ROXBURY TOWNSHIP BOARD OF EDUCATION EISENHOWER MIDDLE SCHOOL ENERGY ASSESSMENT

for

NEW JERSEY BOARD OF PUBLIC UTILITIES

CHA PROJECT NO. 24454

October 2012

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REPORT DISCLAIMER

This audit was conducted in accordance with the standards developed by the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) for a Level II audit. Cost and savings calculations for a given measure were estimated to within $\pm 20\%$, and are based on data obtained from the owner, data obtained during site observations, professional experience, historical data, and standard engineering practice. Cost data does not include soft costs such as engineering fees, legal fees, project management fees, financing, etc.

A thorough walkthrough of the school was performed, which included gathering nameplate information and operating parameters for all accessible equipment and lighting systems. Unless otherwise stated, model, efficiency, and capacity information included in this report were collected directly from equipment nameplates and /or from documentation provided by the owner during the site visit. Typical operation and scheduling information was obtained from interviewing school staff and spot measurements taken in the field.

1.0 EXECUTIVE SUMMARY

The Roxbury Board of Education recently engaged CHA to perform an energy audit in connection with the New Jersey Board of Public Utilities' Local Government Energy Audit Program. This report details the results of the energy audit conducted for:

		Square	Construction
Building Name	Address	Feet	Date
			Original: 1969
Eigenhousen Middle Cohool	7 Evland Avanua Suggestions NI	105 940	Addition: 1993
Eisenhower Middle School	7 Eyland Avenue Succasunna, NJ	105,840	Addition: 1996
			Addition: 2003

The Energy Conservation Measures (ECMs) identified in this report will allow for a more efficient use of energy and if pursued have the opportunity to qualify for the New Jersey SmartStart Buildings Program. Potential annual savings of \$9,200 for the recommended ECMs may be realized with a combined payback of 5.0 years. A summary of the costs, savings, and paybacks for the recommended ECMs follows:

	Sum	mary of Ene	rgy Conserv	vation Meas	ures		
Ene	rgy Conservation Measure	Approx. Costs	Approx. Savings (\$/year)	Payback (Years) w/o Incentive	Potential Incentive (\$)*	Payback (Years) w/ Incentive	Recommended For Implementation
ECM-1	Install Condensiong Boilers	89,000	1,300	>20	5,300	>20	
ECM-2	Replace Electric DHW Heaters with Condensing Tankless DHW	19,000	3,000	6.3	1,100	6.0	X
ECM-3	Install Demand Control Ventilation in Auditorium	9,000	700	12.9	100	12.7	X
ECM-4	Install a Network Computer Power Management System	2,000	1,700	1.2	0	1.2	X
ECM-5	Replace Single Pane Windows With Double Pane	391,000	4,300	>20	0	>20	
ECM-6	Replace Existing Roof	2,283,000	4,300	>20	0	>20	
ECM-7	Lighting Replacement / Upgrades	11,000	3,800	2.9	2,900	2.1	X
ECM-8	Install Lighting Controls (Occupancy Sensors)	40,000	6,000	6.7	6,900	5.5	
ECM-9	Lighting Replacements with Lighting Controls (Occupancy Sensors)	51,000	9,700	5.3	9,900	4.2	
ECM- 10	Install Low Flow Fixtures	73,000	700	>20	0	>20	

2.0 INTRODUCTION AND BACKGROUND

New Jersey's Clean Energy Program, funded by the New Jersey Board of Public Utilities, supports energy efficiency and sustainability for Municipal and Local Government Energy Audits. Through the support of a utility trust fund, New Jersey is able to assist state and local authorities in reducing energy consumption while increasing comfort.

The Eisenhower Middle School is a seventh and eighth grade school located in Succasunna, NJ. It is a 105,840 square foot, single story structure with exterior block facing. The building was constructed with single pane aluminum framed windows and a flat, rubber membrane type roof. The building was constructed in 1969. Occupancy includes approximately 650 students and 65 employees, totaling 715 people. The building is assumed fully occupied from 8:00 am to 3:30 pm during the weekdays, with some maintenance and cleaning personnel operating later.



3.0 EXISTING CONDITIONS

3.1 Building - General

Built in 1969 with several renovations since, the Eisenhower Middle School is a 105,840 square foot, single-story school with office space, classrooms, gymnasium and auditorium. The building can be assumed to be fully occupied until 4:00 pm during the week. Custodial staff is typically in the building after hours during the week. The hours of operation are:

- · Monday through Friday 8:00 am to 4:00 pm
- · Saturday & Sunday, open as needed

The building is constructed of block walls and brick veneer with an air space between. The interior walls are a mixture of painted block walls and framed walls filled with fiberglass insulation and finished with gypsum board. The building is typical square shaped with main hallways and classrooms on either side. There is a courtyard in the center of the building.

3.2 Utility Usage

Utilities include electricity, natural gas, and potable water. Electricity is delivered by Jersey Central Power & Light and supplied by Direct Energy. Electricity supply bills were not obtained and therefore the electricity rate is skewed. Natural gas supplied by Hess and delivered by New Jersey Natural Gas. Water is paid for through New Jersey American Water.

The building has one electric meter serving the site. From June 2011 through May 2012, the electric usage for the school was as follows:

Actual Cost & Site Usage by Utility

	Electric	
Annual Usage	1,444,174	kWh/yr.
Annual Cost	179,021	\$
Blended Rate	0.124	\$/kWh
Supply Rate	N/A	\$/kWh
Demand Rate	N/A	\$/kW
Peak Demand	399	kW
Min. Demand	324	kW
Avg. Demand	363	kW
	Natural Gas	
Annual Usage	19,171	therms/yr.
Annual Cost	23,532	\$
Rate	1.23	\$/Therm

Electrical usage was generally higher in the summer months when air conditioning equipment was operational. Natural gas consumption was highest in winter months for heating. See Appendix A for a detailed utility analysis.

Under New Jersey's energy deregulation law, the supply portion of the electric (or natural gas) bill is separated from the delivery portion. With the supply portion open to competition, customers can shop around for the best price on their energy supplies. Their electric and natural gas distribution utilities will still deliver those supplies through their wires and pipes – and respond to emergencies, should they arise – regardless of where those supplies are purchased. Purchasing your energy supplies from a company other than your electric or gas utility is purely an economic decision; it has no impact on the reliability or safety of your service. Additional information on selecting a third party energy supplier is available here: http://www.state.nj.us/bpu/commercial/shopping.html. See Appendix A for a list of third-party energy suppliers licensed by the Board of Public Utilities to sell within the building's service area.

3.3 HVAC Systems

The systems and equipment described below serve the school building. Specifics on the mechanical equipment can be found within the equipment inventory located in Appendix B.

Typically each classroom is served by a unit ventilator, which consists of heating/cooling coils, a circulation fan, outdoor air and return air dampers and temperature controls. During our audit we found that the unit ventilators are turned off due to comfort and/ or noise issues. When the units are "off", the dampers are closed and no outdoor air is being introduced through the unit, therefore the heating load on the unit is much diminished. Replacing the existing unit ventilators with new units would require that the outside air quantity be provided to each classroom to meet the present code requirements which would result in an increase in energy use verses the current units. Although modern controls can help reduce the amount of energy used, ultimately the new unit ventilators will consume more energy than the present units.

3.3.1 Heating Systems

The original 1969 boilers were replaced in 1993 with eight (8) 160 MBH Glowcore hot water boilers having rated efficiencies of 88%. These boilers are located exterior to the building in a prefabricated l boiler room. Two (2) 378 MBH Buderus G334 boilers were installed in 2012 in the main boiler room within the school. These units have a rated efficiency of 83%. The boilers provide heating hot water to the school's Lennox rooftop units. There are also several unit ventilators that provide electric heat to the school.

Heating hot water is distributed throughout the building with four 5 HP Emerson 87.5% efficient pumps. The pumps operate in lead/lag fashion.

3.3.2 Package Direct Expansion (DX) Cooling

Cooling is provided by direct expansion (DX) units on f the roof that were installed in 1993. Cooling is provided in the auditorium, gymnasium, administration offices and some classrooms. On-site observations concluded that approximately 30% of the school has supplied cooling. There is a total of 70 tons of cooling within the school.

The restrooms, classrooms and corridors are ventilated using roof mounted exhaust fans.

3.4 Lighting/Electrical Systems

Since building construction in 1969, the school has re-ballasted and re-lamped some of their fixtures. A mixture of T12 and T8 lamps, compact fluorescent twin biaxial lamps, and compact fluorescent spiral lamps are utilized. Older style incandescent lamps are also used in select areas. The gymnasium uses 400 W metal halide lighting. The primary control method for the lights is wall switches which are manually turned on at 6:30 am and off at 4:00 pm.

3.5 Plumbing Systems

3.6.1 Domestic Hot Water System

Domestic hot water is provided by four separate tank-type electric domestic hot water heaters located in different parts of the building. The main unit is a 36 kW 116 gallon Rudd Electric water heater. There are two Bradford White electric water heaters totaling 80 gal and one 40 gal A.O. Smith unit. These units serve the toilet rooms, showers and kitchen.

3.6.2 Plumbing Fixtures

The building's lavatories, water closets, and urinals have been replaced with low-flow plumbing fixtures. In general, lavatories are 2.5 GPM with push type metering faucets, water closets are 1.6 gallons per flush (GPF), and urinals are 1.0 GPF.

4.0 ENERGY CONSERVATION MEASURES

4.1 ECM-1 Install Condensing Boilers

The building is heated with hot water supplied by eight (8) Glowcore 160 MBH and two (2) Buderus 378 MBH hot water boilers. Both sets of boilers are non-condensing, and supplied with natural gas. The Glowcore boilers have an efficiency of 88% and the Buderus boilers have an efficiency of 83%.

The existing boilers are non-condensing type and therefore have maximum thermal efficiencies in the 83-88% range. New condensing gas boilers are available that operate at minimally operate at 92%, but can operate as high as 96%. This ECM assesses the replacement of the standard boilers with equally sized condensing gas boilers.

To implement this ECM, the old boilers would be removed and the new boilers and primary pumps put in their place. Piping and wiring modifications would be needed. Dedicated boiler venting would also need to be installed either through the roof or sidewall.

It was assumed that all of the facilities natural gas is used for heating as both the kitchen equipment and domestic hot water systems are electric. The boiler fuel consumption was calculated from the natural gas used annually for the entire year per utility bills and boiler efficiency. The existing boiler efficiency was then compared to the efficiency of new condensing boilers. The difference in fuel usage was the savings.

The implementation cost and savings related to this ECM are presented in Appendix C and summarized below:

ECM-1 HVAC Condensing Boilers Addition

Budgetary		Annual Utilit	ty Savings		Estimated	Total			Payback	Payback
Cost					Maintenance	Savings	ROI	Incentive	(without	(with
	Electric	Electric	Nat Gas	Total	Savings				incentive)	incentive)
\$	kWh	kW	Therms	\$	\$	\$		\$	Years	Years
89,000	0	0	1,000	1,300	0	1,300	(0.6)	5,300	>20	>20

^{*} Incentive shown is per the New Jersey Smart Start Program. See section 5.0 for other incentive opportunities.

This measure is not recommended.

4.2 ECM-2 Replace Electric Water Heaters with Natural Gas Fired Water Heaters

The school utilizes four water heaters to produce domestic hot water. The main DHW heater is a 36 kW Rudd Electric heater. The capacity is 116 gallons. The secondary DHW heater is a Bradford White 6 kW unit with 50 gallon capacity. A third 4.5 kW unit was manufactured by A.O. Smith and has 40 gallon capacity. Finally, another Bradford White heater is also 4.5 kW and has a capacity of 30 gallons. These water heaters use a substantial amount of electricity to heat water that is not used. Based on actual usage

of the areas served these units could be replaced with instantaneous tankless units. Converting to lower cost natural gas will result in fuel savings. This ECM assesses replacing the electric powered DHW heaters that serve school with high efficiency condensing gas water heaters. To implement this ECM, piping and electrical wiring will need to be modified as well as new venting installed. The electrical power currently supplied to these units could be used to power other equipment.

The implementation cost and savings related to this ECM are presented in Appendix C and summarized below:

ECM-2 Replace Electric Domestic Hot Water Heaters with Natural Gas

Budgetary		Aı	nnual Utility Sa	vings		Estimated	Total		Potential	Payback	Payback
Cost						Maintenance	Savings	ROI	Incentive*	(without	(with
	Electricity Natural Gas Water Total					Savings				Incentive)	Incentive)
\$	kW kWh Therms KGals \$				\$	\$		\$	Years	Years	
20,000	50	34,700	(1,100)	3,000	0	3,000	2.0	1,100	6.7	6.3	

^{*} Incentive shown is per the New Jersey SmartStart Program. See section 5.0 for other incentive opportunities.

Expected Life: 20 years

Lifetime Savings: 694,000 kWh -22,000 therms \$ 60,000

This measure is recommended.

4.3 ECM-3 Install Demand Control Ventilation in the Auditorium

Packaged rooftop units that serve the auditorium (RTU-2 and RTU-3) are assumed to provide the full occupancy design ventilation outside air flow even during times of low or no occupancy. By reducing the amount of outside air during low occupancy periods will reduce heating and cooling energy. Installing carbon dioxide sensors (CO2) will allow the quantity of ventilation air to be based on maintaining an acceptable carbon dioxide (CO₂) level in the space as an indicator of indoor air quality. A limit of 1000 PPM of CO₂ is recommended in ASHRAE Standard 62-2010, Ventilation for Acceptable Indoor Air Quality. Sensors could be installed to measure the building air CO₂ concentration, and the control sequence of operation programmed into the BAS to control the position of the outdoor air dampers. During unoccupied periods, the outside air dampers should be closed.

For the analysis, estimated savings for demand control ventilation are based on reducing the total average volume of outside air by 50% based on observed space usage. The energy savings are the differences in utility usage

The implementation cost and savings related to this ECM are presented in Appendix C and summarized below:

ECM-3 HVAC Demand Control Ventilation

Budgetary		Annual Utilit	y Savings		Estimated	Total			Payback	Payback
Cost					Maintenance	Savings	ROI	Incentive	(without	(with
	Electric	Electric	Nat Gas	Savings				incentive)	incentive)	
\$	kWh	kW	Therms	\$	\$	\$		\$	Years	Years
9,000	1,300	0	500	700	0	700	0.2	100	12.9	12.7

^{*} Incentive shown is per the New Jersey Smart Start Program. See section 5.0 for other incentive opportunities.

This measure is not recommended.

4.4 ECM-4 Network Controller Software

Personal computers can consume large amounts of electricity unnecessarily if left on for long periods of time when not in use, even in sleep mode. This measure assessed implementation of proprietary network manager software that monitors the usage and shuts off all computers and monitors that are inactive. This software does not effect on daily network operation and does not compromise security firewalls.

The implementation cost and savings related to this ECM are presented in Appendix C and summarized below:

ECM-4 Network Controller Software

Budgetary		Annual Utili	ty Savings		Estimated	Total			Payback	Payback
Cost		 	Г	T	Maintenance	Savings	ROI	Incentive*	(without	(with
	Electric	Electric	Nat Gas	Total	Savings				incentive)	incentive)
\$	kWh	kW	Therms	\$	\$	\$		\$	Years	Years
2,000	14,000	0	0	1,700	0	1,700	4.7	0	1.2	1.2

^{*} There are currently no incentives available for this measure

This measure is recommended.

4.5 ECM-5 Replace Single Pane Windows with Thermal Efficient Windows

The school has 3,906 square feet of window area. These windows are constructed with aluminum frames and single pane glazing. Due to age, construction type, and condition, the windows incur excess air infiltration and provide average thermal resistance to heat transfer. An assessment considered installing 4 1/4" dual glazed windows to decrease energy losses.

The calculation uses bin hours to estimate the occupied and unoccupied bin hours. This is converted to existing energy for the occupied and unoccupied cases using the existing window U-factor and the

heating and cooling temperature. The two are summed together to create the annual utility usage for the baseline. The same steps are done to calculate the proposed utility usage. The difference in heating losses through the windows resulted in annual heating and cooling savings.

The implementation cost and savings related to this ECM are presented in Appendix C and summarized as follows:

ECM-5 Window Replacements and Reduced Glazing

i 											
Budgetary		Aı	nnual Utility Sa	vings		Estimated	Total		Potential	Payback	Payback
Cost						Maintenance	Savings	ROI	Incentive*	(without	(with
	Electricity Natural Gas Water Total				Savings				Incentive)	Incentive)	
\$	kW kWh Therms		KGals	\$	\$	\$		\$	Years	Years	
391,000	0 2,700		3,300	0	4,300	0	4,300	(0.7)	0	>20	>20

^{*} Does not qualify for an Incentive per the New Jersey SmartStart Program. See section 5.0 for other incentive opportunities.

This measure is not recommended.

4.6 ECM-6 Roof Replacement

The roof is constructed of metal roof decking, insulation, and a rubber mat system. The roof has surpassed its useful life and needs to be replaced. This ECM addresses replacing the roof to minimize heating and cooling energy losses.

To calculate the savings, the heat losses through the roof assembly of the school was found using the existing roof's R-value of 13.0 and bin weather data for nearby Newark, NJ. The values were totaled to determine the existing annual energy losses. Heating and cooling energy loss values were then determined with a thermal resistance which included the replacement roof R-value of 18.0. The annual energy savings of replacing the roof is detailed in the summary table below.

The implementation cost and savings related to this ECM are presented in Appendix C and summarized below:

ECM-6 Roof Replacement

Budgetary		Ai	nnual Utility Sa	vings		Estimated	Total		Potential	Payback	Payback
Cost						Maintenance	Savings	ROI	Incentive*	(without	(with
	Electricity Natural Gas Water Total					Savings				Incentive)	Incentive)
\$	kW kWh Therms KGals \$				\$	\$		\$	Years	Years	
2,283,000	0 1,300 3,400 0 4,300				0	4,300	(0.4)	0	>20	>20	

^{*} There is no incentive available through the New Jersey Smart Start or Direct Install Programs for this ECM. See section 5.0 for other incentive opportunities.

Expected Life:	30	years				
Lifetime Savings:	39,000	kWh	102,000	therms	\$129,000	

This measure is not recommended.

4.7 ECM-7 Lighting Replacement

Modern fluorescent lamps convert electrical power into useful light more efficiently than an incandescent lamp or T-12 bulbs. A comprehensive fixture survey was conducted of the entire building. Each switch and circuit was identified, and the number of fixtures, locations, and existing wattage established (Appendix C). There is an opportunity to reduce consumption by upgrading the existing T-12 fixtures to T-8 or super T-8 fixtures. Supporting calculations, including assumptions for lighting hours and annual energy usage for each fixture, are provided in Appendix C.

The implementation cost and savings related to this ECM are presented in Appendix C and summarized below:

ECM 7-Lighting Replacement

	2011 / Lighting Replacement											
Budgetary Cost	Annual Utility Savings				Estimated Maintenance	Total Savings	ROI	Incentive *	Payback (without	Payback (with		
	Electric	Electric	Nat Gas	Total	Savings				incentive)	incentive)		
\$	kWh	kW	Therms	\$	\$	\$		\$	Years	Years		
11,000	31,000	20	0	3,800	0	3,800	4.2	2,900	2.9	2.1		

^{*} Incentive shown is per the New Jersey Smart Start Program. See section 5.0 for other incentive opportunities.

Expected Life:

Lifetime Savings: 465,000 kWh 0 therms 57,000

This measure is recommended.

4.8 ECM-8 Install Occupancy Sensors

The current lighting is controlled by manual switches. Lights are generally turned on in the morning and shut off at night. During occupied times, there are rooms that are not occupied; however, the lights remain on. Adding occupancy controls to the individual rooms will automatically control the lights based on occupancy. The occupancy sensor can be wall mounted near the switch or placed at the ceiling for larger room coverage. All occupancy sensors are equipped with a manual override feature. These sensors are generally not recommended in public toilet rooms.

The implementation cost and savings related to this ECM are presented in Appendix C and summarized below:

ECM-8 Install Lighting Controls (Occupancy Sensors)

Budgetary Cost	Annual Utility Savings				Estimated Maintenance	Total Savings	ROI	Incentive *	Payback (without	Payback (with
	Electric	Electric	Nat Gas	Total	Savings				incentive)	incentive)
\$	kWh	kW	Therms	\$	\$	\$		\$	Years	Years
40,000	48,600	0	0	6,000	0	6,000	1.3	6,900	6.7	5.5

entive shown is per the New Jersey Smart Start Program. See section 5.0 for other incentive opportunities.								
Expected Life:	15	years						
Lifetime	729,000	kWh	0	therms	_	\$	_	

Savings:	90,000
This measure is not recommended in lieu of ECM-7.	
4.9 ECM-9 Lighting Replacements with Occupancy Sensors	

Due to interactive effects, the energy and cost savings for occupancy sensors and lighting upgrades are not cumulative. This measure is a combination of ECM-7 and ECM-8 to reflect actual expected energy and demand reduction.

The implementation cost and savings related to this ECM are presented in Appendix C and summarized as follows:

ECM-9 Lighting Replacements with Lighting Controls (Occupancy Sensors)

Budgetary Cost	Annual Utili	ity Savings			Estimated Maintenance	Total Savings	ROI	Incentive *	Payback (without	Payback (with
	Electric	Electric	Nat Gas	Total	Savings				incentive)	incentive)
\$	kWh	kW	Therms	\$	\$	\$		\$	Years	Years
51,000	78,500	0	0	9,700	0	9,700	1.9	9,900	5.3	4.2

* Incentive shown is per the New Jers	v Smart Start Program, See section	1.5.0 for other incentive opportunities.

Expected Life: 15 years

Lifetime
Savings: 1,177,500 kWh 0 therms

\$ 145,500

This measure is not recommended in lieu of ECM-7.

4.10 ECM-10 Install Low Flow Fixtures

The existing toilet room fixtures consume more water than modern plumbing fixtures. It was determined that the current toilets and urinals with an average water use of 1.6 gal/flush for toilets and 1.6 gal/flush for urinals and 2.2 gallons per minute for faucets. Based on the number of occupants, it was estimated that each toilet and faucet is utilized approximately three times per day. The water savings associated from replacing these fixtures with low-flow fixtures was calculated by taking the difference of the annual water usage for the proposed and base case. The basis of this calculation is the number of times each fixture is used, gallons per use, and number of fixtures. Replacing the existing fixtures in the restrooms with 1.28 gals/flush toilets and 0.5 gal/flush urinals and 0.5 gallon per minute faucets.

ECM-10 Install Low Flow Fixtures

Budgetary Cost	Annual Uti	lity Savings			Estimated Maintenance	Total Savings	ROI	Incentive *	Payback (without	Payback (with
	Electric	Electric	Nat Gas	Total	Savings				incentive)	incentive)
\$	kWh	kW	Therms	\$	\$	\$		\$	Years	Years
73,000	0	0	0	700	0	700	(0.9)	0	>20	>20

Expected Life:	15	years			
Lifetime Savings:	0	kWh	0	therms	\$ 10,500

This measure is not recommended.

5.0 PROJECT INCENTIVES

5.1 Incentives Overview

5.1.1 New Jersey Pay For Performance Program

The school will be eligible for incentives from the New Jersey Office of Clean Energy. The most significant incentives are available from the New Jersey Pay for Performance (P4P) Program. The P4P program is designed for qualified energy conservation projects applied to facilities whose demand in any of the preceding 12 months exceeds 100 kW. This average minimum has been waived for buildings owned by local governments or municipalities and non-profit organizations, however. Facilities that meet this criterion must also achieve a minimum performance target of 15% energy reduction by using the EPA Portfolio Manager benchmarking tool before and after implementation of the measure(s). If the participant is a municipal electric company customer, and a customer of a regulated gas New Jersey Utility, only gas measures will be eligible under the Program. Available incentives are as follows:

Incentive #1: Energy Reduction Plan – This incentive is designed to offset the cost of services associated with the development of the Energy Reduction Plan (ERP).

Incentive Amount: \$0.10/SFMinimum incentive: \$5,000

• Maximum Incentive: \$50,000 or 50% of School annual energy cost

The standard incentive pays \$0.10 per square foot, up to a maximum of \$50,000, not to exceed 50% of school annual energy cost, paid after approval of application. For building audits funded by the New Jersey Board of Public Utilities, which receive an initial 75% incentive toward performance of the energy audit, facilities are only eligible for an additional \$0.05 per square foot, up to a maximum of \$25,000, rather than the standard incentive noted above.

Incentive #2: Installation of Recommended Measures – This incentive is based on projected energy savings as determined in Incentive #1 (Minimum 15% savings must be achieved), and is paid upon successful installation of recommended measures.

Electric

- Base incentive based on 15% savings: \$0.09/ per projected kWh saved.
- For each % over 15% add: \$0.005 per projected kWh saved.
- Maximum incentive: \$0.11/kWh per projected kWh saved

Gas

- Base incentive based on 15% savings: \$0.90/ per projected Therm saved.
- For each % over 15% add: \$0.05 per projected Therm saved.
- Maximum incentive: \$1.25 per projected Therm saved

Incentive cap: 25% of total project cost

Incentive #3: Post-Construction Benchmarking Report – This incentive is paid after acceptance of a report proving energy savings over one year utilizing the Environmental Protection Agency (EPA) Portfolio Manager benchmarking tool.

Electric

- Base incentive based on 15% savings: \$0.09/ per projected kWh saved.
- For each % over 15% add: \$0.005 per projected kWh saved.

• Maximum incentive: \$0.11/kWh per projected kWh saved

Gas

- Base incentive based on 15% savings: \$0.90/ per projected Therm saved.
- For each % over 15% add: \$0.05 per projected Therm saved.
- Maximum incentive: \$1.25 per projected Therm saved

Incentives #2 and #3 can be combined to yield additive savings.

		Incentives \$					
	Elec	Gas	Total				
Incentive #1	\$0	\$0	\$10,584				
Incentive #2	\$0	\$0	\$0				
Incentive #3	\$0	\$0	\$0				
Total All Incentives	\$0	\$0	\$10,584				

The current ECM's does not meet the minimum savings of 15% and therefore the building will not be eligible for incentives #2 and #3. See Appendix D for additional details.

5.1.2 New Jersey Smart Start Program

For this program, specific incentives for energy conservation measures are calculated on an individual basis utilizing the 2011 New Jersey Smart Start incentive program. This program provides incentives dependent upon mechanical and electrical equipment. If applicable, incentives from this program are reflected in the ECM summaries and attached appendices.

If the complex qualifies and enters into the New Jersey Pay for Performance Program, all energy savings will be included in the total site energy reduction, and savings will be applied towards the Pay for Performance incentive. A project is not applicable for both New Jersey incentive programs.

5.1.3 Direct Install Program

The Direct Install Program targets small and medium sized facilities where the peak electrical demand does not exceed 150 kW in any of the previous 12 months. Buildings must be located in New Jersey and served by one of the state's public, regulated electric or natural gas utility companies.

Direct Install is funded through New Jersey's Clean Energy Program and is designed to provide capital for building energy upgrade projects to fast track implementation. The program will pay up to 70% of the costs for lighting, HVAC, motors, natural gas, refrigeration, and other equipment upgrades with higher efficiency alternatives. If a building is eligible for this funding, the Direct Install Program can significantly reduce the implementation cost of energy conservation projects.

The program pays 70% of each project cost up to \$75,000 per electrical utility account; total funding for each year is capped at \$250,000 per customer. Installations must be completed by a Direct Install participating contractor, a list of which can be found on the New Jersey Clean Energy Website at http://www.njcleanenergy.com. Contractors will coordinate with the applicant to arrange installation of recommended measures identified in a previous energy assessment, such as this document.

Due to the peak demand observed from the utility bills of 381 kW in April of 2012, this building is not eligible for the direct install program.

5.1.4 Energy Savings Improvement Plans (ESIP)

The Energy Savings Improvement Program (ESIP) allows government agencies to make energy related improvements to their facilities and pay for the costs using the value of energy savings that result from the improvements. Under the recently enacted Chapter 4 of the Laws of 2009 (the law), the ESIP provides all government agencies in New Jersey with a flexible tool to improve and reduce energy usage with minimal expenditure of new financial resources.

ESIP allows local units to use "energy savings obligations" to pay for the capital costs of energy improvements to their facilities. This can be done over a maximum term of 15 years. Energy savings obligations are not considered "new general obligation debt" of a local unit and do not count against debt limits or require voter approval. They may be issued as refunding bonds or leases. Savings generated from the installation of energy conservation measures pay the principal of and interest on the bonds; for that reason, the debt service created by the ESOs is not paid from the debt service fund, but is paid from the general fund.

For local governments interested in pursuing an ESIP, the first step is to perform an energy audit. Pursuing a Local Government Energy Audit through New Jersey's Clean Energy Program is a valuable first step to the ESIP approach. The "Local Finance Notice" outlines how local governments can develop and implement an ESIP for their facilities (see Appendix E). The ESIP can be prepared internally if the entity has qualified staff. If not, the ESIP must be implemented by an independent contractor and not by the energy savings company producing the Energy Reduction Plan.

The ESIP approach may not be appropriate for all energy conservation and energy efficiency improvements. Local units should carefully consider all alternatives to develop an approach that best meets their needs.

6.0 ALTERNATIVE ENERGY SCREENING EVALUATION

6.1 Solar

6.1.1 Photovoltaic Rooftop Solar Power Generation

The school was evaluated for the potential to install rooftop photovoltaic (PV) solar panels for power generation. Present technology incorporates the use of solar cell arrays that produce direct current (DC) electricity. This DC current is converted to alternating current (AC) with the use of an electrical device known as an inverter. The building's roof has sufficient room to install a large solar cell array. All rooftop areas have been replaced, and are in good condition. It is recommended to install a permanent PV array at this time.

The PVWATTS solar power generation model was utilized to calculate PV power generation. The closest city available in the model is Newark, New Jersey and a fixed tilt array type was utilized to calculate energy production. The PVWATT solar power generation model is provided in Appendix F.

Federal tax credits are also available for renewable energy projects up to 30% of installation cost. Since the school is a non-profit organization, federal taxes are paid and this project is eligible for this incentive.

Installation of (PV) arrays in the state New Jersey will allow the owner to participate in the New Jersey solar renewable energy certificates program (SREC). This is a program that has been set up to allow entities with large amounts of environmentally unfriendly emissions to purchase credits from zero emission (PV) solar-producers. One SREC credit is equivalent to 1000 kilowatt hours of PV electrical production; these credits can be traded for period of 15 years from the date of installation. The average SREC value per credit is estimated to be about \$65/ SREC per year based on current market data, and this number was utilized in the cash flow for this report.

The system costs for PV installations were derived from contractor budgetary pricing in the state of New Jersey for estimates of total cost of system installation. It should be noted that the cost of installation is currently about \$4.00 per watt or \$4,000 per kW of installed system. Other cost considerations will also need to be considered. PV panels have an approximate 20 year life span; however, the inverter device that converts DC electricity to AC has a life span of 10 to 12 years and will need to be replaced multiple times during the useful life of the PV system.

The implementation cost and savings related to this ECM are presented in Appendix F and summarized as follows:

Photovoltaic (PV) Solar Power Generation - Screening Assessment

Budgetary Cost	Annual Utility Savings		Estimated Maintenance Savings	Total Savings	Federal Tax Credit	New Jersey Renewable ** SREC	Payback (without incentive)	Payback (with incentive)		
\$	kW	kWh	therms	\$	\$	\$	\$	\$	Years	Years
\$720,000	180	224,800	0	\$27,900	0	\$27,900	\$0	\$14,600	25.8	16.9

^{*} No federal tax credit currently available.

This measure is not recommended due to the long payback time. It is suggested, however, that the market for SREC credits is closely monitored. This market is fluctuating, and if the value per SREC is increased the measure could potentially show for a shorter payback in the near future.

6.1.2 Solar Thermal Hot Water Plant

Active solar thermal systems use solar collectors to gather the sun's energy to heat water, another fluid, or air. An absorber in the collector converts the sun's energy into heat. The heat is then transferred by circulating water, antifreeze, or sometimes air to another location for immediate use or storage for later utilization. Applications for active solar thermal energy include providing hot water, heating swimming pools, space heating, and preheating air in residential and commercial buildings.

A standard solar hot water system is typically composed of solar collectors, heat storage vessel, piping, circulators, and controls. Systems are typically integrated to work alongside a conventional heating system that provides heat when solar resources are not sufficient. The solar collectors are usually placed on the roof of the building, oriented south, and tilted around the site's latitude, to maximize the amount of radiation collected on a yearly basis.

Several options exist for using active solar thermal systems for space heating. The most common method involves using glazed collectors to heat a liquid held in a storage tank (similar to an active solar hot water

^{**} Solar Renewable Energy Certificate Program (SREC) for 2012 is \$65/1000kwh

system). The most practical system would transfer the heat from the panels to thermal storage tanks an transfer solar produced thermal energy to use for domestic hot water production. DHW is presentl produced by gas-fired water heaters and, therefore, this measure would offer natural gas utility savings.	ıd ly

7.0 EPA PORTFOLIO MANAGER

The EPA Portfolio Manager benchmarking tool was used to assess the building's energy performance. Portfolio Manager provides a Site and Source Energy Use Intensity (EUI), as well as an Energy Star performance rating for qualifying building types. The EUIs are provided in kBtu/ft²/year, and the performance rating represents how energy efficient a building is on a scale of 1 to 100, with 100 being the most efficient. In order for a building to receive and Energy Star label, the energy benchmark rating must be at least 75. As energy use decreases from implementation of the proposed ECMs, the Energy Star rating will increase.

The Site EUI is the amount of heat and electricity consumed by a building as reflected in utility bills. Site energy may be delivered to a school in the form of primary energy, which is raw fuel burned to create heat or electricity (such as natural gas or oil), or as secondary energy, which is the product created from a raw fuel (such as electricity or district steam). Site EUI is a measure of a building's annual energy utilization per square foot. Site EUI is a good measure of a building's energy use and is utilized regularly for comparison of energy performance for similar building types.

Site Energy Intensity = (Electric Usage in kBtu + Natural Gas in kBtu) Building Square Footage

To provide an equitable comparison for different buildings with varying proportions of primary and secondary energy consumption, the Portfolio Manager uses the convention of Source EUIs. The source energy also accounts for all losses incurred in production, storage, transmission, and delivery of energy to the site; which provides an equivalent measure for various types of buildings with different energy sources.

Source Energy Intensity = (Electric Usage in kBtu X Site/Source Ratio + Natural Gas in kBtu X Site/Source Ratio)

Building Square Footage

The EPA Score, Site EUI, and Source EUI for Eisenhower Middle School are as follows:

Energy	Eisenhower Middle	National
Intensity	School	Average
EPA Score	28	50
Site (kBtu/sf/year)	65	63
Source (kBtu/sf/year)	174	115

To be eligible to receive a national Energy Star score, a building must meet all three of these requirements:

- 1. Building designation More than 50 percent of the building's gross floor area must be one of the spaces eligible to receive an Energy Star score. The remainder of the building must abide by specific rules for each space type.
- 2. Operating characteristics To ensure the building is consistent with the peer group used for comparison, each space in your building must meet certain minimum and maximum thresholds for key operating characteristics.
- 3. Energy data At least 12 full consecutive calendar months for all active meters, accounting for all energy use (regardless of fuel type) in the building.

In addition, a Licensed Professional (meaning a Professional Engineer or Registered Architect) must verify that all energy use is accounted for accurately, that the building characteristics have been properly reported (including the square footage of the building), that the building is fully functional in accordance with industry standards, and that each of the indoor environment criteria has been met.

For the School to qualify for the Energy Star label the EPA score is required to be above 75. There are several energy conservation measures recommended in this report, that if implemented will further reduce the energy use intensity and increase the EPA score of the Middle School. This building is not eligible for Energy Star certification at this time.

The Portfolio Manager account can be accessed by entering the username and password shown below at the login screen of the Portfolio Manager website (https://www.energystar.gov/istar/pmpam/).

A full EPA Energy Star Portfolio Manager Report is located in Appendix G.

The user name ("roxburyboe") and password ("energystar") for the building's EPA Portfolio Manager Account has been provided to the Roxbury Township Board of Education.

8.0 CONCLUSIONS & RECOMMENDATIONS

The energy audit conducted by CHA at the Eisenhower Middle School identified potential ECMs for lighting and control replacement, HVAC replacement, DHW replacement, demand controlled ventilation. Potential annual savings of \$9,200 may be realized for the recommended ECMs, with a summary of the costs, savings, and paybacks as follows:

ECM-2 Replace Electric DHW Heaters with Condensing Tankless DHW

_		Tropiaco -	11001110 2	·····	<u> </u>	remaining re					
	Budgetary Cost	y Annual Utility Savings				Estimated Maintenance				Payback (without	Paybac (with
		Electric	Electric	Nat Gas	Total	Savings				incentive)	incentive
	\$	kWh	kW	Therms	\$	\$	\$		\$	Years	Years
	19,000	34,700	50	-1,100	3,000	0	3,000	2.2	1,100	6.3	6.0

Expected Life: 20 years

Lifetime Savings: 694,000 kWh -22,000 therms \$ 60,000

ECM-3 Install Demand Control Ventilation in Auditorium

-											
	Budgetary Cost	, ,			Estimated Maintenance	Total Savings	ROI	Incentive *	Payback (without	Payback (with	
L		Electric	Electric	Nat Gas	Total	Savings				incentive)	incentive)
	\$	kWh kW Therms \$		\$	\$	\$		\$	Years	Years	
	9,000	1,300 0 500 700		700	0	700	0.2	100	12.9	12.7	

Expected Life: 15 years

Lifetime Savings: 19,500 kWh 7,500 therms \$ 10,500

ECM-4 Install a Network Computer Power Management System

Budgetary Cost	Annual Util	ity Savings			Estimated Maintenance	Total Savings	ROI	Incentive *	Payback (without	Payback (with
	Electric	Electric	Nat Gas	Total	Savings				incentive)	incentive)
\$	kWh	kW	Therms	\$	\$	\$		\$	Years	Years
2,000	14,000	0	0	1,700	0	1,700	4.7	0	1.2	1.2

Expected Life: 5 years

Lifetime Savings: 70,000 kWh 0 therms \$ 8,500

ECM-7 Lighting Replacement / Upgrades

Budgetary Cost	Cost				Estimated Maintenance	Total Savings	ROI	Incentive *	Payback (without	Payback (with
	Electric	Electric	Nat Gas	Total	Savings				incentive)	incentive)
\$	kWh	kW	Therms	\$	\$	\$		\$	Years	Years
11,000	31,000	20	0	3,800	0	3,800	4.2	2,900	2.9	2.1

 Expected Life:
 15
 years

 Lifetime Savings:
 465,000
 kWh
 0
 therms
 \$ 57,000

APPENDIX A
Utility Usage Analysis
New Jersey BPU - Energy Audits Page 24 of 31

Roxbury Township BOE 42 Hillside Ave. Succasunna, NJ 07876 Electric Service
Delivery - JCP&L
Supplier -

For Service at: Eisenhower Middle School

Account No.: 100000-1566-36 (Shared between HS and MS)

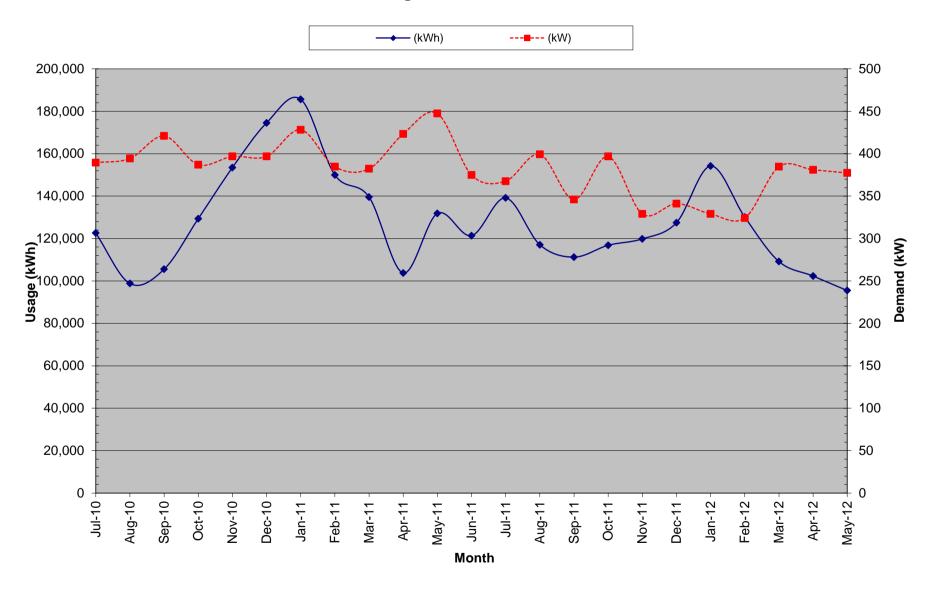
Meter No.: 21050205

					Charges				Unit (Costs		
	Consumption	Demand		Total	Delivery	Supply	Blend	ded Rate	Cons	umption	Der	nand
Month	(kWh)	(kW)		(\$)	(\$)	(\$)	(\$/	/kWh)	(\$/	kWh)	(\$/	kW)
July-10	122,592	389.48	\$	16,181.21			\$	0.132	\$	0.132	\$	-
August-10	98,801	394.32	\$	13,623.16			\$	0.138	\$	0.138	\$	-
September-10	105,523	420.95	\$	14,327.87			\$	0.136	\$	0.136	\$	-
October-10	129,365	387.07	\$	16,700.76			\$	0.129	\$	0.129	\$	-
November-10	153,461	396.76	\$	19,332.22			\$	0.126	\$	0.126	\$	-
December-10	174,539	396.76	\$	21,630.95			\$	0.124	\$	0.124	\$	-
January-11	185,647	428.20	\$	23,039.97			\$	0.124	\$	0.124	\$	-
February-11	149,988	384.66	\$	18,243.05			\$	0.122	\$	0.122	\$	-
March-11	139,573	382.23	\$	16,647.64			\$	0.119	\$	0.119	\$	-
April-11	103,773	423.36	\$	13,311.53			\$	0.128	\$	0.128	\$	-
May-11	131,842	447.44	\$	21,106.57			\$	0.160	\$	0.160	\$	-
June-11	121,367	374.92	\$	14,553.94			\$	0.120	\$	0.120	\$	-
July-11	139,142	367.64	\$	20,337.90			\$	0.146	\$	0.146	\$	-
August-11	117,052	399.28	\$	14,897.72			\$	0.127	\$	0.127	\$	-
September-11	111,241	345.94	\$	14,081.74			\$	0.127	\$	0.127	\$	-
October-11	116,826	396.76	\$	14,352.38			\$	0.123	\$	0.123	\$	-
November-11	119,830	329.00	\$	14,521.43			\$	0.121	\$	0.121	\$	-
December-11	127,468	341.10	\$	15,359.83			\$	0.120	\$	0.120	\$	-
January-12	154,181	329.00	\$	17,996.78			\$	0.117	\$	0.117	\$	-
February-12	130,118	324.18	\$	15,234.42			\$	0.117	\$	0.117	\$	-
March-12	109,162	384.66	\$	13,252.16			\$	0.121	\$	0.121	\$	-
April-12	102,316	381.02	\$	12,561.65			\$	0.123	\$	0.123	\$	-
May-12	95,470	377.38	\$	11,871.14			\$	0.124	\$	0.124	\$	-
Total (12-months)	1,444,174	399.28	9	179,021.09	\$0.00	\$0.00	\$	0.124	\$	0.124	\$	-

(*All values estimated based on sq. ft. percentage between HS and MS)

(*Blue text indicates estimation due to no available bill)

Electric Usage - Eisenhower Middle School



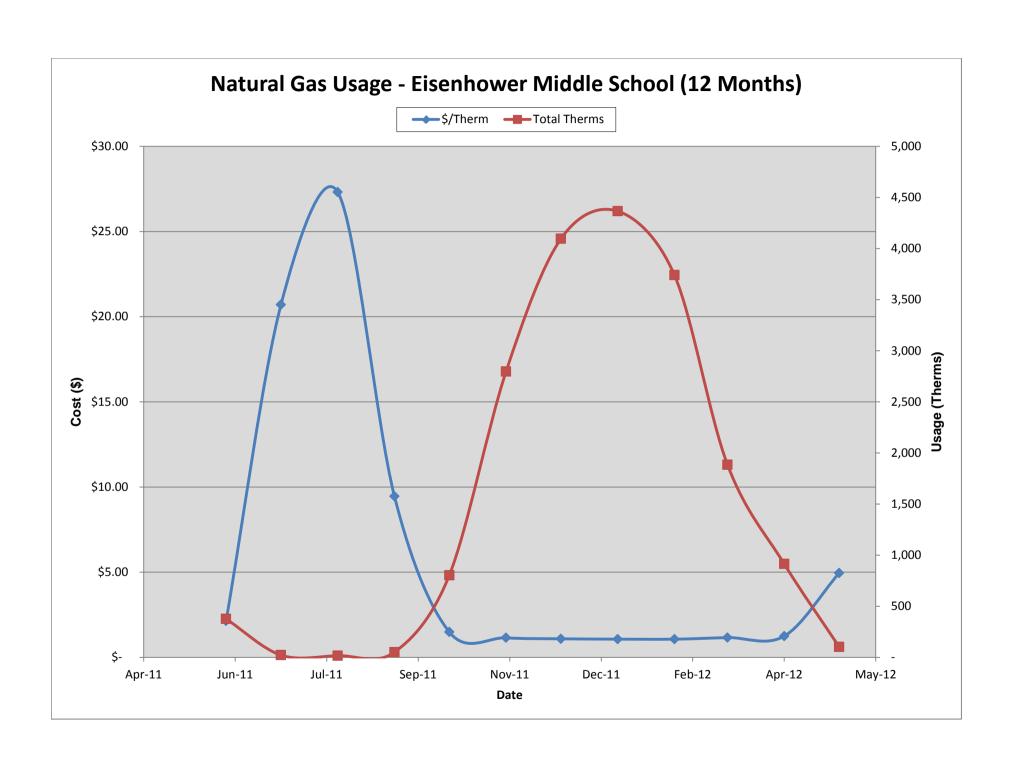
Roxbury Township BOE 42 Hillside Ave. Succasunna, NJ 07876 Gas Service
Delivery - NJNG
Supplier -

For Service at: Eisenhower Middle School

Account No.: 03-1111-2300-14

Meter No.: 00745957

Month	Total (\$)	Delivery (\$)	Supply (\$)	Total Therms	\$/Therm
Sep-10	\$ 455.25			26	\$ 17.51
Oct-10	\$ 1,652.28			1,202	\$ 1.37
Nov-10	\$ 3,924.91			3,451	\$ 1.14
Dec-10	\$ 6,515.76			5,868	\$ 1.11
Jan-11	\$ 7,678.37			7,027	\$ 1.09
Feb-11	\$ 6,497.13			5,800	\$ 1.12
Mar-11	\$ 4,423.09			3,872	\$ 1.14
Apr-11	\$ 1,947.36			1,470	\$ 1.32
May-11	\$ 650.24			219	\$ 2.97
Jun-11	\$ 805.26			376	\$ 2.14
Jul-11	\$ 453.42			22	\$ 20.70
Aug-11	\$ 447.97			16	\$ 27.32
Sep-11	\$ 479.52			51	\$ 9.46
Oct-11	\$ 1,193.29			804	\$ 1.48
Nov-11	\$ 3,204.08			2,797	\$ 1.15
Dec-11	\$ 4,459.13			4,096	\$ 1.09
Jan-12	\$ 4,663.16			4,366	\$ 1.07
Feb-12	\$ 3,990.09			3,741	\$ 1.07
Mar-12	\$ 2,186.96			1,885	\$ 1.16
Apr-12	\$ 1,139.75			914	\$ 1.25
May-12	\$ 509.49			103	\$ 4.95
Total (12-months)	\$ 23,532.12	\$ -	\$ -	19171	\$ 1.23



APPENDIX B	
Equipment Inventory	
Equipment inventory	
 New Jersey BPU - Energy Audits Page 25 of 31	

New Jersey BPU Energy Audit Program
CHA #24454
Roxbury BOE
Eisenhower Middle School
Original Construction Date:
Renovation/Addtion Date: 1993,

1969 1993, 1996 & 2003

Description	QTY	Manufacturer Name	Model No.	Serial No.	Equipment Type / Utility	Capacity/Size/Efficiency	Location	Areas/Equipment Served	Date Installed	Remaining Useful Life (years)	Other Info.
CUV	43				Unit Ventilators / Ele Heat		Classrooms	School			
RTU-1	1	Lennox	LGA090H2BS3G	5604E10893	AHU / NG	2 HP, 130/104 7.5 Tons	Roof	School	2003	6	
RTU-2	1	Lennox	LGA060H2BH2G	5604E11176	AHU / NG	1.5 HP, 125/100 5 Tons	Roof	School	2003	6	
RTU-3	1	Lennox	LGA060H2BH2G	5604E11049	AHU / NG	1.5 HP, 125/100 5 Tons	Roof	School	2003	6	
RTU-4	1	Lennox	LGA120H2BH3G	5604E10839	AHU / NG	3 HP 240 MBH 12 Ton	Roof	School	2003	6	
RTU-5	1	Trane	TCD151C40AAA	BAYECON062BB	AHU Cooling Only	3 HP 15 Tons 6000 CFM	Roof	School	2003	6	
RTU-6	1	Trane	TCD151C40AAA	BAYECON062BB	AHU Cooling Only	3 HP 15 Tons 6000 CFM	Roof	School	2003	6	
RTU-7	1	Unknown			Condenser		Roof	Kitchen	2003	6	
RTU-8	1	Carrier	50JQ006641	1194G62289	AHU Cooling Only	428/200 PSI	Roof	School	1994	2	
B-1	1	Buderus	G334	08249822-00-3097- 0043	Boiler / NG	Input: 378 MBH / Output: 314 MBH /83% Eff	MER	School	2012	25	
B-2	1	Buderus	G334	08249822-00-3097- 0044	Boiler / NG	Input: 378 MBH / Output: 314 MBH /83% Eff	MER	School	2012	25	
B-(3-10)	8	GB Boiler	GB160A	FL100640	Boiler / NG	142,080 Output / 160,000 Input /88% Efficiency	External Boiler Room	School	1993	6	
PP	2	Emerson	G157	6207-2ZJC3	HW Pump	5 HP Lead/Lag @ 87.5 Eff.	MER	School	2012	10	
DHW	1	Rudd Electric	ES120-36-G	RR1006E00069	DHW	36 kW 116 Gal.	Gym MER	School	2006	19	
DHW	1	Bradford White	MII50A63SF05	BH6562752	DHW	6 kW 50 Gal.	MER	School	1996	9	
DHW	1	Bradford White	M130L6DS-1NCWW	JC16373830	DHW	4.5 kW 30 Gal.	MER	School	2006	19	
DHW	1	AO Smith	EES-40-M202172000	MD02-1635165-917	DHW	4.5 kW 40 GAL.	MER	School	1993	6	
HV	1	Herman Nelson	GBSJF53304-01	363079	Heating & Ventilation		Gym MER	Gym	2008	0	

APPENDIX C
ECM Calculations
New Jersey BPU - Energy Audits

	Summary	of Energy Co	nservation I	Measures			
	Energy Conservation Measure	Approx. Costs (\$)	Approx. Savings (\$/year)	Payback (Years) w/o Incentive	Potential Incentive (\$)*	Payback (Years) w/ Incentive	Recommen ded For Implement ation
ECM-1	Install Condensiong Boilers	89,000	1,300	>20	5,300	>20	
ECM-2	Replace Electric DHW Heaters with Condensing Tankless DHW	19,000	3,000	6.3	1,100	6.0	X
ECM-3	Install Demand Control Ventilation in Auditorium	9,000	700	12.9	100	12.7	X
ECM-4	Install a Network Computer Power Management System	2,000	1,700	1.2	0	1.2	X
ECM-5	Replace Single Pane Windows With Double Pane	391,000	4,300	>20	0	>20	
ECM-6	Replace Existing Roof	2,283,000	4,300	>20	0	>20	
ECM-7	Lighting Replacement / Upgrades	11,000	3,800	2.9	2,900	2.1	X
ECM-8	Install Lighting Controls (Occupancy Sensors)	40,000	6,000	6.7	6,900	5.5	
ECM-9	Lighting Replacements with Lighting Controls (Occupancy Sensors)	51,000	9,700	5.3	9,900	4.2	

ECM Summary Sheet

ECM-1	Install Condensiong	Boilers

Budgetary	Annual Utility S	Savings			Estimated	Total			Payback	Payback
Cost					Maintenance	Savings	ROI	Incentive *	(without	(with
	Electric	Electric	Nat Gas	Total	Savings				incentive)	incentive)
\$	kWh	kW	Therms	\$	\$	\$		\$	Years	Years
89,000	0	0	1,000	1,300	0	1,300	(0.6)	5,300	>20	>20

 Expected Life:
 25 years

 Lifetime Savings:
 0 kWh
 25,000 therms
 \$ 32,500

ECM-2 Replace Electric DHW Heaters with Condensing Tankless DHW

_											
I	Budgetary	Annual Utility S	Savings			Estimated	Total			Payback	Payback
	Cost					Maintenance	Savings	ROI	Incentive *	(without	(with
		Electric	Electric	Nat Gas	Total	Savings				incentive)	incentive)
	\$	kWh	kW	Therms	\$	\$	\$		\$	Years	Years
I	19,000	34,700	50	-1,100	3,000	0	3,000	2.2	1,100	6.3	6.0

Expected Life: 20 years

Lifetime Savings: 694,000 kWh -22,000 therms \$ 60,000

ECM-3 Install Demand Control Ventilation in Auditorium

Budo	getary	Annual Utility S	Savings			Estimated	Total			Payback	Payback
C	ost					Maintenance	Savings	ROI	Incentive *	(without	(with
		Electric	Electric	Nat Gas	Total	Savings				incentive)	incentive)
:	\$	kWh	kW	Therms	\$	\$	\$		\$	Years	Years
9,0	000	1,300	0	500	700	0	700	0.2	100	12.9	12.7

 Expected Life:
 15 years

 Lifetime Savings:
 19,500 kWh
 7,500 therms
 \$ 10,500

ECM-4 Install a Network Computer Power Management System

Budgetary	Annual Utility	Savings			Estimated	Total			Payback	Payback
Cost					Maintenance	Savings	ROI	Incentive *	(without	(with
	Electric	Electric	Nat Gas	Total	Savings				incentive)	incentive)
\$	kWh	kW	Therms	\$	\$	\$		\$	Years	Years
2,000	14,000	0	0	1,700	0	1,700	4.7	0	1.2	1.2

 Expected Life:
 5 years

 Lifetime Savings:
 70,000 kWh
 0 therms
 \$ 8,500

ECM-5 Replace Single Pane Windows With Double Pane

Budgetary	Annual Utility S	Savings			Estimated	Total			Payback	Payback
Cost					Maintenance	Savings	ROI	Incentive *	(without	(with
	Electric	Electric	Nat Gas	Total	Savings				incentive)	incentive)
\$	kWh	kWh kW Therms \$				\$		\$	Years	Years
391,000	2,700	0	3,300	4,300	0	4,300	(0.7)	0	>20	>20

 Expected Life:
 30 years

 Lifetime Savings:
 81,000 kWh
 99,000 therms
 \$ 129,000

ECM-6 Replace Existing Roof

Budgetary Cost	Annual Utility S	Savings			Estimated Maintenance	Total Savings	ROI	Incentive *	Payback (without	Payback (with
	Electric	Electric	Nat Gas	Total	Savings	3419			incentive)	incentive)
\$	kWh	kW	Therms	\$	\$	\$		\$	Years	Years
2,283,000	1,300	0	3,400	4,300	0	4,300	(0.9)	0	>20	>20

Expected Life: 30 years

Lifetime Savings: 39,000 kWh 102,000 therms \$129,000

ECM-7 Lighting Replacement / Upgrades

Budgetary	Annual Utility S	Savings			Estimated	Total			Payback	Payback
Cost					Maintenance	Savings	ROI	Incentive *	(without	(with
	Electric	Electric	Nat Gas	Total	Savings				incentive)	incentive)
\$	kWh	kW	Therms	\$	\$	\$		\$	Years	Years
11,000	31,000	20	0	3,800	0	3,800	4.2	2,900	2.9	2.1

 Expected Life:
 15 years

 Lifetime Savings:
 465,000 kWh
 0 therms
 \$ 57,000

ECM-8 Install Lighting Controls (Occupancy Sensors)

-		J	itiiig Coiit		,	/					
	Budgetary	Annual Utility S	Savings			Estimated	Total			Payback	Payback
	Cost					Maintenance	Savings	ROI	Incentive *	(without	(with
		Electric	Electric	Nat Gas	Total	Savings				incentive)	incentive)
	\$	kWh	kW	Therms	\$	\$	\$		\$	Years	Years
	40,000	48,600	0	0	6,000	0	6,000	1.3	6,900	6.7	5.5

 Expected Life:
 15 years

 Lifetime Savings:
 729,000 kWh
 0 therms
 \$ 90,000

ECM-9 Lighting Replacements with Lighting Controls (Occupancy Sensors)

		Lighting it	cpiaocifici	ito with Eig	inting com	ii ois (Oodapai	log ochsol	٠,			
	Budgetary	Annual Utility S	Savings			Estimated	Total			Payback	Payback
ı	Cost					Maintenance	Savings	ROI	Incentive *	(without	(with
L		Electric	Electric	Nat Gas	Total	Savings				incentive)	incentive)
	\$	kWh	kW	Therms	\$	\$	\$		\$	Years	Years
I	51,000	78,500	0	0	9,700	0	9,700	1.9	9,900	5.3	4.2

 Expected Life:
 15 years

 Lifetime Savings:
 1,177,500 kWh
 0 therms
 \$ 145,500

	Utility	Costs	Yearly Usage	MTCDE	Building Area	Annual U	Itility Cost
	\$ 0.124	\$/kWh blended		0.00042021	105,840	Electric	Natural Gas
	\$ 0.124	\$/kWh supply	1,444,174	0.00042021		\$ 179,021	\$ 23,532
	\$ -	\$/kW	4,351	0			
- ;	\$ 1.23	\$/Therm	19,171	0.00533471			
		\$/kgals		0			

									φ/kyais			U											
	Eiser	hower	Middle	Schoo																			
	Item			Sa	vings			Cost	Simple		Life	NJ Smart St	art Direct Insta	Direct Install	Max	Payback w/		Simp	le Projected	Lifetime Sav	ings		ROI
		kW	kWh	therms	cooling kWh	kgal/yr	\$		Payback	MTCDE	Expectancy	/ Incentives	Eligible (Y/N)* Incentives**	Incentives	Incentives***	kW	kWh	therms	cooling	kgal/yr	\$	1
ECM-1	Install Condensiong Boilers	0.0	0	1,042	0	0	\$ 1,3	300 \$ 89,	196 68.8	5.6	25	\$ 5,2	50 N	\$ -	\$ 5,250	64.8	0.0	0	26,048	0	0	\$ 31,973	(0.6)
ECM-2	Replace Electric DHW Heaters with Condensing Tankless DHW	46.5	34,721	(1,071)	0	0	\$ 3,0	000 \$ 18,	744 6.2	8.9	20	\$ 1,1	40 N	\$ -	\$ 1,140	5.9	930.0	694,411	(21,423)	0	0	\$ 59,784	2.2
ECM-3	Install Demand Control Ventilation in Auditorium	0.0	1,304	460	0	0	\$	700 \$ 8,	350 12.6	3.0	15	\$	75 N	\$ -	\$ 75	12.5	0.0	19,560	6,903	0	0	\$ 10,898	0.2
ECM-4	Install a Network Computer Power Management System	0.0	14,000	(30)	0	0	\$ 1,	700 \$ 1,	500 0.9	5.7	5		N	\$ -	\$ -	0.9	0.0	70,000	(148)	0	0	\$ 8,496	4.7
ECM-5	Replace Single Pane Windows With Double Pane	0.0	0	3,264	2,749	0	\$ 4,3	300 \$ 390,	90.8	18.6	30		N	\$ -	\$ -	90.8	0.0	0	97,921	82,481	0	\$ 130,420	(0.7)
ECM-6	Replace Existing Roof	0.0	0	3,378	1,252	0	\$ 4,	300 \$ 2,283,)20 530.9	18.5	30		N	\$ -	\$ -	530.9	0.0	0	101,345	37,563	0	\$ 129,055	(0.9)
ECM-7	Lighting Replacement / Upgrades	17.4	31,011	0	0	0	\$ 3,	800 \$ 10,	992 2.9	13.0	15	\$ 2,9	20 N	\$ -	\$ 2,920	2.1	260.3	465,161	0	0	0	\$ 57,662	4.2
ECM-8	Install Lighting Controls (Occupancy Sensors)	0.0	48,634	0	0	0	\$ 6,0	000 \$ 40,	95 6.7	20.4	15	\$ 6,9	30 N	\$ -	\$ 6,930	5.5	0.0	729,516	0	0	0	\$ 90,432	1.3
ECM-9	Lighting Replacements with Lighting Controls (Occupancy Sensors)	17.4	78,495	0	0	0	\$ 9,	700 \$ 51,	087 5.3	33.0	15	\$ 9,8	50 N	\$ -	\$ 9,850	4.3	260.3	1,177,428	0	0	0	\$ 145,955	1.9
	Total (Does Not Include ECM-7 & ECM-8)	63.9	128,520	7,044	4,001	0	\$ 25,0	000 \$ 2,843,	297 113.7		20.0	\$ 16,3	15 N	\$ -	\$ 16,315	113.1	1,190.3	1,961,399	210,646	120,045	0	\$516,581	(0.8)
	Total Measures with Payback <10	63.9	127,216	(1,101)	0	0	\$ 14,	400 \$ 71	5.0		14.0	\$ 10,9	90	\$ -	\$ 10,990	4.2	1,190.3	1,941,839	(21,570)	0	0	\$214,235	2.0
	% of Existing	1%	9%	37%	0%	#DIV/0!		-															

ECM-M3A: Boiler Replacement

Existing Fuel	Nat.Gas	•
Proposed Fuel	Nat.Gas	•

B-1

<u>Item</u>	<u>Value</u>	<u>Units</u>	Formula/Comments
Baseline Fuel Cost	\$ 1.23	/ Therm	
Proposed Fuel Cost	\$ 1.23	/ Therm	
Baseline Fuel Use	1,917	Therms	Based on historical utility data
Existing Boiler Plant Efficiency	83%		Estimated or Measured
Baseline Boiler Load	159,119	Mbtu/yr	Baseline Fuel Use x Existing Efficiency x 100 Mbtu/Therms
Baseline Fuel Cost	\$ 2,353		
Proposed Boiler Plant Efficiency	92%		New Boiler Efficiency
Proposed Fuel Use	1,730	Therms	Baseline Boiler Load / Proposed Efficiency / 100 Mbtu/Therms
Proposed Fuel Cost	\$ 2,123		

^{*}Note to engineer: Link savings back to summary sheet in appropriate column.

B-2

<u>Item</u>	,	Value_	<u>Units</u>	Formula/Comments
Baseline Fuel Cost	\$	1.23	/ Therm	
Proposed Fuel Cost	\$	1.23	/ Therm	
Baseline Fuel Use		1,917	Therms	Based on historical utility data
Existing Boiler Plant Efficiency		83%		Estimated or Measured
Baseline Boiler Load	1:	59,119	Mbtu/yr	Baseline Fuel Use x Existing Efficiency x 100 Mbtu/Therms
Baseline Fuel Cost	\$	2,353		
Proposed Boiler Plant Efficiency		92%		New Boiler Efficiency
Proposed Fuel Use		1,730	Therms	Baseline Boiler Load / Proposed Efficiency / 100 Mbtu/Therms
Proposed Fuel Cost	\$	2,123		

B-3 - B-10

<u>Item</u>	<u>Value</u>	<u>Units</u>	Formula/Comments
Baseline Fuel Cost	\$ 1.23	/ Therm	
Proposed Fuel Cost	\$ 1.23	/ Therm	
Baseline Fuel Use	15,337	Therms	Based on historical utility data
Existing Boiler Plant Efficiency	88%		Estimated or Measured
Baseline Boiler Load	1,349,638	Mbtu/yr	Baseline Fuel Use x Existing Efficiency x 100 Mbtu/Therms
Baseline Fuel Cost	\$ 18,826		
Dropood Boiler Blant Efficiency	92%		New Delta Effects on
Proposed Boiler Plant Efficiency			New Boiler Efficiency
Proposed Fuel Use	14,670	Therms	Baseline Boiler Load / Proposed Efficiency / 100 Mbtu/Therms
Proposed Fuel Cost	\$ 18,007		

BOILER REPLACEMENT SAVINGS SUMMARY					
	Electric	Electric Rat Gas			
	Demand	Usage	Usage	Maint.	Total Cost
	(kW)	(kWh)	(Therms)	(\$)	(\$)
Savings	0	0	1,042	\$0	\$1,279

Multipliers	
Material:	1.00
Labor:	1.25
Equipment:	1.00

otion		UNIT	UNIT COSTS			SUE	STOTAL CC	STS	TOTAL COST	REMARKS
Description	QII	UNIT	MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.	TOTAL COST	REIVIARRO
750 MBH Natural Gas Fired Condensing HW Boiler	2	EA	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 35,000	
1,500 MBH Natural Gas Fired Condensing HW Boiler	1	EA	\$ -	\$ -	\$ -				\$ 27,500	
Miscellaneous Electrical	3	LS	\$ 300			\$ 897	\$ -	\$ -	\$ 900	
Venting Kit	3	EA	\$ 450	\$ 650		\$ 1,346	\$ 2,430	\$ -	\$ 3,800	
Miscellaneous Piping and Valves	3	LS	\$ 200			\$ 598	\$ -	\$ -	\$ 600	
						\$ -	\$ -	\$ -	\$ -	

\$ 67,800	Subtotal
\$ 6,780	10% Contingency
\$ 14,916	20% Contractor O&P
\$ -	
\$ 89,496	Total

ECM-M14B: Replace Electric DHW Heater w/ Tankless Condensing Gas-Fired DHW Heater

<u>Summary</u> * Replace Electric DHW Heater w/ Instantaneous, Cor			<u>s-rirea Daw</u>	<u>neater</u>					
Item Occupied days per week	Value 5	Units days/wk	Formula/Comr						
Water supply Temperature Hot Water Temperature Hot Water Usage per day	55 120 344	°F gal/day	Calculated from us	age below					
Annual Hot Water Energy Demand Existing Tank Size	48,437 116	MBTU/yr Gallons F	Per manufacturer	nameplate	tity of hot water to	setpoint			
Hot Water Temperature Average Room Temperature Standby Losses (% by Volume) Standby Losses (Heat Loss)	140 70 0.5% 0.4	°F MBH	Per building perso Based off manufac						
Annual Standby Hot Water Load Total Annual Hot Water Demand (w/ standby losses)	3,082	MBTU/yr Mbtu/yr	Building demand p	ulus standby lassas	2			120,000 bt	uh
Existing Water Heater Efficiency Total Annual Energy Required Total Annual Electric Required	95% 54,231 15,889	Mbtu/yr kWh/yr	Per Manufacturer Electrical Sav		5				
Average Annual Electric Demand Peak Electric Demand	1.81 36.00	kW kW	Per Manufact		late (Demand	Savings)			
New Tank Size Hot Water Temperature Average Room Temperature	0 140 70	Gallons °F °F	tankless						
Standby Losses (% by Volume) Standby Losses (Heat Loss) Annual Standby Hot Water Load	2.5% 0.0 0	MBH MBTU/yr	(2.5% of stored of	apacity per hour, p	oer U.S. Departme	nt of Energy)			
Prop Annual Hot Water Demand (w/ standby losses) Proposed Avg. Hot water heater efficiency	48,437 92%	MBTU/yr	Based on Navien (PD190 instantance	us condensing Dh	JW Hootor			
Proposed Total Annual Energy Required Proposed Fuel Use	52,649 526	MBTU/yr Therms/yr	Standby Losses a		-	IVV FIEGLEI			
Elec Utility Demand Unit Cost Elec Utility Supply Unit Cost NG Utility Unit Cost	\$0.00 \$0.12 \$1.23	\$/kW \$/kWh \$/Therm							
Existing Operating Cost of DHW Proposed Operating Cost of DHW Annual Utility Cost Savings	\$1,970 \$646 \$1,323	\$/yr \$/yr \$/yr							
			Farmer da /Canad						
Item Occupied days per week Water supply Temperature	<u>Value</u> 5 55	Units days/wk °F °F	Formula/Comr	ater coming into bu	uilding				
Hot Water Temperature Hot Water Usage per day Annual Hot Water Energy Demand	120 148 20,878	gal/day MBTU/yr	Calculated from us	-	tity of hot water to	setpoint			
Existing Tank Size Hot Water Temperature	50 120 70	Gallons °F	Per manufacturer in Per building perso						
Average Room Temperature Standby Losses (% by Volume) Standby Losses (Heat Loss) Applied Standby Het Weter Load	70 2.5% 0.5	°F MBH	(2.5% of stored of	apacity per hour, p	oer U.S. Departme	nt of Energy)			
Annual Standby Hot Water Load Total Annual Hot Water Demand (w/ standby losses)	4,563 25,440	MBTU/yr Mbtu/yr	Building demand p	llus standby losses	S				
Existing Water Heater Efficiency Total Annual Energy Required Total Annual Electric Required	95% 26,779 7,846	Mbtu/yr kWh/yr	Per Manufacturer Electrical Sav	ings				20,000 MB	Н
Average Annual Electric Demand Peak Electric Demand	0.90 6.00	kW kW	Per Manufact	urer's Namepl	late (Demand	Savings)			
New Tank Size Hot Water Temperature Average Room Temperature	0 120 70	Gallons °F °F	tankless						
Standby Losses (% by Volume) Standby Losses (Heat Loss) Annual Standby Hot Water Load	2.5% 0.0 0	MBH MBTU/yr	(2.5% of stored of	apacity per hour, p	oer U.S. Departme	nt of Energy)			
Prop Annual Hot Water Demand (w/ standby losses) Proposed Avg. Hot water heater efficiency	20,878 92%	MBTU/yr	Based on Navien (CR180 instantaneo	us, condensing DF	HW Heater			
Proposed Total Annual Energy Required Proposed Fuel Use	22,693 227	MBTU/yr Therms/yr	Standby Losses a						
Elec Utility Demand Unit Cost Elec Utility Supply Unit Cost NG Utility Unit Cost	\$0.00 \$0.12 \$1.23	\$/kW \$/kWh \$/Therm							
Existing Operating Cost of DHW Proposed Operating Cost of DHW Annual Utility Cost Savings	\$973 \$279 \$694	\$/yr \$/yr \$/yr							
			Farmer da / Caren						
Item Occupied days per week Water supply Temperature	<u>Value</u> 5 55	Units days/wk °F	Formula/Comr	nents ater coming into bu	uilding				
Hot Water Temperature Hot Water Usage per day Annual Hot Water Energy Demand	120 119 16,702	°F gal/day MBTU/yr	Calculated from us		tity of hot water to	setpoint			
Existing Tank Size Hot Water Temperature	40 120	Gallons °F	Per manufacturer in Per building perso	· · · · · · · · · · · · · · · · · · ·					
Average Room Temperature Standby Losses (% by Volume) Standby Losses (Heat Loss)	70 2.5% 0.4	°F MBH	(2.5% of stored of	apacity per hour, p	per U.S. Departme	nt of Energy)			
Annual Standby Hot Water Load Total Annual Hot Water Demand (w/ standby losses)	3,650 20,352	MBTU/yr Mbtu/yr	Building demand p	lus standby losses	S				
Existing Water Heater Efficiency Total Annual Energy Required Total Annual Electric Required	95% 21,424 6,277	Mbtu/yr kWh/yr	Per Manufacturer Electrical Sav	rings					
Average Annual Electric Demand Peak Electric Demand	0.72 4.50	kW kW	Per Manufact	urer's Namepl	late (Demand	Savings)			
New Tank Size Hot Water Temperature Average Room Temperature	0 120 70	Gallons °F °F	tankless					15,000 MB	Н
Standby Losses (% by Volume) Standby Losses (Heat Loss) Annual Standby Hot Water Load	2.5% 0.0 0	MBH MBTU/yr	(2.5% of stored of	apacity per hour, μ	oer U.S. Departme	nt of Energy)			
Prop Annual Hot Water Demand (w/ standby losses) Proposed Avg. Hot water heater efficiency	16,702 92%	MBTU/yr	Based on Navien (CR180 instantaneo	us, condensing DF	HW Heater			
Proposed Total Annual Energy Required Proposed Fuel Use	18,155 182	MBTU/yr Therms/yr	Standby Losses a	nd inefficient DHW	heater eliminated				
Elec Utility Demand Unit Cost Elec Utility Supply Unit Cost NG Utility Unit Cost	\$0.00 \$0.12 \$1.23	\$/kW \$/kWh \$/Therm							
Existing Operating Cost of DHW Proposed Operating Cost of DHW Annual Utility Cost Savings	\$778 \$223 \$555	\$/yr \$/yr \$/yr							
Item	<u>Value</u>	<u>Units</u>	Formula/Comr	nents		_	-]		
Occupied days per week Water supply Temperature Hot Water Temperature	5 55 120	days/wk °F °F		ater coming into bu	uilding	_			
Hot Water Usage per day Annual Hot Water Energy Demand	89 12,527	gal/day MBTU/yr	Calculated from us Energy required to		tity of hot water to	setpoint			
Existing Tank Size Hot Water Temperature Average Room Temperature	30 120 70	Gallons °F °F	Per manufacturer in Per building person		_	_			
Standby Losses (% by Volume) Standby Losses (Heat Loss) Annual Standby Hot Water Load	2.5% 0.3 2,738	MBH MBTU/yr	(2.5% of stored of	apacity per hour, p	oer U.S. Departme	nt of Energy)			
Total Annual Hot Water Demand (w/ standby losses) Existing Water Heater Efficiency	15,264 95%	Mbtu/yr	Building demand p	llus standby losses	s				
Total Annual Electric Required Average Annual Electric Demand	16,068 4,708 0.54	Mbtu/yr kWh/yr kW	Electrical Sav	rings				15,000 MB	Н
Peak Electric Demand New Tank Size	4.50 0	kW Gallons	Per Manufact	urer's Namepl	late (Demand	Savings)			
Hot Water Temperature Average Room Temperature Standby Losses (% by Volume)	120 70	°F	tankless	gnasit	nor II.S. S.	nt of Energy			
Standby Losses (% by Volume) Standby Losses (Heat Loss) Annual Standby Hot Water Load	2.5% 0.0 0	MBH MBTU/yr	(∠.ɔ% oτ stored o	αγασιιу per hour, μ	per U.S. Departme	iii ∪i ⊏iiergy)			
Prop Annual Hot Water Demand (w/ standby losses) Proposed Avg. Hot water heater efficiency Proposed Total Annual Engravy Required	12,527 92%	MBTU/yr	Based on Navien (CR180 instantaneo	us, condensing Dh	HW Heater			
Proposed Total Annual Energy Required Proposed Fuel Use	13,616 136	MBTU/yr Therms/yr	Standby Losses a	nd inefficient DHW	heater eliminated				
Elec Utility Demand Unit Cost Elec Utility Supply Unit Cost NG Utility Unit Cost	\$0.00 \$0.12 \$1.23	\$/kW \$/kWh \$/Therm							
Existing Operating Cost of DHW Proposed Operating Cost of DHW Annual Utility Cost Savings	\$584 \$167 \$416	\$/yr \$/yr \$/yr							
Daily Hot Water Demand									
FIXTURE	*BASE WATER USE	DURATION OF USE (MIN)	#USES F	PER DAY FEMALE	FULL TIME (FEMALE	TOTAL GAL/DAY	% HOT WATER	TOT/ GAL
LAVATORY (Low-Flow Lavs use 0.5 GPM SHOWER	2.5	0.25	3 1	3	357	357	1339 0	50% 75%	6
KITCHEN SINK MOP SINK Dishwasher (ga	2.5 2.5 1 10	0.5 2 1	1 1 1	1 1	3 2 1	3 2	8 20 10	75% 75% 100%	

Multipliers	
Material:	1.00
Labor:	1.00
Equipment:	1.00

Description	QTY	UNIT	l	JNIT COST	S	SUE	STOTAL CO	STS	TOTAL COST	REMARKS
Description	QII	UNIT	MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.	TOTAL COST	REIVIARRS
Gas-Fired DHW Heater Removal	4	LS		\$ 50		\$ -	\$ 200	\$ -	\$ 200	
120,000 btu/h High Efficiency Gas-Fired DHW Heater	1	LS	\$ 4,000	\$ 280		\$ 3,988	\$ 280	\$ -	\$ 4,300	
20,000 btu/h High Efficiency Tankless Gas-Fired DHW Heater	1	LS	\$ 1,000	\$ 150		\$ 997	\$ 150	\$ -	\$ 1,100	
15,000 btu/h High Efficiency Tankless Gas-Fired DHW Heater	2	LS	\$ 950	\$ 150		\$ 1,894	\$ 300	\$ -	\$ 2,200	
Miscellaneous Electrical	4	LS	\$ 300			\$ 1,196	\$ -	\$ -	\$ 1,200	
Venting Kit	4	EA	\$ 450	\$ 650		\$ 1,795	\$ 2,600	\$ -	\$ 4,400	
Miscellaneous Piping and Valves	4	LS	\$ 200			\$ 798	\$ -	\$ -	\$ 800	
						\$ -	\$ -	\$ -	\$ -	
						\$ -	\$ -	\$ -	\$ -	
						\$ -	\$ -	\$ -	\$ -	
						\$ -	\$ -	\$ -	\$ -	

\$ 14,200	Subtotal
\$ 1,420	10% Contingency
\$ 3,124	20% Contractor O&P
\$ -	
\$ 18,744	Total

ECM-M8A: Install Demand Control Ventilation

Description:

Outside air can be significantly reduced for most of the time that the building is occupied. Savings will result from the avoided heating and cooling of excessive outside air.

Method:

The outdoor air introduced into the spaces is currently constant based on design occupancy conditions.

This ECM proposes the installation of CO2 sensors in the space to allow for reduced outdoor air flows when c An average reduction of 50% is assumed possible with the implementation of DCV

The DCV system will automatically adjust the outdoor air damper position through the EMS to reduce outdoo This ECM has been interacted with the new boiler ECMs and accounts for the reduced operating hours of the

RTU-2

Α	В	С	D	E	F	G	Н	I
					Existing			
Avg. DB	OA	Occupied						
Bin Temp	Enthalpy	Bin		Cooling	Heating	Cooling	Heating	Derated
°F	Btu/lb	HOURS	OA CFM	Load MBH	Load MBH	kWh	therms	O.A. CFM
102.5	49.1	-	484	49	0	0	-	191
97.5	42.5	1	484	35	0	3	-	191
92.5	39.5	11	484	29	0	32	-	191
87.5	36.6	43	484	22	0	95	-	191
82.5	34	164	484	17	0	271	-	191
77.5	31.6	203	484	11	0	230	-	191
72.5	29.2	217	484	6	0	133	-	191
67.5	27	280	484	1	0	37	-	191
62.5	24.5	303	484	0	0	0	-	191
57.5	21.4	196	484	0	0	0	-	191
52.5	18.7	200	484	0	8	0	20	191
47.5	16.2	200	484	0	11	0	27	191
42.5	14.4	215	484	0	13	0	36	191
37.5	12.6	335	484	0	16	0	67	191
32.5	10.7	240	484	0	19	0	56	191
27.5	8.6	109	484	0	21	0	29	191
22.5	6.8	83	484	0	24	0	25	191
17.5	5.5	41	484	0	26	0	14	191
12.5	4.1	15	484	0	29	0	6	191
7.5	2.6	7	484	0	32	0	3	191
2.5	1	4	484	0	34	0	2	191
-2.5	0	-	484	0	37	0	-	191
-7.5	-1.5	-	484	0	39	0	_	191
Total		2,868		171		800	282	

RTU-3

Α	В	С	D	E	F	G	Н	I
					Existing			
Avg. DB	OA	Occupied						
Bin Temp	Enthalpy	Bin		Cooling	Heating	Cooling	Heating	Derated
°F	Btu/lb	HOURS	OA CFM	Load MBH	Load MBH	kWh	therms	O.A. CFM
102.5	49.1	-	705	72	0	0	-	210
97.5	42.5	1	705	51	0	5	-	210
92.5	39.5	11	705	42	0	46	-	210
87.5	36.6	43	705	32	0	139	-	210
82.5	34	164	705	24	0	395	-	210
77.5	31.6	203	705	16	0	335	-	210
72.5		217	705	9	0	193	-	210
67.5	27	280	705	2	0	53	-	210
62.5	24.5	303	705	0	0	0	-	210
57.5	21.4	196	705	0	0	0	-	210
52.5	18.7	200	705	0	12	0	29	210
47.5	16.2	200	705	0	16	0	39	210
42.5	14.4	215	705	0	19	0	52	210
37.5	12.6	335	705	0	23	0	97	210
32.5	10.7	240	705	0	27	0	81	210
27.5	8.6	109	705	0	31	0	42	210
22.5	6.8	83	705	0	35	0	36	210
17.5	5.5	41	705	0	38	0	20	210
12.5	4.1	15	705	0	42	0	8	210
7.5	2.6	7	705	0	46	0	4	210
2.5	1	4	705	0	50	0	3	210
-2.5	0	-	705	0	54	0	-	210
-7.5	-1.5	-	705	0	57	0	-	210
Total		2,868		248		1,166	411	

DEMA	AND CONTI	ROL VENTI	LATION SA	VINGS SUM	MARY
	Electric	Electric	Nat Gas		
	Demand	Usage	Usage	Maint.	Total Cost
	(kW)	(kWh)	(Therms)	(\$)	(\$)
Savings	0	1,304	460	\$0	\$565

conditions allow.

r air flows based on indoor CO2 levels. unit via EMS scheduling.

J	K	L	M	N	0
Propose	ed Demand	Ventilation		Sav	ings
Cooling Load MBH	Heating Load MBH	Cooling kWh	Heating therms	Cooling kWh	Heating therms
19	0	0	-	0	-
14	0	1	-	2	-
11	0	13	-	19	-
9	0	38	-	58	-
7	0	107	-	164	-
4	0	90	-	139	-
2	0	52	-	80	-
1	0	14	-	22	-
0	0	0	-	0	-
0	0	0	-	0	-
0	3	0	8	0	12
0	4	0	11	0	16
0	5	0	14	0	22
0	6	0	26	0	40
0	7	0	22	0	34
0	8	0	11	0	18
0	9	0	10	0	15
0	10	0	5	0	8
0	11	0	2	0	3
0	12	0	1	0	2
0	13	0	1	0	1
0	15	0	-	0	-
0	16	0	-	0	-
67		315	111	485	171

		Total CFM	O.A. CFM	O.A. %	
SA Enthalpy 26.4 BTU/lbma SA Set point, Winter 68.0 °F SA Set point, Summer 74.0 °F Heating "On" Point 55.0 °F Cooling System Eff. 1.20 kW/Ton (Includes ancillary equipmen	Org. scheduled CFM	1,270	484	38%	
SA Set point, Winter 68.0 °F SA Set point, Summer 74.0 °F Heating "On" Point 55.0 °F Cooling System Eff. 1.20 kW/Ton (Includes ancillary equipmen)	Derated CFM	1,270	191	15%	
SA Set point, Summer 74.0 °F Heating "On" Point 55.0 °F Cooling System Eff. 1.20 kW/Ton (Includes ancillary equipmen	SA Enthalpy	26.4	BTU/lbma		
Heating "On" Point 55.0 °F Cooling System Eff. 1.20 kW/Ton (Includes ancillary equipmen	SA Set point, Winter	68.0	°F		
Cooling System Eff. 1.20 kW/Ton (Includes ancillary equipmen	SA Set point, Summer	74.0	°F		
, , , , , , , , , , , , , , , , , , , ,	Heating "On" Point	55.0	°F		
Heating System Eff. 80% (Includes distribution losses)	Cooling System Eff.	1.20	kW/Ton		(Includes ancillary equipment
	Heating System Eff.	80%			(Includes distribution losses)

0 5 0 12 0 27 0 6 0 16 0 37 0 7 0 29 0 68 0 8 0 24 0 57 0 9 0 13 0 30 0 10 0 11 0 25 0 11 0 6 0 14 0 13 0 2 0 6 0 14 0 1 0 33 0 14 0 1 0 33 0 15 0 1 0 32 0 16 0 - 0 - 0 17 0 - 0 -	J K		L	M	N	0
Load MBH Load MBH kWh therms kWh therms 21 0 0 - 0 - 15 0 1 - 4 - 12 0 14 - 32 - 10 0 41 - 97 - 7 0 118 - 277 - 5 0 100 - 235 - 3 0 58 - 136 - 1 0 16 - 37 - 0 0 0 - 0 - 0 0 0 - 0 - 0 4 0 9 0 21 0 5 0 12 0 27 0 6 0 16 0 37 0 7 0 29 0 68	Propose	ed Demand	Ventilation		Sav	ings
15 0 1 - 4 - - 1 - 32 - - 1 - 32 - - - 32 - <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>						
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0 7 0 29 0 68 0 8 0 24 0 57 0 9 0 13 0 30 0 10 0 11 0 25 0 11 0 6 0 14 0 13 0 2 0 6 0 14 0 1 0 3 0 15 0 1 0 2 0 16 0 - 0 - 0 17 0 - 0 -	0		0		0	27
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0 11 0 6 0 14 0 14 0 1 0 3 0 15 0 1 0 2 0 16 0 - 0 - 0 17 0 - 0 -						30
0 13 0 2 0 6 0 14 0 1 0 3 0 15 0 1 0 2 0 16 0 - 0 - 0 17 0 - 0 -					0	25
0 14 0 1 0 3 0 15 0 1 0 2 0 16 0 - 0 - 0 17 0 - 0 -	0	11	0		0	14
0 15 0 1 0 2 0 16 0 - 0 - 0 17 0 - 0 -			_			6
0 16 0 - 0 - 0 17 0 - 0 -						3
0 17 0 - 0 -			_	1		2
				-		-
74 347 123 819 289		17		-	_	-
	74		347	123	819	289

	Total CFM	O.A. CFM	O.A. %
Org. scheduled CFM	1,400	705	50%
Derated CFM	1,400	210	15%
SA Enthalpy	26.4	BTU/lbma	
SA Set point, Winter	-	۴	
SA Set point, Summer	-	°F	
Heating "On" Point	55.0	°F	
Cooling System Eff.	1.20	kW/Ton	
Heating System Eff.	80%		

(Includes ancillary equipment)
(Includes distribution losses)

	Multipliers	
ı	Material:	1.00
ı	Labor:	1.25
I	Equipment:	1.00

ECM-M8A: Install Demand Control Ventilation - Cost

Description		UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
Description	QTY	UNIT	MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.	TOTAL COST	REWARKS
CO2 sensor	1	ea	\$ 400	\$ 100	\$ -	\$ 399	\$ 125	\$ -	\$ 500	
Replace damper actuators	1	ea	\$ 100	\$ 50	\$ -	\$ 100	\$ 62	\$ -	\$ 200	
Control system programming	1	ls	\$ 500	\$ 1,000	\$ -	\$ 499	\$ 1,246	\$ -	\$ 1,700	
electrical/wiring	1	ls	\$ 1,000	\$ 2,000	\$ -	\$ 997	\$ 2,492	\$ -	\$ 3,500	

\$ 5,900	Subtotal
\$ 1,180	20% Contingency
\$ 885	15% Contractor O&P
\$ 885	15% Engineering
\$ 8.850	Total

ECM-3: Network Controller Savings Calculations

Notes:

- 1. Savings are for the installation of a centralized computer management system installed on the client server that will centralize the power management functions that are native to the Windows environment.
- 2. Energy savings per computer are based on historical information from previous installations encompassing tens of thousands of computers.
- 3. There are approximately 200 computers in all

Background Data	
Average Consumption and Savings Figures	kWh
Average Total Consumption per PC per Year	500-700
Average Energy and Cost Waste per PC per Year	350-450
Average savings per PC	70
Average savings per IMac	50

Number of PCs	200
Number of IMac's	0
Return on Investment Analysis	
Return on Investment Analysis	kWh
Return on Investment Analysis Annual Energy Savings	kWh 14,000

HEATING	PENALTY	Comments				
Total kWh	14,000	This is the total kWh reduction.				
Htg. Season	55%	The percentage of the kWh reduction that occurs when heat is required.				
Conducted/Convected Heat	30%	Use Standard Fluorescent fixture				
Regained	70%	Percentage regained. Assumed that RTUs bring in a minimum of 30% OA				
Net kWh	693	Resultant kWh from percentage reductions.				
Net btu	2,365,209	Conversion of kWh to btu's.				
Therms	(24)	Conversion of btu's to Therms				
Htg. Eff.	80%	Heating system efficiency.				
Net Penalty	(29.6)	Therms				
\$/Therm	\$ 1.23	Cost per Therm				
Penalty	\$ (36)	Final heating reduction penalty.				

ALL ESTIMATES ARE +/- 80% ACCURATE -DO NOT USE FOR PROCUREMENT

ECM-16: Window Replacement

Existing: Windows are not energy efficiency single paned windows Proposed: Install energy efficient vinyl windows

Linear Feet of window Edge
Area of window glass
Existing Infiltration Factor
Proposed Infiltration Factor
Existing U Value
Proposed U Value

4,836.0 LF 3,906.0 SF 0.25 cfm/LF 0.10 cfm/LF 1.00 Btuh/SF/°F 0.60 Btuh/SF/°F Cooling System Efficiency
Ex Occupied Clng Temp.
Ex Unoccupied Clng Temp.
Cooling Occ Enthalpy Setpoint
Cooling Unocc Enthalpy Setpoint

1.2 kW/ton 74 *F 78 *F 27.5 Btu/lb 27.5 Btu/lb Heating System Efficiency
Heating On Temp.
Ex Occupied Htg Temp.
Ex Unoccupied Htg Temp.
Electricity
Natural Gas

80%
60 *F
68 *F
60 *F
\$ 0.124 \$/kWh
\$ 1.23 \$/therm

					EXISTING LOADS PROPOSED LOADS		COOLING	G ENERGY	HEATING E	NERGY		
					Occupied	Unoccupied	Occupied	Unoccupied				
					Window	Window	Window	Window	Existing	Proposed		Proposed
Avg Outdoor		Existing	Occupied	Unoccupied	Infiltration &	Infiltration &	Infiltration &	Infiltration &	Cooling	Cooling	Existing	Heating
Air Temp. Bins	Avg Outdoor Air	Equipment Bin	Equipment Bin	Equipment Bin	Heat Load	Heat Load	Heat Load	Heat Load	Energy	Energy	Heating Energy	Energy
°F	Enthalpy	Hours	Hours	Hours	BTUH	BTUH	BTUH	BTUH	kWh	kWh	Therms	Therms
Α		В	С	D	E	F	G	Н	I	J	К	L
102.5	50.1	0	0	0	-234,276	-218,652	-115,975	-106,600	0	0	0	0
97.5	42.5	3	1	2	-173,399	-157,775	-87,718	-78,343	49	24	0	0
92.5	39.5	34	11	23	-137,547	-121,923	-69,471	-60,097	432	215	0	0
87.5	36.6	131	43	88	-102,240	-86,616	-51,442	-42,068	1202	591	0	0
82.5	34.0	500	164	336	-68,564	-52,940	-34,066	-24,692	2903	1388	0	0
77.5	31.6	620	203	417	-35,977	0	-17,125	0	730	348	0	0
72.5	29.2	664	217	447	0	0	0	0	0	0	0	0
67.5	27.0	854	280	574	0	0	0	0	0	0	0	0
62.5	24.5	927	303	624	0	0	0	0	0	0	0	0
57.5	21.4	600	196	404	54,723	13,029	30,092	7,165	0	0	200	110
52.5	18.7	610	200	410	80,782	39,088	44,421	21,494	0	0	402	221
47.5	16.2	611	200	411	106,840	65,147	58,751	35,824	0	0	602	331
42.5	14.4	656	215	441	132,899	91,205	73,080	50,153	0	0	860	473
37.5	12.6	1,023	335	688	158,957	117,264	87,410	64,482	0	0	1,674	921
32.5	10.7	734	240	494	185,016	143,322	101,739	78,812	0	0	1,440	792
27.5	8.6	334	109	225	211,075	169,381	116,068	93,141	0	0	764	420
22.5	6.8	252	83	170	237,133	195,440	130,398	107,471	0	0	659	362
17.5	5.5	125	41	84	263,192	221,498	144,727	121,800	0	0	367	202
12.5	4.1	47	15	32	289,250	247,557	159,057	136,130	0	0	153	84
7.5	2.6	22	7	15	315,309	273,615	173,386	150,459	0	0	79	43
2.5	1.0	13	4	9	341,368	299,674	187,716	164,789	0	0	51	28
0.0	0.0	0	0	0	354,397	312,703	194,880	171,953	0	0	0	0
TOTALS		8,760	2,868	5,892					5315	2566	7,252	3,988

Existing Window Infiltration Existing Window Heat Transfer Proposed Window Infiltration Proposed Window Heat Transfer 1,209 cfm 3,906 Btuh/°F 484 cfm 2,344 Btuh/°F Savings 3,264 Therms \$ 4,007 2,749 kWh \$ 341 \$ 4,347

		1	1	1	T	T				T
Window ID	L	Overetite :	Width	Width Height Linear Foot (LE)		Infiltration Rate	U Value	Infiltration	Heat Transfer	
Window ID	Location	Quantity	(ft)	(ft)	Linear Feet (LF)	Area (SF)	(CFM/LF)	(Btuh/SF/°F)	(CFM)	(Btuh/°F)
1	North Top	22	3.5	2.5	264.0	192.5	0.25	1.00	66.0	192.5
2	North Bottom	22	3.5	3.5	308.0	269.5	0.25	1.00	77.0	269.5
3	South Top	83	3.5	2.5	996.0	726.3	0.25	1.00	249.0	726.3
4	South Bottom	83	3.5	3.5	1162.0	1016.8	0.25	1.00	290.5	1016.8
5	East Top	59	3.5	2.5	708.0	516.3	0.25	1.00	177.0	516.3
6	East Bottom	59	3.5	3.5	826.0	722.8	0.25	1.00	206.5	722.8
7	West Top	22	3.5	2.5	264.0	192.5	0.25	1.00	66.0	192.5
8	West Bottom	22	3.5	3.5	308.0	269.5	0.25	1.00	77.0	269.5
Total		372	28	24	4.836.0	3.906.0	0.25	1.00	1209.0	3,906.0

Note: pricing is for energy calculations only -do not use for procurement

ECM-17 Roof Replacement

Existing: Ceiling can lead to increased energy consumption due to infiltration/exfiltration and heat gain/loss. Proposed: Install EPDM roofing membrane system to reduce heat transfer.

Area of ceiling
Existing Infiltration Factor
Proposed Infiltration Factor
Existing U Value
Proposed U Value
(Loose-Fill R-2.7/inch)

114,151 SF 0.20 cfm/SF 0.20 cfm/SF 0.077 Btuh/SF/°F 0.056 Btuh/SF/°F

Cooling System Efficiency
Ex Occupied Clng Temp.
Ex Unoccupied Clng Temp.
Cooling Occ Enthalpy Setpoint
Cooling Unocc Enthalpy Setpoint

1.2 kW/ton

74 *F

78 *F

27.5 Btu/lb

27.5 Btu/lb

Heating System Efficiency

Heating On Point

Ex Occupied Htg Temp.

Ex Unoccupied Htg Temp.

Electricity

Natural Gas

80%
58 *F
68 *F
60 *F
\$ 0.124 \$/kWh
\$ 1.23 \$/Therm

					EXISTING	G LOADS	PROPOSED LOADS		COOLING ENERGY		HEATING ENERGY	
					Occupied	Unoccupied	Occupied	Unoccupied				
Avg Outdoor Air Temp. Bins °F A	Avg Outdoor Air Enthalpy	Existing Equipment Bin Hours B	Occupied Equipment Bin Hours C	Unoccupied Equipment Bin Hours D	Wall Infiltration & Heat Load BTUH E	Wall Infiltration & Heat Load BTUH F	Wall Infiltration & Heat Load BTUH G	Wall Infiltration & Heat Load BTUH H	Existing Cooling Energy kWh	Proposed Cooling Energy kWh	Existing Heating Energy Therm K	Proposed Heating Energy Therm L
7.			•	_	_	-			-	•		_
97.5	42.5	0	0	0	(1,747,388)	(1,712,265)	(1,690,069)	(1,664,702)	-	-	-	-
92.5	39.5	36	10	26	(1,395,276)	(1,360,153)	(1,350,153)	(1,324,786)	4,930	4,794	-	-
87.5	36.6	123	33	90	(1,053,438)	(1,018,315)	(1,020,510)	(995,143)	12,641	12,324	-	-
82.5	34.0	477	128	349	(742,421)	(707,297)	(721,688)	(696,321)	34,187	33,539	-	-
77.5	31.6	656	176	480	(451,950)	0	(443,413)	0	7,941	7,791	-	-
72.5	29.2	742	199	543	0	0	0	0	-	-	-	-
67.5	27.0	784	210	574	0	0	0	0	-	-	-	-
62.5	24.5	983	263	720	0	0	0	0	-	-	-	-
57.5	21.4	625	167	458	351,093	83,594	325,483	77,496	-	-	1,213	1,124
52.5	18.7	438	117	321	518,281	250,781	480,474	232,488	-	-	1,765	1,637
47.5	16.2	559	150	409	685,468	417,968	635,466	387,479	-	-	3,421	3,172
42.5	14.4	671	180	491	852,655	585,156	790,458	542,471	-	-	5,509	5,107
37.5	12.6	1,067	286	781	1,019,843	752,343	945,449	697,463	-	-	10,990	10,188
32.5	10.7	685	183	502	1,187,030	919,530	1,100,441	852,454	-	-	8,487	7,868
27.5	8.6	369	99	270	1,354,217	1,086,718	1,255,433	1,007,446	-	-	5,343	4,953
22.5	6.8	321	86	235	1,521,405	1,253,905	1,410,424	1,162,438	-	-	5,319	4,931
17.5	5.5	184	49	135	1,688,592	1,421,092	1,565,416	1,317,429	-	-	3,433	3,183
12.5	4.1	40	11	29	1,855,779	1,588,279	1,720,408	1,472,421	-	-	830	769
7.5	2.6	0	0	0	2,022,966	1,755,467	1,875,399	1,627,413	-	-	-	-
2.5	1.0	0	0	0	2,190,154	1,922,654	2,030,391	1,782,404	-	-	-	-
-2.5	0.0	0	0	0	2,357,341	2,089,841	2,185,383	1,937,396	-	-	-	-
-7.5	-1.5	0	0	0	2,524,528	2,257,029	2,340,375	2,092,388	-	-	-	-
-12.5	-2.8	0	0	0	2,691,716	2,424,216	2,495,366	2,247,380	-	-	-	-
TOTALS		8,760	2,346	6,414					59,700	58,448	46,310	42,932

Existing Ceiling Infiltration Existing Ceiling Heat Transfer Proposed Ceiling Infiltration Proposed Ceiling Heat Transfer

22,830 cfm 8,781 Btuh/°F 22,830 cfm 6,342 Btuh/°F
 Savings
 3,378 Therm
 \$ 4,147

 1,252 kWh
 \$ 155

 \$ 4,302

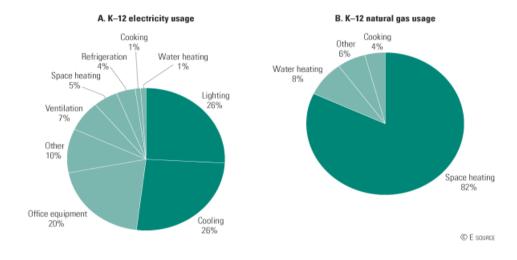
Commission District BAS and Integrate Existing HVAC Equipment

105,840 Sq Footage

EXISTING CONDITIONS		
Existing Facility Total Electric usage	1,444,174	kWh
Existing Facility Total Gas usage	19,171	Therms
Existing Facility Cooling Electric usage	375,485	kWh ¹
Existing Facility Heating Natural Gas usage	15720.302	Therms ²
PROPOSED CONDITIONS		
Proposed Facility Cooling Electric Savings	75,097	kWh
Proposed Facility Natural Gas Savings	3144.0604	Therms
SAVINGS		
Retro-Commissioning Electric Savings	75,097	kWh
Retro-Commissioning Natural Gas Savings	3,144	Therms
Total cost savings	\$ 13,168	
Estimated Total Project Cost	\$ 105,840	4
Simple Payback	8.0	years

Assumptions

- 1 26% of facility total electricity dedicated to Cooling; Source: E source, data from U.S. Energy Information Administration
- 2 82% of facility total natural gas dedicated to Heating; Source: E source, data from U.S. Energy Information Administration
- 3 20% Typical Savings associated with Retro-Commissioning of controls based on previous project experience
- 4 \$ 1.00 Based on \$1.00 / Sq Ft commissioning cost



Energy Audit of Eisenhower Middle School CHA Project No.24454

ECM-1 Lighting Replacements

Budgetary		Annual Uti	lity Savings		Estimated	Total	New Jersey	Payback	Payback
Cost					Maintenance	Savings	Incentive	(without incentive)	(with incentive)
					Savings				
\$	kW	kWh	therms	\$	\$	\$	\$	Years	Years
\$10,992	17.4	31,011	0	\$4,722	0	\$4,722	\$2,920	2.3	1.7

^{*}Incentive based on New Jersey Smart Start Prescriptive Lighting Measures

ECM-2 Install Occupancy Sensors

Budgetary		Annual Uti	lity Savings		Estimated	Total	New Jersey	Payback	Payback
Cost					Maintenance	Savings	Incentive	(without incentive)	(with incentive)
					Savings				
\$	kW	kWh	therms	\$	\$	\$	\$	Years	Years
\$40,095	0.0	48,634	0	\$5,204	0	\$5,204	\$6,930	7.7	6.4

^{*}Incentive based on New Jersey Smart Start Prescriptive Lighting Measures

ECM-3 Lighting Replacements with Occupancy Sensors

Budgetary		Annual Uti	lity Savings		Estimated	Total	New Jersey	Payback	Payback
Cost					Maintenance	Savings	Incentive	(without incentive)	(with incentive)
					Savings				
\$	kW	kWh	therms	\$	\$	\$	\$	Years	Years
\$51,087	17.4	78,495	0	\$9,802	0	\$9,802	\$9,850	5.2	4.2

^{*}Incentive based on New Jersey Smart Start Prescriptive Lighting Measures

10/15/2012 Page 1, Summary

\$0.107 \$/kWh \$6.74 \$/kW

					FYISTIN	G CONDITIO	NS				
					LXIOTIN	CONDITIO					
	Anna Daganin tian	Hanna	No. of			Watts per			Annual	Retrofit	Annual
	Area Description	Usage	Fixtures	Standard Fixture Code	Fixture Code	Fixture	kW/Space	Exist Control	Hours	Control	kWh
20	Main Office Common	Hallways		S 32 C F 1 (ELE)	F41LL	32	0.19	SW	2280	SW	438
20	Main Office Common	Hallways		S 32 C F 1 (ELE)	F41LL	32	0.19	SW	2280	SW	438
20	Main Office Common	Hallways	2	S 32 C F 1 (ELE)	F41LL	32	0.06	SW	2280	SW	146
20	Main Office Common	Hallways	1	S 32 C F 1 (ELE)	F41LL	32	0.03	SW	2280	SW	73
20	Main Office Common	Hallways	1	S 32 C F 1 (ELE)	F41LL	32	0.03	SW	2280	SW	73
11	Main Office	Offices	1	S 34 P F 2 (MAG)	F42EE	72	0.07	SW	2400	C-OCC	173
20	Main Office	Offices		S 32 C F 1 (ELE)	F41LL	32	0.13	SW	2400	C-OCC	307
20	Main Office	Offices	2	S 32 C F 1 (ELE)	F41LL	32	0.06	SW	2400	C-OCC	154
20	Main Office	Offices	4	S 32 C F 1 (ELE)	F41LL	32	0.13	SW	2400	C-OCC	307
20	Main Office	Offices	2	S 32 C F 1 (ELE)	F41LL	32	0.06	SW	2400	C-OCC	154
20	Main Office	Offices		S 32 C F 1 (ELE)	F41LL	32	0.13	SW	2400	C-OCC	307
20	Main Office	Offices		S 32 C F 1 (ELE)	F41LL	32	0.06	SW	2400	C-OCC	154
20	Main Office	Offices		S 32 C F 1 (ELE)	F41LL	32	0.13	SW	2400	C-OCC	307
20	Guidance Common	Hallways		S 32 C F 1 (ELE)	F41LL	32	0.19	SW	2280	SW	438
20	Guidance	Offices	2	S 32 C F 1 (ELE)	F41LL	32	0.06	SW	2400	C-OCC	154
20	Guidance	Offices	2	S 32 C F 1 (ELE)	F41LL	32	0.06	SW	2400	C-OCC	154
20	Guidance	Offices	2	S 32 C F 1 (ELE)	F41LL	32	0.06	SW	2400	C-OCC	154
20	Faculty Room	Offices	3	S 32 C F 1 (ELE)	F41LL	32	0.10	SW	2400	C-OCC	230
20	Faculty Room	Offices	3	S 32 C F 1 (ELE)	F41LL	32	0.10	SW	2400	C-OCC	230
20	Faculty Room	Offices	3	S 32 C F 1 (ELE)	F41LL	32	0.10	SW	2400	C-OCC	230
20	Faculty Room	Offices	1	S 32 C F 1 (ELE)	F41LL	32	0.03	SW	2400	C-OCC	77
20	B Hall Men's Bathroom	Bath Room	1	S 32 C F 1 (ELE)	F41LL	32	0.03	SW	2000	SW	64
20	B Hall Women's Bathroom	Bath Room	1	S 32 C F 1 (ELE)	F41LL	32	0.03	SW	2000	SW	64
20	B Hall Closet 1	Storage Areas		S 32 C F 1 (ELE)	F41LL	32	0.03	SW	1000	SW	32
08	B Hall Closet 2	Storage Areas	2	I 65	I65/1	65	0.13	SW	1000	SW	130
33	B Hall Closet 2	Storage Areas	1	CF 26	CFQ26/1-L	27	0.03	SW	1000	SW	27
20	B Hall Office 1	Offices	4	S 32 C F 1 (ELE)	F41LL	32	0.13	SW	2400	C-OCC	307
20	Nurse	Offices	6	S 32 C F 1 (ELE)	F41LL	32	0.19	SW	2400	C-OCC	461
0	Nurse	Offices	1	S 32 C F 1 (ELE)	F41LL	32	0.03	SW	2400	C-OCC	77
5	Nurse Bathroom	Bath Room	1 1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	2000	SW	120
20	Nurse Closet	Storage Areas	2	S 32 C F 1 (ELE)	F41LL	32	0.06	SW	1000	SW	64
0	B Hall Office 2	Offices	1	S 32 C F 1 (ELE)	F41LL	32	0.13	SW	2400	C-OCC	307
20	1	Classrooms	18	S 32 C F 1 (ELE)	F41LL	32	0.13	SW	2400	C-OCC	1,382
15	1	Classrooms		S 32 C F 2 (ELE)	F42LL	60	0.38	SW	2400	C-OCC	288
20	1	Classrooms	_	S 32 C F 2 (ELE)	F41LL	32	0.12	SW	2400	C-OCC	691
	1	Classrooms	2	S 32 C F 2 (ELE)	F41LL F42LL	60	0.29	SW	2400	C-OCC	288
15	B Hall Small Classroom	Classrooms	2	S 32 C F 2 (ELE)	F42LL F41LL	32	0.12	SW	2400	C-OCC	461
20	D Hall SHIall Classicotti	Classrooms	16	,		32	0.19	SW	2400		
20	2			S 32 C F 1 (ELE)	F41LL			SW		C-OCC	1,229
15	2	Classrooms	2	S 32 C F 2 (ELE)	F42LL	60	0.12		2400	C-OCC	288
20	2	Classrooms	8	S 32 C F 1 (ELE)	F41LL	32	0.26	SW	2400	C-OCC	614
15	2	Classrooms	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	C-OCC	288
20 4.5	3	Classrooms		S 32 C F 1 (ELE)	F41LL	32	0.38	SW	2400	C-OCC	922
15	3	Classrooms		S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	C-OCC	288
20	3	Classrooms	6	S 32 C F 1 (ELE)	F41LL	32	0.19	SW	2400	C-OCC	461
5	3	Classrooms	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	C-OCC	288
20	4	Classrooms		S 32 C F 1 (ELE)	F41LL	32	0.38	SW	2400	C-OCC	922
5	4	Classrooms	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	C-OCC	288
20	4	Classrooms	6	S 32 C F 1 (ELE)	F41LL	32	0.19	SW	2400	C-OCC	461
15	4	Classrooms	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	C-OCC	288
20	B Hall Boy's Bathroom	Bath Room	2	S 32 C F 1 (ELE)	F41LL	32	0.06	SW	2000	SW	128
20	B Hall Girl's Bathroom	Bath Room		S 32 C F 1 (ELE)	F41LL	32	0.06	SW	2000	SW	128
20	Media Center	Classrooms		S 32 C F 1 (ELE)	F41LL	32	0.45	SW	2400	C-OCC	1,075
20	Media Center	Classrooms		S 32 C F 1 (ELE)	F41LL	32	0.45	SW	2400	C-OCC	1,075
20	Media Center	Classrooms		S 32 C F 1 (ELE)	F41LL	32	0.45	SW	2400	C-OCC	1,075
20		Classrooms	14	S 32 C F 1 (ELE)	F41LL	32	0.45	SW	2400	C-OCC	1,075

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\$0.107 \$/kWh \$6.74 \$/kW

No. of Fixture Watts per Classrooms 14 S 32 C F 1 (ELE) F41LL 32 0.45 SW 2400 C-OCC 1.29
Classrooms
Classrooms 16 S 32 C F 1 (ELE) F41LL 32 0.51 SW 2400 C-OCC 1,229 Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms 8 S 32 C F 1 (ELE) F41LL 32 0.26 SW 2400 C-OCC 288 Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms 12 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms 6 S 32 C F 1 (ELE) F41LL 32 0.19 SW 2400 C-OCC 288 Classrooms 2 S 32 C F 2 (ELE) F41LL 32 0.45 SW 2400 C-OCC 288 Classrooms<
Classrooms 2 S 3 2 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms 8 S 32 C F 1 (ELE) F41LL 32 0.26 SW 2400 C-OCC 614 Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms 12 S 32 C F 1 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms 2 S 32 C F 1 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms 2 S 32 C F 1 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms 14 S 32 C F 1 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms </td
Classrooms 8 S 32 C F 1 (ELE) F41LL 32 0.26 SW 2400 C-OCC 614 Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms 12 S 32 C F 1 (ELE) F41LL 32 0.38 SW 2400 C-OCC 922 Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms 6 S 32 C F 1 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms 14 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms
Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms 12 S 32 C F 1 (ELE) F41LL 32 0.38 SW 2400 C-OCC 922 Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms 6 S 32 C F 1 (ELE) F41LL 32 0.19 SW 2400 C-OCC 461 Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms 14 S 32 C F 1 (ELE) F41LL 32 0.45 SW 2400 C-OCC 288 Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms 7 S 32 C F 1 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms
Classrooms 12 S 32 C F 1 (ELE) F41LL 32 0.38 SW 2400 C-OCC 922 Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms 6 S 32 C F 1 (ELE) F41LL 32 0.19 SW 2400 C-OCC 461 Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms 14 S 32 C F 1 (ELE) F41LL 32 0.45 SW 2400 C-OCC 288 Classrooms 2 S 32 C F 2 (ELE) F41LL 32 0.45 SW 2400 C-OCC 288 Classrooms 2 S 32 C F 1 (ELE) F41LL 32 0.22 SW 2400 C-OCC 288 Classrooms 7 S 32 C F 1 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms
Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms 6 S 32 C F 1 (ELE) F41LL 32 0.19 SW 2400 C-OCC 461 Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms 14 S 32 C F 1 (ELE) F41LL 32 0.45 SW 2400 C-OCC 1,075 Classrooms 2 S 32 C F 2 (ELE) F41LL 32 0.45 SW 2400 C-OCC 1,075 Classrooms 2 S 32 C F 1 (ELE) F41LL 32 0.22 SW 2400 C-OCC 288 Classrooms 7 S 32 C F 2 (ELE) F41LL 32 0.22 SW 2400 C-OCC 288 Classrooms 2 S 32 C F 2 (ELE) F41LL 32 0.64 SW 2400 C-OCC 288 Classrooms
Classrooms 6 S 32 C F 1 (ELE) F41LL 32 0.19 SW 2400 C-OCC 461 Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms 14 S 32 C F 1 (ELE) F41LL 32 0.45 SW 2400 C-OCC 1,075 Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms 7 S 32 C F 1 (ELE) F41LL 32 0.22 SW 2400 C-OCC 538 Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms 2 S 32 C F 1 (ELE) F41LL 32 0.64 SW 2400 C-OCC 288 Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms </td
Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms 14 S 32 C F 1 (ELE) F41LL 32 0.45 SW 2400 C-OCC 1,075 Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms 7 S 32 C F 1 (ELE) F41LL 32 0.22 SW 2400 C-OCC 538 Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 538 Classrooms 2 S 32 C F 1 (ELE) F41LL 32 0.64 SW 2400 C-OCC 288 Classrooms 2 S 32 C F 2 (ELE) F41LL 32 0.64 SW 2400 C-OCC 288 Classrooms 10 S 32 C F 1 (ELE) F41LL 32 0.32 SW 2400 C-OCC 768 Classrooms<
Classrooms 14 S 32 C F 1 (ELE) F41LL 32 0.45 SW 2400 C-OCC 1,075 Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms 7 S 32 C F 1 (ELE) F41LL 32 0.22 SW 2400 C-OCC 538 Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms 20 S 32 C F 1 (ELE) F41LL 32 0.64 SW 2400 C-OCC 288 Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms 10 S 32 C F 1 (ELE) F41LL 32 0.32 SW 2400 C-OCC 288 Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Storage Ar
Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms 7 S 32 C F 1 (ELE) F41LL 32 0.22 SW 2400 C-OCC 538 Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms 20 S 32 C F 1 (ELE) F41LL 32 0.64 SW 2400 C-OCC 1,536 Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms 10 S 32 C F 1 (ELE) F41LL 32 0.32 SW 2400 C-OCC 768 Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Storage Areas 2 S 32 C F 1 (ELE) F41LL 32 0.06 SW 1000 SW 64 Classrooms </td
Classrooms 7 \$ 32 C F 1 (ELE) F41LL 32 0.22 SW 2400 C-OCC 538 Classrooms 2 \$ 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms 20 \$ 32 C F 1 (ELE) F41LL 32 0.64 SW 2400 C-OCC 1,536 Classrooms 2 \$ 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms 10 \$ 32 C F 1 (ELE) F41LL 32 0.32 SW 2400 C-OCC 768 Classrooms 2 \$ 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Storage Areas 2 \$ 32 C F 1 (ELE) F41LL 32 0.06 SW 1000 SW 64 Classrooms 12 \$ 32 C F 1 (ELE) F41LL 32 0.38 SW 2400 C-OCC 922
Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms 20 S 32 C F 1 (ELE) F41LL 32 0.64 SW 2400 C-OCC 1,536 Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms 10 S 32 C F 1 (ELE) F41LL 32 0.32 SW 2400 C-OCC 768 Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Storage Areas 2 S 32 C F 1 (ELE) F41LL 32 0.06 SW 1000 SW 64 Classrooms 12 S 32 C F 1 (ELE) F41LL 32 0.38 SW 2400 C-OCC 922
Classrooms 20 S 32 C F 1 (ELE) F41LL 32 0.64 SW 2400 C-OCC 1,536 Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms 10 S 32 C F 1 (ELE) F41LL 32 0.32 SW 2400 C-OCC 768 Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Storage Areas 2 S 32 C F 1 (ELE) F41LL 32 0.06 SW 1000 SW 64 Classrooms 12 S 32 C F 1 (ELE) F41LL 32 0.38 SW 2400 C-OCC 922
Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Classrooms 10 S 32 C F 1 (ELE) F41LL 32 0.32 SW 2400 C-OCC 768 Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Storage Areas 2 S 32 C F 1 (ELE) F41LL 32 0.06 SW 1000 SW 64 Classrooms 12 S 32 C F 1 (ELE) F41LL 32 0.38 SW 2400 C-OCC 922
Classrooms 10 S 32 C F 1 (ELE) F41LL 32 0.32 SW 2400 C-OCC 768 Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Storage Areas 2 S 32 C F 1 (ELE) F41LL 32 0.06 SW 1000 SW 64 Classrooms 12 S 32 C F 1 (ELE) F41LL 32 0.38 SW 2400 C-OCC 922
Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288 Storage Areas 2 S 32 C F 1 (ELE) F41LL 32 0.06 SW 1000 SW 64 Classrooms 12 S 32 C F 1 (ELE) F41LL 32 0.38 SW 2400 C-OCC 922
Storage Areas 2 S 32 C F 1 (ELE) F41LL 32 0.06 SW 1000 SW 64 Classrooms 12 S 32 C F 1 (ELE) F41LL 32 0.38 SW 2400 C-OCC 922
Classrooms 12 S 32 C F 1 (ELE) F41LL 32 0.38 SW 2400 C-OCC 922
Classrooms 6 S 32 C F 1 (ELE) F41LL 32 0.19 SW 2400 C-OCC 461
Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288
Classrooms 16 S 32 C F 1 (ELE) F41LL 32 0.51 SW 2400 C-OCC 1,229
Classrooms 2 \$ 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288
Classrooms 8 \$ 32 C F 1 (ELE) F41LL 32 0.26 SW 2400 C-OCC 614
Classrooms 2 \$ 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288
Storage Areas 2 S 32 C F 1 (ELE) F41LL 32 0.06 SW 1000 SW 64
Classrooms 4 S 32 C F 2 (ELE) F42LL 60 0.24 SW 2400 C-OCC 576
Classrooms 12 S 32 C F 1 (ELE) F41LL 32 0.38 SW 2400 C-OCC 922
Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288
Classrooms 6 S 32 C F 1 (ELE) F41LL 32 0.19 SW 2400 C-OCC 461
Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288
Classrooms 12 S 32 C F 1 (ELE) F41LL 32 0.38 SW 2400 C-OCC 922
Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288
Classrooms 6 S 32 C F 1 (ELE) F41LL 32 0.19 SW 2400 C-OCC 461
Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288
Classrooms 12 S 32 C F 1 (ELE) F41LL 32 0.38 SW 2400 C-OCC 922
Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288
Classrooms 6 S 32 C F 1 (ELE) F41LL 32 0.19 SW 2400 C-OCC 461
Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288
Classrooms 16 S 32 C F 1 (ELE) F41LL 32 0.51 SW 2400 C-OCC 1,229
Classrooms 3 S 32 C F 2 (ELE) F42LL 60 0.18 SW 2400 C-OCC 432
Classrooms 8 S 32 C F 1 (ELE) F41LL 32 0.26 SW 2400 C-OCC 614
Classrooms 3 S 32 C F 2 (ELE) F42LL 60 0.18 SW 2400 C-OCC 432
Classrooms 18 T 32 R F 3 (ELE) F43LE 110 1.98 SW 2400 C-OCC 4,752
Storage Areas 2 T 32 R F 3 (ELE) F43LE 110 0.22 SW 1000 SW 220
Storage Areas 2 T 32 R F 3 (ELE) F43LE 110 0.22 SW 1000 SW 220
Classrooms 12 T 32 R F 3 (ELE) F43LE 110 1.32 SW 2400 C-OCC 3,168
Classrooms 12 T 32 R F 3 (ELE) F43LE 110 1.32 SW 2400 C-OCC 3,168
Classrooms 12 T 32 R F 3 (ELE) F43LE 110 1.32 SW 2400 C-OCC 3,168
Classrooms 12 T 32 R F 3 (ELE) F43LE 110 1.32 SW 2400 C-OCC 3,168
Classrooms 12 S 32 C F 2 (ELE) F42LL 60 0.72 SW 2400 C-OCC 1,728
Classrooms 16 S 32 C F 1 (ELE) F41LL 32 0.51 SW 2400 C-OCC 1,229
Classrooms 2 S 32 C F 2 (ELE) F42LL 60 0.12 SW 2400 C-OCC 288
Classrooms 8 S 32 C F 1 (ELE) F41LL 32 0.26 SW 2400 C-OCC 614

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\$0.107 \$/kWh \$6.74 \$/kW

					EXISTIN	G CONDITIO	NS				
	Area Description	Usage	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Retrofit Control	Annual kWh
	21	Classrooms	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	C-OCC	288
	22	Classrooms	12	S 32 C F 2 (ELE)	F42LL	60	0.72	SW	2400	C-OCC	1,728
+	23	Classrooms	14	S 32 C F 1 (ELE)	F41LL	32	0.45	SW	2400	C-OCC	1,075
	23	Classrooms	2	S 32 C F 2 (ELE)	F42LL	60	0.43	SW	2400	C-OCC	288
	23	Classrooms	7	S 32 C F 1 (ELE)	F41LL	32	0.12	SW	2400	C-OCC	538
	23	Classrooms	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	C-OCC	288
	24	Classrooms	9	S 32 C F 2 (ELE)	F42LL	60	0.54	SW	2400	C-OCC	1,296
	25	Classrooms	10	S 32 C F 1 (ELE)	F41LL	32	0.32	SW	2400	C-OCC	768
	25	Classrooms	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	C-OCC	288
	25	Classrooms	5	S 32 C F 1 (ELE)	F41LL	32	0.16	SW	2400	C-OCC	384
	25	Classrooms	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	C-OCC	288
	26	Classrooms	9	S 32 C F 2 (ELE)	F42LL	60	0.54	SW	2400	C-OCC	1,296
	27	Classrooms	10	S 32 C F 1 (ELE)	F41LL	32	0.32	SW	2400	C-OCC	768
	27	Classrooms	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	C-OCC	288
\dashv	27	Classrooms	5	S 32 C F 1 (ELE)	F41LL	32	0.16	SW	2400	C-OCC	384
	27	Classrooms	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	C-OCC	288
$\neg \vdash$	28	Classrooms	12	S 32 C F 1 (ELE)	F41LL	32	0.38	SW	2400	C-OCC	922
-	28	Classrooms	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	C-OCC	288
\top	28	Classrooms	6	S 32 C F 1 (ELE)	F41LL	32	0.19	SW	2400	C-OCC	461
	28	Classrooms	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	C-OCC	288
	D Hall Closet 1	Storage Areas	1	S 32 C F 1 (ELE)	F41LL	32	0.03	SW	1000	SW	32
	D Hall Closet 2	Storage Areas	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	1000	SW	60
	D Hall Closet 3	Storage Areas	1	S 34 P F 2 (MAG)	F42EE	72	0.07	SW	1000	SW	72
	D Hall Closet 3	Storage Areas	2	S 32 C F 1 (ELE)	F41LL	32	0.06	SW	1000	SW	64
	D Hall Closet 4	Storage Areas	4	S 32 C F 1 (ELE)	F41LL	32	0.13	SW	1000	SW	128
	A Hall Boy's Bathroom	Bath Room	2	S 32 C F 1 (ELE)	F41LL	32	0.06	SW	2000	SW	128
+	A Hall Girl's Bathroom	Bath Room	2	S 32 C F 1 (ELE)	F41LL	32	0.06	SW	2000	SW	128
	29/30	Classrooms	10	S 32 C F 1 (ELE)	F41LL	32	0.32	SW	2400	C-OCC	768
	29/30	Classrooms	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	2400	C-OCC	144
	29/30	Classrooms	5	S 32 C F 1 (ELE)	F41LL	32	0.16	SW	2400	C-OCC	384
1	29/30	Classrooms	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	2400	C-OCC	144
	29/30	Classrooms	10	S 32 C F 1 (ELE)	F41LL	32	0.32	SW	2400	C-OCC	768
\top	29/30	Classrooms	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	2400	C-OCC	144
	29/30	Classrooms	5	S 32 C F 1 (ELE)	F41LL	32	0.16	SW	2400	C-OCC	384
1	29/30	Classrooms	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	2400	C-OCC	144
	Cafeteria	Cafeteria	11	S 32 C F 1 (ELE)	F41LL	32	0.35	SW	1600	C-OCC	563
1	Cafeteria	Cafeteria	11	S 32 C F 1 (ELE)	F41LL	32	0.35	SW	1600	C-OCC	563
	Cafeteria	Cafeteria	11	S 32 C F 1 (ELE)	F41LL	32	0.35	SW	1600	C-OCC	563
	Cafeteria	Cafeteria	11	S 32 C F 1 (ELE)	F41LL	32	0.35	SW	1600	C-OCC	563
	Cafeteria	Cafeteria	11	S 32 C F 1 (ELE)	F41LL	32	0.35	SW	1600	C-OCC	563
	Cafeteria	Cafeteria	11	S 32 C F 1 (ELE)	F41LL	32	0.35	SW	1600	C-OCC	563
	Cafeteria	Cafeteria	11	S 32 C F 1 (ELE)	F41LL	32	0.35	SW	1600	C-OCC	563
	Kitchen	Cafeteria	35	S 32 C F 1 (ELE)	F41LL	32	1.12	SW	1600	C-OCC	1,792
	Kitchen Storage Large	Storage Areas	6	S 32 C F 1 (ELE)	F41LL	32	0.19	SW	1000	SW	192
	Kitchen Office	Offices	2	S 32 C F 1 (ELE)	F41LL	32	0.06	SW	2400	C-OCC	154
	Kitchen Storage A	Storage Areas	2	S 32 C F 1 (ELE)	F41LL	32	0.06	SW	1000	SW	64
	Kitchen Storage B	Storage Areas	1	S 32 C F 1 (ELE)	F41LL	32	0.03	SW	1000	SW	32
	Kitchen Storage C	Storage Areas	1	S 32 C F 1 (ELE)	F41LL	32	0.03	SW	1000	SW	32
	Kitchen Storage D	Storage Areas	1	S 32 C F 1 (ELE)	F41LL	32	0.03	SW	1000	SW	32
	Kitchen Storage E	Storage Areas	1	S 32 C F 1 (ELE)	F41LL	32	0.03	SW	1000	SW	32
	Kitchen Storage F	Storage Areas	1	S 32 C F 1 (ELE)	F41LL	32	0.03	SW	1000	SW	32
	Gym	Gynasium	14	High Bay MH 400	MH400/1	458	6.41	SW	2000	C-OCC	12,824
	Gym	Gynasium	14	High Bay MH 400	MH400/1	458	6.41	SW	2000	C-OCC	12,824
	Gym Office	Offices	4	S 32 C F 1 (ELE)	F41LL	32	0.13	SW	2400	C-OCC	307
	Gym Area Mechanical 1	Storage Areas	4	S 32 C F 1 (ELE)	F41LL	32	0.13	SW	1000	SW	128

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\$0.107 \$/kWh \$6.74 \$/kW

					EXISTING	G CONDITIO	NS				
	Area Description	Hoogo	No. of	Cton doud Firsture Code	Firsture Code	Watts per		Friet Control	Annual	Retrofit	Annual
	Area Description	Usage	Fixtures	Standard Fixture Code	Fixture Code	Fixture	kW/Space	Exist Control	Hours	Control	kWh
20	Gym Area Mechanical 2	Storage Areas	2	S 32 C F 1 (ELE)	F41LL	32	0.06	SW	1000	SW	64
20	Boy's Locker Room	Locker	19	S 32 C F 1 (ELE)	F41LL	32	0.61	SW	2800	C-OCC	1,702
20	Boy's Locker Room	Locker	3	S 32 C F 1 (ELE)	F41LL	32	0.10	SW	2800	C-OCC	269
15	Boy's Locker Room	Locker	3	S 32 C F 2 (ELE)	F42LL	60	0.18	SW	2800	C-OCC	504
15	Boy's Locker Room	Locker	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	2800	C-OCC	168
5	Boy's Locker Room	Locker	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.06	SW	2800	C-OCC	168
108	Boy's Locker Room	Locker	2	I 65	I65/1	65	0.13	SW	2800	C-OCC	364
20	Girl's Locker Room	Locker	8	S 32 C F 1 (ELE)	F41LL	32	0.26	SW	2800	C-OCC	717
20	Girl's Locker Room	Locker	8	S 32 C F 1 (ELE)	F41LL	32	0.26	SW	2800	C-OCC	717
20	Girl's Locker Room	Locker	4	S 32 C F 1 (ELE)	F41LL	32	0.13	SW	2800	C-OCC	358
20	Girl's Locker Room	Locker	2	S 32 C F 1 (ELE)	F41LL	32	0.06	SW	2800	C-OCC	179
15	Girl's Locker Room	Locker	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	2800	C-OCC	168
15	Girl's Locker Room	Locker	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	2800	C-OCC	168
11	Girl's Locker Room	Locker	2	S 34 P F 2 (MAG)	F42EE	72	0.14	SW	2800	C-OCC	403
191	Girl's Locker Room	Locker	1	S 60 C F 2 (ELE) 8'	F82EE	123	0.12	SW	2800	C-OCC	344
191	Girl's Locker Room	Locker	1	S 60 C F 2 (ELE) 8'	F82EE	123	0.12	SW	2800	C-OCC	344
20	Gym Front Storage Room	Storage Areas	8	S 32 C F 1 (ELE)	F41LL	32	0.26	SW	1000	SW	256
20	Gym Back Storage Room	Storage Areas	6	S 32 C F 1 (ELE)	F41LL	32	0.19	SW	1000	SW	192
15	31	Classrooms	9	S 32 C F 2 (ELE)	F42LL	60	0.54	SW	2400	C-OCC	1,296
15	31	Classrooms	10	S 32 C F 2 (ELE)	F42LL	60	0.60	SW	2400	C-OCC	1,440
15	31	Classrooms	9	S 32 C F 2 (ELE)	F42LL	60	0.54	SW	2400	C-OCC	1,296
15	31 Storage	Storage Areas	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	1000	SW	120
15	31/33 Shared Room	Storage Areas	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	1000	SW	120
15	31A	Classrooms	10	S 32 C F 2 (ELE)	F42LL	60	0.60	SW	2400	C-OCC	1,440
1	31A	Classrooms	2	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.06	SW	2400	C-OCC	149
20	32	Classrooms	18	S 32 C F 1 (ELE)	F41LL	32	0.58	SW	2400	C-OCC	1,382
15	32	Classrooms	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	C-OCC	288
20	32	Classrooms	9	S 32 C F 1 (ELE)	F41LL	32	0.29	SW	2400	C-OCC	691
15	32	Classrooms	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	C-OCC	288
254	33	Classrooms	12	T 32 R F 4 (ELE)	F44LL	118	1.42	SW	2400	C-OCC	3,398
245	33	Classrooms	3	T 32 R F 3 (ELE)	F43LE	110	0.33	SW	2400	C-OCC	792
213	34	Classrooms	11	T 32 R F 3 (ELE) (TWO SWITCH)	F43ILL/2	90	0.99	SW	2400	C-OCC	2,376
20	35	Classrooms	12	S 32 C F 1 (ELE)	F41LL	32	0.38	SW	2400	C-OCC	922
15	35	Classrooms	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	C-OCC	288
20	35	Classrooms	6	S 32 C F 2 (ELE)	F41LL	32	0.12	SW	2400	C-OCC	461
15	35	Classrooms	2	S 32 C F 2 (ELE)	F42LL	60	0.19	SW	2400	C-OCC	288
213	36	Classrooms	8	T 32 R F 3 (ELE) (TWO SWITCH)	F43ILL/2	90	0.72	SW	2400	C-OCC	1,728
213	37	Classrooms	12	T 32 R F 3 (ELE) (TWO SWITCH)	F43ILL/2	90	1.08	SW	2400	C-OCC	2,592
20	37 Closet	Storage Areas	1	S 32 C F 1 (ELE)	F41LL	32	0.03	SW	1000	SW	32
20	37 Closet 38	Classrooms	12	S 32 C F 1 (ELE)	F41LL	32	0.38	SW	2400	C-OCC	922
15	38	Classrooms	2	S 32 C F 2 (ELE)	F42LL	60	0.38	SW	2400	C-OCC	288
20	38	Classrooms	6	S 32 C F 1 (ELE)	F41LL	32	0.12	SW	2400	C-OCC	461
15		Classrooms	2	S 32 C F 2 (ELE)	F41LL F42LL	60	0.19	SW	2400	C-OCC	288
20	38	Classrooms	10	S 32 C F 2 (ELE)	F42LL F41LL	32	0.12	SW	2400	C-OCC	768
	39	Classrooms	10	` '	F41LL F42LL		0.32	SW	2400		144
15 20		Classrooms	<u> </u>	S 32 C F 2 (ELE)		60				C-OCC	
	39		5	S 32 C F 1 (ELE)	F41LL	32	0.16	SW	2400	C-OCC	384
15	39	Classrooms	1 10	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	2400	C-OCC	144
20	39	Classrooms	10	S 32 C F 1 (ELE)	F41LL	32	0.32	SW	2400	C-OCC	768
15	39	Classrooms	1 7	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	2400	C-OCC	144
20	39	Classrooms	5	S 32 C F 1 (ELE)	F41LL	32	0.16	SW	2400	C-OCC	384
15	39	Classrooms	1 1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	2400	C-OCC	144
20	40	Classrooms	16	S 32 C F 1 (ELE)	F41LL	32	0.51	SW	2400	C-OCC	1,229
15	40	Classrooms	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	C-OCC	288
15	40	Classrooms	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	C-OCC	288
20	40 Closet 1	Storage Areas	1 1	S 32 C F 1 (ELE)	F41LL	32	0.03	SW	1000	SW	32

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\$0.107 \$/kWh \$6.74 \$/kW

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,					EXISTIN	G CONDITIO	NS				
			N. C			NA				D. C.	
	Area Description	Usage	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Retrofit Control	Annual kWh
20			1 IXtures				•		1000	SW	
20 79	40 Closet 2	Storage Areas Auditorium	F6	S 32 C F 1 (ELE)	F41LL I100/1	32	0.03 5.60	SW SW		SW	32
	Auditorium		56	SP I 100		100			1000		5,600
133	Auditorium	Auditorium	1	CF 26	CFQ26/1-L	27	0.03	SW	1000	SW	27
8	Stage	Storage Areas	2	MH 175	MH175/1	215	0.43	SW	1000	SW	430
79	Stage	Storage Areas	2	SP I 100	1100/1	100	0.20	SW	1000	SW	200
80	Stage Closet	Storage Areas	1	I 65	I65/1	65	0.07	SW	1000	SW	65
5	H Hall Boy's Bathroom	Bath Room	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	2000	SW	120
5	H Hall Girl's Bathroom	Bath Room	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	2000	SW	120
8	H Hall Closet	Storage Areas	1	I 65	I65/1	65	0.07	SW	1000	SW	65
45	Team Room T1	Classrooms	5	T 32 R F 3 (ELE)	F43LE	110	0.55	SW	2400	C-OCC	1,320
45	Team Room T1	Classrooms	6	T 32 R F 3 (ELE)	F43LE	110	0.66	SW	2400	C-OCC	1,584
45	Team Room T1	Classrooms	5	T 32 R F 3 (ELE)	F43LE	110	0.55	SW	2400	C-OCC	1,320
45	Team Room T2	Classrooms	5	T 32 R F 3 (ELE)	F43LE	110	0.55	SW	2400	C-OCC	1,320
45	Team Room T2	Classrooms	6	T 32 R F 3 (ELE)	F43LE	110	0.66	SW	2400	C-OCC	1,584
45	Team Room T2	Classrooms	5	T 32 R F 3 (ELE)	F43LE	110	0.55	SW	2400	C-OCC	1,320
45	Team Room T3	Classrooms	5	T 32 R F 3 (ELE)	F43LE	110	0.55	SW	2400	C-OCC	1,320
45	Team Room T3	Classrooms	6	T 32 R F 3 (ELE)	F43LE	110	0.66	SW	2400	C-OCC	1,584
15	Team Room T3	Classrooms	5	T 32 R F 3 (ELE)	F43LE	110	0.55	SW	2400	C-OCC	1,320
5	Team Room T4	Classrooms	5	T 32 R F 3 (ELE)	F43LE	110	0.55	SW	2400	C-OCC	1,320
,	Team Room T4	Classrooms	6	T 32 R F 3 (ELE)	F43LE	110	0.66	SW	2400	C-OCC	1,584
;	Team Room T4	Classrooms	5	T 32 R F 3 (ELE)	F43LE	110	0.55	SW	2400	C-OCC	1,320
	Team Room	Classrooms	14	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.43	SW	2400	C-OCC	1,042
5	N. Team Room Aux Room	Classrooms	3	T 32 R F 3 (ELE)	F43LE	110	0.33	SW	2400	C-OCC	792
5	S. Team Room Aux Room	Classrooms	3	T 32 R F 3 (ELE)	F43LE	110	0.33	SW	2400	C-OCC	792
1	41	Classrooms	14	T 32 R F 4 (ELE)	F44LL	118	1.65	SW	2400	C-OCC	3,965
1	41/42 Office	Offices	2	T 32 R F 4 (ELE)	F44LL	118	0.24	SW	2400	C-OCC	566
1	42	Classrooms	15	T 32 R F 4 (ELE)	F44LL	118	1.77	SW	2400	C-OCC	4,248
	42 Closet 1	Storage Areas	1	T 32 R F 3 (ELE)	F43LE	110	0.11	SW	1000	SW	110
	42 Closet 2	Storage Areas	1	T 32 R F 3 (ELE)	F43LE	110	0.11	SW	1000	SW	110
	43	Classrooms	28	T 32 R F 4 (ELE)	F44LL	118	3.30	SW	2400	C-OCC	7,930
5	M Hall Closet 1	Storage Areas	3	S 32 C F 2 (ELE)	F42LL	60	0.18	SW	1000	SW	180
5	M Hall Closet 2	Storage Areas	3	S 32 C F 2 (ELE)	F42LL	60	0.18	SW	1000	SW	180
5	M Hall Closet 3	Storage Areas	3	S 32 C F 2 (ELE)	F42LL	60	0.18	SW	1000	SW	180
5	M Hall Closet 4	Storage Areas	3	S 32 C F 2 (ELE)	F42LL	60	0.18	SW	1000	SW	180
5	Main Entrance Lobby	Hallways	12	S 32 C F 2 (ELE)	F42LL	60	0.72	SW	2280	SW	1,642
0	A Hallway	Hallways	19	S 32 C F 1 (ELE)	F41LL	32	0.61	SW	2280	SW	1,386
5	A Hallway	Hallways	13	S 32 C F 2 (ELE)	F42LL	60	0.78	SW	2280	SW	1,778
20	B Hallway	Hallways	35	S 32 C F 1 (ELE)	F41LL	32	1.12	SW	2280	SW	2,554
20	C Hallway	Hallways	35	S 32 C F 1 (ELE)	F41LL	32	1.12	SW	2280	SW	2,554
20	D Hallway	Hallways	35	S 32 C F 1 (ELE)	F41LL	32	1.12	SW	2280	SW	2,554
.	E Hallway	Hallways	2	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.14	SW	2280	SW	328
1	E Hallway	Hallways	22	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.68	SW	2280	SW	1,555
	E Hallway	Hallways	6	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.43	SW	2280	SW	985
)	F Hallway	Hallways	5	S 32 C F 1 (ELE)	F41LL	32	0.16	SW	2280	SW	365
)	G Hallway	Hallways	6	S 32 C F 1 (ELE)	F41LL	32	0.19	SW	2280	SW	438
5	H Hallway	Hallways	10	S 32 C F 2 (ELE)	F42LL	60	0.60	SW	2280	SW	1,368
5	M hallway	Hallways	8	S 32 C F 2 (ELE)	F42LL	60	0.48	SW	2280	SW	1,094
;	M hallway	Hallways	5	S 32 C F 2 (ELE)	F42LL	60	0.30	SW	2280	SW	684
\div	Team Room Lobby	Hallways	9	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.54	SW	2280	SW	1,231
3 88	Exterior	Outdoor Lighting	22	175 MH WALL	MH175/1	215	4.73	SW	4368	SW	20,661
37	Exterior	Outdoor Lighting	22	SP 26 R CF 2	CFQ26/2-L	50	0.10	SW	4368	SW	437
79	Exterior	Outdoor Lighting	3	SP I 100	I100/1	100	0.30	SW	4368	SW	1,310
3	Total	Cataoor Eighting	1,732		1100/1	100	104	JVV	4000	JVV	236,253
I	i Ulai	İ	1,732	I		i	1 104			1	200,200

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CHA Project No.24454

Cost of Electricity:

ECM-1 Lighting Replacements

\$0.107 \$/kWh

\$6.74 \$/kW

60

0.1

EXISTING CONDITIONS RETROFIT CONDITIONS COST & SAVINGS ANALYSIS Simple NJ Smart Payback Start Lighting With Out No. of Number of Retrofit Annual kWh Annual kW Annual \$ Watts per Exist Annual Watts per Annual Annual Saved Retrofit Cost Payback kWh Saved Saved Incentive Area Description **Fixtures** Standard Fixture Code **Fixture Code** Fixture kW/Space Control Hours Annual kWh **Fixtures Standard Fixture Code Fixture Code** Fixture kW/Space Control Hours Incentive Main Office Common 6 S 32 C F 1 (ELE) F41LL 32 0.2 SW S 32 C F 1 (ELE) F41LL 32 0.192 SW 437.76 0.00 \$ 2280 2280 0.00 Main Office Common S 32 C F 1 (ELE F41LL SW 438 S 32 C F 1 (ELE) F41LL 0.00 0.00 \$ 32 2280 0.192 SW 2280 437.76 0.2 32 S 32 C F 1 (ELE) Main Office Common S 32 C F 1 (ELE) F41LL 32 SW 2280 F41LL 32 0.064 SW 2280 145.92 0.1 20 Main Office Common S 32 C F 1 (ELE F41LL 73 S 32 C F 1 (ELE) F41LL 0.032 SW 0.00 0.00 \$ 32 0.0 SW 2280 32 2280 72.96 - | 9 - | \$ 0.00 \$ F41LL 32 S 32 C F 1 (ELE) F41LL SW Main Office Common S 32 C F 1 (ELE 0.0 SW 2280 32 0.032 2280 72.96 0.02 \$ Main Office S 34 P F 2 (MAG) F42EE 72 0.1 SW 2400 173 C 28 P F 2 F42SSILL 48 0.048 SW 2400 115.2 57.60 8.10 \$ 106.25 \$ 10.00 13.1 1.7 0.00 \$ 0.00 \$ 20 20 Main Office S 32 C F 1 (ELE) 307 S 32 C F 1 (ELE) F41LL 32 0.1 SW 2400 4 F41LL 32 0.128 SW 2400 307.2 0.00 - | 9 - | \$ Main Office S 32 C F 1 (ELE 154 S 32 C F 1 (ELE) SW F41LL 32 2400 F41LL 0.064 2400 153.6 0.1 20 Main Office S 32 C F 1 (ELE) F41LL 307 S 32 C F 1 (ELE) F41LL 0.00 0.00 \$ SW 2400 32 0.128 SW 2400 307.2 4 32 0.1 4 - | 9 - | \$ 20 20 0.00 \$ 0.00 \$ Main Office S 32 C F 1 (ELE 154 F41LL 32 SW 2400 S 32 C F 1 (ELE) F41LL 0.064 SW 2400 153.6 0.00 0.1 307 0.00 S 32 C F 1 (ELE F41LL 2400 S 32 C F 1 (ELE) F41LL SW 2400 307.2 Main Office 32 SW 32 0.128 0.1 -20 0.00 \$ Main Office S 32 C F 1 (ELE) F41LL 32 SW 2400 154 S 32 C F 1 (ELE) F41LL 32 SW 2400 153.6 0.00 0.1 0.064 - | \$ - | \$ -20 0.00 \$ 0.00 \$ 2400 307 S 32 C F 1 (ELE) Main Office S 32 C F 1 (ELE F41LL 32 0.1 SW F41LL 32 0.128 SW 2400 307.2 0.00 20 S 32 C F 1 (ELE) 0.00 Guidance Common F41LL 32 0.2 SW 2280 438 S 32 C F 1 (ELE) F41LL 32 0.192 SW 2280 437.76 20 0.00 \$ Guidance S 32 C F 1 (ELE F41LL 32 SW 2400 154 S 32 C F 1 (ELE) F41LL 32 0.064 SW 153.6 0.00 0.1 2400 0.00 \$ 20 S 32 C F 1 (ELE F41LL 2400 154 S 32 C F 1 (ELE) F41LL 0.00 32 SW 32 0.064 SW 2400 153.6 Guidance 0.1 - | 3 S 32 C F 1 (ELE) 0.00 \$ S 32 C F 1 (ELE) F41LL 32 SW 2400 154 F41LL 32 SW 153.6 0.1 0.064 2400 Guidance 20 230 0.00 \$ S 32 C F 1 (ELE F41LL S 32 C F 1 (ELE) F41LL SW 0.00 Faculty Room 32 0.1 SW 2400 32 0.096 2400 230.4 - | : - | \$ 0.00 \$ 20 S 32 C F 1 (ELE) F41LL 32 2400 230 F41LL SW 0.00 SW S 32 C F 1 (ELE) 32 0.096 2400 230.4 Faculty Room 0.1 20 S 32 C F 1 (ELE) S 32 C F 1 (ELE) SW 0.00 \$ Faculty Room F41LL 32 0.1 SW 2400 230 F41LL 32 0.096 2400 230.4 0.00 - | 9 0.00 \$ 0.00 \$ 20 Faculty Room S 32 C F 1 (ELE) 77 S 32 C F 1 (ELE) SW 0.00 F41LL 32 0.0 SW 2400 F41LL 32 0.032 2400 76.8 - | \$ - | 9 S 32 C F 1 (ELE) B Hall Men's Bathroom F41LL 32 0.0 2000 S 32 C F 1 (ELE) F41LL 0.032 SW 2000 64 64 B Hall Women's Bathroom S 32 C F 1 (ELE) F41LL 0.0 SW 2000 S 32 C F 1 (ELE) F41LL 32 0.032 SW 2000 64 0.00 0.00 \$ 32 - | \$ - | \$ 0.00 \$ 0.08 \$ 20 B Hall Closet 1 S 32 C F 1 (ELE) F41LL 32 0.0 SW 1000 S 32 C F 1 (ELE) F41LL 0.032 SW 1000 32 0.00 32 108 B Hall Closet 2 165/1 130 CFQ26/1-L 0.054 SW 76.00 14.28 40.50 SW 1000 CF 26 1000 I 65 65 0.1 54 2.8 0.5 0.00 \$ 133 1 CF 26 CFQ26/1-L 27 CF 26 27 27 B Hall Closet 2 27 SW 1000 CFQ26/1-L 0.027 SW 0.00 0.0 1000 - | \$ -0.00 \$ 20 B Hall Office 1 307 S 32 C F 1 (ELE) F41LL SW 2400 S 32 C F 1 (ELE) 32 0.128 SW 2400 307.2 0.00 32 0.1 F41LL 20 S 32 C F 1 (ELE) 461 S 32 C F 1 (ELE) SW 0.00 0.00 \$ Nurse F41LL 32 0.2 SW 2400 F41LL 32 0.192 2400 460.8 - | \$ - | \$ 0.00 \$ 0.00 \$ 20 77 S 32 C F 1 (ELE F41LL 32 SW 2400 S 32 C F 1 (ELE) F41LL 32 0.032 SW 76.8 Nurse 0.0 2400 0.00 15 120 Nurse Bathroom S 32 C F 2 (ELE F42LL S 32 C F 2 (ELE) F42LL 60 0.1 SW 2000 60 0.06 SW 2000 120 - | ; S 32 C F 1 (ELE) 0.00 \$ Nurse Closet S 32 C F 1 (ELE) F41LL 32 0.1 SW 1000 F41LL 32 0.064 SW 1000 0.00 \$ 0.00 \$ 20 307 B Hall Office 2 S 32 C F 1 (ELE F41LL 0.1 SW 2400 S 32 C F 1 (ELE) F41LL 32 0.128 SW 2400 307.2 0.00 32 - | : - | \$ 20 S 32 C F 1 (ELE) F41LL 32 SW 2400 1,382 18 S 32 C F 1 (ELE) F41LL 32 SW 2400 0.00 0.6 0.576 1382.4 - | \$ 15 S 32 C F 2 (ELE) SW 2400 288 S 32 C F 2 (ELE) 60 0.12 SW 288 0.00 0.00 \$ F42LL 60 0.1 F42LL 2400 0.00 \$ 0.00 \$ 20 S 32 C F 1 (ELE) 691 S 32 C F 1 (ELE) 0.00 F41LL 0.3 SW 2400 F41LL 0.288 SW 2400 691.2 32 - | ; S 32 C F 2 (ELE F42LL 2400 S 32 C F 2 (ELE) F42LL 288 60 0.12 2400 0.1 B Hall Small Classroom S 32 C F 1 (ELE F41LL S 32 C F 1 (ELE) F41LL 0.00 \$ SW 32 0.192 SW 2400 460.8 0.00 32 0.2 F41LL S 32 C F 1 (ELE) F41LL 1228.8 15 SW S 32 C F 2 (ELE) F42LL 60 0.1 SW 2400 288 S 32 C F 2 (ELE) F42LL 60 0.12 2400 288 0.00 0.00 \$ 20 S 32 C F 1 (ELE) F41LL 32 0.3 SW 2400 614 8 S 32 C F 1 (ELE) F41LL 32 0.256 SW 2400 614.4 0.00 0.00 \$ - | \$ - | \$ -15 S 32 C F 2 (ELE) F42LL SW 2400 288 S 32 C F 2 (ELE) 0.00 0.00 \$ 60 0.1 F42LL 60 0.12 SW 2400 288 0.00 20 12 S 32 C F 1 (ELE) F41LL SW 2400 922 12 S 32 C F 1 (ELE) F41LL 0.384 SW 2400 921.6 0.00 \$ 32 0.4 32 - | \$ 15 S 32 C F 2 (ELE) F42LL 2400 S 32 C F 2 (ELE) F42LL 0.00 \$ 60 0.1 SW 60 0.12 SW 2400 288 0.00 \$ 20 S 32 C F 1 (ELE) S 32 C F 1 (ELE) 0.00 F41LL SW 2400 461 F41LL 0.192 32 0.2 32 SW 2400 460.8 15 S 32 C F 2 (ELE) SW 288 S 32 C F 2 (ELE) SW 0.00 0.00 \$ F42LL 60 0.1 2400 F42LL 60 0.12 2400 288 - | \$ S 32 C F 1 (ELE) 12 S 32 C F 1 (ELE) F41LL 20 0.4 SW 2400 922 12 F41LL 0.384 SW 2400 921.6 0.00 \$ 32 32 - | \$ 0.00 \$ 15 0.00 S 32 C F 2 (ELE) F42LL SW 2400 S 32 C F 2 (ELE) F42LL SW 288 60 0.1 60 0.12 2400 - | \$ 20 4 S 32 C F 1 (ELE) F41LL 32 0.2 SW 2400 461 6 S 32 C F 1 (ELE) F41LL 32 0.192 SW 2400 460.8 0.00 0.00 \$ - | \$ - | \$ 15 S 32 C F 2 (ELE) F42LL 0.1 SW 2400 288 S 32 C F 2 (ELE) F42LL 0.12 SW 2400 288 0.00 0.00 \$ 60 60 - | \$ - | 9 20 B Hall Boy's Bathroom S 32 C F 1 (ELE) F41LL 32 2000 128 S 32 C F 1 (ELE) F41LL SW 128 0.00 0.00 \$ SW 32 0.064 2000 0.1 B Hall Girl's Bathroom S 32 C F 1 (ELE) 2 S 32 C F 1 (ELE) F41LL SW 128 F41LL SW 2000 128 0.00 0.00 \$ 20 32 0.1 2000 32 0.064 - | \$ - | \$ -20 Media Center 14 S 32 C F 1 (ELE) F41LL SW 1,075 S 32 C F 1 (ELE) SW 2400 1075.2 0.00 0.00 \$ 32 0.4 2400 14 F41LL 0.448 20 F41LL SW 0.00 \$ Media Center 14 S 32 C F 1 (ELE) 2400 1,075 14 S 32 C F 1 (ELE) F41LL 2400 1075.2 0.00 32 0.4 SW 32 0.448 - | 9 - | \$ 20 Media Center 14 S 32 C F 1 (ELE) F41LL SW 0.00 \$ 32 0.4 SW 2400 1,075 14 S 32 C F 1 (ELE) F41LL 32 0.448 2400 1075.2 0.00 - | \$ - | \$ -20 Media Center 14 S 32 C F 1 (ELE) F41LL SW 2400 1,075 14 S 32 C F 1 (ELE) SW 0.00 0.00 \$ 32 0.4 F41LL 32 0.448 2400 1075.2 Media Center 0.00 20 14 S 32 C F 1 (ELE) F41LL 32 0.4 SW 2400 1,075 14 S 32 C F 1 (ELE) F41LL 32 0.448 SW 2400 1075.2 0.00 \$ - | \$ - | \$ -20 16 S 32 C F 1 (ELE) F41LL 32 0.5 SW 2400 1,229 S 32 C F 1 (ELE) F41LL 0.512 SW 2400 1228.8 0.00 \$ 0.00 \$ 15 S 32 C F 2 (ELE) F42LL 2400 S 32 C F 2 (ELE) F42LL 0.00 60 SW 60 0.12 SW 2400 288 0.1 - | \$ 20 S 32 C F 1 (ELE) SW 614 S 32 C F 1 (ELE) SW 0.00 0.00 \$ F41LL 32 0.3 2400 8 F41LL 32 0.256 2400 614.4 - | \$ F42LL 288 S 32 C F 2 (ELE) 15 2 S 32 C F 2 (ELE) 0.1 SW 2400 F42LL 0.12 SW 2400 288 0.00 \$ 60 60 - | \$ 0.00 \$ 20 0.00 12 S 32 C F 1 (ELE) F41LL SW 2400 922 S 32 C F 1 (ELE) F41LL SW 32 0.4 12 32 0.384 2400 921.6 - | \$ 15 S 32 C F 2 (ELE) F42LL SW 2400 288 S 32 C F 2 (ELE) F42LL 0.12 SW 288 0.00 0.00 \$ 60 0.1 60 2400 - | \$ - | \$ 20 461 0.00 0.00 \$ S 32 C F 1 (ELE) F41LL 0.2 SW 2400 S 32 C F 1 (ELE) F41LL 0.192 SW 2400 460.8 32 6 32 - | \$ 15 0.00 \$ S 32 C F 2 (ELE) F42LL 288 S 32 C F 2 (ELE) F42LL SW 288 0.00 60 0.1 SW 2400 60 0.12 2400 S 32 C F 1 (ELE) 20 7 14 S 32 C F 1 (ELE) F41LL 32 0.4 SW 2400 1,075 14 F41LL 32 0.448 SW 2400 1075.2 0.00 0.00 \$ - | \$ - | \$ -15 S 32 C F 2 (ELE) F42LL 60 0.1 SW 2400 288 S 32 C F 2 (ELE) F42LL 0.12 SW 2400 288 0.00 0.00 \$ 60 20 F41LL 2400 538 S 32 C F 1 (ELE) F41LL SW 2400 537.6 0.00 0.00 \$ 7 | S 32 C F 1 (ELE) 32 0.2 SW 32 0.224 - | 9 - | \$ 15 S 32 C F 2 (ELE) F42LL SW 2400 288 S 32 C F 2 (ELE) F42LL SW 2400 288 0.00 0.00 \$ 60 0.1 60 0.12 - | \$ - | \$ -20 0.00 0.00 \$ S 32 C F 1 (ELE) F41LL 1,536 S 32 C F 1 (ELE) SW 32 0.6 SW 2400 20 F41LL 32 0.64 2400 1536 15 2 S 32 C F 2 (ELE) F42LL SW S 32 C F 2 (ELE) F42LL SW 2400 0.00 0.00 \$ 60 0.1 2400 288 2 60 0.12 288 - | \$ - | \$ -0.00 \$ 20 10 S 32 C F 1 (ELE) F41LL 32 SW 2400 S 32 C F 1 (ELE) SW 10 F41LL 0.32 2400 768 0.3 0.00 \$ 15 S 32 C F 2 (ELE) 0.00 S 32 C F 2 (ELE) F42LL SW F42LL 60 0.1 2400 60 0.12 SW 2400 288 - | \$ 20 8 Storage S 32 C F 1 (ELE) SW 64 S 32 C F 1 (ELE) SW 64 0.00 0.00 \$ F41LL 32 0.1 1000 F41LL 32 0.064 1000 - | \$ F41LL 922 S 32 C F 1 (ELE) 0.00 \$ 20 12 S 32 C F 1 (ELE) 32 0.4 SW 2400 12 F41LL 32 0.384 SW 2400 921.6 - | \$ 0.00 \$ 15 S 32 C F 2 (ELE) F42LL SW 2400 288 S 32 C F 2 (ELE) F42LL 60 SW 2400 288 0.00 60 0.1 0.12 - | \$ - | \$ -20 S 32 C F 1 (ELE) F41LL SW 2400 461 S 32 C F 1 (ELE) SW 460.8 0.00 0.00 \$ 32 0.2 F41LL 32 0.192 2400 - | 9 - | \$ 0.00 0.00 \$ 15 S 32 C F 2 (ELE) F42LL SW 2400 288 S 32 C F 2 (ELE) F42LL 0.12 SW 2400 288 60 0.1 60 - | \$ 20 0.00 \$ 16 S 32 C F 1 (ELE) F41LL 32 1,229 S 32 C F 1 (ELE) F41LL SW 0.00 SW 2400 16 32 0.512 2400 1228.8 0.5 10 S 32 C F 2 (ELE) 15 2 S 32 C F 2 (ELE) F42LL 288 F42LL SW 0.00 0.00 \$ 60 0.1 SW 2400 60 0.12 2400 288 - | \$ - | \$ -20 F41LL SW S 32 C F 1 (ELE) SW 0.00 0.00 \$ S 32 C F 1 (ELE) 32 0.3 2400 614 F41LL 0.256 2400 614.4 15 10 F42LL 2400 288 S 32 C F 2 (ELE) F42LL SW 2400 288 0.00 0.00 \$ 2 S 32 C F 2 (ELE) 60 0.1 SW 60 0.12 - | 9 - \$ -- \$ 20 10 Storage S 32 C F 1 (ELE) F41LL 32 0.1 SW 1000 64 S 32 C F 1 (ELE) F41LL 32 0.064 SW 1000 64 0.00 0.00 \$ - | \$ -15 10A S 32 C F 2 (ELE) F42LL 0.2 SW 2400 S 32 C F 2 (ELE) F42LL 60 0.24 SW 2400 576 0.00 0.00 \$ 60 4 20 11 12 S 32 C F 1 (ELE) F41LL SW 2400 922 12 S 32 C F 1 (ELE) F41LL 0.384 SW 2400 921.6 0.00 0.00 \$ 32 0.4 32 - | \$ - | \$ -15 S 32 C F 2 (ELE) F42LL SW 2400 S 32 C F 2 (ELE) F42LL SW 0.00 \$ 60 0.1 0.12 2400 288 20 11 S 32 C F 1 (ELE) 0.00 0.00 \$ F41LL SW 2400 461 S 32 C F 1 (ELE) SW 2400 32 0.2 F41LL 32 0.192 460.8 6 - | 9 - | \$ 15 11 S 32 C F 2 (ELE) SW 288 S 32 C F 2 (ELE) SW 0.00 0.00 \$ F42LL 60 0.1 2400 F42LL 60 0.12 2400 288 F41LL 922 0.00 \$ 20 12 S 32 C F 1 (ELE) SW 2400 12 S 32 C F 1 (ELE) F41LL 0.384 SW 2400 921.6 0.00 32 0.4 32 12 0.00 \$ 15 S 32 C F 2 (ELE) F42LL SW 2400 288 S 32 C F 2 (ELE) F42LL SW 0.00 60 0.1 2 60 0.12 2400 288 - | \$ - | \$ -20 12 S 32 C F 1 (ELE) F41LL SW 2400 461 S 32 C F 1 (ELE) 0.00 0.00 \$ 32 0.2 F41LL 32 0.192 SW 2400 460.8 - | \$ 0.00 15 S 32 C F 2 (ELE) F42LL 0.1 SW 2400 288 S 32 C F 2 (ELE) F42LL 0.12 SW 2400 288 0.00 \$ 60 60 - 19 - | \$ 12 S 32 C F 1 (ELE) 20 13 F41LL 32 SW 2400 922 12 S 32 C F 1 (ELE) F41LL 0.384 SW 921.6 0.00 0.00 \$ 0.4 32 2400 15 13 S 32 C F 2 (ELE) F42LL SW 2400 288 S 32 C F 2 (ELE) F42LL SW 2400 288 0.00 0.00 \$

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60

0.12

- | \$

- | \$

CHA Project No.24454

ECM-1 Lighting Replacements

Cost of Electricity: \$0.107 \$/kWh

\$6.74 \$/kW

		EXISTING (CONDITIONS						RETROFIT C	CONDITION	S				С	OST & SAVIN	NGS ANALYSIS		
																		NJ Smart Payback	
Area Description	No. of Fixtures Standard Fixtu	re Code Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours Annual kW	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved Saved	Annual \$ Saved	Retrofit Cost	Start Lighting With Out Incentive	Simple
13 13	6 S 32 C F 1 (ELE) 2 S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.2 0.1	SW SW	2400 40 2400 28		S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.192 0.12	SW SW	2400 2400	460.8 288	0.00 0.00 0.00 0.00		\$ - \$ -	\$ - \$ -	
14	16 S 32 C F 1 (ELE) 3 S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.5	SW	2400 1,22		S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.512 0.18	SW	2400 2400	1228.8 432	0.00 0.00 0.00 0.00	\$ -	\$ -	\$ -	
14	8 S 32 C F 1 (ELE)	F41LL	32	0.3	SW	2400 6	4 8	S 32 C F 1 (ELE)	F41LL	32	0.256	SW	2400	614.4	0.00 0.00	\$ -	\$ -	\$ -	
15	3 S 32 C F 2 (ELE) 18 T 32 R F 3 (ELE)	F42LL F43LE	60 110	2.0	SW	2400 43 2400 4,75	52 18	S 32 C F 2 (ELE) T 32 R F 3 (ELE)	F42LL F43LE	60	0.18 1.98	SW	2400 2400	432 4752	0.00 0.00 0.00 0.00	\$ -	\$ -	\$ - \$ -	
15 Storage 1 15 Storage 2	2 T 32 R F 3 (ELE) 2 T 32 R F 3 (ELE)	F43LE F43LE	110 110	0.2	SW SW	1000 22 1000 22	20 2	T 32 R F 3 (ELE) T 32 R F 3 (ELE)	F43LE F43LE	110 110	0.22 0.22	SW SW	1000 1000	220 220	0.00 0.00 0.00 0.00	· ·	\$ - \$ -	\$ - \$ -	
16 17	12 T 32 R F 3 (ELE) 12 T 32 R F 3 (ELE)	F43LE F43LE	110 110	1.3	SW	2400 3,10 2400 3,10	58 12 58 12	T 32 R F 3 (ELE) T 32 R F 3 (ELE)	F43LE F43LE	110 110	1.32 1.32	SW SW	2400 2400	3168 3168	0.00 0.00 0.00 0.00	т	\$ - \$ -	\$ - \$ -	
18 19	12 T 32 R F 3 (ELE) 12 T 32 R F 3 (ELE)	F43LE F43LE	110 110	1.3 1.3	SW	2400 3,10 2400 3,10		T 32 R F 3 (ELE) T 32 R F 3 (ELE)	F43LE F43LE	110 110	1.32 1.32	SW SW	2400 2400	3168 3168	0.00 0.00 0.00 0.00	·	\$ - \$ -	\$ - \$ -	
20	12 S 32 C F 2 (ELE) 16 S 32 C F 1 (ELE)	F42LL F41LL	60	0.7	SW	2400 1,72 2400 1,22	28 12	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60	0.72 0.512	SW	2400 2400	1728 1228.8	0.00 0.00 0.00 0.00	\$ -	\$ -	\$ -	
21	2 S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400 28	38 2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	288	0.00 0.00	\$ -	\$ -	\$ -	
21	8 S 32 C F 1 (ELE) 2 S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.3	SW	2400 28		S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.256 0.12	SW	2400 2400	614.4 288	0.00 0.00	\$ -	\$ -	\$ - \$ -	
22 23	12 S 32 C F 2 (ELE) 14 S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.7	SW	2400 1,72 2400 1,0		S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.72 0.448	SW	2400 2400	1728 1075.2	0.00 0.00 0.00 0.00	<u>.</u>	\$ - \$ -	\$ - \$ -	
23 23	2 S 32 C F 2 (ELE) 7 S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.1	SW	2400 25 2400 55		S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.12 0.224	SW SW	2400 2400	288 537.6	0.00 0.00 0.00 0.00	<u> </u>	\$ - \$ -	\$ - \$ -	
23 24	2 S 32 C F 2 (ELE) 9 S 32 C F 2 (ELE)	F42LL F42LL	60 60	0.1	SW		38 2 96 9	S 32 C F 2 (ELE) S 32 C F 2 (ELE)	F42LL F42LL	60 60	0.12 0.54	SW	2400 2400	288 1296	0.00 0.00 0.00 0.00	<u> </u>	\$ -	\$ - \$ -	
25	10 S 32 C F 1 (ELE)	F41LL F42LL	32 60	0.3	SW SW	2400 70	68 10	S 32 C F 1 (ELE)	F41LL F42LL	32	0.32	SW	2400	768 288	0.00 0.00	\$ -	\$ -	\$ -	
25	2 S 32 C F 2 (ELE) 5 S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400 38	34 5	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F41LL	32	0.12 0.16	SW	2400	384	0.00 0.00	\$ -	\$ -	\$ -	
25 26	2 S 32 C F 2 (ELE) 9 S 32 C F 2 (ELE)	F42LL F42LL	60 60	0.1 0.5	SW	2400 1,29		S 32 C F 2 (ELE) S 32 C F 2 (ELE)	F42LL F42LL	60 60	0.12 0.54	SW SW	2400 2400	288 1296	0.00 0.00 0.00 0.00	\$ -	\$ -	\$ - \$ -	
27 27	10 S 32 C F 1 (ELE) 2 S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.3	SW	2400 70 2400 23		S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.32 0.12	SW	2400 2400	768 288	0.00 0.00 0.00 0.00	r	\$ - \$ -	\$ - \$ -	+
27 27	5 S 32 C F 1 (ELE) 2 S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.2 0.1	SW SW		34 5 38 2	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.16 0.12	SW SW	2400 2400	384 288	0.00 0.00 0.00 0.00	<u>'</u>	\$ - \$ -	\$ - \$ -	
28 28	12 S 32 C F 1 (ELE) 2 S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.4	SW	2400 92 2400 23	22 12	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.384 0.12	SW	2400 2400	921.6 288	0.00 0.00 0.00 0.00	\$ -	\$ -	\$ -	
28	6 S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400 4	6	S 32 C F 1 (ELE)	F41LL	32	0.192	SW	2400	460.8	0.00 0.00	\$ -	\$ -	\$ -	
D Hall Closet 1	2 S 32 C F 2 (ELE) 1 S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.0	SW	2400 23 1000 3	32 1	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	32	0.12 0.032	SW	2400 1000	288	0.00 0.00	\$ -	\$ -	\$ -	
D Hall Closet 2 D Hall Closet 3	1 S 32 C F 2 (ELE) 1 S 34 P F 2 (MAG)	F42LL F42EE	60 72	0.1	SW	1000	60 1 72 1	S 32 C F 2 (ELE) C 28 P F 2	F42LL F42SSILL	60	0.06 0.048	SW	1000	60 48	0.00 0.00 24.00 0.02	_ T	\$ - \$ 106.25	\$ - \$ 10.00 23.6	4.0
D Hall Closet 3 D Hall Closet 4	2 S 32 C F 1 (ELE) 4 S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.1	SW	1000 1 1000 1	34 2 28 4	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.064 0.128	SW SW	1000 1000	64 128	0.00 0.00 0.00 0.00	<u>'</u>	\$ - \$ -	\$ - \$ -	+
A Hall Boy's Bathroom A Hall Girl's Bathroom	2 S 32 C F 1 (ELE) 2 S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.1	SW	2000 12 2000 12	28 2	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.064 0.064	SW SW	2000 2000	128 128	0.00 0.00 0.00 0.00	_ T	\$ - \$ -	\$ - \$ -	
29/30 29/30	10 S 32 C F 1 (ELE) 1 S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.3	SW	2400 70	58 10 14 1	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.32 0.06	SW	2400 2400	768 144	0.00 0.00 0.00 0.00	\$ -	\$ -	\$ -	
29/30 29/30	5 S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400 38	34 5	S 32 C F 1 (ELE)	F41LL	32	0.16	SW	2400	384	0.00 0.00	\$ -	\$ -	\$ -	
29/30	1 S 32 C F 2 (ELE) 10 S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.1	SW	2400 70		S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.06	SW	2400	144 768	0.00 0.00	\$ -	\$ -	\$ -	
29/30 29/30	1 S 32 C F 2 (ELE) 5 S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.1	SW		14 1 34 5	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.06 0.16	SW SW	2400 2400	144 384	0.00 0.00 0.00 0.00	<u>'</u>	\$ - \$ -	\$ - \$ -	
29/30 Cafeteria	1 S 32 C F 2 (ELE) 11 S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.1	SW	2400 14 1600 56	14 1 33 11	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.06 0.352	SW SW	2400 1600	144 563.2	0.00 0.00 0.00 0.00	*	\$ - \$ -	\$ - \$ -	+
Cafeteria Cafeteria	11 S 32 C F 1 (ELE) 11 S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.4	SW	1600 50 1600 50		S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.352 0.352	SW SW	1600 1600	563.2 563.2	0.00 0.00 0.00 0.00	<u>'</u>	\$ - \$ -	\$ - \$ -	
Cafeteria Cafeteria	11 S 32 C F 1 (ELE) 11 S 32 C F 1 (ELE)	F41LL F41LL	32	0.4	SW	1600 50	33 11 33 11	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.352 0.352	SW	1600 1600	563.2 563.2	0.00 0.00 0.00 0.00	\$ -	\$ -	\$ -	
Cafeteria	11 S 32 C F 1 (ELE)	F41LL	32	0.4	SW	1600 50	3 11	S 32 C F 1 (ELE)	F41LL	32	0.352	SW	1600	563.2	0.00 0.00	\$ -	\$ -	\$ -	
Cafeteria Kitchen	11 S 32 C F 1 (ELE) 35 S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.4	SW	1600 50 1600 1,79	92 35	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.352 1.12	SW	1600 1600	563.2 1792	0.00 0.00 0.00 0.00	\$ -	\$ -	\$ - \$ -	
Kitchen Storage Large Kitchen Office	6 S 32 C F 1 (ELE) 2 S 32 C F 1 (ELE)	F41LL F41LL	32	0.2	SW	1000 19 2400 19	92 6 54 2	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.192 0.064	SW SW	1000 2400	192 153.6	0.00 0.00 0.00 0.00	<u> </u>	\$ - \$ -	\$ - \$ -	
Kitchen Storage A Kitchen Storage B	2 S 32 C F 1 (ELE) 1 S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.1	SW	1000	34 2 32 1	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.064 0.032	SW SW	1000 1000	64 32	0.00 0.00 0.00 0.00	<u>'</u>	\$ - \$ -	\$ - \$ -	+
Kitchen Storage C Kitchen Storage D	1 S 32 C F 1 (ELE) 1 S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.0	SW SW	1000 1000	32 1 32 1	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.032 0.032	SW SW	1000 1000	32 32	0.00 0.00 0.00 0.00	*	\$ - \$ -	\$ - \$ -	
Kitchen Storage E Kitchen Storage F	1 S 32 C F 1 (ELE) 1 S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.0	SW	1000 1000	32 1	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.032 0.032	SW	1000	32	0.00 0.00 0.00 0.00	\$ -	\$ -	\$ -	
Gym	14 High Bay MH 400	MH400/1	458	6.4	SW	2000 12,83		P 54 C F 4	FC20	20	0.28	SW	2000	560	12264.00 6.13	\$ 1,808.20	' '	\$ 1,400.00 2.3	0.2
Gym Gym Office	14 High Bay MH 400 4 S 32 C F 1 (ELE)	MH400/1 F41LL	458 32	0.1	SW		24 14 07 4	P 54 C F 4 S 32 C F 1 (ELE)	FC20 F41LL	32	0.28 0.128	SW SW	2000 2400	307.2	12264.00 6.13 0.00 0.00	\$ -	\$ 4,200.00 \$ -	\$ 1,400.00 2.3 \$ -	0.2
Gym Area Mechanical 1 Gym Area Mechanical 2	4 S 32 C F 1 (ELE) 2 S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.1	SW	1000 12 1000 0	28 4 64 2	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.128 0.064	SW	1000	128 64	0.00 0.00 0.00 0.00	т	\$ - \$ -	\$ - \$ -	
Boy's Locker Room Boy's Locker Room	19 S 32 C F 1 (ELE) 3 S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.6 0.1	SW	2800 1,70 2800 20		S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.608 0.096	SW SW	2800 2800	1702.4 268.8	0.00 0.00 0.00 0.00	<u>'</u>	\$ - \$ -	\$ - \$ -	
Boy's Locker Room Boy's Locker Room	3 S 32 C F 2 (ELE) 1 S 32 C F 2 (ELE)	F42LL F42LL	60 60	0.2	SW	2800 50 2800 10)4 3	S 32 C F 2 (ELE) S 32 C F 2 (ELE)	F42LL F42LL	60	0.18 0.06	SW	2800 2800	504 168	0.00 0.00 0.00 0.00	\$ -	\$ -	\$ -	
Boy's Locker Room	1 2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	2800 10	58 1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.06	SW	2800	168	0.00 0.00	\$ -	\$ -	\$ -	
Boy's Locker Room Girl's Locker Room	8 S 32 C F 1 (ELE)	I65/1 F41LL	65 32	0.1	SW	2800 30 2800 7	7 8	CF 26 S 32 C F 1 (ELE)	CFQ26/1-L F41LL	32	0.054 0.256	SW SW	2800 2800	716.8	212.80 0.08 0.00 0.00	\$ -	Φ.	•	0.2
Girl's Locker Room Girl's Locker Room	8 S 32 C F 1 (ELE) 4 S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.3	SW	2800 39	17 8 58 4	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.256 0.128	SW SW	2800 2800	716.8 358.4	0.00 0.00 0.00 0.00	\$ -	\$ -	\$ - \$ -	
Girl's Locker Room Girl's Locker Room	2 S 32 C F 1 (ELE) 1 S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.1 0.1	SW SW	2800 1 1 2800 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.064 0.06	SW SW	2800 2800	179.2 168	0.00 0.00 0.00 0.00	·	\$ - \$ -	\$ - \$ -	
Girl's Locker Room Girl's Locker Room	1 S 32 C F 2 (ELE) 2 S 34 P F 2 (MAG)	F42LL F42EE	60 72	0.1	SW	2800 10	68 1 03 2	S 32 C F 2 (ELE) C 28 P F 2	F42LL F42SSILL	60	0.06 0.096	SW	2800 2800	168 268.8	0.00 0.00 134.40 0.05	\$ -	\$ - \$ 212.50	\$ - \$ 20.00 11.6	1.4
Girl's Locker Room Girl's Locker Room	1 S 60 C F 2 (ELE) 8' 1 S 60 C F 2 (ELE) 8'	F82EE F82EE	123 123	0.1	SW SW		14 1	S 60 C F 2 (ELE) 8' S 60 C F 2 (ELE) 8'	F82EE F82EE	123	0.123 0.123	SW SW	2800 2800 2800	344.4 344.4	0.00 0.00	\$ -	\$ -	\$ -	1.7
Gym Front Storage Room	8 S 32 C F 1 (ELE)	F41LL	32	0.3	SW	1000 2	66 8	S 32 C F 1 (ELE)	F41LL	123 32	0.256	SW	1000	256	0.00 0.00	\$ -	\$ -	\$ -	
Gym Back Storage Room 31	6 S 32 C F 1 (ELE) 9 S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.2	SW	1000 19 2400 1,29	9	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.192 0.54	SW	1000 2400	192 1296	0.00 0.00 0.00 0.00	\$ -	\$ -	\$ - \$ -	
31	10 S 32 C F 2 (ELE) 9 S 32 C F 2 (ELE)	F42LL F42LL	60 60	0.6 0.5	SW	2400 1,4 2400 1,29		S 32 C F 2 (ELE) S 32 C F 2 (ELE)	F42LL F42LL	60 60	0.6 0.54	SW SW	2400 2400	1440 1296	0.00 0.00 0.00 0.00	· · · · · · · · · · · · · · · · · · ·	\$ - \$ -	\$ - \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	

10/15/2012

Cost of Electricity: \$0.107 \$/kWh

\$6.74 \$/kW

			EXISTING CON	NDITIONS							RETROFIT (CONDITIONS						C	OST & SAVING	GS ANALYSIS	S		
	No. of					Evict	Annual		Number of			Watts per	<u> </u>	Retrofit	Annual	Annual	Annual kWh		Annual \$		NJ Smart	Simple Payback With Out	(
Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Fixtures	Standard Fixture Code	Fixture Code	Fixture	kW/Space	Control	Hours	kWh	Saved	Saved	-	Retrofit Cost	Incentive	Incentive	
31 Storage 31/33 Shared Room	2	S 32 C F 2 (ELE) S 32 C F 2 (ELE)	F42LL F42LL	60 60	0.1 0.1	SW	1000 1000	120 120	2	S 32 C F 2 (ELE) S 32 C F 2 (ELE)	F42LL F42LL	60 60	0.12 0.12	SW	1000 1000	120 120	0.00	0.00	-	\$ - \$ -	\$ - \$ -		
31A	10	S 32 C F 2 (ELE)	F42LL	60	0.6	SW	2400	1,440	10	S 32 C F 2 (ELE)	F42LL	60	0.6	SW	2400	1440	0.00	0.00	5 -	\$ -	\$ -		
31A 32		SQ 13 W CF 2 (MAG) S 32 C F 1 (ELE)	CFQ13/2 F41LL	31 32	0.1 0.6	SW	2400 2400	149 1,382	2 	SQ 13 W CF 2 (MAG) S 32 C F 1 (ELE)	CFQ13/2 F41LL	31 32	0.062 0.576	SW	2400 2400	148.8 1382.4	0.00	0.00	- 4	\$ - \$ -	\$ - \$ -		
32	2	S 32 C F 2 (ELE)	F41LL F42LL	60	0.6	SW	2400	288	2	S 32 C F 1 (ELE)	F42LL	60	0.576	SW	2400	288	0.00		- -	\$ -	\$ -		+
32	9	S 32 C F 1 (ELE)	F41LL	32	0.3	SW	2400	691	9	S 32 C F 1 (ELE)	F41LL	32	0.288	SW	2400	691.2	0.00	0.00	5 -	\$ -	\$ -		
32	2 12	S 32 C F 2 (ELE) T 32 R F 4 (ELE)	F42LL F44LL	60	0.1 1.4	SW	2400 2400	288 3,398	2 12	S 32 C F 2 (ELE) T 32 R F 4 (ELE)	F42LL F44LL	60 118	0.12 1.416	SW	2400 2400	288 3398.4	0.00	0.00	5 -	\$ - \$ -	\$ - \$ -		
33	3	T 32 R F 3 (ELE)	F43LE	110	0.3	SW	2400	792	3	T 32 R F 3 (ELE)	F43LE	110	0.33	SW	2400	792	0.00	0.00	5 -	\$ -	\$ -		
34 35	11 12	T 32 R F 3 (ELE) (TWO SWITCH) S 32 C F 1 (ELE)	F43ILL/2 F41LL	90	1.0 0.4	SW	2400 2400	2,376 922	11	T 32 R F 3 (ELE) (TWO SWITCH) S 32 C F 1 (ELE)	F43ILL/2 F41LL	90	0.99 0.384	SW	2400 2400	2376 921.6	0.00	0.00	- 4	\$ - ¢	\$ -		
35	2	S 32 C F 2 (ELE)	F42LL	60	0.4	SW	2400	288	2	S 32 C F 2 (ELE)	F42LL	60	0.304	SW	2400	288	0.00		- -	\$ -	\$ -		
35	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	461	6	S 32 C F 1 (ELE)	F41LL	32	0.192	SW	2400	460.8	0.00	0.00	-	\$ -	\$ -		
36	8	S 32 C F 2 (ELE) T 32 R F 3 (ELE) (TWO SWITCH)	F42LL F43ILL/2	60 90	0.1 0.7	SW	2400 2400	288 1,728	8	S 32 C F 2 (ELE) T 32 R F 3 (ELE) (TWO SWITCH)	F42LL F43ILL/2	90	0.12 0.72	SW	2400 2400	288 1728	0.00	0.00	- -	\$ - \$ -	\$ -		
37	12	T 32 R F 3 (ELE) (TWO SWITCH)	F43ILL/2	90	1.1	SW	2400	2,592	12	T 32 R F 3 (ELE) (TWO SWITCH)	F43ILL/2	90	1.08	SW	2400	2592	0.00	0.00	-	\$ -	\$ -		
37 Closet		S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.0	SW	1000 2400	32 922	1 	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.032 0.384	SW	1000 2400	921.6	0.00	0.00	- -	\$ - \$ -	\$ - \$ -		
38		S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	288	0.00	0.00	5 -	\$ -	\$ -		
38	6	S 32 C F 2 (ELE)	F41LL	32	0.2	SW	2400	461	6	S 32 C F 1 (ELE)	F41LL	32	0.192	SW	2400	460.8 288	0.00	0.00	- 4	\$ - ¢	\$ -		
39	10	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.1	SW	2400 2400	288 768		S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.12 0.32	SW	2400 2400	768	0.00	0.00		ψ - \$ -	φ - \$ -		
39	1 -	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	144	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	2400	144	0.00	0.00	-	\$ -	\$ -		
39	5 1	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.2 0.1	SW	2400 2400	384 144	<u>5</u> 1	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.16 0.06	SW	2400 2400	384 144	0.00	0.00	- -	\$ - \$ -	\$ -	1	+
39	10	S 32 C F 1 (ELE)	F41LL	32	0.3	SW	2400	768	10	S 32 C F 1 (ELE)	F41LL	32	0.32	SW	2400	768	0.00	0.00	5 -	\$ -	\$ -		
39	1	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60	0.1 0.2	SW	2400 2400	144 384	<u> </u>	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	32	0.06 0.16	SW	2400 2400	144 384	0.00	0.00	- 4	\$ - \$ -	\$ - \$ -		
39	1	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	144	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	2400	144	0.00		- -	\$ -	\$ -		
40	16	S 32 C F 1 (ELE)	F41LL	32	0.5	SW	2400	1,229	16	S 32 C F 1 (ELE)	F41LL	32	0.512	SW	2400	1228.8	0.00	0.00	-	\$ -	\$ -		
40	2	S 32 C F 2 (ELE) S 32 C F 2 (ELE)	F42LL F42LL	60	0.1 0.1	SW	2400 2400	288 288	2	S 32 C F 2 (ELE) S 32 C F 2 (ELE)	F42LL F42LL	60	0.12 0.12	SW	2400 2400	288	0.00	0.00	- -	\$ - \$ -	\$ -		_
40 Closet 1	1	S 32 C F 1 (ELE)	F41LL	32	0.0	SW	1000	32	1	S 32 C F 1 (ELE)	F41LL	32	0.032	SW	1000	32	0.00	0.00	-	\$ -	\$ -		
40 Closet 2 Auditorium		S 32 C F 1 (ELE) SP I 100	F41LL I100/1	32 100	0.0 5.6	SW	1000 1000	32 5,600	1 56	S 32 C F 1 (ELE) CF 26	F41LL CFQ26/1-L	32	0.032 1.512	SW	1000	32 1512	0.00 4088.00	0.00 \$	5 - 768.05	\$ - \$ 1,134.00	\$ - \$ -	1.5	
Auditorium		CF 26	CFQ26/1-L	27	0.0	SW	1000	27	1	CF 26	CFQ26/1-L	27	0.027	SW	1000	27	0.00		\$ -	\$ -	\$ -	1.0	
Stage Stage	_	MH 175	MH175/1	215	0.4	SW	1000 1000	430 200	2	MH 175	MH175/1	215	0.43	SW	1000	430	0.00	0.00	5 -	\$ -	\$ -	1.5	
Stage Closet	1	SP I 100 I 65	I100/1 I65/1	100 65	0.2 0.1	SW	1000	65	1	CF 26 CF 26	CFQ26/1-L CFQ26/1-L	27	0.054 0.027	SW	1000	27	146.00 38.00	0.15 0.04	\$ 27.43 \$ 7.14	\$ 40.50 \$ 20.25	\$ -	2.8	
H Hall Boy's Bathroom	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2000	120	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	2000	120	0.00	0.00	-	\$ -	\$ -		
H Hall Girl's Bathroom H Hall Closet	1	S 32 C F 2 (ELE)	F42LL I65/1	60 65	0.1	SW	2000 1000	120 65	1 1	S 32 C F 2 (ELE) CF 26	F42LL CFQ26/1-L	60	0.06 0.027	SW	2000 1000	120 27	0.00 38.00	0.00	\$ - \$ 7.14	\$ - \$ 20.25	\$ - \$ -	2.8	
Team Room T1	5	T 32 R F 3 (ELE)	F43LE	110	0.6	SW	2400	1,320	5	T 32 R F 3 (ELE)	F43LE	110	0.55	SW	2400	1320	0.00	0.00	-	\$ -	\$ -		
Team Room T1 Team Room T1	6	T 32 R F 3 (ELE) T 32 R F 3 (ELE)	F43LE F43LE	110	0.7 0.6	SW	2400 2400	1,584 1,320	<u>6</u>	T 32 R F 3 (ELE) T 32 R F 3 (ELE)	F43LE F43LE	110	0.66 0.55	SW	2400 2400	1584 1320	0.00	0.00	5 -	\$ - \$ -	\$ - \$ -		
Team Room T2	5	T 32 R F 3 (ELE)	F43LE	110	0.6	SW	2400	1,320	5	T 32 R F 3 (ELE)	F43LE	110	0.55	SW	2400	1320	0.00	0.00	-	\$ -	\$ -		
Team Room T2 Team Room T2	6	T 32 R F 3 (ELE)	F43LE F43LE	110	0.7	SW	2400	1,584	6	T 32 R F 3 (ELE)	F43LE F43LE	110	0.66	SW	2400	1584	0.00	0.00	-	\$ -	\$ -		
Team Room T3	5	T 32 R F 3 (ELE) T 32 R F 3 (ELE)	F43LE F43LE	110	0.6 0.6	SW	2400 2400	1,320 1,320	5 5	T 32 R F 3 (ELE) T 32 R F 3 (ELE)	F43LE F43LE	110	0.55 0.55	SW	2400 2400	1320 1320	0.00	0.00	- -	\$ -	\$ -		
Team Room T3	6	T 32 R F 3 (ELE)	F43LE	110	0.7	SW	2400	1,584	6	T 32 R F 3 (ELE)	F43LE	110	0.66	SW	2400	1584	0.00	0.00	-	\$ -	\$ -		
Team Room T3 Team Room T4	<u> </u>	T 32 R F 3 (ELE) T 32 R F 3 (ELE)	F43LE F43LE	110	0.6 0.6	SW	2400 2400	1,320 1,320	5 	T 32 R F 3 (ELE) T 32 R F 3 (ELE)	F43LE F43LE	110	0.55 0.55	SW	2400 2400	1320 1320	0.00	0.00	- -	\$ - \$ -	\$ - \$ -		
Team Room T4	6	T 32 R F 3 (ELE)	F43LE	110	0.7	SW	2400	1,584	6	T 32 R F 3 (ELE)	F43LE	110	0.66	SW	2400	1584	0.00	0.00	\$ -	\$ -	\$ -		
Team Room T4 Team Room	5 14	T 32 R F 3 (ELE) SQ 13 W CF 2 (MAG)	F43LE CFQ13/2	110	0.6 0.4	SW	2400 2400	1,320 1,042	5	T 32 R F 3 (ELE) SQ 13 W CF 2 (MAG)	F43LE CFQ13/2	110 31	0.55 0.434	SW	2400 2400	1320 1041.6	0.00	0.00	- 4	\$ - \$	\$ - •		
N. Team Room Aux Room	3	T 32 R F 3 (ELE)	F43LE	110	0.4	SW	2400	792	3	T 32 R F 3 (ELE)	F43LE	110	0.434	SW	2400	792	0.00	0.00	- -	\$ -	\$ -		
S. Team Room Aux Room	3	T 32 R F 3 (ELE)	F43LE	110	0.3	SW	2400	792	3	T 32 R F 3 (ELE)	F43LE	110	0.33	SW	2400	792	0.00	0.00	-	\$ -	\$ -		
41 41/42 Office	14 2	T 32 R F 4 (ELE) T 32 R F 4 (ELE)	F44LL F44LL	118	1.7 0.2	SW	2400 2400	3,965 566	14 2	T 32 R F 4 (ELE) T 32 R F 4 (ELE)	F44LL F44LL	118	1.652 0.236	SW	2400 2400	3964.8 566.4	0.00	0.00 3	- -	\$ - \$ -	\$ - \$ -		+
42	15	T 32 R F 4 (ELE)	F44LL	118	1.8	SW	2400	4,248	15	T 32 R F 4 (ELE)	F44LL	118	1.77	SW	2400	4248	0.00	0.00	-	\$ -	\$ -		
42 Closet 1 42 Closet 2	1	T 32 R F 3 (ELE) T 32 R F 3 (ELE)	F43LE F43LE	110	0.1 0.1	SW	1000 1000	110	<u> </u>	T 32 R F 3 (ELE) T 32 R F 3 (ELE)	F43LE F43LE	110	0.11 0.11	SW	1000	110	0.00	0.00	} -	\$ - \$ -	\$ - \$ -		
43	28	T 32 R F 4 (ELE)	F44LL	118	3.3	SW	2400	7,930	28	T 32 R F 4 (ELE)	F44LL	118	3.304	SW	2400	7929.6	0.00	0.00	\$ -	\$ -	\$ -		
M Hall Closet 1	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	1000	180	3	S 32 C F 2 (ELE)	F42LL	60	0.18	SW	1000	180	0.00	0.00	-	\$ -	\$ -		
M Hall Closet 2 M Hall Closet 3	3	S 32 C F 2 (ELE) S 32 C F 2 (ELE)	F42LL F42LL	60	0.2 0.2	SW	1000 1000	180 180	<u>3</u>	S 32 C F 2 (ELE) S 32 C F 2 (ELE)	F42LL F42LL	60	0.18 0.18	SW	1000	180 180	0.00	0.00 \$	р <u>- </u> \$ -	φ - \$ -	Φ -\$ -	1	+
M Hall Closet 4	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	1000	180	3	S 32 C F 2 (ELE)	F42LL	60	0.18	SW	1000	180	0.00	0.00	5 -	\$ -	\$ -		1
Main Entrance Lobby A Hallway	12 19	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60	0.7 0.6	SW	2280 2280	1,642 1,386	12 19	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	32	0.72 0.608	SW	2280 2280	1641.6 1386.24	0.00	0.00	5 -	\$ - \$ -	\$ - \$ -		
A Hallway	13	S 32 C F 2 (ELE)	F42LL	60	0.8	SW	2280	1,778	13	S 32 C F 2 (ELE)	F42LL	60	0.78	SW	2280	1778.4	0.00	0.00	· \$ -	\$ -	\$ -		
B Hallway C Hallway	35 35	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	1.1	SW	2280 2280	2,554 2,554	35	S 32 C F 1 (ELE)	F41LL F41LL	32	1.12 1.12	SW	2280	2553.6 2553.6	0.00	0.00 3	- 6	\$ -	\$ -		
D Hallway	35	S 32 C F 1 (ELE)	F41LL F41LL	32	1.1	SW	2280	2,554	35	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	1.12	SW	2280 2280	2553.6 2553.6	0.00	0.00		\$ -	\$ -		
E Hallway		2B 34 R F 2 (u) (MAG)	FU2EE	72	0.1	SW	2280	328	2	2T 17 R F 2 (ELE)	F22ILL	33	0.066	SW	2280	150.48	177.84		\$ 25.34	\$ 202.50	\$ 20.00	8.0	
E Hallway E Hallway		SQ 13 W CF 2 (MAG) 2B 34 R F 2 (u) (MAG)	CFQ13/2 FU2EE	31 72	0.7 0.4	SW	2280 2280	1,555 985	6	SQ 13 W CF 2 (MAG) 2T 17 R F 2 (ELE)	CFQ13/2 F22ILL	31	0.682 0.198	SW	2280 2280	1554.96 451.44	0.00 533.52	0.00 3	\$ - \$ 76.01	\$ - \$ 607.50	\$ - \$ 60.00	8.0	_
F Hallway	5	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2280	365	5	S 32 C F 1 (ELE)	F41LL	32	0.16	SW	2280	364.8	0.00	0.00	-	\$ -	\$ -		1
G Hallway H Hallway		S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.2 0.6	SW	2280 2280	438 1,368	6 10	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.192 0.6	SW	2280 2280	437.76 1368	0.00			\$ - \$ -	\$ - \$ -		_
M hallway	8	S 32 C F 2 (ELE)	F42LL F42LL	60	0.5	SW	2280	1,094	8	S 32 C F 2 (ELE)	F42LL F42LL	60	0.8	SW	2280	1094.4	0.00	0.00	5 -	\$ -	\$ -		
M hallway	5	S 32 C F 2 (ELE)	F42LL	60	0.3	SW	2280	684	5	S 32 C F 2 (ELE)	F42LL	60	0.3	SW	2280	684	0.00	0.00	-	\$ -	\$ -		
Team Room Lobby Exterior	9 22	2T 32 R F 2 (u) (ELE) 175 MH WALL	FU2LL MH175/1	215	0.5 4.7	SW	2280 4368	1,231 20,661	9 22	2T 32 R F 2 (u) (ELE) 175 MH WALL	FU2LL MH175/1	215	0.54 4.73	SW	2280 4368	1231.2 20660.64	0.00	0.00	-	\$ - \$ -	Φ -\$ -		
Exterior	2	SP 26 R CF 2	CFQ26/2-L	50	0.1	SW	4368	437	2	SP 26 R CF 2	CFQ26/2-L	50	0.1	SW	4368	436.8	0.00	0.00	-	\$ -	\$ -		
Exterior		SP I 100	I100/1	100	0.3 104	SW	4368	1,310 236,253	3 1, 732	CF 26	CFQ26/1-L	14,076	0.081 86	SW	4368	353.808 205242.448	956.59 31,011			'	\$ - \$ 2,920.00	0.5	
Total	1,732		_		107			230,233	1,132			17,010	5 5	1			31,011	1/14	7,121.00	Ψ 10,331.13	Ψ 2,320.00	J	

10/15/2012

\$0.107 \$/kWh

ECM-2 Install Occupancy Sensors

\$6.74 \$/kW

				EXISTING CON	NDITIONS							RETROFIT C	ONDITION	S					C	OST & SAVI	NGS ANALYSI	S		
																						NJ Smart Start	Simple Payback	
		No. of			Watts per		Exist	Annual		Number of			Watts per		Retrofit	Annual	Annual	Annual kWh	2 11 11 1 6 1 6 11 1 1 1 1	Annual \$		Lighting	With Out	Simple
	rea Description Main Office Common	Fixtures	Standard Fixture Code S 32 C F 1 (ELE)	Fixture Code F41LL	Fixture 32	kW/Space	Control SW	Hours 2280	Annual kWh	Fixtures	Standard Fixture Code S 32 C F 1 (ELE)	Fixture Code F41LL	Fixture 32	kW/Space	Control SW	Hours 2280	kWh 437.76	Saved 0.00	Saved 0.00 \$	Saved	Retrofit Cost	Incentive s	Incentive	Payback
20	Main Office Common	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2280	437.8		S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2280	437.76	0.00	0.00	-	\$ -	\$ -		
20	Main Office Common Main Office Common	1	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.1	SW	2280 2280	145.9 73.0		S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.1	SW	2280 2280	145.92 72.96	0.00	0.00	-	\$ -	\$ - \$ -		
20 11	Main Office Common Main Office	1	S 32 C F 1 (ELE) S 34 P F 2 (MAG)	F41LL F42EE	32 72	0.0	SW	2280 2400	73.0 172.8	<u> </u>	S 32 C F 1 (ELE) S 34 P F 2 (MAG)	F41LL F42EE	32 72	0.0	C-OCC	2280 1200	72.96 86.4	0.00 86.40	0.00	5 - 5 9.24	\$ - \$ 202.50	\$ - \$ 35.00	21.9	18.1
20 20	Main Office Main Office		S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.1 0.1	SW SW	2400 2400	307.2 153.6		S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.1	C-OCC	1200 1200	153.6 76.8	153.60 76.80	0.00	\$ 16.44 \$ 8.22	·	·	12.3 24.6	10.2 20.4
20 20	Main Office Main Office	4	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.1	SW	2400 2400	307.2 153.6		S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.1	C-OCC	1200 1200	153.6 76.8	153.60 76.80	0.00		\$ 202.50	\$ 35.00	12.3 24.6	10.2
20 20 20	Main Office	4	S 32 C F 1 (ELE)	F41LL	32	0.1	SW	2400	307.2		S 32 C F 1 (ELE)	F41LL	32	0.1	C-OCC	1200	153.6	153.60	0.00	\$ 16.44	\$ 202.50	\$ 35.00	12.3	10.2
20	Main Office Main Office	4	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.1 0.1	SW	2400 2400	153.6 307.2	4	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.1	C-OCC	1200 1200	76.8 153.6	76.80 153.60	0.00 \$	\$ 8.22 \$ 16.44	\$ 202.50 \$ 202.50		24.6 12.3	20.4 10.2
20 20	Guidance Common Guidance		S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.2	SW	2280 2400	437.8 153.6		S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.2	C-OCC	2280 1200	437.76 76.8	0.00 76.80	0.00 \$	- 8.22	\$ - \$ 202.50	\$ - \$ 35.00	24.6	20.4
20 20	Guidance Guidance		S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.1	SW SW	2400 2400	153.6 153.6		S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.1	C-OCC	1200 1200	76.8 76.8	76.80 76.80	0.00	\$ 8.22 \$ 8.22			24.6 24.6	20.4 20.4
20	Faculty Room Faculty Room	3	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.1	SW	2400 2400	230.4		S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.1	C-OCC	1200 1200	115.2 115.2	115.20 115.20	0.00	\$ 12.33 \$ 12.33	\$ 202.50 \$ 202.50	\$ 35.00	16.4 16.4	13.6 13.6
20	Faculty Room	3	S 32 C F 1 (ELE)	F41LL	32	0.1	SW	2400	230.4		S 32 C F 1 (ELE)	F41LL	32	0.1	C-OCC	1200	115.2	115.20	0.00	\$ 12.33	\$ 202.50	\$ 35.00	16.4	13.6
20 E	Faculty Room B Hall Men's Bathroom	1	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.0	SW	2400 2000	76.8 64.0	<u> </u>	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.0	C-OCC SW	1200 2000	38.4 64	38.40 0.00	0.00 \$	\$ 4.11 \$ -	\$ 202.50 \$ -	\$ 35.00 \$ -	49.3	40.8
20 B1	Hall Women's Bathroom B Hall Closet 1	1	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.0	SW SW	2000 1000	64.0 32.0	<u> </u>	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.0	SW	2000 1000	64 32	0.00	0.00 \$	- -	\$ - \$ -	\$ - \$ -		
108 133	B Hall Closet 2 B Hall Closet 2	2	I 65 CF 26	I65/1 CFQ26/1-L	65	0.1 0.0	SW	1000 1000	130.0	2	I 65 CF 26	I65/1 CFQ26/1-L	65	0.1	SW	1000	130	0.00	0.00 \$	- 5 -	\$ - \$	\$ - \$		
20	B Hall Office 1	4	S 32 C F 1 (ELE)	F41LL	32	0.1	SW	2400	307.2	4	S 32 C F 1 (ELE)	F41LL	32	0.0	C-OCC	1200	153.6	153.60	0.00	\$ 16.44 \$ 04.05	<u> </u>	\$ 35.00	12.3	10.2
20 20	Nurse Nurse	1	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.2	SW	2400 2400	460.8 76.8	6 1	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.2	C-OCC	1200 1200	230.4 38.4	230.40 38.40	0.00	\$ 24.65 \$ 4.11	'		8.2 49.3	6.8 40.8
15 20	Nurse Bathroom Nurse Closet		S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.1 0.1	SW	2000 1000	120.0 64.0	1 2	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.1 0.1	SW SW	2000 1000	120 64	0.00 0.00	0.00 \$	-	\$ - \$ -	\$ - \$ -		
20 20	B Hall Office 2	4	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.1 0.6	SW	2400 2400	307.2 1,382.4	4	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.1	C-OCC	1200 1680	153.6 967.68	153.60 414.72	0.00 \$	\$ 16.44 \$ 44.38	<u> </u>		12.3 4.6	10.2
15	1	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288.0	2	S 32 C F 2 (ELE)	F42LL	60	0.0	C-OCC	1680	201.6	86.40	0.00	9.24	\$ 202.50	\$ 35.00	21.9	18.1
20 15	1 1	9	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.3	SW	2400 2400	691.2 288.0	9	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.3	C-OCC	1680 1680	483.84 201.6	207.36 86.40	0.00 \$	\$ 22.19 \$ 9.24	<u> </u>	·		7.5 18.1
20 B	3 Hall Small Classroom 2		S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.2 0.5	SW SW	2400 2400	460.8 1,228.8	6 16	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.2 0.5	C-OCC	1680 1680	322.56 860.16	138.24 368.64	0.00	\$ 14.79 \$ 39.44	<u> </u>		13.7 5.1	11.3 4.2
15 20	2	2	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60	0.1	SW	2400 2400	288.0 614.4	2	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60	0.1	C-OCC	1680	201.6 430.08	86.40 184.32		9.24 \$ 19.72	\$ 202.50	\$ 35.00	21.9	18.1
15	2	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288.0	2	S 32 C F 2 (ELE)	F42LL	60	0.3	C-OCC	1680	201.6	86.40	0.00	9.24	\$ 202.50	\$ 35.00	21.9	18.1
20 15	3 3		S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.4	SW	2400 2400	921.6 288.0	12 2	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.4	C-OCC	1680 1680	645.12 201.6	276.48 86.40	0.00 \$	\$ 29.58 \$ 9.24	·		6.8 21.9	5.7 18.1
20 15	3	6 2	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.2	SW SW	2400 2400	460.8 288.0	6 2	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.2	C-OCC	1680 1680	322.56 201.6	138.24 86.40		\$ 14.79 \$ 9.24	·		13.7 21.9	11.3 18.1
20 15	4	12	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32	0.4	SW	2400 2400	921.6 288.0	12	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.4	C-OCC	1680	645.12 201.6	276.48 86.40		\$ 29.58 \$ 9.24	\$ 202.50	\$ 35.00	6.8 21.9	5.7 18 1
20	4	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	460.8	6	S 32 C F 1 (ELE)	F41LL	32	0.2	C-OCC	1680	322.56	138.24	0.00	\$ 14.79	\$ 202.50	\$ 35.00	13.7	11.3
	4 B Hall Boy's Bathroom	2	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.1	SW	2400 2000	288.0 128.0	2	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.1	C-OCC SW	1680 2000	201.6 128	86.40 0.00	0.00 \$	§ 9.24 § -	\$ 202.50 \$ -	\$ 35.00 \$ -	21.9	18.1
20 5	B Hall Girl's Bathroom Media Center		S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.1	SW SW	2000 2400	128.0 1,075.2	2 14	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.1 0.4	SW C-OCC	2000 1680	128 75 2.64	0.00 322.56	0.00 \$	\$ - \$ 34.51	\$ - \$ 202.50	\$ - \$ 35.00	5.9	4.9
20 20	Media Center Media Center		S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.4	SW	2400 2400	1,075.2 1,075.2	14 14	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.4 0.4	C-OCC	1680 1680	752.64 752.64	322.56 322.56		\$ 34.51 \$ 34.51	·		5.9 5.9	4.9 4.9
20	Media Center	14	S 32 C F 1 (ELE)	F41LL	32	0.4	SW	2400	1,075.2		S 32 C F 1 (ELE)	F41LL	32	0.4	C-OCC	1680	752.64	322.56	0.00	\$ 34.51	\$ 202.50	\$ 35.00	5.9	4.9
20 20	Media Center 5	14 16	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.4 0.5	SW	2400 2400	1,075.2 1,228.8	16	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.4	C-OCC	1680 1680	752.64 860.16	322.56 368.64	0.00		\$ 202.50	\$ 35.00		4.9 4.2
15 20	5 5	2 8	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.1	SW	2400 2400	288.0 614.4	<u>2</u> 8	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.1	C-OCC	1680 1680	201.6 430.08	86.40 184.32	0.00 \$	\$ 9.24 \$ 19.72	·		21.9 10.3	18.1 8.5
15 20	5 6		S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.1 0.4	SW SW	2400 2400	288.0 921.6		S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.1 0.4	C-OCC	1680 1680	201.6 645.12	86.40 276.48		\$ 9.24 \$ 29.58	·		21.9 6.8	18.1 5.7
15 20	6	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288.0	2	S 32 C F 2 (ELE)	F42LL	60	0.1	C-OCC	1680	201.6	86.40	0.00	\$ 9.24	\$ 202.50	\$ 35.00	21.9	18.1
15	6	2	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	60	0.2	SW	2400 2400	460.8 288.0	2	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	60	0.2	C-OCC	1680 1680	322.56 201.6	138.24 86.40	0.00	9.24	\$ 202.50	\$ 35.00	21.9	11.3 18.1
20 15	7		S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.4	SW	2400 2400	1,075.2 288.0	14 2	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.4	C-OCC	1680 1680	752.64 201.6	322.56 86.40	0.00	\$ 34.51 \$ 9.24	\$ 202.50	\$ 35.00	5.9 21.9	4.9 18.1
20 15	7	7 2	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.2 0.1	SW SW	2400 2400	537.6 288.0	7 2	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.2	C-OCC	1680 1680	376.32 201.6	161.28 86.40		\$ 17.26 \$ 9.24			11.7 21.9	9.7 18.1
20 15	8 8	20	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.6	SW	2400 2400	1,536.0 288.0	20	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.6	C-OCC	1680 1680	1075.2 201.6	460.80 86.40	0.00	\$ 49.31	\$ 202.50	\$ 35.00	4.1	3.4
20	8	10	S 32 C F 1 (ELE)	F41LL	32	0.3	SW	2400	768.0	10	S 32 C F 1 (ELE)	F41LL	32	0.3	C-OCC	1680	537.6	230.40	0.00	\$ 24.65	\$ 202.50	\$ 35.00	8.2	6.8
15 20	8 8 Storage	2	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.1	SW	2400 1000	288.0 64.0	2	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.1 0.1	C-OCC SW	1680 1000	201.6 64	86.40 0.00	0.00	9.24	\$ -	\$ -	21.9	18.1
20 15	9	12 2	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.4 0.1	SW SW	2400 2400	921.6 288.0	12 2	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.4 0.1	C-OCC	1680 1680	645.12 201.6	276.48 86.40		\$ 29.58 \$ 9.24	· · · · · · · · · · · · · · · · · · ·	•	6.8 21.9	5.7 18.1
20 15	9	6	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.2	SW	2400 2400	460.8 288.0	6	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.2 0.1	C-OCC	1680 1680	322.56 201.6	138.24 86.40	0.00	\$ 14.79 \$ 9.24	\$ 202.50	\$ 35.00	13.7 21.9	11.3 18.1
20	10	16	S 32 C F 1 (ELE)	F41LL	32	0.5	SW	2400	1,228.8	16	S 32 C F 1 (ELE)	F41LL	32	0.5	C-OCC	1680	860.16	368.64	0.00	\$ 39.44	\$ 202.50	\$ 35.00	5.1	4.2
15 20	10	8	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	32	0.1	SW	2400 2400	288.0		S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.1	C-OCC	1680 1680	201.6 430.08	86.40 184.32	0.00		\$ 202.50	\$ 35.00		18.1 8.5
15 20	10 10 Storage		S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.1	SW SW	2400 1000	288.0 64.0		S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.1 0.1	C-OCC SW	1680 1000	201.6 64	86.40 0.00	0.00 \$		\$ 202.50 \$ -	\$ 35.00 \$ -	21.9	18.1
15 20	10A 11	4	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.2 0.4	SW SW	2400 2400	576.0 921.6	4	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.2 0.4	C-OCC	1680 1680	403.2 645.12	172.80 276.48	0.00	\$ 18.49	·		11.0 6.8	9.1 5.7
15 20	11	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288.0	2	S 32 C F 2 (ELE)	F42LL	60	0.1	C-OCC	1680	201.6	86.40 138.24	0.00	9.24	\$ 202.50	\$ 35.00	21.9	18.1
15	11	2	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	60	0.2	SW	2400 2400	460.8 288.0	2	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.2	C-OCC C-OCC	1680 1680	322.56 201.6	86.40	0.00		\$ 202.50	\$ 35.00	21.9	11.3 18.1
20 15	12 12		S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.4	SW SW	2400 2400	921.6 288.0		S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.4	C-OCC	1680 1680	645.12 201.6	276.48 86.40		\$ 29.58 \$ 9.24			6.8 21.9	5.7 18.1
20 15	12 12	6	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.2 0.1	SW SW	2400 2400	460.8 288.0	6	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.2 0.1	C-OCC	1680 1680	322.56 201.6	138.24 86.40		\$ 14.79 \$ 9.24	\$ 202.50	\$ 35.00		11.3 18.1
20	13	12	S 32 C F 1 (ELE)	F41LL	32	0.4	SW	2400	921.6	12	S 32 C F 1 (ELE)	F41LL	32	0.4	C-OCC	1680	645.12	276.48	0.00	\$ 29.58	\$ 202.50	\$ 35.00	6.8	5.7
15	13	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288.0	2	S 32 C F 2 (ELE)	F42LL	60	0.1	C-OCC	1680	201.6	86.40	0.00	\$ 9.24	\$ 202.50	\$ 35.00	21.9	18.1

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Cost of Electricity: \$0.107 \$/kWh

\$6.74 \$/kW

			EXISTING CON	DITIONS						RETROFIT C	CONDITIONS					COST & SA	VINGS ANALYS	IS	
																		NJ Smart Start Payk	ack
Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours Annual		Standard Fixture Code	Fixture Code	Watts per Fixture kW	Space Co	ontrol l	Annual Annu Hours kWh	Saved Save	d Saved	Retrofit Cost	Lighting With Incertive Incertive	ntive Payback
15 13 20 14	2 5	S 32 C F 1 (ELE) S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F41LL F42LL F41LL	32 60 32	0.2	SW SW	2400 2400 2400	460.8 6 288.0 2 228.8 16	S 32 C F 1 (ELE) S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F41LL F42LL F41LL	60	0.1 C	-OCC -OCC	1680 322.5 1680 201.6 1680 860.1	86.40	0.00 \$ 14.7 0.00 \$ 9.2 0.00 \$ 39.4	4 \$ 202.50	\$ 35.00 21	.9 18.1
15 14 20 14	3 5	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60	0.3	SW SW	2400 2400 2400	432.0 3 614.4 8	S 32 C F 1 (ELE) S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60	0.2 C	-OCC -OCC	1680 302.4 1680 430.0	129.60	0.00 \$ 39.4 0.00 \$ 13.8 0.00 \$ 19.7	7 \$ 202.50	\$ 35.00 14	.6 12.1
15 14 245 15	3 5	32 C F 2 (ELE) 32 R F 3 (ELE)	F41LL F42LL F43LE	60	0.2	SW SW	2400	432.0 3	S 32 C F 1 (ELE) S 32 C F 2 (ELE) T 32 R F 3 (ELE)	F41LL F42LL F43LE	60	0.2 C	-OCC	1680 430.0 1680 302.4 1680 3326.	129.60	0.00 \$ 13.8	7 \$ 202.50	\$ 35.00 14	.6 12.1
245 15 245 15 Storage 1	2	32 R F 3 (ELE)	F43LE	110	0.2	SW	1000	220.0 2	T 32 R F 3 (ELE)	F43LE	110	0.2	SW	1000 220	0.00	0.00 \$ 152.5 0.00 \$ -	•	\$ 35.00 1. \$ -	3 1.1
245 15 Storage 2 245 16	12	32 R F 3 (ELE) 32 R F 3 (ELE)	F43LE F43LE	110	0.2	SW SW		220.0 2 168.0 12	T 32 R F 3 (ELE) T 32 R F 3 (ELE)	F43LE F43LE	110	1.3 C	-OCC	1000 220 1680 2217.	950.40	0.00 \$ - 0.00 \$ 101.6			
245 17 18	12	32 R F 3 (ELE) 32 R F 3 (ELE)	F43LE F43LE	110 110	1.3	SW SW	2400 3	168.0 12 168.0 12	T 32 R F 3 (ELE) T 32 R F 3 (ELE)	F43LE F43LE	110		-OCC	16802217.16802217.	950.40	0.00 \$ 101.6 0.00 \$ 101.6	9 \$ 202.50	\$ 35.00 2.	0 1.6
245 19 20		32 R F 3 (ELE) 3 32 C F 2 (ELE)	F43LE F42LL	110 60	0.7	SW		168.0 12 728.0 12	T 32 R F 3 (ELE) S 32 C F 2 (ELE)	F43LE F42LL	110 60		-OCC -OCC	16802217.16801209.		0.00 \$ 101.6 0.00 \$ 55.4	<u> </u>	· · · · · · · · · · · · · · · · · · ·	
20 21 15 21		S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.5 0.1	SW SW	2400 1 2400	228.8 16 288.0 2	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60		-OCC	1680 860.1 1680 201.6		0.00 \$ 39.4 0.00 \$ 9.2			
20 21 15 21		S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.3 0.1	SW SW	2400 2400	614.4 8 288.0 2	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60		-OCC	1680 430.0 1680 201.6		0.00 \$ 19.7 0.00 \$ 9.2	<u> </u>		
15 22 20 23		6 32 C F 2 (ELE) 6 32 C F 1 (ELE)	F42LL F41LL	60 32	0.7	SW SW		728.0 12 075.2 14	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32		-OCC	1680 1209. 1680 752.6		0.00 \$ 55.4 0.00 \$ 34.5	 	· ·	
15 23 20 23	2 5	6 32 C F 2 (ELE) 6 32 C F 1 (ELE)	F42LL F41LL	60	0.1	SW	2400 2400	288.0 2 537.6 7	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60	-	-OCC	1680 201.6 1680 376.3		0.00 \$ 9.2 0.00 \$ 17.2	4 \$ 202.50	\$ 35.00 21	.9 18.1
15 23	2 5	3 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288.0 2	S 32 C F 2 (ELE)	F42LL	60		-OCC	1680 201.6	86.40	0.00 \$ 9.2	4 \$ 202.50	\$ 35.00 21	.9 18.1
20 25	10	3 32 C F 2 (ELE) 3 32 C F 1 (ELE)	F42LL F41LL	60 32	0.5	SW	2400	296.0 9 768.0 10	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.3 C	-OCC -OCC	1680 907.2 1680 537.6	230.40	0.00 \$ 41.6 0.00 \$ 24.6	5 \$ 202.50	\$ 35.00 8.	2 6.8
15 25 20 25	5 5	3 32 C F 2 (ELE) 3 32 C F 1 (ELE)	F42LL F41LL	60 32	0.1	SW SW	2400 2400	288.0 2 384.0 5	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.2 C	-OCC -OCC	1680 201.6 1680 268.8	115.20	0.00 \$ 9.2 0.00 \$ 12.3	3 \$ 202.50	\$ 35.00 16	.4 13.6
15 25 15 26	9 8	S 32 C F 2 (ELE) S 32 C F 2 (ELE)	F42LL F42LL	60 60	0.1	SW	2400 2400	288.0 2 296.0 9	S 32 C F 2 (ELE) S 32 C F 2 (ELE)	F42LL F42LL	60 60		-OCC -OCC	1680 201.6 1680 907.2		0.00 \$ 9.2 0.00 \$ 41.6		·	
20 27 15 27		S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.3	SW SW	2400 2400	768.0 10 288.0 2	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.3 C 0.1 C	-OCC	1680 537.6 1680 201.6		0.00 \$ 24.6 0.00 \$ 9.2			
20 27 15 27		S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.2	SW SW	2400	384.0 5 288.0 2	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60		-OCC	1680 268.8 1680 201.6		0.00 \$ 12.3 0.00 \$ 9.2	 	·	
20 28 15 28		S 32 C F 1 (ELE)	F41LL F42LL	32 60	0.4	SW	2400 2400	921.6 12 288.0 2	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32		-OCC	1680 645.1 1680 201.6	2 276.48	0.00 \$ 29.5 0.00 \$ 9.2	8 \$ 202.50	\$ 35.00 6.	8 5.7
20 28 45 38		32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	460.8 6	S 32 C F 1 (ELE)	F41LL	32	0.2 C	-OCC	1680 322.5	138.24	0.00 \$ 14.7	9 \$ 202.50	\$ 35.00 13	.7 11.3
20 D Hall Closet 1	1 5	3 32 C F 2 (ELE) 3 32 C F 1 (ELE)	F42LL F41LL	60 32	0.1	SW SW	2400 1000	288.0 2 32.0 1	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.0	-OCC SW	1680 201.6 1000 32	0.00	0.00 \$ 9.2 0.00 \$ -	4 \$ 202.50	\$ 35.00 21 \$ -	.9 18.1
15 D Hall Closet 2 11 D Hall Closet 3	1 5	S 32 C F 2 (ELE) S 34 P F 2 (MAG)	F42LL F42EE	60 72	0.1	SW SW	1000 1000	60.0 1 72.0 1	S 32 C F 2 (ELE) S 34 P F 2 (MAG)	F42LL F42EE	60 72		SW SW	1000 60 1000 72	0.00	0.00 \$ - 0.00 \$ -	\$ - \$ -	\$ - \$ -	
20 D Hall Closet 3 20 D Hall Closet 4		S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.1	SW	1000 1000	64.0 2 128.0 4	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32		SW SW	1000 64 1000 128	0.00	0.00 \$ - 0.00 \$ -	\$ - \$ -	\$ - \$ -	
20 A Hall Boy's Bathroom 20 A Hall Girl's Bathroom		S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.1	SW	2000	128.0 2 128.0 2	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32		SW SW	2000 128 2000 128	0.00	0.00 \$ - 0.00 \$ -	\$ -	\$ - \$ -	
20 29/30 15 29/30	10	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.3	SW SW	2400 2400	768.0 10 144.0 1	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.3 C 0.1 C	-OCC	1680 537.6 1680 100.8	200.10	0.00 \$ 24.6 0.00 \$ 4.6		· · · · · · · · · · · · · · · · · · ·	
20 29/30 15 29/30	5 5	S 32 C F 1 (ELE)	F41LL F42LL	32 60	0.2	SW	2400 2400	384.0 5 144.0 1	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32	0.2 C	-OCC	1680 268.8 1680 100.8	115.20	0.00 \$ 12.3 0.00 \$ 4.6	3 \$ 202.50	\$ 35.00 16	.4 13.6
20 29/30 15 29/30	10	32 C F 1 (ELE)	F41LL F42LL	32	0.3	SW	2400 2400	768.0 10 144.0 1	S 32 C F 1 (ELE)	F41LL F42LL	32	0.3 C	-OCC	1680 537.6 1680 100.8	230.40	0.00 \$ 24.6	5 \$ 202.50	\$ 35.00 8.	2 6.8
20 29/30	5 5	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F41LL	32	0.1	SW	2400	384.0 5	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F41LL	32	0.2 C	-OCC	1680 268.8	115.20	0.00 \$ 4.6 0.00 \$ 12.3	3 \$ 202.50	\$ 35.00 16	.4 13.6
15 29/30 20 Cafeteria		S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.1	SW SW	2400 1600	144.0 1 563.2 11	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.4 C	-OCC	1680 100.8 1200 422.4	140.80	0.00 \$ 0.00 \$ 15.0	7 \$ 202.50	\$ 35.00 13	.4 11.1
20 Cafeteria 20 Cafeteria	11 5	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.4	SW	1600 1600	563.2 11 563.2 11	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32		000	1200 422.4 1200 422.4	140.80	0.00 \$ 15.0 0.00 \$ 15.0	7 \$ 202.50	\$ 35.00 13	
20 Cafeteria 20 Cafeteria	11 5	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.4	SW	1600 1600	563.2 11 563.2 11	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32		-OCC -OCC	1200 422.4 1200 422.4		0.00 \$ 15.0 0.00 \$ 15.0			
20 Cafeteria Cafeteria		S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.4	SW SW	1600 1600	563.2 11 563.2 11	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32		-OCC	1200 422.4 1200 422.4		0.00 \$ 15.0 0.00 \$ 15.0	-		
20 Kitchen 20 Kitchen Storage Large		S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	1.1 0.2	SW	1600 1 1000	792.0 35 192.0 6	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32		-OCC SW	1200 1344 1000 192		0.00 \$ 47.9 0.00 \$ -	4 \$ 202.50 \$ -	\$ 35.00 4. \$ -	2 3.5
20 Kitchen Office 20 Kitchen Storage A	2 5	S 32 C F 1 (ELE)	F41LL F41LL	32	0.1	SW	2400 1000	153.6 2 64.0 2	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.1 C	-OCC SW	1200 76.8 1000 64	76.80		2 \$ 202.50	\$ 35.00 24	.6 20.4
20 Kitchen Storage B 20 Kitchen Storage C	1 5	32 C F 1 (ELE) 32 C F 1 (ELE)	F41LL F41LL	32	0.0	SW SW	1000	32.0 1	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.0	SW SW	1000 32 1000 32	0.00	0.00 \$ -	\$ -	\$ -	
20 Kitchen Storage D	1 5	3 32 C F 1 (ELE)	F41LL	32	0.0	SW	1000	32.0 1	S 32 C F 1 (ELE)	F41LL	32	0.0	SW	1000 32	0.00	0.00 \$ -	\$ -	\$ -	
20 Kitchen Storage E 20 Kitchen Storage F	1 5	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.0	SW SW	1000	32.0 1 32.0 1	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.0	SW	1000 32 1000 32 2000 4202	0.00	0.00 \$ - 0.00 \$ -	\$ -	φ - \$ -	
146 Gym 146 Gym	14 H	High Bay MH 400 High Bay MH 400	MH400/1 MH400/1	458 458	6.4	SW SW	2000 12	824.0 14 824.0 14	High Bay MH 400 High Bay MH 400	MH400/1 MH400/1	458 458	6.4 C	-OCC	2000 1282 2000 1282	0.00	0.00 \$ -	\$ 202.50 \$ 202.50	\$ 35.00	
20 Gym Office 20 Gym Area Mechanical 1	4 5	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.1	SW SW	2400 1000	307.2 4 128.0 4	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.1	-OCC SW	1200 153.6 1000 128	100.00	0.00 \$ 16.4 0.00 \$ -	4 \$ 202.50	\$ 35.00 12 \$ -	.3 10.2
20 Gym Area Mechanical 2 20 Boy's Locker Room		S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.1 0.6	SW SW	1000 2800	64.0 2 702.4 19	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.1 0.6 C	SW -OCC	1000 64 2000 1216	0.00 486.40	0.00 \$ - 0.00 \$ 52.0	\$ - 4 \$ 202.50	\$ - \$ 35.00 3.	9 3.2
20 Boy's Locker Room 15 Boy's Locker Room		32 C F 1 (ELE) 32 C F 2 (ELE)	F41LL F42LL	32 60	0.1 0.2	SW SW	2800 2800	268.8 3 504.0 3	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.1 C 0.2 C	-OCC	2000 192 2000 360	76.80 144.00		2 \$ 202.50	\$ 35.00 24	
15 Boy's Locker Room 5 Boy's Locker Room	1 5	S 32 C F 2 (ELE) 2T 32 R F 2 (u) (ELE)	F42LL FU2LL	60 60	0.1	SW	2800 2800	168.0 1 168.0 1	S 32 C F 2 (ELE) 2T 32 R F 2 (u) (ELE)	F42LL FU2LL	60	0.1 C	-OCC	2000 120 2000 120	48.00	0.00 \$ 5.1	 	\$ 35.00 39	.4 32.6
108 Boy's Locker Room	2 I	65 G 32 C F 1 (ELE)	165/1 F41LL	65 32	0.1	SW SW	2800 2800	364.0 2 716.8 8	I 65 S 32 C F 1 (ELE)	I65/1 F41LL	65 32	0.1 C	-OCC	2000 260 2000 512	104.00 204.80	0.00 \$ 11.1 0.00 \$ 21.9	3 \$ 202.50	\$ 35.00 18	.2 15.1
20 Girl's Locker Room 20 Girl's Locker Room 20 Girl's Locker Room	8 5	S 32 C F 1 (ELE)	F41LL	32	0.3	SW SW	2800	716.8 8	S 32 C F 1 (ELE)	F41LL	32	0.3 C	-OCC	2000 512	204.80	0.00 \$ 21.9	1 \$ 202.50	\$ 35.00 9.	2 7.6
20 Girl's Locker Room	2 5	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.1	SW	2800 2800	358.4 4 179.2 2	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL		0.1 C		2000 256 2000 128 2000 430	51.20		8 \$ 202.50	\$ 35.00 37	.0 30.6
15 Girl's Locker Room 15 Girl's Locker Room	1 5	3 32 C F 2 (ELE) 3 32 C F 2 (ELE)	F42LL F42LL	60	0.1	SW SW	2800 2800	168.0 1 168.0 1	S 32 C F 2 (ELE) S 32 C F 2 (ELE)	F42LL F42LL	60	0.1 C	-OCC	2000 120 2000 120	48.00	0.00 \$ 5.1 0.00 \$ 5.1	4 \$ 202.50	\$ 35.00 39	.4 32.6
11 Girl's Locker Room191 Girl's Locker Room	1 5	S 34 P F 2 (MAG) S 60 C F 2 (ELE) 8'	F42EE F82EE	72 123	0.1 0.1	SW SW		403.2 2 344.4 1	S 34 P F 2 (MAG) S 60 C F 2 (ELE) 8'	F42EE F82EE	72 123	0.1 C	-OCC	2000 288 2000 246	98.40	0.00 \$ 12.3 0.00 \$ 10.5	3 \$ 202.50	\$ 35.00 19	
191 Girl's Locker Room 20 Gym Front Storage Room		S 60 C F 2 (ELE) 8' S 32 C F 1 (ELE)	F82EE F41LL	123 32	0.1 0.3	SW SW		344.4 1 256.0 8	S 60 C F 2 (ELE) 8' S 32 C F 1 (ELE)	F82EE F41LL	123 32		-OCC SW	2000 246 1000 256		0.00 \$ 10.5 0.00 \$ -	3 \$ 202.50	\$ 35.00 19 \$ -	.2 15.9
20 Gym Back Storage Room 15 31	6	32 C F 1 (ELE) 32 C F 2 (ELE)	F41LL F42LL	32 60	0.2 0.5	SW SW	1000	192.0 6 296.0 9	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.2		1000 192 1680 907.2	0.00	0.00 \$ - 0.00 \$ 41.6	\$ - 0 \$ 202.50	\$ - \$ 35.00 4.	9 4.0
15 31 15 31	10 5	S 32 C F 2 (ELE)	F42LL F42LL	60	0.6 0.5	SW SW	2400 1	440.0 10 296.0 9	S 32 C F 2 (ELE) S 32 C F 2 (ELE)	F42LL F42LL		0.6 C	-OCC	1680 1008 1680 907.2	432.00	0.00 \$ 46.2 0.00 \$ 41.6	2 \$ 202.50	\$ 35.00 4.	4 3.6
10 31	<u> </u>) JZ U F Z (ELE)	Γ4∠LL	Uσ	U.5	SVV	Z4UU 1	۷ (۲۳۵ کا	O OZ O F Z (ELE)	F4ZLL	UO	U.S	-000	1000 907.2	388.80	υ.υυμ 41.6	υ μ	φ	9 4.U

10/15/2012

ECM-2 Install Occupancy Sensors

Cost of Electricity:

\$0.107 \$/kWh

\$6.74 \$/kW

			EXISTING CON	IDITIONS							RETROFIT (CONDITION	S					(COST & SAVI	INGS ANALYSIS		
																				N	Simple J Smart Start Payback	
ea Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual \$ Saved	Retrofit Cost	Lighting With Out	ut Si
31 Storage	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	1000	120.0	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	1000	120	0.00		\$ -	\$ - \$	-	
33 Shared Room 31A	10	S 32 C F 2 (ELE) S 32 C F 2 (ELE)	F42LL F42LL	60 60	0.1	SW	1000 2400	120.0 1,440.0	10	S 32 C F 2 (ELE) S 32 C F 2 (ELE)	F42LL F42LL	60 60	0.1 0.6	SW C-OCC	1000 1680	120 1008	0.00 432.00	0.00	\$ - \$ 46.22	\$ - \$ \$ 202.50 \$	35.00 4.4	
31A		SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.1	SW	2400	148.8	2	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.1	C-OCC	1680	104.16	44.64	0.00	\$ 4.78	\$ 202.50 \$	35.00 42.4	
32 32		S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.6	SW	2400 2400	1,382.4 288.0	18 2	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.6	C-OCC	1680 1680	967.68 201.6	414.72 86.40			 ' 	35.00 4.6 35.00 21.9	
32	9	S 32 C F 1 (ELE)	F41LL	32	0.3	SW	2400	691.2	9	S 32 C F 1 (ELE)	F41LL	32	0.3	C-OCC	1680	483.84	207.36	0.00		\$ 202.50 \$	35.00 9.1	
32 33	12	S 32 C F 2 (ELE) T 32 R F 4 (ELE)	F42LL F44LL	60 118	0.1 1.4	SW	2400 2400	288.0 3.398.4	2 12	S 32 C F 2 (ELE) T 32 R F 4 (ELE)	F42LL F44LL	60 118	0.1	C-OCC	1680 1680	201.6 2378.88	86.40 1019.52	0.00	\$ 9.24 \$ 109.09		35.00 21.9 35.00 1.9	
33	3	T 32 R F 3 (ELE)	F43LE	110	0.3	SW	2400	792.0	3	T 32 R F 3 (ELE)	F43LE	110	0.3	C-OCC	1680	554.4	237.60	0.00	\$ 25.42	\$ 202.50 \$	35.00 8.0	
34 35	11	T 32 R F 3 (ELE) (TWO SWITCH) S 32 C F 1 (ELE)	F43ILL/2 F41LL	90	1.0	SW	2400 2400	2,376.0 921.6	11	T 32 R F 3 (ELE) (TWO SWITCH) S 32 C F 1 (ELE)	F43ILL/2 F41LL	90	1.0	C-OCC	1680 1680	1663.2 645.12	712.80 276.48		\$ 76.27 \$ 29.58		35.00 2.7 35.00 6.8	
35	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288.0	2	S 32 C F 2 (ELE)	F42LL	60	0.4	C-OCC	1680	201.6	86.40	0.00	\$ 9.24		35.00 0.8	
35 35		S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.2	SW	2400 2400	460.8 288.0	6	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.2	C-OCC	1680 1680	322.56 201.6	138.24 86.40	0.00		· ·	35.00 13.7 35.00 21.9	
36		T 32 R F 3 (ELE) (TWO SWITCH)	F43ILL/2	90	0.7	SW	2400	1,728.0	8	T 32 R F 3 (ELE) (TWO SWITCH)	F43ILL/2	90	0.7	C-OCC	1680	1209.6	518.40	0.00	\$ 55.47		35.00 21.9	
37 37 Closet	12	T 32 R F 3 (ELE) (TWO SWITCH) S 32 C F 1 (ELE)	F43ILL/2	90	1.1 0.0	SW	2400 1000	2,592.0	12	T 32 R F 3 (ELE) (TWO SWITCH) S 32 C F 1 (ELE)	F43ILL/2	90	1.1	C-OCC SW	1680 1000	1814.4	777.60 0.00	0.00 0.00	\$ 83.20	Φ Φ	35.00 2.4	
37 Closet	12	S 32 C F 1 (ELE)	F41LL F41LL	32	0.0	SW	2400	32.0 921.6	12	S 32 C F 1 (ELE)	F41LL F41LL	32	0.0	C-OCC	1680	32 645.12	276.48	0.00		\$ - \$	35.00 6.8	_
38		S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288.0		S 32 C F 2 (ELE)	F42LL	60	0.1	C-OCC	1680 1680	201.6 322.56	86.40	0.00			35.00 21.9	
38	2	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.2	SW	2400 2400	460.8 288.0	2	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.2 0.1	C-OCC	1680	201.6	138.24 86.40	0.00		φ 202.00 φ	35.00 13.7 35.00 21.9	
39	10	S 32 C F 1 (ELE)	F41LL	32	0.3	SW	2400	768.0	10	S 32 C F 1 (ELE)	F41LL	32	0.3	C-OCC	1680	537.6	230.40	0.00		\$ 202.50 \$	35.00 8.2	
39 39	1 5	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.1	SW	2400 2400	144.0 384.0	1 5	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.1	C-OCC	1680 1680	100.8 268.8	43.20 115.20		· ·	· ·	35.00 43.8 35.00 16.4	
39	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	144.0	1	S 32 C F 2 (ELE)	F42LL	60	0.1	C-OCC	1680	100.8	43.20	0.00	\$ 4.62	\$ 202.50 \$	35.00 43.8	
39 39	10	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.3	SW	2400 2400	768.0 144.0		S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.3	C-OCC	1680 1680	537.6 100.8	230.40 43.20		\$ 24.65 \$ 4.62		35.00 8.2 35.00 43.8	
39	5	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	384.0	5	S 32 C F 1 (ELE)	F41LL	32	0.2	C-OCC	1680	268.8	115.20	0.00	\$ 12.33		35.00 16.4	
39	1 16	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60	0.1	SW	2400 2400	144.0 1,228.8	1 16	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60	0.1	C-OCC	1680 1680	100.8 860.16	43.20 368.64	0.00	\$ 4.62 \$ 39.44	 	35.00 43.8 35.00 5.1	
40	2	S 32 C F 2 (ELE)	F47LL F42LL	60	0.5	SW	2400	288.0	2	S 32 C F 2 (ELE)	F42LL	60	0.3	C-OCC	1680	201.6	86.40		\$ 9.24	· ·	35.00 3.1	
40 40 Closet 1	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288.0		S 32 C F 2 (ELE)	F42LL	60	0.1	C-OCC	1680	201.6	86.40	0.00		Φ Φ	35.00 21.9	
40 Closet 2		S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.0	SW	1000 1000	32.0 32.0		S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.0	SW SW	1000	32 32	0.00	0.00	\$ -	\$ - \$	-	
Auditorium		SP I 100	1100/1	100	5.6	SW	1000	5,600.0	56	SP I 100	1100/1	100	5.6	SW	750	4200	1400.00		\$ 149.80		- 0.0	
Auditorium Stage		CF 26 MH 175	CFQ26/1-L MH175/1	215	0.0	SW	1000 1000	27.0 430.0	2	CF 26 MH 175	CFQ26/1-L MH175/1	215	0.0	SW	1000	20.25 430	0.00		<u>'</u>	\$ - \$ \$ - \$	- 0.0	
Stage		SP I 100	I100/1	100	0.2	SW	1000	200.0		SP I 100	I100/1	100	0.2	SW	1000	200	0.00	0.00	\$ -	\$ - \$	-	
Stage Closet Hall Bov's Bathroom	'	I 65 S 32 C F 2 (ELE)	165/1 F42LL	65 60	0.1	SW	1000 2000	65.0 120.0	·	S 32 C F 2 (ELE)	I65/1 F42LL	65 60	0.1	SW	1000 2000	65 120	0.00	0.00	\$ -	\$ - \$ \$ - \$	-	
Hall Girl's Bathroom	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2000	120.0		S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2000	120	0.00			\$ - \$	-	
H Hall Closet Team Room T1	<u>1</u>	I 65 T 32 R F 3 (ELE)	I65/1 F43LE	65 110	0.1	SW	1000 2400	65.0 1,320.0	<u> </u>	T 32 R F 3 (ELE)	I65/1 F43LE	65 110	0.1 0.6	SW C-OCC	1000 1680	65 924	0.00 396.00	0.00 0.00	·	\$ - \$ \$ 202.50 \$	35.00 4.8	
Team Room T1	6	T 32 R F 3 (ELE)	F43LE	110	0.7	SW	2400	1,584.0	6	T 32 R F 3 (ELE)	F43LE	110	0.7	C-OCC	1680	1108.8	475.20				35.00 4.0	
Team Room T1 Team Room T2	5	T 32 R F 3 (ELE) T 32 R F 3 (ELE)	F43LE F43LE	110 110	0.6	SW	2400 2400	1,320.0 1,320.0	<u>5</u>	T 32 R F 3 (ELE) T 32 R F 3 (ELE)	F43LE F43LE	110	0.6 0.6	C-OCC	1680 1680	924 924	396.00 396.00	0.00	\$ 42.37	<u> </u>	35.00 4.8 35.00 4.8	
Team Room T2	6	T 32 R F 3 (ELE)	F43LE	110	0.7	SW	2400	1,584.0	6	T 32 R F 3 (ELE)	F43LE	110	0.7	C-OCC	1680	1108.8	475.20				35.00 4.0	
Team Room T2 Team Room T3	5	T 32 R F 3 (ELE) T 32 R F 3 (ELE)	F43LE F43LE	110	0.6	SW	2400 2400	1,320.0 1,320.0	5	T 32 R F 3 (ELE)	F43LE F43LE	110 110	0.6	C-OCC	1680 1680	924 924	396.00 396.00				35.00 4.8 35.00 4.8	
Team Room T3	6	T 32 R F 3 (ELE)	F43LE	110	0.6	SW	2400	1,584.0	6	T 32 R F 3 (ELE) T 32 R F 3 (ELE)	F43LE	110	0.7	C-OCC	1680	1108.8	475.20	0.00	* -		35.00 4.8 35.00 4.0	
Team Room T3 Team Room T4	5	T 32 R F 3 (ELE)	F43LE	110	0.6	SW	2400	1,320.0	5	T 32 R F 3 (ELE)	F43LE	110	0.6	C-OCC	1680	924	396.00		•	· · ·	35.00 4.8	
Team Room T4	6	T 32 R F 3 (ELE) T 32 R F 3 (ELE)	F43LE F43LE	110 110	0.6	SW	2400 2400	1,320.0 1,584.0	6	T 32 R F 3 (ELE) T 32 R F 3 (ELE)	F43LE F43LE	110 110	0.6	C-OCC	1680 1680	924 1108.8	396.00 475.20		•	<u> </u>	35.00 4.8 35.00 4.0	
Team Room T4		T 32 R F 3 (ELE)	F43LE	110	0.6	SW	2400	1,320.0	5	T 32 R F 3 (ELE)	F43LE	110	0.6	C-OCC	1680	924	396.00	0.00	\$ 42.37	\$ 202.50 \$	35.00 4.8	
Team Room Team Room Aux Room	14 3	SQ 13 W CF 2 (MAG) T 32 R F 3 (ELE)	CFQ13/2 F43LE	110	0.4	SW	2400 2400	1,041.6 792.0	3	SQ 13 W CF 2 (MAG) T 32 R F 3 (ELE)	CFQ13/2 F43LE	31 110	0.4	C-OCC	1680 1680	729.12 554.4	312.48 237.60			<u> </u>	35.00 6.1 35.00 8.0	
Team Room Aux Room		T 32 R F 3 (ELE)	F43LE	110	0.3	SW	2400	792.0	3	T 32 R F 3 (ELE)	F43LE	110	0.3	C-OCC	1680	554.4	237.60	0.00	\$ 25.42	\$ 202.50 \$	35.00 8.0	
41 41/42 Office	14	T 32 R F 4 (ELE) T 32 R F 4 (ELE)	F44LL F44LL	118 118	0.2	SW	2400 2400	3,964.8 566.4	14 2	T 32 R F 4 (ELE) T 32 R F 4 (ELE)	F44LL F44LL	118 118	1.7 0.2	C-OCC	1680 1200	2775.36 283.2	1189.44 283.20		\$ 127.27 \$ 30.30	· ·	35.00 1.6 35.00 6.7	
42	15	T 32 R F 4 (ELE)	F44LL	118	1.8	SW	2400	4,248.0		T 32 R F 4 (ELE)	F44LL	118	1.8	C-OCC	1680	2973.6	1274.40	0.00	\$ 136.36	· ·	35.00 1.5	
42 Closet 1 42 Closet 2	1	T 32 R F 3 (ELE) T 32 R F 3 (ELE)	F43LE F43LE	110 110	0.1	SW	1000 1000	110.0 110.0		T 32 R F 3 (ELE) T 32 R F 3 (ELE)	F43LE F43LE	110	0.1	SW	1000	110 110	0.00	0.00	•	\$ - \$ \$ - \$	-	
43	28	T 32 R F 4 (ELE)	F44LL	118	3.3	SW	2400	7,929.6	28	T 32 R F 4 (ELE)	F44LL	118	3.3	C-OCC	1680	5550.72	2378.88	0.00	\$ 254.54	\$ 202.50 \$	35.00 0.8	
M Hall Closet 1 M Hall Closet 2	3	S 32 C F 2 (ELE) S 32 C F 2 (ELE)	F42LL F42LL	60	0.2	SW	1000	180.0 180.0	3	S 32 C F 2 (ELE) S 32 C F 2 (ELE)	F42LL F42LL	60	0.2	SW SW	1000 1000	180 180	0.00	0.00 0.00		\$ - \$ \$ - \$	-	
M Hall Closet 3	3	S 32 C F 2 (ELE)	F42LL F42LL	60	0.2	SW	1000	180.0	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	1000	180	0.00		<u>'</u>	\$ - \$	-	
M Hall Closet 4 ain Entrance Lobby		S 32 C F 2 (ELE)	F42LL	60 60	0.2	SW	1000 2280	180.0	3	S 32 C F 2 (ELE)	F42LL	60 60	0.2	SW SW	1000	180 1641.6	0.00	0.00		\$ - \$	-	
A Hallway	19	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	32	0.6	SW	2280	1,641.6 1,386.2	19	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	32	0.6	SW	2280 2280	1386.24	0.00	0.00	\$ -	\$ - \$	-	_
A Hallway	13	S 32 C F 2 (ELE)	F42LL	60	0.8	SW	2280	1,778.4	13	S 32 C F 2 (ELE)	F42LL	60	0.8	SW	2280	1778.4	0.00	0.00	\$ -	\$ - \$	-	
B Hallway C Hallway	35 35	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	1.1	SW	2280 2280	2,553.6 2,553.6	35 35	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	1.1 1.1	SW SW	2280 2280	2553.6 2553.6	0.00	0.00 0.00	·	\$ - \$ \$ - \$	-	+
D Hallway		S 32 C F 1 (ELE)	F41LL	32	1.1	SW	2280	2,553.6	35	S 32 C F 1 (ELE)	F41LL	32	1.1	SW	2280	2553.6	0.00	0.00	\$ -	\$ - \$	-	\bot
E Hallway E Hallway		2B 34 R F 2 (u) (MAG) SQ 13 W CF 2 (MAG)	FU2EE CFQ13/2	72 31	0.1	SW	2280 2280	328.3 1,555.0	22	2B 34 R F 2 (u) (MAG) SQ 13 W CF 2 (MAG)	FU2EE CFQ13/2	72 31	0.1 0.7	SW	2280 2280	328.32 1554.96	0.00	0.00	\$ - \$ -	\$ - \$ \$ - \$	-	+
E Hallway		2B 34 R F 2 (u) (MAG)	FU2EE	72	0.4	SW	2280	985.0	6	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.4	SW	2280	984.96	0.00	0.00	\$ -	\$ - \$	-	
F Hallway G Hallway	5	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.2	SW	2280 2280	364.8 437.8	5	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.2	SW	2280 2280	364.8 437.76	0.00	0.00		\$ - \$	-	
H Hallway	10	S 32 C F 1 (ELE)	F41LL F42LL	60	0.6	SW	2280	1,368.0	10	S 32 C F 1 (ELE)	F41LL F42LL	60	0.6	SW	2280	1368	0.00		<u> </u>	\$ - \$	<u> </u>	
M hallway	8	S 32 C F 2 (ELE)	F42LL	60	0.5	SW	2280	1,094.4		S 32 C F 2 (ELE)	F42LL	60	0.5	SW	2280	1094.4	0.00	0.00	\$ -	\$ - \$	-	
M hallway Team Room Lobby		S 32 C F 2 (ELE) 2T 32 R F 2 (u) (ELE)	F42LL FU2LL	60	0.3	SW	2280 2280	684.0 1,231.2	9	S 32 C F 2 (ELE) 2T 32 R F 2 (u) (ELE)	F42LL FU2LL	60	0.3 0.5	SW SW	2280 2280	684 1231.2	0.00	0.00	\$ -	\$ - \$ \$ - \$	-	+
Exterior	22	175 MH WALL	MH175/1	215	4.7	SW	4368	20,660.6	22	175 MH WALL	MH175/1	215	4.7	SW	4368	20660.64	0.00	0.00	\$ -	\$ - \$	-	
Exterior Exterior		SP 26 R CF 2 SP I 100	CFQ26/2-L I100/1	50 100	0.1	SW	4368 4368	436.8 1,310.4	3	SP 26 R CF 2 SP I 100	CFQ26/2-L I100/1	50 100	0.1 0.3	SW SW	4368 4368	436.8 1310.4	0.00	0.00	\$ -	\$ - \$ \$ - \$		-
Total	1,732				104			236,253			<u> </u>		104			187,619	48,634		\$ 5,203.88	\$ 40,095.00 \$	6,930.00	
																	nd Savings		0.0	-		г

10/15/2012

Energy Audit of Eisenhower Middle School

CHA Project No.24454

Cost of Electricity: \$0.107 \$/kWh

\$6.74 \$/kW

ECM-3 Lighting Replacements with Occupancy Sensors

		EXISTING CONDITIONS					RETROFIT CONDITIONS					COST & SAVINGS ANALYSIS									
																				Simple NJ Smart Start Payback	
	A see Book to the	No. of			Watts per		Exist	Annual	Number of			Watts per		Retrofit	7 11 11 10 10 1	Annual kWh	Annual kW	Annual \$		Lighting With Out	
20	Area Description Main Office Common	Fixtures 6	Standard Fixture Code S 32 C F 1 (ELE)	Fixture Code	Fixture 32	kW/Space	Control SW	Hours Annual kWh	Fixtures 6	Standard Fixture Code S 32 C F 1 (ELE)	Fixture Code F41LL	Fixture 32	kW/Space 0.192	Control SW	Hours kWh 2,280 437.76	Saved 0.00	Saved 0.00	·	Retrofit Cost	Incentive Incentive -	Payback
20	Main Office Common Main Office Common	6	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.2	SW SW	2280 438 2280 146	<u> </u>	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.192 0.064	SW	2,280 437.76 2,280 145.92	0.00	0.00	\$ -	\$ - \$ -	\$ - \$ -	
20	Main Office Common Main Office Common	1 ;	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.0	SW SW	2280 73 2280 73	3 1	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.032 0.032	SW	2,280 72.96 2,280 72.96	0.00	0.00	\$ -	\$ - \$ -	\$ - \$ -	
11	Main Office Main Office	1 :	S 34 P F 2 (MAG) S 32 C F 1 (ELE)	F42EE F41LL	72	0.1	SW SW	2400 173	<u>' </u>	C 28 P F 2	F42SSILL	48	0.048	C-OCC	1,200 57.6	115.20	0.02	\$ 14.27	\$ 308.75	\$ 45.00 21.6	18.5
20	Main Office	2	S 32 C F 1 (ELE)	F41LL	32	0.1	SW	2400 154	2	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.128 0.064	C-OCC	1,200 153.6 1,200 76.8	153.60 76.80	0.00	\$ 8.22	·		10.2
20 20	Main Office Main Office	2	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.1	SW	2400 307 2400 154	2	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.128 0.064	C-OCC	1,200 153.6 1,200 76.8	153.60 76.80	0.00 0.00	\$ 8.22	·	\$ 35.00 12.3 \$ 35.00 24.6	10.2 20.4
20 20	Main Office Main Office		S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.1	SW SW	2400 307 2400 154 2400 307		S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.128 0.064	C-OCC	1,200 153.6 1,200 76.8	153.60 76.80	0.00		\$ 202.50 \$ 202.50	\$ 35.00 12.3 \$ 35.00 24.6	10.2 20.4
20 20	Main Office Guidance Common		S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.1 0.2	SW SW	2400 307 2280 438		S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.128 0.192	C-OCC SW	1,200 153.6 2,280 437.76	153.60 0.00	0.00	T	\$ 202.50 \$ -	\$ 35.00 12.3 \$ -	10.2
20 20	Guidance Guidance		S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.1	SW SW	2400 154 2400 154		S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.064 0.064	C-OCC	1,200 76.8 1,200 76.8	76.80 76.80	0.00	*	·	\$ 35.00 24.6 \$ 35.00 24.6	20.4
20 20	Guidance Faculty Room	2	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.1	SW SW	2400 154	2	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.064 0.096	C-OCC	1,200 76.8 1,200 115.2	76.80 115.20	0.00	\$ 8.22	\$ 202.50	\$ 35.00 24.6	20.4
20	Faculty Room	3	S 32 C F 1 (ELE)	F41LL	32	0.1	SW	2400 230	3	S 32 C F 1 (ELE)	F41LL	32	0.096	C-OCC	1,200 115.2	115.20	0.00	\$ 12.33	\$ 202.50	\$ 35.00 16.4	13.6
20 20	Faculty Room Faculty Room	1 :	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.1	SW SW	2400 230 2400 77	1	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.096 0.032	C-OCC	1,200 115.2 1,200 38.4	115.20 38.40	0.00 0.00	,	\$ 202.50 \$ 202.50	\$ 35.00 16.4 \$ 35.00 49.3	13.6 40.8
20 20	B Hall Men's Bathroom B Hall Women's Bathroom	1 1	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.0	SW	2000 64 2000 64	1 1	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.032 0.032	SW	2,000 64 2,000 64	0.00	0.00	·	\$ - \$ -	\$ - \$ -	
20 108	B Hall Closet 1 B Hall Closet 2	1 2	S 32 C F 1 (ELE) I 65	F41LL I65/1	32 65	0.0	SW SW	1000 32 1000 130	1 2	S 32 C F 1 (ELE) CF 26	F41LL CFQ26/1-L	32 27	0.032 0.054	SW	1,000 32 1,000 54	0.00 76.00	0.00 0.08	*	\$ - \$ 40.50	\$ - \$ - 2.8	2.8
133	B Hall Closet 2 B Hall Office 1	1 4	CF 26 S 32 C F 1 (ELE)	CFQ26/1-L F41LL	27	0.0	SW	1000 27 2400 307	1 2 4	CF 26 S 32 C F 1 (ELE)	CFQ26/1-L F41LL	27	0.027 0.128	SW C-OCC	1,000 27 1,200 153.6	0.00	0.00	\$ -	\$ -	\$ -	10.2
20	Nurse Nurse	6	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.2	SW SW	2400 307 2400 461 2400 77	•	S 32 C F 1 (ELE)	F41LL F41LL	32	0.192	C-OCC	1,200 133.0 1,200 230.4 1,200 38.4	230.40	0.00	\$ 24.65	\$ 202.50	\$ 35.00 8.2	6.8
20 15	Nurse Bathroom	1 1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2000 120	1	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F42LL	60	0.032	SW	2,000 120	0.00	0.00	\$ -	\$ 202.50 \$ -	\$ 35.00 49.3 \$ -	40.0
20	Nurse Closet B Hall Office 2	4	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.1	SW SW	1000 64 2400 307		S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.064 0.128	C-OCC	1,000 64 1,200 153.6	0.00 153.60	0.00	\$ 16.44	\$ - \$ 202.50	\$ - \$ 35.00 12.3	10.2
20 15	<u> </u>	18 2	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.6	SW SW	2400 1,382 2400 288	_	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.576 0.12	C-OCC	1,680 967.68 1,680 201.6	414.72 86.40	0.00	· ·	\$ 202.50 \$ 202.50	\$ 35.00 4.6 \$ 35.00 21.9	3.8 18.1
20 15	<u> </u>	9 :	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.3 0.1	SW SW	2400 691 2400 288	· · ·	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.288 0.12	C-OCC	1,680 483.84 1,680 201.6	207.36 86.40	0.00		·		7.5 18.1
20 20	B Hall Small Classroom	6 S	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.2	SW SW	2400 461 2400 1,229	6	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.192 0.512	C-OCC	1,680 322.56 1,680 860.16	138.24 368.64	0.00	+	\$ 202.50	\$ 35.00 13.7 \$ 35.00 5.1	11.3 4.2
15	2	2	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60	0.1	SW SW	2400 288	3 2	S 32 C F 2 (ELE)	F42LL F41LL	60	0.12	C-OCC	1,680 201.6	86.40 184.32	0.00	\$ 9.24	\$ 202.50	\$ 35.00 21.9	18.1
20 15	2	2	S 32 C F 2 (ELE)	F42LL	60	0.3	SW	2400 288		S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F42LL	60	0.256 0.12	C-OCC	1,680 430.08 1,680 201.6	86.40	0.00	\$ 9.24	·		18.1
20 15	3	12	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	60	0.4	SW SW	2400 922 2400 288	12 2	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.384 0.12	C-OCC	1,680 645.12 1,680 201.6	276.48 86.40	0.00	\$ 9.24	•	\$ 35.00 6.8 \$ 35.00 21.9	5.7 18.1
20 15	3	6 3	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.2	SW SW	2400 461 2400 288	6 2	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.192 0.12	C-OCC	1,680 322.56 1,680 201.6	138.24 86.40	0.00		•	\$ 35.00 13.7 \$ 35.00 21.9	11.3 18.1
20 15	4	12 2	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.4 0.1	SW SW	2400 922 2400 288	12 2	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.384 0.12	C-OCC	1,680 645.12 1,680 201.6	276.48 86.40	0.00		\$ 202.50 \$ 202.50	\$ 35.00 6.8 \$ 35.00 21.9	5.7 18.1
20 15	4	6	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.2	SW SW	2400 461 2400 288	6	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.192 0.12	C-OCC	1,680 322.56 1,680 201.6	138.24 86.40	0.00	*	\$ 202.50	\$ 35.00 13.7 \$ 35.00 21.9	11.3 18.1
20	B Hall Boy's Bathroom B Hall Girl's Bathroom	2	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.1	SW SW	2000 128	3 2	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.064 0.064	SW	2,000 128 2,000 128	0.00	0.00	\$ -	\$ -	\$ -	10.1
20	Media Center	14	S 32 C F 1 (ELE)	F41LL	32	0.4	SW	2000 128 2400 1,075		S 32 C F 1 (ELE)	F41LL	32	0.448	C-OCC	1,680 752.64	322.56	0.00	\$ 34.51	·		4.9
20 20	Media Center Media Center	14	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.4	SW SW	2400 1,075 2400 1,075	14	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.448 0.448	C-OCC	1,680 752.64 1,680 752.64	322.56 322.56	0.00 0.00	\$ 34.51	\$ 202.50 \$ 202.50	\$ 35.00 5.9	4.9
20 20	Media Center Media Center		S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.4	SW SW	2400 1,075 2400 1,075		S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.448 0.448	C-OCC	1,680 752.64 1,680 752.64	322.56 322.56	0.00	<u> </u>	\$ 202.50 \$ 202.50	\$ 35.00 5.9 \$ 35.00 5.9	4.9 4.9
20 15	<u>5</u> 5	16 S	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.5 0.1	SW SW	2400 1,229 2400 288		S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.512 0.12	C-OCC	1,680 860.16 1,680 201.6	368.64 86.40	0.00 0.00	•	· ·	\$ 35.00 5.1 \$ 35.00 21.9	4.2 18.1
20 15	5 5	8 2	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.3	SW SW	2400 614 2400 288	8 2	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.256 0.12	C-OCC	1,680 430.08 1,680 201.6	184.32 86.40	0.00 0.00	\$ 19.72	\$ 202.50	\$ 35.00 10.3 \$ 35.00 21.9	8.5 18.1
20	6	12	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32	0.4	SW SW	2400 922 2400 288		S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32	0.384 0.12	C-OCC	1,680 645.12 1,680 201.6	276.48 86.40	0.00	\$ 29.58	\$ 202.50	\$ 35.00 6.8	5.7
20	6	6	S 32 C F 1 (ELE)	F41LL	32	0.1	SW	2400 461	6	S 32 C F 1 (ELE)	F41LL	32	0.192	C-OCC	1,680 322.56	138.24	0.00	\$ 14.79	\$ 202.50	\$ 35.00 13.7	11.3
15 20	7	14	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	32	0.1	SW SW	2400 1,075	14	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	32	0.12 0.448	C-OCC	1,680 201.6 1,680 752.64	86.40 322.56	0.00	\$ 34.51	\$ 202.50	\$ 35.00 5.9	18.1 4.9
15 20	7 7	7	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.1	SW SW	2400 288 2400 538	7	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.12 0.224	C-OCC	1,680 201.6 1,680 376.32	86.40 161.28	0.00 0.00	\$ 17.26	\$ 202.50		18.1 9.7
15 20	7 8	2 20	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.1 0.6	SW SW	2400 288 2400 1,536		S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.12 0.64	C-OCC	1,680 201.6 1,680 1075.2	86.40 460.80	0.00 0.00	·	·	\$ 35.00 21.9 \$ 35.00 4.1	18.1 3.4
15 20	8 8	10	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.1	SW SW	2400 288 2400 768	2 10	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.12 0.32	C-OCC	1,680 201.6 1,680 537.6	86.40 230.40	0.00 0.00		\$ 202.50 \$ 202.50	\$ 35.00 21.9 \$ 35.00 8.2	18.1 6.8
15 20	8 8 Storage	2 2	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60	0.1	SW SW	2400 288 1000 64	2	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60	0.12 0.064	C-OCC SW	1,680 201.6 1,000 64	86.40	0.00	\$ 9.24	T .	\$ 35.00 21.9 \$ -	18.1
20	9 a	12	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32	0.4	SW SW	2400 922 2400 288		S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32	0.384	C-0CC	1,680 645.12 1,680 201.6	276.48 86.40	0.00	\$ 29.58	Ψ		5.7
20	9	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400 461	_	S 32 C F 1 (ELE)	F41LL	32	0.192	C-OCC	1,680 322.56	138.24	0.00	\$ 14.79	\$ 202.50	\$ 35.00 13.7	11.3
15 20	10	∠ 16	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	32	0.1	SW SW	2400 288 2400 1,229	16	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	32	0.12 0.512	C-OCC	1,680 201.6 1,680 860.16	86.40 368.64	0.00	\$ 39.44	\$ 202.50	\$ 35.00 21.9 \$ 35.00 5.1	18.1 4.2
15 20	10 10		S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.1	SW SW	2400 288 2400 614		S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.12 0.256	C-OCC	1,680 201.6 1,680 430.08	86.40 184.32	0.00	\$ 19.72	\$ 202.50		18.1 8.5
15 20	10 10 Storage	2	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.1 0.1	SW SW	2400 614 2400 288 1000 64	2 2	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.12 0.064	C-OCC SW	1,680 201.6 1,000 64	86.40 0.00	0.00 0.00	\$ -	\$ 202.50 \$ -	\$ 35.00 21.9 \$ -	18.1
15 20	10A 11	4	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60	0.2	SW SW	2400 576 2400 922	•	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60	0.24 0.384	C-OCC	1,680 403.2 1,680 645.12	172.80 276.48	0.00	\$ 18.49			9.1 5.7
15 20	11	2	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60	0.1	SW SW	2400 288	3 2	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60	0.12 0.192	C-OCC	1,680 201.6 1,680 322.56	86.40 138.24	0.00	\$ 9.24	\$ 202.50	\$ 35.00 21.9	18.1
15	11	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400 288	3 2	S 32 C F 2 (ELE)	F42LL	60	0.12	C-OCC	1,680 201.6	86.40 276.48	0.00	\$ 9.24	\$ 202.50	\$ 35.00 21.9	18.1
20 15	12 12	2	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	60	0.4	SW SW	2400 288	3 2	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.384	C-OCC	1,680 645.12 1,680 201.6	86.40	0.00	\$ 9.24	\$ 202.50	\$ 35.00 21.9	5.7
20 15	12 12	2	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.2	SW SW	2400 461 2400 288		S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.192 0.12	C-OCC	1,680 322.56 1,680 201.6	138.24 86.40	0.00 0.00	\$ 9.24	\$ 202.50	\$ 35.00 21.9	11.3 18.1
20 15	13 13		S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.4 0.1	SW SW	2400 922 2400 288		S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.384 0.12	C-OCC	1,680 645.12 1,680 201.6	276.48 86.40	0.00 0.00				5.7 18.1

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Energy Audit of Eisenhower Middle School

CHA Project No.24454

Cost of Electricity: \$0.107 \$/kWh

ECM-3 Lighting Replacements with Occupancy Sensors

\$6.74 \$/kW

		EXISTING CON	DITIONS					RETROFIT C	ONDITIONS							COST & SAVII	NGS ANALYS	IS		
																		NJ Smart Start	Simple Payback	
Area Description	No. of Fixtures Standard Fixture Code	Fixture Code	Watts per Fixture kW/Space		nnual lours Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture		Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual \$ Saved	Retrofit Cost	Lighting Incentive	With Out Incentive	Simple Payback
20 13	6 S 32 C F 1 (ELE)	F41LL	32 0.2	SW	2400 461	6	S 32 C F 1 (ELE)	F41LL	32	0.192	C-OCC	1,680	322.56	138.24	0.00	\$ 14.79	\$ 202.50	\$ 35.00	13.7	11.3
15 13 20 14	2 S 32 C F 2 (ELE) 16 S 32 C F 1 (ELE)	F42LL F41LL	60 0.1 32 0.5	SW SW	2400 288 2400 1,229	+	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.12 0.512	C-OCC	1,680 1,680	201.6 860.16	86.40 368.64	0.00 0.00	\$ 39.44		·	21.9 5.1	18.1 4.2
15 14 20 14	3 S 32 C F 2 (ELE) 8 S 32 C F 1 (ELE)	F42LL F41LL	60 0.2 32 0.3	SW SW	2400 432 2400 614		S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.18 0.256	C-OCC	1,680 1,680	302.4 430.08	129.60 184.32	0.00 0.00 0.00	\$ 13.87 \$ 19.72			14.6 10.3	12.1 8.5
15 14 245 15	3 S 32 C F 2 (ELE) 18 T 32 R F 3 (ELE)	F42LL F43LE	60 0.2 110 2.0	SW SW	2400 432 2400 4,752		S 32 C F 2 (ELE) T 32 R F 3 (ELE)	F42LL F43LE	60 110	0.18 1.98	C-OCC	1,680	302.4 3326.4	129.60 1425.60	0.00		\$ 202.50	\$ 35.00	14.6 1.3	12.1 1.1
245 15 Storage 1	2 T 32 R F 3 (ELE) 2 T 32 R F 3 (ELE)	F43LE F43LE	110 0.2	SW	1000 220 1000 220	2	T 32 R F 3 (ELE) T 32 R F 3 (ELE)	F43LE F43LE	110	0.22	SW SW	1,000	220	0.00	0.00	\$ -	\$ -	\$ -		
245 16	12 T 32 R F 3 (ELE)	F43LE	110 0.2	SW	2400 3,168	12	T 32 R F 3 (ELE)	F43LE	110	1.32	C-OCC	1,680	2217.6	950.40 950.40	0.00	\$ 101.69				1.6
245 17 245 18	12 T 32 R F 3 (ELE) 12 T 32 R F 3 (ELE)	F43LE F43LE	110 1.3	SW	2400 3,168	12	T 32 R F 3 (ELE) T 32 R F 3 (ELE)	F43LE F43LE	110 110	1.32	C-OCC	1,680	2217.6	950.40	0.00	\$ 101.69	\$ 202.50	\$ 35.00	2.0	1.6
245 19 20	12 T 32 R F 3 (ELE) 12 S 32 C F 2 (ELE)	F43LE F42LL	110 1.3 60 0.7	SW SW	2400 3,168 2400 1,728		T 32 R F 3 (ELE) S 32 C F 2 (ELE)	F43LE F42LL	110 60	1.32 0.72	C-OCC	1,680 1,680	2217.6 1209.6	950.40 518.40	0.00 0.00	·	·	· ·	2.0 3.7	1.6 3.0
20 21 15 21	16 S 32 C F 1 (ELE) 2 S 32 C F 2 (ELE)	F41LL F42LL	32 0.5 60 0.1	SW SW	2400 1,229 2400 288		S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.512 0.12	C-OCC	1,680 1,680	860.16 201.6	368.64 86.40	0.00			· ·	5.1 21.9	4.2 18.1
20 21 15 21	8 S 32 C F 1 (ELE) 2 S 32 C F 2 (ELE)	F41LL F42LL	32 0.3 60 0.1	SW SW	2400 614 2400 288		S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.256 0.12	C-OCC	1,680 1,680	430.08 201.6	184.32 86.40	0.00 0.00				10.3 21.9	8.5 18.1
15 22 20 23	12 S 32 C F 2 (ELE) 14 S 32 C F 1 (ELE)	F42LL F41LL	60 0.7	SW SW	2400 1,728 2400 1,075	12	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60	0.72 0.448	C-OCC	1,680	1209.6 752.64	518.40 322.56	0.00	\$ 55.47	\$ 202.50	\$ 35.00		3.0
15 23 20 23	2 S 32 C F 2 (ELE) 7 S 32 C F 1 (ELE)	F42LL F41LL	60 0.1 32 0.2	SW	2400 288 2400 538	2	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60	0.12 0.224	C-0CC	1,680	201.6	86.40 161.28	0.00	\$ 9.24	\$ 202.50	\$ 35.00	21.9	18.1
15 23	2 S 32 C F 2 (ELE)	F42LL	60 0.1	SW	2400 288	2	S 32 C F 2 (ELE)	F42LL	60	0.12	C-OCC	1,680	201.6	86.40	0.00	\$ 9.24	\$ 202.50	\$ 35.00	21.9	18.1
15 24 20 25	9 S 32 C F 2 (ELE) 10 S 32 C F 1 (ELE)	F42LL F41LL	32 0.3	SW SW	2400 1,296 2400 768	10	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.54	C-OCC	1,680 1,680	907.2 537.6	388.80 230.40	0.00	\$ 24.65	\$ 202.50	\$ 35.00	8.2	4.0 6.8
15 25 20 25	2 S 32 C F 2 (ELE) 5 S 32 C F 1 (ELE)	F42LL F41LL	60 0.1 32 0.2	SW SW	2400 288 2400 384	5	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.12 0.16	C-OCC	1,680 1,680	201.6 268.8	86.40 115.20	0.00 0.00	\$ 12.33	\$ 202.50	\$ 35.00		18.1 13.6
15 25 15 26	2 S 32 C F 2 (ELE) 9 S 32 C F 2 (ELE)	F42LL F42LL	60 0.1 60 0.5	SW SW	2400 288 2400 1,296		S 32 C F 2 (ELE) S 32 C F 2 (ELE)	F42LL F42LL	60 60	0.12 0.54	C-OCC	1,680 1,680	201.6 907.2	86.40 388.80	0.00 0.00	•		•	21.9 4.9	18.1 4.0
20 27 15 27	10 S 32 C F 1 (ELE) 2 S 32 C F 2 (ELE)	F41LL F42LL	32 0.3 60 0.1	SW SW	2400 768 2400 288		S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32 60	0.32 0.12	C-OCC	1,680 1,680	537.6 201.6	230.40 86.40	0.00 0.00				8.2 21.9	6.8 18.1
20 27 15 27	5 S 32 C F 1 (ELE) 2 S 32 C F 2 (ELE)	F41LL F42LL	32 0.2	SW	2400 384 2400 288	5	S 32 C F 1 (ELE) S 32 C F 2 (ELE)	F41LL F42LL	32	0.16 0.12	C-OCC	1,680	268.8	115.20	0.00	\$ 12.33	\$ 202.50	\$ 35.00	16.4	13.6
20 28	12 S 32 C F 1 (ELE)	F41LL	32 0.4	SW	2400 922	12	S 32 C F 1 (ELE)	F41LL	32	0.384	C-OCC	1,680	645.12	276.48	0.00	\$ 29.58	\$ 202.50	\$ 35.00	6.8	5.7
15 28 20 28	2 S 32 C F 2 (ELE) 6 S 32 C F 1 (ELE)	F42LL F41LL	32 0.2	SW	2400 288 2400 461	6	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.12 0.192	C-OCC	1,680	201.6 322.56	86.40 138.24	0.00	\$ 14.79	\$ 202.50	\$ 35.00		18.1 11.3
15 28 20 D Hall Closet 1	2 S 32 C F 2 (ELE) 1 S 32 C F 1 (ELE)	F42LL F41LL	60 0.1 32 0.0	SW SW	2400 288 1000 32	1	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.12 0.032	C-OCC SW	1,680 1,000	201.6 32	86.40 0.00	0.00 0.00		\$ 202.50 \$ -	\$ 35.00 \$ -	21.9	18.1
15 D Hall Closet 2 11 D Hall Closet 3	1 S 32 C F 2 (ELE) 1 S 34 P F 2 (MAG)	F42LL F42EE	60 0.1 72 0.1	SW SW	1000 60 1000 72	1 1	S 32 C F 2 (ELE) C 28 P F 2	F42LL F42SSILL	60 48	0.06 0.048	SW SW	1,000 1,000	60 48	24.00	0.00 0.02		\$ - \$ 106.25	\$ - \$ 10.00	23.6	21.3
D Hall Closet 3 D Hall Closet 4	2 S 32 C F 1 (ELE) 4 S 32 C F 1 (ELE)	F41LL F41LL	32 0.1 32 0.1	SW SW	1000 64 1000 128	2 4	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.064 0.128	SW SW	1,000 1.000	<u> </u>	0.00	0.00 0.00	· ·	\$ - \$ -	\$ - \$ -		
20 A Hall Boy's Bathroom 20 A Hall Girl's Bathroom	2 S 32 C F 1 (ELE) 2 S 32 C F 1 (ELE)	F41LL F41LL	32 0.1 32 0.1	SW SW	2000 128 2000 128		S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.064 0.064	SW	2,000		0.00	0.00	\$ -	\$ -	\$ -		
20 29/30 15 29/30	10 S 32 C F 1 (ELE) 1 S 32 C F 2 (ELE)	F41LL F42LL	32 0.3	SW	2400 768	10	S 32 C F 1 (ELE)	F41LL	32	0.32	C-OCC	1,680	537.6	230.40	0.00	\$ 24.65				6.8
20 29/30	5 S 32 C F 1 (ELE)	F41LL	32 0.2	SW	2400 384	5	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.06 0.16	C-OCC	1,680	268.8	43.20 115.20	0.00	\$ 12.33	\$ 202.50	\$ 35.00		36.2 13.6
29 /30 29 /30 29 /30	1 S 32 C F 2 (ELE) 10 S 32 C F 1 (ELE)	F42LL F41LL	32 0.3	SW SW	2400 144 2400 768	-	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.06 0.32	C-OCC	1,680 1,680	100.8 537.6	43.20 230.40	0.00 0.00	\$ 24.65	\$ 202.50	\$ 35.00	8.2	36.2 6.8
15 29/30 29 /30	1 S 32 C F 2 (ELE) 5 S 32 C F 1 (ELE)	F42LL F41LL	60 0.1 32 0.2	SW	2400 144 2400 384		S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.06 0.16	C-OCC	1,680 1,680	100.8 268.8	43.20 115.20	0.00	· ·		· ·	43.8 16.4	36.2 13.6
15 29/30 20 Cafeteria	1 S 32 C F 2 (ELE) 11 S 32 C F 1 (ELE)	F42LL F41LL	60 0.1 32 0.4	SW SW	2400 144 1600 563		S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.06 0.352	C-OCC	1,680 1,200	100.8 422.4	43.20 140.80	0.00 0.00				43.8 13.4	36.2 11.1
20 Cafeteria 20 Cafeteria	11 S 32 C F 1 (ELE) 11 S 32 C F 1 (ELE)	F41LL F41LL	32 0.4 32 0.4	SW SW	1600 563 1600 563	11	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.352 0.352	C-OCC	1,200	422.4 422.4	140.80 140.80	0.00	\$ 15.07	\$ 202.50	\$ 35.00	13.4 13.4	11.1 11.1
20 Cafeteria 20 Cafeteria	11 S 32 C F 1 (ELE) 11 S 32 C F 1 (ELE)	F41LL F41LL	32 0.4 32 0.4	SW SW	1600 563 1600 563	11	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.352 0.352	C-OCC	1,200	422.4 422.4	140.80	0.00	\$ 15.07	\$ 202.50	\$ 35.00	13.4	11.1
20 Cafeteria	11 S 32 C F 1 (ELE)	F41LL	32 0.4	SW	1600 563	11	S 32 C F 1 (ELE)	F41LL	32	0.352	C-OCC	1,200	422.4	140.80	0.00	\$ 15.07	\$ 202.50	\$ 35.00	13.4	11.1
20 Cafeteria 20 Kitchen	11 S 32 C F 1 (ELE) 35 S 32 C F 1 (ELE)	F41LL F41LL	32 0.4 32 1.1	SW	1600 563 1600 1,792	35	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.352 1.12	C-OCC	1,200	422.4 1344	140.80 448.00	0.00 0.00	\$ 47.94	<u> </u>	· ·	13.4 4.2	11.1 3.5
20 Kitchen Storage Large20 Kitchen Office	6 S 32 C F 1 (ELE) 2 S 32 C F 1 (ELE)	F41LL F41LL	32 0.2 32 0.1	SW	1000 192 2400 154	, ,	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.192 0.064	SW C-OCC	1,000 1,200	76.8	76.80	0.00 0.00	\$ 8.22	\$ - \$ 202.50	\$ -	24.6	20.4
20 Kitchen Storage A20 Kitchen Storage B	2 S 32 C F 1 (ELE) 1 S 32 C F 1 (ELE)	F41LL F41LL	32 0.1 32 0.0	SW SW	1000 64 1000 32	2	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.064 0.032	SW SW	1,000 1,000	<u> </u>	0.00	0.00 0.00	\$ -	\$ - \$ -	\$ -		
20 Kitchen Storage C20 Kitchen Storage D	1 S 32 C F 1 (ELE) 1 S 32 C F 1 (ELE)	F41LL F41LL	32 0.0 32 0.0	SW SW	1000 32 1000 32	1 1	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.032 0.032	SW SW	1,000 1,000	32 32	0.00	0.00 0.00		\$ - \$ -	\$ -		
20 Kitchen Storage E 20 Kitchen Storage F	1 S 32 C F 1 (ELE) 1 S 32 C F 1 (ELE)	F41LL F41LL	32 0.0 32 0.0	SW SW	1000 32 1000 32	1 1	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.032 0.032	SW	1,000 1,000	32	0.00	0.00 0.00	\$ -	\$ - \$ -	\$ -		
146 Gym	14 High Bay MH 400 14 High Bay MH 400	MH400/1 MH400/1	458 6.4 458 6.4	SW	2000 12,824 2000 12,824		P 54 C F 4 P 54 C F 4	FC20 FC20	20	0.28 0.28	C-OCC	2,000	560	12264.00 12264.00	6.13 6.13	\$ 1,808.20	\$ 4,402.50 \$ 4,402.50	·	2.4	1.6
20 Gym Office 20 Gym Area Mechanical 1	4 S 32 C F 1 (ELE) 4 S 32 C F 1 (ELE)	F41LL F41LL	32 0.1	SW	2400 307 1000 128	4	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32		C-OCC SW	1,200 1,000	153.6	153.60	0.00	\$ 16.44			12.3	10.2
20 Gym Area Mechanical 2	2 S 32 C F 1 (ELE)	F41LL	32 0.1	SW	1000 64	2	S 32 C F 1 (ELE)	F41LL	32	0.064	SW	1,000		0.00	0.00	\$ -	\$ -	\$ -		
20 Boy's Locker Room 20 Boy's Locker Room	19 S 32 C F 1 (ELE) 3 S 32 C F 1 (ELE)	F41LL	32 0.1	SW SW	2800 269	3	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	0.608	C-OCC	2,000	192	486.40 76.80	0.00	\$ 8.22	\$ 202.50	\$ 35.00		20.4
15 Boy's Locker Room 15 Boy's Locker Room	3 S 32 C F 2 (ELE) 1 S 32 C F 2 (ELE)	F42LL F42LL	60 0.2 60 0.1	SW SW	2800 504 2800 168	1	S 32 C F 2 (ELE) S 32 C F 2 (ELE)	F42LL F42LL	60	0.18 0.06	C-OCC	2,000	360 120	144.00 48.00	0.00 0.00	\$ 5.14	\$ 202.50	\$ 35.00	39.4	10.9 32.6
5 Boy's Locker Room 108 Boy's Locker Room	1 2T 32 R F 2 (u) (ELE) 2 I 65	FU2LL I65/1	60 0.1 65 0.1	SW SW	2800 168 2800 364	-	2T 32 R F 2 (u) (ELE) CF 26	FU2LL CFQ26/1-L	60	0.06 0.054	C-OCC	2,000 2,000	120 108	48.00 256.00	0.00 0.08	· ·			39.4 7.2	32.6 6.2
20 Girl's Locker Room 20 Girl's Locker Room	8 S 32 C F 1 (ELE) 8 S 32 C F 1 (ELE)	F41LL F41LL	32 0.3 32 0.3	SW SW	2800 717 2800 717		S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.256 0.256	C-OCC	2,000 2,000	512 512	204.80 204.80	0.00 0.00					7.6 7.6
20 Girl's Locker Room 20 Girl's Locker Room	4 S 32 C F 1 (ELE) 2 S 32 C F 1 (ELE)	F41LL F41LL	32 0.1 32 0.1	SW SW	2800 358 2800 179	4	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.128 0.064	C-OCC	2,000	256 128	102.40 51.20	0.00	\$ 10.96	\$ 202.50	\$ 35.00	18.5	15.3 30.6
15 Girl's Locker Room 15 Girl's Locker Room	1 S 32 C F 2 (ELE) 1 S 32 C F 2 (ELE)	F42LL F42LL	60 0.1	SW SW	2800 168 2800 168	1	S 32 C F 2 (ELE) S 32 C F 2 (ELE)	F42LL F42LL	60	0.06	C-OCC	2,000	120 120	48.00 48.00	0.00 0.00 0.00		\$ 202.50	\$ 35.00	39.4	32.6 32.6
11 Girl's Locker Room	2 S 34 P F 2 (MAG)	F42EE	72 0.1	SW	2800 403	2	C 28 P F 2	F42SSILL	48	0.096	C-OCC	2,000	192	211.20	0.05	\$ 26.48	\$ 415.00	\$ 55.00	15.7	13.6
191 Girl's Locker Room 191 Girl's Locker Room	1 S 60 C F 2 (ELE) 8' 1 S 60 C F 2 (ELE) 8'	F82EE F82EE	123 0.1	SW SW	2800 344	1	S 60 C F 2 (ELE) 8' S 60 C F 2 (ELE) 8'	F82EE F82EE	123 123	0.123	C-OCC	2,000	246	98.40 98.40	0.00	\$ 10.53			19.2 19.2	15.9 15.9
20 Gym Front Storage Room 20 Gym Back Storage Room	8 S 32 C F 1 (ELE) 6 S 32 C F 1 (ELE)	F41LL F41LL	32 0.3 32 0.2	SW	1000 256 1000 192	6	S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32 32	0.256 0.192	SW SW	1,000 1,000	192	0.00	0.00 0.00 0.00	\$ -	\$ - \$ -	\$ -		
15 31 15 31	9 S 32 C F 2 (ELE) 10 S 32 C F 2 (ELE)	F42LL F42LL	60 0.5 60 0.6	SW SW	2400 1,296 2400 1,440		S 32 C F 2 (ELE) S 32 C F 2 (ELE)	F42LL F42LL	60 60	0.54 0.6	C-OCC	1,680 1,680	907.2 1008	388.80 432.00	0.00 0.00		•	· ·		4.0 3.6
15 31	9 S 32 C F 2 (ELE)	F42LL	60 0.5	SW	2400 1,296		S 32 C F 2 (ELE)	F42LL	60		C-OCC	1,680	907.2	388.80	0.00					4.0

D/15/2012

Energy Audit of Eisenhower Middle School

CHA Project No.24454 ECM-3 Lighting Replacements with Occupancy Sensors **Cost of Electricity:**

\$0.107 \$/kWh

\$6.74 \$/kW

		EXISTING CONDITIONS					RETROFIT CONDITIONS					COST & SAVINGS ANALYSIS								
																	N	IJ Smart Start	Simple Payback	
Area Description	No. of Fixtures Standard Fixture Code	Fixture Code	Watts per Fixture kW/Sr	Exist ace Control	Annual Hours Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual \$ Saved	Retrofit Cost	Lighting Incentive	With Out Incentive	P
31 Storage	2 S 32 C F 2 (ELE)	F42LL	60 0.1	SW	1000 120		S 32 C F 2 (ELE)	F42LL	60	0.12	SW	1,000	120	0.00	0.00	\$ -	\$ -	\$ -		
31/33 Shared Room 31A	2 S 32 C F 2 (ELE) 10 S 32 C F 2 (ELE)	F42LL F42LL	60 0.1	SW SW	1000 120 2400 1.440	2	S 32 C F 2 (ELE) S 32 C F 2 (ELE)	F42LL F42LL	60	0.12 0.6	SW C-OCC	1,000	120 1008	0.00 432.00	0.00	т	\$ - ; \$ 202.50	\$ - \$ 35.00	4.4	-
31A	2 SQ 13 W CF 2 (MAG)	CFQ13/2	31 0.1	SW	2400 149	9 2	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.062	C-OCC		104.16	44.64	0.00	<u>'</u>	\$ 202.50	\$ 35.00		
32	18 S 32 C F 1 (ELE) 2 S 32 C F 2 (ELE)	F41LL F42LL	32 0.6	SW	2400 1,382 2400 288		S 32 C F 1 (ELE)	F41LL F42LL	32 60	0.576	C-OCC		967.68 201.6	414.72 86.40		· · · · · · · · · · · · · · · · · · ·	T	\$ 35.00	4.6	
32	9 S 32 C F 2 (ELE)	F41LL	32 0.3	OVV	2400 69		S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	32	0.12 0.288	C-OCC		483.84	207.36		<u> </u>	· ·	\$ 35.00 \$ 35.00	+	+
32	2 S 32 C F 2 (ELE)	F42LL	60 0.1	SW	2400 288	8 2	S 32 C F 2 (ELE)	F42LL	60	0.12	C-OCC		201.6	86.40	0.00	\$ 9.24	\$ 202.50	\$ 35.00	21.9	
33	12 T 32 R F 4 (ELE) 3 T 32 R F 3 (ELE)	F44LL F43LE	118 1.4 110 0.3	SW	2400 3,398 2400 792		T 32 R F 4 (ELE) T 32 R F 3 (ELE)	F44LL F43LE	118 110	1.416 0.33	C-OCC		2378.88 554.4	1019.52 237.60	0.00	•	· ·	\$ 35.00 \$ 35.00	1.9 8.0	+
34	11 T 32 R F 3 (ELE) (TWO SWITCH)	F43ILL/2	90 1.0	344	2400 2,376		T 32 R F 3 (ELE) (TWO SWITCH)	F43ILL/2	90	0.99	C-OCC		1663.2	712.80		<u> </u>		\$ 35.00	2.7	+
35	12 S 32 C F 1 (ELE)	F41LL	32 0.4	SW	2400 922	12	S 32 C F 1 (ELE)	F41LL	32	0.384	C-OCC		645.12	276.48		T		\$ 35.00	-	\perp
35 35	2 S 32 C F 2 (ELE) 6 S 32 C F 1 (ELE)	F42LL F41LL	60 0.1 32 0.2	SW	2400 288 2400 46 ²		S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.12 0.192	C-OCC		201.6 322.56	86.40 138.24	0.00	•	· ·	\$ 35.00 \$ 35.00		+
35	2 S 32 C F 2 (ELE)	F42LL	60 0.1	SW	2400 288		S 32 C F 2 (ELE)	F42LL	60	0.12	C-OCC	1,680	201.6	86.40	<u> </u>	<u> </u>		\$ 35.00	21.9	
36	8 T 32 R F 3 (ELE) (TWO SWITCH) 12 T 32 R F 3 (ELE) (TWO SWITCH)	F43ILL/2	90 0.7	SW	2400 1,728 2400 2,592		T 32 R F 3 (ELE) (TWO SWITCH)	F43ILL/2	90	0.72	C-OCC		1209.6	518.40 777.60		T	· ·	\$ 35.00	3.7	
37 Closet	1 S 32 C F 1 (ELE)	F43ILL/2 F41LL	32 0.0	377	2400 2,592 1000 32	2 12	T 32 R F 3 (ELE) (TWO SWITCH) S 32 C F 1 (ELE)	F43ILL/2 F41LL	90	1.08 0.032	C-OCC SW	1,680	1814.4 32	0.00	0.00	\$ 83.20 \$ -	\$ 202.50 \$ -	\$ 35.00 \$ -	2.4	+
38	12 S 32 C F 1 (ELE)	F41LL	32 0.4	SW	2400 922		S 32 C F 1 (ELE)	F41LL	32	0.384	C-OCC		645.12	276.48	0.00	*		\$ 35.00	6.8	
38	2 S 32 C F 2 (ELE) 6 S 32 C F 1 (ELE)	F42LL F41LL	60 0.1	SW	2400 288 2400 462		S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60	0.12 0.192	C-OCC	· ·	201.6 322.56	86.40 138.24		<u> </u>	· ·	\$ 35.00 \$ 35.00	21.9	+
38	2 S 32 C F 2 (ELE)	F42LL	60 0.1	SW	2400 288 2400 768	8 2	S 32 C F 2 (ELE)	F42LL	60	0.12	C-OCC	1,000	201.6	86.40	0.00	.		\$ 35.00	21.9	+
39	10 S 32 C F 1 (ELE)	F41LL	32 0.3			8 10	S 32 C F 1 (ELE)	F41LL	32	0.32	C-OCC	1,680	537.6	230.40	0.00		· ·	\$ 35.00	8.2	
39	1 S 32 C F 2 (ELE) 5 S 32 C F 1 (ELE)	F42LL F41LL	60 0.1	SW SW	2400 14 ² 2400 38 ²	·	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.06 0.16	C-OCC	1,680	100.8 268.8	43.20 115.20	0.00	·	· · · · · · · · · · · · · · · · · · ·	\$ 35.00 \$ 35.00	43.8 16.4	+
39	1 S 32 C F 2 (ELE)	F42LL	60 0.1	SW	2400 144		S 32 C F 2 (ELE)	F42LL	60	0.06	C-OCC	1,680	100.8	43.20		•	· ·	\$ 35.00		
39	10 S 32 C F 1 (ELE)	F41LL	32 0.3	SW	2400 768 2400 144	3 10	S 32 C F 1 (ELE)	F41LL	32	0.32	C-OCC	1,680	537.6	230.40				\$ 35.00	8.2	
39	1 S 32 C F 2 (ELE) 5 S 32 C F 1 (ELE)	F42LL F41LL	32 0.2	SW	2400 144 2400 384	<u>' </u>	S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	60 32	0.06 0.16	C-OCC	1,680	100.8 268.8	43.20 115.20	0.00	<u>'</u>	· ·	\$ 35.00 \$ 35.00	43.8 16.4	+
39	1 S 32 C F 2 (ELE)	F42LL	60 0.1	SW	2400 144		S 32 C F 2 (ELE)	F42LL	60	0.06	C-OCC	1,680	100.8	43.20	0.00	\$ 4.62	\$ 202.50	\$ 35.00	43.8	
40	16 S 32 C F 1 (ELE) 2 S 32 C F 2 (ELE)	F41LL F42LL	32 0.5	SW	2400 1,229 2400 288	9 16	S 32 C F 1 (ELE)	F41LL F42LL	32 60	0.512	C-0CC	,	860.16 201.6	368.64		<u> </u>	T	\$ 35.00	5.1 21.9	_
40	2 S 32 C F 2 (ELE) 2 S 32 C F 2 (ELE)	F42LL F42LL	60 0.1	SW	2400 288	8 2	S 32 C F 2 (ELE) S 32 C F 2 (ELE)	F42LL F42LL	60	0.12 0.12	C-OCC	,	201.6	86.40 86.40	0.00	<u> </u>	· ·	\$ 35.00 \$ 35.00		+
40 Closet 1	1 S 32 C F 1 (ELE)	F41LL	32 0.0		1000 32	2 1	S 32 C F 1 (ELE)	F41LL	32	0.032	SW	1,000	32	0.00	0.00	<u>'</u>	\$ -	\$ -		
40 Closet 2 Auditorium	1 S 32 C F 1 (ELE) 56 SP I 100	F41LL I100/1	32 0.0	SW	1000 32 1000 5,600	2 1	S 32 C F 1 (ELE) CF 26	F41LL CFQ26/1-L	32	0.032 1.512	SW SW	1,000	32 1134	0.00 4466.00	0.00 4.09	\$ - \$ 808.50	\$ - : \$ 1,134.00	\$ - \$ -	1.4	+
Auditorium	1 CF 26	CFQ26/1-L	27 0.0	SW	1000 3,000	7 1	CF 26	CFQ26/1-L	27	0.027	SW	750	20.25	6.75	0.00	·		\$ -	0.0	+
Stage	2 MH 175	MH175/1	215 0.4	SW	1000 430		MH 175	MH175/1	215	0.43	SW	1,000	430	0.00	0.00	<u>'</u>	\$ - 3	\$ -		1
Stage Stage Closet	2 SP I 100	I100/1 I65/1	100 0.2	SW	1000 200	0 2 5 1	CF 26 CF 26	CFQ26/1-L CFQ26/1-L	27	0.054 0.027	SW SW	1,000	54 27	146.00 38.00	0.15 0.04	<u> </u>	· ·	\$ -	1.5 2.8	+
H Hall Boy's Bathroom	1 S 32 C F 2 (ELE)	F42LL	60 0.1	SW	2000 120	0 1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	2,000	120	0.00	0.00		\$ -	\$ -		
H Hall Girl's Bathroom	1 S 32 C F 2 (ELE)	F42LL	60 0.1	SW	2000 120	0 1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	2,000	120	0.00	0.00	т	\$ - 5	-		
H Hall Closet Team Room T1	5 T 32 R F 3 (ELE)	I65/1 F43LE	110 0.6	0,11	1000 65 2400 1,320	0 5	CF 26 T 32 R F 3 (ELE)	CFQ26/1-L F43LE	110	0.027 0.55	SW C-OCC	1,000	924	38.00 396.00	0.04 0.00	т	T	\$ - \$ 35.00	2.8 4.8	+
Team Room T1	6 T 32 R F 3 (ELE)	F43LE	110 0.7	SW	2400 1,584	4 6	T 32 R F 3 (ELE)	F43LE	110	0.66	C-OCC	1,680	1108.8	475.20	0.00	<u> </u>	\$ 202.50	\$ 35.00	4.0	
Team Room T1 Team Room T2	5 T 32 R F 3 (ELE) 5 T 32 R F 3 (ELE)	F43LE F43LE	110 0.6	SW	2400 1,320 2400 1,320		T 32 R F 3 (ELE) T 32 R F 3 (ELE)	F43LE F43LE	110 110	0.55 0.55	C-OCC	1,680	924 924	396.00 396.00	0.00	•	· ·	\$ 35.00 \$ 35.00	4.8	_
Team Room T2	6 T 32 R F 3 (ELE)	F43LE	110 0.7	SW	2400 1,584		T 32 R F 3 (ELE)	F43LE	110	0.66	C-OCC	1,680	1108.8	475.20	0.00	T -		\$ 35.00	4.0	-
Team Room T2	5 T 32 R F 3 (ELE)	F43LE	110 0.6	SW	2400 1,320		T 32 R F 3 (ELE)	F43LE	110	0.55	C-OCC	1,680	924	396.00	0.00	· ·	· · · · · · · · · · · · · · · · · · ·	\$ 35.00	4.8	
Team Room T3 Team Room T3	5 T 32 R F 3 (ELE) 6 T 32 R F 3 (ELE)	F43LE F43LE	110 0.6	SW	2400 1,320 2400 1,584	0	T 32 R F 3 (ELE) T 32 R F 3 (ELE)	F43LE F43LE	110	0.55 0.66	C-OCC	1,680 1,680	924 1108.8	396.00 475.20	0.00	\$ 42.37 \$ 50.85	¥	\$ 35.00 \$ 35.00	4.8	_
Team Room T3	5 T 32 R F 3 (ELE)	F43LE	110 0.6	SW	2400 1,320		T 32 R F 3 (ELE)	F43LE	110	0.55	C-OCC	1,680	924	396.00	0.00		· ·	\$ 35.00	4.8	
Team Room T4	5 T 32 R F 3 (ELE)	F43LE	110 0.6	SW	2400 1,320		T 32 R F 3 (ELE)	F43LE	110	0.55	C-OCC	1,680	924	396.00	0.00	· · · · · · · · · · · · · · · · · · ·	'	\$ 35.00	4.8	
Team Room T4 Team Room T4	6 T 32 R F 3 (ELE) 5 T 32 R F 3 (ELE)	F43LE F43LE	110 0.7	SW	2400 1,58 ² 2400 1,320		T 32 R F 3 (ELE) T 32 R F 3 (ELE)	F43LE F43LE	110	0.66 0.55	C-OCC	1,680	1108.8 924	475.20 396.00	0.00	· · · · · · · · · · · · · · · · · · ·		\$ 35.00 \$ 35.00	4.0	+
Team Room	14 SQ 13 W CF 2 (MAG)	CFQ13/2	31 0.4	SW	2400 1,042		SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.434	C-OCC	1,680	729.12	312.48	0.00	\$ 33.44	\$ 202.50	\$ 35.00	6.1	
N. Team Room Aux Room S. Team Room Aux Room	3 T 32 R F 3 (ELE) 3 T 32 R F 3 (ELE)	F43LE F43LE	110 0.3		2400 792 2400 792	2 3	T 32 R F 3 (ELE) T 32 R F 3 (ELE)	F43LE F43LE	110 110	0.33	C-OCC	1,680	554.4 554.4	237.60 237.60	0.00		· ·	\$ 35.00 \$ 35.00	8.0 8.0	+
41	14 T 32 R F 4 (ELE)	F44LL	118 1.7	SW	2400 3,965		T 32 R F 4 (ELE)	F44LL	118	1.652	C-OCC	1,680	2775.36	1189.44	0.00	<u>'</u>		\$ 35.00	1.6	
41/42 Office	2 T 32 R F 4 (ELE)	F44LL	118 0.2	SW	2400 566		T 32 R F 4 (ELE)	F44LL	118	0.236	C-OCC		283.2	283.20		+	· .	\$ 35.00	6.7	
42 42 Closet 1	15 T 32 R F 4 (ELE) 1 T 32 R F 3 (ELE)	F44LL F43LE	118 1.8 110 0.1	SW	2400 4,248 1000 110	8 15 n 1	T 32 R F 4 (ELE) T 32 R F 3 (ELE)	F44LL F43LE	118 110	1.77 0.11	C-OCC SW	1,680 1,000	2973.6 110	1274.40 0.00	0.00	<u>'</u>	\$ 202.50 \$ -	\$ 35.00 \$ -	1.5	-
42 Closet 2	1 T 32 R F 3 (ELE)	F43LE	110 0.1	SW	1000 110	0 1	T 32 R F 3 (ELE)	F43LE	110	0.11	SW	1,000		0.00	0.00	<u>'</u>	\$ -	\$ -		
43 M Hall Closet 1	28 T 32 R F 4 (ELE) 3 S 32 C F 2 (ELE)	F44LL F42LL	118 3.3	SW	2400 7,930 1000 180	0 28	T 32 R F 4 (ELE)	F44LL	118 60	3.304	C-OCC SW	1,680 1,000	5550.72	2378.88		\$ 254.54	\$ 202.50	\$ 35.00	0.8	_
M Hall Closet 2	3 S 32 C F 2 (ELE)	F42LL F42LL	60 0.2	SW	1000 180	0 3	S 32 C F 2 (ELE) S 32 C F 2 (ELE)	F42LL F42LL	60	0.18 0.18	SW SW	1,000	180 180	0.00	0.00	\$ -	\$ -	5 -		+
M Hall Closet 3	3 S 32 C F 2 (ELE)	F42LL	60 0.2	SW	1000 180	0 3	S 32 C F 2 (ELE)	F42LL	60	0.18	SW	1,000	180	0.00	0.00	<u>'</u>	\$ -	-		
M Hall Closet 4 Main Entrance Lobby	3 S 32 C F 2 (ELE) 12 S 32 C F 2 (ELE)	F42LL F42LL	60 0.2	SW	1000 180 2280 1.642	3	S 32 C F 2 (ELE) S 32 C F 2 (ELE)	F42LL F42LL	60 60	0.18 0.72	SW SW	1,000 2,280	180 1641.6	0.00	0.00	<u>'</u>	\$ - 5	\$ - \$		_
A Hallway	19 S 32 C F 2 (ELE)	F41LL	32 0.6	Ovv	2280 1,642 2280 1,386		S 32 C F 2 (ELE) S 32 C F 1 (ELE)	F42LL F41LL	32	0.608	SW		1386.24	0.00		т	\$ -	\$		
A Hallway	13 S 32 C F 2 (ELE)	F42LL	60 0.8	SW	2280 1,778		S 32 C F 2 (ELE)	F42LL	60	0.78	SW	, , , , , , , , , , , , , , , , , , ,	1778.4	0.00	0.00	т	\$ -	\$ -		_
B Hallway C Hallway	35 S 32 C F 1 (ELE) 35 S 32 C F 1 (ELE)	F41LL F41LL	32 1.1 32 1.1	SW SW	2280 2,55 ⁴ 2280 2,55 ⁴		S 32 C F 1 (ELE) S 32 C F 1 (ELE)	F41LL F41LL	32	1.12 1.12	SW SW	2,280 2,280	2553.6 2553.6	0.00	0.00	<u>'</u>	\$ - \$ \$ - \$	\$ -		+
D Hallway	35 S 32 C F 1 (ELE)	F41LL	32 1.1	SW	2280 2,554		S 32 C F 1 (ELE)	F41LL	32	1.12	SW	· · · · · · · · · · · · · · · · · · ·	2553.6	0.00	0.00	·	\$ -	\$ <u>-</u>		<u> </u>
E Hallway	2 2B 34 R F 2 (u) (MAG)	FU2EE	72 0.1 31 0.7	SW	2280 328	-	2T 17 R F 2 (ELE)	F22ILL	33	0.066	SW	2,280	150.48	177.84		\$ 25.34	Φ.	\$ 20.00	8.0	
E Hallway E Hallway	22 SQ 13 W CF 2 (MAG) 6 2B 34 R F 2 (u) (MAG)	CFQ13/2 FU2EE	72 0.4	SW	2280 1,555 2280 985		SQ 13 W CF 2 (MAG) 2T 17 R F 2 (ELE)	CFQ13/2 F22ILL	33	0.682 0.198	SW SW	2,280	1554.96 451.44	0.00 533.52	0.00 0.23	*	\$ - \(\frac{5}{2} \)	\$ - \$ 60.00	8.0	+
F Hallway	5 S 32 C F 1 (ELE)	F41LL	32 0.2	SW	2280 365	5 5	S 32 C F 1 (ELE)	F41LL	32	0.16	SW	2,280	364.8	0.00	0.00	\$ -	\$ -	\$ -		丁
G Hallway H Hallway	6 S 32 C F 1 (ELE) 10 S 32 C F 2 (ELE)	F41LL F42LL	32 0.2	SW SW	2280 438 2280 1.368	8 6	S 32 C F 1 (ELE)	F41LL	32	0.192	SW	,	437.76	0.00	0.00	\$ -	\$ -	\$ -		+
H Hallway M hallway	8 S 32 C F 2 (ELE)	F42LL F42LL	60 0.6		2280 1,094		S 32 C F 2 (ELE) S 32 C F 2 (ELE)	F42LL F42LL	60	0.6 0.48	SW SW	2,280 2,280	1368 1094.4	0.00	0.00	<u>'</u>	\$ - \\ \\$ - \\ \\$	р - \$ -	 	+
M hallway	5 S 32 C F 2 (ELE)	F42LL	60 0.3	SW	2280 684	4 5	S 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,280	684	0.00	0.00	\$ -	\$ -	\$ -		#
Team Room Lobby Exterior	9 2T 32 R F 2 (u) (ELE) 22 175 MH WALL	FU2LL MH175/1	60 0.5	SW SW	2280 1,23° 4368 20,66°		2T 32 R F 2 (u) (ELE) 175 MH WALL	FU2LL MH175/1	60 215	0.54 4.73	SW SW		1231.2 20660.64	0.00		·	\$ - S	5 -		+
Exterior	2 SP 26 R CF 2	CFQ26/2-L	50 0.1	SW	4368 437		SP 26 R CF 2	CFQ26/2-L	50	0.1	SW	4,368	436.8	0.00	0.00	\$ -	\$ -	\$		
Exterior	3 SP I 100	l100/1	100 0.3		4368 1,310		CF 26	CFQ26/1-L	27	0.081	SW	4,368	353.808	956.59		•		\$ -	0.5	
Total	1,732		103)	236,253	1,732	<u>I</u>		1	86.2		 	157,758	nd Savings	17.4	\$ 9,802.50 17.4		\$ 9,850.00		+
												-				1/.4	1.403.31			-

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APPENDIX D New Jersey Pay For Performance Incentive Program New Jersey BPU - Energy Audits Page 27 of 31

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Pay for Performance - Existing Buildings

Download program applications and incentive forms.

The Greater the Savings, the Greater Your Incentives

Take a comprehensive, whole-building approach to saving energy in your existing facilities and eam incentives that are directly linked to your savings. Pay for Performance relies on a network of

> program partners who provide technical services under direct contract to you. Acting as your energy expert, your partner will develop an energy reduction plan for each project with a whole-building technical component of a traditional energy audit, a financial plan for funding the energy efficient measures and a construction schedule for installation.

Eligibility

Existing commercial, industrial and institutional buildings with a peak demand over 100 kW for any of the preceding twelve months are eligible to participate including hotels and casinos, large office buildings, multifamily buildings, supermarkets, manufacturing facilities, schools, shopping malls and restaurants. Buildings that fall into the following five customer classes are not required to meet the 100 kW demand in order

to participate in the program: hospitals, public colleges and universities, 501(c)(3) non-profits, affordable multifamily housing, and local governmental entities. Your energy reduction plan must define a comprehensive package of measures capable of reducing the existing energy consumption of your building by 15% or more.

Exceptions to the 15% threshold requirement may be made for certain industrial, manufacturing, water treatment and datacenter building types whose annual energy consumption is heavily weighted on process loads. Details are available in the high energy intensity section of the FAQ

ENERGY STAR Portfolio Manager

Pay for Performance takes advantage of the ENERGY STAR Program with Portfolio Manager, EPA's interactive tool that allows facility managers to track and evaluate energy and water consumption across all of their buildings. The tool provides the opportunity to load in the characteristics and energy usage of your buildings and determine an energy performance benchmark score. You can then assess energy management goals over time, identify strategic opportunities for savings, and receive EPA recognition for superior energy performance.

This rating system assesses building performance by tracking and scoring energy use in your facilities and comparing it to similar buildings. That can be a big help in locating opportunities for cost-justified energy efficiency upgrades. And, based on our findings, you may be invited to participate in the Building Performance with ENERGY STAR initiative and receive special recognition as an industry leader in energy efficiency.

Incentives

Pay for Performance incentives are awarded upon the satisfactory completion of three program milestones:

Incentive #1 - Submittal of complete energy reduction plan prepared by an approved program partner - Contingent on moving forward, incentives will be between \$5,000 and \$50,000 based on approximately \$.10 per square foot, not to exceed 50% of the facility's annual energy expense.

Incentive #2 - Installation of recommended measures -Incentives are based on the projected level of electricity and natural gas savings resulting from the installation of comprehensive energy-efficiency measures.

Incentive #3 - Completion of Post-Construction Benchmarking Report - A completed report verifying energy reductions based on one year of post-

implementation results. Incentives for electricity and natural gas savings will be paid based on actual savings, provided that the minimum performance threshold of 15% savings has been achieved

Program

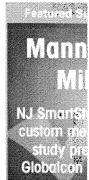
Large Scale CHI Program Annous

2012 Large Ene Announcement

Economic Devel Introduces Revo Pay for Performa

Incentives Now. Screw-in Lamps

Other updates pos







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A detailed Incentive Structure document is available on the applications and forms page.

Energy Efficiency Revolving Loan Fund (EE RLF)

New Jersey-based commercial, institutional or industrial entities (including 501(c)(3) organizations) that have received an approved energy reduction plan under Pay for Performance may be eligible for supplemental financing through the EE RLF. The financing, in the form of low-interest loans, can be used to support up to 80% of total eligible project costs, not to exceed \$2.5 million or 100% of total eligible project costs from all public state funding sources. Visit the NJ EDA website for details.

Steps to Participation

Click here for a step-by-step description of the program.

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New Jersey Pay For Performance Incentive Program

Note: The following calculation is based on the New Jersey Pay For Performance Incentive Program per April, 2012. Building must have a minimum average electric demand of 100 kW. This minimum is waived for buildings owned by local governments or non-profit organizations.

Values used in this calculation are for measures with a positive return on investment (ROI) only.

Total Building Area (Square Feet)	105,840
Is this audit funded by NJ BPU (Y/N)	Yes

Incentive	e #1	
Audit is funded by NJ BPU	\$0.10	\$/sqft

Board of Public Utilites (BPU)

	Annual Utilities			
	kWh	Therms		
Existing Cost (from utility)	\$179,021	\$23,532		
Existing Usage (from utility)	1,444,174	19,171		
Proposed Savings	127,216	-1,101		
Existing Total MMBtus	6,8	346		
Proposed Savings MMBtus	32	24		
% Energy Reduction	4.7%			
Proposed Annual Savings	\$14,400			

	Min (Savings = 15%)		Increase (Sa	vings > 15%)	Max Inc	entive	Achieved Incentive		
	\$/kWh	\$/therm	\$/kWh	\$/therm	\$/kWh	\$/therm	\$/kWh	\$/therm	
Incentive #2	\$0.09	\$0.90	\$0.005	\$0.05	\$0.11	\$1.25	\$0.00	\$0.00	
Incentive #3	\$0.09	\$0.90	\$0.005	\$0.05	\$0.11	\$1.25	\$0.00	\$0.00	

		Incentives \$					
	Elec	Gas	Total				
Incentive #1	\$0	\$0	\$10,584				
Incentive #2	\$0	\$0	\$0				
Incentive #3	\$0	\$0	\$0				
Total All Incentives	\$0	\$0	\$10,584				

Total Project Cost	\$71,331

		Allowable Incentive		
% Incentives #1 of Utility Cost*	5.2%	\$10,584		
% Incentives #2 of Project Cost**	0.0%	\$0		
% Incentives #3 of Project Cost**	0.0%	\$0		
Total Eligible Incentives***	\$10	,584		
Project Cost w/ Incentives	\$60,747			

Project Payback (years)									
w/o Incentives	w/ Incentives								
5.0	4.2								

 $^{^{\}star}$ Maximum allowable incentive is 50% of annual utility cost if not funded by NJ BPU, and %25 if it is.

Maximum allowable amount of Incentive #3 is 25% of total project cost.

Maximum allowable amount of Incentive #2 & #3 is \$1 million per gas account and \$1 million per electric account; maximum 2 million per project

 $^{^{\}star\star}$ Maximum allowable amount of Incentive #2 is 25% of total project cost.

^{***} Maximum allowable amount of Incentive #1 is \$50,000 if not funded by NJ BPU, and \$25,000 if it is.







2012 PAY FOR PERFORMANCE PROGRAM Existing Buildings Incentive Structure

Incentive #1: Energy Reduction Plan

Incentive Amount:.....\$0.10 per sq ft

Minimum Incentive:......\$5,000

This incentive is designed to offset the cost of services associated with the development of the Energy Reduction Plan (ERP) and is paid upon ERP approval. Incentive is contingent on implementation of recommended measures outlined in the ERP.

Incentive #2: Installation of Recommended Measures

Minimum Performance Target:.....15%

Electric Incentives

Base Incentive based on 15% savings:.....\$0.09 per projected kWh saved For each % over 15% add:......\$0.005 per projected kWh saved Maximum Incentive:......\$0.11 per projected kWh saved

Gas Incentives

Base Incentive based on 15% savings:	\$0.90 per projected Therm save	ed
For each % over 15% add:	\$0.05 per projected Therm save	d
Maximum Incentive:	\$1.25 per projected Therm save	ed

Incentive Cap:25% of total project cost

This incentive is based on projected energy savings outlined in the ERP. Incentive is paid upon successful installation of recommended measures.

Incentive #3: Post-Construction Benchmarking Report

Minimum Performance Target:.....15%

Electric Incentives

Base Incentive based on 15% savings:.....\$0.09 per actual kWh saved For each % over 15% add:.....\$0.005 per actual kWh saved Maximum Incentive:.....\$0.11 per actual kWh saved

Gas Incentives

Base Incentive based on 15% sa	avings:\$0.90 per actual Therm saved
For each % over 15% add:	\$0.05 per actual Therm saved
Maximum Incentive	\$1.25 per actual Therm saved

Incentive Cap:25% of total project cost

This incentive will be released upon submittal of a Post-Construction Benchmarking Report that verifies that the level of savings actually achieved by the installed measures meets or exceeds the minimum performance threshold. To validate the savings and achievement of the Energy Target, the EPA Portfolio Manager shall be used. Savings should be rounded to the nearest percent. Total value of Incentive #2 and Incentive #3 may not exceed 50% of the total project cost. Incentives will be limited to \$1 million per gas and electric account per building; maximum of \$2 million per project. See Participation Agreement for details.

APPENDIX E	
ESIP Information	
New Jersey BPU - Energy Audits	



Your Power to Save At Home, for Business, and for the Future

HOME RESIDENTIAL COMMERCIAL, INDUSTRIAL RENEWABLE ENERGY





COMMERCIAL, INDUSTRIAL AND LOCAL GOVERNMENT

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 - NJ SMARTSTART BUILDINGS
 - PAY FOR PERFORMANCE
 - COMBINED HEAT & POWER AND FUEL CELLS
 - LOCAL GOVERNMENT ENERGY

LARGE ENERGY USERS PILOT

ENERGY SAVINGS IMPROVEMENT PLAN

DIRECT INSTALL

ENERGY BENCHMARKING

T-12 SCHOOLS LIGHTING INITIATIVE

OIL, PROPANE & MUNICIPAL ELECTRIC CUSTOMERS

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- **TEACH**
- **►** ARRA
- **TECHNOLOGIES**
- TOOLS AND RESOURCES

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Energy Savings Improvement Plan

A new State law allows government agencies to make energy related improvements to their facilities and pay for the costs using the value of energy savings that result from the improvements. Under the recently enacted Chapter 4 of the Laws of 2009 (the law), the "Energy Savings Improvement Program" (ESIP), provides all government agencies in New Jersey with a flexible tool to improve and reduce energy usage with minimal expenditure of new financial resources.

This Local Finance Notice outlines how local governments can develop and implement an ESIP for their facilities. Below are two sample RFPs:

- Local Government
- School Districts (K-12)

The Board also adopted protocols to measure energy savings.

The ESIP approach may not be appropriate for all energy conservation and energy efficiency improvements. Local units should carefully consider all alternatives to develop an approach that best meets their needs. Local units considering an ESIP should carefully review the Local Finance Notice, the law, and consult with qualified professionals to determine how they should approach the task.

FIRST STEP - ENERGY AUDIT

For local governments interested in pursuing an ESIP, the first step is to perform an energy audit. As explained in the Local Finance Notice, this may be done internally if an agency has qualified staff to conduct the audit. If not, the audit must be implemented by an independent contractor and not by the energy savings company producing the Energy Reduction Plan.

Pursuing a Local Government Energy Audit through New Jersey's Clean Energy Program is a valuable first step to the ESIP approach - and it's free. **Incentives provide 100% of the cost of the audit.**

ENERGY REDUCTION PLANS

If you have an ESIP plan you would like to submit to the Board of Public Utilities, please email it to ESIP@bpu.state.nj.us. Please limit the file size to 3MB (or break it into smaller files).

- Frankford Township School District
- Northern Hunterdon-Voorhees Regional High School
- Manalapan Township (180 MB Right Click, Save As)

Program Updates

- Board Order Standby Charges for Distributed Generation Customers
- T-12 Schools Lighting Replacement Initiative - Funding Allocation Reached

Other updates posted.

Featured Success Story

Rutgers University:

Continued
Commitment to
Saving Energy





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APPENDIX F
Photovoltaic (PV) Rooftop Solar Power Generation
 New Jersey BPU - Energy Audits

Roxbury Township Board of Education Eisenhower Middle School

\$0.124 /kWh Cost of Electricity Electricity Usage 1,444,174 kWh/yr System Unit Cost \$4,000 /kW

Photovoltaic (PV) Solar Power Generation - Screening Assessment

Budgetary	Annual Utility Savings		Estimated	Total	Federal Tax	New Jersey Renewable	Payback (without	Payback (with		
Cost					Maintenance	Savings	Credit	** SREC	incentive)	incentive)
					Savings					
\$	kW	kWh	therms	\$	\$	\$	\$	\$	Years	Years
\$720,000	180.0	224,814	0	\$27,868	0	\$27,868	\$0	\$14,613	25.8	16.9
** Fatimated Color Danguable Energy Contificate Dragram (CDEC) CDEC for 15 Vacra					ФСF.	/1.000laub		-		

^{**} Estimated Solar Renewable Energy Certificate Program (SREC) SREC for 15 Years= \$65 /1000kwh

Area Output*

3636.186 m2 39,140 ft2

Perimeter Output*

369.302 m 1,212 ft

Available Roof Space for PV:

(Area Output - 10 ft x Perimeter) x 85% 22,970 ft2

Is the roof flat? (Yes/No) Yes **Approximate System Size:**

watt/ft2 183,759 DC watts kW 180 Enter into PV Watts

PV Watts Inputs*** Enter into PV Watts (always 20 if flat, if Array Tilt Angle pitched - enter estimated roof angle) 20 Array Azimuth 180 Enter into PV Watts (default) Zip Code 07876 Enter into PV Watts DC/AC Derate Factor 0.83 Enter info PV Watts

PV Watts Output

224,814 annual kWh calculated in PV Watts program

% Offset Calc

Usage 1,444,174 (from utilities) 224,814 (generated using PV Watts) PV Generation % offset 16%

http://gisatnrel.nrel.gov/PVWatts_Viewer/index.html

http://www.freemaptools.com/area-calculator.htm http://www.flettexchange.com







AC Energy & Cost Savings



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

Station Identification			
City:	Newark		
State:	New_Jersey		
Latitude:	40.70° N		
Longitude:	74.17° W		
Elevation:	9 m		
PV System Specifications			
DC Rating:	180.0 kW		
DC to AC Derate Factor:	0.830		
AC Rating:	149.4 kW		
Array Type:	Fixed Tilt		
Array Tilt:	20.0°		
Array Azimuth:	180.0°		
Energy Specifications			
Cost of Electricity:	12.4 ¢/kWh		

	Results				
Month	Solar Radiation (kWh/m ² /day)	AC Energy (kWh)	Energy Value (\$)		
1	2.78	13148	1630.35		
2	3.54	15149	1878.48		
3	4.35	20056	2486.94		
4	4.95	21259	2636.12		
5	5.69	24682	3060.57		
6	5.86	23874	2960.38		
7	5.73	23836	2955.66		
8	5.47	22518	2792.23		
9	4.91	20173	2501.45		
10	3.99	17498	2169.75		
11	2.68	11745	1456.38		
12	2.35	10876	1348.62		
Year	4.36	224814	27876.94		

Output Hourly Performance Data

*

Output Results as Text

About the Hourly Performance Data

Saving Text from a Browser

Run PVWATTS v.1 for another US location or an International location Run PVWATTS v.2 (US only)

Please send questions and comments regarding PVWATTS to Webmaster

Disclaimer and copyright notice



Return to RReDC home page (http://www.nrel.gov/rredc)

	APPENDIX G
ЕР	A Portfolio Manager
	S
New Jerse	ey BPU - Energy Audits Page 30 of 31



STATEMENT OF ENERGY PERFORMANCE **Eisenhower Middle School**

Building ID: 3210021

For 12-month Period Ending: May 31, 20121

N/A

Facility Owner

Date SEP becomes ineligible: N/A

Date SEP Generated: August 17, 2012

Primary Contact for this Facility

Facility Eisenhower Middle School 47 Eyland Ave Succasunna, NJ 07876

Year Built: 1961

Gross Floor Area (ft2): 105,840

Energy Performance Rating² (1-100) 28

Site Energy Use Summary³

Electricity - Grid Purchase(kBtu) 4,927,518 Natural Gas (kBtu)4 1,917,110 Total Energy (kBtu) 6,844,628

Energy Intensity⁴

Site (kBtu/ft²/yr) 65 Source (kBtu/ft²/yr) 174

Emissions (based on site energy use) Greenhouse Gas Emissions (MtCO2e/year) 800

Electric Distribution Utility

Jersey Central Power & Light Co [FirstEnergy Corp]

National Median Comparison

National Median Site EUI 53 National Median Source EUI 144 % Difference from National Median Source EUI 22% **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 Standards⁵ for Indoor Environmental Conditions:

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

- 1. Application for the ENERGY STAR must be submitted to EPA within 4 months of the Period Ending date. Award of the ENERGY STAR is not final until approval is received from EPA.

- 2. The EPA Energy Performance Rating is based on total source energy. A rating of 75 is the minimum to be eligible for the ENERGY STAR.

 3. Values represent energy consumption, annualized to a 12-month period.

 4. Values represent energy intensity, annualized to a 12-month period.

 5. Based on Meeting ASHRAE Standard 62 for ventilation for acceptable indoor air quality, ASHRAE Standard 55 for thermal comfort, and IESNA Lighting Handbook for lighting quality.

The government estimates the average time needed to fill out this form is 6 hours (includes the time for entering energy data, Licensed Professional facility inspection, and notarizing the SEP) and welcomes suggestions for reducing this level of effort. Send comments (referencing OMB control number) to the Director, Collection Strategies Division, U.S., EPA (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460.

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	$\overline{\mathbf{V}}$
Building Name	Eisenhower Middle School	Is this the official building name to be displayed in the ENERGY STAR Registry of Labeled Buildings?		
Туре	K-12 School	Is this an accurate description of the space in question?		
Location	47 Eyland Ave, Succasunna, NJ 07876	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 a hospital, k-12 school, hotel and senior care facility) nor can they be submitted as representing only a portion of a building.		
School (K-12 School)				
CRITERION	VALUE AS ENTERED IN PORTFOLIO MANAGER	VERIFICATION QUESTIONS	NOTES	V
Gross Floor Area	105,840 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 (Default)	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	185 (Default)	Is this the number of personal computers in the K12 School?		
Number of walk-in refrigeration/freezer units	1 (Default)	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 (Default)	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	100 % (Default)	Is this the percentage of the total floor space within the facility that is served by mechanical cooling equipment?		
Percent Heated	100 % (Default)	Is this the percentage of the total floor space within the facility that is served by mechanical heating equipment?		
Months	N/A(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: Jersey Central Power & Light Co [FirstEnergy Corp]

Fuel Type: Electricity		
Me	ter: Electricity (kWh (thousand Watt-hor Space(s): Entire Facility Generation Method: Grid Purchase	urs))
Start Date	End Date	Energy Use (kWh (thousand Watt-hours)
05/01/2012	05/31/2012	95,470.00
04/01/2012	04/30/2012	102,316.00
03/01/2012	03/31/2012	109,162.00
02/01/2012	02/29/2012	130,118.00
01/01/2012	01/31/2012	154,181.00
12/01/2011	12/31/2011	127,468.00
11/01/2011	11/30/2011	119,830.00
10/01/2011	10/31/2011	116,826.00
09/01/2011	09/30/2011	111,241.00
08/01/2011	08/31/2011	117,052.00
07/01/2011	07/31/2011	139,142.00
06/01/2011	06/30/2011	121,367.00
lectricity Consumption (kWh (thousand Wat	1,444,173.00	
Electricity Consumption (kBtu (thousand Btu))	4,927,518.28
otal Electricity (Grid Purchase) Consumption	ı (kBtu (thousand Btu))	4,927,518.28
s this the total Electricity (Grid Purchase) co Electricity meters?	rsumption at this building including all	
uel Type: Natural Gas		1
	Meter: Natural Gas (therms) Space(s): Entire Facility	
		Energy Use (therms)
Start Date	End Date	
Start Date 05/01/2012	End Date 05/31/2012	103.00
05/01/2012	05/31/2012	103.00
05/01/2012 04/01/2012	05/31/2012 04/30/2012	103.00
05/01/2012 04/01/2012 03/01/2012	05/31/2012 04/30/2012 03/31/2012	103.00 914.30 1,885.10
05/01/2012 04/01/2012 03/01/2012 02/01/2012	05/31/2012 04/30/2012 03/31/2012 02/29/2012	103.00 914.30 1,885.10 3,741.00
05/01/2012 04/01/2012 03/01/2012 02/01/2012 01/01/2012	05/31/2012 04/30/2012 03/31/2012 02/29/2012 01/31/2012	103.00 914.30 1,885.10 3,741.00 4,366.00
05/01/2012 04/01/2012 03/01/2012 02/01/2012 01/01/2012 12/01/2011	05/31/2012 04/30/2012 03/31/2012 02/29/2012 01/31/2012 12/31/2011	103.00 914.30 1,885.10 3,741.00 4,366.00 4,096.10
05/01/2012 04/01/2012 03/01/2012 02/01/2012 01/01/2012 12/01/2011 11/01/2011	05/31/2012 04/30/2012 03/31/2012 02/29/2012 01/31/2012 12/31/2011 11/30/2011	103.00 914.30 1,885.10 3,741.00 4,366.00 4,096.10 2,796.60

07/01/2011	07/31/2011	21.90
06/01/2011	06/30/2011	376.20
Natural Gas Consumption (therms)		19,171.10
Natural Gas Consumption (kBtu (thousand Btu	1))	1,917,110.00
Total Natural Gas Consumption (kBtu (thousa	nd Btu))	1,917,110.00
Is this the total Natural Gas consumption at th	is building including all Natural Gas meters?	
Additional Fuels		
Do the fuel consumption totals shown above repre Please confirm there are no additional fuels (distric		
On-Site Solar and Wind Energy		
Do the fuel consumption totals shown above incluc your facility? Please confirm that no on-site solar o list. All on-site systems must be reported.		
Certifying Professional (When applying for the ENERGY STAR, the Certif	ying Professional must be the same PE or RA tha	at signed and stamped the SEP.)
Name:	Date:	
Signature:		

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
Eisenhower Middle School
47 Eyland Ave
Succasunna, NJ 07876

Facility Owner

Primary Contact for this Facility

General Information

Eisenhower Middle School	
Gross Floor Area Excluding Parking: (ft²)	105,840
Year Built	1961
For 12-month Evaluation Period Ending Date:	May 31, 2012

Facility Space Use Summary

racinty opace ose ourimary					
School					
Space Type	K-12 School				
Gross Floor Area (ft2)	105,840				
Open Weekends? d	No				
Number of PCs d	185				
Number of walk-in refrigeration/freezer units ^d	1				
Presence of cooking facilities d	Yes				
Percent Cooled d	100				
Percent Heated ^d	100				
Months °	N/A				
High School?	No				
School District °	N/A				

Energy Performance Comparison

	Evaluatio	Comparisons					
Performance Metrics	Current (Ending Date 05/31/2012)	Baseline (Ending Date 07/31/2011)	Rating of 75	Target	National Median		
Energy Performance Rating	28	14	75	N/A	50		
Energy Intensity							
Site (kBtu/ft²)	65	83	42	N/A	53		
Source (kBtu/ft²)	174	208	112	N/A	144		
Energy Cost							
\$/year	\$ 202,553.21	\$ 247,858.63	\$ 130,358.20	N/A	\$ 166,721.93		
\$/ft²/year	\$ 1.91	\$ 2.34	\$ 1.23	N/A	\$ 1.57		
Greenhouse Gas Emissions							
MtCO₂e/year	800	960	515	N/A	658		
kgCO ₂ e/ft²/year	8	9	5	N/A	7		

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 Median column presents energy performance data your building would have if your building had a median rating of 50.

Notes:

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

Statement of Energy Performance

2012

Eisenhower Middle School 47 Eyland Ave Succasunna, NJ 07876

Portfolio Manager Building ID: 3210021

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.



1 50 100

Least Efficient Median Most Efficient

This building uses 174 kBtu per square foot per year.* Buildings with a score of

*Based on source energy intensity for the 12 month period ending May 2012

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



Date Generated: 08/17/2012