	1	1
Location	ROOF	ROOF	ROOF
Area Served	REFRIGERATOR	Cafeteria	Kitchen
Manufacturer	BOHN / HEATCRAFT	AAON	AAON
Model #	BHC3012	RM-020-3-0-AA12-EJL	RM-008-8-0-0000-EJL
Serial #	79438652	200809-AMWP03263	200808-AMWH03262
Cooling Type	DX, R-22	DX, R-22	DX, R-22
Cooling Capacity (Tons)	2.5	19.8	N?A
Cooling Efficiency (SEER/EER)	9.6	11.5	-
Heating Type	-	HW, 2 Row	HW, 2 Row
Heating Input (MBH)	-	277.23	177.94
Efficiency	-	-	-
Fuel	-	-	-
Approx Age	1994	2008	2008
ASHRAE Service Life	15	15	15
Remaining Life	(1)	13	13
Comments	-	460-3-60, Phenolic Coated, 2-stage, Mod. Econo w/ enthalpy Limit	208-3-60

Rooftop / AC Units

Tag	AC-	AC-	-
Unit Type	SPLIT SYSTEM CONDENSING UNIT	SPLIT SYSTEM CONDENSING UNIT	-
Qty	1	1	-
Location	GRADE	GRADE	-
Area Served	-	IT & HVAC Controls	-
Manufacturer	LENNOX	AIREDALE	-
Model #	HS27-030-6P	SCC09DMA0A0AA0A	-
Serial #	5805D05943	1-04-H-8183-39	-
Cooling Type	DX, R-22	DX, R-22	-
Cooling Capacity (Tons)	2.5	0.75	-
Cooling Efficiency (SEER/EER)	10.1	10	-
Heating Type	-	DX	-
Heating Input (MBH)	-	6800	-
Efficiency	-	3.1 COP /7.1 HSPF	-
Fuel	208/230-1-60	-	-
Approx Age	2005	2004	-
ASHRAE Service Life	15	15	-
Remaining Life	10	9	-
Comments	-	-	-

Rooftop / AC Units

Tag	EF	-	-
Unit Type	UPBLAST EXHAUST FAN	HOOD	-
Qty	1	1	-
Location	ROOF	KITCHEN	-
Area Served	KITCHEN HOOD	COOKING	-
Manufacturer	PENNBARRY	HALTON	-
Model #	FX138HFT	CM-B	-
Serial #	G07AD03377	U08-210, VMUS	-
Cooling Type	-	-	-
Cooling Capacity (Tons)	-	-	-
Cooling Efficiency (SEER/EER)	-	-	-
Heating Type	-	-	-
Heating Input (MBH)	-	-	-
Efficiency	-	-	-
Fuel	-	-	-
Approx Age	2007	2008	-
ASHRAE Service Life	25	30	-
Remaining Life	22	28	-
Comments	460V-3-60, 1HP, 1725 RPM	150 CFM/FT MIN, 1400 MAX LAMP WATTAGE	-

AIR COMPRESSOR

Tag	-	-	-
Unit Type	AIR COMPRESOR	-	-
Qty	1	-	-
Location	MECHANICAL ROOM	-	-
Area Served	HVAC CONTROLS	-	-
Manufacturer	-	-	-
Model #	8DN8ED	-	-
Serial #	2CX66-80	-	-
Horse Power	3	-	-
Flow	-	-	-
Motor Info	BALDOR M3211T	-	-
Electrical Power	208-230/460	-	-
RPM	1725	-	-
Motor Efficiency %	84	-	-
Approx Age	16	-	-
ASHRAE Service Life	15	-	-
Remaining Life	(1)	-	-
Comments	182T FRAME, MTOR S/N F294	-	-

MAJOR EQUIPMENT LIST

Concord Engineering Group

B. Bernice Young Elementary School

Boilers

Tag	B-2	B-2	-
Unit Type	WATER BOILER	BURNER	-
Qty	1	1	-
Location	Wing E - MECHANICAL RM.	Wing E - MECHANICAL RM.	-
Area Served	HW HEATING	B-2	-
Manufacturer	H.B. SMITH	POWER FLAME	-
Model #	28A-10	C2-G-20BHBS-10	-
Serial #	N94-124	29465529	-
Input Capacity (MBH)	3172 MBH / 22.0 GPH	3200 MBH	-
Rated Output Capacity (MBH)	2498	2498	-
Approx. Efficiency %	78.7	78	-
Fuel	NAT GAS / OIL	NAT GAS / OIL	-
Approx Age	1994	1994	-
ASHRAE Service Life	35	35	-
Remaining Life	19	19	-
Comments	94-6050-H, POWER FLAME	94-6050-H, POWER FLAME	-

Boilers

Tag	B-3	B-3	-
Unit Type	WATER BOILER	BURNER	-
Qty	1	1	-
Location	Wing E - MECHANICAL RM.	Wing E - MECHANICAL RM.	-
Area Served	HW HEATING	B-3	-
Manufacturer	H.B. SMITH	POWER FLAME	-
Model #	28A-10	C2-G-20BHBS-10	-
Serial #	N94-123	29465524	-
Input Capacity (MBH)	3172 MBH / 22.0 GPH	3200 MBH	-
Rated Output Capacity (MBH)	2498	2498	-
Approx. Efficiency %	78.7	78	-
Fuel	NAT GAS / OIL	NAT GAS / OIL	-
Approx Age	1994	1994	-
ASHRAE Service Life	35	35	-
Remaining Life	19	19	-
Comments	94-6051-H, POWER FLAME	94-6050-H, POWER FLAME	-

Boilers

Tag	-	-	-
Unit Type	Condensing Boiler	Condensing Boiler	-
Qty	1	1	-
Location	Wing A - Mechanical Room	Wing A - Mechanical Room	-
Area Served	Heating System	Heating System	-
Manufacturer	Aerco	Aerco	-
Model #	BMK2.0	BMK2.0	-
Serial #	NJ092885-07H, NB42810, AERCO G-05-0734	NJ092884-07H, NB42811, AERCO G-05-0735	-
Input Capacity (MBH)	2,000	2,000	-
Rated Output Capacity (MBH)	1,720	1,720	-
Approx. Efficiency %	87%	87%	-
Fuel	Natural Gas	Natural Gas	-
Approx Age	2010	2010	-
ASHRAE Service Life	30	30	-
Remaining Life	30	30	-
Comments	-	-	-

MAJOR EQUIPMENT LIST

Concord Engineering Group

B. Bernice Young Elementary School

Domestic Water Heaters

Tag	WH-1	-	-
Unit Type	Domestic Water Heater	Domestic Water Heater	Domestic Water Heater
Qty	1	1	1
Location	MECHANICAL ROOM	MECHANICAL ROOM	Equipment Room Wing E
Area Served	DOMESTIC HOT WATER	DOMESTIC HOT WATER	DOMESTIC HOT WATER
Manufacturer	AO SMITH	AERCO	Bradford White
Model #	BT 200 840	KC	50T-65FB-3N
Serial #	MD93-0266173-840	-	-
Size (Gallons)	96	23	48
Input Capacity (MBH/KW)	199.0 MBH	1,000.0	65 MBH
Recovery (Gal/Hr)	180.9 GPH AT 100°F	1116 GPH AT 100°F RISE	63 GPH AT 100°F RISE
Efficiency %		93%	79%
Fuel	NATURAL GAS	NATURAL GAS	NATURAL GAS
Approx Age	17		5
ASHRAE Service Life	12	30	12
Remaining Life	(5)	30	7
Comments	GRAVITY VENT	-	Atmospheric Vent

MAJOR EQUIPMENT LIST

Concord Engineering Group

B. Bernice Young Elementary School

Pumps

Tag	HWP-1 & 2	P-1, 2	P-3, 4
Unit Type	CENTRIFUGAL	IN-LINE	IN-LINE
Qty	2	2	2
Location	MECHANICAL ROOM A-Wing	MECHANICAL ROOM E-Wing	MECHANICAL ROOM E-Wing
Area Served	HW LOOP	HW LOOP	BOILER CIRC.
Manufacturer	PENTAIR AURORA PUMP	AMTROL	AMTROL
Model #	05-00029532-1 3x4x11 L	3x3x9 TV28	3x3x7 TV28
Serial #	-	-	-
Horse Power	20	5	2
Flow	350 GPM @ 111 FT HD	150 GPM @ 78 FT. HD.	250 GPM @10 FT. HD.
Motor Info	CAT NO. E407, 7-850024-01-0J, S256T	-	-
Electrical Power	460-3-60	-	-
RPM	1750	1750	1750
Motor Efficiency %	93.6%	87.5%	84%
Approx Age	2005	1993	1993
ASHRAE Service Life	20	10	10
Remaining Life	15	(7)	(7)
Comments	MOTOR S/N BZ12, VFD	Per Drawing H-4	-

Investment Grade Lighting Audit

CEG Job #: 9C10054
Project: Burlington Township Schools — **B. Bernice Young Elementary School** — **KWH COST:** $0.153
Address: 1203 Neck Road
Burlington, NJ 08016
Bldg. Sq. Ft. 108,000

ECM #6: Lighting Upgrade - General and ECM#7: De Lamping

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	Total Cost	kW Savings	kWh/Yr Savings	Yearly $ Savings	Yearly Simple Payback
222.21	A2 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.70	1,809.6	$276.87	12	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	A4 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.70	1,809.6	$276.87	12	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	A1 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.70	1,809.6	$276.87	12	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	A3 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.70	1,809.6	$276.87	12	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	A6 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.70	1,809.6	$276.87	12	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	A5 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.70	1,809.6	$276.87	12	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	A8 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt.,	58	0.70	1,809.6	$276.87	12	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	A7 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.70	1,809.6	$276.87	12	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	A10 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.70	1,809.6	$276.87	12	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	A9 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.70	1,809.6	$276.87	12	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	Women's Restroom	1200	4	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.23	278.4	$42.60	4	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	Men's Restroom	1200	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.17	208.8	$31.95	3	0	No Change	$0.00	0.00	0	$0.00	0.00
221.16	Custodian Closet	1200	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Acrylic Lens	58	0.12	139.2	$21.30	2	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	A11 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.70	1,809.6	$276.87	12	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	Corridor A	4400	25	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.45	6,380.0	$976.14	25	0	No Change	$0.00	0.00	0	$0.00	0.00
601		8760	3	2	(2) 7w CFL Exit Sign	16	0.05	420.5	$64.33	3	1	LED Exit Sign	$195.00	0.04	367.92	$56.29	3.46
242.21	A12 Faculty	2600	7	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.73	1,892.8	$289.60	7	0	No Change	$0.00	0.00	0	$0.00	0.00
610	Faculty Restroom	1200	1	4	Wall Mnt. "Vanity" Light, (4) 60w A19 Lamps	240	0.24	288.0	$44.06	1	4	13w CFL Lamps	$36.00	0.21	256.8	$39.29	0.92

Investment Grade Lighting Audit

242.21	Cafeteria	2600	28	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	2.91	7,571.2	$1,158.39	28	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	A13 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.70	1,809.6	$276.87	12	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	A15 SGI	2600	4	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.23	603.2	$92.29	4	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	A17 SGI	2600	4	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.23	603.2	$92.29	4	0	No Change	$0.00	0.00	0	$0.00	0.00
227.21		2600	1	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.06	150.8	$23.07	1	0	No Change	$0.00	0.00	0	$0.00	0.00
211.11	Boiler Room	4400	6	1	1x4, 1 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	30	0.18	792.0	$121.18	6	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	A19 Classroom	2600	10	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.04	2,704.0	$413.71	10	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	A14 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.70	1,809.6	$276.87	12	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	Custodian Closet	4400	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.12	510.4	$78.09	2	0	No Change	$0.00	0.00	0	$0.00	0.00
221.11	Kitchen	2600	8	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.46	1,206.4	$184.58	8	0	No Change	$0.00	0.00	0	$0.00	0.00
617		2600	4	1	Hood Light w/Globe & Cage, 100w A19 Lamp	100	0.40	1,040.0	$159.12	4	1	(1) 26w CFL Lamp	$80.00	0.30	769.6	$117.75	0.68
242.21		2600	9	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.94	2,433.6	$372.34	9	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	Kitchen Office	2600	1	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.10	270.4	$41.37	1	0	No Change	$0.00	0.00	0	$0.00	0.00
611	Kitchen Restroom	2600	1	1	Wall Mnt. "Vanity" Light, (1) 60w A19 Lamps	60	0.06	156.0	$23.87	1	1	Energy Star Rated, 13w CFL Lamp	$20.00	0.05	122.2	$18.70	1.07
552	Kitchen Restroom	2600	1	1	1x1 Recessed Down Light, Dropped Opal Lens, (1) 100w A19 Lamp	100	0.10	260.0	$39.78	1	1	(1) 26w CFL Lamp	$20.00	0.07	192.4	$29.44	0.68
222.21	Corridor B	4400	14	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.81	3,572.8	$546.64	14	0	No Change	$0.00	0.00	0	$0.00	0.00
601		8760	3	2	(2) 7w CFL Exit Sign	16	0.05	420.5	$64.33	3	1	LED Exit Sign	$195.00	0.04	367.92	$56.29	3.46
242.21	B1 Classroom	2600	9	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.94	2,433.6	$372.34	9	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	B2 Classroom	2600	11	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.14	2,974.4	$455.08	11	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	B2 Restroom in Classroom	2600	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.06	150.8	$23.07	1	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	Boys' Restroom	3200	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.12	371.2	$56.79	2	0	No Change	$0.00	0.00	0	$0.00	0.00

Investment Grade Lighting Audit

222.21	Girls' Restroom	3200	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.12	371.2	$56.79	2	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	Custodian Closet	1200	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.06	69.6	$10.65	1	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	B4 Classroom	2600	11	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.14	2,974.4	$455.08	11	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	B4 Restroom in Classroom	2600	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.06	150.8	$23.07	1	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	Prep Room	2600	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.17	452.4	$69.22	3	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	B3 Classroom	2600	9	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.94	2,433.6	$372.34	9	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	B5 Classroom	2600	11	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.14	2,974.4	$455.08	11	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	B5 Restroom in Classroom	2600	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.06	150.8	$23.07	1	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	B6 Classroom	2600	11	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.14	2,974.4	$455.08	11	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	B6 Restroom in Classroom	2600	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.06	150.8	$23.07	1	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	B8 Classroom	2600	11	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.14	2,974.4	$455.08	11	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	B8 Restroom in Classroom	2600	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.06	150.8	$23.07	1	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	B7 Classroom	2600	11	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.14	2,974.4	$455.08	11	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	B7 Restroom in Classroom	2600	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.06	150.8	$23.07	1	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	B5 - B7 Prep Room	2600	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.17	452.4	$69.22	3	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	B6-B8 Prep Room	2600	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.17	452.4	$69.22	3	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	C1 Classroom	2600	11	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.14	2,974.4	$455.08	11	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	C1 Restroom in Classroom	2600	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.06	150.8	$23.07	1	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	C1 Closet	2600	2	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.21	540.8	$82.74	2	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	Corridor C	4400	16	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.93	4,083.2	$624.73	16	0	No Change	$0.00	0.00	0	$0.00	0.00
601		8760	3	2	(2) 7w CFL Exit Sign	16	0.05	420.5	$64.33	3	1	LED Exit Sign	$195.00	0.04	367.92	$56.29	3.46

Investment Grade Lighting Audit

242.21	C2 Classroom	2600	11	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.14	2,974.4	$455.08	11	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	C2 Restroom in Classroom	2600	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.06	150.8	$23.07	1	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	C3 Classroom	2600	11	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.14	2,974.4	$455.08	11	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	C3 Restroom in Classroom	2600	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.06	150.8	$23.07	1	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	C2-C3 Prep Room	2600	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.17	452.4	$69.22	3	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	C4 Classroom	2600	11	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.14	2,974.4	$455.08	11	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	C4 Restroom in Classroom	2600	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.06	150.8	$23.07	1	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	C5 Classroom	2600	11	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.14	2,974.4	$455.08	11	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	C5 Restroom in Classroom	2600	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.06	150.8	$23.07	1	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	C4-C5 Prep Room	2600	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.17	452.4	$69.22	3	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	Corridor D	4400	20	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.16	5,104.0	$780.91	20	0	No Change	$0.00	0.00	0	$0.00	0.00
601		8760	3	2	(2) 7w CFL Exit Sign	16	0.05	420.5	$64.33	3	1	LED Exit Sign	$195.00	0.04	367.92	$56.29	3.46
222.21	D12 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.70	1,809.6	$276.87	12	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	D10 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.70	1,809.6	$276.87	12	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	D8 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.70	1,809.6	$276.87	12	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	D6 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.70	1,809.6	$276.87	12	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	D4 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.70	1,809.6	$276.87	12	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	D2 Classroom	2600	8	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.83	2,163.2	$330.97	8	0	No Change	$0.00	0.00	0	$0.00	0.00
221.11	Custodian Closet	1200	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.12	139.2	$21.30	2	0	No Change	$0.00	0.00	0	$0.00	0.00
221.11	Boys' Restroom	3200	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.23	742.4	$113.59	4	0	No Change	$0.00	0.00	0	$0.00	0.00
221.11	Girls' Restroom	3200	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.23	742.4	$113.59	4	0	No Change	$0.00	0.00	0	$0.00	0.00

Investment Grade Lighting Audit

200	Custodian Closet	1200	2	1	1x2, 1 Lamp, 17w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	18	0.04	43.2	$6.61	2	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	D1 Classroom	2600	12	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.25	3,244.8	$496.45	12	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	D3 Classroom	2600	9	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.94	2,433.6	$372.34	9	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	D5 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.70	1,809.6	$276.87	12	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	D7 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.70	1,809.6	$276.87	12	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	D9 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.70	1,809.6	$276.87	12	0	No Change	$0.00	0.00	0	$0.00	0.00
242.211	Connecting Corridor F	4400	12	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.25	5,491.2	$840.15	12	3	Remove 1 Lamp - No Ballast Change Required	$264.00	0.22	950.4	$145.41	1.82
242.211	Faculty Lounge	2600	4	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.42	1,081.6	$165.48	4	3	Remove 1 Lamp - No Ballast Change Required	$88.00	0.07	187.2	$28.64	3.07
242.21	Work Room	2600	1	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.10	270.4	$41.37	1	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	F1 Classroom	2600	13	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.35	3,515.2	$537.83	13	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	F2 Classroom	2600	13	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.35	3,515.2	$537.83	13	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	F3 Classroom	2600	13	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.35	3,515.2	$537.83	13	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	F4 Classroom	2600	13	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.35	3,515.2	$537.83	13	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	F5 Classroom	2600	13	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.35	3,515.2	$537.83	13	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	F6 Classroom	2600	13	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.35	3,515.2	$537.83	13	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	F5-F6 Prep Room	2600	2	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.21	540.8	$82.74	2	0	No Change	$0.00	0.00	0	$0.00	0.00
232.31	Electric Room	2600	2	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.17	447.2	$68.42	2	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	Vice Principal's Office	2600	4	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.42	1,081.6	$165.48	4	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	F7 Classroom	2600	9	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.94	2,433.6	$372.34	9	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	F8 Classroom	2600	9	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.94	2,433.6	$372.34	9	0	No Change	$0.00	0.00	0	$0.00	0.00

Investment Grade Lighting Audit

242.21	F9 Classroom	2600	9	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.94	2,433.6	$372.34	9	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	F10 Classroom	2600	9	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.94	2,433.6	$372.34	9	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	F11 Classroom	2600	9	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.94	2,433.6	$372.34	9	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	F12 Classroom	2600	9	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.94	2,433.6	$372.34	9	0	No Change	$0.00	0.00	0	$0.00	0.00
242	Boys' Restroom	3200	2	4	1x4, 4 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	104	0.21	665.6	$101.84	2	0	No Change	$0.00	0.00	0	$0.00	0.00
231.31	Electric Room	2600	2	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	58	0.12	301.6	$46.14	2	0	No Change	$0.00	0.00	0	$0.00	0.00
100	F Corridor Display Case	4400	6	1	3' Channel, 1-Lamp, 30w T12, Mag. Ballast, Surface Mnt., No Lens	32	0.19	844.8	$129.25	6	1	1 Lamp, 17w T8, Elect. Ballast; fixture	$480.00	0.08	369.6	$56.55	8.49
242.21	F13 Classroom	2600	9	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.94	2,433.6	$372.34	9	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	F14 Classroom	2600	9	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.94	2,433.6	$372.34	9	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	F15 Classroom	2600	9	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.94	2,433.6	$372.34	9	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	F16 Classroom	2600	9	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.94	2,433.6	$372.34	9	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	F17 Classroom	2600	9	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.94	2,433.6	$372.34	9	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	F18 Classroom	2600	9	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.94	2,433.6	$372.34	9	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	Restroom	2600	1	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.10	270.4	$41.37	1	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	Girls' Restroom	3200	3	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.31	998.4	$152.76	3	0	No Change	$0.00	0.00	0	$0.00	0.00
211.47	Center Corridor F	4400	3	1	1x4, 1 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Indirect	30	0.09	396.0	$60.59	3	0	No Change	$0.00	0.00	0	$0.00	0.00
34		4400	10	1	Recessed Down Light, 26w Quad Lamp	26	0.26	1,144.0	$175.03	10	0	No Change	$0.00	0.00	0	$0.00	0.00
242.211	Corridor F	4400	44	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	4.58	20,134.4	$3,080.56	44	3	Remove 1 Lamp - No Ballast Change Required	$968.00	0.79	3484.8	$533.17	1.82
242.21	E9 Classroom	2600	15	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.56	4,056.0	$620.57	15	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	E9 Closet in Classroom	2600	4	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.23	603.2	$92.29	4	0	No Change	$0.00	0.00	0	$0.00	0.00

Investment Grade Lighting Audit

222.21	Custodian Closet	1200	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.06	69.6	$10.65	1	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	Restroom	2600	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.06	150.8	$23.07	1	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	Women's Restroom	3200	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.06	185.6	$28.40	1	0	No Change	$0.00	0.00	0	$0.00	0.00
242.22	E7 Classroom	2600	12	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	104	1.25	3,244.8	$496.45	12	0	No Change	$0.00	0.00	0	$0.00	0.00
242.22	E5 Classroom	2600	12	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	104	1.25	3,244.8	$496.45	12	0	No Change	$0.00	0.00	0	$0.00	0.00
227.21	E3 Library	2600	20	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.16	3,016.0	$461.45	20	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21		2600	9	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.94	2,433.6	$372.34	9	0	No Change	$0.00	0.00	0	$0.00	0.00
221.31		2600	42	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	2.44	6,333.6	$969.04	42	0	No Change	$0.00	0.00	0	$0.00	0.00
700		2600	8	1	50w MH, Recessed Down Light	70	0.56	1,456.0	$222.77	8	1	Bypass Ballast, Install Mogul to Medium Base Socket Adapter and (1) 26w R40 CFL Lamp	$400.00	0.35	915.2	$140.03	2.86
242.21	Conference Room	2600	6	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.62	1,622.4	$248.23	6	0	No Change	$0.00	0.00	0	$0.00	0.00
227.21	Corridor E	4400	52	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	3.02	13,270.4	$2,030.37	52	0	No Change	$0.00	0.00	0	$0.00	0.00
601		8760	2	2	(2) 7w CFL Exit Sign	16	0.03	280.3	$42.89	2	1	LED Exit Sign	$130.00	0.03	245.28	$37.53	3.46
242.21	E4 Music Room	2600	18	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.87	4,867.2	$744.68	18	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	Music Office	2600	3	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.31	811.2	$124.11	3	0	No Change	$0.00	0.00	0	$0.00	0.00
766	E2 Multi Purpose Room	2600	15	1	400w MH, Prismatic Lens	465	6.98	18,135.0	$2,774.66	15	4	2x4 54w T5HO 4 Lamp w/Reflective Lens, Wire Cage	$3,600.00	3.44	8931	$1,366.44	2.63
601		8760	2	2	(2) 7w CFL Exit Sign	16	0.03	280.3	$42.89	2	1	LED Exit Sign	$130.00	0.03	245.28	$37.53	3.46
221.11	Stage	2600	10	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.58	1,508.0	$230.72	10	0	No Change	$0.00	0.00	0	$0.00	0.00
601		8760	4	2	(2) 7w CFL Exit Sign	16	0.06	560.6	$85.78	4	1	LED Exit Sign	$260.00	0.06	490.56	$75.06	3.46
222.21	HCP Lift. Area	2600	5	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.29	754.0	$115.36	5	0	No Change	$0.00	0.00	0	$0.00	0.00
222.21	Gym Office & Restroom	2600	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.17	452.4	$69.22	3	0	No Change	$0.00	0.00	0	$0.00	0.00
221.31	Boiler Room	2600	8	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	0.46	1,206.4	$184.58	8	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	Nurse	2600	6	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.62	1,622.4	$248.23	6	0	No Change	$0.00	0.00	0	$0.00	0.00

Investment Grade Lighting Audit

227.21	Nurse	2600	5	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.29	754.0	$115.36	5	0	No Change	$0.00	0.00	0	$0.00	0.00
242.211	SGI	2600	4	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.42	1,081.6	$165.48	4	3	Remove 1 Lamp - No Ballast Change Required	$88.00	0.07	187.2	$28.64	3.07
242.21	Corridor - Nurse	2600	7	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.73	1,892.8	$289.60	7	0	No Change	$0.00	0.00	0	$0.00	0.00
227.21		2600	8	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.46	1,206.4	$184.58	8	0	No Change	$0.00	0.00	0	$0.00	0.00
601		8760	2	2	(2) 7w CFL Exit Sign	16	0.03	280.3	$42.89	2	1	LED Exit Sign	$130.00	0.03	245.28	$37.53	3.46
222.21	Guidance Hall	2600	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.17	452.4	$69.22	3	0	No Change	$0.00	0.00	0	$0.00	0.00
601		8760	1	2	(2) 7w CFL Exit Sign	16	0.02	140.2	$21.44	1	1	LED Exit Sign	$65.00	0.01	122.64	$18.76	3.46
242.21	Office	2600	4	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.42	1,081.6	$165.48	4	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	Office	2600	2	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.21	540.8	$82.74	2	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	Office	2600	3	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.31	811.2	$124.11	3	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	Vice Principal's Office	2600	2	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.21	540.8	$82.74	2	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	File Room	2600	2	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.21	540.8	$82.74	2	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	Conference Room 1	2600	4	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.42	1,081.6	$165.48	4	0	No Change	$0.00	0.00	0	$0.00	0.00
242.21	Copy / Break Room	2600	4	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.42	1,081.6	$165.48	4	0	No Change	$0.00	0.00	0	$0.00	0.00
242.22	Main Office	2600	14	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	104	1.46	3,785.6	$579.20	14	0	No Change	$0.00	0.00	0	$0.00	0.00
601		8760	1	2	(2) 7w CFL Exit Sign	16	0.02	140.2	$21.44	1	1	LED Exit Sign	$65.00	0.01	122.64	$18.76	3.46
227.21	Lobby	2600	37	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	2.15	5,579.6	$853.68	37	0	No Change	$0.00	0.00	0	$0.00	0.00
601		8760	3	2	(2) 7w CFL Exit Sign	16	0.05	420.5	$64.33	3	1	LED Exit Sign	$195.00	0.04	367.92	$56.29	3.46
700		2600	10	1	50w MH, Recessed Down Light	70	0.70	1,820.0	$278.46	10	1	Bypass Ballast, Install Mogul to Medium Base Socket Adapter and (1) 26w R40 CFL Lamp	$500.00	0.44	1144	$175.03	2.86
	Totals		1,305	450			108.63	309,659	$47,378	1,305	37		$8,299	6.5	20,822	$3,186	2.61

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

CEG Job #: 9C10054
Project: Burlington Township Schools — **B. Bernice Young Elementary School** — **KWH COST:** $0.153
Address: 1203 Neck Road
Burlington, NJ 08016
Building SF: 108,000

ECM #8: Lighting Controls

EXISTING LIGHTING										PROPOSED LIGHTING CONTROLS											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. Cont.	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
222.21	A2 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.696	1809.6	$276.87	12	1	Dual Tech. Occupancy Sensor w/2 Pole Power Pack (Sensorswitch or equal)	58	0.63	10%	1628.64	$249.18	$225.00	$225.00	0.07	180.96	$27.69	8.13
222.21	A4 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.696	1809.6	$276.87	12	1	Dual Tech. Occupancy Sensor w/2 Pole Power Pack (Sensorswitch or equal)	58	0.63	10%	1628.64	$249.18	$225.00	$225.00	0.07	180.96	$27.69	8.13
222.21	A1 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.696	1809.6	$276.87	12	1	Dual Tech. Occupancy Sensor w/2 Pole Power Pack (Sensorswitch or equal)	58	0.63	10%	1628.64	$249.18	$225.00	$225.00	0.07	180.96	$27.69	8.13
222.21	A3 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.696	1809.6	$276.87	12	1	Dual Tech. Occupancy Sensor w/2 Pole Power Pack (Sensorswitch or equal)	58	0.63	10%	1628.64	$249.18	$225.00	$225.00	0.07	180.96	$27.69	8.13
222.21	A6 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.696	1809.6	$276.87	12	1	Dual Tech. Occupancy Sensor w/2 Pole Power Pack (Sensorswitch or equal)	58	0.63	10%	1628.64	$249.18	$225.00	$225.00	0.07	180.96	$27.69	8.13
222.21	A5 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.696	1809.6	$276.87	12	1	Dual Tech. Occupancy Sensor w/2 Pole Power Pack (Sensorswitch or equal)	58	0.63	10%	1628.64	$249.18	$225.00	$225.00	0.07	180.96	$27.69	8.13
222.21	A8 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.696	1809.6	$276.87	12	1	Dual Tech. Occupancy Sensor w/2 Pole Power Pack (Sensorswitch or equal)	58	0.63	10%	1628.64	$249.18	$225.00	$225.00	0.07	180.96	$27.69	8.13
222.21	A7 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.696	1809.6	$276.87	12	1	Dual Tech. Occupancy Sensor w/2 Pole Power Pack (Sensorswitch or equal)	58	0.63	10%	1628.64	$249.18	$225.00	$225.00	0.07	180.96	$27.69	8.13
222.21	A10 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.696	1809.6	$276.87	12	1	Dual Tech. Occupancy Sensor w/2 Pole Power Pack (Sensorswitch or equal)	58	0.63	10%	1628.64	$249.18	$225.00	$225.00	0.07	180.96	$27.69	8.13
222.21	A9 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.696	1809.6	$276.87	12	1	Dual Tech. Occupancy Sensor w/2 Pole Power Pack (Sensorswitch or equal)	58	0.63	10%	1628.64	$249.18	$225.00	$225.00	0.07	180.96	$27.69	8.13
222.21	Women's Restroom	1200	4	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.232	278.4	$42.60	4	0	No Change	58	0.23	0%	278.4	$42.60	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Men's Restroom	1200	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.174	208.8	$31.95	3	0	No Change	58	0.17	0%	208.8	$31.95	$0.00	$0.00	0.00	0	$0.00	0.00

221.16	Custodian Closet	1200	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Acrylic Lens	58	0.116	139.2	$21.30	2	0	No Change	58	0.12	0%	139.2	$21.30	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	A11 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.696	1809.6	$276.87	12	1	Dual Tech. Occupancy Sensor w/2 Pole Power Pack (Sensorswitch or equal)	58	0.63	10%	1628.64	$249.18	$225.00	$225.00	0.07	180.96	$27.69	8.13
222.21	Corridor A	4400	25	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.45	6380	$976.14	25	0	No Change	58	1.45	0%	6380	$976.14	$0.00	$0.00	0.00	0	$0.00	0.00
601		8760	3	2	(2) 7w CFL Exit Sign	16	0.048	420.48	$64.33	3	0	No Change	16	0.05	0%	420.48	$64.33	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	A12 Faculty	2600	7	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.728	1892.8	$289.60	7	1	Dual Technology Occupancy Sensor - Switch Mnt.	104	0.66	10%	1703.52	$260.64	$75.00	$75.00	0.07	189.28	$28.96	2.59
610	Faculty Restroom	1200	1	4	Wall Mnt. "Vanity" Light, (4) 60w A19 Lamps	240	0.24	288	$44.06	1	0	No Change	240	0.24	0%	288	$44.06	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	Cafeteria	2600	28	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	2.912	7571.2	$1,158.39	28	0	No Change	104	2.91	0%	7571.2	$1,158.39	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	A13 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.696	1809.6	$276.87	12	1	Dual Tech. Occupancy Sensor w/2 Pole Power Pack (Sensorswitch or equal)	58	0.63	10%	1628.64	$249.18	$225.00	$225.00	0.07	180.96	$27.69	8.13
222.21	A15 SGI	2600	4	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.232	603.2	$92.29	4	0	No Change	58	0.23	0%	603.2	$92.29	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	A17 SGI	2600	4	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.232	603.2	$92.29	4	0	No Change	58	0.23	0%	603.2	$92.29	$0.00	$0.00	0.00	0	$0.00	0.00
227.21		2600	1	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.058	150.8	$23.07	1	0	No Change	58	0.06	0%	150.8	$23.07	$0.00	$0.00	0.00	0	$0.00	0.00
211.11	Boiler Room	4400	6	1	1x4, 1 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	30	0.18	792	$121.18	6	0	No Change	30	0.18	0%	792	$121.18	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	A19 Classroom	2600	10	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.04	2704	$413.71	10	1	Dual Tech. Occupancy Sensor w/2 Pole Power Pack (Sensorswitch or equal)	104	0.94	10%	2433.6	$372.34	$225.00	$225.00	0.10	270.4	$41.37	5.44
222.21	A14 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.696	1809.6	$276.87	12	1	Dual Tech. Occupancy Sensor w/2 Pole Power Pack (Sensorswitch or equal)	58	0.63	10%	1628.64	$249.18	$225.00	$225.00	0.07	180.96	$27.69	8.13
222.21	Custodian Closet	4400	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.116	510.4	$78.09	2	1	Dual Technology Occupancy Sensor - Switch Mnt.	58	0.10	10%	459.36	$70.28	$75.00	$75.00	0.01	51.04	$7.81	9.60
221.11	Kitchen	2600	8	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.464	1206.4	$184.58	8	0	No Change	58	0.46	0%	1206.4	$184.58	$0.00	$0.00	0.00	0	$0.00	0.00
617		2600	4	1	Hood Light w/Globe & Cage, 100w A19 Lamp	100	0.4	1040	$159.12	4	0	No Change	100	0.40	0%	1040	$159.12	$0.00	$0.00	0.00	0	$0.00	0.00
242.21		2600	9	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.936	2433.6	$372.34	9	0	No Change	104	0.94	0%	2433.6	$372.34	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	Kitchen Office	2600	1	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.104	270.4	$41.37	1	0	No Change	104	0.10	0%	270.4	$41.37	$0.00	$0.00	0.00	0	$0.00	0.00
611	Kitchen Restroom	2600	1	1	Wall Mnt. "Vanity" Light, (1) 60w A19 Lamps	60	0.06	156	$23.87	1	0	No Change	60	0.06	0%	156	$23.87	$0.00	$0.00	0.00	0	$0.00	0.00
552	Kitchen Restroom	2600	1	1	1x1 Recessed Down Light, Dropped Opal Lens, (1) 100w A19 Lamp	100	0.1	260	$39.78	1	0	No Change	100	0.10	0%	260	$39.78	$0.00	$0.00	0.00	0	$0.00	0.00

222.21	Corridor B	4400	14	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.812	3572.8	$546.64	14	0	No Change	58	0.81	0%	3572.8	$546.64	$0.00	$0.00	0.00	0	$0.00	0.00
601		8760	3	2	(2) 7w CFL Exit Sign	16	0.048	420.48	$64.33	3	0	No Change	16	0.05	0%	420.48	$64.33	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	B1 Classroom	2600	9	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.936	2433.6	$372.34	9	0	No Change	104	0.94	0%	2433.6	$372.34	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	B2 Classroom	2600	11	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.144	2974.4	$455.08	11	0	No Change	104	1.14	0%	2974.4	$455.08	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	B2 Restroom in Classroom	2600	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.058	150.8	$23.07	1	0	No Change	58	0.06	0%	150.8	$23.07	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Boys' Restroom	3200	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.116	371.2	$56.79	2	0	No Change	58	0.12	0%	371.2	$56.79	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Girls' Restroom	3200	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.116	371.2	$56.79	2	0	No Change	58	0.12	0%	371.2	$56.79	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Custodian Closet	1200	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.058	69.6	$10.65	1	0	No Change	58	0.06	0%	69.6	$10.65	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	B4 Classroom	2600	11	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.144	2974.4	$455.08	11	0	No Change	104	1.14	0%	2974.4	$455.08	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	B4 Restroom in Classroom	2600	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.058	150.8	$23.07	1	0	No Change	58	0.06	0%	150.8	$23.07	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Prep Room	2600	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.174	452.4	$69.22	3	0	No Change	58	0.17	0%	452.4	$69.22	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	B3 Classroom	2600	9	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.936	2433.6	$372.34	9	0	No Change	104	0.94	0%	2433.6	$372.34	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	B5 Classroom	2600	11	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.144	2974.4	$455.08	11	0	No Change	104	1.14	0%	2974.4	$455.08	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	B5 Restroom in Classroom	2600	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.058	150.8	$23.07	1	0	No Change	58	0.06	0%	150.8	$23.07	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	B6 Classroom	2600	11	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.144	2974.4	$455.08	11	0	No Change	104	1.14	0%	2974.4	$455.08	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	B6 Restroom in Classroom	2600	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.058	150.8	$23.07	1	0	No Change	58	0.06	0%	150.8	$23.07	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	B8 Classroom	2600	11	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.144	2974.4	$455.08	11	0	No Change	104	1.14	0%	2974.4	$455.08	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	B8 Restroom in Classroom	2600	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.058	150.8	$23.07	1	0	No Change	58	0.06	0%	150.8	$23.07	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	B7 Classroom	2600	11	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.144	2974.4	$455.08	11	0	No Change	104	1.14	0%	2974.4	$455.08	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	B7 Restroom in Classroom	2600	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.058	150.8	$23.07	1	0	No Change	58	0.06	0%	150.8	$23.07	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	B5 - B7 Prep Room	2600	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.174	452.4	$69.22	3	0	No Change	58	0.17	0%	452.4	$69.22	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	B6-B8 Prep Room	2600	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.174	452.4	$69.22	3	0	No Change	58	0.17	0%	452.4	$69.22	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	C1 Classroom	2600	11	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.144	2974.4	$455.08	11	0	No Change	104	1.14	0%	2974.4	$455.08	$0.00	$0.00	0.00	0	$0.00	0.00

222.21	C1 Restroom in Classroom	2600	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.058	150.8	$23.07	1	0	No Change	58	0.06	0%	150.8	$23.07	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	C1 Closet	2600	2	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.208	540.8	$82.74	2	0	No Change	104	0.21	0%	540.8	$82.74	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Corridor C	4400	16	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.928	4083.2	$624.73	16	0	No Change	58	0.93	0%	4083.2	$624.73	$0.00	$0.00	0.00	0	$0.00	0.00
601		8760	3	2	(2) 7w CFL Exit Sign	16	0.048	420.48	$64.33	3	0	No Change	16	0.05	0%	420.48	$64.33	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	C2 Classroom	2600	11	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.144	2974.4	$455.08	11	0	No Change	104	1.14	0%	2974.4	$455.08	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	C2 Restroom in Classroom	2600	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.058	150.8	$23.07	1	0	No Change	58	0.06	0%	150.8	$23.07	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	C3 Classroom	2600	11	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.144	2974.4	$455.08	11	0	No Change	104	1.14	0%	2974.4	$455.08	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	C3 Restroom in Classroom	2600	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.058	150.8	$23.07	1	0	No Change	58	0.06	0%	150.8	$23.07	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	C2-C3 Prep Room	2600	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.174	452.4	$69.22	3	0	No Change	58	0.17	0%	452.4	$69.22	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	C4 Classroom	2600	11	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.144	2974.4	$455.08	11	0	No Change	104	1.14	0%	2974.4	$455.08	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	C4 Restroom in Classroom	2600	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.058	150.8	$23.07	1	0	No Change	58	0.06	0%	150.8	$23.07	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	C5 Classroom	2600	11	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.144	2974.4	$455.08	11	0	No Change	104	1.14	0%	2974.4	$455.08	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	C5 Restroom in Classroom	2600	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.058	150.8	$23.07	1	0	No Change	58	0.06	0%	150.8	$23.07	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	C4-C5 Prep Room	2600	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.174	452.4	$69.22	3	0	No Change	58	0.17	0%	452.4	$69.22	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Corridor D	4400	20	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.16	5104	$780.91	20	0	No Change	58	1.16	0%	5104	$780.91	$0.00	$0.00	0.00	0	$0.00	0.00
601		8760	3	2	(2) 7w CFL Exit Sign	16	0.048	420.48	$64.33	3	0	No Change	16	0.05	0%	420.48	$64.33	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	D12 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.696	1809.6	$276.87	12	1	Dual Tech. Occupancy Sensor w/2 Pole Power Pack (Sensorswitch or equal)	58	0.63	10%	1628.64	$249.18	$225.00	$225.00	0.07	180.96	$27.69	8.13
222.21	D10 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.696	1809.6	$276.87	12	1	Dual Tech. Occupancy Sensor w/2 Pole Power Pack (Sensorswitch or equal)	58	0.63	10%	1628.64	$249.18	$225.00	$225.00	0.07	180.96	$27.69	8.13
222.21	D8 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.696	1809.6	$276.87	12	1	Dual Tech. Occupancy Sensor w/2 Pole Power Pack (Sensorswitch or equal)	58	0.63	10%	1628.64	$249.18	$225.00	$225.00	0.07	180.96	$27.69	8.13
222.21	D6 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.696	1809.6	$276.87	12	1	Dual Tech. Occupancy Sensor w/2 Pole Power Pack (Sensorswitch or equal)	58	0.63	10%	1628.64	$249.18	$225.00	$225.00	0.07	180.96	$27.69	8.13
222.21	D4 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.696	1809.6	$276.87	12	1	Dual Tech. Occupancy Sensor w/2 Pole Power Pack (Sensorswitch or equal)	58	0.63	10%	1628.64	$249.18	$225.00	$225.00	0.07	180.96	$27.69	8.13

242.21	D2 Classroom	2600	8	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.832	2163.2	$330.97	8	1	Dual Technology Occupancy Sensor - Switch Mnt.	104	0.75	10%	1946.88	$297.87	$75.00	$75.00	0.08	216.32	$33.10	2.27
221.11	Custodian Closet	1200	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.116	139.2	$21.30	2	1	Dual Technology Occupancy Sensor - Switch Mnt.	58	0.10	10%	125.28	$19.17	$75.00	$75.00	0.01	13.92	$2.13	35.22
221.11	Boys' Restroom	3200	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.232	742.4	$113.59	4	0	No Change	58	0.23	0%	742.4	$113.59	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Girls' Restroom	3200	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.232	742.4	$113.59	4	0	No Change	58	0.23	0%	742.4	$113.59	$0.00	$0.00	0.00	0	$0.00	0.00
200	Custodian Closet	1200	2	1	1x2, 1 Lamp, 17w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	18	0.036	43.2	$6.61	2	0	No Change	18	0.04	0%	43.2	$6.61	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	D1 Classroom	2600	12	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.248	3244.8	$496.45	12	1	Dual Tech. Occupancy Sensor w/2 Pole Power Pack (Sensorswitch or equal)	104	1.12	10%	2920.32	$446.81	$225.00	$225.00	0.12	324.48	$49.65	4.53
242.21	D3 Classroom	2600	9	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.936	2433.6	$372.34	9	1	Dual Tech. Occupancy Sensor w/2 Pole Power Pack (Sensorswitch or equal)	104	0.84	10%	2190.24	$335.11	$225.00	$225.00	0.09	243.36	$37.23	6.04
222.21	D5 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.696	1809.6	$276.87	12	1	Dual Tech. Occupancy Sensor w/2 Pole Power Pack (Sensorswitch or equal)	58	0.63	10%	1628.64	$249.18	$225.00	$225.00	0.07	180.96	$27.69	8.13
222.21	D7 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.696	1809.6	$276.87	12	1	Dual Tech. Occupancy Sensor w/2 Pole Power Pack (Sensorswitch or equal)	58	0.63	10%	1628.64	$249.18	$225.00	$225.00	0.07	180.96	$27.69	8.13
222.21	D9 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.696	1809.6	$276.87	12	1	Dual Tech. Occupancy Sensor w/2 Pole Power Pack (Sensorswitch or equal)	58	0.63	10%	1628.64	$249.18	$225.00	$225.00	0.07	180.96	$27.69	8.13
242.211	Connecting Corridor F	4400	12	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.248	5491.2	$840.15	12	0	No Change	104	1.25	0%	5491.2	$840.15	$0.00	$0.00	0.00	0	$0.00	0.00
242.211	Faculty Lounge	2600	4	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.416	1081.6	$165.48	4	0	No Change	104	0.42	0%	1081.6	$165.48	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	Work Room	2600	1	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.104	270.4	$41.37	1	0	No Change	104	0.10	0%	270.4	$41.37	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	F1 Classroom	2600	13	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.352	3515.2	$537.83	13	0	No Change	104	1.35	0%	3515.2	$537.83	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	F2 Classroom	2600	13	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.352	3515.2	$537.83	13	0	No Change	104	1.35	0%	3515.2	$537.83	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	F3 Classroom	2600	13	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.352	3515.2	$537.83	13	0	No Change	104	1.35	0%	3515.2	$537.83	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	F4 Classroom	2600	13	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.352	3515.2	$537.83	13	0	No Change	104	1.35	0%	3515.2	$537.83	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	F5 Classroom	2600	13	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.352	3515.2	$537.83	13	0	No Change	104	1.35	0%	3515.2	$537.83	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	F6 Classroom	2600	13	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.352	3515.2	$537.83	13	0	No Change	104	1.35	0%	3515.2	$537.83	$0.00	$0.00	0.00	0	$0.00	0.00

242.21	F5-F6 Prep Room	2600	2	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.208	540.8	$82.74	2	0	No Change	104	0.21	0%	540.8	$82.74	$0.00	$0.00	0.00	0	$0.00	0.00
232.31	Electric Room	2600	2	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.172	447.2	$68.42	2	0	No Change	86	0.17	0%	447.2	$68.42	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	Vice Principal's Office	2600	4	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.416	1081.6	$165.48	4	0	No Change	104	0.42	0%	1081.6	$165.48	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	F7 Classroom	2600	9	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.936	2433.6	$372.34	9	0	No Change	104	0.94	0%	2433.6	$372.34	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	F8 Classroom	2600	9	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.936	2433.6	$372.34	9	0	No Change	104	0.94	0%	2433.6	$372.34	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	F9 Classroom	2600	9	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.936	2433.6	$372.34	9	0	No Change	104	0.94	0%	2433.6	$372.34	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	F10 Classroom	2600	9	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.936	2433.6	$372.34	9	0	No Change	104	0.94	0%	2433.6	$372.34	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	F11 Classroom	2600	9	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.936	2433.6	$372.34	9	0	No Change	104	0.94	0%	2433.6	$372.34	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	F12 Classroom	2600	9	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.936	2433.6	$372.34	9	0	No Change	104	0.94	0%	2433.6	$372.34	$0.00	$0.00	0.00	0	$0.00	0.00
242	Boys' Restroom	3200	2	4	1x4, 4 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	104	0.208	665.6	$101.84	2	0	No Change	104	0.21	0%	665.6	$101.84	$0.00	$0.00	0.00	0	$0.00	0.00
231.31	Electric Room	2600	2	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	58	0.116	301.6	$46.14	2	0	No Change	58	0.12	0%	301.6	$46.14	$0.00	$0.00	0.00	0	$0.00	0.00
100	F Corridor Display Case	4400	6	1	3' Channel, 1-Lamp, 30w T12, Mag. Ballast, Surface Mnt., No Lens	32	0.192	844.8	$129.25	6	0	No Change	32	0.19	0%	844.8	$129.25	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	F13 Classroom	2600	9	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.936	2433.6	$372.34	9	0	No Change	104	0.94	0%	2433.6	$372.34	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	F14 Classroom	2600	9	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.936	2433.6	$372.34	9	0	No Change	104	0.94	0%	2433.6	$372.34	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	F15 Classroom	2600	9	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.936	2433.6	$372.34	9	0	No Change	104	0.94	0%	2433.6	$372.34	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	F16 Classroom	2600	9	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.936	2433.6	$372.34	9	0	No Change	104	0.94	0%	2433.6	$372.34	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	F17 Classroom	2600	9	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.936	2433.6	$372.34	9	0	No Change	104	0.94	0%	2433.6	$372.34	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	F18 Classroom	2600	9	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.936	2433.6	$372.34	9	0	No Change	104	0.94	0%	2433.6	$372.34	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	Restroom	2600	1	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.104	270.4	$41.37	1	0	No Change	104	0.10	0%	270.4	$41.37	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	Girls' Restroom	3200	3	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.312	998.4	$152.76	3	0	No Change	104	0.31	0%	998.4	$152.76	$0.00	$0.00	0.00	0	$0.00	0.00
211.47	Center Corridor F	4400	3	1	1x4, 1 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Indirect	30	0.09	396	$60.59	3	0	No Change	30	0.09	0%	396	$60.59	$0.00	$0.00	0.00	0	$0.00	0.00
34		4400	10	1	Recessed Down Light, 26w Quad Lamp	26	0.26	1144	$175.03	10	0	No Change	26	0.26	0%	1144	$175.03	$0.00	$0.00	0.00	0	$0.00	0.00
242.211	Corridor F	4400	44	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	4.576	20134.4	$3,080.56	44	0	No Change	104	4.58	0%	20134.4	$3,080.56	$0.00	$0.00	0.00	0	$0.00	0.00

242.21	E9 Classroom	2600	15	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.56	4056	$620.57	15	0	No Change	104	1.56	0%	4056	$620.57	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	E9 Closet in Classroom	2600	4	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.232	603.2	$92.29	4	0	No Change	58	0.23	0%	603.2	$92.29	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Custodian Closet	1200	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.058	69.6	$10.65	1	0	No Change	58	0.06	0%	69.6	$10.65	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Restroom	2600	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.058	150.8	$23.07	1	0	No Change	58	0.06	0%	150.8	$23.07	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Women's Restroom	3200	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.058	185.6	$28.40	1	0	No Change	58	0.06	0%	185.6	$28.40	$0.00	$0.00	0.00	0	$0.00	0.00
242.22	E7 Classroom	2600	12	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	104	1.248	3244.8	$496.45	12	0	No Change	104	1.25	0%	3244.8	$496.45	$0.00	$0.00	0.00	0	$0.00	0.00
242.22	E5 Classroom	2600	12	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	104	1.248	3244.8	$496.45	12	0	No Change	104	1.25	0%	3244.8	$496.45	$0.00	$0.00	0.00	0	$0.00	0.00
227.21	E3 Library	2600	20	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.16	3016	$461.45	20	0	No Change	58	1.16	0%	3016	$461.45	$0.00	$0.00	0.00	0	$0.00	0.00
242.21		2600	9	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.936	2433.6	$372.34	9	0	No Change	104	0.94	0%	2433.6	$372.34	$0.00	$0.00	0.00	0	$0.00	0.00
221.31		2600	42	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	2.436	6333.6	$969.04	42	0	No Change	58	2.44	0%	6333.6	$969.04	$0.00	$0.00	0.00	0	$0.00	0.00
700		2600	8	1	50w MH, Recessed Down Light	70	0.56	1456	$222.77	8	0	No Change	70	0.56	0%	1456	$222.77	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	Conference Room	2600	6	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.624	1622.4	$248.23	6	1	Dual Technology Occupancy Sensor - Switch Mnt.	104	0.56	10%	1460.16	$223.40	$75.00	$75.00	0.06	162.24	$24.82	3.02
227.21	Corridor E	4400	52	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	3.016	13270.4	$2,030.37	52	0	No Change	58	3.02	0%	13270.4	$2,030.37	$0.00	$0.00	0.00	0	$0.00	0.00
601		8760	2	2	(2) 7w CFL Exit Sign	16	0.032	280.32	$42.89	2	0	No Change	16	0.03	0%	280.32	$42.89	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	E4 Music Room	2600	18	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.872	4867.2	$744.68	18	0	No Change	104	1.87	0%	4867.2	$744.68	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	Music Office	2600	3	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.312	811.2	$124.11	3	1	Dual Technology Occupancy Sensor - Switch Mnt.	104	0.28	10%	730.08	$111.70	$75.00	$75.00	0.03	81.12	$12.41	6.04
766	E2 Multi Purpose Room	2600	15	1	400w MH, Prismatic Lens	465	6.975	18135	$2,774.66	15	0	No Change	465	6.98	0%	18135	$2,774.66	$0.00	$0.00	0.00	0	$0.00	0.00
601		8760	2	2	(2) 7w CFL Exit Sign	16	0.032	280.32	$42.89	2	0	No Change	16	0.03	0%	280.32	$42.89	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Stage	2600	10	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.58	1508	$230.72	10	0	No Change	58	0.58	0%	1508	$230.72	$0.00	$0.00	0.00	0	$0.00	0.00
601		8760	4	2	(2) 7w CFL Exit Sign	16	0.064	560.64	$85.78	4	0	No Change	16	0.06	0%	560.64	$85.78	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	HCP Lift. Area	2600	5	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.29	754	$115.36	5	0	No Change	58	0.29	0%	754	$115.36	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Gym Office & Restroom	2600	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.174	452.4	$69.22	3	0	No Change	58	0.17	0%	452.4	$69.22	$0.00	$0.00	0.00	0	$0.00	0.00
221.31	Boiler Room	2600	8	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	0.464	1206.4	$184.58	8	0	No Change	58	0.46	0%	1206.4	$184.58	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	Nurse	2600	6	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.624	1622.4	$248.23	6	0	No Change	104	0.62	0%	1622.4	$248.23	$0.00	$0.00	0.00	0	$0.00	0.00
227.21		2600	5	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.29	754	$115.36	5	0	No Change	58	0.29	0%	754	$115.36	$0.00	$0.00	0.00	0	$0.00	0.00

242.211	SGI	2600	4	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.416	1081.6	$165.48	4	1	Dual Technology Occupancy Sensor - Switch Mnt.	104	0.37	10%	973.44	$148.94	$75.00	$75.00	0.04	108.16	$16.55	4.53
242.21	Corridor - Nurse	2600	7	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.728	1892.8	$289.60	7	0	No Change	104	0.73	0%	1892.8	$289.60	$0.00	$0.00	0.00	0	$0.00	0.00
227.21		2600	8	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.464	1206.4	$184.58	8	0	No Change	58	0.46	0%	1206.4	$184.58	$0.00	$0.00	0.00	0	$0.00	0.00
601		8760	2	2	(2) 7w CFL Exit Sign	16	0.032	280.32	$42.89	2	0	No Change	16	0.03	0%	280.32	$42.89	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Guidance Hall	2600	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.174	452.4	$69.22	3	0	No Change	58	0.17	0%	452.4	$69.22	$0.00	$0.00	0.00	0	$0.00	0.00
601		8760	1	2	(2) 7w CFL Exit Sign	16	0.016	140.16	$21.44	1	0	No Change	16	0.02	0%	140.16	$21.44	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	Office	2600	4	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.416	1081.6	$165.48	4	1	Dual Technology Occupancy Sensor - Switch Mnt.	104	0.37	10%	973.44	$148.94	$75.00	$75.00	0.04	108.16	$16.55	4.53
242.21	Office	2600	2	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.208	540.8	$82.74	2	1	Dual Technology Occupancy Sensor - Switch Mnt.	104	0.19	10%	486.72	$74.47	$75.00	$75.00	0.02	54.08	$8.27	9.06
242.21	Office	2600	3	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.312	811.2	$124.11	3	1	Dual Technology Occupancy Sensor - Switch Mnt.	104	0.28	10%	730.08	$111.70	$75.00	$75.00	0.03	81.12	$12.41	6.04
242.21	Vice Principal's Office	2600	2	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.208	540.8	$82.74	2	1	Dual Technology Occupancy Sensor - Switch Mnt.	104	0.19	10%	486.72	$74.47	$75.00	$75.00	0.02	54.08	$8.27	9.06
242.21	File Room	2600	2	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.208	540.8	$82.74	2	1	Dual Technology Occupancy Sensor - Switch Mnt.	104	0.19	10%	486.72	$74.47	$75.00	$75.00	0.02	54.08	$8.27	9.06
242.21	Conference Room 1	2600	4	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.416	1081.6	$165.48	4	1	Dual Technology Occupancy Sensor - Switch Mnt.	104	0.37	10%	973.44	$148.94	$75.00	$75.00	0.04	108.16	$16.55	4.53
242.21	Copy / Break Room	2600	4	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.416	1081.6	$165.48	4	1	Dual Technology Occupancy Sensor - Switch Mnt.	104	0.37	10%	973.44	$148.94	$75.00	$75.00	0.04	108.16	$16.55	4.53
242.22	Main Office	2600	14	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	104	1.456	3785.6	$579.20	14	0	No Change	104	1.46	0%	3785.6	$579.20	$0.00	$0.00	0.00	0	$0.00	0.00
601		8760	1	2	(2) 7w CFL Exit Sign	16	0.016	140.16	$21.44	1	0	No Change	16	0.02	0%	140.16	$21.44	$0.00	$0.00	0.00	0	$0.00	0.00
227.21	Lobby	2600	37	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	2.146	5579.6	$853.68	37	0	No Change	58	2.15	0%	5579.6	$853.68	$0.00	$0.00	0.00	0	$0.00	0.00
601		8760	3	2	(2) 7w CFL Exit Sign	16	0.048	420.48	$64.33	3	0	No Change	16	0.05	0%	420.48	$64.33	$0.00	$0.00	0.00	0	$0.00	0.00
700		2600	10	1	50w MH, Recessed Down Light	70	0.7	1820	$278.46	10	0	No Change	70	0.70	0%	1820	$278.46	$0.00	$0.00	0.00	0	$0.00	0.00
	Totals		1,305	450			108.6	309,658.9	$47,378	1,305	38			106.3		303,630.6	$46,455.48		$6,450	2.32	6,028	$922	6.99

Project Name: LGEA Solar PV Project - Young Elementary
Location: Burlington, NJ
Description: Photovoltaic System 95% Financing - 25 year

Simple Payback Analysis

	Photovoltaic System 95% Financing - 25 year
Total Construction Cost	$2,366,010
Annual kWh Production	326,666
Annual Energy Cost Reduction	$49,980
Annual SREC Revenue	$114,333
First Cost Premium	**$2,366,010**
Simple Payback:	**14.40** Years

Life Cycle Cost Analysis

Analysis Period (years): 25
Financing Term (mths): 300
Average Energy Cost ($/kWh) **$0.153**
Financing Rate: 7.00%
Financing %: 95%
Maintenance Escalation Rate: 3.0%
Energy Cost Escalation Rate: 3.0%
SREC Value ($/kWh) $0.350

Period	Additional Cash Outlay	Energy kWh Production	Energy Cost Savings	Additional Maint Costs	SREC Revenue	Interest Expense	Loan Principal	Net Cash Flow	Cumulative Cash Flow
0	$118,301	0	0	0	$0	0	0	(118,301)	0
1	$0	326,666	$49,980	$0	$114,333	$156,250	$34,386	($26,323)	($144,624)
2	$0	325,033	$51,479	$0	$113,761	$153,765	$36,872	($25,395)	($170,019)
3	$0	323,408	$53,024	$0	$113,193	$151,099	$39,537	($24,420)	($194,439)
4	$0	321,790	$54,614	$0	$112,627	$148,241	$42,395	($23,395)	($217,834)
5	$0	320,182	$56,253	$3,298	$112,064	$145,176	$45,460	($25,618)	($243,452)
6	$0	318,581	$57,940	$3,281	$111,503	$141,890	$48,746	($24,474)	($267,925)
7	$0	316,988	$59,679	$3,265	$110,946	$138,366	$52,270	($23,277)	($291,202)
8	$0	315,403	$61,469	$3,249	$110,391	$134,588	$56,049	($22,025)	($313,227)
9	$0	313,826	$63,313	$3,232	$109,839	$130,536	$60,100	($20,716)	($333,944)
10	$0	312,257	$65,212	$3,216	$109,290	$126,191	$64,445	($19,350)	($353,294)
11	$0	310,695	$67,169	$3,200	$108,743	$121,532	$69,104	($17,924)	($371,218)
12	$0	309,142	$69,184	$3,184	$108,200	$116,537	$74,099	($16,437)	($387,654)
13	$0	307,596	$71,259	$3,168	$107,659	$111,180	$79,456	($14,886)	($402,541)
14	$0	306,058	$73,397	$3,152	$107,120	$105,436	$85,200	($13,271)	($415,812)
15	$0	304,528	$75,599	$3,137	$106,585	$99,277	$91,359	($11,589)	($427,401)
16	$0	303,005	$77,867	$3,121	$106,052	$92,673	$97,963	($9,838)	($437,239)
17	$0	301,490	$80,203	$3,105	$105,522	$85,591	$105,045	($8,017)	($445,256)
18	$0	299,983	$82,609	$3,090	$104,994	$77,997	$112,639	($6,123)	($451,379)
19	$0	298,483	$85,087	$3,074	$104,469	$69,855	$120,781	($4,154)	($455,533)
20	$0	296,990	$87,640	$3,059	$103,947	$61,123	$129,513	($2,108)	($457,641)
21	$0	295,505	$90,269	$3,044	$103,427	$55,688	$119,062	$15,903	($441,738)
22	$0	294,028	$92,977	$3,028	$102,910	$45,000	$97,977	$49,882	($391,857)
23	$0	292,558	$95,767	$3,013	$102,395	$0	$0	$195,149	($196,708)
24	$0	291,095	$98,640	$2,998	$101,883	$0	$0	$197,525	$816
25	$0	289,640	$101,599	$2,983	$101,374	$0	$0	$199,989	$200,806
	Totals:	7,694,928	$1,822,230	$65,900	$2,693,225	$2,467,993	$1,662,456	$319,106	($7,610,312)
					Net Present Value (NPV)			**($169,874)**	
					Internal Rate of Return (IRR)			**2.0%**	

Project Name: LGEA Solar PV Project - Young Elementary
Location: Burlington, NJ
Description: Photovoltaic System - Direct Purchase

Simple Payback Analysis

	Photovoltaic System - Direct Purchase
Total Construction Cost	$2,366,010
Annual kWh Production	326,666
Annual Energy Cost Reduction	$49,980
Annual SREC Revenue	$114,333
First Cost Premium	**$2,366,010**
Simple Payback:	**14.40** **Years**

Life Cycle Cost Analysis

Analysis Period (years):	25	Financing %:	0%
Financing Term (mths):	0	Maintenance Escalation Rate:	3.0%
Average Energy Cost ($/kWh)	**$0.153**	Energy Cost Escalation Rate:	3.0%
Financing Rate:	0.00%	SREC Value ($/kWh)	$0.350

Period	Additional Cash Outlay	Energy kWh Production	Energy Cost Savings	Additional Maint Costs	SREC Revenue	Net Cash Flow	Cumulative Cash Flow
0	$2,366,010	0	0	0	$0	(2,366,010)	0
1	$0	326,666	$49,980	$0	$114,333	$164,313	($2,201,697)
2	$0	325,033	$51,479	$0	$113,761	$165,241	($2,036,456)
3	$0	323,408	$53,024	$0	$113,193	$166,216	($1,870,240)
4	$0	321,790	$54,614	$0	$112,627	$167,241	($1,702,999)
5	$0	320,182	$56,253	$3,298	$112,064	$165,018	($1,537,980)
6	$0	318,581	$57,940	$3,281	$111,503	$166,162	($1,371,818)
7	$0	316,988	$59,679	$3,265	$110,946	$167,359	($1,204,459)
8	$0	315,403	$61,469	$3,249	$110,391	$168,611	($1,035,848)
9	$0	313,826	$63,313	$3,232	$109,839	$169,920	($865,928)
10	$0	312,257	$65,212	$3,216	$109,290	$171,286	($694,642)
11	$0	310,695	$67,169	$3,200	$108,743	$172,712	($521,930)
12	$0	309,142	$69,184	$3,184	$108,200	$174,199	($347,731)
13	$0	307,596	$71,259	$3,168	$107,659	$175,750	($171,981)
14	$0	306,058	$73,397	$3,152	$107,120	$177,365	$5,384
15	$0	304,528	$75,599	$3,137	$106,585	$179,047	$184,432
16	$0	303,005	$77,867	$3,121	$106,052	$180,798	$365,229
17	$0	301,490	$80,203	$3,105	$105,522	$182,619	$547,849
18	$0	299,983	$82,609	$3,090	$104,994	$184,513	$732,362
19	$0	298,483	$85,087	$3,074	$104,469	$186,482	$918,844
20	$0	296,990	$87,640	$3,059	$103,947	$188,528	$1,107,372
21	$1	295,505	$90,269	$3,044	$103,427	$190,652	$1,298,024
22	$2	294,028	$92,977	$3,028	$102,910	$192,859	$1,490,883
23	$3	292,558	$95,767	$3,013	$102,395	$195,149	$1,686,031
24	$4	291,095	$98,640	$2,998	$101,883	$197,525	$1,883,556
25	$5	289,640	$101,599	$2,983	$101,374	$199,989	$2,083,546
	Totals:	7,694,928	$1,822,230	$65,900	$2,693,225	$4,449,556	($3,260,196)
				Net Present Value (NPV)		**$2,083,571**	
				Internal Rate of Return (IRR)		**5.4%**	

Building	Roof Area (sq ft)	Panel	Qty	Panel Sq Ft	Panel Total Sq Ft	Total KW_{DC}	Total Annual kWh	Panel Weight (33 lbs)	W/SQFT
Young Elementary	16800	Sunpower SPR230	1143	14.7	16,807	262.89	326,666	37,719	15.64

PVWatts

AC Energy & Cost Savings

Cautions for Interpreting the Results

(Type comments here to appear on printout; maximum 1 row of 80 characters.)

Station Identification	
City:	Atlantic_City
State:	New_Jersey
Latitude:	39.45° N
Longitude:	74.57° W
Elevation:	20 m
PV System Specifications	
DC Rating:	262.9 kW
DC to AC Derate Factor:	0.800
AC Rating:	210.3 kW
Array Type:	Fixed Tilt
Array Tilt:	15.0°
Array Azimuth:	180.0°
Energy Specifications	
Cost of Electricity:	0.2 ¢/kWh

Results			
Month	Solar Radiation (kWh/m²/day)	AC Energy (kWh)	Energy Value ($)
1	2.80	18540	28.55
2	3.53	21227	32.69
3	4.46	28743	44.26
4	5.28	32120	49.46
5	5.86	36199	55.75
6	6.10	35019	53.93
7	6.05	35514	54.69
8	5.60	32973	50.78
9	4.99	28907	44.52
10	3.97	24279	37.39
11	2.86	17547	27.02
12	2.43	15599	24.02
Year	4.50	326666	503.07

.= Proposed PV Layout

Notes:

1. Estimated kWH based on the National Renewable Energy Laboratory PVWatts Version 1 Calculator Program.