# RIDGEWOOD BOARD OF EDUCATION

# **GEORGE WASHINGTON MIDDLE SCHOOL**

155 Washington Place, Ridgewood NJ 07451

# LOCAL GOVERNMENT ENERGY AUDIT PROGRAM FOR NEW JERSEY BOARD OF PUBLIC UTILITIES

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**CHA PROJECT NO. 30237** 

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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 ±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 building 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 staff and spot measurements taken in the field.

## **List of Common Energy Audit Abbreviations**

- A/C Air Conditioning
- AHS Air Handling Unit
- BMS Building Management System
- Btu British thermal unit
- CDW Condenser Water
- CFM Cubic feet per minute
- CHW Chilled Water
- DCV Demand Control Ventilation
- DDC Direct Digital Control
- DHW Domestic Hot Water
- DX Direct Expansion
- EER Energy Efficiency Ratio
- EF Exhaust Fan
- EUI Energy Use Intensity
- Gal Gallon
- GPD Gallons per day
- GPF Gallons Per Flush
- GPH Gallons per hour
- GPM Gallons per minute
- GPS Gallons per second
- HHW Heating Hot Water
- HID High Intensity Discharge
- HP Horsepower
- HRU Heat Recovery Unit
- HVAC Heating, Ventilation, Air Conditioning
- HX Heat Exchanger
- kbtu/mbtu One thousand (1,000) Btu
- kW Kilowatt (1,000 watts)
- kWh Kilowatt-hours
- LED Light Emitting Diode
- mbh Thousand Btu per hour
- mmbtu One million (1,000,000) Btu
- OCC Occupancy Sensor
- PSI Pounds per square inch
- RTU Rooftop Unit
- SBC System Benefits Charge
- SF Square foot
- UH Unit Heater
- V Volts
- VAV Variable Air Volume
- VSD Variable Speed Drive
- W Watt

#### 1.0 EXECUTIVE SUMMARY

This report summarizes the energy audit performed by CHA for Ridgewood Board of Education in connection with the New Jersey Board of Public Utilities (NJBPU) Local Government Energy Audit (LGEA) Program. The purpose of this report is to identify energy savings opportunities associated with major energy consumers and inefficient practices. Low-cost and no-cost energy conservation measures (ECMS) have also been identified in this study. This report details the results of the energy audit conducted for the building listed below:

Building Name	Address	Square Feet	Construction Date
George Washington Middle School	155 Washington Place, Ridgewood NJ 07451	126,527	1928,1962,1986, 2002 and 2013

The potential total annual energy and cost savings for the recommended energy conservation measures (ECM) identified in the survey are shown below:

Building Name	Electric Savings (kWh)	NG Savings (therms)	Total Savings (\$)	Payback (years)
George Washington Middle School	199,153	5,485	\$41,817	11.6

Each individual measure's annual savings are dependent on that measure alone, there are no interactive effects calculated. There are three options shown for lighting ECM savings; only one option can be chosen. The incentives shown (if any) are based only on the SmartStart Incentive Program. Other NJBPU or local utility incentives may also be available/applicable and are discussed in Section 6.0.

Each measure recommended by CHA typically has a stand-alone simple payback period of 15 years or less. However, if the owner choses to pursue an Energy Savings Improvement Plan (ESIP), high payback measures could be bundled with lower payback measures which ultimately can result in a payback which is favorable for an ESIP project to proceed. Occasionally, we will recommend an ECM that has a longer payback period. This decision is generally based on the need to replace the piece(s) of equipment due to its age, such as a boiler.

The following table provides a detailed summary of each ECM for the building surveyed; including costs, savings, SmartStart incentives and paybacks.

## **Summary of Energy Conservation Measures**

ECM #	Energy Conservation Measure	Est. Costs (\$)	Est. Savings (\$/year)	Payback w/o Incentive	Potential Incentive (\$)*	Payback w/ Incentive	Recommended
ECM- 1A	Convert the Steam System to Hot Water System	3,533,115	9,848	358.8	5,000	358.3	N
ECM- 1B	Boiler Replacement	215,190	4,377	49.2	5,000	48.0	Y
ECM- 2	Replace Pneumatic Controls with DDC Controls	214,799	2,387	90.0	0	90.0	N
ECM-	Install Window AC Controllers	6,200	1,850	3.4	0	3.4	Υ
ECM-	Replace DHW Heater	15,287	582	26.3	600	25.2	N
ECM- 5	Walk-in Cooler & Freezer EC Motor Retrofits	20,625	1,170	17.6	0	17.6	Y
ECM- L1**	Lighting Replacements / Upgrades	231,423	33,048	7.0	6,025	6.8	N
ECM- L2**	Install Lighting Controls (Add Occupancy Sensors)	11,799	3,066	3.8	1,840	3.2	N
ECM- L3	Lighting Replacements with Controls (Occupancy Sensors)	243,222	34,421	7.1	7,865	6.8	Y
	Total**	4,248,438	54,635	77.8	18,465	77.4	
	Total(Recommended)	485,237	41,817	11.6	12,865	11.3	

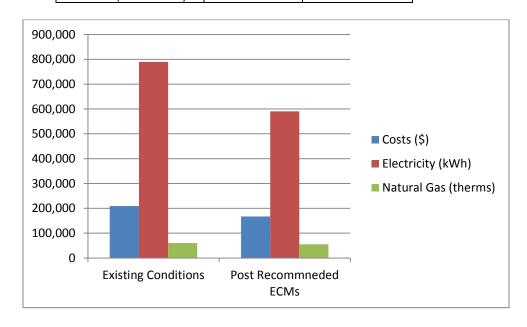
By implementing the recommended ECMs, the building could result in a total of 113 metric tons of greenhouse gas (GHG) reduction.

<sup>\*</sup> Incentive shown is per the New Jersey SmartStart Program.

\*\* These ECMs are not included in the Total, as they are alternate measures not recommended.

If the Ridgewood Board of Education implements the recommended ECMs, energy savings would be as follows:

	Existing Conditions	Post Recommended ECMs	Percent Savings
Costs (\$)	209,139	167,322	20%
Electricity (kWh)	789,291	590,138	25%
Natural Gas (therms)	60,533	55,048	9%
Site EUI (kbtu/SF/Yr)	69.1	59.4	



#### 2.0 BUILDING INFORMATION AND EXISTING CONDITIONS

The following is a summary of the building information related to HVAC, plumbing, building envelope, lighting, kitchen equipment and domestic hot water systems as observed during CHA's site visit. See appendix B for detailed information on mechanical equipment, including capacities, model numbers and age. See appendix F for some representative photos of some of the existing conditions observed while onsite.

**Building Name:** George Washington Middle School **Address:** 155 Washington Place, Ridgewood NJ 07451

**Gross Floor Area:** 126,527

**Number of Floors:** Two floors and one basement

**Year Built:** 1928,1962,1986,2002 and 2013



# **Building Envelope**

**Description of Spaces:** This is an academic and office building which has office rooms, classrooms, auditoriums, gymnasiums, cafeterias, computer labs, restrooms and mechanical rooms.

**Description of Occupancy:** The facility serves about 630 students from grade 6 to grade 8. There are also about 50 school faculty and staff members.

**Number of Computers:** The building has approximately 300 desktop and laptop computers. **Building Usage:** The buildings office hours is typically from 7:30AM to 3:30PM during school year; however, there are some after school activities during the school year.

**Construction Materials:** Concrete Masonry Unit (CMU) and brick façade.

**Roof:** The building has a combination of sloped and flat roofs, which is covered with a grey rubber membrane. The roof was recently renovated and is believed to be well insulated. The roof is in good condition and no ECMs associated with roof replacement were evaluated.

**Windows:** The windows throughout the building are double pane aluminum framed windows. The windows are in good condition and no ECMs associated with window replacement were evaluated.

**Exterior Doors:** The exterior doors throughout the school are alumina frame with double pane safety glass. The sweeps on the exterior doors are still in good condition; Therefore, no ECMs associated with exterior doors were evaluated.

## **Heating Ventilation & Air Conditioning (HVAC) Systems**

Heating: The building is heated by one Weil McLain steam boilers located in the basement mechanical room. The boiler has a rated energy input of 4,184MBH. The condensate is pumped back to the condensate tank by using ¾ HP pumps. The boiler is producing 3 psig steam for heating and the stream traps appear to have no leaking issues according to the facility staff. However, it is suggested that the school do the steam trap survey periodically to ensure the steam system is operating efficiently. The steam is used in unit ventilators (UV) and baseboard fin-tube heaters throughout the building. Apart from the central steam heating system, there are eight AOON roof top units (RTUs) used to heat large spaces such as the gymnasiums, auditorium, music room, and library. The heating capacities are listed in the cooling section below. There is also a Sterling AHU equipped with a gas fired furnace to heat the classroom, the capacity of this unit is unknown due to the inaccessibility to the name tag.

An ECM associated with converting the central steam heating system to hot water system is evaluated.

**Cooling:** The building does not have a central chilled water cooling system. Large spaces, such as gymnasiums, are cooled by RTUs equipped with direct expansion (DX) cooling units. The details of these RTUs are listed in the table below:

Name of RTUs	Capacity	Efficiency
RTU-Old Gym	16 ton cooling capacity and 540 MBH energy input, 432 MBH energy output	EER of 12 and heating efficiency of 80%
RTU- Library/Classrooms	16 ton cooling capacity and 405 MBH energy input, 328.1 MBH energy output	EER of 12 and heating efficiency of 80%
RTU-/Classrooms	15 ton cooling capacity and 292.5 MBH energy input, 234 MBH energy output	EER of 12 and heating efficiency of 80%
RTU-Music Room/Auditorium	Estimated 9 ton cooling capacity and 195MBH energy input, 156 MBH energy output based on facility staff	EER of 12 and heating efficiency of 80%
RTU-Music Room/Auditorium	Estimated 11 ton cooling capacity and 292.5 MBH energy input, 234 MBH energy output based on facility staff	EER of 12 and heating efficiency of 80%
RTU-Café and Kitchen	9 ton cooling capacity and 195MBH energy input, 156 MBH energy output	EER of 12 and heating efficiency of 80%
RTU-Café and Kitchen	11 ton cooling capacity and 292.5 MBH energy input, 234 MBH energy output	EER of 12 and heating efficiency of 80%

RTU- New Gym	Estimated 20 ton cooling capacity and 540 MBH energy input, 432 MBH energy output	EER of 12 and heating efficiency of 80%
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Besides the roof top units, the building also has various split cooling units. A Daikin variable refrigerant flow (VRF) unit is used for the Fitness room. A McQuay air handling unit (AHU) equipped with a split cooling unit is used to cool the classrooms. There are also a few split cooling units, as well as, many window AC units used to cool the offices and classrooms. These units appear to be in good condition.

An ECM associated with installing AC window controllers was evaluated.

**Ventilation:** Each of the RTUs have air intakes to provide fresh air to the areas they serve. The amount of outdoor air provided by the ventilation unit is unknown due to the missing drawings/documents; however, it is believed that each unit provides minimum ventilation rate based on the discussions with the school staff. Each classroom has an UV to provide minimum ventilation for the classrooms. The ventilation rate is minimum and therefore no ECM associated with ventilation system were evaluated.

**Exhaust:** This building has multiple fractional HP exhaust fans serving restrooms and general building exhaust, all located on the roof. The fans are enclosed therefore, their capacities are unknown; however, the exhaust fan covers appear to be in good condition. Therefore, no ECM related to the exhaust system were evaluated.

## **Controls Systems**

This building has a hybrid control system which consists of an Automated Logic direct digital control (DDC) broad and pneumatic control devices. The compressed air of the pneumatic control devices are provided by an Ingersoll Rand air compressor powered by two 3HP motors. The pneumatic control signals were converted to electronic/digital signals by using transducers. The control system is monitored and maintained by Energy for America. According to the Energy for America operation manual, the cooling season occupied temperature is typically set between 74°F and 78°F and unoccupied temperature is set at 85°F. During the heating season the occupied temperature is typically set to be between 68°F and 72°F and the unoccupied temperature is set to be at 55°F. During the site visit, it was noted that there are some leaks in the pneumatic control system; therefore, an ECM related to replacing the pneumatic devices with digital control devices has been included.

## **Domestic Hot Water Systems**

This building has one A.O.Smith natural gas fired domestic hot water (DHW) heater which has a rated energy input of 420MBH and a 344.4 MH energy output; also, the nameplate efficiency is 82%. The domestic hot water is stored in an approximately 200 gallon tank. An ECM related to replacing the heater with gas fired condensing hot water heater has been evaluated.

## **Kitchen Equipment**

This building has a warm-up kitchen. The kitchen equipment includes two reach-in refrigerators, two reach-in freezers, one walk-in refrigerator and one walk-in freezer. The kitchen also has

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ovens, stoves and a 2' by 8' kitchen hood which appears to have a heat recovery system. The kitchen equipment appears to be in good condition. It is suggested that Energy Star kitchen equipment be used to replace the current equipment when they reach the end of their useful lifespan. A walk-in refrigerator/freezer controller is also evaluated in the ECM section.

## **Plug Load**

This building has computers, monitors, residential appliances (microwave, refrigerator, etc.) and printers which contribute to the plug load in. The appliances are turned off during unoccupied hours; therefore, no ECMs associated with plug load were evaluated. However, replacing the appliances with Energy Star rated appliances when the old ones reach the end of its useful life span is included as an O&M.

## **Plumbing Systems**

This building has plumbing fixtures which appear to be low volume plumbing fixtures and waterless urinals. The sink's faucets appear to have low-flow type aerators. Therefore, no ECMs associated with plumbing systems were.

## <u>Lighting Systems</u>

This building has a mixture of 32W T-8 fluorescent lighting, CFLs lights, some T-5 fluorescent, metal halide and incandescent lights. The majority of the lighting fixtures are T-8 fluorescent linear fixtures. The smaller gym has 30 6-lamp high output T-5 fluorescent lights and gym 222 has 22 400W metal halides; metal halides are also used in the media center. The majority of the lights are controlled by manual switches. We have provided three alternatives for lighting that include adding occupancy sensors to the existing lights, replacing the lights with LED lights and a third ECM that evaluates adding occupancy sensors to the proposed LED lights.

#### 3.0 UTILITIES

Natural gas, electricity and water are separately metered into this building. Utilities used by the building are delivered and supplied by the following utility companies:

	Electric	Natural Gas	Water
Deliverer	PSE&G	PSE&G	Ridgewood Water
Supplier	Direct Energy	Direct Energy/	N/A
		South Jersey	
		Energy/PSE&G	

The facility has changed their natural gas supplier 3 times in the past 15 months. For the 12-month period ending in March 2015, the utilities usages and costs for the building were as follows:

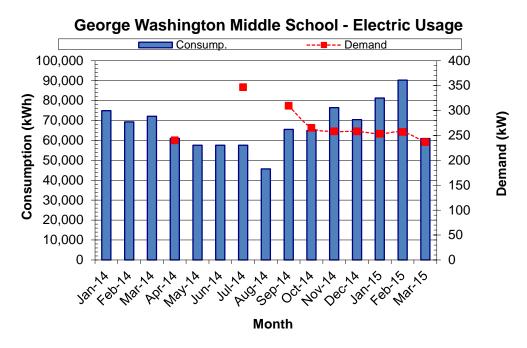
Electric				
Annual Consumption	789,291	kWh		
Annual Cost	148,606	\$		
Blended Unit Rate	0.188	\$/kWh		
Supply Rate	0.00	\$/kWh		
Demand Rate	0.00	\$/kW		
Peak Demand	346.8	kW		
Natural Gas				
Annual Consumption	60,533	Therms		
Annual Cost	48,303	\$		
Unit Rate	0.798	\$/therm		
Water				
Annual Consumption	1,354,000	Gallons		
Annual Cost	7,329	\$		
Unit Rate	0.005	\$/Gallon		

Blended Rate: Average rate charged determined by the annual cost / annual usage

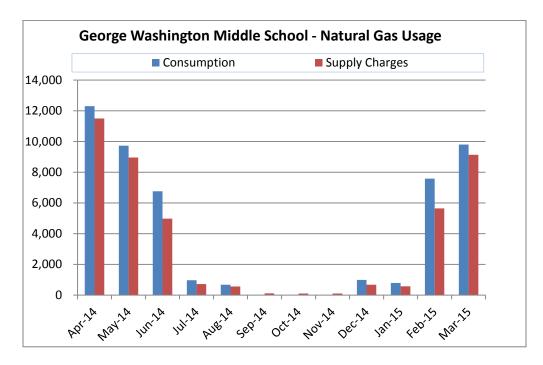
Supply Rate: Actual rate charged for electricity usage in kWh (based on most recent electric bill)

Demand Rate: Rate charged for actual electrical demand in kW (based on most recent electric bill)

<sup>\*</sup>Some months that do not have utility data and the missing demand usage are estimated and highlighted in the utility spreadsheet



The electric usage is pretty consistent throughout the year and varies with the usage of the building. The summer months show lower usage, reflecting decreased occupancy of the building.



The natural gas usage in this building is for heating and DHW production; therefore, the usage in summer months is relatively small compared with heating months. The gas usage during the heating season is correlated to winter weather conditions.

See Appendix A for 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. The supply portion is open to competition, and customers can shop around for the best price for their energy suppliers. The electric and natural gas distribution utilities will still deliver the gas/electric supplies through their wires and pipes and respond to emergencies, should they arise regardless of where those supplies are purchased. Purchasing the 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 the service.

Com	Comparison of Utility Rates to NJ State Average Rates*				
Utility	Units	School Average Rate	NJ Average Rate	Shop for Third	
				Party Supplier?	
Electricity	\$/kWh	\$0.188	\$0.13	Υ	
Natural Gas	\$/Therm	\$0.798	\$0.96	N	

<sup>\*</sup> Per U.S. Energy Information Administration (2013 data - Electricity and Natural Gas, 2012 data - Fuel Oil)

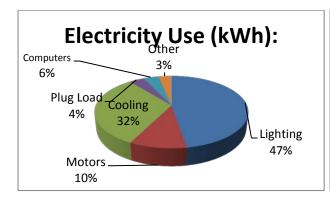
Additional information on selecting a third party energy supplier is available here:

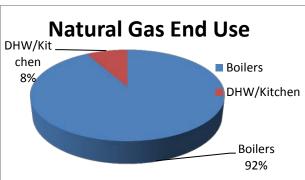
## http://www.state.nj.us/bpu/commercial/shopping.html.

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.

The charts below represent estimated utility end-use utility profiles for the building. The values used within the charts were estimated from a review of the utility analysis and the energy savings calculations.

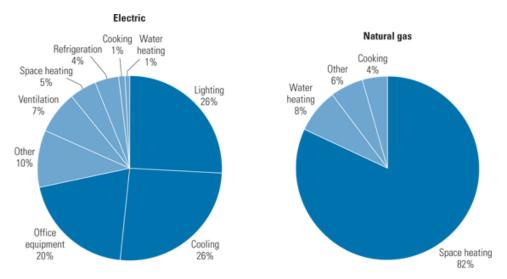
#### **Site End-Use Utility Profile**





Most of the electricity consumed by educational facilities is used to for lighting, cooling, and plug loads, such as, computers and copiers; most of the natural gas is used for space heating. Each school's energy profile is different, and the following charts represent typical utility profiles for K-12 schools per U.S. Department of Energy.

# **Typical End-Use Utility Profile for Educational Facilities**



Courtesy: E SOURCE; from Commercial Building Energy Consumption Survey, 1999 data

#### 4.0 BENCHMARKING

The EPA Portfolio Manager benchmarking tool 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 measures, the Energy Star rating will increase. However, the EPA does not have scores for all building types. The buildings that do not have an energy rating now are compared with national median EUI.

The site EUI is the amount of heat and electricity consumed by a building as reflected in utility bills. The sites energy may be delivered to the facility 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. To provide an equitable comparison for different buildings with varying proportions of primary and secondary energy consumption, Portfolio Manager uses the convention of source EUIs. The source energy also accounts for losses incurred in production, storage, transmission, and delivery of energy to the site; which provide an equivalent measure for various types of buildings with differing energy sources. The results of the benchmarking are contained in the table below. Copies of the benchmarking report are available in Appendix G.

Site EUI kBtu/ft²/yr	Source EUI (kBtu/ft²/yr)	Energy Star Rating (1-100)
69.1	117.1	64

This school has a slightly above average Energy Star Rating Score (50 being the median score). By implementing the measures discussed in this report, it is expected that the EUI can be further reduced and the Energy Star Rating can be further increased.

#### 5.0 ENERGY CONSERVATION MEASURES

The following types of energy savings opportunities are identified in this section of the report:

- Energy conservation measures (ECMs) are energy savings recommendations that typically require a financial investment. For these areas of opportunity, CHA prepared detailed calculations, as summarized in this section and in Appendix C. In general, additional savings may exist from reductions in maintenance activities associated with new equipment or better controls; however, for conservatism, maintenance savings are not accounted for in this report; instead the only savings which are reported are those derived directly from reductions in energy which can be tracked by the utility bills.
- Operational and Maintenance measures (O&M) consist of low-cost or no-cost operational opportunities, which if implemented would have positive impacts on overall building operation, comfort levels, and/or energy usage. There are no estimated savings, costs or paybacks associated with the O&M measures included as part of this study.

Energy savings were quantified in the form of:

- Electrical usage (kWh=Kilowatt-hour),
- Electrical demand (kW=kilowatts),
- Natural gas (therms=100,000 Btu),
- Propane gas (gallons=91,650 Btu),
- Fuel oil (gallons =138,700 Btu), and
- Water (kgal=1,000 gallons).

These recommendations are influenced by the time period that it takes for a proposed project to "break even" referred to as "Simple Payback". Simple payback is calculated by dividing the estimated cost of implementing the ECM by the energy cost savings (in dollars) of that ECM.

Another financial indicator of the performance of a particular ECM is the Return on Investment (ROI), which represents the benefit (annual savings over the life of a project) of an investment divided by the cost of the investment. The result is expressed as a percentage or ratio.

Two other financial analyses included in this report are Internal Rate of Return (IRR) and Net Present Value (NPV). Internal Rate of Return is the discount rate at which the present value of a project costs equals the present value of the project savings. Net Present Value is the difference between present value of an investment's future net cash flows and the initial investment. If the NPV equals "0", the project would equate to investing the same amount of dollars at the desired rate. NPV is sometimes referred to as Net Present Worth. These values are provided in the Summary Tab in Appendix C.

## 5.1 ECM-1A Convert the Steam System to Hot Water System

This ECM evaluates the conversion of the existing natural gas fired steam boilers to high efficiency condensing hot water boilers which will also enable additional savings through hot water temperature reset based on outdoor air temperature.

Steam heating systems are inherently inefficient and high maintenance when compared to re-circulated hot water heating systems or other modern heating systems. As steam systems age, the steam traps fail which then requires more untreated cold make-up water. This in turn requires more chemical treatment and increases the risk of boiler thermal shock. Steam piping becomes fouled with scale and corrosion over time resulting in poor heat transfer and ultimately pipe failure. Steam heating systems use boilers that only operate up to 84% combustion efficiency and have even lower thermal efficiency. Multiple condensate pumps and boiler feed water pumps consume electricity that would not be needed in other modern heating systems.

In lieu of replacing the boilers in kind, this ECM evaluates replacing the steam system in its entirety with a more efficient hot water system, due to the school is interested in hot water system. New modulating condensing gas boilers are available that minimally operate at 88%, and can operate as high as 96%. To implement this ECM, the old steam boilers, distribution piping, venting and terminal units would be removed and the new hot water boilers, distribution piping and primary pumps put in their place. Significant piping and wiring modifications would be needed. New dedicated boiler venting would also need to be installed either through the roof or sidewall. Asbestos abatement may need to be performed prior to any work and the cost for this is not included in the payback analysis.

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

ECM-1A Convert the Steam System to Hot Water System

Budgetary Cost	Annual Utility Savings			ROI	Potential Incentive*	Payback (without	Payback (with	
Cost	Е	lectricity	Natural Gas	Total		incentive	incentive)	incentive)
\$	kW	kWh	Therms	\$		\$	Years	Years
3,533,115	0	0	12,341	9,848	(0.9)	5,000	358.8	358.3

<sup>\*</sup> Incentive shown is per the New Jersey SmartStart Program. See section 6.0 for other incentive opportunities.

This measure is not recommended due to the long payback period.

## 5.1 ECM-1B Replace steam boiler

The existing steam boilers are more than 30 years old and beyond the ASHRAE useful life span. Therefore, it is suggested a new steam boiler be installed to run as the main boiler for the heating system. This ECM assesses the replacement of the boiler with the similar size steam boiler which will provide the same amount heating for the building.

To implement this ECM, The boiler would be removed it is suggested to install the new boiler in the mechanical room at the same location of the old boiler. Piping and wiring modifications would be needed.

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

ECM-1B Replace steam boiler

Budgetary Cost		Annua	l Utility Savings		ROI	ROI Potential Incentive*	Payback (without incentive)	Payback (with incentive)
Cost	E	ectricity	Natural Gas	Total				
\$	kW	kWh	Therms	\$		\$	Years	Years
215,190	0	0	5,485	4,377	(0.4)	5,000	49.2	48.0

<sup>\*</sup> Incentive shown, if available, is per the New Jersey SmartStart Program. See section 6.0 for other incentive opportunities.

This measure is recommended since the existing boiler is beyond their useful lifespan.

## 5.2 ECM-2 Replace Pneumatic Control Devices with DDC Devices

This building has a hybrid control system which consists of an Automated Logic direct digital control (DDC) broad and pneumatic control devices. The compressed air of the pneumatic control devices is provided by an Ingersoll Rand air compressor powered by two 3HP motors. The pneumatic control signals were converted to electronic/digital signals by using transducers. The control system is monitored and maintained by Energy for America. According to the Energy for America operation manual, the cooling season occupied temperature is typically set between 74°F and 78°F; while the unoccupied temperature is set at 85 °F. The heating season occupied temperature is typically set between 68°F and 72°F; while the unoccupied temperature is set at 55 °F. During the site visit, it was noted that the facility has not conducted compressed air surveys for a long time and a few air leaks were identified; therefore, it is recommended that the school convert the pneumatic devices to digital control devices to eliminate the air leaks as well as provide more accurate temperature control.

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

**ECM-2** Replace Pneumatic Control Devices with DDC Devices

	_							
Budgetary Cost		Annua	l Utility Savings		ROI	Potential	Payback (without	Payback (with
Cost	Е	lectricity	Natural Gas	ral Gas Total Incentive*	incentive)	incentive)		
\$	kW	kWh	Therms	\$		\$	Years	Years
214,799	0	10,342	555	2,387	(0.8)	0	90.0	90.0

<sup>\*</sup> Does not qualify for Incentive from the New Jersey SmartStart Program. See section 6.0 for other incentive opportunities

This measure is not recommended due to the long payback period.

#### 5.3 ECM-3 Install Window AC Controllers

There are about 30 window A/C units which on occasion, are left on by the occupants when they leave the room.

This ECM evaluates the installation of programmable "smart" timers that interrupt the electrical supply to the window air conditioners when the room is unoccupied. The timers are configurable to operate as a standalone timer or they can be wirelessly interconnected to provide remote temperature control using software.

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

ECM-3 Install Window A/C Units Controller

Budgetary Cost		Annua	l Utility Savings		ROI Potential Payback (without		,	Payback (with
Cost	E	ectricity	Natural Gas	Total		incentive"	incentive)	incentive)
\$	kW	kWh	Therms	\$		\$	Years	Years
6,200	0	9,838	0	1,850	3.5	0	3.4	3.4

<sup>\*</sup> Does not qualify for Incentive from the New Jersey SmartStart Program. See section 6.0 for other incentive opportunities

This measure is recommended.

## 5.4 ECM-4 Replace DHW Heater

This building has one A.O.Smith natural gas fired domestic hot water (DHW) heater which has a rated energy input of 420MBH and a 344.4 MH energy output; the unit also has a nameplate efficiency of 82%. The new high efficiency DHW heater in the market has efficiency up to 96%; therefore, it is suggested that this DHW heater be replaced by a condensing DHW heater. Energy savings could be realized by replacing the heater with one high efficiency condensing gas fired heater, which can operate at efficiencies up to 96% and have less standby energy loss from the storage tank.

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

ECM-4 Replace DHW Heater

	•								
Budgetary Cost		Annua	l Utility Savings		ROI Poten		Payback (without	Payback (with	
Cost	E	ectricity	Natural Gas	Total		Incentive*	incentive)	incentive)	
\$	kW	kWh	Therms	\$		\$	Years	Years	
15,287	0	0	729	582	(0.4)	600	26.3	25.2	

<sup>\*</sup> Incentive shown is per the New Jersey SmartStart Program. See section 6.0 for other incentive opportunities.

This measure is not recommended due to the long payback period.

#### 5.5 ECM-5 Install Control on the Walk-in Fridges and Freezers

The cafeteria kitchen contains walk-in cooler and walk-in freezer. These units do not have controls and run continuously throughout the day. Installing a CoolTrol® Cooler

Control System was assessed. The system will monitor both dry and wet-bulb temperature within the walk-ins and allow evaporators and compressors to modulate up and down based on enthalpy set-points rather than by the dry-bulb temperature alone. The savings are a result of reduced run time of evaporator fans, compressors and door heaters.

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

ECM-5 Install Control on the Walk-in Fridges and Freezers

Budgetary Cost		Annua	l Utility Savings		ROI Potential Incentive*	Payback (without	Payback (with	
Cost	E	ectricity	Natural Gas	Total		incentive"	incentive)	incentive)
\$	kW	kWh	Therms	\$		\$	Years	Years
20,625	0	6,225	0	1,170	0.1	0	17.6	17.6

<sup>\*</sup> Does not qualify for Incentive from the New Jersey SmartStart Program. See section 6.0 for other incentive opportunities

This measure is recommended.

#### 5.6.1 ECM-L1 Lighting Replacement / Upgrades

The existing lighting system consists of mostly 32 watt T8 linear fluorescent fixtures, which until recently represented the most efficient lighting technology available. Recent technological improvements in light emitting diode (LED) technologies have driven down the initial costs making it a viable option for installation.

Overall, energy consumption can be reduced by replacing inefficient bulbs and linear fluorescent bulbs with more efficient LED technology. To compute the annual savings for this ECM, the energy consumption of the current lighting fixtures was established and compared to the proposed fixture power requirement with the same annual hours of operation. The difference between the existing and proposed annual energy consumption is the energy savings. These calculations are based on 1 to 1 replacements of the fixtures, and does not take into account lumen output requirements for a given space. A more comprehensive engineering study should be performed to determine correct lighting levels.

Supporting calculations, including assumptions for lighting hours and annual energy usage for each fixture, are provided in Appendix C and summarized below:

**ECM-L1 Lighting Replacement / Upgrades** 

Budgetary Cost		Annual	Utility Savings		ROI	ROI Potential Incentive*	Payback (without	Payback (with
Cost	Ele	ctricity	Natural Gas	Total			incentive)	incentive)
\$	kW	kWh	Therms	\$		\$	Years	Years
231,423	49	175,788	0	33,048	1.1	6,025	7.0	6.8

<sup>\*</sup> LED new fixtures are still qualified for prescribed incentives, however, LED retrofits must go through the custom incentive which is not calculated in LGEA study therefore, the potential incentive shown in the table is the possible prescribed incentive.

This measure is not recommended in lieu of ECM L3.

## 5.6.2 ECM-L2 Install Lighting Controls (Occupancy Sensors)

Presently, the majority of the lighting in the building is controlled by manual switches. Review of the comprehensive lighting survey determined that lighting in some areas could benefit from installation of occupancy sensors to turn off lights when they are unoccupied.

This measure recommends installing occupancy sensors for the current lighting system. Using a process similar to that utilized in Section ECM-L1, the energy savings for this measure was calculated by applying the known fixture wattages in the space to the estimated existing and proposed times of operation for each fixture.

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

**ECM-L2 Install Lighting Controls (Occupancy Sensors)** 

Budgetary Cost		Annua	l Utility Savings		ROI	ROI Potential Incentive*	ROI Incentive* (without		Payback (with
Cost	El	ectricity	Natural Gas	Total			incentive)	incentive)	
\$	kW	kWh	Therms	\$		\$	Years	Years	
11,799	0	16,309	0	3,066	2.9	1,840	3.8	3.2	

<sup>\*</sup> Incentive shown is per the New Jersey SmartStart Program. See section 6.0 for other incentive opportunities.

This measure is not recommended in lieu of ECM L3.

## 5.6.3 ECM-L3 Lighting Replacements with Controls (Occupancy Sensors)

This measure is a combination of ECM-L1 and ECM-L2; recommending replace/upgrade the current lighting fixtures to more efficient ones and installing occupancy sensors on the new lights. Interactive effects of the higher efficiency lights and occupancy sensors lead the energy and cost savings for this measure to not be cumulative or equivalent to the sum of replacing the lighting fixtures alone and installing occupancy sensors without the lighting upgrades.

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

**ECM-L3 Lighting Replacements with Controls (Occupancy Sensors)** 

Budgetary Cost		Annual	Utility Savings		ROI	ROI Potential Incentive*	Payback (without	Payback (with
Cost	Ele	ectricity	Natural Gas	Total			incentive)	incentive)
\$	kW	kWh	Therms	\$		\$	Years	Years
243,222	49	183,089	0	34,421	1.1	7,865	7.1	6.8

<sup>\*</sup> LED new fixtures are still qualified for prescribed incentives, however, LED retrofits must go through the custom incentive which is not calculated in LGEA study therefore, the potential incentive shown in the table is the possible prescribed incentive.

This measure is recommended.

## 5.7 Additional O&M Opportunities

This list of operations and maintenance (O&M) type measures represent low-cost or no-cost opportunities, which if implemented will have a positive impact on the overall building operations, comfort and/or energy consumption. The recommended O&M measures for this building are as follows:

- Purchase ENERGY STAR® appliances when needed
- Cover window AC units during winter season

#### 6.0 PROJECT INCENTIVES

#### 6.1 Incentives Overview

The following sections give detailed information on available incentive programs including New Jersey Smart Start, Direct Install, New Jersey Pay for Performance (P4P) and Energy Savings Improvement Plan (ESIP). If the school district wishes to and is eligible to participate in the Energy Savings Improvement Plan (ESIP) program and/or the Pay for Performance Incentive Program (P4P), it cannot participate in either the Smart Start or Direct Install Programs. Refer to Appendix D for more information on the Smart Start program.

# 6.1.1 New Jersey Smart Start Program

For this energy audit, The New Jersey Smart Start Incentives are used in the energy savings calculations, where applicable. This program is intended for medium and large energy users and provides incentives for:

- Electric Chillers
- Gas Chillers
- Gas Heating
- Unitary HVAC
- Ground Source Heat Pumps
- Variable Frequency Drives/Motors
- Refrigeration
- Prescriptive and Performance Lighting and Lighting Controls

The equipment is procured using a typical bid-build method. It is then installed, paid for and then the incentives are reimbursed to the owner.

Refer to Appendix D for more information on the Smart Start program.

#### 6.1.2 Direct Install Program

The Direct Install Program applies to smaller facilities that have a peak electrical demand of 200 kW or less 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 utility companies.

Direct Install was 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, refrigeration, and other equipment upgrades with higher efficiency alternatives. If a building is eligible for this funding, the Direct Install Program can reduce the implementation cost of energy conservation projects.

The Direct Install program has specific HVAC equipment and lighting requirements and is generally applicable only to smaller package HVAC units, small boilers and lighting retrofits.

The program pays a maximum amount of \$75,000 per building, and up to \$250,000 per customer per year. Installations must be completed by an approved Direct Install participating contractor, a list of which can be found on the New Jersey Clean Energy Website. Contractors will coordinate with the applicant to arrange installation of recommended measures identified in a previous energy assessment, such as this energy audit. The incentive is reimbursed to the owner upon successful replacement and payment of the equipment.

The building does not qualify for this program because its electrical demand is more than the maximum peak electrical demand of 200 kW for the last 12 month period.

Refer to Appendix D for more information on this program.

## 6.1.3 New Jersey Pay For Performance Program (P4P)

This building may 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 to offset the cost of energy conservation projects for facilities that pay the Societal Benefits Charge (SBC) and whose demand (kW) in any of the preceding 12 months exceeds 100 kW. This demand minimum has been waived for buildings owned by local governments or municipalities and non-profit organizations and *is not applicable to public schools*. 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). Additionally, the overall return on investment (ROI) must exceed 10%. 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). The ERP must include a detailed energy audit of the desired ECMs, energy savings calculations (using building modeling software) and inputting of all utility bills into the EPA Portfolio Manager website.

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

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

The standard incentive pays \$0.10 per square foot, up to a maximum of \$50,000, not to exceed 50% of facility 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. The ERP must be completed by a Certified Energy Manager (CEM) and submitted along with the project application.

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.

Combining Incentives #2 and #3 will provide a total of \$0.18/kWh and \$1.8/therm not to exceed 50% of total project cost. Additional Incentives for #2 and #3 are increased by \$0.005/kWh and \$0.05/therm for each percentage increase above the 15% minimum target to 20%, calculated with the EPA Portfolio Manager benchmarking tool, not to exceed 50% of total project cost.

For the purpose of demonstrating the eligibility of the ECM's to meet the minimum savings requirement of 15% annual savings and 10% ROI for the Pay for Performance Program, all ECM's identified in this report have been included in the incentive calculations. The results for the building are shown in Appendix C, with more detailed program information in Appendix D.

#### 6.1.4 Energy Savings Improvement Plan

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" (ESO) to pay for the capital costs of energy improvements to their facilities. ESIP loans have a maximum loan term of 15 year. ESOs 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. 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. Refer to Appendix D for more information on this program

## 6.1.5 Renewable Energy Incentive Program

The Renewable Energy Incentive Program (REIP) is part of New Jersey's efforts to reach its Energy Master Plan goals of striving to use 30 percent of electricity from renewable sources by 2020.

Incentives for sustainable bio-power projects and for energy storage projects are currently under development, with competitive solicitations for each of those technologies expected to begin in the first quarter of 2014. The wind program is currently on hold.

New solar projects are no longer eligible for REIP incentives, but can register for Solar Renewable Energy Certificates (SRECs) through the SREC Registration Program (SRP).

#### 7.0 ALTERNATIVE ENERGY SCREENING EVALUATION

#### 7.1 Solar

## 7.1.1 Photovoltaic Rooftop Solar Power Generation

The school district has solar photovoltaic (PV) panels study done on the school district buildings. This building has a mixture of pitched roof and small portion flat roof which was determined to be not suitable for installing PV solar panels. Therefore, no rooftop solar PV system is included.

#### 7.1.2 Solar Thermal Hot Water Generation

Active solar thermal systems use solar collectors to gather the sun's energy to heat a fluid. An absorber in the collector (usually black colored piping) converts the sun's energy into heat. The heat is transferred to circulating water, antifreeze, or air for immediate use or is storage for later utilization. Applications for active solar thermal energy include supplementing domestic hot water, heating swimming pools, space heating or 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 at the same angle as the site's latitude, to maximize the amount of solar radiation collected on a yearly basis.

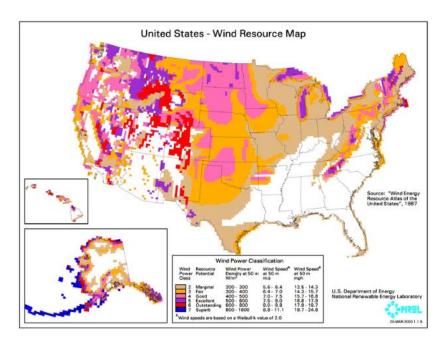
Several options exist for using active solar thermal systems for space heating. The most common method is called a passive solar hot water system involves using glazed collectors to heat a liquid held in a storage tank (similar to an active solar hot water system described above which requires pumping). The most practical system would transfer the heat from the panels to thermal storage tanks and then use the pre-heated water for domestic hot water production. DHW is presently produced by natural gas fired water heaters and, therefore, this measure would offer natural gas utility savings. Unfortunately, the amount of domestic hot water that is currently used by this school is very small. Installing a solar domestic hot water system is not recommended due to the limited amount of domestic hot water presently consumed by the school.

This measure is not recommended due to the relatively low domestic hot water usage.

### 7.2 Wind Powered Turbines

Wind power is the conversion of kinetic energy from wind into mechanical power that is used to drive a generator which creates electricity by means of a wind turbine. A wind turbine consists of rotor and blades connected to a gearbox and generator that are mounted onto a tower. Newer wind turbines also use advanced technology to generate electricity at a variety of frequencies depending on the wind speed, convert it to DC and then back to AC before sending it to the grid. Wind turbines range from 50 – 750 kW for utility scale turbines down to below 50 kW for residential use. On a scale of 1 (the

lowest) to 7 (the highest), Class 3 and above (wind speeds of 13 mph or greater) are generally considered "good wind resource" according to the Wind Energy Development Programmatic EIS Information Center hosted by the Bureau of Land Management. According to the map below, published by NREL, Newark, NJ is classified as Class 1 at 50m, meaning the city would not be a good candidate for wind power.



This measure is not recommended due to the location of the school.

#### 7.3 Combined Heat and Power Plant

Combined heat and power (CHP), cogeneration, is self-production of electricity on-site with beneficial recovery of the heat byproduct from the electrical generator. Common CHP equipment includes reciprocating engine-driven, micro turbines, steam turbines, and fuel cells. Typical CHP customers include industrial, commercial, institutional, educational institutions, and multifamily residential facilities. CHP systems that are commercially viable at the present time are sized approximately 50 kW and above, with numerous options in blocks grouped around 300 kW, 800 kW, 1,200 kW and larger. Typically, CHP systems are used to produce a portion of the electricity needed by a facility some or all of the time, with the balance of electric needs satisfied by purchase from the grid.

Any proposed CHP project will need to consider many factors, such as existing system load, use of thermal energy produced, system size, natural gas fuel availability, and proposed plant location. The building has sufficient need for electrical generation and the ability to use most of the thermal byproduct during the winter; however thermal usage during the summer months does not exist. Thermal energy produced by the CHP plant in the warmer months will be wasted. An absorption chiller could be installed to utilize the heat to produce chilled water; however, there is no chilled water distribution system in

the building. CHP is not recommended due to the building's limited summer thermal demand.

This measure is not recommended due to the absence of year-round thermal loads which are needed for efficiency CHP operation. However, a mini-size CHP could be an option for the school to consider. The sizing and energy savings of the mini-size CHP require further study.

## 7.4 Demand Response Curtailment

Presently, electricity is delivered by PSE&G, which receives the electricity from regional power grid RFC. PSE&G is the regional transmission organization (RTO) that coordinates the movement of wholesale electricity in all or parts of 13 states and the District of Columbia including the State of New Jersey.

Utility Curtailment is an agreement with the utility provider's regional transmission organization and an approved Curtailment Service Provider (CSP) to shed electrical load by either turning major equipment off or energizing all or part of a facility utilizing an emergency generator; therefore, reducing the electrical demand on the utility grid. This program is to benefit the utility company during high demand periods and utility provider offers incentives to the CSP to participate in this program. Enrolling in the program will require program participants to drop electrical load or turn on emergency generators during high electrical demand conditions or during emergencies. Part of the program also will require that program participants reduce their required load or run emergency generators with notice to test the system.

A pre-approved CSP will require a minimum of 100 kW of load reduction to participate in any curtailment program. From January 2013 through June 2014 the following table summarizes the electricity load profile for the building.

## **Building Electric Load Profile**

			Onsite	
Peak Demand	Min Demand	Avg Demand	Generation	Eligible?
kW	kW	kW	Y/N	Y/N
346.8	236.4	269.3	N	Υ

<sup>\*</sup>the demand is estimated from one month bill

This measure is not recommended due to the lack of enough onsite generation.

#### 8.0 CONCLUSIONS & RECOMMENDATIONS

The following section summarizes the LGEA energy audit conducted by CHA for the G Washington Middle School.

The following projects should be considered for implementation:

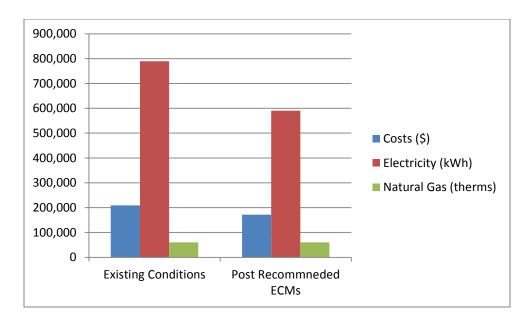
- Install Window AC Controllers
- Boiler Replacement
- Walk-in Cooler & Freezer EC Motor Retrofits
- Lighting Replacements / Upgrades

The potential annual energy and cost savings for the recommended ECMs are shown in the following table.

Electric Savings (kWh)	Natural Gas Savings (therms)	Total Savings (\$)	Payback (years)
199,153	5,485	\$41,817	11.6

If the school implements the recommended ECMs, energy savings would be as follows:

	Existing Conditions	Post Recommended ECMs	Percent Savings
Costs (\$)	209,139	167,322	20%
Electricity (kWh)	789,291	590,138	25%
Natural Gas (therms)	60,533	55,048	9%
Site EUI (kbtu/SF/Yr)	69.1	59.4	



Next Steps: This energy audit has identified several areas of potential energy savings. Ridgewood Board Of Education can use this information to pursue incentives offered by the NJBPU's NJ Clean Energy Program. Additional meetings will be scheduled with school staff members to review possible options.



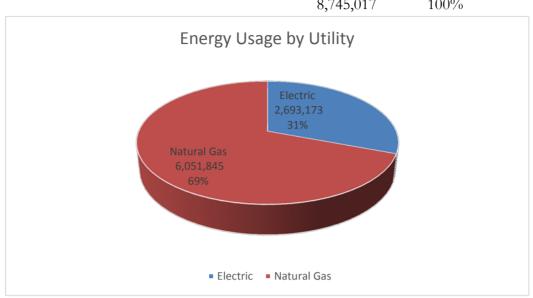
# Ridgewood BOE NJBPU LGEA George Washington Middle School 155 Washington Pl. Ridgewood, NJ

## **Annual Utilities**

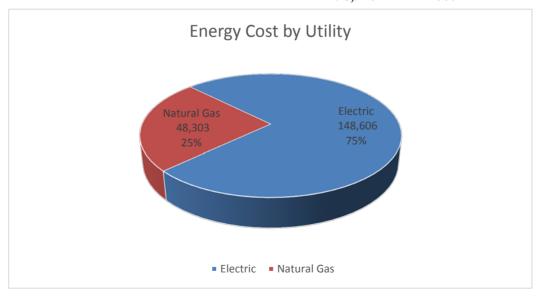
12-month Summary

Electric				
Annual Usage	789,291	kWh/yr		
Annual Cost	148,606	\$		
Blended Rate	0.188	\$/kWh		
Peak Demand	346.8	kW		
Min. Demand	236.4	kW		
Avg. Demand	269.3	kW		
Natural Gas				
Annual Usage	60,533	Therms/yr		
Annual Cost	48,303	\$		
Rate	0.798	\$/therm		
Water				
Annual Usage	1,354,000	Gallon		
Annual Cost	7,329	\$		
Rate	0.005	\$/Gallon		
Energy Summary				
Building Area	126,527	SF		
Energy Usage Intensity (EUI)	69	KBtu/SF/yr		
Energy Cost Index (ECI)	1.61	\$/SF/yr		
Total Annual Utility Costs	204,239	\$		

Utility	KBtu	0/0
Electric	2,693,173	31%
Natural Gas	6,051,845	69%
	8,745,017	100%



Utility	\$	%
Electric	148,606	75%
Natural Gas	48,303	25%
	196,910	100%



Ridgewood BOE NJBPU LGEA George Washington Middle School 155 Washington Pl. Ridgewood, NJ

**Electric Service** 

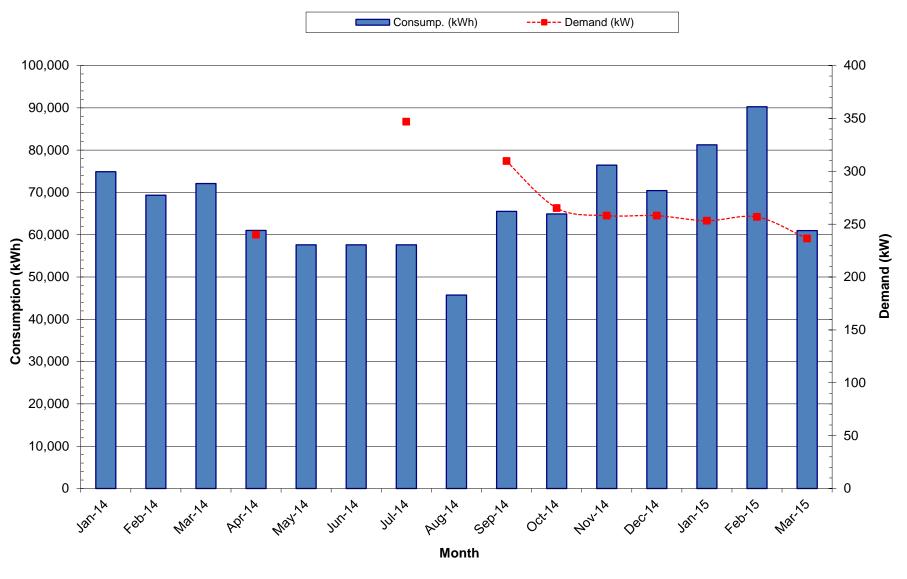
For Service at: 155 Washington Pl. Ridgewood, NJ

Delivery: PSE&G Account No.: Meter No.: Supply: Energy Direct

_			Р	rovider Charge	s	Usage (kWh) vs. Dem	and (kW) Charges			Unit Costs		
	Consump.	Demand	Delivery	Supplier	Total	Consumption	Demand	Delivery	Supplier	Consumption Rate	Demand	Blended Rate
Month	(kWh)	(kW)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$/kWh)	(\$/kWh)	(\$/kWh)	(\$/kW)	(\$/kWh)
January-14	74,876		12,142.50		12,142.50	12142.50		0.162	0.000	0.162	#DIV/0!	0.162
February-14	69,330		11,243.05		11,243.05	11243.05		0.162	0.000	0.162	#DIV/0!	0.162
March-14	72,103		11,692.77		11,692.77	11692.77		0.162	0.000	0.162	#DIV/0!	0.162
April-14	61,011	240.00	9,893.89		9,893.89	9893.89		0.162	0.000	0.162	0.000	0.162
May-14	57,600		14,039.38		14,039.38	14039.38		0.244	0.000	0.244	#DIV/0!	0.244
June-14	57,600		14,039.38		14,039.38	14039.38		0.244	0.000	0.244	#DIV/0!	0.244
July-14	57,600	346.80	14,039.38		14,039.38	14039.38		0.244	0.000	0.244	0.000	0.244
August-14	45,720		12,767.19		12,767.19	12767.19		0.279	0.000	0.279	#DIV/0!	0.279
September-14	65,520	309.60	11,809.94		11,809.94	11809.94		0.180	0.000	0.180	0.000	0.180
October-14	64,920	265.20	11,233.77		11,233.77	11233.77		0.173	0.000	0.173	0.000	0.173
November-14	76,440	258.00	12,132.72		12,132.72	12132.72		0.159	0.000	0.159	0.000	0.159
December-14	70,440	258.00	11,508.81		11,508.81	11508.81		0.163	0.000	0.163	0.000	0.163
January-15	81,240	253.20	12,261.00		12,261.00	12261.00		0.151	0.000	0.151	0.000	0.151
February-15	90,240	256.80	13,499.00		13,499.00	13499.00		0.15	0.00	0.15	0.00	0.15
March-15	60,960	236.40	11,382.00		11,382.00	11382.00		0.187	0.000	0.187	0.000	0.187
Total (All)	###########	346.80	\$183,684.78	\$0.00	\$183,684.78	\$183,684.78	\$0.00	\$0.18	\$0.00	\$0.18	\$0.00	\$0.18
Total (last 12-months)	789,291	346.80	\$148,606.46	\$0.00	\$148,606.46	\$148,606.46	\$0.00	\$0.19	\$0.00	\$0.19	\$0.00	\$0.19
Notes	1	2	3	4	5			6	7			8

- 1.) Number of kWh of electric energy used per month
- 2.) Number of kW of power measured
- 3.) Electric charges from Delivery provider
- 4.) Electric charges from Supply provider note, includes 8.875% tax
  5.) Total charges (Delivery + Supplier)
  6.) Delivery Charges (\$) / Consumption (kWh)
  7.) Supplier Charges (\$) / Consumption (kWh)
  8.) Total Charges (\$) / Consumption (kWh)

# **George Washington Middle School - Electric Usage**



Ridgewood BOE NJBPU LGEA George Washington Middle School 155 Washington Pl. Ridgewood, NJ

**Natural Gas Service** 

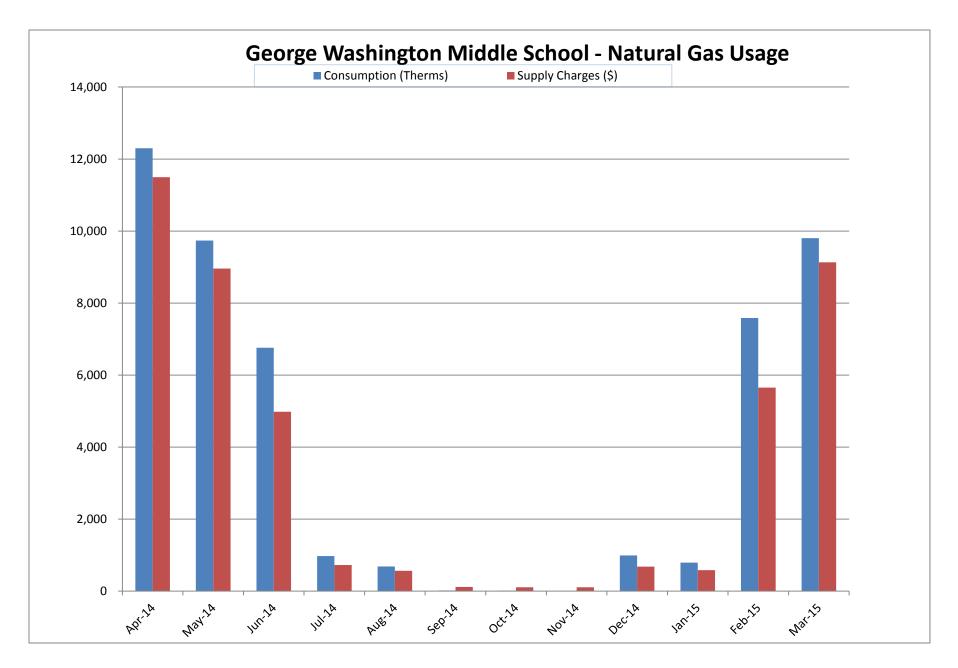
For Service at: 155 Washington Pl. Ridgewood, NJ

Account No.: 0
Meter No:

**Delivery: PSE&G** 

Supply: Direct Energy/South Jersey Energy/PSE&G

Month	Consumption (Therms)	Delivery Charges (\$)	Supply Charges (\$)	Total Charges (\$)	Rate (\$/Therm)
January-14	12,300.37	11,497.05		11,497.05	0.93
February-14	9,736.24	8,958.11		8,958.11	0.92
March-14	6,761.00	4,981.82		4,981.82	0.74
April-14	974.25	727.27		727.27	0.75
May-14	685.00	566.20		566.20	0.83
June-14	18.00	115.80		115.80	6.43
July-14	16.00	109.47		109.47	6.84
August-14	6.44	107.04		107.04	16.62
September-14	990.19	679.52		679.52	0.69
October-14	791.83	581.05		581.05	0.73
November-14	7,586.00	5,653.75		5,653.75	0.75
December-14	9,801.19	9,133.03		9,133.03	0.93
January-15	14,155.00	11,990.00		11,990.00	0.85
February-15	18,178.00	14,510.00		14,510.00	0.80
March-15	7,331.00	4,130.00		4,130.00	0.56
Total (12 Months)	60,533	\$ 48,303.13	\$ 48,303.13	\$ 48,303.13	\$ 0.80



#### Ridgewood BOE NJBPU LGEA George Washington Middle School 155 Washington Pl. Ridgewood, NJ

For Service at: Account No.: Meter No.:

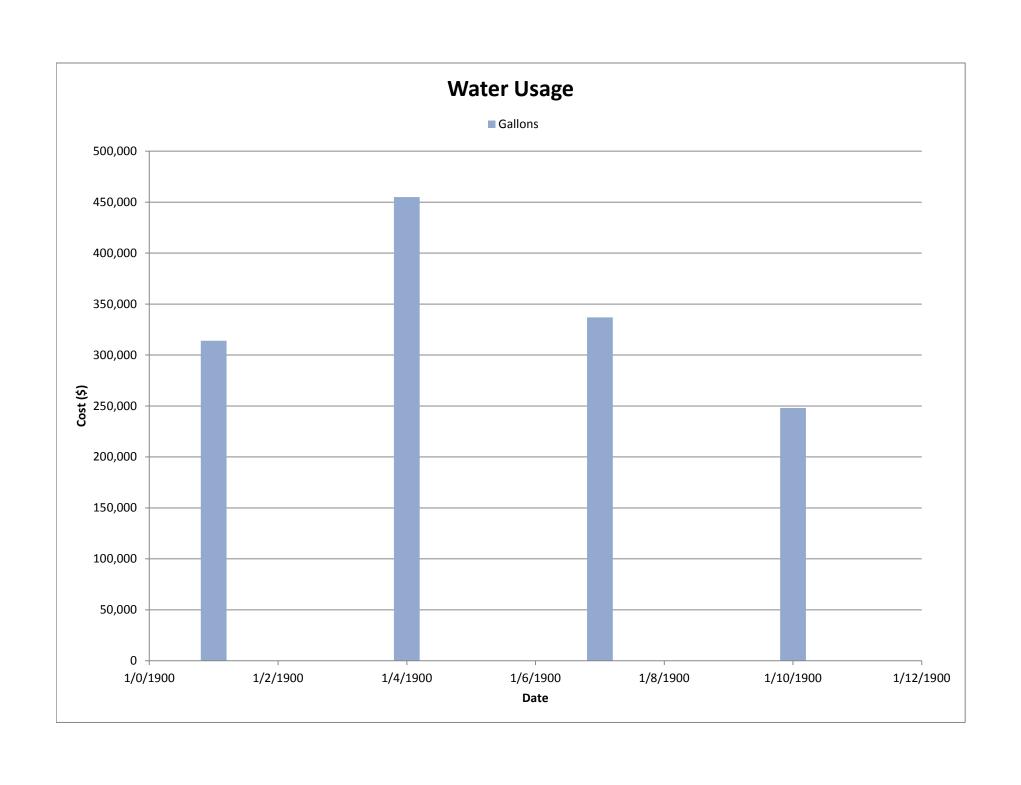
Water & Sewer Service

Delivery -

**Ridgewood Water** 

Supplier -

Month	,	Total (\$)	Gallons	ç	\$/Gallon
March-14	\$	1,706.60	314,000	\$	0.01
June-14	\$	2,320.99	455,000	\$	0.01
September-14	\$	1,904.47	337,000	\$	0.01
December-14	\$	1,397.06	248,000	\$	0.01
Total	\$	7,329.12	1,354,000	\$	0.01



## PSE&G ELECTRIC SERVICE TERRITORY Last Updated: 12/11/14

# $*\underline{CUSTOMER\ CLASS} - R - RESIDENTIAL\ C - COMMERCIAL\ I - INDUSTRIAL$

Supplier	Telephone	*Customer
Supplier	& Web Site	Class
Abest Power & Gas of NJ,	(888)987-6937	R/C/I
LLC	(000)/201 0321	14 0/1
202 Smith Street		
Perth Amboy, NJ 08861	www.AbestPower.com	ACTIVE
AEP Energy, Inc. f/k/a	(866) 258-3782	R/C/I
BlueStar Energy Services		
309 Fellowship Road, Fl. 2	www.aepenergy.com	ACTIVE
Mount Laurel, NJ 08054		
Alpha Gas and Electric,	(855) 553-6374	R/C
LLC		
641 5 <sup>th</sup> Street	www.alphagasandelectric.com	ACTIVE
Lakewood, NJ 08701		
Ambit Northeast, LLC d/b/a	877-282-6284	R/C
Ambit Energy		
103 Carnegie Center Suite 300		ACTIVE
Princeton, NJ 08540	www.ambitenergy.com	ACTIVE
American Powernet	(877) 977-2636	C/I
Management, LP	(877) 977-2030	C/1
437 North Grove St.	www.americanpowernet.com	
Berlin, NJ 08009	www.americanpowernec.com	ACTIVE
Amerigreen Energy, Inc.	888-559-4567	R/C
333Sylvan Avenue		
Englewood Cliffs, NJ 07632	www.amerigreen.com	ACTIVE
AP Gas & Electric, (NJ)	(855) 544-4895	R/C/I
LLC		
10 North Park Place, Suite 420	www.apgellc.com	ACTIVE
Morristown, NJ 07960		
Astral Energy LLC	(888)850-1872	R/C/I
16 Tyson Place		
Bergenfield, NJ 07621	www.AstralEnergyLLC.com	ACTIVE
Barclays Capital Services,	(800) 526-7000	C
Inc.		
70 Hudson Street	, ,	ACTIVE
Jersey City, NJ 07302-4585	www.barclays.com	
BBPC, LLC d/b/a Great	(888) 651-4121	C
Eastern Energy		

www.greateasternenergy.com  (610) 255-5070  www.berkshireenergypartners.com  (800) 451-6356  www.bluepilotenergy.com  (201)706-8101	ACTIVE  C/I  ACTIVE  R/C  ACTIVE  C/I
(610) 255-5070  www.berkshireenergypartners.com (800) 451-6356  www.bluepilotenergy.com	ACTIVE  R/C  ACTIVE
www.berkshireenergypartners.com (800) 451-6356  www.bluepilotenergy.com	ACTIVE  R/C  ACTIVE
(800) 451-6356  www.bluepilotenergy.com	R/C ACTIVE
(800) 451-6356  www.bluepilotenergy.com	R/C ACTIVE
(800) 451-6356  www.bluepilotenergy.com	ACTIVE
(800) 451-6356  www.bluepilotenergy.com	ACTIVE
www.bluepilotenergy.com	ACTIVE
	1
	1
	C/I
( - )	
www.standardalternative.com	ACTIVE
(877) 933-2453	R/C
	ACTIVE
(888) 653-0093	R/C/I
	ACTIVE
www.championenergyservices.com	ACTIVE
	R/C
(888) 303-4490	II N/C
www.4choiceenergy.com	ACTIVE
	D/C/T
	R/C/I
	ACTIVE
www.cicarviewenergy.com	ACTIVE
1-866-587-8674	R/C
	A CONTRACT
<u> </u>	ACTIVE
(866)946-3123	R/C/I
www.communityenergying.com	ACTIVE
	1
(000) 003-0933	C/I
	ACTIVE
www.conedsolutions.com	
	(877) 933-2453  www.cleancurrents.com (888) 653-0093  www.championenergyservices.com (888) 565-4490  www.4choiceenergy.com  (888) CLR-VIEW (800) 746- 4702  www.clearviewenergy.com  1-866-587-8674  www.commerceenergy.com (866)946-3123  www.communityenergyinc.com (888) 665-0955

ConocoPhillips Company	(800) 646-4427	C/I
224 Strawbridge Drive	(600) 616 1127	
Suite 107		ACTIVE
Moorestown, NJ 08057	www.conocophillips.com	
Constellation NewEnergy,	(888) 635-0827	R/C/I
Inc.	(000) 033 0021	N/C/1
900A Lake Street, Suite 2	www.constellation.com	ACTIVE
Ramsey, NJ 07446	www.constenation.com	11011,2
Constellation Energy	(877) 997-9995	R
900A Lake Street, Suite 2	(811) 331-3333	I A
Ramsey, NJ 07446	www.constellation.com	ACTIVE
Ramsey, NJ 07440	www.constenation.com	ACTIVE
Credit Suisse, (USA) Inc.	(212) 538-3124	C
700 College Road East		
Princeton, NJ 08450	www.creditsuisse.com	ACTIVE
Direct Energy Business, LLC	(888) 925-9115	R
120 Wood Avenue, Suite 611		
Iselin, NJ 08830	http://www.business.directenergy.com/	ACTIVE
Direct Energy Business	(800) 437-7872	C/I
Marketing, LLC (fka Hess	(800) 437-7872	C/1
Energy Marketing)		
1 Hess Plaza		
Woodbridge, NJ 07095	http://www.business.directenergy.com/	ACTIVE
Direct Energy Services, LLC	(888) 925-9115	R
120 Wood Avenue, Suite 611	(000) 723-7113	ı K
Iselin, NJ 08830	www.directenergy.com	ACTIVE
,		
Direct Energy Small	(888) 464-4377	C/I
Business, LLC (fka Hess		
Small Business Services,		
LLC) One Hess Plaza		
	http://www.business.directenergy.com/	ACTIVE
Woodbridge, NJ 07095		
Discount Energy Group,	(800) 282-3331	R/C
LLC		
811 Church Road, Suite 149		ACCIDITATE
Cherry Hill, New Jersey	www.diacountonanaranananananana	ACTIVE
08002	www.discountenergygroup.com	
DTE Energy Supply, Inc.	(877) 332-2450	C/I
One Gateway Center,		A COUNTY
Suite 2600	1, 1	ACTIVE
Newark, NJ 07102	www.dtesupply.com	

Energy.me Midwest LLC	(855) 243-7270	R/C/I
90 Washington Blvd	, , ,	
Bedminster, NJ 07921	www.energy.me	ACTIVE
Energy Plus Holdings LLC	(877) 866-9193	R/C
309 Fellowship Road		
East Gate Center, Suite 200		A CURINUE
Mt. Laurel, NJ 08054	www.energypluscompany.com	ACTIVE
Ethical Electric Benefit Co.	(888) 444-9452	R/C
d/b/a Ethical Electric		
100 Overlook Center, 2 <sup>nd</sup> Fl. Princeton, NJ 08540	www.ethicalelectric.com	ACTIVE
		R/C
Energy Service Providers, Inc., d/b/a New Jersey Gas &	(866) 568-0290	R/C
Electric		
1 Bridge Plaza fl. 2		
Fort Lee, NJ 07024	www.njgande.com	ACTIVE
FirstEnergy Solutions	(866) 625-7318	C/I
150 West State Street	_	
Trenton, NJ 08608	www.fes.com	ACTIVE
Gateway Energy Services	(866)348-4193	R/C
Corp.		
120 Wood Avenue Suite 611 Iselin, NJ 08830	www.directenergybusiness.com	ACTIVE
GDF SUEZ Energy	(866) 999-8374	C/I
<b>Resources NA, Inc.</b> 333 Thornall Street		
Sixth Floor		
Edison, NJ 08837	www.gdfsuezenergyresources.com	ACTIVE
GDF Suez Retail Energy	1-866-252-0078	R/C/I
Solutions LLC d/b/a THINK		
ENERGY		
333 Thornall St. Sixth Floor	www.mythinkenergy.com	ACTIVE
Edison, NJ 08819	(000) 455 5 155	
Glacial Energy of New	(888) 452-2425	C/I
Jersey, Inc. 21 Pine Street, Suite 237		
Rockaway, NJ 07866	www.glacialenergy.com	ACTIVE
•		
Global Energy Marketing LLC	(800) 542-0778	R/C/I
129 Wentz Avenue		ACTIVE
Springfield, NJ 07081	www.globalp.com	
<u>.</u> .	<u> </u>	

Green Mountain Energy	(866) 767-5818	C/I
Company 211 Carnegie Center Drive	www.greenmountain.com/commercial-	
Princeton, NJ 08540	home	ACTIVE
Harborside Energy LLC	(877) 940-3835	R/C
101 Hudson Street	(011) 540 3033	II.
Suite 2100		
Jersey City, NJ 07302	www.harborsideenergynj.com	ACTIVE
Hess Corporation	(800) 437-7872	C/I
1 Hess Plaza Woodbridge, NJ 07095	www.hess.com	ACTIVE
HIKO Energy, LLC	(888) 264-4908	R/C/I
655 Suffern Road Teaneck, NJ 07666	www.hikoenergy.com	ACTIVE
Hudson Energy Services, LLC	(877) Hudson 9	C
7 Cedar Street		
Ramsey, New Jersey 07446	www.hudsonenergyservices.com	ACTIVE
IDT Energy, Inc.	(877) 887-6866	R/C
550 Broad Street		A CONT. 15
Newark, NJ 07102	www.idtenergy.com	ACTIVE
Independence Energy	(877) 235-6708	R/C
Group, LLC 211 Carnegie Center		ACTIVE
Princeton, NJ 08540	www.chooseindependence.com	ACTIVE
Inspire Energy Holdings	(866) 403-2620	R/C/I
LLC	(000) 100 2020	14 6/1
923 Haddonfield Road		
3rd Fl. Building B2	www.inspireenergy.com	
Cherry Hill, NJ 08002	(800) 536-0151	C/I
Integrys Energy Services, Inc.	(000) 330-0131	C/I
33 Wood Ave, South, Suite		
610		ACTIVE
Iselin, NJ 08830	www.integrysenergy.com	
<b>Jsynergy, LLC</b> 445 Central Ave. Suite 204	(516) 331-2020	R/C/I
Cedarhurst, NY 11516	Jsynergyllc.com	ACTIVE
Kuehne Chemical Company,	(973) 589-0700	I
Inc.	(575) 507 0700	
86 North Hackensack Avenue		
South Kearney, NJ 07032	kuehnechemical@comcast.net	

Liberty Power Delaware,	(866) 769-3799	C/I
LLC 1973 Highway 34, Suite 211 Wall, NJ 07719	www.libertypowercorp.com	ACTIVE
Liberty Power Holdings,	(866) 769-3799	R/C/I
LLC 1973 Highway 34, Suite 211 Wall, NJ 07719	www.libertypowercorp.com	ACTIVE
Linde Energy Services	(800) 247-2644	C/I
575 Mountain Avenue Murray Hill, NJ 07974	www.linde.com	ACTIVE
Marathon Power LLC	( 888) 779-7255	R/C/I
302 Main Street Paterson, NJ 07505	www.mecny.com	ACTIVE
MP2 Energy NJ, LLC	(877) 238-5343	R/C/I
111 River Street, Suite 1204 Hoboken, NJ 07030	www.mp2energy.com	ACTIVE
Natures Current, LLC	(215) 464-6000	R/C/I
95 Fairmount Avenue Philadelphia, Pennsylvania		ACTIVE
19123	www.naturescurrent.com	
MPower Energy NJ LLC	(877) 286-7693	R/C/I
One University Plaza, Suite 507 Hackensack, NJ 07601	www.mpowerenergy.com	ACTIVE
NATGASCO, Inc. (Supreme	(800) 840-4427	R/C/I
Energy, Inc.) 532 Freeman St. Orange, NJ 07050	www.supremeenergyinc.com	ACTIVE
New Jersey Gas & Electric	(866) 568-0290	R/C/
10 North Park Place Suite 420		A COPY II
Morristown, NJ 07960	www.njgande.com	ACTIVE
NextEra Energy Services New Jersey, LLC 651 Jernee Mill Road	(877) 528-2890 Commercial (800) 882-1276 Residential	R/C/I
Sayreville, NJ 08872	www.nexteraenergyservices.com	ACTIVE
Noble Americas Energy	(877) 273-6772	C/I
Solutions The Mac-Cali Building 581 Main Street, 8th Floor Woodbridge, NJ 07095	www.noblesolutions.com	ACTIVE

Nordic Energy Services,	(877) 808-1027	R/C/I
LLC 50 Tice Boulevard, Suite 340	www.nordiceenergy.us.com	ACTIVE
Woodcliff Lake, NJ 07677	(999) 212 0096	D/C/I
North American Power and Gas, LLC	(888) 313-9086	R/C/I
222 Ridgedale Avenue		
Cedar Knolls, NJ 07927	www.napower.com	ACTIVE
North Eastern States, Inc.	(888) 535-6340	R/C/I
d/b/a Entrust Energy		
90 Washington Valley Road Bedminster, NJ 07921	www.entrustenergy.com	ACTIVE
,		
Oasis Power, LLC d/b/a Oasis Energy	(800)324-3046	R/C
11152 Westheimer, Suite 901		ACTIVE
Houston, TX 77042	www.oasisenergy.com	
Palmco Power NJ, LLC	(877) 726-5862	R/C/I
One Greentree Centre		
10,000 Lincoln Drive East, Suite 201		
Marlton, NJ 08053	www.PalmcoEnergy.com	ACTIVE
Park Power, LLC	(856) 778-0079	R/C/I
1200 South Church St.	, ,	
Suite 23		A COMPANY
Mount Laurel, NJ 08054	www.parkpower.com	ACTIVE
Plymouth Rock Energy, LLC	(855) 32-POWER (76937)	R/C/I
338 Maitland Avenue	www.plymouthenergy.com	ACTIVE
Teaneck, NJ 07666		
Power Management Co.,	(585) 249-1360	C/I
LLC b/b/a PMC Lightsavers		
Limited Liability Company 1600 Moseley Road		
Victor, NY 14564	www.powermanagementco.com	ACTIVE
PPL Energy Plus, LLC	(800) 281-2000	C/I
811 Church Road	www.pplanamavalva.aam	A CONTRACT
Cherry Hill, NJ 08002	www.pplenergyplus.com	ACTIVE
PPL EnergyPlus Retail, LLC 788 Shrewsbury Avenue, Suite	(732) 741-0505 – 2000	C/I
220		ACTIVE
Tinton Falls, NJ 07724	www.pplenergyplus.com	
Progressive Energy	(917) 837-7400	R/C/I
Consulting, LLC		

PO Box 4582	Progressivenrg@optionline.net	ACTIVE
Wayne, New Jersey 07474  Prospect Resources, Inc.	(847) 673-1959	С
208 W. State Street	(0.1.) 0.10 0.50	
Trenton, NJ 08608-1002	www.prospectresources.com	ACTIVE
Public Power & Utility of	(888) 354-4415	R/C/I
New Jersey, LLC		
One International Blvd, Suite 400	www.ppandu.com	ACTIVE
Mahwah, NJ 07495	www.ppandu.com	ACTIVE
Reliant Energy	(877) 297-3795	R/C/I
211 Carnegie Center	(877) 297-3780	
Princeton, NJ 08540	www.reliant.com	ACTIVE
ResCom Energy LLC	(888) 238-4041	R/C/I
18C Wave Crest Ave.		
Winfield Park, NJ 07036	http://rescomenergy.com	ACTIVE
Residents Energy, LLC	(888) 828-7374	R/C
550 Broad Street		
Newark, NJ 07102	www.residentsenergy.com	
Respond Power LLC	(877) 973-7763	R/C/I
1001 East Lawn Drive		
Teaneck, NJ 07666	www.majorenergy.com	ACTIVE
Save on Energy, LLC	1 (877)-658-3183	R/C
1101 Red Ventures Drive		
Fort Mill, SC 29707	www.saveonenergy.com	
SFE Energy	1 (877) 316-6344	R/C/I
One Gateway Center		
Suite 2600	www.sfeenergy.com	ACTIVE
Newark, NJ 07012  S.J. Energy Partners, Inc.	(200) 505 0556	C
208 White Horse Pike, Suite 4	(800) 695-0666	
Barrington, NJ 08007	www.sjnaturalgas.com	ACTIVE
SmartEnergy Holdings, LLC	(800) 443-4440	R/C/I
100 Overlook Center	(555) 1.5	
2nd Floor		
Princeton, NJ NJ 08540		
United States of America	www.smartenergy.com	ACTIVE
South Jersey Energy	(800) 266-6020	R/C/I
Company 1 South Jersey Plaza, Route 54		ACTIVE
Folsom, NJ 08037	www.southjerseyenergy.com	ACIIVE
1 015011, 1 15 0000 /	www.soddijotseyenergy.com	

Spark Energy Gas, LP/ Spark Energy	(713)600-2600	R/C/I
2105 City West Blvd.		
Suite 100		
Houston, TX 77042	www.sparkenergy.com	ACTIVE
Sperian Energy Corp.	(888) 682-8082	R/C/I
1200 Route 22 East, Suite		A CURINA
2000 Bridgewater, NJ 08807	www.sperianenergy.com	ACTIVE
Starion Energy PA Inc.	(800) 600-3040	R/C/I
101 Warburton Avenue	(600) 600-3040	K/C/I
Hawthorne, NJ 07506	www.starionenergy.com	ACTIVE
Stream Energy New Jersey, LLC	(877) 369-8150	R/C
309 Fellowship Rd., Suite 200	www.streamenergy.net	ACTIVE
Mt. Laurel, NJ 08054		11011
Summit Energy Services,	1 (800) 90-SUMMIT	C/I
Inc.		
10350 Ormsby Park Place		
Suite 400 Louisville, KY 40223	www.summitenergy.com	ACTIVE
Texas Retail Energy LLC	(866) 532-0761	C/I
Park 80 West Plaza II, Suite	(800) 332-0701	C/1
200		
Saddle Brook, NJ 07663		ACTIVE
Attn: Chris Hendrix	Texasretailenergy.com	
TransCanada Power	(877) MEGAWAT	C/I
Marketing Ltd.		
190 Middlesex Essex Turnpike, Suite 200		
Iselin, NJ 08830	www.transcanada.com/powermarketing	ACTIVE
TriEagle Energy, LP	(877) 933-2453	R/C/I
90 Washington Valley Rd		
Bedminster, NJ 07921	www.trieagleenergy.com	ACTIVE
UGI Energy Services, Inc.	(800) 427-8545	C/I
dba UGI Energy Link		
224 Strawbridge Drive Suite 107		
Moorestown, NJ 08057	www.ugienergylink.com	ACTIVE
Verde Energy USA, Inc.	(800) 388-3862	R/C
2001 Route 46	(223,230 5002	
Waterview Plaza Suite 301		
Parsippany, NJ 07054	www.lowcostpower.com	ACTIVE

Viridian Energy	(866) 663-2508	R/C/I
2001 Route 46, Waterview		
Plaza		
Suite 310		
Parsippany, NJ 07054	www.viridian.com	ACTIVE
XOOM Energy New Jersey,	(888) 997-8979	R/C/I
LLC		
744 Broad Street. 16 <sup>th</sup> Floor		
Newark, NJ 07102	www.xoomenergy.com	ACTIVE
YEP Energy	(855) 363-7736	R/C/I
89 Headquarters Plaza North		
#1463		
Morristown, NJ 07960	www.yepenergyNJ.com	ACTIVE
Your Energy Holdings, LLC	(855) 732-2493	R/C/I
One International Boulevard		
Suite 400		
Mahwah, NJ 07495-0400	www.thisisyourenergy.com	ACTIVE

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# PSE&G GAS SERVICE TERRITORY Last Updated: 12/11/14

## $*\underline{CUSTOMER\ CLASS} - R - RESIDENTIAL\ C - COMMERCIAL\ I - INDUSTRIAL$

Supplier	Telephone & Web Site	*Customer Class
Ambit Northeast, LLC d/b/a Ambit Energy 103 Carnegie Center Suite 300	877-282-6284	R/C ACTIVE
Princeton, NJ 08540	www.ambitenergy.com	
Amerigreen Energy, Inc. 333 Sylvan Avenue Suite 206 Englewood Cliffs, NJ 07632	(888)559-4567 www.amerigreen.com	R/C/I ACTIVE
,	888-850-1872	R/C/I
Astral Energy LLC 16 Tyson Place Bergenfield, NJ 07621	www.AstralEnergyLLC.com	ACTIVE
BBPC, LLC Great Eastern	888-651-4121	С
Energy 116 Village Blvd. Suite 200 Princeton, NJ 08540	www.greateasternenergy.com	ACTIVE
Choice Energy, LLC 4257 US Highway 9, Suite 6C Freehold, NJ 07728	(888) 565-4490	R/C/I
	www.4choiceenergy.com	
Clearview Electric Inc. d/b/a Clearview Gas 1744 Lexington Ave.	800-746-4720	R/C
Pennsauken, NJ 08110	www.clearviewenergy.com	ACTIVE
Colonial Energy, Inc. 83 Harding Road	845-429-3229	C/I
Wyckoff, NJ 07481	www.colonialgroupinc.com	ACTIVE
Commerce Energy, Inc. 7 Cedar Terrace	888 817-8572	R
Ramsey, NJ 07746	www.commerceenergy.com	ACTIVE
Compass Energy Services, Inc. 33 Wood Avenue South, 610	866-867-8328	C/I
Iselin, NJ 08830	www.compassenergy.net	ACTIVE

Compass Energy Gas Services,	866-867-8328	C/I
LLC	800-807-8328	C/I
33 Wood Avenue South		
Suite 610	vvvvv oomnossononov not	ACTIVE
	www.compassenergy.net	ACTIVE
Iselin, NJ 08830		
ConocoPhillips Company	800-646-4427	C/I
224 Strawbridge Drive, Suite		
107	www.conocophillips.com	ACTIVE
Moorestown, NJ 08057		
Consolidated Edison Energy,	888-686-1383 x2130	
Inc.		
d/b/a Con Edison Solutions		
535 State Highway 38, Suite	www.conedenergy.com	
140		
Cherry Hill, NJ 08002		
Consolidated Edison	888-665-0955	C/I
	000-003-0733	C/I
Solutions, Inc.		
Cherry Tree Corporate Center	1.1.2	ACTIVE
535 State Highway 38, Suite	www.conedsolutions.com	
140		
Cherry Hill, NJ 08002		
Constellation NewEnergy-Gas	800-785-4373	C/I
Division, LLC		
116 Village Boulevard, Suite		
200	www.constellation.com	ACTIVE
Princeton, NJ 08540		
Constellation Energy Gas	800-785-4373	R/C/I
Choice, Inc.		
116 Village Blvd., Suite 200	www.constellation.com	ACTIVE
Princeton, NJ 08540		
Direct Energy Business, LLC	888-925-9115	R
120 Wood Avenue, Suite 611		
Iselin, NJ 08830	http://www.business.directenergy.com/	ACTIVE
Direct Energy Business	(800) 437-7872	C/I
Marketing, LLC (fka Hess	(000) +31-1012	C/1
Energy Marketing)		
One Hess Plaza		
	http://www.business directonersy.com/	ACTIVE
Woodbridge, NJ 07095	http://www.business.directenergy.com/	
Direct Energy Services, LLC	(888) 925-9115	R
120 Wood Avenue, Suite 611		
Iselin, NJ 08830	www.directenergy.com	ACTIVE

Direct Energy Small Business, LLC (fka Hess Small Business Services, LLC) One Hess Plaza	(888) 464-4377	С/І
Woodbridge, NJ 07095	http://www.business.directenergy.com/	ACTIVE
Gateway Energy Services	(866) 348-4193	R/C
Corp. 120 Wood Avenue Suite 611 Iselin, NJ 08830	www.gesc.com	ACTIVE
Glacial Energy of New Jersey,	888-452-2425	C/I
Inc. 21 Pine Street, Suite 237 Rockaway, NJ 07866	www.glacialenergy.com	ACTIVE
Global Energy Marketing,	800-542-0778	C/I
LLC 129 Wentz Avenue Springfield, NJ 07081	www.globalp.com	ACTIVE
Great Eastern Energy	888-651-4121	C/I
116 Village Blvd., Suite 200 Princeton, NJ 08540	www.greateastern.com	ACTIVE
Greenlight Energy	718-204-7467	C
330 Hudson Street, Suite 4 Hoboken, NJ 07030	www.greenlightenergy.us	ACTIVE
Harborside Energy LLC	877-940-3835	R/C
101 Hudson Street, Suite 2100 Jersey City, NJ 07302	www.harborsideenergynj.com	ACTIVE
Hess Energy, Inc.	800-437-7872	C/I
One Hess Plaza Woodbridge, NJ 07095	www.hess.com	ACTIVE
HIKO Energy, LLC	888 264-4908	R/C/I
655 Suffern Road Teaneck, NJ 07666	www.hikoenergy.com	ACTIVE
<b>Hudson Energy Services, LLC</b>	877- Hudson 9	C
7 Cedar Street Ramsey, NJ 07446	www.hudsonenergyservices.com	ACTIVE
IDT Energy, Inc.	877-887-6866	R/C
550 Broad Street Newark, NJ 07102	www.idtenergy.com	ACTIVE

Infinite Engage dhe Intelligent	(800) 927-9794	R/C/I
Infinite Energy dba Intelligent	(800) 921-9794	R/C/I
Energy 1200 Route 22 East Suite 2000		
	InCinitaFarana	A COTING
Bridgewater, NJ 08807-2943	www.InfiniteEnergy.com	ACTIVE
Integrys Energy Services-	(800) 536-0151	C/I
Natural Gas, LLC		
101 Eisenhower Parkway		
Suite 300	www.integrysenergy.com	ACTIVE
Roseland, NJ 07068		
Jsynergy LLC	(516) 331-2020	R/C/I
445 Cental Ave. Suite 204	(610) 661 2020	
Cedarhurst, NY 11516	www.Jsnergyllc.com	ACTIVE
Major Energy Services, LLC	888-625-6760	R/C/I
1001 East Lawn Drive		. ~
Teaneck NJ 07666	www.majorenergy.com	ACTIVE
Manadhan Danna II C	888-779-7255	D/C/I
Marathon Power LLC	888-119-1255	R/C/I
302 Main Street		A COUNTY
Paterson, NJ 07505	<u>www.mecny.com</u>	ACTIVE
Metromedia Energy, Inc.	1-877-750-7046	C/I
6 Industrial Way		
Eatontown, NJ 07724	www.metromediaenergy.com	ACTIVE
,		
Metro Energy Group, LLC	888-53-Metro	R/C
14 Washington Place		
Hackensack, NJ 07601	www.metroenergy.com	ACTIVE
MPower Energy NJ LLC	877-286-7693	R/C/I
	877-280-7093	IN/C/I
One University Plaza, Suite 507		ACTIVE
Hackensack, NJ 07601	www.mpowerenergy.com	ACTIVE
NATGASCO (Supreme	800-840-4427	R/C/I
Energy, Inc.)		
532 Freeman Street		
Orange, NJ 07050	www.supremeenergyinc.com	ACTIVE
New Energy Services LLC	800-660-3643	R/C/I
101 Neptune Avenue	000 000-30+3	1001
Deal, New Jersey 07723	www.newenergyservicesllc.com	ACTIVE
Deal, New Jersey 07723	www.newenergyservicesne.com	ACTIVE
New Jersey Gas & Electric	866-568-0290	R/C
10 North Park Place		
Suite 420		
Morristown, NJ 07960	www.njgande.com	ACTIVE

Noble Americas Energy	877-273-6772	C/I		
Solutions	011-213-0112	C/1		
The Mac-Cali Building				
581 Main Street, 8th fl.	www.noblesolutions.com	ACTIVE		
Woodbridge, NJ 07095				
North American Power &	888- 313-8086	R/C/I		
Gas, LLC d/b/a North				
American Power				
197 Route 18 South Ste. 300	www.napower.com	ACTIVE		
New Brunswick, NJ 08816				
,	(999) 525 6240	R/C/I		
North Eastern States, Inc.	(888) 535-6340	R/C/I		
d/b/a Entrust Energy				
90 Washington Valley Road		A COPYLIE		
Bedminster, NJ 07921	www.entrustenergy.com	ACTIVE		
Oasis Power, LLC d/b/a Oasis	(800)324-3046	R/C		
Energy				
11152 Westheimer, Suite 901	www.oasisenergy.com	ACTIVE		
Houston, TX 77042				
Palmco Energy NJ, LLC	877-726-5862	R/C/I		
One Greentree Centre	377 720 3002	1001		
10,000 Lincoln Drive East, Suite				
201	www.PalmcoEnergy.com	ACTIVE		
Marlton, NJ 08053	www.ranneoEnergy.com	ACTIVE		
·	055 22 POWED (5005)	D/C/T		
Plymouth Rock Energy, LLC	855-32-POWER (76937)	R/C/I		
338 Maitland Avenue				
Teaneck, NJ 07666	www.plymouthenergy.com	ACTIVE		
PPL EnergyPlus, LLC	(732) 741-0505	C/I		
Shrewsbury Executive Offices	(.52)			
788 Shrewsbury Avenue				
Suite 2200				
Tinton Falls, NJ 07724	www.pplenergyplus.com	ACTIVE		
,				
PPL EnergyPlus Retail, LLC	(732) 741-0505 – 2000	C/I		
Shrewsbury Executive Offices				
788 Shrewsbury Avenue, Suite				
	www.pplenergyplus.com	ACTIVE		
Tinton Falls, NJ 07724				
Public Power & Utility of New	(888) 354-4415	R/C/I		
Jersey, LLC				
400	www.ppandu.com	ACTIVE		
		<del>-</del>		
220 Tinton Falls, NJ 07724  Public Power & Utility of New Jersey, LLC One International Blvd, Suite	www.pplenergyplus.com (888) 354-4415  www.ppandu.com			

Residents Energy, LLC 550 Broad Street	(888) 828-7374	R/C
Newark, NJ 07102	www.residentsenergy.com	
Respond Power LLC 1001 East Lawn Drive	(877) 973-7763	R/C/I
Teaneck, NJ 07666	www.respondpower.com	ACTIVE
Save on Energy, LLC 1101 Red Ventures Drive	1 (877) 658-3183	R/C
Fort Mill, SC 29707	www.saveonenergy.com	ACTIVE
SFE Energy	1 (877) 316-6344	R/C/I
One Gateway Center Suite 2600 Newark, NJ 07012	www.sfeenergy.com	ACTIVE
S.J. Energy Partners, Inc.	(800) 695-0666	С
208 White Horse Pike, Suite 4 Barrington, NJ 08007	www.sjnaturalgas.com	ACTIVE
South Jersey Energy	800-266-6020	R/C/I
Company 1 South Jersey Plaza, Route 54 Folsom, NJ 08037	www.southjerseyenergy.com	ACTIVE
SouthStar Energy d/b/a New	(866) 477-8823	R/C
Jersey Energy 1085 Morris Avenue, Suite 155 Union, NJ 07083	www.newjerseyenergy.com	ACTIVE
Spark Energy Gas, LP/ Spark	(713)600-2600	R/C/I
Energy 2105 City West Blvd. Suite 100		
Houston, TX 77042	www.sparkenergy.com	ACTIVE
Sperian Energy Corp. Bridgewater Center	888-682-8082	R/C/I
1200 Route 22 East Bridgewater, NJ 08807	www.sperianenergy.com	ACTIVE
Sprague Energy Corp.	855-466-2842	C/I
12 Ridge Road Chatham Township, NJ 07928	www.spragueenergy.com	ACTIVE
Stuyvesant Energy LLC	800-640-6457	C
10 West Ivy Lane, Suite 4 Englewood, NJ 07631	www.stuyfuel.com	ACTIVE

Stream Energy New Jersey,	(877) 369-8150	R/C
LLC		
309 Fellowship Road		
Suite 200		
Mt. Laurel, NJ 08054	<u>www.streamenergy.net</u>	ACTIVE
Summit Energy Services, Inc.	1 (800) 90-SUMMIT	C/I
10350 Ormsby Park Place		
Suite 400 Louisville, KY 40223	www.summitenergy.com	ACTIVE
,	077 707 0707	D/C/I
Systrum Energy	877-797-8786	R/C/I
1 Bergen Blvd. Fairview, NJ 07022	www.systrumenergy.com	ACTIVE
Tiger Natural Gas, Inc. dba	888-875-6122	R/C/I
Tiger, Inc. 234 20th Avenue		
Brick, NJ 008724	www.tigernaturalgas.com	ACTIVE
UGI Energy Services, Inc.	800-427-8545	C/I
dba UGI Energy Link	800-427-8343	C/1
224 Strawbridge Drive, Suite	www.ugienergylink.com	ACTIVE
107	www.agienergymik.com	1101112
Moorestown, NJ 08057		
UGI Energy Services, Inc.	856-273-9995	C/I
d/b/a GASMARK		
224 Strawbridge Drive, Suite		
107	www.ugienergylink.com	ACTIVE
II.		1101112
Moorestown, NJ 08057		1101112
Verde Energy USA, Inc.	800-388-3862	R/C
Verde Energy USA, Inc. 2001 Route 46		
Verde Energy USA, Inc. 2001 Route 46 Waterview Plaza, Suite 301	800-388-3862	R/C
Verde Energy USA, Inc. 2001 Route 46 Waterview Plaza, Suite 301 Parsippany, NJ 07054	800-388-3862 www.lowcostpower.com	R/C ACTIVE
Verde Energy USA, Inc. 2001 Route 46 Waterview Plaza, Suite 301 Parsippany, NJ 07054 Viridian Energy PA LLC	800-388-3862	R/C
Verde Energy USA, Inc. 2001 Route 46 Waterview Plaza, Suite 301 Parsippany, NJ 07054 Viridian Energy PA LLC 2001 Route 46, Waterview	800-388-3862 www.lowcostpower.com	R/C ACTIVE
Verde Energy USA, Inc. 2001 Route 46 Waterview Plaza, Suite 301 Parsippany, NJ 07054 Viridian Energy PA LLC 2001 Route 46, Waterview Plaza Suite 230	800-388-3862 www.lowcostpower.com 866-663-2508	R/C ACTIVE R/C
Verde Energy USA, Inc. 2001 Route 46 Waterview Plaza, Suite 301 Parsippany, NJ 07054 Viridian Energy PA LLC 2001 Route 46, Waterview Plaza Suite 230 Parsippany, NJ 07054	800-388-3862  www.lowcostpower.com  866-663-2508  www.viridian.com	R/C ACTIVE R/C ACTIVE
Verde Energy USA, Inc. 2001 Route 46 Waterview Plaza, Suite 301 Parsippany, NJ 07054 Viridian Energy PA LLC 2001 Route 46, Waterview Plaza Suite 230 Parsippany, NJ 07054 Vista Energy Marketing, L.P.	800-388-3862 www.lowcostpower.com 866-663-2508	R/C ACTIVE R/C
Verde Energy USA, Inc. 2001 Route 46 Waterview Plaza, Suite 301 Parsippany, NJ 07054 Viridian Energy PA LLC 2001 Route 46, Waterview Plaza Suite 230 Parsippany, NJ 07054 Vista Energy Marketing, L.P. 197 State Route 18 South, Suite	800-388-3862  www.lowcostpower.com  866-663-2508  www.viridian.com	R/C ACTIVE R/C ACTIVE
Verde Energy USA, Inc. 2001 Route 46 Waterview Plaza, Suite 301 Parsippany, NJ 07054 Viridian Energy PA LLC 2001 Route 46, Waterview Plaza Suite 230 Parsippany, NJ 07054 Vista Energy Marketing, L.P. 197 State Route 18 South, Suite 3000	800-388-3862  www.lowcostpower.com  866-663-2508  www.viridian.com	R/C ACTIVE R/C ACTIVE
Verde Energy USA, Inc. 2001 Route 46 Waterview Plaza, Suite 301 Parsippany, NJ 07054  Viridian Energy PA LLC 2001 Route 46, Waterview Plaza Suite 230 Parsippany, NJ 07054  Vista Energy Marketing, L.P. 197 State Route 18 South, Suite 3000 South Wing	800-388-3862  www.lowcostpower.com  866-663-2508  www.viridian.com  888-508-4782	R/C ACTIVE R/C ACTIVE R/C/I
Verde Energy USA, Inc. 2001 Route 46 Waterview Plaza, Suite 301 Parsippany, NJ 07054  Viridian Energy PA LLC 2001 Route 46, Waterview Plaza Suite 230 Parsippany, NJ 07054  Vista Energy Marketing, L.P. 197 State Route 18 South, Suite 3000 South Wing East Brunswick, NJ 08816	800-388-3862   www.lowcostpower.com   866-663-2508   www.viridian.com   888-508-4782   www.vistaenergymarketing.com	R/C ACTIVE R/C ACTIVE ACTIVE ACTIVE
Verde Energy USA, Inc. 2001 Route 46 Waterview Plaza, Suite 301 Parsippany, NJ 07054  Viridian Energy PA LLC 2001 Route 46, Waterview Plaza Suite 230 Parsippany, NJ 07054  Vista Energy Marketing, L.P. 197 State Route 18 South, Suite 3000 South Wing East Brunswick, NJ 08816  Woodruff Energy	800-388-3862  www.lowcostpower.com  866-663-2508  www.viridian.com  888-508-4782	R/C ACTIVE R/C ACTIVE R/C/I
Verde Energy USA, Inc. 2001 Route 46 Waterview Plaza, Suite 301 Parsippany, NJ 07054 Viridian Energy PA LLC 2001 Route 46, Waterview Plaza Suite 230 Parsippany, NJ 07054 Vista Energy Marketing, L.P. 197 State Route 18 South, Suite 3000 South Wing East Brunswick, NJ 08816	800-388-3862   www.lowcostpower.com   866-663-2508   www.viridian.com   888-508-4782   www.vistaenergymarketing.com	R/C ACTIVE R/C ACTIVE ACTIVE ACTIVE

Woodruff Energy US LLC 73 Water Street, P.O. Box 777 Bridgeton, NJ 08302	856-455-1111 800-557-1121 www.woodruffenergy.com	C/I ACTIVE
XOOM Energy New Jersey, LLC 744 Broad Street. 16th Floor Newark, NJ 07102	888-997-8979  www.xoomenergy.com	R/C/I ACTIVE
Your Energy Holdings, LLC One International Boulevard Suite 400 Mahwah, NJ 07495-0400	855-732-2493  www.thisisyourenergy.com	R/C/I ACTIVE

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Description	QTY	Manufacturer Name	Model No.	Serial No.	Equipment Type / Utility	Capacity/Size /Efficiency	Efficiency	Location	Areas/Equipment Served	Date Installed	Remaining Useful Life (years)	Other Info.
Boiler	2	Cleaver Brooks	CB 7000	1591349	Steam Boiler	4,184 MBH energy Input	~80% Efficiency	Basement Mechanical Room	Entire Building	1992	2	
DHW Heater	1	A O Smith	HW 420 932	932 G99 52207	Natural Gas DHW heater	420MBH energy input and 344.4 MBH energy input	82% efficiency	Basement Mechanical Room	Entire Building	1999	9	
RTU-Old Gym	1	AOON	RN-016-8-0-0000-3C9	201111-BNGM19534	RTU equipped with Cooling and Heating	16 ton cooling capacity and 540 MBH energy input, 432 MBH energy output	EER of 12 and heating efficiency of 80%	Roof	Old Gym	2011	21	
RTU-Library/Classrooms	1	AOON	RN-016-8-0-EA09-389	2011111-BNGM19533	RTU equipped with Cooling and Heating	16 ton cooling capacity and 405 MBH energy input, 328.1 MBH energy output	EER of 12 and heating efficiency of 80%	Roof	Library	2011	16	
RTU-/Classrooms	1	AOON	RN-015-8-0-EA09-3G9	2011111-BNGM19480	RTU equipped with Cooling and Heating	15 ton cooling capacity and 292.5 MBH energy input, 234 MBH energy output	EER of 12 and heating efficiency of 80%	Roof	Classrooms in the New Section	2011	16	
RTU-Music Room/Auditorium	1	AOON	Not visible due to the location of the nameplate	Not visible due to the location of the nameplate	RTU equipped with Cooling and Heating	Estimated 9 ton cooling capacity and 195MBH energy input, 156 MBH energy output based on facility staff	EER of 12 and heating efficiency of 80%	Roof	Music Room/Auditorium	2011	34	
RTU-Music Room/Auditorium	1	AOON	Not visible due to the location of the nameplate	Not visible due to the location of the nameplate	RTU equipped with Cooling and Heating	Estimated 11 ton cooling capacity and 292.5 MBH energy input, 234 MBH energy output based on facility staff	EER of 12 and heating efficiency of 80%	Roof	Music Room/Auditorium	2011	34	
RTU-Café and Kitchen	1	AOON	RN-009	2011111-BNGM19481	RTU equipped with Cooling and Heating	9 ton cooling capacity and 195MBH energy input, 156 MBH energy output	EER of 12 and heating efficiency of 80%	Roof	Café and Kitchen	2011	34	
RTU-Café and Kitchen	1	AOON	RN-011	2011111-BNGM19482	RTU equipped with Cooling and Heating	11 ton cooling capacity and 292.5 MBH energy input, 234 MBH energy output	EER of 12 and heating efficiency of 80%	Roof	Café and Kitchen	2011	34	
RTU- New Gym	1	AOON	Not visible due to the location of the nameplate	Not visible due to the location of the nameplate	RTU equipped with Cooling and Heating	Estimated 20 ton cooling capacity and 540 MBH energy input, 432 MBH energy output	EER of 12 and heating efficiency of 80%	Roof	New Gym	2011	38	



ECM-L1 Lighting Replacements

-	Tem 1: Lighting Replacements									
ſ	Budgetary		Annual Ut	ility Savings		Estimated	Total	New Jersey	Payback	Payback
ſ									(without	
L	Cost					Maintenance	Savings	Incentive	incentive)	(with incentive)
ſ						Savings				
ſ	\$	kW	kWh	therms	\$	\$	\$	\$	Years	Years
I	\$231,423	48.63	175,788	0	\$33,048	0	\$33,048	\$6,025	7.0	6.8

<sup>\*</sup>Incentive based on New Jersey Smart Start Prescriptive Lighting Measures

ECM-L2 Install Occupancy Sensors

L	Budgetary		Annual Ut	ility Savings		Estimated	Total	New Jersey	Payback	Payback
									(without	
L	Cost					Maintenance	Savings	Incentive	incentive)	(with incentive)
						Savings				
ſ	\$	kW	kWh	therms	\$	\$	\$	\$	Years	Years
	\$11,799	0.0	16,309	0	\$3,066	0	\$3,066	\$1,840	3.8	3.2

<sup>\*</sup>Incentive based on New Jersey Smart Start Prescriptive Lighting Measures

ECM-L3 Lighting Replacements with Occupancy Sensors

Budgetary		Annual Ut	ility Savings		Estimated	Total	New Jersey	Payback	Payback
								(without	
Cost					Maintenance	Savings	Incentive	incentive)	(with incentive)
					Savings				
\$	kW	kWh	therms	\$	\$	\$	\$	Years	Years
\$243,222	48.6	183,089	0	\$34,421	0	\$34,420	\$7,865	7.1	6.8

<sup>\*</sup>Incentive based on New Jersey Smart Start Prescriptive Lighting Measures

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Cost of Electricity:

\$0.188 \$/kWh \$/kW

					EXISTING COND	ITIONS						
			No. of		EXISTING COND	Watts per					Retrofit	
	Area Description	Usage	Fixtures	Standard Fixture Code	Fixture Code	Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Control	
Field	Unique description of the location - Room number/Room	Describe Usage Type	No. of	Lighting Fixture Code	Code from Table of Standard Fixture	The second secon	(Watts/Fixt) * (Fixt	Pre-inst. control	Estimated	(kW/space) *	Retrofit control	Notes
Code	name: Floor number (if applicable)	using Operating Hours	fixtures		Wattages	Table of Standard	No.)	device	annual hours for	,	device	
			before the retrofit			Standard Fixture			the usage group			
			retront			Wattages						
46LED	Basement - Room 117 - Fitness Area	Gymnasium	34	W 32 P F 2 (ELE)	F42ILL	59	2.01	SW	3570	7,161		
46LED	Room 116	Classrooms	12	W 32 P F 2 (ELE)	F42ILL F42ILL	59	0.71	SW	2856	2,022		
46LED 35LED	Room 115 Room 118	Classrooms Classrooms	14	W 32 P F 2 (ELE) T 32 R F 3 (ELE)	F42ILL F43ILL/2	59 90	0.83 0.27	SW SW	2856 2856	2,359 771		
35LED	Room 119	Classrooms	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.54	SW	2856	1,542		
35LED	Room 124	Classrooms	10	T 32 R F 3 (ELE)	F43ILL/2	90	0.90	SW	2856	2,570		
35LED	Room 123	Classrooms	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.36	SW	2856	1,028		
35LED	Room 122	Classrooms	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.54	SW	2856	1,542		
46LED	Room 125 - Cafeteria	Cafeteria	70	W 32 P F 2 (ELE)	F42ILL	59	4.13	SW	1785	7,372		
46LED	Room 126 - Kitchen	Kitchen	22	W 32 P F 2 (ELE)	F42ILL	59	1.30	SW	2856	3,707		
234 46LED	Room 127 - Boiler Room Room 101	Boiler Room Classrooms	5	R 75 C I 1 W 32 P F 2 (ELE)	i75/1 F42ILL	75 59	0.38 0.35	SW SW	3825 2856	1,434 1,011		
46LED	Room 102	Classrooms	6	W 32 P F 2 (ELE)	F42ILL F42ILL	59	0.35	SW	2856	1,011		
46LED	Room 103	Classrooms	18	W 32 P F 2 (ELE)	F42ILL	59	1.06	SW	2856	3,033		
T5	Room 103	Classrooms	2	F42GHL	F42GHL	117	0.23	SW	2856	668		
46LED	Room 104	Classrooms	18	W 32 P F 2 (ELE)	F42ILL	59	1.06	SW	2856	3,033		
46LED	Toilet	Restrooms	3	W 32 P F 2 (ELE)	F42ILL	59	0.18	SW	2142	379		
46LED	Toilet	Restrooms	3	W 32 P F 2 (ELE)	F42ILL	59	0.18	SW	2142	379		
196LED	Room 105	Classrooms Storage Areas	3	W 32 C F 4 (ELE)	F44ILL	112	0.34	SW	2856	960		
32LED 25	Storage Storage	Storage Areas Storage Areas	1 1	1T 32 R F 2 (ELE) R 13 C CF 2 (ELE)	F42LL CFQ13/2-L	60 28	0.06	SW SW	2856 2856	171 80		
46LED	Office	Offices	3	W 32 P F 2 (ELE)	F42ILL	59	0.03	SW	3213	569		
46LED	Room 111 - Science	Classrooms	21	W 32 P F 2 (ELE)	F42ILL	59	1.24	SW	2856	3,539		
46LED	Room 112 - Art	Classrooms	42	W 32 P F 2 (ELE)	F42ILL	59	2.48	SW	2856	7,077		
35LED	Room 112E	Classrooms	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.45	SW	2856	1,285	OCC	
35LED	Room 112?	Classrooms	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.27	SW	2856	771		
20LED	Room 113	Classrooms	2	S 28 P F 1 (ELE)	F41ILL	31	0.06	SW	2856	177		
196LED	Room 114 Room 114	Classrooms Classrooms	20	W 32 C F 4 (ELE) W 32 C F 4 (ELE)	F44ILL F44ILL	112	2.24	SW	2856	6,397		
196LED	Hallways	Hallways	13 30	W 32 C F 4 (ELE)	F44ILL F44ILL	112 112	1.46 3.36	SW SW	2856 8568	4,158 28,788		
252	1st Floor - Gymnasium	Gymnasium	30	T 54 W F 6 (ELE) (T-5)	F44ILL F46GHL	351	10.53	SW	3570	37.592		
46LED	Storage	Storage Areas	6	W 32 P F 2 (ELE)	F42ILL	59	0.35	SW	2856	1,011		
46LED	Boys Locker Room	Locker	24	W 32 P F 2 (ELE)	F42ILL	59	1.42	SW	2142	3,033		
46LED	Girls Locker Room	Locker	24	W 32 P F 2 (ELE)	F42ILL	59	1.42	SW	2142	3,033		
5LED	Toilet	Restrooms	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.06	SW	2142	129		
5LED	Toilet	Restrooms	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.06	SW	2142	129		
T5 25	Media Center Media Center	Media Center Media Center	30	R 13 C CF 2 (ELE)	F42GHL CFQ13/2-L	117 28	0.94 0.84	SW SW	3825 3825	3,580 3,213		
146LED	Media Center	Media Center	18	High Bay MH 400	MH400/1	458	8.24	SW	3825	31,533		
32LED	Media Center	Media Center	2	1T 32 R F 2 (ELE)	F42LL	60	0.12	SW	3825	459		
46LED	Computer Lab	Media Center	14	W 32 P F 2 (ELE)	F42ILL	59	0.83	SW	3825	3,159		
46LED	Vocal Room	Classrooms	16	W 32 P F 2 (ELE)	F42ILL	59	0.94	SW	2856	2,696	OCC	
46LED	Room 225	Classrooms	18	W 32 P F 2 (ELE)	F42ILL	59	1.06	SW	2856	3,033		
46LED	Room 224	Classrooms	18	W 32 P F 2 (ELE)	F42ILL	59	1.06	SW	2856	3,033		
46LED	Room 223 Gymnasium	Classrooms Gymnasium	18	W 32 P F 2 (ELE)	F42ILL MH400/1	59	1.06	SW	2856	3,033		
146LED 5LED	Gymnasium Gymnasium	Gymnasium	6	High Bay MH 400 2T 32 R F 2 (u) (ELE)	MH400/1 FU2LL	458 60	0.92 0.36	SW SW	3570 3570	3,270 1,285		
20LED	Hallways	Hallways	7	S 28 P F 1 (ELE)	FOZEE F41ILL	31	0.30	SW	8568	1,859		
25	Hallways	Hallways	9	R 13 C CF 2 (ELE)	CFQ13/2-L	28	0.25	SW	8568	2,159		
32LED	Hallways	Hallways	2	1T 32 R F 2 (ELE)	F42LL	60	0.12	SW	8568	1,028		
46LED	Hallways	Hallways	30	W 32 P F 2 (ELE)	F42ILL	59	1.77	SW	8568	15,165		
25	Lobby	General Common	7	R 13 C CF 2 (ELE)	CFQ13/2-L	28	0.20	SW	2856	560		
46LED	Room 227	Classrooms	18	W 32 P F 2 (ELE)	F42ILL	59	1.06	SW	2856	3,033		
46LED 46LED	Room 230 - Music Room Room 228	Classrooms Classrooms	24	W 32 P F 2 (ELE) W 32 P F 2 (ELE)	F42ILL F42ILL	59 59	1.42 0.12	SW SW	2856 2856	4,044 337		
46LED 46LED	Room 228 Room 233	Classrooms	24	W 32 P F 2 (ELE)	F42ILL F42ILL	59	1.42	SW	2856	4,044		
46LED	Auditorium	Auditorium	8	W 32 F F 2 (ELE)	F42ILL F42ILL	59	0.47	SW	3825	1,805		
234	Auditorium	Auditorium	7	R 75 C I 1	i75/1	75	0.53	SW	3825	2,008		
75	Auditorium	Auditorium	48	B 32 W F 1 (MAG)	F41LL	32	1.54	SW	3825	5,875	OCC	
46LED	Room 201	Classrooms	18	W 32 P F 2 (ELE)	F42ILL	59	1.06	SW	2856	3,033		
46LED	Room 202	Classrooms	18	W 32 P F 2 (ELE)	F42ILL	59	1.06	SW	2856	3,033		
196LED	Room 203	Classrooms	6	W 32 C F 4 (ELE)	F44ILL	112	0.67	SW	2856	1,919		
35LED	Room 203	Classrooms	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.09	SW	2856	257		
35LED 35LED	Toilet Toilet	Restrooms Restrooms	3	T 32 R F 3 (ELE) T 32 R F 3 (ELE)	F43ILL/2 F43ILL/2	90 90	0.27 0.27	SW SW	2142 2142	578 578		
196LED	209 A & B	Classrooms	8	W 32 C F 4 (ELE)	F43ILL/2 F44ILL	112	0.27	SW	2856	2,559		
196LED	Room 210	Classrooms	2	W 32 C F 4 (ELE)	F44ILL	112	0.90	SW	2856	2,539		
46LED	Room 210	Classrooms	8	W 32 P F 2 (ELE)	F42ILL	59	0.47	SW	2856	1,348		
46LED	Room 211	Classrooms	10	W 32 P F 2 (ELE)	F42ILL	59	0.59	SW	2856	1,685		
196LED	Room 212	Classrooms	12	W 32 C F 4 (ELE)	F44ILL	112	1.34	SW	2856	3,838	OCC	
234	Room 212	Classrooms	4	R 75 C I 1	i75/1	75	0.30	SW	2856	857		
46LED	Room 214 Toilet	Classrooms	18	W 32 P F 2 (ELE)	F42ILL	59	1.06	SW	2856	3,033		
46LED		Restrooms	3	W 32 P F 2 (ELE)	F42ILL	59	0.18	SW	2142	379	OCC	

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Cost of Electricity:

\$0.188 \$/kWh \$/kW

Field											Retrofit	
Field			No. of			Watts per					Control	
Field	Area Description	Usage	Fixtures	Standard Fixture Code	Fixture Code	Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh		
	Unique description of the location - Room number/Room	Describe Usage Type	No. of	Lighting Fixture Code	Code from Table of Standard Fixture		(Watts/Fixt) * (Fixt	Pre-inst. control	Estimated	(kW/space) *	Retrofit control	Notes
Code	name: Floor number (if applicable)	using Operating Hours	fixtures		Wattages	Table of	No.)	device		(Annual Hours)	device	
			before the			Standard			the usage group			
			retrofit			Fixture						
46LED	Toilet	Restrooms	3	W 32 P F 2 (ELE)	F42ILL	Wattages 59	0.18	SW	2142	379	occ	
20LED	Storage	Storage Areas		S 28 P F 1 (ELE)	F41ILL	31	0.06	SW	2856	177		
196LED	Nurse	Patient		W 32 C F 4 (ELE)	F44ILL	112	0.45	SW	3000	1,344		
46LED	Room 221	Classrooms		W 32 P F 2 (ELE)	F42ILL	59	1.06	SW	2856	3,033	OCC	
20LED	Hallwavs	Hallways		S 28 P F 1 (ELE)	F41ILL	31	2.36	SW	8568	20,186	NONE	
46LED	2nd Floor - Room 322	Classrooms		W 32 P F 2 (ELE)	F42ILL	59	1.06	SW	2856	3,033	OCC	
46LED	Room 321	Classrooms		W 32 P F 2 (ELE)	F42ILL	59	1.06	SW	2856	3,033	OCC	
46LED	Room 320	Classrooms		W 32 P F 2 (ELE)	F42ILL	59	1.06	SW	2856	3,033	OCC	
46LED	Room 319	Classrooms		W 32 P F 2 (ELE)	F42ILL	59	1.06	SW	2856	3,033	OCC	
46LED	Room 323	Classrooms		W 32 P F 2 (ELE)	F42ILL	59	1.06	SW	2856	3,033	OCC	
46LED	Room 322 Closet	Storage Areas	1	W 32 P F 2 (ELE)	F42ILL	59	0.06	SW	2856	169	NONE	
46LED	Room 331	Classrooms	7	W 32 P F 2 (ELE)	F42ILL	59	0.41	SW	2856	1,180	OCC	
20LED	Room 331	Classrooms		S 28 P F 1 (ELE)	F41ILL	31	0.09	SW	2856	266	OCC	
46LED	Room 330	Classrooms		W 32 P F 2 (ELE)	F42ILL	59	0.89	SW	2856	2,528	OCC	
46LED	Room 328	Classrooms		W 32 P F 2 (ELE)	F42ILL	59	0.89	SW	2856	2,528	OCC	
46LED	Room 327	Classrooms		W 32 P F 2 (ELE)	F42ILL	59	0.89	SW	2856	2,528	OCC	
46LED	Hallways	Hallways		W 32 P F 2 (ELE)	F42ILL	59	0.41	SW	8568	3,539	NONE	
46LED	Room 318	Classrooms		W 32 P F 2 (ELE)	F42ILL	59	1.06	SW	2856	3,033		
46LED	Room 317	Classrooms		W 32 P F 2 (ELE)	F42ILL	59	0.24	SW	2856	674		
46LED	Room 316 - Teacher's Lounge	Staff Lounge		W 32 P F 2 (ELE)	F42ILL	59	0.47	SW	4284	2,022	OCC	
5LED	Room 316 - Teacher's Lounge	Staff Lounge		2T 32 R F 2 (u) (ELE)	FU2LL	60	0.06	SW	4284	257		
46LED	Room 314 - SGI	Classrooms		W 32 P F 2 (ELE)	F42ILL	59	0.24	SW	2856	674		
46LED	Room 313	Classrooms		W 32 P F 2 (ELE)	F42ILL	59	0.83	SW	2856	2,359	OCC	
46LED	Room 312	Classrooms		W 32 P F 2 (ELE)	F42ILL	59	0.71	SW	2856	2,022		
46LED	Room 310	Classrooms		W 32 P F 2 (ELE)	F42ILL	59	1.06	SW	2856	3,033		
46LED 46LED	Room 308 Toilet	Classrooms Restrooms		W 32 P F 2 (ELE) W 32 P F 2 (ELE)	F42ILL F42ILL	59 59	1.06 0.18	SW SW	2856 2142	3,033	000	
	Toilet			- ( )	I .					379		
46LED	Room 305	Restrooms Restrooms		W 32 P F 2 (ELE)	F42ILL	59	0.18	SW	2142	379		
46LED 46LED	Room 305 Room 304	Restrooms		W 32 P F 2 (ELE) W 32 P F 2 (ELE)	F42ILL F42ILL	59 59	0.47 1.18	SW SW	2142 2142	1,011 2,528	OCC	
35LED	Room 304 Room 303	Restrooms	18	T 32 R F 3 (ELE)	F42ILL F43ILL/2	90	1.62	SW	2142	3,470	OCC	
35LED	Room 302	Restrooms	18	T 32 R F 3 (ELE)	F43ILL/2	90	1.62	SW	2142	3,470	OCC	
35LED	Room 301	Restrooms	18	T 32 R F 3 (ELE)	F43ILL/2	90	1.62	SW	2142	3,470	OCC	
196LED	Hallways	Hallways		W 32 C F 4 (ELE)	F44ILL	112	2.91	SW	8568	24.950	NONE	
IJULLD	Tallways	i iaiiwaya	20	W 32 0 1 7 (LLL)	I 44ILL	114	2.31	JVV	0300	24,930	INOINL	
							+			+		
					<u> </u>		+			<b>†</b>		
					1							
					1							
Т	otal		1,389				103.88			373,661		

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Area Description of the location name: Floor number (in manus: Floor number) (in manus: Floor nu	### Annual Process Area   No. of fixtures before the retrofit		F42ILL F42ILL F42ILL F42ILL F43ILL/2 F43ILL/2 F43ILL/2 F43ILL/2 F43ILL/2 F43ILL/2 F43ILL/2 F42ILL F4	Watts per Fixture Value from Table of Standard Fixture Wattanes  59  59  90  90  90  90  90  90  59  59	WiSpace (Watts/Fixt) *(Fixt No.)  2.0  2.0  0.8  0.3  0.5  0.9  0.4  1.1  0.2  0.2  0.3  0.1  0.2  1.1  0.2  1.2  1.5  0.3  0.1  0.0  0.0  0.0  0.0  0.0  0.0	SW S	Annual Hours  Estimated daily hours for the usage group  3570 2856 2856 2856 2856 2856 2856 2856 2856	Annual kWn (kWispace) * (kmnual Hours) *	12 14 3 6 10 4 4 6 70 22 5 6 6 18 2 2 18 3 3 3 3 1 1 1 3 2 2 2 5 5 6 6 6 18 2 2 1 3 3 3 3 3 3 3 3 3 6 3 3 3 3 3 3 3 3 3	Standard Fixture Code	200732/2 200732/2 200732/2 200732/2 RTLEDS0 200732/2 RTLEDS0 200732/2 200732/2 200732/2 200732/2 200732/2 RTLEDS8 RTLEDS8 RTLEDS8 RTLEDS0 RTLEDD	Watts per Fixture Value from Table of Standard Fixtures Watts per	KWSpace   (Watts/Fixt) *   R (Number of Fixtures)	Retrofit Control levice  StW	Estimated annual hours (AWA) (Annual hours (	516 514 514 1.542 688 1.542 1.93 193 4.28 86 80 289 1.799 3.599 543 3.26 86 2.856 1.	Annual kW Save   Annual kW Save   Annual kW Save   Annual kW   - (Retrofit Annual kW) - (	d   Annual Saved (kWh Saved) * (kWh Saved)	Cost for Prescriptive renovations to lighting staget with the prescriptive renovations to lighting lighting staget with the prescription of the pr	Contive   Incentive
Roon 116 Roon 118 Roon 118 Roon 118 Roon 118 Roon 119 Roon 127 Roon 127 Roon 126 Roon 127 Roon 127 Roon 127 Roon 128 Roon 127 Roon 128 Roon 127 Roon 128 Roon 129 Roon 201 Roo	17 - Fitness Area 34 116 12 115 14 118 3 119 6 124 10 123 4 101 123 4 102 6 124 10 125 6 126 127 128 128 128 128 128 128 128 128 128 128	Hamps U shape	F42LL F42LL F43LL/2 F42LL	Fixture Wattaons. Wattaons. 99 59 59 90 90 90 90 90 90 90 90 90 59 59 59 117 59 59 112 60 28 59 90 31 112 112 1112 351 112 112 351 59 60 60 117 28 458 60 60 59 59 60 60 117 28 60 60 60 60 60 60 60 60 60 60 60 60 60	0.0	SW S	3570 2856 2856 2856 2856 2856 2856 2856 2856	2,359 771 1,542 2,570 1,028 1,542 7,372 1,434 1,011 1,011 3,033 3,393 960 177 1,287 1,287 1,287 1,287 1,287 1,128	12 14 3 6 10 4 4 6 70 22 5 6 6 18 2 2 18 3 3 3 3 1 1 1 3 2 2 2 5 5 6 6 6 18 2 2 1 3 3 3 3 3 3 3 3 3 6 3 3 3 3 3 3 3 3 3	# ILED Tube # ILED #	20073242 20073242 20073242 RTLED38 20073242 20073242 20073242 20073242 20073242 20073242 20073242 20073242 20073242 RTLED50 RT	Fixture Wattrages 30 30 30 30 38 38 38 39 30 30 30 30 30 30 30 30 30 30 30 30 30	1.0 0.4 0.4 0.4 0.1 0.2 0.4 0.2 0.2 0.7 0.1 0.2 0.5 0.5 0.1 0.1 0.1 0.2 0.0 0.1 0.1 0.1 0.2 0.5 0.5 0.1 0.1 0.1 0.2 0.0 0.0 0.1 0.1 0.1 0.2 0.0 0.0 0.1 0.1 0.1 0.1 0.2 0.0 0.0 0.1 0.1 0.1 0.1 0.2 0.0 0.0 0.1 0.1 0.1 0.1 0.2 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1	\$W \$W \$W \$W \$W \$W \$W \$W \$W \$W \$W \$W \$W \$	group  3.570	3,641 1,028 1,200 326 651 1,095 434 1,095 434 1,095 434 1,095 434 1,095 434 1,095 434 1,095 434 1,095 434 1,095 434 1,095 434 1,095 434 1,095 434 1,095 434 1,095 438 1,095 438 1,095 438 1,799	3,520 1.0 994 0.3 1,160 0.4 446 0.2 891 0.3 1,160 0.5 594 0.2 891 0.3 3,624 2.0 1,825 0.6 918 0.2 497 0.2 1,491 0.5 - 0.0 1,491 0.5 - 0.0 1,491 0.5 186 0.1 186 0.1 1,739 0.6 3,479 1.2 280 0.1 1,739 0.6 3,479 1.2 743 0.3 446 0.2 91 0.0 3,541 1.2 2,302 0.8 5,936 1.9 - 0.0 0.0 1,593 1.0 2	\$ 196.85 \$ 279.20 \$ 83.76 \$ 279.20 \$ \$ 279.20 \$ \$ 279.20 \$ \$ 279.20 \$ \$ 279.20 \$ \$ 279.20 \$ \$ 279.20 \$ \$ 279.20 \$ \$ 279.20 \$ \$ 279.20 \$ \$ 279.20 \$ \$ 279.20 \$ \$ 279.20 \$ \$ 279.20 \$ \$ 279.20 \$ 2	Section   Sect	8.4 10.5 10.5 10.5 8.5 8.5 8.5 8.5 16.8 10.5 10.5 10.5 10.5 10.5 10.5 10.5 10.5
Roon 116 Roon 118 Roon 118 Roon 118 Roon 118 Roon 119 Roon 127 Roon 127 Roon 126 Roon 127 Roon 127 Roon 127 Roon 128 Roon 127 Roon 128 Roon 127 Roon 128 Roon 129 Roon 201 Roo	116 12 115 14 118 3 119 6 124 110 123 4 100 123 4 101 122 6 102 6 103 12 6 101 6 103 18 103 18 103 18 103 18 103 18 103 18 103 18 103 18 103 18 103 18 103 18 104 18 105 3 106 1 3 107 107 107 107 107 107 107 107 107 107	W 32 P F 2 (ELE)  W 32 P F 3 (ELE)  T 32 R F 3 (ELE)  W 32 P F 2 (ELE)  W 32 P F 3 (ELE)  T 32 R 7 (ELE)  T 32 R F 3 (ELE)  T 32 R 7 (ELE)  T 32 R 7 (ELE)  T 32 R 7 (ELE)  T 32 R F 3 (ELE)  T 32 R 7 (ELE)  T 32 R F 3 (ELE)  T 32 R 5 (ELE)  T 32 R 7 (ELE)  T 32 R F 3 (ELE)  T 32 R 7 (ELE)  T 32 R F 3 (ELE)  T 32 R F 3 (ELE)  T 32 R F 3 (ELE)  T 32 R 7 (ELE)  T 32 R F 3 (ELE)  T 32 R F 3 (ELE)  T 32 R F	F42LL F42LL F43LL/2 F42LL	75 59 59 59 59 59 60 60 59 59 59 59 59 59 59 59 59 59 59 59 59	0.0	SW S	2856 2856 2856 2856 2856 2856 2856 2856	2,359 771 1,542 2,570 1,028 1,542 7,372 1,434 1,011 1,011 3,033 3,393 960 177 1,287 1,287 1,287 1,287 1,287 1,128	12 14 3 6 10 4 4 6 70 22 5 6 6 18 2 2 18 3 3 3 3 1 1 1 3 2 2 2 5 5 6 6 6 18 2 2 1 3 3 3 3 3 3 3 3 3 6 3 3 3 3 3 3 3 3 3	# HLED Tube # HLED Tube # T59 RLED # T50 RLED # T59 RLE	2007322 RTLED38 2007322 2007322 2007322 2007322 2007322 2007322 2007322 2007322 2007322 RTLED38 RTLED38 RTLED50 RTLED5	38 39 30 27 30 30 27 30 30 30 30 30 30 30 30 30 30	0.4 0.1 0.1 0.2 0.4 0.2 0.2 0.2 0.1 0.7 0.1 0.2 0.2 0.5 0.5 0.1 0.1 0.1 0.2 0.0 0.1 0.1 0.2 0.0 0.1 0.1 0.1 0.2 0.0 0.1 0.1 0.1 0.0 0.0 0.1 0.1 0.1 0.1	\$W \$W \$W \$W \$W \$W \$W \$W \$W \$W \$W \$W \$W \$	2.856 2.855 2.855 2.855 2.855 2.855 2.855 2.855 2.855 3.825 2.855 3.825 2.856	1,200 326 651 1,085 434 651 3,749 1,885 516 514 514 514 514 1,542 668 1,542 668 1,542 80 1,93 193 193 193 193 193 193 193 193 193 1	994 (0.3 1,160 (0.4 446 (0.2 891 (0.3 1,485 (0.5 894 (0.2 891 (0.3 3,624 (2.0 1,822 (0.6 1,822 (0.6 1,822 (0.6 1,822 (0.6 1,821 (0.6	\$ 196.85 \$ 279.20 \$ 83.76 \$ 279.20 \$ \$ 279.20 \$ \$ 279.20 \$ \$ 279.20 \$ \$ 279.20 \$ \$ 279.20 \$ \$ 279.20 \$ \$ 279.20 \$ \$ 279.20 \$ \$ 279.20 \$ \$ 279.20 \$ \$ 279.20 \$ \$ 279.20 \$ \$ 279.20 \$ \$ 279.20 \$ 2	\$ 1,960.20 \$0 \$ 2,268.90 \$0 \$ 708.75 \$150 \$ 1,417.50 \$300 \$ 2,362.50 \$500 \$ 945.00 \$200 \$ 1,417.50 \$300 \$ 11,434.50 \$0 \$ 11,434.50 \$0 \$ 3,593.70 \$0 \$ 31,593.70 \$0 \$ 90.10 \$0 \$ 90.10 \$0 \$ 90.10 \$0 \$ 90.10 \$0 \$ 90.10 \$0 \$ 90.10 \$0 \$ 2,940.30 \$0 \$ 2,940.30 \$0 \$ 2,940.30 \$0 \$ 5 2,940.30 \$0 \$ 5 3,333.70 \$0 \$ 5 3,430.55 \$0 \$ 400.05 \$0 \$ 5 400.05 \$0 \$ 5 400.05 \$0 \$ 5 708.75 \$0 \$ 5 3,430.35 \$0 \$ 1,181.25 \$250 \$ 708.75 \$150 \$ 1,181.25 \$250 \$ 708.75 \$150 \$ 20.40 \$10 \$ 4,725.00 \$0 \$ 3,071.25 \$0 \$ 3	10.5 10.5 8.5 8.5 8.5 8.5 8.5 10.5 10.5 10.5 10.5 10.5 10.5 10.5 10
Room 118 Room 119 Room 124 Room 124 Room 124 Room 124 Room 125 Room 125 Room 125 Room 125 Room 126 Room 126 Room 127 Room 127 Room 127 Room 127 Room 128 Room 127 Room 128 Room 129 Room 129 Room 129 Room 121 Room 122 Room 121 Room 122 Room 122 Room 122 Room 125 Room 125 Room 125 Room 126 Room 126 Room 127 Room 127 Room 127 Room 128 Room 128 Room 128 Room 129 Room 120 Room 120 Room 121 Roo	118 3 119 6 124 10 123 4 10 10 123 4 10 10 123 4 122 6 6 Carleteria 70	T 32 R F 3 (ELE) W 32 P F 2 (ELE)	F43ILL/2 F43ILL/2 F43ILL/2 F43ILL/2 F43ILL/2 F43ILL/2 F43ILL/2 F43ILL/2 F42ILL	75 59 59 59 59 59 60 60 59 59 59 59 59 59 59 59 59 59 59 59 59	0.0	SW S	2856 2856 2856	771 1,542 2,570 1,028 1,542 2,570 1,1434 1,011 3,033 668 3,033 379 379 980 171 181 80 5699 7,077 1,434 1,011	22 5 6 6 18 2 18 3 3 3 1 1 1 3 2 1 42 5 3 3 2 2 2 2 3 3 3 3 3 6 6 6 7 2 2 1 3 3 2 2 1 3 3 3 2 2 2 2 3 3 3 3 3	7 59 R LED 4 R LED Tube 5 R LED Tube 4 R LED Tube 4 R LED Tube 4 R LED Tube 4 R LED Tube 5 R LED Tube 5 R LED Tube 7 R R R LED TUBE 7 R R R LED TUBE 7 R R R R R R R R R R R R R R R R R R R	RTLED38 RTLED38 RTLED38 RTLED38 RTLED38 RTLED38 RTLED38 RTLED38 200732-2 200732-2 200732-2 200732-2 200732-2 200732-2 200732-2 200732-2 200732-2 200732-2 200732-2 200732-2 200732-2 200732-2 RTLED36 RTLED36 RTLED36 RTLED56 RTLED57 RTLED57 RTLED57 RTLED57 RTLED50	38 39 30 27 30 30 27 30 30 30 30 30 30 30 30 30 30	0.2 0.2 2.1 0.7 0.1 0.2 0.5 0.5 0.5 0.1 0.1 0.2 0.0 0.0 0.1 0.1 0.1 0.0 0.0 0.1 0.1 0.6 1.3 0.2 0.1 0.1 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.1	\$W \$W \$W \$W \$W \$W \$W \$W \$W \$W \$W \$W \$W \$	2.856 2.856	1.085 434 651 3.749 1.885 516 514 1.542 1.542 1.93 193 193 193 193 193 193 193 193 193 1	446 (0.2 891 (0.3 1.485 (0.5 554 (0.2 891 (0.3 3.624 (2.0 1.822 (0.6 891 (0.2 1.822 (0.6 891 (0.2 1.822 (0.6 1.822 (0.6 1.822 (0.6 1.822 (0.6 1.822 (0.6 1.822 (0.6 1.823 (0.6 1	\$ 83.76 \$ 167.52 \$ 279.20 \$ 111.88 \$ 167.52 \$ 167.52 \$ 187.52 \$ 881.35 \$ 342.56 \$ 3 93.43 \$ 93.43 \$ 93.43 \$ 187.52 \$ 280.28 \$ 127.53 \$ 35.03 \$	\$ 708.75 \$150 \$ \$ 1.417.50 \$300 \$ \$ 2.362.50 \$500 \$ \$ 945.00 \$200 \$ \$ 1.417.50 \$300 \$ \$ 1.417.50 \$300 \$ \$ 11.434.50 \$0 \$ 5 11.434.50 \$0 \$ 5 10.25 \$0 \$ 980.10 \$0 \$ 980.10 \$0 \$ 980.10 \$0 \$ 990.10 \$0 \$ 2.940.30 \$0 \$ 5 .940.30 \$0 \$ 5 .940.30 \$0 \$ 5 .940.35 \$0 \$ 6 .940.35 \$0 \$ 6 .940.35 \$0 \$ 708.75 \$150 \$ 9 .940 \$10 \$ 9 .947.50 \$0 \$ 1,181.25 \$250 \$ 708.75 \$150 \$ 9 .940 \$10 \$ 9 .947.55 \$0 \$ 9 .947.5	8.5 8.5 8.5 8.5 8.5 10.5 10.5 10.5 10.5 10.5 10.5 14.0 14.0 14.0 14.1 14.5 9.3 10.5 8.5 10.5 1
Room 124 Room 125 Room 125 Room 125 Room 125 Room 126 Room 126- Kill Room 127- Bolie Room 107 Room 107 Room 107 Room 103 Room 103 Room 104 Toilet Toilet Toilet Toilet Toilet Room 105 Storage Office Room 112- Il Room 112 Room 112 Room 113 Room 114 Room 114 Room 114 Room 115 Room 115 Room 115 Room 116 Room 116 Room 117 Room 117 Room 118	124 10 123 4 124 6 125 6 126 6 127 6 128 7 129 6 129 7 120 7 120 8 120 8 101 8 101 8 102 6 103 18 103 2 104 18 103 2 104 18 105 3 105 3 106 1 107 3 108 1 109 1 10	T 32 R F 3 (ELE)  T 32 R F 3 (ELE)  W 32 P F 2 (ELE)	F-391L/2 F-391L/2 F-391L/2 F-391L/2 F-431L/2 F-421L	75 59 59 59 59 59 60 60 59 59 59 59 59 59 59 59 59 59 59 59 59	0.0	SW S	2856 2856 2856 2856 2856 2856 2856 2856	2.570 1.028 1.542 3.707 1.434 1.011 3.033 688 3.033 3.79 9.90 9.00 171 180 3.539 7.077 1.285 7.771 1.285 7.771 1.285 7.771 1.393 7.3	22 5 6 6 18 2 18 3 3 3 1 1 1 3 2 1 42 5 3 3 2 2 2 2 3 3 3 3 3 6 6 6 7 2 2 1 3 3 2 2 1 3 3 3 2 2 2 2 3 3 3 3 3	T 59 R LED T 59 R LED H 159 R LED H 16 LED Tube 4 R LED Tube 4 R LED Tube C 26 4 R LED Tube 5 R LED Tube 7 S R LED 7 T S R LED	RTLED38 RTLED50 RTLED5	38 39 30 27 30 30 27 30 30 30 30 30 30 30 30 30 30	0.2 0.2 2.1 0.7 0.1 0.2 0.5 0.5 0.5 0.1 0.1 0.2 0.0 0.0 0.1 0.1 0.1 0.0 0.0 0.1 0.1 0.6 1.3 0.2 0.1 0.1 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.1	SW S	2.856 2.856 2.856 1.785 2.856 3.825 2.856 3.825 2.856	1.085 434 651 3.749 1.885 516 514 1.542 1.542 1.93 193 193 193 193 193 193 193 193 193 1	1.485 (0.5   594 (0.2   891 (0.2   891 (0.3   3.624 (2.0   1.822 (0.6   918 (0.2   497 (0.2   497 (0.2   1.491 (0.5   1.49	\$ 279.20 \$ 111.68 \$ 116.75 \$ 681.23 \$ 681.23 \$ 342.56 \$ 172.85 \$ 172.85 \$ 172.85 \$ 193.43 \$ 280.28 \$ 35.03 \$ 36.03 \$ 3	\$ 2.362.50 \$500 \$ \$ 945.00 \$200 \$ \$ 1.417.50 \$300 \$ \$ 1.147.50 \$300 \$ \$ 1.147.50 \$300 \$ \$ 1.147.50 \$300 \$ \$ 1.147.50 \$300 \$ \$ 1.167.50 \$300 \$ \$ 1.167.50 \$00 \$ \$ 1.167.50 \$00 \$ \$ 1.167.50 \$00 \$ \$ 990.10 \$00 \$ \$ 990.10 \$00 \$ \$ 990.10 \$00 \$ \$ 990.10 \$00 \$ \$ 990.10 \$00 \$ \$ 990.10 \$00 \$ \$ 90.10 \$00 \$ \$ 90.10 \$00 \$ \$ 1.90.05 \$00 \$ \$ 490.05 \$00 \$ \$ 490.05 \$00 \$ \$ 708.75 \$00 \$ \$ 1.181.25 \$250 \$ \$ 708.75 \$150 \$ \$ 1.181.25 \$250 \$ \$ 708.75 \$150 \$ \$ 290.40 \$10 \$ \$ 4,725.00 \$00 \$ \$ 3.071.25 \$00 \$ \$ 3.071.25 \$00 \$00 \$ \$ 3.071.25 \$00 \$00 \$00 \$00 \$00 \$00 \$00 \$00 \$00 \$0	8.5 8.5 8.5 16.8 10.5 10.5 10.5 10.5 10.5 10.5 14.0 14.0 14.0 14.5 10.
Roon 122 Room 125 - Cell Room 126 - Cell Room 127 - Gelle Room 103 Room 103 Room 103 Room 103 Room 104 Toilet Toilet Toilet Room 105 Storage Office Room 115 Room 1127 Room 11	122 6 Carleteria 70	T 32 R F 3 (ELE)  W 32 P F 2 (ELE)	F-43ILL/2 F-42ILL F-42	75 59 59 59 59 59 60 60 59 59 59 59 59 59 59 59 59 59 59 59 59	113 0.4 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1	SW S	2856 2856 2856 2856 2856 2856 2856 2856	1.542 7.372 3.707 1.494 1.011 1.011 3.033 688 3.033 3.79 980 9.00 171 180 5.59 7.077 1.285 7.71 1.285 7.71 1.285 7.71 1.33 7.71 1.34 7.71 7.71 7.71 7.71 7.71 7.71 7.71 7.7	22 5 6 6 18 2 18 3 3 3 1 1 1 3 2 1 42 5 3 3 2 2 2 2 3 3 3 3 3 6 6 6 7 2 2 1 3 3 2 2 1 3 3 3 2 2 2 2 3 3 3 3 3	T 59 R LED 4 R LED Tube 4 R LED Tube 6 T 26 4 R LED Tube 5 R LED Tube 6 R LED Tube 7 S R LED TUBE	RTLED38 200732-2 200732-2 200732-2 200732-2 200732-2 200732-2 200732-2 200732-2 200732-2 200732-2 200732-2 200732-2 200732-2 200732-2 200732-2 200732-2 200732-2 200732-2 RTLED36 RTLED36 RTLED36 RTLED36 RTLED56 RTLE	30 30 30 50 30 28 30 30 30 33 33 33 35 50 50 50 50 50 50 50 50 50 50 50 50 50	0.1 0.2 0.2 0.5 0.5 0.5 0.1 0.1 0.2 0.0 0.0 0.0 0.1 0.1 0.0 0.1 0.1	SW SW SW SW SW SW SW SW SW SW SW SW SW S	2.856 1.785 2.856 3.825 2.856	3,749 1,885 516 514 514 514 1,542 688 1,542 193 193 193 193 193 193 3,599 3,59	891   0.3   3.624   2.0   1.822   0.6   918   0.2   497   0.2   497   0.2   1.491   0.5   -0.0   1.491   0.5   -1.0   0.0   1.491   0.5   -1.0   0.0   1.491   0.5   -1.0   0.0   1.491   0.5   -1.0   0.0   0.1   186   0.1   186   0.1   186   0.1   1.739   0.6   0.0   0.0   0.0   0.0   0.6   0.0   0.0   0.5   0.0   0.5	\$ 167.52 \$ 681.23 \$ 12.58 \$ 172.58 \$ 172.58 \$ 193.43 \$ 280.28 \$ 280.28 \$ 35.03 \$ 35.03	\$ 1.417.50 \$300 \$ 11,434.50 \$0 \$ 11,434.50 \$0 \$ 3.593.70 \$0 \$ 30.593.70 \$0 \$ 90.10 \$0 \$ 990.10 \$0 \$ 990.10 \$0 \$ 2,940.30 \$0 \$ 2,940.30 \$0 \$ 5 2,940.30 \$0 \$ 5 490.05 \$0 \$ 490.05 \$0 \$ 708.75 \$0 \$ 5 73.430.35 \$0 \$ 6 6.860.70 \$0 \$ 1,181.25 \$250 \$ 708.75 \$150 \$ 708.75 \$150 \$ 3.430.35 \$0 \$ 1,181.25 \$250 \$ 708.75 \$150 \$ 3.470.25 \$0 \$ 3.470.25 \$0 \$ 3.470.25 \$0 \$ 3.470.25 \$0 \$ 3.470.25 \$0 \$ 3.470.25 \$0 \$ 3.470.25 \$0 \$ 3.470.25 \$0 \$ 3.470.25 \$0 \$ 3.470.25 \$0 \$ 3.570.25	16.8 10.5 0.6 10.5 10.5 10.5 10.5 14.0 14.0 7.1 14.5 9.3 10.5 10.5 8.5 16.9 7.1 7.1 2.4
Room 126 - Nile   Room 127 - Belle   Room 127 - Belle   Room 127 - Belle   Room 107   Room 102   Room 102   Room 103   Room 103   Room 103   Room 103   Room 103   Room 103   Room 104   Toilet   Toilet   Toilet   Room 105   Room 112   Room 113   Room 114   Hallways   Strape   Boys Locker R   Girls Locker R   Toilet   Room 104   Room 105	/Kitchen         22           (bloider Room         5           101         6           102         6           103         18           103         2           104         18           et         3           105         3           oe         1           105         3           oe         1           109         1           20         3           Science         21           12-Art         42           112E         5           112E         3           113         2           114         20           108         0           109         30           100         0           100         0           101         0           102         0           103         0           104         0           105         0           107         0           108         0           114         0           109         0           100         0	W 32 P F 2 (ELE)	F-221L 775/1 F-221L 775/1 F-221L F-22	75 59 59 59 59 59 60 60 59 59 59 59 59 59 59 59 59 59 59 59 59	1.3 0.4 0.4 0.4 0.4 1.1 0.2 1.1 0.2 0.2 0.3 0.1 0.0 0.2 2.5 0.3 0.1 1.2 2.5 0.5 0.3 0.1 1.5 0.4 1.4 1.4 1.4 0.1 0.1 0.1 0.1 0.1 0.1 0.9 0.8 8.2 0.1 0.8 0.9 0.9 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1	SW SW SW SW SW SW SW SW SW SW SW SW SW S	2856 2856 2856 2856 2856 2856 2856 2856	3.707 1.434 1.011 3.033 668 3.033 379 379 980 171 180 569 7.077 1.285 7.711 177 6.397 4.158 28.788 1.011 3.033 3.033 3.033 3.033	22 5 6 6 18 2 18 3 3 3 1 1 1 3 2 1 42 5 3 3 2 2 2 2 3 3 3 3 3 6 6 6 7 2 2 1 3 3 2 2 1 3 3 3 2 2 2 2 3 3 3 3 3	4 RLED Tube CF 26 4 RLED Tube 4 RLED Tube 4 RLED Tube 4 RLED Tube 5 RLED Tube 4 RLED Tube 4 RLED Tube 4 RLED Tube 4 RLED Tube 5 RLED Tube 4 RLED Tube 4 RLED Tube 5 RLED Tube 6 RLED Tube 7 RLED TUBE 8 RLED TUBE 8 RLED TUBE 8 RLED TUBE 8 RLED TUBE 9 RLED TUBE	200732/2 CF026/1-L 200732/2 200732/2 200732/2 200732/2 200732/2 200732/2 200732/2 200732/2 200732/2 200732/2 200732/2 200732/2 200732/2 200732/2 200732/2 200732/2 RTLED38 RTLED59 RTLED59 RTLED59 RTLED50 RTL	30 30 30 50 30 28 30 30 30 33 33 33 35 50 50 50 50 50 50 50 50 50 50 50 50 50	0.1 0.2 0.2 0.5 0.5 0.5 0.1 0.1 0.2 0.0 0.0 0.0 0.1 0.1 0.0 0.1 0.1	SW SW SW SW SW SW SW SW SW SW SW SW SW S	2.856 3.825 2.856 2.856 2.856 2.856 2.856 2.856 2.856 2.856 2.856 2.858	1.885 516 514 514 1.542 688 1.542 133 193 193 428 86 80 289 1,799 3.599 543 326 86 2.856 1.856	1,822 (0.6 918 (0.2 497 (0.2 497 (0.2 1,491 (0.5 - (0.0 1,491 (0.5 186 (0.1 186 (0.1 186 (0.1 186 (0.0 - (0.0 280 (0.1 1,739 (0.6 3,479 (1.2 446 (0.2 91 (0.0 3,541 (1.2 2,302 (0.8 5,336 (1.9 - (0.0 - (	\$ 342.56 \$ 172.58 \$ 93.43 \$ 93.43 \$ 290.28 \$ 280.28 \$ 280.28 \$ 35.03 \$	\$ 3.593,70 \$0 \$0 \$ \$ 101,25 \$0 \$0 \$0 \$ \$ 980,10 \$0 \$0 \$ \$ 980,10 \$0 \$0 \$ \$ 980,10 \$0 \$0 \$ \$ 980,10 \$0 \$0 \$ \$ 980,10 \$0 \$0 \$ \$ 980,10 \$0 \$0 \$ \$ 980,10 \$0 \$0 \$ \$ \$ 980,10 \$0 \$0 \$ \$ \$ 490,05 \$0 \$0 \$ \$ 490,05 \$0 \$0 \$ \$ 708,75 \$0 \$0 \$ \$ 490,05 \$0 \$0 \$ \$ 708,75 \$0 \$0 \$ \$ 1,181,25 \$250 \$0 \$0 \$ \$ 1,181,25 \$250 \$0 \$ \$ 708,75 \$150 \$ \$ 290,40 \$10 \$0 \$ \$ 4,725,00 \$0 \$0 \$ \$ 3,071,25 \$0 \$0 \$ \$ 3,071,25 \$0 \$0 \$ \$ 3,071,25 \$0 \$0 \$0 \$ \$ 3,071,25 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	10.5 0.6 10.5 10.5 10.5 10.5 14.0 14.0 14.0 14.5 9.3 10.5 10.5 10.5 10.5 10.5 10.5 10.5 10.5
Room 101 Room 102 Room 103 Room 104 Toilet Toilet Room 105 Storage Office Room 112: J Room 112:	101 6 102 6 103 18 103 18 103 2 104 18 105 2 104 18 105 3 105 3 106 1 105 3 109 1 1 1 109 1 1 209 1 209 1 209 1 209 1 209 2 209 2 209 2 209 2 209 2 209 2 209 3 20	W 32 P F 2 (ELE) F 42GHL W 32 P F 2 (ELE)	F-221L F-422L F-422L F-422L F-422L F-421L F-	1177 1177 1177 1177 159 159 159 159 159 160 170 170 170 170 170 170 170 170 170 17	0.4 0.4 0.4 0.4 0.1 0.1 0.2 0.2 0.3 0.3 0.1 0.1 0.2 0.2 0.3 0.3 0.1 0.1 0.1 0.2 0.2 0.3 0.3 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1	SW SW SW SW SW SW SW SW SW SW SW SW SW S	2856 2856 2856 2856 2856 2856 2856 2856	1,011 1,011 3,033 668 3,033 379 379 980 171 180 569 7,077 1,285 771 1,285 1,011 1,011 3,033 3,033 3,033 3,033 1,29 1,29 3,589	6 18 2 2 18 3 3 3 3 1 1 1 1 1 2 2 2 2 2 2 2 2 2 2 2	4 fl.ED Tube 6 fl.ED Tube 7 fl.ED Tube 8 fl.ED Tube 4 fl.ED Tube 4 fl.ED Tube 4 fl.ED Tube 5 fl.ED Tube 7 fl.ED Tube 8 fl.ED Tube 9 fl.ED Tube 1 fl.ED Tube 2 TXX fl.ED TXX fl.ED TXX fl.ED Tube 2 TXX fl.ED TXX fl.ED TXX fl.ED TXX fl.ED Tube 2 TXX fl.ED TXX f	2007322 2007322	30 30 30 50 30 28 30 30 30 33 33 33 35 50 50 50 50 50 50 50 50 50 50 50 50 50	0.2 0.2 0.5 0.5 0.1 0.1 0.1 0.1 0.2 0.0 0.0 0.1 0.1 0.1 0.1 0.0 0.0 0.1 0.1	SW S	2,856 2,856 2,856 2,856 2,856 2,856 2,856 2,856 2,856 2,856 2,856 3,213 2,856	514 514 514 514 1.542 1.542 1.542 1.542 1.542 1.542 1.542 1.542 1.543 1.799 1.799 1.799 1.543 1.544 1.5	497 0.2 1,491 0.5 - (0.0 1,491 0.5 186 0.1 186 0.1 186 0.1 186 0.0 - (0.0 - 280 0.1 1,739 0.6 3,479 1.2 743 0.3 446 0.2 91 0.0 3,541 1.2 2,302 0.8 5,936 1.9 - (0.0 - (0.0 - (0.0) -	\$ 99.43 \$ 99.43 \$ 280.28 \$ - \$ 280.28 \$ 35.03 \$ 35.03 \$ 99.97 \$ 16.11 \$ - \$ 5.255 \$ 35.03 \$ 99.97 \$ 132.25 \$ 35.03 \$ 14.21 \$ 3.25 \$ 35.03 \$ 35	\$ 990.10 S0 \$ 2.940.30 S0 \$ 2.940.30 S0 \$ 2.940.30 S0 \$ 2.940.30 S0 \$ 490.05 S0 \$ 490.05 S0 \$ 490.05 S0 \$ 233.70 S45 \$ 233.70 S45 \$ 3.430.35 S0 \$ 3.430.35 S0 \$ 1.181.25 S250 \$ 708.75 S150 \$ 290.40 S10 \$ 3.071.25 S0 \$ 3.071.25	10.5 10.5 14.0 14.0 14.0 7.1 14.5 9.3 10.5 10.5 8.5 16.9 7.1 7.1 2.4
Room 103 Room 104 Room 104 Room 104 Toilet Toilet Toilet Room 105 Storage Office Room 112 Room 114 Roo	103	W 32 P F 2 (ELE) H 32 C F 2 (ELE) W 32 P F 4 (ELE) W 32 C F 4 (ELE) W 32 P F 2 (ELE)	F42ILL F42GHL F42GLL F42LL	1177 1177 1177 1177 159 159 159 159 159 160 170 170 170 170 170 170 170 170 170 17	1.1 0.2 1.1 0.2 0.2 0.3 0.1 0.0 0.2 2.5 0.5 0.3 0.1 1.2 2.5 0.5 0.3 0.1 1.5 3.4 1.0 0.5 0.4 1.4 1.4 1.4 1.4 1.4 1.4 1.5 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6	SW SW SW SW SW SW SW SW SW SW SW SW SW S	2856 2856 2856 2856 2856 2856 2856 2856	3,033 668 3,033 379 980 171 180 569 7,077 1,285 771 1,271 6,397 4,158 28,788 3,759 1,011 1,011 3,033 3,033 1,29	18 2 2 18 3 3 3 1 1 1 3 3 2 1 42 5 5 3 3 2 2 2 2 1 3 3 3 0 6 6 2 4 2 4 1 1 8 8	4 RLED Tube F42CHL 4 RLED Tube 4 RLED Tube 4 RLED Tube 4 RLED Tube 7 T4R RLED 4 RLED Tube R 13C CF 2 (ELE) 4 RLED Tube 7 SPR RLED 7 SPR RLED 7 SPR RLED 7 SPR RLED 7 T4 RLED 7 T4 RLED 7 T4 RLED 7 T4 RLED 7 T5 RLED	200732/2 F42GHL 200732/2 200732/2 200732/2 200732/2 RTLED50 200732/2 200732/2 200732/2 200732/2 200732/2 RTLED88 RTLED88 RTLED88 RTLED8 RTLED80 RTLED80 RTLED80 RTLED50 RTLED5	30 30 30 50 30 28 30 30 30 33 33 33 35 50 50 50 50 50 50 50 50 50 50 50 50 50	0.1 0.2 0.0 0.0 0.1 0.6 1.3 0.2 0.1 0.0 1.0 0.7 1.5	SW S	2,856 2,856 2,856 2,142 2,142 2,142 2,142 2,155 2,856 3,213 2,856 3,213 2,856	1.542 668 1.542 193 193 193 428 86 80 289 1,799 3.599 543 326 86 2.856 1,856 1,856 1,856 1,852 1,852 1,852	1,491 (0.5 - (0.0 ) 1,491 (0.5	\$ 280.28 \$ \$ 280.28 \$ 35.03 \$ 35.03 \$ 35.03 \$ 35.03 \$ 16.11 \$ \$ 52.55 \$ 325.99 \$ 139.60 \$ 139.60 \$ 139.60 \$ 127.65 \$ 127.	\$ 2,940.30 \$0 \$ 2,940.30 \$0 \$ 2,940.30 \$0 \$ 490.05 \$0 \$ 490.05 \$0 \$ 708.75 \$0 \$ 233.70 \$46 \$ 233.70 \$46 \$ 5 \$ 90.05 \$0 \$ 1,181.25 \$250 \$ 708.75 \$150 \$ 293.40 \$10 \$ 4,725.00 \$0 \$ 3,071.25 \$0 \$ 3,071.25 \$0 \$ 3,071.25 \$0 \$ 5	10.5 10.5 14.0 14.0 14.0 7.1 14.5 9.3 10.5 10.5 10.5 8.5 16.9 7.1 7.1 2.4
Roon 104 Toilet Toilet Toilet Roon 105 Storage Office Roon 115 Roon 115 Roon 116 Roon 116 Roon 117 Roo	104   18 et   3	W 32 P F 2 (ELE) W 32 C F 4 (ELE) IT 32 R F 2 (ELE) R 13 C G F 2 (ELE) W 32 P F 3 (ELE) T 32 R F 3 (ELE) W 32 C F 4 (ELE) W 32 P F 2 (ELE)	F-22IL	59 112 60 28 59 59 59 90 90 31 112 112 112 112 112 112 28 59 60 60 117 28 456 60 59 59 60 60 31	1.1 0.2 0.3 0.1 0.0 0.0 0.2 1.2 2.5 0.5 0.3 0.1 1.5 3.4 1.5 0.4 1.4 1.4 0.1 0.1 0.1 0.9 0.8 8.2 0.1 0.8 0.9 0.1 1.1 1.1 1.1	SW S	2856 2142 2142 22856 2856 2856 3213 2856 2856 2856 2856 2856 2856 2856 2856	379 980 171 80 569 3.539 7.077 1.285 771 1.77 6.397 4.158 28,788 37.592 1.011 3.033 3.033 129 3.89	3 3 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	4 NLED Tube 4 NLED Tube 1 7 / 4 NLED 4 NLED Tube R 13 C OF 2 (ELE) 4 NLED Tube 4 NLED Tube 4 NLED Tube 4 NLED Tube 1 59 NLED 1 59 NLED 1 7 / 4 NLED 2 / 5 NLE	200735/2 200735/2 200735/2 200735/2 RTLED50 200735/2 200735/2 200735/2 200735/2 200735/2 RTLED38 RTLED38 RTLED38 RTLED50 RTLED	30 30 30 50 50 30 28 30 30 30 30 30 30 30 30 30 30	0.1 0.2 0.0 0.0 0.1 0.6 1.3 0.2 0.1 0.0 1.0 0.7 1.5	SW   SW   SW   SW   SW   SW   SW   SW	2,856 2,142 2,142 2,856 2,856 3,213 2,856 3,213 2,856	1,542 193 193 428 86 80 289 1,799 3,599 543 326 86 2,856 1,856 1,856 12,852 37,592 514 1,542	186 (0.1 186 (0.1 531 (0.2 86 (0.0 - (0.0 280 (0.1 1,739 (0.6 3,479 (1.2 743 (0.3 446 (0.2 91 (0.0 3,541 (1.2 2,302 (0.8 5,936 (1.9 - (0.0 - (0.0 497 (0.2	\$ 35.03 \$ 39.87 \$ 99.87 \$ 16.11 \$ 5.255 \$ 326.99 \$ 653.98 \$ 139.60 \$ 17.18 \$ 665.79 \$ 432.76 \$ 2.996.06 \$ 93.43	\$ 490.05 S0 \$ 490.05 S0 \$ 708.75 S0 \$ 233.70 \$45 \$ 90 \$ 490.05 S0 \$ 3,430.35 S0 \$ 6,860.70 S0 \$ 1,161.25 \$250 \$ 708.75 \$150 \$ 290.40 \$10 \$ 4,725.00 S0 \$ 3,071.25 S0 \$ 3,071.25 S0 \$ 7,087.50 S0 \$ 5,7087.50 S0	14.0 14.0 7.1 14.5 9.3 10.5 10.5 8.5 16.9 7.1 7.1 2.4
Toilet Room 105 Storage Office Room 115 Room 115 Room 115 Room 112 Room 114 Hallways Ist Floor - Gymm Storage Boys Locker R Gist Locker R Gist Locker R Gist Locker R Gist Locker R Toilet Toilet Meda Cente Meda Ce	et 3 105 3 106 1 107 3 108 1 108 1 109 1 1	W 32 P F 2 (ELE) W 32 P F 2 (ELE) H 32 C F 2 (ELE) W 32 P F 3 (ELE) T 32 R F 3 (ELE) S 32 F F 4 (ELE) W 32 C F 2 (ELE) W 32 C F 4 (ELE) W 32 C F 5 (ELE) W 32 C F 7 (ELE)	F-22IL F-24IL F-	60 28 59 59 59 90 90 31 112 112 112 351 59 60 60 117 28 458 60 59 59 59 59 59 59	0.1 0.0 0.2 1.2 2.5 0.5 0.3 0.1 2.2 1.5 3.4 10.5 0.4 1.4 1.4 1.4 0.1 0.1 0.9 0.8 8.2 0.1 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9	SW SW SW SW SW SW SW SW SW SW SW SW SW S	2142 2856 2856 2856 3213 2856 2856 2856 2856 2856 2856 2856 2856	171 80 569 3.539 7.077 1.285 771 1.285 28.788 28.788 37.592 1.011 3.033 3.033 129 129 3.580	3 3 1 1 1 3 21 42 5 5 3 2 2 20 13 30 6 6 24 24 1 1 1 8	4 fLED Tube T 74 R LED 4 fLED Tube R 13 C 0 F 2 (ELE) 4 fLED Tube 4 fLED Tube 4 fLED Tube 4 fLED Tube 5 fleD Tube T 59 R LED T 59 R LED T 74 R LED T 74 R LED T 74 R LED T 54 R LED T 55 R LED T 55 R LED T 55 R LED T 74 R LED T 74 R LED T 55 R LED	200732/2 RTLED50 200732/2 CF013/2-L 200732/2 200732/2 200732/2 RTLED38 RTLED38 RTLED38 RTLED38 RTLED50	30 30 30 30 30 30 30 38 38 38 50 50 50 30 30 30 30 30 30 30 30 30 30 30 30 30	0.0 0.0 0.1 0.6 1.3 0.2 0.1 0.0 1.0 0.7	SW   SW   SW   SW   SW   SW   SW   SW	2,142 2,856 2,856 2,856 3,213 2,856 2,856 2,856 2,856 2,856 2,856 2,856 2,856 2,856 2,856 2,856 3,570 2,856	428 86 80 289 1,799 3,599 543 326 86 2,856 1,856 1,856 1,2852 1,2852 1,542 514 1,542	186 (0.1 531 (0.2 86 (0.0 - (0.0 280 (0.1 1.739 (0.6 3.479 (1.2 743 (0.3 446 (0.2 91 (0.0 3.541 (1.2 2.302 (0.8 5.366 (1.9 - (0.0 497 (0.2	\$ 35.03 \$ 99.87 \$ 16.11 \$ -2.55 \$ 326.99 \$ 653.98 \$ 139.60 \$ 83.76 \$ 17.18 \$ 665.79 \$ 432.76 \$ 2,996.06 \$ 3,43	\$ 490.05 \$0 \$ 708.75 \$0 \$ 233.70 \$46 \$ \$0 \$ 490.05 \$0 \$ 3,430.35 \$0 \$ 6.860.70 \$0 \$ 1,181.25 \$250 \$ 708.75 \$150 \$ 290.40 \$10 \$ 4,725.00 \$0 \$ 3,071.25 \$0 \$ 7,087.50 \$0 \$ 5,7087.50 \$0 \$ 5, 3071.25 \$0 \$ 5,	14.0 7.1 14.5 9.3 10.5 10.5 8.5 8.5 16.9 7.1 7.1 2.4
Storage Office Room 111 - Sci Room 112 - Room 113 - Room 114 - Room 115 - Room 115 - Room 115 - Room 115 - Room 116 - Room 117 - Room 117 - Room 117 - Room 117 - Room 118 - Room 118 - Room 117 - Room 118 - Roo	gge 1 298 30 Science 2 11 21 22 - Art 42 112E 5 113 2 113 2 114 20 114 13 30 98 30 98 6 6 6 ROom 24 et 1 1 et 1 1 enter 8 24 et 1 1 et 1 20 11 enter 18 20 11 enter 18 21 enter 18 22 enter 9 24 25 26 27 27 28 28 29 30 30 29 30 30 30 30 30 30 30 30 30 30 30 30 30	1T 32 R F 2 (ELE) W 32 P F 3 (ELE) T 32 R F 3 (ELE) T 32 R F 3 (ELE) W 32 C F 4 (ELE) T 32 R F 2 (U (ELE) T 32 R F 2 (U (ELE) W 32 C F 4 (ELE) W 32 C F 7 (ELE)	CF0132-L F42LL F42LL F42LL F42LL F43LL/2 F43LL/2 F43LL/2 F44LL F44LL F44LL F44LL F44LL F44LL F44LL F42LL	28 59 59 59 90 90 31 112 112 112 351 59 60 60 117 28 458 60 60 59 59 60 60 59 60 60 60 60 60 60 60 60 60 60	0.0 0.2 1.2 2.5 0.5 0.3 0.3 0.1 1.2 2.2 2.5 0.5 0.4 1.4 1.4 1.4 1.4 1.0 0.1 0.1 0.9 0.8 8.2 0.1 0.8 0.9 0.1 1.1 1.1 1.1	SW SW SW SW SW SW SW SW SW SW SW SW SW S	2856 2856 3213 2856 2856 2856 2856 2856 2856 2856 2856	7.077 1.285 771 1.77 6.397 4.158 28.788 37.592 1.011 3.033 3.033 1.29 1.29 3.580	3 21 42 5 5 3 2 20 13 30 30 6 6 24 24 1 1	4 fLED Tube 4 fLED Tube 4 fLED Tube 7 59 R.LED 7 59 R.LED 4 fLED Tube 7 74 R.LED 7 74 R.LED 7 74 R.LED 7 174 R.LED 1 74 R.LED 1 75 SUBE	CF013/24 200732/2 200732/2 200732/2 RTLED38 RTLED38 RTLED39 RTLED50 RT	30 28 30 30 30 33 38 38 15 50 50 50 351 30 30 30 30 30 30 30 30 30 30	0.0 0.1 0.6 1.3 0.2 0.1 0.0 1.0 0.7 1.5	SW SW SW SW SW SW SW SW SW SW SW SW	2.856 2.856 3.213 2.856 2.856 2.856 2.856 2.856 2.856 2.856 2.856 2.856 3.570 2.856 3.570 2.856	3,599 543 326 86 2,856 1,856 12,852 37,592 514 1,542	86 0.0 - 0.0 280 0.1 1,739 0.6 3,479 1.2 743 0.3 446 0.2 91 0.0 3,541 1.2 2,302 0.8 5,936 1.9 - 0.0 497 0.2	\$ 16.11 \$ - \$ 52.55 \$ 326.99 \$ 663.98 \$ 139.60 \$ 83.76 \$ 17.18 \$ 665.79 \$ 432.76 \$ 2.996.06 \$ 93.43	\$ 233.70 \$45 \$ 90 \$ 490.05 \$0 \$ 3,430.35 \$0 \$ 6,860.70 \$0 \$ 1,181.25 \$250 \$ 708.75 \$150 \$ 290.40 \$10 \$ 4.725.00 \$0 \$ 3,071.25 \$0 \$ 7,087.50 \$0 \$	9.3 10.5 10.5 8.5 8.5 16.9 7.1 7.1 2.4
Room 111 - Sid Room 112- Non 111 - Sid Room 112- Non 112-	Science   21	W 32 P F 2 (ELE) W 32 P F 2 (ELE) W 32 P F 2 (ELE) T 32 R F 3 (ELE) T 32 R F 3 (ELE) W 32 C F 4 (ELE) T 54 W F 6 (ELE) (T-5) W 32 P F 2 (ELE)	F42LL F42LL F42LL F42LL F43LL/2 F43LL/2 F43LL/2 F44LL F44LL F44LL F44LL F44LL F44LL F44LL F42LL	59 90 90 31 112 112 112 112 351 59 60 60 60 59 59 59 59 59 59 59 59 59 59 60 60 60 59 59 59 60 60 60 60 60 60 60 60 60 60 60 60 60	2.5 3.4 10.5 1.4 1.4 1.4 1.4 1.1 1.0 1.9 1.8 8.8 1.1 1.1 1.1 1.1	SW SW SW SW SW SW SW SW SW SW SW SW SW S	2856 2856 2856 2856 2856 2856 2856 8568 8568	7.077 1.285 771 1.77 6.397 4.158 28.788 37.592 1.011 3.033 3.033 1.29 1.29 3.580	3 21 42 5 5 3 2 20 13 30 30 6 6 24 24 1 1	4 fLED Tube 4 fLED Tube 4 fLED Tube 7 59 R.LED 7 59 R.LED 4 fLED Tube 7 74 R.LED 7 74 R.LED 7 74 R.LED 7 174 R.LED 1 74 R.LED 1 75 SUBE	200732/2 200732/2 RTLED38 RTLED38 RTLED38 200732/1 RTLED50 RTLED50 RTLED50 RTLED50 F46GHL 200732/2 200732/2 200732/2 2RTLED RTLED	30 30 30 38 38 115 50 50 50 351 30 30 30	0.6 1.3 0.2 0.1 0.0 1.0 0.7 1.5	SW SW SW SW SW SW SW SW SW SW	2,856 2,856 2,856 2,856 2,856 2,856 2,856 2,856 8,568 3,570 2,856	3,599 543 326 86 2,856 1,856 12,852 37,592 514 1,542	3.479 1.2 743 0.3 446 0.2 91 0.0 3.541 1.2 2.302 0.8 5.936 1.9 - 0.0 497 0.2	\$ 326.99 \$ 653.98 \$ 139.60 \$ 83.76 \$ 17.18 \$ 665.79 \$ 432.76 \$ 2,996.06 \$ 93.43	\$ 3,430.35 \$0 \$ 6,860.70 \$0 \$ 1,181.25 \$250 \$ 708.75 \$150 \$ 290.40 \$10 \$ 4,725.00 \$0 \$ 3,071.25 \$0 \$ 7,087.50 \$0 \$ 5,7087.50 \$0	10.5 8.5 8.5 16.9 7.1 7.1 2.4
Room 112E Room 112E Room 113E Room 114 Room 115	112E   5   112F   5   112F   5   112F   5   112F   5   113F   5   114F   5	T 32 R F 3 (ELE)  T 32 R F 3 (ELE)  S 28 F F 1 (ELE)  W 32 C F 4 (ELE)  T 54 W F 6 (ELE) (T-5)  W 32 F F 2 (ELE)  Z T 32 R F 2 (W) (ELE)  W 32 F F 2 (ELE)  W 32 F F 3 (ELE)  W 32 F F 3 (ELE)  W 32 F F 3 (ELE)  W 32 F F 2 (ELE)  R 13 C C F 2 (ELE)  R 13 C C F 2 (ELE)  R 13 C C F 2 (ELE)	F43ILL/2 F43ILL/2 F43ILL/2 F44ILL F44ILL F44ILL F44ILL F44ILL F45ILL F45	112 112 351 59 59 60 60 117 28 458 60 59 59 59 59 59 59 59 60 60 59 59 60 60 59 59 60 60 60 59 59 60 60 60 60 59 59 60 60 60 60 60 60 60 60 60 60 60 60 60	2.5 3.4 10.5 1.4 1.4 1.4 1.4 1.1 1.0 1.9 1.8 8.8 1.1 1.1 1.1 1.1	SW SW SW SW SW SW SW SW SW SW SW SW SW S	2856 2856 2856 2856 2856 8568 8568 3570 2856 2142 2142 2142 2142 3825 3825 3825 3825	1,285 771 177 6,397 4,158 28,788 37,592 1,011 3,033 3,033 129 129 129 3,580	5 3 2 20 13 30 30 6 24 24 1 1 1 8	7 59 R LED 7 59 R LED 7 48 R LED 7 14 R LED 7 74 R LED 7 74 R LED 7 754 R LED 7 54 W F 6 (ELE) (T-5) 4 R LED Tube 4 R LED Tube 4 R LED Tube 2 T XX R LED 2 T XX R LED 2 T XX R LED	200735/2 RTLED38 RTLED38 200735/2 RTLED50 RTLED50 RTLED50 RTLED50 RTLED50 RTLED50 200735/2 200735/2 200735/2 2RTLED 2RTLED	30 38 38 15 50 50 50 351 30 30 30	0.2 0.1 0.0 1.0 0.7 1.5	SW SW SW SW SW SW SW SW	2,856 2,856 2,856 2,856 2,856 2,856 8,568 3,570 2,856	543 326 86 2,856 1,856 12,852 37,592 514 1,542	743 0.3 446 0.2 91 0.0 3,541 1.2 2,302 0.8 5,936 1.9 - 0.0 497 0.2	\$ 139.60 \$ 83.76 \$ 17.18 \$ 665.79 \$ 432.76 \$ 2,996.06 \$ - \$ 93.43	\$ 1,181.25 \$250 \$ 708.75 \$150 \$ 290.40 \$10 \$ 4,725.00 \$0 \$ 3,071.25 \$0 \$ 7,087.50 \$0 \$ - \$0	10.5 8.5 8.5 16.9 7.1 7.1 2.4
Room 113 Room 114 Room 115 Room 116 Room 116 Room 117 Roo	113 2 114 20 114 20 114 13 30ys 30 30 ymnasium 30 ge 6 6 of Room 24 et 1 1 et 1 1 et 1 21 et 24 et 1 1 et 1 21 et 1 21 et 1 30 genter 8 24 et 1 26 et 1 27 enter 8 28 enter 1 29 enter 1 29 ent 20 enter 1 20 enter 1 20 enter 1 20 enter 2 20 ent 20 enter 30 enter 30 enter 4 20 enter 1 20 enter 8 20 enter 9 20 enter 1 20 enter 9 20 enter 1 20 enter 9 20 20 20 20 20 20 20 20 20 20 20 20 20	\$ 28 P F 1 (ELE)  W 32 C F 4 (ELE)  W 32 C F 4 (ELE)  W 32 C F 4 (ELE)  T 54 W F 6 (ELE) (T-5)  W 32 P F 2 (ELE)  Z T 32 R F 2 (W) (ELE)  Z T 32 R F 2 (W) (ELE)  Z T 32 R F 2 (W) (ELE)  E 43 C B 2 (ELE)  W 32 P F 2 (ELE)	F41LL F44LL F44LL F44LL F44LL F46HL F46GH F42LL	112 112 351 59 59 60 60 117 28 458 60 59 59 59 59 59 59 59 60 60 59 59 60 60 59 59 60 60 60 59 59 60 60 60 60 59 59 60 60 60 60 60 60 60 60 60 60 60 60 60	2.5 3.4 10.5 1.4 1.4 1.4 1.4 1.1 1.0 1.9 1.8 8.8 1.1 1.1 1.1 1.1	SW SW SW SW SW SW SW SW SW SW SW SW SW S	2856 2856 2856 8568 3570 2856 2142 2142 2142 2142 3825 3825 3825 3825	4,158 28,788 37,592 1,011 3,033 3,033 129 129 3,580	20 13 30 30 6 24 24 1 1 8	4 fl LED Tube T 74 R LED T 74 R LED T 74 R LED T 54 W F6 (ELE) (T-5) 4 fl LED Tube 4 fl LED Tube 4 fl LED Tube 2 T XX R LED T XX R LED	200732x1 RTLED50 RTLED50 RTLED50 F46GHL 200732x2 200732x2 200732x2 2RTLED 2RTLED	38 15 50 50 50 351 30 30	1.0 0.7 1.5	SW SW SW SW SW	2,856 2,856 2,856 8,568 3,570 2,856	86 2,856 1,856 12,852 37,592 514 1,542	91 0.0 3,541 1.2 2,302 0.8 5,936 1.9 - 0.0 497 0.2	\$ 17.18 \$ 665.79 \$ 432.76 \$ 2,996.06 \$ - \$ 93.43	\$ 290.40 \$10 \$ 4,725.00 \$0 \$ 3,071.25 \$0 \$ 7,087.50 \$0 \$ - \$0	16.9 7.1 7.1 2.4
Room 114 Halways 1st Floor - Gymm Storage Boys Locker R Girls Locker R Toilet Toilet Toilet Media Center Halways Lobby Room 223 Halways Lobby Room 224 Room 233 Auditorium Auditorium Room 201 Room 203 Toilet Toilet 104 Room 211 Ro	114 13 ays 30 ays 30 ymrasium 30 ape 6 er Room 24 et 1	W 32 C F 4 (ELE) W 32 C F 4 (ELE) T 54 W F 6 (ELE) (T-5) W 32 P F 2 (ELE) Z T 32 R F 2 (to) (ELE) Z T 32 R F 2 (to) (ELE) Z T 32 R F 2 (to) (ELE) E 13 C F 2 (ELE) H 36 E Bay MH 400 11 T 32 R F 2 (ELE) W 32 P F 2 (ELE)	F-44ILL F-466HL F-466HL F-420LL F-420LL F-420LL F-420LL F-420LL F-420HL CF01392-L MH40001 F-420LL F-42	112 112 351 59 59 60 60 117 28 458 60 59 59 59 59 59 59 59 60 60 59 59 60 60 59 59 60 60 60 59 59 60 60 60 60 59 59 60 60 60 60 60 60 60 60 60 60 60 60 60	0.4 1.4 1.4 0.1 0.1 0.9 0.8 8.2 0.1 0.8 0.9 1.1	SW SW SW SW SW SW SW SW SW SW SW SW SW	2856 8568 3570 2856 2142 2142 2142 2142 2142 3825 3825 3825 3825	4,158 28,788 37,592 1,011 3,033 3,033 129 129 3,580	13 30 30 6 24 24 1 1 8	T 74 R LED T 74 R LED T 54 W F 6 (ELE) (T-5) 4 ht LED Tube 4 ht LED Tube 4 ht LED Tube 2 ht LED Tube 2 t XX R LED 2 T XX R LED	RTLED50 RTLED50 F46GHL 200732x2 200732x2 200732x2 2RTLED 2RTLED	50 50 50 351 30 30	0.7 1.5	SW SW SW SW	2,856 8,568 3,570 2,856	1,856 12,852 37,592 514 1,542	2,302 0.8 5,936 1.9 - 0.0 497 0.2	\$ 432.76 \$ 2,996.06 \$ - \$ 93.43	\$ 3,071.25 \$0 \$ 7,087.50 \$0 \$ - \$0	7.1 2.4
1st Floor - Gymm Storage Boys Locker R Girls Locker R Toilet Toilet Media Center Me	wmasium         30           ge         6           er Room         24           et Room         24           et et         1           et         1           et         1           et         1           enter         8           enter         18           enter         2           er Lab         14           Xoom         16           225         18           224         18           233         18           sium         2           sium         6           ays         7           ays         9           ays         2           ays         30           by         7           227         18           Music Room         24	T 54 W F 6 (ELE) (T-5) W 32 P F 2 (ELE) W 32 P F 2 (ELE) W 32 P F 2 (ELE) ZT 32 R F 2 (u) (ELE) ZT 32 R F 2 (u) (ELE) ZT 32 R F 2 (u) (ELE) E430HL F430HL F430HL High Bay MH 400 1T 32 R F 2 (ELE) W 32 P F 2 (ELE) High Bay MH 400 ZT 32 R F 2 (ELE) W 32 P F 2 (ELE) W 32 P F 2 (ELE) High Bay MH 400 ZT 32 R F 2 (ELE) High Bay MH 400 ZT 32 R F 2 (ELE) High Bay MH 400 ZT 32 R F 2 (ELE) High Bay MH 400 ZT 32 R F 2 (ELE) High Bay MH 400 ZT 32 R F 2 (ELE) High Bay MH 400 ZT 32 R F 2 (ELE) R 13 C C F 2 (ELE)	F466HL F42LL F42LL F42LL F42LL F42LL F42CH F42CH CF0132-L MH4001 F42LL	59 59 59 60 60 1117 28 458 60 59 59 59 59 59 458 60 31	0.4 1.4 1.4 0.1 0.1 0.9 0.8 8.2 0.1 0.8 0.9 1.1	SW SW SW SW SW SW SW SW SW SW SW	3570 2856 2142 2142 2142 2142 3825 3825 3825 3825 3825	37,592 1,011 3,033 3,033 129 129 3,580	24 1 1 8	T 54 W F 6 (ELE) (T-5) 4 ft LED Tube 4 ft LED Tube 4 ft LED Tube 2T XX R LED 2T XX R LED	200732x2 200732x2 200732x2 2RTLED 2RTLED	351 30 30 30	1.5 10.5 0.2 0.7	SW SW	3,570 2,856	37,592 514 1,542	- 0.0 497 0.2	\$ - \$ 93.43	\$ - \$0	10.5
Boys Locker R Girls Locker R Toilet Toilet Media Centt Vocal Roon Roon 225 Roon 224 Roon 225 Roon 224 Roon 225 Roon 227 Roon 227 Roon 227 Roon 227 Roon 220 Roon 227 Roon 220 Roon 221 Roon 221 Roon 221 Roon 222 Roon 222 Roon 223 Roon 223 Roon 223 Roon 223 Roon 223 Roon 223 Roon 221 Roon 221 Roon 212 Roon 211 Roon 211 Roon 211 Roon 211 Roon 212 Roon 214 Toilet Toilet Storage Roon 227 Roon 227 Roon 214 Toilet Roon 214 Toilet Roon 214 Toilet Storage Roon 227 Roon 227 Roon 214 Toilet Storage Roon 227 Hallways Roon Roon 327 Roon 227 Hallways Roon Roon 327 Roon 227 Roon	er Room 24 er Room 24 er Room 24 er Room 24 et 1 et	W 32 P F 2 (ELE)  W 32 P F 2 (ELE)  ZT 32 R F 2 (u) (ELE)  ZT 32 R F 2 (u) (ELE)  F 43 CH.  F 13 C F 2 (ELE)  High Bay MH 400  TT 32 R F 2 (ELE)  W 32 P F 2 (ELE)  High Bay MH 400  ZT 32 R F 2 (ELE)  W 32 P F 2 (ELE)  W 32 P F 2 (ELE)  High Bay MH 400  ZT 32 R F 2 (U) (ELE)  Z 38 P F 1 (ELE)  TT 32 R F 2 (ELE)  TT 32 R F 2 (ELE)  W 32 P F 2 (ELE)  R 13 C C F 2 (ELE)  R 13 C C F 2 (ELE)	F42LL F42LL F42LL F42CH CFG13V2-L MH400'1 F42LL F62LL F62LL F62LL F62LL	117 28 458 60 59 59 59 59 59 59 59 458 60 31	1.4 0.1 0.1 0.9 0.8 8.2 0.1 0.8 0.9 1.1	SW SW SW SW SW SW SW SW SW	2142 2142 2142 2142 2142 3825 3825 3825 3825 3825	3,033 3,033 129 129 3,580	24 1 1 8	4 ft LED Tube 4 ft LED Tube 2T XX R LED 2T XX R LED	200732x2 200732x2 2RTLED 2RTLED	30 30 30	0.2 0.7	SW					\$ 980.10 \$0	
Toilet Toilet Toilet Media Centt Computer Le Vocal Roon Room 225 Room 224 Room 223 Gymnasium Gymnasium Hallways Hallways Hallways Hallways Hallways Hallways Hallways Toilet Room 227 Room 230 - Music Room 228 Room 238 Room 238 Room 230 Room 250 Room 250 Room 250 Room 271 Room 211 Room 212 Room 211 Room 212 Room 212 Room 212 Room 211 Ro	et et 1 et	ZT 32 R F 2 (u) (ELE) ZT 32 R F 2 (u) (ELE) F43GHL R13 C G F 2 (ELE) High Bay MH 400 11 32 R F 2 (ELE) W 32 P F 2 (ELE) High Bay MH 400 ZT 32 R F 2 (u) (ELE) S 28 P F 1 (ELE) I S 28 P F 1 (ELE) IT 32 R F 2 (ELE) IT 32 R F 2 (ELE) W 32 P F 2 (ELE) R13 C G F 2 (ELE) R13 C G F 2 (ELE)	FUZLL FUZLL F426HL CF013/2-L MH400/1 F42LL CF013/2-L F42LL CF013/2-L F42LL F42LL F42LL	117 28 458 60 59 59 59 59 59 59 59 458 60 31	0.1 0.9 0.8 8.2 0.1 0.8 0.9 1.1 1.1	SW SW SW SW SW SW SW SW	2142 2142 3825 3825 3825 3825 3825	129 3,580	1 1 8	2T XX R LED 2T XX R LED	2RTLED 2RTLED	30			2,142		1,491 0.7		\$ 3,920.40 \$0	14.0
Media Caretic Media Media Caretic Media Medi	Perfer 8 Perfer 8 Perfer 8 Perfer 9 Per	F42GHL R13 C F2 (ELE) High Bay MH 400 11 32 R F2 (ELE) W 32 P F2 (ELE) High Bay MH 400 Z 32 R F2 (ELE) R13 C G F2 (ELE) IT 32 R F2 (ELE) W 32 P F2 (ELE) R13 C G F2 (ELE) R13 C G F2 (ELE) R13 C G F2 (ELE)	F42GHL CFG132-L MH4001 F42LL CFG132-L F42LL CFG132-L F42LL F42LL	117 28 458 60 59 59 59 59 59 59 59 458 60 31	0.9 0.8 8.2 0.1 0.8 0.9 1.1	SW SW SW SW SW SW SW	3825 3825 3825 3825		1 8			23	0.7 0.0	SW	2,142 2,142	1,542 54	1,491 0.7 75 0.0 75 0.0	\$ 280.28 \$ 14.09	\$ 202.50 \$50	14.0 14.4
Media Cente Media Cente Media Cente Computer Le Vocal Roon Roon 225 Roon 224 Roon 225 Roon 224 Roon 225 Gymrasium Gymrasium Halaways Toom 227 Room 220 Room 223 Auditorium Auditorium Auditorium Auditorium Roon 201 Roon 202 Roon 203 Roon 203 Roon 203 Roon 203 Roon 203 Toilet Toilet 209 A & B Roon 211 Roon 211 Roon 212 Roon 212 Roon 214 Toilet Toilet Storage Roon 215 Roon 215 Roon 216 Roon 217 Roon 217 Roon 217 Roon 218 Roon 218 Roon 219 Roon 211 Roon 211 Roon 212 Roon 212 Roon 214 Toilet Storage Roon 203 Roon 203 Toilet	Penter 18 Penter 2 Penter 2 Penter 2 Penter 2 Penter 14 Penter 15 Penter 16	High Bay MH 400 11 32 R F 2 (ELE) W 32 P F 2 (ELE) High Bay MH 400 21 32 R F 2 (M (ELE) S 28 P F 1 (ELE) IT 32 R F 2 (ELE) IT 32 R F 2 (ELE) IT 32 R F 2 (ELE) R 13 C C F 2 (ELE) R 13 C C F 2 (ELE) W 32 P F 2 (ELE) W 32 P F 2 (ELE)	F42LL F42LL F42LL F42LL F42LL F42LL F42LL F42LL F42LL MH400'T FU2LL F41LL CF0132-L F42LL F42LL F42LL F42LL	60 59 59 59 59 59 59 458 60	0.8 0.9 1.1 1.1 1.1	SW SW SW	3825 3825	3,213		F42GHL	F42GHL	117	0.0	SW SW	2,142 3,825	54 3,580	75 0.0 - 0.0	\$ 14.09 \$ -	\$ 202.50 \$50 \$ - \$0	14.4
Computer Li Vocal Roon Roon 225 Roon 225 Roon 224 Roon 225 Roon 224 Roon 225 Gymnasium Gymnasium Halaways Halaways Halaways Halaways Halaways Halaways Halaways Halaways Roon 227 Room 230 - Music Roon 228 Roon 233 Auditorium Auditorium Auditorium Auditorium Foon 201 Roon 202 Roon 203 Roon 203 Roon 203 Roon 203 Roon 210 Roon 211 Roon 211 Roon 211 Roon 211 Roon 211 Roon 212 Roon 212 Roon 212 Roon 212 Roon 212 Roon 214 Toilet Toilet Storage Roon 215 Roon 216 Roon 217 Roon 217 Roon 218 Roon 218 Roon 219 Roon 211 Roon 211 Roon 212 Roon 212 Roon 214 Toilet Toilet Toilet Storage Roon 207 R	er Lab 14  Nocom 16  225 18  224 18  223 18  223 18  223 9  18  223 9  18  23 9  24 7  27  28vs 9  29vs 9  27  29v 7  277  18  18  18  18  18  18  18  18  18	W 32 P F 2 (ELE) High Bay MH 400 2T 32 R F 2 (M (ELE) S 28 P F 1 (ELE) IT 32 R F 2 (ELE) IT 32 R F 2 (ELE) R 13 C C F 2 (ELE) R 13 C C F 2 (ELE) W 32 P F 2 (ELE) W 32 P F 2 (ELE) W 32 P F 2 (ELE)	F42LL F42LL F42LL F42LL F42LL F42LL MH400'1 FU2LL F41LL CF0132-L F42LL F42LL CF032-L	59 59 59 458 60 31	0.8 0.9 1.1 1.1 1.1	SW SW SW				R 13 C CF 2 (ELE) BAYLED78W	CFQ13/2-L BAYLED78W	93	1.7	SW	3,825 3,825	3,213 6,403 2	- 0.0 25,130 6.6	\$ 4,724.49		3.2
Room 225 Room 224 Room 224 Room 223 Gymnasium Gymnasium Hailways Hailways Hailways Hailways Hailways Room 227 Room 230 - Music Room 238 Room 238 Room 238 Room 230 Room 240 Room 250 Ro	225         18           224         18           223         18           sium         2           sium         6           aye         7           aye         9           aye         2           aye         2           aye         7           2y         7           227         18           usic Room         24	W 32 P F 2 (ELE) W 32 P F 2 (ELE) W 32 P F 2 (ELE) High Baw Hi 400 2T 32 R F 2 (u) (ELE) S 28 P F 1 (ELE) IT 32 R F 2 (ELE) IT 32 R F 2 (ELE) W 32 P F 2 (ELE) R 13 C C F 2 (ELE) W 32 P F 2 (ELE) W 32 P F 2 (ELE)	F42ILL F42ILL F42ILL MH400/1 FUZLL F41ILL CF0132-L F42LL F42ILL F42ILL CF0132-L	59 59 59 458 60 31	1.1 1.1 1.1	SW		459 3,159	14	4 ft LED Tube 4 ft LED Tube	200732x2 200732x2	30	0.1 0.4	SW	3,825 3,825		230 0.1 1,553 0.4	\$ 43.15 \$ 291.95	\$ 2,286.90 \$0	10.8 7.8
Room 223 Gymnasium Gymnasium Gymnasium Hailways Hailways Hailways Hailways Hailways Room 227 Room 230 - Music Room 228 Room 238 Auditorium Auditorium Auditorium Auditorium Auditorium Foom 201 Room 202 Room 203 Room 203 Room 203 Room 203 Room 204 Toilet 209 A & B Room 210 Room 211 Room 212 Room 212 Room 214 Toilet Storage Norm 215 Room 214 Toilet Storage Room 215 Room 214 Toilet Toilet Storage Room 214 Toilet Storage Room 215 Room 214 Toilet Toilet Toilet Storage Room 214 Toilet Storage Room 217 Room 217 Room 218 Room 218 Room 219 Room 219 Room 210 Room 21	223 18 silum 2 silum 6 ayus 7 ayus 9 ayus 9 ayus 2 ayus 30 2 ayus 30 2 7 18 18 18 18 18 18 18 18 18 18 18 18 18	W 32 P F 2 (ELE) High Bay MH 400 2T 32 R F 2 (u) (ELE) S 28 P F 1 (ELE) R 13 C C F 2 (ELE) 1T 32 R F 2 (ELE) W 32 P F 2 (ELE) R 13 C C F 2 (ELE) W 32 P F 2 (ELE) W 32 P F 2 (ELE) W 32 P F 2 (ELE)	F42ILL MH400/1 FUZLL F41ILL CF013/2-L F42LL F42ILL CF013/2-L	59 458 60 31	1.1		2856 2856	2,696 3,033	18	4 ft LED Tube 4 ft LED Tube	200732x2 200732x2	30	0.5 0.5	SW SW	2,856 2,856	1,542	1,325 0.5 1,491 0.5	\$ 249.13 \$ 280.28	\$ 2,940.30 \$0	10.5 10.5
Gymnasium Hallways Hallways Hallways Hallways Hallways Hallways Hallways Room 220 Music Room 228 Room 203 Room 204 Room 202 Room 202 Room 203 Room 203 Toilet Toilet 209 A & B Room 210 Room 211 Room 212 Room 214 Toilet Storage Room 212 Room 214 Toilet Storage Room 214 Toilet Storage Room 214 Toilet Storage Room 214 Toilet Room 214 Room 214 Toilet Toilet Toilet Room 214 Toilet Room 214 Room 216 Room 207 Roo	sium 6 6 ays 7 7 ays 9 2 2 ays 30 2 2 ays 30 2 2 ays 30 2 2 ays 12 2 2 4 4 4 4 5 4 5 6 6 6 6 6 6 6 6 6 6 6 6 6	ZT32RF2(u)(ELE) S28PF1(ELE) R13CCF2(ELE) IT32RF2(ELE) W32PF2(ELE) R13CCF2(ELE) W32PF2(ELE) W32PF2(ELE)	FU2LL F41ILL CF013/2-L F42LL F42ILL CF013/2-L	60 31		SW SW SW	2856 2856 3570	3,033 3,033 3,270	18	4 ft LED Tube 4 ft LED Tube BAYLED78W	200732x2 200732x2 BAYLED78W	30	0.5 0.5 0.2	SW SW SW	2,856 2,856 3,570	1,542	1,491 0.5 1,491 0.5 2,606 0.7	\$ 280.28 \$ 280.28	\$ 2,940.30 \$0	10.5 10.5
Halways Halways Halways Halways Lobby Room 227 Room 230 - Music Room 238 Room 238 Auditorium Auditorium Auditorium Auditorium Auditorium Room 201 Room 202 Room 203 Room 203 Room 203 Room 203 Room 203 Toilet Toilet 209 A 8 B Room 210 Room 211 Room 211 Room 212 Room 212 Room 212 Room 212 Room 214 Toilet Toilet Toilet Toilet Toilet Toilet Room 214 Room 214 Room 215 Room 214 Room 214 Toilet Storage Nurse Room 221 Halways	ays 9 ays 2 ays 30 ov 7 227 18 dusic Room 24	R 13 C CF 2 (ELE) 11 32 R F 2 (ELE) W 32 P F 2 (ELE) R 13 C CF 2 (ELE) W 32 P F 2 (ELE)	CFQ13/2-L F42LL F42ILL CFQ13/2-L	- 31	0.4	SW	3570 3570 8568	1,285 1,859	6 7	2T XX R LED 4 ft LED Tube	2RTLED 200732v1	25	0.2	SW SW	3,570 3,570 8,568	536	750 0.2 960 0.1	\$ 489.95 \$ 140.94 \$ 180.41	\$ 1,215.00 \$300	3.4 8.6 5.6
Hallways Lobby Room 227 Room 230 - Music Room 230 - Room 230 Auditorium Auditorium Auditorium Room 201 Room 202 Room 203 Room 203 Toilet Toilet 209 A 8 B Room 210 Room 211 Room 211 Room 211 Room 212 Room 212 Room 212 Room 212 Room 214 Toilet Toilet Toilet Storage Nurse Room 221 Hallways Room 221 Hallways	avs 30 by 7 227 18 fusic Room 24	W 32 P F 2 (ELE) R 13 C CF 2 (ELE) W 32 P F 2 (ELE)	F42ILL CFQ13/2-L	28	0.3	SW	8568 8568	2,159 1,028	9	R 13 C CF 2 (ELE) 4 ft LED Tube	CFQ13/2-L 200732x2	28	0.1	SW	8,568 8,568	2,159	- 0.0 514 0.1	\$ - \$ 96.65	\$ - \$0	4.8
Room 227 Room 230 - Music Room 230 - Music Room 230 - Music Room 233 Auditorium Auditorium Auditorium Room 201 Room 202 Room 203 Room 203 Toilet Toilet 209 A 8 B Room 210 Room 211 Room 211 Room 214 Toilet Toilet Toilet Room 215 Room 215 Room 216 Room 217 Room 217 Room 217 Room 218 Room 218 Room 218 Room 218 Room 219 Room 219 Room 219 Room 211 Room 211 Room 212 Room 214 Toilet Toilet Toilet Toilet Storage Nurse Room 221 Hallways 2nd Floor - Roor	227 18 Music Room 24	W 32 P F 2 (ELE)		59 28	1.8	SW	8568 2856	15,165 560	30	4 ft LED Tube R 13 C CF 2 (ELE)	200732x2 CFQ13/2-L	30	0.9	SW SW	8,568 2,856	7,711 560	7,454 0.9	\$ 1,401.38		3.5
Room 228 Room 233 Auditorium Auditorium Auditorium Auditorium Auditorium Room 201 Room 202 Room 203 Room 203 Toilet Toilet 209 A 8 B Room 210 Room 211 Room 211 Room 214 Toilet Room 214 Room 215 Room 214 Toilet Toilet Toilet Toilet Toilet Toilet Storage Room 221 Hallways Zen Floor - Roor			F42ILL F42ILL	59 59	1.1	SW	2856 2856	3,033 4,044		4 ft LED Tube 4 ft LED Tube	200732x2 200732x2	30	0.5	SW	2,856 2,856		1,491 0.5 1,988 0.7	\$ 280.28 \$ 373.70	\$ 2,940.30 \$0 \$ 3,920.40 \$0	10.5 10.5
Auditorium Auditorium Auditorium Auditorium Auditorium Room 2021 Room 203 Room 203 Room 203 Toilet Toilet 209 A 8 B Room 210 Room 211 Room 212 Room 214 Toilet Toilet Toilet Toilet Toilet Toilet Toilet Toilet Room 214 Room 215 Room 214 Toilet Toilet Toilet Toilet Storage Room 221 Halways Zon Floor - Roor Room 321 Room 212 Room 214 Toilet Toilet Toilet Storage Room 221 Room 221 Room 240 Room 321 Ro	233 24	W 32 P F 2 (ELE) W 32 P F 2 (ELE)	F42ILL F42ILL	59 59	0.1	SW	2856 2856	337 4,044	2 24	4 ft LED Tube 4 ft LED Tube	200732x2 200732x2	30	0.1 0.7	SW SW	2,856 2,856	171 2,056	166 0.1 1,988 0.7	\$ 31.14 \$ 373.70	\$ 326.70 \$0	10.5 10.5
Auditorium Room 201 Room 202 Room 203 Room 203 Room 203 Toilet Toilet 209 A & B Room 210 Room 211 Room 211 Room 214 Toilet Storage Room 221 Halways Znd Floor - Roor	rium 8	W 32 P F 2 (ELE) R 75 C I 1	F42ILL i75/1	59 75	0.5 0.5	SW	3825 3825	1,805 2,008	8	4 ft LED Tube	200732x2 CFQ26/1-L	30 27	0.2	SW SW	3,825 3,825	918	887 0.2 1,285 0.3	\$ 166.83 \$ 241.62	\$ 1,306.80 \$0	7.8 0.6
Room 202 Room 203 Room 203 Room 203 Toilet Toilet 209 A & B Room 210 Room 211 Room 212 Room 214 Toilet Toilet Storage Room 221 Halways 2nd Floor - Roor Room 327 Room 328 Room 221 Room 240 Room 27 Room 37 Room	rium 48	B 32 W F 1 (MAG) W 32 P F 2 (ELE)	F41LL F42ILL	32 59	1.5	SW	3825 2856	5,875 3,033	18	CF 26 B 32 W F 1 (MAG) 4 ft LED Tube	F41LL 200732x2	32	1.5 0.5	SW SW	3,825 2,856	5,875 1,542	- 0.0 1,491 0.5	\$ -	\$ - \$0	
Tollet Tollet 209 A & B Room 210 Room 210 Room 211 Room 212 Room 212 Room 214 Tollet Tollet Storage Room 221 Hallways Room 221	202 18 203 6	W 32 P F 2 (ELE) W 32 C F 4 (ELE)	F42ILL F44ILL	59 112	1.1 0.7	SW	2856 2856	3,033 1,919		4 ft LED Tube T 74 R LED	200732x2 RTLED50	30 50	0.5 0.3	SW	2,856 2,856	1,542 857	1,491 0.5 1,062 0.4	\$ 280.28 \$ 199.74	\$ 1,417.50 \$0	10.5 10.5 7.1
209 A & B Room 2101 Room 2101 Room 2111 Room 2121 Room 212 Room 214 Tollet Tollet Storage Room 221 Hallways 2nd Floor - Roor Room 221	et 3	T 32 R F 3 (ELE) T 32 R F 3 (ELE)	F43ILL/2 F43ILL/2	90 90	0.1	SW	2856 2142	257 578	3	T 59 R LED T 59 R LED	RTLED38 RTLED38	38 38	0.0 0.1	SW SW	2,856 2,142	109 244	149 0.1 334 0.2	\$ 27.92 \$ 62.82		8.5 11.3
Room 210 Room 211 Room 212 Room 212 Room 214 Tolet Tolet Storage Room 221 Hallways 2nd Floor - Room	&B 8	T 32 R F 3 (ELE) W 32 C F 4 (ELE)	F43ILL/2 F44ILL	90 112	0.3	SW SW	2142 2856	578 2,559	3 8	T 59 R LED T 74 R LED		38 50	0.1 0.4	SW SW	2,142 2,856	244 1,142	334 0.2 1,417 0.5	\$ 62.82 \$ 266.32	\$ 1,890.00 \$0	11.3 7.1
Room 212 Room 214 Room 214 Toilet Toilet Storage Nurse Room 224 Hallways 2nd Floor - Roor Room 207 Room 207 Room 207	210 8	W 32 C F 4 (ELE) W 32 P F 2 (ELE)	F44ILL F42ILL	112 59	0.2 0.5	SW	2856 2856	640 1,348	2 8	T 74 R LED 4 ft LED Tube	RTLED50 200732x2	30	0.1 0.2	SW SW	2,856 2,856	286 685	354 0.1 663 0.2	\$ 66.58 \$ 124.57	\$ 1,306.80 \$0	7.1 10.5
Room 214 Toilet Toilet Storage Nurse Room 221 Hallways 2nd Floor - Room Room 321	212 12	W 32 P F 2 (ELE) W 32 C F 4 (ELE)	F42ILL F44ILL	59 112	0.6 1.3	SW	2856 2856	1,685 3,838		4 ft LED Tube T 74 R LED	200732x2 RTLED50	50	0.3 0.6	SW	2,856 2,856	857 1,714	828 0.3 2,125 0.7	\$ 155.71 \$ 399.47	\$ 2,835.00 \$0	10.5 7.1
Toilet Storage Nurse Room 221 Hallways 2nd Floor - Roor Room 321	214 18	R 75 C I 1 W 32 P F 2 (ELE)	i75/1 F42ILL	75 59	0.3	SW	2856 2856	857 3,033		CF 26 4 ft LED Tube	CFQ26/1-L 200732x2	30	0.1	SW	2,856 2,856	308 1,542	548 0.2 1,491 0.5	\$ 103.09 \$ 280.28	\$ 2,940.30 \$0	0.8 10.5
Nurse Room 221 Hallways 2nd Floor - Room Room 321	et 3	W 32 P F 2 (ELE) W 32 P F 2 (ELE)	F42ILL F42ILL	59	0.2	SW	2142 2142	379 379 177	3	4 ft LED Tube 4 ft LED Tube	200732x2 200732x2	30	0.1	SW	2,142 2,142	193	186 0.1 186 0.1	\$ 35.03 \$ 35.03		14.0 14.0
Hallways 2nd Floor - Roor Room 321	se 4	S 28 P F 1 (ELE) W 32 C F 4 (ELE) W 32 P F 2 (ELE)	F41ILL F44ILL F42ILL	112	0.1 0.4	SW	2856 3000 2856	1,344 3,033	4	4 ft LED Tube T 74 R LED 4 ft LED Tube	200732x1 RTLED50 200732x2	50	0.0 0.2	SW SW SW	2,856 3,000 2,856	86 600	91 0.0 744 0.2 1,491 0.5	\$ 17.18 \$ 139.87	\$ 945.00 \$0	16.9 6.8 10.5
Room 321	ays 76	S 28 P F 1 (ELE) W 32 P F 2 (ELE)	F41ILL F42ILL	31	2.4	SW	8568 2856	20,186 3,033	76	4 ft LED Tube 4 ft LED Tube	200732x1 200732x2	15	1.1	SW SW	8,568 2,856	9,768 1 1,542	0,419 1.2 1,491 0.5	\$ 280.28 \$ 1,958.71 \$ 280.28	\$ 11,035.20 \$380	5.6 10.5
	321 18	W 32 P F 2 (ELE) W 32 P F 2 (ELE)	F42ILL F42ILL	59 59	1.1	SW	2856 2856	3,033	18	4 ft LED Tube 4 ft LED Tube	200732x2 200732x2 200732x2	30	0.5 0.5	SW	2,856 2,856		1,491 0.5 1,491 0.5	\$ 280.28 \$ 280.28	\$ 2,940.30 \$0	10.5 10.5
Room 320 Room 319 Room 323	319 18	W 32 P F 2 (ELE) W 32 P F 2 (ELE) W 32 P F 2 (ELE)	F42ILL F42ILL F42ILL	59 59	1.1	SW	2856 2856	3,033 3,033	18	4 ft LED Tube 4 ft LED Tube 4 ft LED Tube	200732X2 200732X2 200732X2	30	0.5 0.5	SW SW	2,856 2,856	1,542	1,491 0.5 1,491 0.5	\$ 280.28 \$ 280.28	\$ 2,940.30 \$0	10.5 10.5
Room 322 Clo Room 331	2 Closet 1	W 32 P F 2 (ELE)	F42ILL	59 59	0.1 0.4	SW	2856 2856	169 1,180	1	4 ft LED Tube 4 ft LED Tube	200732x2 200732x2 200732x2	30 30	0.0 0.2	SW SW	2,856 2,856	86 600	83 0.0	\$ 15.57 \$ 109.00	\$ 163.35 \$0	10.5
Room 331 Room 330	331 3	W 32 P F 2 (ELE) S 28 P F 1 (ELE) W 32 P F 2 (ELE)	F42ILL F41ILL F42ILL	31 59	0.1	SW	2856 2856	266 2,528	3 15	4 ft LED Tube 4 ft LED Tube	200732x1 200732x2	15 30	0.0 0.5	SW	2,856 2,856	129 1,285	580 0.2 137 0.0 1,242 0.4	\$ 25.77 \$ 233.56	\$ 435.60 \$15 \$ 2,450.25 \$0	10.5 16.9 10.5
Room 328 Room 327	328 15	W 32 P F 2 (ELE) W 32 P F 2 (ELE)	F42ILL F42ILL	59 59	0.9	SW	2856 2856	2,528	15 15	4 ft LED Tube 4 ft LED Tube	200732x2 200732x2	30	0.5 0.5	SW	2,856 2,856	1,285	1,242 0.4	\$ 233.56 \$ 233.56	\$ 2,450.25 \$0 \$ 2,450.25 \$0	10.5
Hallways Room 318	ays 7 318 18	W 32 P F 2 (ELE) W 32 P F 2 (ELE)	F42ILL F42ILL	59 59	0.4	SW	8568 2856	2,528 3,539 3,033	7 18	4 ft LED Tube 4 ft LED Tube	200732x2 200732x2	30	0.2 0.5	SW	8,568 2,856	1,542	1,242 0.4 1,739 0.2 1,491 0.5	\$ 326.99 \$ 280.28	\$ 1,143.45 \$0 \$ 2,940.30 \$0	10.5 3.5 10.5
Room 317 Room 316 - Teacher	317 4 cher's Lounge 8	W 32 P F 2 (ELE) W 32 P F 2 (ELE)	F42ILL F42ILL	59 59	0.2	SW SW	2856 4284	674 2,022	4	4 ft LED Tube 4 ft LED Tube	200732x2 200732x2	30	0.1 0.2	SW SW	2,856 4,284	343 1,028	331 0.1 994 0.2	\$ 62.28 \$ 186.85	\$ 653.40 \$0 \$ 1,306.80 \$0	10.5 10.5 7.0
Room 316 - Teacher Room 314 - S	cher's Lounge 1 4 - SGI 4	2T 32 R F 2 (u) (ELE) W 32 P F 2 (ELE)	FU2LL F42ILL	60 59	0.1 0.2	SW SW	4284 2856	257 674	1 4	2T XX R LED 4 ft LED Tube	2RTLED 200732x2	25 30	0.0 0.1	SW SW	4,284 2,856	107 343	150 0.0 331 0.1	\$ 28.19 \$ 62.28	\$ 202.50 \$50 \$ 653.40 \$0	7.2 10.5
Room 313 Room 312	313 14 312 12	W 32 P F 2 (ELE) W 32 P F 2 (ELE)	F42ILL F42ILL	59 59	0.8 0.7	SW SW	2856 2856	2,359 2,022	14 12	4 ft LED Tube 4 ft LED Tube	200732x2 200732x2	30	0.4 0.4	SW SW	2,856 2,856	1,200 1,028	1,160 0.4 994 0.3	\$ 217.99 \$ 186.85	\$ 2,286.90 \$0 \$ 1,960.20 \$0	10.5 10.5
Room 310 Room 308	308 18	W 32 P F 2 (ELE) W 32 P F 2 (ELE)	F42ILL F42ILL	59 59	1.1	SW	2856 2856	3,033 3,033	18	4 ft LED Tube 4 ft LED Tube	200732x2 200732x2	30	0.5 0.5	SW	2,856 2,856		1,491 0.5 1,491 0.5	\$ 280.28 \$ 280.28	\$ 2,940.30  \$0	10.5 10.5
Toilet Toilet		W 32 P F 2 (ELE) W 32 P F 2 (ELE)	F42ILL F42ILL	59 59	0.2	SW	2142 2142	379 379	3	4 ft LED Tube 4 ft LED Tube	200732x2	30	0.1 0.1	SW	2,142 2,142	193 193	186 0.1 186 0.1	\$ 35.03 \$ 35.03		14.0 14.0
Room 305 Room 304	304 20	W 32 P F 2 (ELE) W 32 P F 2 (ELE)	F42ILL F42ILL	59 59	0.5 1.2	SW	2142 2142	1,011 2,528	8 20	4 ft LED Tube 4 ft LED Tube T 59 R LED	200732x2 200732x2	30	0.2 0.6	SW SW	2,142	514 1,285	497 0.2 1,242 0.6	\$ 93.43 \$ 233.56	\$ 3,267.00 \$0	14.0 14.0
Room 303 Room 302	3U3 I 18	T 32 R F 3 (ELE) T 32 R F 3 (ELE)	F43ILL/2 F43ILL/2	90	1.6 1.6	SW	2142 2142	3,470 3,470	18 18	T 59 R LED	RTLED38 RTLED38	38	0.7 0.7	SW SW	2,142 2,142	1,465	2,005 0.9 2,005 0.9	\$ 376.92	\$ 4,252.50 \$900 \$ 4,252.50 \$900 \$ 4,252.50 \$900	11.3 11.3
Room 301 Hallways	302 18	T 32 R F 3 (ELE) W 32 C F 4 (ELE)	F43ILL/2 F44ILL	90	1.6 2.9	SW	2142 8568	3,470 24,950	18 26	T 59 R LED T 74 R LED	RTLED38 RTLED50	50	0.7 1.3	SW	2,142 8,568		2,005 0.9 3,812 1.6	\$ 376.92 \$ 2,596.58	\$ 4,252.50 \$900 \$ 6,142.50 \$0	11.3 2.4
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			FXIS	TING CONDITIONS			•	RETROFIT	CONDITIONS				COST & SAVIN	GS ANALYSIS			
			EXIC	THIS CONDITIONS				1	I				COOT & SAVIN	OS ANALTOIS	NJ Smart Start	Simple Payback	
	Area Description	No. of Fixtures	Standard Fivture Code	Fireture Code	Watts per	kW/Cnasa	kW/Snaca	Retrofit	Annual Haura	Annual MMb	Annual kWh	Annual IdM Savas	d Annual & Savad	Botrofit Coot	Lighting	With Out	Cimple Dayback
Field Code U	Area Description Unique description of the location - Room number/Room	No. of Fixtures No. of fixtures	Standard Fixture Code Lighting Fixture Code	Fixture Code  Code from Table of Standard	Fixture Value from	kW/Space (Watts/Fixt) * (Fixt	kW/Space (Watts/Fixt) *	Control Retrofit control	Annual Hours	Annual kWh (kW/space) *	Saved (Original Annual	Annual kW Saved (Original Annual	d Annual \$ Saved (kW Saved) *	Retrofit Cost Cost for	Incentive	Incentive Length of time	Simple Payback Length of time for
r leid Code	name: Floor number (if applicable)	before the retrofit	Lighting Fixture Gode	Fixture Wattages	Table of	No.)	(Number of	device	annual hours	(Annual Hours)	kWh) - (Retrofit	kW) - (Retrofit	(\$/kWh)	renovations to		for renovations	renovations cost to
					Standard		Fixtures)		for the usage		Annual kWh)	Annual kW)		lighting system		cost to be	be recovered
					Fixture Wattages				group							recovered	
46LED	Basement - Room 117 - Fitness Area	34	W 32 P F 2 (ELE)	F42ILL	59	2.0	2.0	OCC	3570	7,161.4	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
46LED 46LED	Room 116 Room 115	12 14	W 32 P F 2 (ELE) W 32 P F 2 (ELE)	F42ILL F42ILL	59 59	0.7	0.7	0CC	2856 2856	2,022.0 2,359.1	0.0	0.0	\$0.00 \$0.00	\$128.25 \$128.25	\$20.00 \$20.00		#DIV/0! #DIV/0!
35LED	Room 118	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	0.3	OCC	2856	771.1	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
35LED	Room 119	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	0.5	OCC	2856	1,542.2	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
35LED 35LED	Room 124 Room 123	10	T 32 R F 3 (ELE) T 32 R F 3 (ELE)	F43ILL/2 F43ILL/2	90	0.9	0.9	0CC	2856 2856	2,570.4 1.028.2	0.0	0.0	\$0.00 \$0.00	\$128.25 \$128.25	\$20.00 \$20.00		#DIV/0! #DIV/0!
35LED	Room 122	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	0.5	OCC	2856	1,542.2	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
46LED	Room 125 - Cafeteria	70	W 32 P F 2 (ELE)	F42ILL	59	4.1	4.1	OCC	1785	7,372.1	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
46LED 234	Room 126 - Kitchen Room 127 - Boiler Room	22 5	W 32 P F 2 (ELE) R 75 C I 1	F42ILL i75/1	59 75	1.3 0.4	1.3 0.4	OCC NONE	2856 3825	3,707.1 1,434.4	0.0	0.0	\$0.00 \$0.00	\$128.25 \$0.00	\$20.00 \$0.00	1	#DIV/0! #DIV/0!
46LED	Room 101	6	W 32 P F 2 (ELE)	F42ILL	59	0.4	0.4	OCC	2856	1,011.0	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
46LED	Room 102	6	W 32 P F 2 (ELE)	F42ILL	59	0.4	0.4	OCC	2856	1,011.0	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
46LED T5	Room 103 Room 103	18	W 32 P F 2 (ELE) F42GHL	F42ILL F42GHL	59 117	1.1 0.2	1.1 0.2	OCC	2856 2856	3,033.1 668.3	0.0	0.0	\$0.00 \$0.00	\$128.25 \$128.25	\$20.00 \$20.00		#DIV/0! #DIV/0!
46LED	Room 104	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	1.1	OCC	2856	3,033.1	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
46LED	Toilet	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	1713.6	303.3	75.8	0.0	\$14.26	\$128.25	\$20.00	9.0	7.6
46LED 196LED	Toilet Room 105	3	W 32 P F 2 (ELE) W 32 C F 4 (ELE)	F42ILL F44ILL	59 112	0.2	0.2	OCC	1713.6 2856	303.3 959.6	75.8 0.0	0.0	\$14.26 \$0.00	\$128.25 \$128.25	\$20.00 \$20.00	9.0	7.6 #DIV/0!
32LED	Storage	1	1T 32 R F 2 (ELE)	F42LL	60	0.3	0.3	NONE	2856	171.4	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!
25	Storage	1	R 13 C CF 2 (ELE)	CFQ13/2-L	28	0.0	0.0	NONE	2856	80.0	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!
46LED 46LED	Office Room 111 - Science	3 21	W 32 P F 2 (ELE) W 32 P F 2 (ELE)	F42ILL F42ILL	59 59	0.2 1.2	0.2 1.2	000	2570.4 2856	455.0 3,538.6	113.7 0.0	0.0	\$21.38 \$0.00	\$128.25 \$128.25	\$20.00 \$20.00	6.0	5.1 #DIV/0!
46LED	Room 112 - Art	42	W 32 P F 2 (ELE)	F42ILL	59	2.5	2.5	OCC	2856	7,077.2	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
35LED	Room 112E	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	0.5	OCC	2856	1,285.2	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
35LED 20LED	Room 112? Room 113	3 2	T 32 R F 3 (ELE) S 28 P F 1 (ELE)	F43ILL/2 F41ILL	90	0.3	0.3	OCC	2856 2856	771.1 177.1	0.0	0.0	\$0.00 \$0.00	\$128.25 \$128.25	\$20.00 \$20.00	+	#DIV/0! #DIV/0!
196LED	Room 114	20	W 32 C F 4 (ELE)	F44ILL	112	2.2	2.2	OCC	2856	6,397.4	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
196LED	Room 114	13	W 32 C F 4 (ELE)	F44ILL	112	1.5	1.5	OCC	2856	4,158.3	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
196LED 252	Hallways 1st Floor - Gymnasium	30 30	W 32 C F 4 (ELE) T 54 W F 6 (ELE) (T-5)	F44ILL F46GHL	112 351	3.4 10.5	3.4 10.5	NONE	8568 3570	28,788.5 37,592.1	0.0	0.0	\$0.00 \$0.00	\$0.00 \$128.25	\$0.00 \$20.00		#DIV/0! #DIV/0!
46LED	Storage	6	W 32 P F 2 (ELE)	F42ILL	59	0.4	0.4	NONE	2856	1,011.0	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!
46LED	Boys Locker Room	24	W 32 P F 2 (ELE)	F42ILL	59	1.4	1.4	OCC	1713.6	2,426.5	606.6	0.0	\$114.04	\$128.25	\$20.00	1.1	0.9
46LED 5LED	Girls Locker Room Toilet	24	W 32 P F 2 (ELE) 2T 32 R F 2 (u) (ELE)	F42ILL FU2LL	59 60	1.4 0.1	1.4 0.1	0CC	1713.6 1713.6	2,426.5 102.8	606.6 25.7	0.0	\$114.04 \$4.83	\$128.25 \$128.25	\$20.00 \$20.00	1.1 26.5	0.9 22.4
5LED	Toilet	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	0.1	OCC	1713.6	102.8	25.7	0.0	\$4.83	\$128.25	\$20.00	26.5	22.4
T5	Media Center	8	F42GHL	F42GHL	117	0.9	0.9	OCC	3060	2,864.2	716.0	0.0	\$134.62	\$128.25	\$20.00	1.0	0.8
25 146LED	Media Center  Media Center	30 18	R 13 C CF 2 (ELE) High Bay MH 400	CFQ13/2-L MH400/1	28 458	0.8 8.2	0.8 8.2	OCC	3060 3060	2,570.4 25,226.6	642.6 6.306.7	0.0	\$120.81 \$1.185.65	\$128.25 \$128.25	\$20.00 \$20.00	1.1 0.1	0.9 0.1
32LED	Media Center	2	1T 32 R F 2 (ELE)	F42LL	60	0.1	0.1	OCC	3060	367.2	91.8	0.0	\$17.26	\$128.25	\$20.00	7.4	6.3
46LED 46LED	Computer Lab	14	W 32 P F 2 (ELE)	F42ILL F42ILL	59 59	0.8	0.8	000	3060	2,527.6	631.9	0.0	\$118.80	\$128.25	\$20.00	1.1	0.9 #DIV/0!
46LED 46LED	Vocal Room Room 225	16 18	W 32 P F 2 (ELE) W 32 P F 2 (ELE)	F42ILL F42ILL	59	0.9	0.9	OCC	2856 2856	2,696.1 3,033.1	0.0	0.0	\$0.00 \$0.00	\$128.25 \$128.25	\$20.00 \$20.00		#DIV/0!
46LED	Room 224	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	1.1	OCC	2856	3,033.1	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
46LED 146LED	Room 223 Gymnasium	18	W 32 P F 2 (ELE) High Bay MH 400	F42ILL MH400/1	59 458	1.1	1.1	00C	2856 3570	3,033.1 3,270.1	0.0	0.0	\$0.00 \$0.00	\$128.25 \$128.25	\$20.00 \$20.00	1	#DIV/0! #DIV/0!
5LED	Gymnasium	6	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.4	0.4	OCC	3570	1,285.2	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
20LED	Hallways	7	S 28 P F 1 (ÈLÉ)	F41ILL	31	0.2	0.2	NONE	8568	1,859.3	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!
25 32LED	Hallways Hallways	9	R 13 C CF 2 (ELE)	CFQ13/2-L F42LL	28	0.3	0.3	NONE	8568 8568	2,159.1 1.028.2	0.0	0.0	\$0.00 \$0.00	\$0.00 \$0.00	\$0.00 \$0.00	+	#DIV/0! #DIV/0!
46LED	Hallways	30	W 32 P F 2 (ELE)	F42LL	59	1.8	1.8	NONE	8568	15,165.4	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!
25	Lobby	7	R 13 C CF 2 (ELE)	CFQ13/2-L	28	0.2	0.2	NONE	2856	559.8	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!
46LED 46LED	Room 227 Room 230 - Music Room	18 24	W 32 P F 2 (ELE) W 32 P F 2 (ELE)	F42ILL F42ILL	59 59	1.1	1.1	000	2856 2856	3,033.1 4,044.1	0.0	0.0	\$0.00 \$0.00	\$128.25 \$128.25	\$20.00 \$20.00		#DIV/0! #DIV/0!
46LED	Room 228	2	W 32 P F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	2856	337.0	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
46LED	Room 233	24	W 32 P F 2 (ELE)	F42ILL	59	1.4	1.4	OCC	2856	4,044.1	0.0	0.0	\$0.00	\$128.25	\$20.00	4.0	#DIV/0!
46LED 234	Auditorium Auditorium	8 7	W 32 P F 2 (ELE) R 75 C I 1	F42ILL i75/1	59 75	0.5 0.5	0.5	OCC	3060 3060	1,444.3 1.606.5	361.1 401.6	0.0	\$67.88 \$75.51	\$128.25 \$128.25	\$20.00 \$20.00	1.9	1.6 1.4
75	Auditorium	48	B 32 W F 1 (MAG)	F41LL	32	1.5	1.5	OCC	3060	4,700.2	1,175.0	0.0	\$220.91	\$128.25	\$20.00	0.6	0.5
46LED 46LED	Room 201	18	W 32 P F 2 (ELE)	F42ILL F42ILL	59	1.1	1.1	000	2856	3,033.1	0.0	0.0	\$0.00	\$128.25	\$20.00	_	#DIV/0!
46LED 196LED	Room 202 Room 203	18 6	W 32 P F 2 (ELE) W 32 C F 4 (ELE)	F42ILL F44ILL	59 112	1.1 0.7	1.1 0.7	OCC	2856 2856	3,033.1 1,919.2	0.0	0.0	\$0.00 \$0.00	\$128.25 \$128.25	\$20.00 \$20.00	1	#DIV/0! #DIV/0!
35LED	Room 203	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	0.1	OCC	2856	257.0	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
35LED	Toilet Toilet	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	0.3	000	1713.6	462.7	115.7	0.0	\$21.75	\$128.25	\$20.00	5.9	5.0
35LED 196LED	Toilet 209 A & B	8	T 32 R F 3 (ELE) W 32 C F 4 (ELE)	F43ILL/2 F44ILL	90 112	0.3	0.3	OCC	1713.6 2856	462.7 2,559.0	115.7 0.0	0.0	\$21.75 \$0.00	\$128.25 \$128.25	\$20.00 \$20.00	5.9	5.0 #DIV/0!
196LED	Room 210	2	W 32 C F 4 (ELE)	F44ILL	112	0.2	0.2	OCC	2856	639.7	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
46LED 46LED	Room 210 Room 211	8 10	W 32 P F 2 (ELE) W 32 P F 2 (ELE)	F42ILL F42ILL	59 59	0.5 0.6	0.5 0.6	000	2856 2856	1,348.0 1,685.0	0.0	0.0	\$0.00 \$0.00	\$128.25 \$128.25	\$20.00 \$20.00	<del> </del>	#DIV/0! #DIV/0!
196LED	Room 211 Room 212	10	W 32 P F 2 (ELE) W 32 C F 4 (ELE)	F44ILL	112	1.3	1.3	OCC	2856	3,838.5	0.0	0.0	\$0.00	\$128.25 \$128.25	\$20.00	+	#DIV/0!
234	Room 212	4	R 75 C I 1	i75/1	75	0.3	0.3	OCC	2856	856.8	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
46LED 46LED	Room 214 Toilet	18	W 32 P F 2 (ELE) W 32 P F 2 (ELE)	F42ILL F42ILL	59 59	1.1 0.2	1.1 0.2	OCC	2856 1713.6	3,033.1 303.3	0.0 75.8	0.0	\$0.00 \$14.26	\$128.25 \$128.25	\$20.00 \$20.00	9.0	#DIV/0! 7.6
46LED 46LED	Toilet	3	W 32 P F 2 (ELE)	F42ILL F42ILL	59	0.2	0.2	OCC	1713.6	303.3	75.8	0.0	\$14.26 \$14.26	\$128.25 \$128.25	\$20.00	9.0	7.6
20LED	Storage	2	S 28 P F 1 (ELE)	F41ILL	31	0.1	0.1	NONE	2856	177.1	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!
196LED 46LED	Nurse Room 221	4 18	W 32 C F 4 (ELE) W 32 P F 2 (ELE)	F44ILL F42ILL	112 59	0.4	0.4	OCC	1500 2856	672.0 3,033.1	672.0 0.0	0.0	\$126.34 \$0.00	\$128.25	\$20.00 \$20.00	1.0	0.9 #DIV/0!
20LED	Hallways	76	S 28 P F 1 (ELE)	F42ILL F41ILL	31	2.4	2.4	NONE	2856 8568	20,186.2	0.0	0.0	\$0.00	\$128.25 \$0.00	\$0.00	+	#DIV/0! #DIV/0!
46LED	2nd Floor - Room 322	18	W 32 P F 2 (ELÉ)	F42ILL	59	1.1	1.1	OCC	2856	3,033.1	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
46LED	Room 321	18	W 32 P F 2 (ELE)	F42ILL F42ILL	59 59	1.1	1.1	000	2856	3,033.1	0.0	0.0	\$0.00	\$128.25	\$20.00	+	#DIV/0!
46LED 46LED	Room 320 Room 319	18 18	W 32 P F 2 (ELE) W 32 P F 2 (ELE)	F42ILL F42ILL	59	1.1	1.1	0CC	2856 2856	3,033.1 3,033.1	0.0	0.0	\$0.00 \$0.00	\$128.25 \$128.25	\$20.00 \$20.00	1	#DIV/0! #DIV/0!
46LED	Room 323	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	1.1	OCC	2856	3,033.1	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
46LED	Room 322 Closet	1	W 32 P F 2 (ELE)	F42ILL	59	0.1	0.1	NONE	2856	168.5	0.0	0.0	\$0.00	\$0.00	\$0.00	1	#DIV/0!

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			EXIST	ING CONDITIONS				RETROFIT C	CONDITIONS				COST & SAVING	S ANALYSIS			
								1							NJ Smart Start	Simple Payback	
					Watts per			Retrofit			Annual kWh				Lighting	With Out	
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Fixture	kW/Space	kW/Space	Control	Annual Hours	Annual kWh	Saved	Annual kW Saved	Annual \$ Saved	Retrofit Cost	Incentive	Incentive	Simple Payback
eld Code	Unique description of the location - Room number/Room	No. of fixtures	Lighting Fixture Code	Code from Table of Standard	Value from	(Watts/Fixt) * (Fixt	(Watts/Fixt) *	Retrofit control	Estimated	(kW/space) *	(Original Annual	(Original Annual	(kW Saved) *	Cost for		Length of time	Length of time fo
	name: Floor number (if applicable)	before the retrofit		Fixture Wattages	Table of	No.)	(Number of	device	annual hours	(Annual Hours)	kWh) - (Retrofit	kW) - (Retrofit	(\$/kWh)	renovations to		for renovations	renovations cost t
					Standard		Fixtures)		for the usage		Annual kWh)	Annual kW)		lighting system		cost to be	be recovered
					Fixture		·		group			1				recovered	
					Wattages				· ·								
46LED	Room 331	7	W 32 P F 2 (ELE)	F42ILL	59	0.4	0.4	OCC	2856		0.0	0.0			\$20.00		#DIV/0!
20LED	Room 331	3	S 28 P F 1 (ELE)	F41ILL	31	0.1	0.1	OCC	2856	265.6	0.0	0.0			\$20.00		#DIV/0!
46LED	Room 330	15	W 32 P F 2 (ELE)	F42ILL	59	0.9	0.9	OCC	2856	2,527.6	0.0	0.0		\$128.25	\$20.00		#DIV/0!
46LED	Room 328	15	W 32 P F 2 (ELE)	F42ILL	59	0.9	0.9	OCC	2856	2,527.6	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
46LED	Room 327	15	W 32 P F 2 (ELE)	F42ILL	59	0.9	0.9	OCC	2856	2,527.6	0.0	0.0	\$0.00	\$128.25	\$20.00		#DIV/0!
46LED	Hallways	7	W 32 P F 2 (ELE)	F42ILL	59	0.4	0.4	NONE	8568	3,538.6	0.0	0.0	\$0.00		\$0.00		#DIV/0!
46LED	Room 318	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	1.1	OCC	2856	3,033.1	0.0	0.0			\$20.00		#DIV/0!
46LED	Room 317	4	W 32 P F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	2856	674.0	0.0	0.0	\$0.00		\$20.00		#DIV/0!
46LED	Room 316 - Teacher's Lounge	8	W 32 P F 2 (ELE)	F42ILL	59	0.5	0.5	OCC	3427.2	1,617.6	404.4	0.0	\$76.03	\$128.25	\$20.00	1.7	1.4
5LED	Room 316 - Teacher's Lounge	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	0.1	OCC	3427.2	205.6	51.4	0.0	\$9.66		\$20.00	13.3	11.2
46LED	Room 314 - SGI	4	W 32 P F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	2856	674.0	0.0	0.0			\$20.00		#DIV/0!
46LED	Room 313	14	W 32 P F 2 (ELE)	F42ILL	59	0.8	0.8	OCC	2856	2,359.1	0.0	0.0	\$0.00		\$20.00		#DIV/0!
46LED	Room 312	12	W 32 P F 2 (ELE)	F42ILL	59	0.7	0.7	OCC	2856	2,022.0	0.0	0.0			\$20.00		#DIV/0!
46LED	Room 310	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	1.1	OCC	2856	3,033.1	0.0	0.0	\$0.00		\$20.00		#DIV/0!
46LED	Room 308	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	1.1	OCC	2856	3,033.1	0.0	0.0	\$0.00		\$20.00		#DIV/0!
46LED	Toilet	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	1713.6	303.3	75.8	0.0	\$14.26	\$128.25	\$20.00	9.0	7.6
46LED	Toilet		W 32 P F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	1713.6	303.3	75.8	0.0	\$14.26	\$128.25	\$20.00	9.0	7.6
46LED	Room 305	8	W 32 P F 2 (ELE)	F42ILL	59	0.5	0.5	OCC	1713.6	808.8	202.2	0.0	\$38.01	\$128.25	\$20.00	3.4	2.8
46LED	Room 304	20	W 32 P F 2 (ELE)	F42ILL	59	1.2	1.2	OCC	1713.6	2,022.0	505.5	0.0	\$95.04	\$128.25	\$20.00	1.3	1.1
35LED	Room 303	18	T 32 R F 3 (ELE)	F43ILL/2	90	1.6	1.6	OCC	1713.6	2,776.0	694.0	0.0		\$128.25	\$20.00	1.0	0.8
35LED	Room 302	18	T 32 R F 3 (ELE)	F43ILL/2	90	1.6	1.6	OCC	1713.6	2,776.0	694.0	0.0		\$128.25	\$20.00	1.0	0.8
35LED	Room 301	18	T 32 R F 3 (ELE)	F43ILL/2	90	1.6	1.6	OCC	1713.6	2,776.0	694.0	0.0	\$130.47	\$128.25	\$20.00	1.0	0.8
196LED	Hallways	26	W 32 C F 4 (ELE)	F44ILL	112	2.9	2.9	NONE	8568	24,950.0	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!
								0	#N/A		#VALUE!	#N/A	#VALUE!			#VALUE!	#VALUE!
								0	#N/A		#VALUE!	#N/A	#VALUE!			#VALUE!	#VALUE!
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								0	#N/A		#VALUE!	#N/A	#VALUE!			#VALUE!	#VALUE!
					+	+	ł	0	#N/A		#VALUE!	#N/A	#VALUE!	1	<u> </u>	#VALUE!	#VALUE!
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					+	+	<del> </del>	0	#N/A			#N/A	#VALUE!		1		#VALUE!
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								0	#N/A #N/A	#VALUE!	#VALUE!	#N/A #N/A	#VALUE!	-	-	#VALUE!	
								0	#N/A	#VALUE!	#VALUE!	#IN/A	#VALUE!		-	#VALUE!	#VALUE!
					+	+	1	+	<del> </del>	+	+	+	+	+	+	-	+
	Total	1.389			+	103.9	103.9	+	<u> </u>	357.352.12	16.308.97	0.0	3066.1	11799.0	1840.0	+	-
	1 O.M.	1,303				103.9	103.3		I		nd Savings	0.0	0.0	11733.0	1040.0	4	

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					West							Wat		Date-fire			Approx 1340				NJ Smart Start	Simple Paybac	.k
ada Universi	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code  Code from Table of Standard	Watts per Fixture	kW/Space	Exist Control Annual Hours	Annual kWh	Number of Fixtures		Fixture Code	Watts per Fixture	kW/Space	Retrofit Control		rs Annual kWh	Annual kWh Saved	Annual kW Saved	Annual \$ Saved	Retrofit Cost Cost for	Lighting Incentive	With Out Incentive	Simple
ode Unique d	description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures I before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard	(Watts/Fixt) * (Fixt No.)	Pre-inst. Estimated daily control device hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	r Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard	(Watts/Fixt) * (Number of Fixtures)	Retrofit contr device	annual hours for the usage		(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kWh Saved) * (\$/kWh)	renovations to lighting system	Prescriptive Lighting Measures	Length of time for renovations cost to be	
					Fixture Wattages							Fixture Wattages			group							recovered	36 16
D D	Basement - Room 117 - Fitness Area Room 116	12	V 32 P F 2 (ELE) V 32 P F 2 (ELE)	F42ILL F42ILL	5	9 2.0 9 0.7	SW 357 SW 285		2 12	4 ft LED Tube 4 ft LED Tube	200732x2 200732x2	30 30	1.0 0.4	000 000	3,5 2,8		3,520 994	0.3	\$ 661.76 \$ 186.85	\$ 2,088.45	\$ 20 \$ 20	8.6 11.2	
D D	Room 115 Room 118 Room 119	3	V 32 P F 2 (ELE) T 32 R F 3 (ELE)	F42ILL F43ILL/2 F43ILL/2	5	9 0.8 0 0.3	SW 285 SW 285 SW 285	6 77	1 3	4 ft LED Tube T 59 R LED T 59 R LED	200732x2 RTLED38 RTLED38	30 38	0.4	000	2,85 2,85 2,85	56 326	1,160 446	0.2	\$ 217.99 \$ 83.76	\$ 837.00	\$ 20 \$ 170	11.1 10.0 9.2	
ED ED	Room 124 Room 123	10 4	T 32 R F 3 (ELE) T 32 R F 3 (ELE) T 32 R F 3 (ELE)	F43ILL/2 F43ILL/2	9	0 0.9	SW 285 SW 285 SW 285	6 1,54 6 2,57 6 1,02	0 10	T 59 R LED T 59 R LED	RTLED38 RTLED38	38 38 38	0.4 0.2	OCC	2,8	56 1,085	891 1,485 594	0.5	\$ 167.52 \$ 279.20 \$ 111.68	\$ 2,490.75	\$ 520 \$ 220	8.9 9.6	#
D D	Room 122 Room 125 - Cafeteria	6 70	T 32 R F 3 (ELE) N 32 P F 2 (ELE)	F43ILL/2 F42ILL	9	0 0.5 9 4.1	SW 285 SW 178	6 1,54	2 6	T 59 R LED 4 ft LED Tube	RTLED38 200732x2	38 30	0.2 2.1	OCC	2,8	85 3,749	891 3,624	2.0	\$ 167.52 \$ 681.23	\$ 1,545.75 \$ 11,562.75	\$ 320 \$ 20	9.2 17.0	
ED I	Room 126 - Kitchen Room 127 - Boiler Room	22 V	N 32 P F 2 (ELE) R 75 C I 1	F42ILL i75/1	5	9 1.3 5 0.4	SW 285 SW 382	5 1,43	4 5	4 ft LED Tube CF 26	200732x2 CFQ26/1-L	30 27	0.7 0.1	OCC NONE	2,8	56 1,885 25 516	1,822 918	0.6	\$ 342.56 \$ 172.58	\$ 3,721.95 \$ 101.25	\$ -	10.9 0.6	1
D D	Room 101 Room 102 Room 103	6	N 32 P F 2 (ELE) N 32 P F 2 (ELE) N 32 P F 2 (ELE)	F42ILL F42ILL F42ILL	5	9 0.4 9 0.4	SW 285 SW 285 SW 285	6 1,01	1 6	4 ft LED Tube 4 ft LED Tube 4 ft LED Tube	200732x2 200732x2	30 30	0.2 0.2	000	2,8 2,8 2,8	56 514	497 497 1,491	0.2	\$ 93.43 \$ 93.43 \$ 280.28	\$ 1,108.35		11.9 11.9 10.9	
:D	Room 103 Room 104	2 1	V 32 P F 2 (ELE) F42GHL V 32 P F 2 (ELE)	F42ILL F42GHL F42ILL	11	7 0.2 9 1.1	SW 285	6 66	8 2	F42GHL 4 ft LED Tube	F42GHL 200732x2	117	0.5	000	2,85 2,85 2,85	56 668	1,491	0.0	\$ 280.28 \$ - \$ 280.28	\$ 128.25		10.9	#
D D	Toilet Toilet	3	V 32 P F 2 (ELE) V 32 P F 2 (ELE)	F42ILL F42ILL	5	9 0.2 9 0.2	SW 285 SW 214 SW 214	2 37	9 3	4 ft LED Tube 4 ft LED Tube	200732x2 200732x2	30 30 30	0.1 0.1	OCC	1,7	14 154 14 154	225 225	0.1	\$ 42.28 \$ 42.28	\$ 618.30 \$ 618.30	\$ 20 \$ 20	14.6 14.6	1
D D	Room 105 Storage	3 1	V 32 C F 4 (ELE) IT 32 R F 2 (ELE)	F44ILL F42LL	11	2 0.3 0 0.1	SW 285 SW 285	6 96 6 17	0 3	T 74 R LED 4 ft LED Tube	RTLED50 200732x2	50 30	0.2	OCC NONE NONE	2,85 2,85	56 86	531 86	0.2	\$ 99.87 \$ 16.11	\$ 837.00 \$ 233.70	\$ 20 \$ 45	8.4 14.5	
	Storage Office Room 111 - Science	3	R 13 C CF 2 (ELE) N 32 P F 2 (ELE)	CFQ13/2-L F42ILL F42ILL	5	8 0.0 9 0.2	SW 285 SW 321 SW 285	3 56		R 13 C CF 2 (ELE) 4 ft LED Tube 4 ft LED Tube	CFQ13/2-L 200732x2	28 30 30	0.0 0.1 0.6	NONE OCC	2,85 2,57 2,85	70 231	337 1,739	0.0	\$ 63.42 \$ 326.99			9.7	+
0	Room 112 - Art Room 112E	42	N 32 P F 2 (ELE) N 32 P F 2 (ELE) T 32 R F 3 (ELE)	F42ILL F42ILL F43ILL/2	5	9 2.5	SW 285 SW 285 SW 285		7 42	4 ft LED Tube T 59 R LED	200732x2 200732x2 RTLED38	30 38	1.3	000	2,8	56 3,599	3,479 743	1.2	\$ 653.98 \$ 139.60	\$ 6,988.95	\$ 20	10.9 10.7 9.4	_
)	Room 112? Room 113	3 2	T 32 R F 3 (ELE) S 28 P F 1 (ELE)	F43ILL/2 F41ILL	9	0 0.3	SW 285 SW 285	6 77 6 17	1 3 7 2	T 59 R LED 4 ft LED Tube	RTLED38 200732x1	38 15	0.1 0.0	OCC	2,8	56 326	446 91	0.2	\$ 83.76 \$ 17.18	\$ 837.00	\$ 170	10.0 24.4	
D D	Room 114 Room 114	20 N	N 32 C F 4 (ELE) N 32 C F 4 (ELE)	F44ILL F44ILL	11	2 2.2 2 1.5	SW 285 SW 285	6 4,15	8 13	T 74 R LED T 74 R LED	RTLED50 RTLED50	50 50	1.0 0.7	000	2,85 2,85	56 1,856	3,541 2,302	1.2 0.8	\$ 665.79 \$ 432.76	\$ 3,199.50		7.3 7.4	
D	Hallways 1st Floor - Gymnasium Storage	30	N 32 C F 4 (ELE) T 54 W F 6 (ELE) (T-5) N 32 P F 2 (ELE)	F44ILL F46GHL F42ILL	35	2 3.4 1 10.5 9 0.4	SW 856 SW 357 SW 285	0 37,59	2 30	T 74 R LED T 54 W F 6 (ELE) (T-5)	RTLED50 F46GHL	50 351	1.5	NONE OCC	8,5i	70 37,592	15,936	0.0	\$ 2,996.06	\$ 128.25	\$ 20	2.4	#
)	Storage Boys Locker Room Girls Locker Room	24	N 32 P F 2 (ELE) N 32 P F 2 (ELE) N 32 P F 2 (ELE)	F42ILL F42ILL F42ILL	5	9 0.4 9 1.4 9 1.4	SW 285 SW 214 SW 214	2 3,03	3 24 3 24	4 ft LED Tube 4 ft LED Tube 4 ft LED Tube	200732x2 200732x2 200732x2	30 30 30	0.2 0.7 0.7	OCC OCC	2,85 1,7 1,7	56 514 14 1,234 14 1,234	497 1,799 1,799	0.7	\$ 93.43 \$ 338.26 \$ 338.26	\$ 4,048.65		10.5 12.0 12.0	+
	Toilet Toilet	1 1	2T 32 R F 2 (u) (ELE) 2T 32 R F 2 (u) (ELE)	FU2LL FU2LL	6	0 0.1	SW 214 SW 214	2 12		2T XX R LED 2T XX R LED	2RTLED 2RTLED	25 25	0.0	OCC	1,7	14 43 14 43	86	0.0	\$ 16.11 \$ 16.11	\$ 330.75		20.5 20.5	1
)	Media Center Media Center	8 I	F42GHL R 13 C CF 2 (ELE)	F42GHL CFQ13/2-L	11 2	7 0.9 8 0.8	SW 382 SW 382	5 3,58 5 3,21	0 8 3 30	F42GHL R 13 C CF 2 (ELE) BAYLED78W	F42GHL CFQ13/2-L	117 28	0.9	000	3,0	60 2,864 60 2,570	86 716 643 26,411	0.0	\$ 134.62 \$ 120.81	\$ 128.25 \$ 128.25	\$ 20	1.0	
)	Media Center Media Center Computer Lab	18 I	High Bay MH 400 IT 32 R F 2 (ELE) N 32 P F 2 (ELE)	MH400/1 F42LL F42ILL	45	8 8.2 0 0.1 9 0.8	SW 382 SW 382 SW 382		9 2	4 ft LED Tube	BAYLED78W 200732x2	93 30	1.7 0.1	000	3,0	60 5,122 60 184 60 1,285	275	0.1	\$ 4,965.24 \$ 51.78 \$ 352.36	\$ 595.65			1
	Vocal Room Room 225	16	N 32 P F 2 (ELE) N 32 P F 2 (ELE) N 32 P F 2 (ELE)	F42ILL F42ILL F42ILL	5	9 0.8 9 0.9 9 1.1	SW 285 SW 285	6 2,69	9 14 6 16 3 18	4 ft LED Tube 4 ft LED Tube 4 ft LED Tube	200732x2 200732x2 200732x2	30 30 30	0.4 0.5 0.5	000	2,8 2,8	56 1,371	1,874 1,325 1,491	0.5 0.5	\$ 352.36 \$ 249.13 \$ 280.28	\$ 2,415.15 \$ 2,741.85 \$ 3,068.55	\$ 20	6.9 11.0 10.9	+
	Room 224 Room 223	18	N 32 P F 2 (ELE) N 32 P F 2 (ELE)	F42ILL F42ILL	5	9 1.1 9 1.1	SW 285 SW 285	6 3,03 6 3,03	3 18 3 18	4 ft LED Tube 4 ft LED Tube	200732x2 200732x2	30 30	0.5 0.5	OCC	2,8	56 1,542 56 1,542	1,491 1,491	0.5	\$ 280.28 \$ 280.28	\$ 3,068.55 \$ 3,068.55	\$ 20 \$ 20	10.9 10.9	+
	Gymnasium Gymnasium	6	High Bay MH 400 2T 32 R F 2 (u) (ELE) 5 28 P F 1 (ELE)	MH400/1 FU2LL	45	8 0.9 0 0.4	SW 357 SW 357	0 3,27 0 1,28	0 <u>2</u> 5 6	BAYLED78W 2T XX R LED	BAYLED78W 2RTLED	93 25	0.2 0.2	00C	3,57 3,57	70 536	2,606 750	0.2	\$ 489.95 \$ 140.94	\$ 1,816.64 \$ 1,343.25	\$ 320	3.7 9.5	
	Hallways Hallways		S 28 P F 1 (ELE) R 13 C CF 2 (ELE) IT 32 R F 2 (ELE)	F41ILL CFQ13/2-L	2	1 0.2 8 0.3	SW 856 SW 856	8 2,15	9 9	4 ft LED Tube R 13 C CF 2 (ELE) 4 ft LED Tube	200732x1 CFQ13/2-L	15 28	0.1 0.3	NONE NONE	8,5i 8,5i	68 2,159	960	0.0	\$ 180.41 \$ -	\$ -	\$ -	5.6	
	Hallways Hallways Lobby	30	V 32 P F 2 (ELE)	F42LL F42ILL CFQ13/2-L	5	9 1.8	SW 856 SW 856 SW 285		5 30	4 ft LED Tube	200732x2 200732x2 CFQ13/2-L	30 30 28	0.9	NONE NONE	8,5i 8,5i		514 7,454	0.9	\$ 96.65 \$ 1,401.38	\$ 467.40 \$ 4,900.50	\$ -	4.8 3.5	#
	Room 227 Room 230 - Music Room	18 V	R 13 C CF 2 (ELE) N 32 P F 2 (ELE) N 32 P F 2 (ELE)	F42ILL F42ILL	5	9 1.1 9 1.4	SW 285 SW 285	6 3,03 6 4,04		R 13 C CF 2 (ELE) 4 ft LED Tube 4 ft LED Tube	200732x2 200732x2	30 30	0.5 0.7	OCC	2,8	56 1,542 56 2,056	1,491 1,988		\$ 280.28 \$ 373.70	\$ 3,068.55 \$ 4,048.65	\$ 20 \$ 20	10.9 10.8	+
	Room 228 Room 233	24	V 32 P F 2 (ELE) V 32 P F 2 (ELE)	F42ILL F42ILL	5	9 0.1 9 1.4	SW 285 SW 285	6 4,04	4 24	4 ft LED Tube 4 ft LED Tube	200732x2 200732x2	30 30	0.1 0.7	00C	2,85 2,85	56 171 56 2,056	166 1,988 1,071	0.1	\$ 31.14 \$ 373.70 \$ 201.35	\$ 454.95 \$ 4,048.65	\$ 20	14.6 10.8	
	Auditorium Auditorium		N 32 P F 2 (ELE) R 75 C I 1	F42ILL i75/1	5	9 0.5 5 0.5	SW 382 SW 382	5 2,00	8 7	4 ft LED Tube CF 26	200732x2 CFQ26/1-L F41LL	30 27	0.2 0.2 1.5	000 000	3,0	60 734 60 578	1,430	0.3	\$ 268.80	\$ 270.00		7.1 1.0	$\pm$
	Auditorium Room 201 Room 202	18 1 18 1	3 32 W F 1 (MAG) V 32 P F 2 (ELE) V 32 P F 2 (FLE)	F41LL F42ILL F42ILL	5	2 1.5 9 1.1	SW 382 SW 285 SW 285	6 3,03	3 18	B 32 W F 1 (MAG) 4 ft LED Tube	200732x2 200732x2	32 30 30	0.5 0.5	000	2,85 2,85		1,175 1,491 1,491	0.5	\$ 220.91 \$ 280.28 \$ 280.28	\$ 3,068.55	\$ 20 \$ 20	0.6 10.9 10.9	1
	Room 203 Room 203	6 1	N 32 P F 2 (ELE) N 32 C F 4 (ELE) T 32 R F 3 (ELE)	F44ILL F43ILL/2	11	2 0.7 0 0.1	SW 285 SW 285	6 1,91 6 25	9 6	4 ft LED Tube T 74 R LED T 59 R LED	RTLED50 RTLED38	50 38	0.3	OCC	2,8	56 857	1,491 1,062 149	0.4	\$ 199.74 \$ 27.92	\$ 1,545.75	\$ 20 \$ 70	7.7 13.1	+
	Toilet Toilet		「32 R F 3 (ELE) 「32 R F 3 (ELE)	F43ILL/2 F43ILL/2	9	0 0.3	SW 214 SW 214	2 57 2 57	8 3	T 59 R LED T 59 R LED	RTLED38 RTLED38	38 38	0.1 0.1	OCC	1,7	14 195 14 195	383 383 1,417	0.2	\$ 72.00 \$ 72.00	\$ 837.00 \$ 837.00	\$ 170 \$ 170	11.6 11.6	
	209 A & B Room 210	2	N 32 C F 4 (ELE) N 32 C F 4 (ELE) N 32 P F 2 (ELE)	F44ILL F44ILL	11	2 0.9	SW         285           SW         285           SW         285	6 2,55 6 64 6 1,34	0 2	T 74 R LED T 74 R LED	RTLED50 RTLED50	50 50	0.4	OCC	2,85	56 286	354	0.1	\$ 266.32 \$ 66.58	\$ 600.75	\$ 20	7.6 9.0	+
)	Room 210 Room 211 Room 212		N 32 P F 2 (ELE) N 32 P F 2 (ELE) N 32 C F 4 (ELE)	F42ILL F42ILL F44ILL	5	9 0.5 9 0.6 2 1.3	SW 285 SW 285 SW 285		8 8 5 10 8 12	4 ft LED Tube 4 ft LED Tube T 74 R LED	200732x2 200732x2 RTLED50	30 30 50	0.2 0.3	000	2,85 2,85 2,85	56 857	663 828 2,125	0.3	\$ 124.57 \$ 155.71 \$ 399.47			11.5 11.3 7.4	_
	Room 212 Room 214	4 1	R 75 C I 1 N 32 P F 2 (ELE)	i75/1 F42ILL	7	5 0.3 9 1.1	SW 285 SW 285	6 85 6 3.03	7 4	CF 26 4 ft LED Tube	CFQ26/1-L 200732x2	27 30	0.1 0.5	OCC	2,8	56 308	548 1,491	0.2	\$ 103.09 \$ 280.28	\$ 209.25		2.0	+-
	Toilet Toilet		N 32 P F 2 (ELE) N 32 P F 2 (ELE)	F42ILL F42ILL	5	9 0.2 9 0.2	SW 214 SW 214	2 37 2 37	9 3	4 ft LED Tube	200732x2 200732x2	30 30	0.1 0.1	OCC	1,7	14 154 14 154	225 225	0.1	\$ 42.28 \$ 42.28	\$ 618.30	\$ 20	14.6 14.6	-
	Storage Nurse		S 28 P F 1 (ELE) N 32 C F 4 (ELE)	F41ILL F44ILL	3	1 0.1	SW 285 SW 300			4 ft LED Tube T 74 R LED	200732x1 RTLED50	15 50	0.0	NONE OCC	1,5	00 300	1,044	0.0	\$ 17.18 \$ 196.27	\$ 290.40 \$ 1,073.25		16.9 5.5	
	Room 221 Hallways 2nd Floor - Room 322	76	N 32 P F 2 (ELE) S 28 P F 1 (ELE) N 32 P F 2 (ELE)	F42ILL F41ILL F42ILL	3	9 1.1 1 2.4 9 1.1	SW 285 SW 856 SW 285	8 20,18	6 76	4 ft LED Tube 4 ft LED Tube 4 ft LED Tube	200732x2 200732x1 200732x2	30 15 30	0.5 1.1 0.5	NONE	2,8 8,5 2,8	68 9,768	1,491 10,419 1,491	1.2	\$ 280.28 \$ 1,958.71 \$ 280.28	\$ 11,035.20	\$ 380	10.9 5.6	#
	Room 321 Room 320		V 32 P F 2 (ELE) V 32 P F 2 (ELE)	F42ILL F42ILL	5	9 1.1	SW 285 SW 285 SW 285	6 3,03 6 3,03		4 ft LED Tube 4 ft LED Tube	200732x2 200732x2 200732x2	30 30	0.5 0.5	OCC	2,8		1,491 1,491 1,491		\$ 280.28 \$ 280.28			10.9 10.9 10.9	#
	Room 319 Room 323	18 V	N 32 P F 2 (ELE) N 32 P F 2 (ELE) N 32 P F 2 (ELE)	F42ILL F42ILL	5	9 1.1 9 1.1	SW 285 SW 285	6 3,03 6 3,03		4 ft LED Tube 4 ft LED Tube 4 ft LED Tube	200732x2 200732x2	30 30	0.5 0.5	OCC	2,85 2,85		1,491 1,491	0.5	\$ 280.28 \$ 280.28	\$ 3,068.55		10.9 10.9	+
	Room 322 Closet Room 331	7	V 32 P F 2 (ELE)	F42ILL F42ILL	5	9 0.1 9 0.4	SW 285 SW 285	6 16 6 1,18	0 7	4 ft LED Tube	200732x2 200732x2	30 30	0.0	NONE OCC	2,8	56 86 56 600	83 580	0.0	\$ 15.57 \$ 109.00	\$ 163.35 \$ 1,271.70	\$ -	10.5 11.7	
	Room 331 Room 330 Room 328	15	S 28 P F 1 (ELE) N 32 P F 2 (ELE) N 32 P F 2 (ELE)	F41ILL F42ILL F42ILL	5	1 0.1 9 0.9 9 0.9	SW 285 SW 285 SW 285	6 2,52	8 15	4 ft LED Tube 4 ft LED Tube 4 ft LED Tube	200732x1 200732x2 200732x2	15 30 30	0.0 0.5 0.5	000 000	2,8: 2,8: 2,8:	56 1,285	137 1,242 1,242	0.4	\$ 25.77 \$ 233.56 \$ 233.56	\$ 2,578.50	\$ 20	21.9 11.0 11.0	#
	Room 327 Hallways	15 Y	V 32 P F 2 (ELE) V 32 P F 2 (ELE)	F42ILL F42ILL	5	9 0.9 9 0.4	SW 285 SW 856	6 2,52 8 3,53	8 15 9 7	4 ft LED Tube 4 ft LED Tube	200732x2 200732x2	30	0.5 0.5 0.2	OCC NONE	2,85 8,56	56 1,285 68 1,799	1,242 1,739	0.4	\$ 233.56 \$ 326.99	\$ 2,578.50 \$ 1,143.45	\$ 20 \$ -	11.0 3.5	#
	Room 318 Room 317	18	V 32 P F 2 (ELE) V 32 P F 2 (ELE)	F42ILL F42ILL	5	9 1.1 9 0.2	SW 285 SW 285	6 3,03 6 67	3 18	4 ft LED Tube	200732x2 200732x2	30	0.5 0.1	000 000	2,8 2,8	56 1,542	1,491	0.5	\$ 280.28 \$ 62.28 \$ 225.51	\$ 3,068.55	\$ 20 \$ 20	10.9 12.5	$\pm$
	Room 316 - Teacher's Lounge Room 316 - Teacher's Lounge	8 1	N 32 P F 2 (ELE) 2T 32 R F 2 (u) (ELE)	F42ILL FU2LL F42ILL	5	9 0.5 0 0.1	SW 428 SW 428	4 2,02 4 25	2 8 7 1	4 ft LED Tube 4 ft LED Tube 2T XX R LED	200732x2 2RTLED	30 25	0.2	OCC	3,4:	27 823 27 86	331 1,200 171	0.2	\$ 32.22	\$ 330.75	\$ 70	6.4 10.3	$\pm$
	Room 314 - SGI Room 313 Room 312	14	N 32 P F 2 (ELE) N 32 P F 2 (ELE) N 32 P F 2 (ELE)	F42ILL F42ILL F42ILL	5	9 0.2 9 0.8 9 0.7	SW 285 SW 285 SW 285	6 67 6 2,35 6 2,02	9 14	4 ft LED Tube 4 ft LED Tube 4 ft LED Tube	200732x2 200732x2 200732x2	30 30 30	0.1 0.4 0.4	000	2,8 2,8 2,8	56 1,200	331 1,160 994	0.4	\$ 62.28 \$ 217.99 \$ 186.85	\$ 2,415.15	\$ 20	12.5 11.1 11.2	#
	Room 310 Room 308	18 N	N 32 P F 2 (ELE) N 32 P F 2 (ELE)	F42ILL F42ILL	5	9 1.1	SW 285 SW 285	6 3,03	3 18	4 ft LED Tube 4 ft LED Tube 4 ft LED Tube	200732x2 200732x2	30 30 30	0.5 0.5	OCC	2,8	56 1,542	994 1,491 1,491	0.5	\$ 280.28 \$ 280.28	\$ 3,068.55	\$ 20	10.9 10.9	#
	Toilet Toilet	3 1	V 32 P F 2 (ELE) V 32 P F 2 (ELE)	F42ILL F42ILL	5	9 0.2 9 0.2	SW 214 SW 214	2 37	9 3	4 ft LED Tube 4 ft LED Tube	200732x2 200732x2	30	0.1 0.1	OCC	1,7	14 154 14 154	225 225	0.1	\$ 42.28 \$ 42.28	\$ 618.30 \$ 618.30	\$ 20 \$ 20	14.6 14.6	-
	Room 305 Room 304	8 1	N 32 P F 2 (ELE) N 32 P F 2 (ELE)	F42ILL F42ILL	5	9 0.5 9 1.2	SW 214 SW 214	2 1,01 2 2,52	8 20	4 ft LED Tube 4 ft LED Tube	200732x2 200732x2	30 30	0.2 0.6	000 000	1,7	14 411 14 1,028	600 1,499	0.2	\$ 112.75 \$ 281.89	\$ 1,435.05 \$ 3,395.25	\$ 20	12.7 12.0	
	Room 303 Room 302 Room 301	18 18	T 32 R F 3 (ELE) T 32 R F 3 (ELE) T 32 R F 3 (ELE)	F43ILL/2 F43ILL/2 F43ILL/2	9	0 1.6 0 1.6 0 1.6	SW 214	2 3,47	0 18	T 59 R LED T 59 R LED T 59 R LED	RTLED38 RTLED38	38	0.7 0.7 0.7	000	1,7	14 1,172 14 1,172 14 1,172	2,298 2,298 2,298	0.9	\$ 432.01 \$ 432.01 \$ 432.01	\$ 4,380.75	\$ 920	10.1 10.1 10.1	#
	Hallways	26 V	V 32 C F 4 (ELE)	F43ILL/2 F44ILL	11	2 2.9	SW 214 SW 856	2 3,47 8 24,95	0 26	T 74 R LED	RTLED38 RTLED50	38 50	1.3	NONE 0	8,56 #N/A		2,298 13,812	1.6	\$ 432.01 \$ 2,596.58	\$ 4,380.75 \$ 6,142.50	\$ 920	2.4	+
														0	#N/A #N/A #N/A								#
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														0	#N/A #N/A								+
						103.9								1									$\top$

Rate of Discount (used for NPV) 3.0%

		George Wa	shingto	n Middl	le Scho	ool							_										
Recommend	?	Item				ivings			Cost	Simple	Life	GHG Reduction	NJ Smart Start	Direct Install	Payback w/		Simple	Projected Lifetin	ne Savings		ROI	NPV	IRR
Y or N			kW	kWh	therms	No. 2 Oil gal	Water kgal	\$		Payback	Expectancy	(Metric tons)	Incentives	Eligible (Y/N)	Incentives	kW	kWh	therms	kgal/yr	\$			
N	ECM-1A	Convert the Steam System to Hot Water System	0.0	0	12,341	0	0	9,848 \$	3,533,115	358.8	30	65.8	\$ 5,000	N	358.3	0.0	0	370,220	0	\$ 295,436	(0.9)	(\$3,335,093)	-11.8%
Υ	ECM-1B	Boiler Replacement	0.0	0	5,485	0	0	4,377 \$	215,190	49.2	30	29.3	\$ 5,000	N	48.0	0.0	0	164,542	0	\$ 131,305	(0.4)	(\$124,402)	-2.8%
N	ECM-2	Replace Pneumatic Controls with DDC Controls	0.0	10,342	555	0	0	2,387 \$	214,799	90.0	20	7.3	\$ -	N	90.0	0.0	206,839	11,107	0	\$ 47,749	(8.0)	(\$179,279)	-11.4%
Υ	ECM-3	Install Window AC Controllers	0.0	9,838	0	0	0	1,850 \$	6,200	3.4	15	4.1	\$ -	N	3.4	0.0	147,574	0	0	\$ 27,744	3.5	\$15,880	29.2%
N	ECM-4	Replace DHW Heater	0.0	0	729	0	0	582 \$	15,287	26.3	15	3.9	\$ 600	N	25.2	0.0	0	10,938	0	\$ 8,728	(0.4)	(\$7,740)	-5.9%
Υ	ECM-5	Walk-in Cooler & Freezer EC Motor Retrofits	0.0	6,225	0	0	0	1,170 \$	20,625	17.6	20	2.6	\$ -	N	17.6	0.0	124,505	0	0	\$ 23,407	0.1	(\$3,213)	1.2%
N	ECM-L1	Lighting Replacements / Upgrades	48.6	175,788	0	0	0	33,048 \$	231,423	7.0	15	73.9	\$ 6,025	N	6.8	729.5	2,636,820	0	0	\$ 495,722	1.1	\$169,129	12.0%
N	ECM-L2	Install Lighting Controls (Add Occupancy Sensors)	0.0	16,309	0	0	0	3,066 \$	11,799	3.8	15	6.9	\$ 1,840	N	3.2	0.0	244,635	0	0	\$ 45,991	2.9	\$26,644	30.2%
Υ	ECM-L3	Lighting Replacements with Controls (Occupancy Sensors)	48.6	183,089	0	0	0	34,421 \$	243,222	7.1	15	76.9	\$ 7,865	N	6.8	729.5	2,746,335	0	0	\$ 516,311	1.1	\$175,555	11.9%
		Total (Does Not Include ECM-L1 & ECM-L2)	48.6	209,494	19,110	0	0	\$ 54,635 \$	4,248,438	77.8	20.7	190	\$ 18,465		77.4	729	3,225,253	556,806	-	\$ 1,050,679	(0.8)	(3,458,293)	-10.4%
		Recommended Measures (highlighted green above)	48.6	199,153	5,485	0	0	\$ 41,817 \$	485,237	11.6	20.0	113	\$ 12,865	0	11.3	729	3,018,414	164,542	-	\$ 698,767	0.4	63,820	6.2%
		% of Existing	14%	25%	9%	0	0							-		•	-	· · · · · · · · · · · · · · · · · · ·					

		City:	Newar	k, NJ	1		
	Occupied F	Hours/Week	50				
	-		Building	Auditorium	Gymnasium	Library	Classrooms
	Enthalpy		Operating	Occupied	Occupied	Occupied	Occupied
Temp	h (Btu/lb)	Bin Hours	Hours	Hours	Hours	Hours	Hours
102.5				İ			
97.5	35.4	6	2	0	0	0	0
92.5	37.4	31	9	0	0	0	0
87.5	35.0	131	39	0	0	0	0
82.5	33.0	500	149	0	0	0	0
77.5	31.5	620	185	0	0	0	0
72.5	29.9	664	198	0	0	0	0
67.5	27.2	854	254	0	0	0	0
62.5	24.0	927	276	0	0	0	0
57.5	20.3	600	179	0	0	0	0
52.5	18.2	730	217	0	0	0	0
47.5	16.0	491	146	0	0	0	0
42.5	14.5	656	195	0	0	0	0
37.5	12.5	1,023	304	0	0	0	0
32.5	10.5	734	218	0	0	0	0
27.5	8.7	334	99	0	0	0	0
22.5	7.0	252	75	0	0	0	0
17.5	5.4	125	37	0	0	0	0
12.5	3.7	47	14	0	0	0	0
7.5	2.1	34	10	0	0	0	0
2.5	1.3	1	0	0	0	0	0
-2.5							
-7.5							

Multipliers		
Material:	1.027	
Labor:	1.246	
Equipment:	1.124	
Heating System Efficiency		759
Cooling Eff (kW/ton)		1

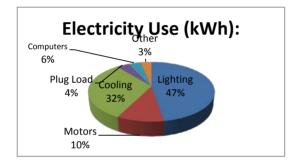
Heating		Ī
Hours	4,427	Hrs
Weighted Avg	40	F
Avg	28	F
Cooling		Ī
Hours	4,333	Hrs
Weighted Avg	68	F

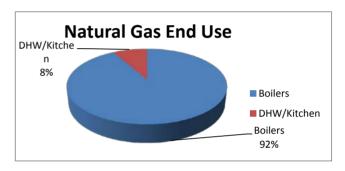
Ridgewood Board Of Education CHA Project Number: 30237 George Washington Middle School

	Utility End	Use Analysis
Electric	ity Use (kWh):	Notes/Comments:
789,291		Based on utility analysis
373,661	Lighting	From Lighting Calculations
80,000	Motors	Estimated
250,000	Cooling	Estimated
	Plug Load	Estimated
30,000	Computers	Estimated
25,630	Other	Remaining
Natural Ga	s Use (Therms):	Notes/Comments:
60,533		Based on utility analysis
	Boilers	Therms/SF x Square Feet Served
5,000	DHW/Kitchen	Based on utility analysis



8%





ECM-1A Convert the Steam System to Hot Water System

Description: The facility is interested in converting the steam system to hot water system regardless of the high initial cost. This measure evaluates the energy savings associated with replacing the low efficiency steam system with a modern high efficiency hot water system which would include condensing gas boilers operating on an outdoor air temperature reset schedule.

<u>Item</u>	<u>Value</u>	<u>Units</u>	Formula/Comments			
Baseline Fuel Cost	\$ 0.80	/ Therm	Natural Gas			
Baseline Fuel Cost		/ Gal	No. 2 Oil			
FORMULA CONSTANTS						
Oversize Factor	0.8					
Hours per Day	24					
Infrared Conversion Factor	1.0		1.0 if Boiler, 0.8 if Infrared Heater			
		EXISTIN	G			
Capacity	5,923,952	btu/hr	Estimated Boiler Load % and Capacity			
Heating Combustion Efficiency	75%		Estimated averaged Efficiency			
Heating Degree-Day	2,783	Degree-day				
Design Temperature Difference	57	F				
Fuel Conversion	100,000	btu/therm				
		PROPOSI	ED .			
Capacity	5,923,952	btu/hr				
Efficiency	90%					
		•	•			
		SAVING	S			
Fuel Savings	12,341	therms	NJ Protocols Calculation			
Fuel Cost Savings	\$ 9,848					

Savings calculation formulas are taken from NJ Protocols document for Occupancy Controlled Thermostats

#### **Algorithms**

Gas Savings (Therms)

$$= \frac{OF \times ((CAPY_{Bi} \times EFF_Q) - (CAPY_{Qi} \times EFF_B \times ICF)) \times HDD_{mod} \times 24}{\Delta T \times HC_{fuel} \times EFF_B \times ICF \times EFF_Q}$$

#### Definition of Variables

OF = Oversize factor of standard boiler or furnace (OF=0.8)

 $CAPY_{Bi}$  = Total input capacity of the baseline furnace, boiler or heater in Btu/hour

CAPY<sub>Oi</sub> = Total input capacity of the qualifying furnace, boiler or heater in Btu/hour

 $HDD_{mod} = HDD$  by zone and building type

24 = Hours/Day

 $\Delta T$  = design temperature difference

 $HC_{fuel}$  = Conversion from Btu to therms of gas or gallons of oil or propane (100,000 btu/therm; 138,700 btu/gal of #2 oil; 92,000 btu/gal of propane)

EFF<sub>O</sub> = Efficiency of qualifying heater(s) (AFUE %)

EFF<sub>B</sub> = Efficiency of baseline heaters (AFUE %)

ICF = Infrared Compensation Factor (ICF = 0.8 for IR Heaters, 1.0 for furnaces/boilers)<sup>2</sup>

#### Furnaces and Boilers

Component	Type	Value	Source
$AFUE_q$	Variable		Application
$AFUE_b$	Fixed	Furnaces: 78%	EPACT Standard
		Boilers: 80%	for furnaces and
		Infrared: 78%	boilers
CAPYin	Variable		Application
ΔΤ	Variable	See Table Below	1
$HDD_{mod}$	Fixed	See Table Below	1

#### Sources:

- KEMA, Smartstart Program Protocol Review. 2009.
   <a href="http://www.spaceray.com/1\_space-ray\_faqs.php">http://www.spaceray.com/1\_space-ray\_faqs.php</a>

Adjusted Heating Degree Days by Building Type

Building Type	Heating Energy Density (kBtu/sf)	Degree Day Adjustment Factor	Atlantic City (HDD)	Newark (HDD)	Philadelphia (HDD)	Monticello (HDD)
Education	29.5	0.55	2792	2783	2655	3886
Food Sales	35.6	0.66	3369	3359	3204	4689
Food Service	39.0	0.73	3691	3680	3510	5137
Health Care	53.6	1.00	5073	5057	4824	7060
Lodging	15.0	0.28	1420	1415	1350	1976
Retail	29.3	0.55	2773	2764	2637	3859
Office	28.1	0.52	2660	2651	2529	3701
Public Assembly	33.8	0.63	3199	3189	3042	4452
Public Order/Safety	24.1	0.45	2281	2274	2169	3174
Religious Worship	29.1	0.54	2754	2745	2619	3833
Service	47.8	0.89	4524	4510	4302	6296
Warehouse/Storage	20.2	0.38	1912	1906	1818	2661

Heating Degree Days and Outdoor Design Temperature by Zone

ficuting Degree Day	B and Ou	tuoor Design Temp
Weather Station	HDD	Outdoor Design Temperature (F)
Atlantic City	5073	13
Newark	5057	14
Philadelphia, PA	4824	15
Monticello, NY	7060	8

#### ECM-1A Convert the Steam System to Hot Water System -Cost

Multipliers	
Material:	1.03
Labor:	1.25
Equipment:	1.12

Description	QTY	UNIT	UNIT COSTS		SUBTOTAL COSTS			TOTAL COST	DEMARKS	
Description	QII	ONIT	MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.	TOTAL COST	REMARKS
Full HW conversion	82,243	SF	\$ 14	\$ 14		\$ 1,182,483	\$ 1,434,639	\$ -	\$ 2,617,122	Estimated based on prior experience
						\$ -	\$ -	\$ -	\$ -	

<sup>\*\*</sup>Cost Estimates are for Energy Savings calculations only, do not use for procurement

\$ 2,617,122	Subtotal
\$ 915,993	35% Contingency
\$ 3,533,115	Total

## ECM-1B Boiler Replacement Description: This measure looks at

<u>Item</u>	<u>Value</u>	<u>Units</u>	Formula/Comments			
Baseline Fuel Cost	\$ 0.80	/ Therm	Natural Gas			
Baseline Fuel Cost		/ Gal	No. 2 Oil			
FORMULA CONSTANTS						
Oversize Factor	0.8					
Hours per Day	24					
Infrared Conversion Factor	1.0		1.0 if Boiler, 0.8 if Infrared Heater			
		EXISTIN	G			
Capacity	5,923,952	btu/hr	Estimated Boiler Load % and Capacity			
Heating Combustion Efficiency	75%		Estimated averaged Efficiency			
Heating Degree-Day	2,783	Degree-day				
Design Temperature Difference	57	F				
Fuel Conversion	100,000	btu/therm				
		PROPOSI	ED .			
Capacity	5,923,952	btu/hr				
Efficiency	81%					
		•	•			
		SAVING	S			
Fuel Savings	5,485	therms	NJ Protocols Calculation			
Fuel Cost Savings	\$ 4,377					

Savings calculation formulas are taken from NJ Protocols document for Occupancy Controlled Thermostats

#### **Algorithms**

Gas Savings (Therms)

$$= \frac{OF \times ((CAPY_{Bi} \times EFF_Q) - (CAPY_{Qi} \times EFF_B \times ICF)) \times HDD_{mod} \times 24}{\Delta T \times HC_{fuel} \times EFF_B \times ICF \times EFF_Q}$$

#### Definition of Variables

OF = Oversize factor of standard boiler or furnace (OF=0.8)

 $CAPY_{Bi}$  = Total input capacity of the baseline furnace, boiler or heater in Btu/hour

CAPY<sub>Oi</sub> = Total input capacity of the qualifying furnace, boiler or heater in Btu/hour

 $HDD_{mod} = HDD$  by zone and building type

24 = Hours/Day

 $\Delta T$  = design temperature difference

 $HC_{fuel}$  = Conversion from Btu to therms of gas or gallons of oil or propane (100,000 btu/therm; 138,700 btu/gal of #2 oil; 92,000 btu/gal of propane)

EFF<sub>O</sub> = Efficiency of qualifying heater(s) (AFUE %)

EFF<sub>B</sub> = Efficiency of baseline heaters (AFUE %)

ICF = Infrared Compensation Factor (ICF = 0.8 for IR Heaters, 1.0 for furnaces/boilers)<sup>2</sup>

#### Furnaces and Boilers

Component	Type	Value	Source
$AFUE_q$	Variable		Application
$AFUE_b$	Fixed	Furnaces: 78%	EPACT Standard
		Boilers: 80%	for furnaces and
		Infrared: 78%	boilers
CAPYin	Variable		Application
ΔΤ	Variable	See Table Below	1
$HDD_{mod}$	Fixed	See Table Below	1

#### Sources:

- KEMA, Smartstart Program Protocol Review. 2009.
   <a href="http://www.spaceray.com/1\_space-ray\_faqs.php">http://www.spaceray.com/1\_space-ray\_faqs.php</a>

Adjusted Heating Degree Days by Building Type

Building Type	Heating Energy Density (kBtu/sf)	Degree Day Adjustment Factor	Atlantic City (HDD)	Newark (HDD)	Philadelphia (HDD)	Monticello (HDD)
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Food Sales	35.6	0.66	3369	3359	3204	4689
Food Service	39.0	0.73	3691	3680	3510	5137
Health Care	53.6	1.00	5073	5057	4824	7060
Lodging	15.0	0.28	1420	1415	1350	1976
Retail	29.3	0.55	2773	2764	2637	3859
Office	28.1	0.52	2660	2651	2529	3701
Public Assembly	33.8	0.63	3199	3189	3042	4452
Public Order/Safety	24.1	0.45	2281	2274	2169	3174
Religious Worship	29.1	0.54	2754	2745	2619	3833
Service	47.8	0.89	4524	4510	4302	6296
Warehouse/Storage	20.2	0.38	1912	1906	1818	2661

Heating Degree Days and Outdoor Design Temperature by Zone

ficuting Degree Day	B and Ou	tuoor Design Temp
Weather Station	HDD	Outdoor Design Temperature (F)
Atlantic City	5073	13
Newark	5057	14
Philadelphia, PA	4824	15
Monticello, NY	7060	8

#### ECM-1A Convert the Steam System to Hot Water System - Cost

Multipliers	
Material:	1.03
Labor:	1.25
Equipment:	1.12

Description	QTY	LINIT	UNIT UNIT COSTS SUBTOTAL COSTS				TOTAL COST		DEMARKS			
Description	QII	UNIT	MAT.	LABOR	EQUIP.	MAT.	LABOR	Е	QUIP.	5	AL COST	KEWAKKS
Steam Boiler	1	EA	\$ 78,500	\$ 11,100		\$ 80,620	\$ 13,831	\$	-	\$	94,450	RS Means
Flue Installation	1	LS	\$5,000.0	\$5,000.00		\$ 5,135	\$ 6,230	\$	-	\$	11,365	Estimated
Miscellaneous Electrical	1	LS	\$ 5,000	\$ 2,500		\$ 5,135	\$ 3,115	\$	-	\$		Estimated
Miscellaneous GC work	1	EA	\$ 15,000	\$ 15,000		\$ 15,405	\$ 18,690	\$	-	\$	34,095	Estimated
Crane	1	EA			\$ 10,000	\$ -	\$	\$	11,240	\$	11,240	Estimated
						\$ -	\$ •	\$	-	\$	-	
						\$ =	\$ ı	\$	-	\$	-	
						\$ -	\$ ı	\$	-	\$	-	
						\$ -	\$ -	\$	-	\$		
						\$ -	\$ -	\$	-	\$		
						\$ -	\$ -	\$	-	\$	-	

<sup>\*\*</sup>Cost Estimates are for Energy Savings calculations only, do not use for procurement

\$ 159,400	
\$ 55,790	35% Contingency
\$ 215,190	Total

ECM-2 Replace Pneumatic Controls with DDC Controls

Description: This ECM evaluates the energy savings associated with replacing the existing pneumatic devices including the air compressor with digital control devices. The full DDC system will have better control on the building temperature settings since it eliminates the air leaks in the pneumatic system, the building already has a temperature setback program, therefore, the savings are from better temp control and the air compressor energy usage reduction

Building Information:
126,527 Sq Footage
Y Cooling Heating

\$/kWh Blended \$/Therm

#### Hybrid to Full DDC Sovings

nybria to ruii DDC Savings		
EXISTING CONDITIONS		•
Existing Facility Total Electric usage	789,291	kWh
Existing Facility Total Gas usage	60,533	Therms
Existing Facility Cooling Electric usage	250,000.0	kWh <sup>1</sup>
Existing Facility Heating Natural	55,533	Therms <sup>*</sup>
PROPOSED SAVINGS		
Proposed Facility Cooling Electric Savings	2,500	kWh
Proposed Facility Natural Gas Savings	555	Therms
Air Compressor Electric Savings	7,842	kWh
SAVINGS		
Electric Savings	10,342	kWh
Natural Gas Savings	555	Therms

All Compressor			
Motor Capacity	Load	Run Hours	Electric Usage
HP	%	hr/yr	kWh/yr
3	80%	4,380	7,842

#### Assumptions

32% of facility total electricity dedicated to Cooling; based on utility information 92% of facility total natural gas dedicated to Heating; based on utility information Estimated savings of eliminating the air leaks 4,380 Annual air compresser run hours

COMBINED SAVINGS		
Natural Gas Savings	555	Therms
Cooling Electricity Savings	10,342	kWh
Total Cost Savings	\$ 2,387	
Estimated Total Project Cost	\$ 214,799	
Simple Payback	90.0	Yrs

Multipliers	
Material:	1.03
Labor:	1.25
Equipment:	1.00

#### ECM-2 Replace Pneumatic Controls with DDC Controls - Cost

Description	QTY	OTV LINIT	UNIT UNIT COSTS			SUE	STOTAL COS	STS	TOTAL COST REMARKS	
Description	QII	ONIT	MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.	TOTAL COST	REWARKS
						\$ -	\$ -	\$ -	\$ -	
Calibrating & Programming	1	ls	\$ 70,000	\$ 70,000		\$ 71,890	\$ 87,220	\$ -	\$ 159,110	Estimated
						\$ -	\$ -	\$ -	\$ -	
						\$ -	\$ -	\$ -	\$ -	

<sup>\*\*</sup>Cost Estimates are for Energy Savings calculations only, do not use for procurement

\$ 159,110	Subtotal
\$ 55,689	35% Contingency
\$ 214,799	Total

		COOLING CAPACITY	
EQUIPMENT	AREA/EQUIPMENT SERVED	(btu/h)	
Window AC	Classrooms	300,000	30 units
	Total btu/h of all window A/C Units:	300,000	btu/h

#### ECM-3 Install Window AC Controllers

ECM Description: Window A/C units are currently controlled manually by the occupants and are not turned off when the room is unoccupied. This ECM evaluates implementation of a digital timer device that will automatically turn the window A/C unit off at a preset time.

ASSUMPTIO	NS	Comments				
Electric Cost	\$0.188	/ kWh				
Average run hours per Week	50	Hours				
Space Balance Point	55	F				
Space Temperature Setpoint	65	deg F	etpoint.			
BTU/Hr Rating of existing DX equipment	300,000	Btu / Hr	otal BTU/hr of DX cooling equipment	to be replaced.		
Average EER	12.0					
Existing Annual Electric Usage	20,878	kWh				

<u>Item</u>	<u>Value</u>	<u>Units</u>	Comments
Proposed Annual Electric Usage	11,040	kWh	Unit will cycle on w/ temp of room. Possible operating time shown below

ANNUAL SAVINGS							
Annual Electrical Usage Savings	9,838	kWh					
Annual Cost Savings	\$1,850						
Total Project Cost	\$6,200						
Simple Payback	3	years					

OAT - DB		Existing		Proposed
Bin	Annual	Hours of	Proposed % of	hrs of
Temp F	Hours	Operation	time of operation	
102.5	0	0	100%	0
97.5	6	2	100%	2
92.5	31	9	100%	9
87.5	131	39	87%	34
82.5	500	149	73%	109
77.5	620	185	60%	111
72.5	664	198	47%	92
67.5	854	254	33%	85
62.5	927	0	0%	0
57.5	600	0	0%	0
52.5	730	0	0%	0
47.5	491	0	0%	0
42.5	656	0	0%	0
37.5	1,023	0	0%	0
32.5	734	0	0%	0
27.5	334	0	0%	0
22.5	252	0	0%	0
17.5	125	0	0%	0
12.5	47	0	0%	0
7.5	34	0	0%	0
2.5	1	0	0%	0
-2.5	0	0	0%	0
-7.5	0	0	0%	0
Total	8,760	835	53%	442

ECM-3 Install Window AC Controllers - Cost

Multipliers	
Material:	1.03
Labor:	1.25
Equipment:	1.12

Description	QTY	UNIT	UNIT COSTS			SL	IBTOTAL C	OSTS	TOTAL	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.	COST	REWARKS
						0	\$ -	\$ -	\$ -	
Window AC Controller	30	EA	\$ 150	\$ -	\$ -	4621.5	\$ -	\$ -	\$ 4,622	Estimated
						\$ -	\$ -	\$ -	\$ -	

<sup>\*\*</sup>Cost Estimates are for Energy Savings calculations only, do not use for procurement

\$ 4,622	Subtotal
\$ 1,618	35% Contingency
\$ 6,200	Total

#### ECM-4 Replace DHW Heater

Description: This ECM evaluates the energy savings associated with replacing a gas fired tank type water heater with an equivalent capacity water heater.

<u>Item</u>	Value	<u>Units</u>	Formula/Comments
Avg. Monthly Utility Demand by Water Heater	417	Therms/month	Calculated from utility bill
Total Annual Utility Demand by Water Heater	500,000	MBTU/yr	1therm = 100 MBTU
Existing DHW Heater Efficiency	82%		Per manufacturer nameplate
Total Annual Hot Water Demand (w/ standby losses)	410,000	MBTU/yr	
Existing Tank Size	200	Gallons	Per manufacturer nameplate
Hot Water Piping System Capacity	5	Gallons	Estimated Per existing system (includes HWR piping)
Hot Water Temperature	140	°F	Per building personnel
Room Temperature	72	°F	
Standby Losses (% by Volume)	2.5%		( 2.5% of stored capacity per hour, per U.S. Department of Energy )
Standby Losses (Heat Loss)	2.9	MBH	
Annual Standby Hot Water Load	25,441	MBTU/yr	
New Tank Size	200	Gallons	Based on Takagi Flash T-H1 instantaneous, condensing DHW Heater
Hot Water Piping System Capacity	5	Gallons	Estimated Per existing system (includes HWR piping)
Hot Water Temperature	140	°F	
Room Temperature	72	°F	
Standby Losses (% by Volume)	2.5%		( 2.5% of stored capacity per hour, per U.S. Department of Energy )
Standby Losses (Heat Loss)	2.9	MBH	
Annual Standby Hot Water Load	25,441	MBTU/yr	
Total Annual Hot Water Demand	410,000	MBTU/yr	
Proposed Avg. Hot water heater efficiency	96%		Based on Takagi Flash T-H1 instantaneous, condensing DHW Heater
Proposed Fuel Use	4,271	Therns	Standby Losses and inefficient DHW heater eliminated
Utility Cost	\$0.80	\$/Therm	
Existing Operating Cost of DHW	\$3,990	\$/yr	
Proposed Operating Cost of DHW	\$3,408	\$/yr	

#### **Savings Summary:**

Utility	Energy	Cost
	Savings	Savings
Therms/yr	729	\$582

#### ECM-4 Replace DHW Heater - Cost

Multipliers	
Material:	1.03
Labor:	1.25
Equipment:	1.12

Description		UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL	REMARKS
263611ption	QTY	UNIT	MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.	COST	KEWAKKS
DHW Heater Removal	1	LS		\$ 50		\$ -	\$ 62	\$ -	\$ 62	RS Means 2012
400 MBH High Efficiency Gas-Fired DHW Heater	1	EA	\$ 6,500	\$ 1,500		\$ 6,676	\$ 1,869	\$ -	\$ 8,545	From Internet Price/ Estimated Labor Cost*
Miscellaneous Electrical	1	LS	\$ 300			\$ 308	\$ -	\$ -	\$ 308	RS Means 2012
Venting Kit	1	EA	\$ 450	\$ 650		\$ 462	\$ 810	\$ -	\$ 1,272	RS Means 2012
Miscellaneous Piping and Valves	1	LS	\$ 500	\$ 500		\$ 514	\$ 623	\$ -	\$ 1,137	Estimated

<sup>\*</sup> Rheem SPIDEfire

\$ 11,323	Subtotal
\$ 3,963	35% Contingency
\$ 15,287	Total

<sup>\*\*</sup>Cost Estimates are for Energy Savings calculations only, do not use for procurement

#### **ECM-5 Walk-in Cooler & Freezer EC Motor Retrofits**

#### ECM Description:

For kitchens that contain walk-in coolers and freezers, CoolTrol is a controller that reduces energy consumption by controlling off of dewpoint temperature. Compressor cycling is reduced and the evaporator fans run 25% to 80% less. Door and frame heaters are also installed and controlled by store dew point temperature; this can reduce run time by up to 95% in coolers and 60% in freezers. The evaporator fan motors are also replaced with hi-efficiency fan motors saving 40% to 70% in energy. The proposed system comprises of an anti-sweat door controller, evaporator fan motor replacement and CoolTrol Cooler Control System.

#### **Utility Cost**

\$0.19 \$/kWh Blended

EXISTING CONDITIONS		
Walk-In Freezer(	(s)	
Existing Freezer Controls?	N	
Quantity of Walk-In Freezers	1	
Nameplate Amps of Freezer Evaporator Fan	3.3	AmpsEF
Nameplate Volts of Freezer Evaporator Fan	208	VoltsEF
Phase of Evaporator Fan	1	PhaseEF
Power Factor of Evaporator Fan	0.55	PFEF
Operating Hours	8,760 hrs	
Load Reduction	65%	LR
Electricity Savings (Evaporator Fan)	2,150 kWh	kWhEF
Electricity Savings (Evaporator Fan Reduced Heat)	963 kWh	kWhRH
Total Walk-In Freezer(s) Electricity Savings	3,113 kWh	
Walk-In Cooler(s	,	
Existing Cooler Controls?	N	
Quantity of Walk-In Coolers	1	
Nameplate Amps of Cooler Evaporator Fan	3.3	
Nameplate Volts of Cooler Evaporator Fan	208	
Phase of Evaporator Fan	1	
Power Factor of Evaporator Fan	0.55	
Operating Hours	8,760 hrs	
Load Reduction	65%	
Electricity Savings (Evaporator Fan)	2,150 kWh	
Electricity Savings (Evaporator Fan Reduced Heat)	963 kWh	
Total Walk-In Cooler(s) Electricity Savings	3,113 kWh	
SAVINGS		
Total Electricity Savings	6,225 kWh	
Total Cost Savings	\$ 1,170	
Estimated Cost	\$ 20,625	
Simple Payback	17.6 years	

Savings calculation formulas are taken from NJ Protocols document for Walk-in Controller

<sup>\*\*</sup>Cost Estimates are for Energy Savings calculations only, do not use for procurement

Multipliers	
Material:	1.03
Labor:	1.25
Equipment:	1.12

#### ECM-5 Walk-in Cooler & Freezer EC Motor Retrofits - Cost

Description	QTY	Y UNIT	UNIT COSTS			SUB	TOTAL CO	STS	TOTAL	REMARKS
Description	QII	UNIT	MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.	COST	REMARKS
									\$ -	
Turnkey Walk-In Controller & Equipment	1	EA	\$ 10,000	\$ 5,000	\$ -	\$ 10,270	\$ 6,230	\$ -	\$ 16,500	Vendor Estimate
						\$ -	\$ -	\$ -	\$ -	

<sup>\*\*</sup>Cost Estimates are for Energy Savings calculations only, do not use for procurement

\$ 16,500	Subtotal
\$ 4,125	25% Contingency
\$ 20,625	Total

#### 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 governements or non-profit organizations.

At a minimum, all recommended measures were used for this calculation. To qualify for P4P incentives, the following P4P requirements must be met:

- At least 15% source energy savings
- No more than 50% savings from lighting measures Scope includes more than one measure
- Project has at least a 10% internal rate of return
- At least 50% of the source energy savings must come from investor-owned electricity and/or natural gas (note: exemption for fuel conversions)

Total Building Area (Square Feet)	126,527
Is this audit funded by NJ BPU (Y/N)	Yes

Incentive #1			
Audit is funded by NJ BPU	\$0.05	\$/sqft	

Board of Public Utilites (BPU)

kWh	Therms
\$148,606	\$60,533
789,291	60,533
199,153	5,485
8,747	
1,228	
14.0%	
\$41,817	
	789,291 199,153 8,7 1,2

	Min (Savings = 15%)		Increase (Savings > 15%) Max Incen		Max Incentive Achieved I		chieved 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	\$0	
Incentive #2	\$0	\$0	\$0	
Incentive #3	\$0	\$0	\$0	
Total All Incentives	\$0	\$0	\$0	

Total Project Cost	\$485,237

		Allowable Incentive
% Incentives #1 of Utility Cost*	0.0%	\$0
% Incentives #2 of Project Cost**	0.0%	\$0
% Incentives #3 of Project Cost**	0.0%	\$0
Total Eligible Incentives***	\$0	
Project Cost w/ Incentives	\$485,237	

Project Payback (years)					
w/o Incentives	w/ Incentives				
11.6	11.6				

 $<sup>^{\</sup>star}$  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 #2 & #3 is \$1 million per gas account and \$1 million per electric account; maximum 2 million per project

<sup>\*\*</sup> Maximum allowable amount of Incentive #2 is 25% of total project cost.

Maximum allowable amount of Incentive #3 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.

### APPENDIX D

### New Jersey Board of Public Utilities Incentives

- i. Smart Start
- ii. Direct Install
- iii. Pay for Performance (P4P)
- iv. Energy Savings Improvement Plan (ESIP)

### I. SMART START



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#### NJ SmartStart Buildings

#### **Program Overview**



**HURRICANE SANDY** 

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NJ SMARTSTART BUILDINGS

**EQUIPMENT INCENTIVES** 

**FOOD SERVICE EQUIPMENT** 

**APPLICATION FORMS** 

**TOOLS AND RESOURCES** 

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**COMBINED HEAT & POWER AND FUEL CELLS** 

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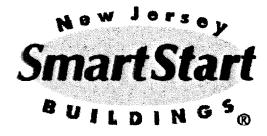
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**EDA PROGRAMS** 

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#### With New Jersey SmartStart Buildings ...

... A smart start now means better performance later! Whether you're starting a commer industrial project from the ground up, renovating existing space, or upgrading equipmen unique opportunities to upgrade the energy efficiency of the project.

#### Special Notice

Enhanced incentives are available for NJ SmartStart Building upgrades in buildings im-Hurricane Sandy. Eligible projects receive an additional 50% and new incentives have added for high efficiency food service equipment.

Visit the Sandy web page for details and important links.

New Jersey SmartStart Buildings can provide a range of support — at no cost to you substantial energy savings, both now and for the future. Learn more about:

> **Project Categories Custom Measures**

Incentives for Qualifying Equipment and Projects

**Program Terms and Conditions** 

Find a Trade Ally

Please note: pre-approval is required for almost all energy efficiency incentives. I you must submit an application form (and applicable worksheets) and receive an approv from the program before any equipment is installed (click here for complete Terms and ( Upon receipt of an approval letter, you may proceed to install the equipment listed on yo approved application. Equipment installed prior to the date of the approval letter is not e an incentive. Any customer and/or agent who purchases equipment prior to the rec incentive approval letter does so at his/her own risk.

#### **Getting Started**

Submit your project application form as soon as you know you will be doing a constructive or replacing/adding equipment.

PAST PROGRAMS

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**PROGRAM UPDATES** 

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Apply for pre-approval by submitting an application for the type of equipment you have c install. The application should be accompanied by a related worksheet, where applicable manufacturer's specification sheet (refer to the specific program requirements on the ba application for specs needed for your project) for the equipment you are planning to inst (Program representatives will review your application package and approve it, reject it, advise you of upgrades in equipment that will save energy costs and/or increase your in

#### **Support for Custom Energy-Efficiency Measures**

Custom measures allows program participants the opportunity to receive an incentive fo energy-efficiency measures that are not on the prescriptive equipment Incentive list, but project/facility specific.

#### Incentives for Qualifying Equipment and Projects

Financial incentives are available for large and small projects. These incentives offset so maybe even all! — of the added cost to purchase qualifying energy-efficient equipment, provides significant long-term energy savings. Ranges of incentives are available for quequipment (depending on type, size, and efficiency) in several categories.

Find out more about equipment incentives

For specific details on equipment requirements and financial incentives, including ince equipment not listed here, contact a program representative. Fiscal year financial incent be limited to a maximum of \$500,000 per customer utility account and are available as fi permits.

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### **Equipment Incentives**

#### Special Notice

Enhanced incentives are available for NJ SmartStart Building upgrades in buildings imp Hurricane Sandy. Eligible projects receive an additional 50% and new incentives have added for high efficiency food service equipment.

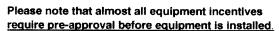
Visit the Sandy web page for details and important links.

Home » Commercial & Industrial » Programs » NJ SmartStart Buildings

#### More reasons for a smart start on your next project!

New Jersey SmartStart Buildings provides financial incentives for qualifying equipment. These incentives were developed to help our customers offset some of the added cost to purchase qualifying energy-efficient equipment, which provides significant long-term energy savings. A wide range of incentives are available for qualifying equipment (depending on type, size and efficiency).

Listed below are the types of qualifying equipment and ranges of incentives. For details on equipment requirements and full listings of incentives, refer to the online application forms.



(click for exceptions) To start the pre-approval process,

submit an Equipment Application, and appropriate Equipment Worksheets, for the type of types of equipment you are planning to install along with equipment specification sheets (refer to the specific program requirements on the back of the application for specificatic needed for your project) and a current utility bill(s).

In order to be eligible to receive financial incentives under this Program, Applicants mus receive electric and/or gas service from one of the regulated electric and/or gas utilities in the State of New Jersey. They are: Atlantic City Electric, Jersey Central Power & Light, Rockland Electric Company, New Jersey Natural Gas, Elizabethtown Gas, PSE&G, and South Jersey Gas.

#### **Electric Chillers**

Water-cooled chillers (\$12 - \$170 per ton) Air-cooled chillers (\$8 - \$52 per ton)

#### **Gas Cooling**

Gas absorption chillers (\$185-\$450 per ton) Gas Engine-Driven Chillers (Calculated through Custom Measure F **PAST PROGRAMS** 

**TOOLS AND RESOURCES** 

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Desiccant Systems (\$1.00 per cfm - gas or electric)

#### **Electric Unitary HVAC**

Unitary AC and split systems (\$73 - \$92 per ton)
Air-to-air heat pumps (\$73 - \$92 per ton)
Water-source heat pumps (\$81 per ton)
Packaged terminal AC & HP (\$65 per ton)
Central DX AC Systems (\$40 - \$72 per ton)
Dual Enthalpy Economizer Controls (\$250)
Occupancy Controlled Thermostats (\$75 each)
A/C Economizing Controls (\$85 - \$170 each)

#### **Ground Source Heat Pumps**

Closed Loop (\$450-750 per ton)

#### **Gas Heating**

Gas-fired boilers < 300 MBH (\$300 per unit)
Gas-fired boilers ≥ 300 MBH - 1500 MBH (\$1.75 per MBH)
Gas-fired boilers ≥ 1500 MBH - ≤ 4000 MBH (\$1.00 per MBH)
Gas-fired boilers > 4000 MBH (Calculated through Custom Measure
Gas furnaces (\$300-\$400 per unit)
Gas infrared heaters - indoor only (\$300 - \$500 per unit)
Boiler economizing controls (\$1,200 - \$2,700 per unit)

#### **Variable Frequency Drives**

Variable air volume (\$65 - \$155 per hp) Chilled-water pumps (\$60 per hp) Compressors (\$5,250 to \$12,500 per drive)

#### **Natural Gas Water Heating**

Gas water heaters ≤ 50 gallons (\$50 per unit)
Gas-fired water heaters > 50 gallons (\$1.00 - \$2.00 per MBH)
Tankless water heaters replacing a free standing water heater > 82
energy factor (\$300 per heater)

Gas-fired booster water heaters (\$17 - \$35 per MBH)

#### **Premium Motors**

Three-phase motors (\$45 - \$700 per motor) (Incentive was discor effective March 1, 2013 except for buildings impacted by Hurric Sandy. Approved applications will have the standard timeframyear from the program commitment date to complete the instal

#### Refrigerator/Freezer Case Premium Efficiency Motors (ECM)

Fractional (< 1 HP) Electronic Commutated Motors (ECM) (\$40 per for replacement of existing shaded-pole motor in refrigerated/freeze

#### **Prescriptive Lighting**

New Linear Fluorescent

T-12, HID and Incandescent to T-5 and T-8 (\$25 - \$200 pe fixture) (Note: T12 replacements are only available for buildings impacted by Hurricane Sandy)

New Induction (\$70 per replaced HID fixture)

#### New LED

Screw-in/Plug-in (\$10 - \$20 per lamp)

Refrigerator/Freezer Case (\$30 - \$65 per fixture)

Outdoor pole/arm/wall-mounted luminaires (\$100 - \$175 p fixture)

Display case (\$30 per case)

Shelf-mounted display and task (\$15 per linear foot)

Wall-wash, desk, recessed (\$20 - \$35 per fixture)

Parking garage luminaires (\$100 per fixture)

Track or Mono-Point directional (\$50 per fixture)

Stairwell and Passageway luminaires (\$40 per fixture)

High-Bay, Low-Bay (\$150 per fixture)

Bollard (\$50 per fixture)

luminaires for Ambient Lighting of Interior Commercial Spa

Linear panels (\$50 per fixture)

Fuel pump canopy (\$100 per fixture)

LED retrofit kits (custom measures)

New Pulse-Start Metal Hallide (\$25 per fixture)

Linear Fluorescent Retrofit (\$10 - \$20 per fixture)

Induction Retrofit (\$50 per retrofitted HID fixture)

New Construction/Complete Renovation (performance-based)

Note: Incentives for T-12 to T-5 and T-8 lamps with electronic ballast in facilities (\$10 per fixture, 1-4 lamps) and T-5/T-8 high bay fixtures (\$16 per fixture) were discontinued effective March 1, 2013 for T-12 retrofits replacements except for buildings impacted by Hurricane Sandy. Approapplications will have the standard timeframe of one year from the programmitment date to complete the installation

#### **Lighting Controls**

#### Occupancy Sensors

Wall mounted (\$20 per control)

Remote mounted (\$35 per control)

Daylight dimmers (\$25 per fixture controlled, \$50 per fixture office applications only)

Occupancy controlled hi-low fluorescent controls (\$25 per controlled)

HID or Fluorescent Hi-Bay Controls

Occupancy hi-low (\$35 per fixture controlled)

Daylight dimming (\$45 per fixture controlled)

#### Refrigeration

#### Covers and Doors

Energy-Efficient doors for open refrigerated doors/covers per door)

Aluminum Night Curtains for open refrigerated cases (\$3.5 linear foot)

#### Controls

Door Heater Control (\$50 per control)

Electric Defrost Control (\$50 per control)

Evaporator Fan Control (\$75 per control)

Novelty Cooler Shutoff (\$50 per control)

#### **Food Service Equipment**

#### Cooking

Combination Electric Oven/Steamer (\$1,000 per oven)

Combination Gas Oven/Steamer (\$750 per oven)

Electric Convection Oven (\$350 per oven)

Gas Convection Oven (\$500 per oven)

Gas Rack Oven (\$1,000 single, \$2,000 double)

Gas Conveyor Oven (\$500 small deck, \$750 large deck)

Electric Fryer (\$200 per vat)

Gas Fryer (\$749 per vat)

Electric Large Vat Fryer (\$200 per vat)

Gas Large Vat Fryer (\$500 per vat)

Electric Griddle (\$300 per griddle)

Gas Griddle (\$125 per griddle)

Electric Steam Cooker (\$1,250 per steamer)

Gas Steam Cooker (\$2,000 per steamer)

#### Holding

Full Size Insulated Cabinets (\$300 per cabinet)

Three Quarter Size Insulated Cabinets (\$250 per cabinet)

Half Size Insulated Cabinets (\$200 per cabinet)

#### Cooling

Glass Door Refrigerators (\$75 - \$150 per unit)

Solid Door Refrigerators (\$50 - \$200 per unit)

Glass Door Freezers (\$200 - \$1,000 per unit)

Solid Door Freezers (\$100 - \$600 per unit)

Ice Machines (\$50 - \$500 per unit)

#### Cleaning

Dishwashers (\$400 - \$1,500 per unit)

#### Other Equipment Incentives\*

Performance Lighting (\$1.00 per watt per square foot below prograi incentive threshold, currently 5% more energy efficient than ASHRA 2007 for New Construction only.)

Custom electric and gas equipment incentives (not prescriptive)

\*Equipment incentives are calculated based on type, efficiency, size, and apand are evaluated on a case-by-case basis. Contact us for details.

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LARGE ENERGY USERS PROGRAM

ENERGY SAVINGS IMPROVEMENT PROGRAM

DIRECT INSTALL

**PARTICIPATION STEPS** 

PARTICIPATING CONTRACTORS

SUSTAINABLE JERSEY

**ENERGY BENCHMARKING** 

OIL, PROPANE & MUNICIPAL ELECTRIC CUSTOMERS

**EDA PROGRAMS** 

SBC CREDIT PROGRAM



#### Let us pay up to 70% of your energy efficiency upgrade.

Sometimes, the biggest challenge to improving energy efficiency is knowing where to and how to get through the process. Created specifically for existing small to medium facilities, Direct Install is a turnkey solution that makes it easy and affordable to upgrahigh efficiency equipment. Direct Install is designed to cut your facility's energy costs replacing lighting, HVAC and other outdated operational equipment with energy efficient alternatives. The program pays up to 70% of retrofit costs, dramatically improving yo payback on the project. There is a \$125,000 incentive cap on each project.

#### **ELIGIBILITY**



Existing small to mid-sized commercial and industrial fawith a peak electric demand that did not exceed 200 k any of the preceding 12 months are eligible to participa Direct Install. Applicants will submit the last 12 months electric utility bills indicating that they are below the deithreshold and have occupied the building during that till Buildings must be located in New Jersey and served by the state's public, regulated electric or natural gas utility companies.

# SYSTEMS & EQUIPMENT ADDRESSED BY THE PROGRAM

Lighting
Heating, Cooling & Ventilation (HVAC)
Refrigeration

Motors

Natural Gas

Variable Frequency Drives



Measures eligible for Direct Install are limited to specific equipment categories, types capacities. Boilers may not exceed 500,000 Btuh and furnaces may not exceed 140,

### III. PAY FOR PERFORMANCE (P4P)



### Your Power to Save

At Home, for Business, and for the Future

About Us | Press Room | Library

HOME

RESIDENTIAL





Home » Commercial & Industrial » Programs » Pay for Performance

### 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 earn incentives that are directly linked to your savings. Pay for Performance relies on a



**HURRICANE SANDY** 

**PROGRAMS** 

NJ SMARTSTART BUILDINGS

PAY FOR PERFORMANCE

**EXISTING BUILDINGS** 

**PARTICIPATION STEPS** 

**APPLICATIONS AND FORMS** 

**APPROVED PARTNERS** 

**NEW CONSTRUCTION** 

**FAQS** 

**BECOME A PARTNER** 

**COMBINED HEAT & POWER AND FUEL CELLS** 

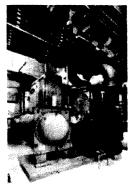
LOCAL GOVERNMENT ENERGY **AUDIT** 

LARGE ENERGY USERS PROGRAM

**ENERGY SAVINGS IMPROVEMENT PROGRAM** 

DIRECT INSTALL

**ENERGY BENCHMARKING** 



program partners who provide technical services under direct you. Acting as your energy expert, your partner will develop ε reduction plan for each project with a whole-building technica component of a traditional energy audit, a financial plan for fu energy efficient measures and a construction schedule for ins

#### Eligibility

Existing commercial, industrial and institutional buildings with demand over 100 kW for any of the preceding twelve months to participate including hotels and casinos, large office buildir family buildings, supermarkets, manufacturing facilities, schoshopping malls and restaurants. Buildings that fall into the fol customer classes are not required to meet the 100 kW demai

to participate in the program: hospitals, public colleges and universities, 501(c)(3) non-p affordable multifamily housing, and local governmental entities. Your energy reduction p 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, manufwater treatment and datacenter building types whose annual energy consumption is her weighted on process loads. Details are available in the high energy intensity section of t

#### **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 facilities and comparing it to similar buildings. That can be a big help in locating opportui cost-justified energy efficiency upgrades. And, based on our findings, you may be invited participate in the Building Performance with ENERGY STAR initiative and receive specirecognition as an industry leader in energy efficiency.

#### Incentives

OIL, PROPANE & MUNICIPAL ELECTRIC CUSTOMERS

**EDA PROGRAMS** 

SBC CREDIT PROGRAM

**PAST PROGRAMS** 

**TOOLS AND RESOURCES** 

**PROGRAM UPDATES** 

**CONTACT US** 

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

Incentive #1 - Submittal of complete energy reduction plan prepared by an app program partner - Contingent on moving forward, incentives will be between \$5 \$50,000 based on approximately \$.10 per square foot, not to exceed 50% of the 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 based on actual savings, provided that the minimum performance threshold of savings has been achieved.

A detailed Incentive Structure document is available on the applications and form

#### **Steps to Participation**

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

Home | Residential | Commercial & Industrial | Renewable Energy
About Us | Press Room | Library | FAQs | Calendar | Newsletters | Contact Us | Site







How did you learn about this Energy Efficiency Program?				
□ Advertisement	<del></del>	_		
☐Tradeshow/Event	☐ Word of Mouth	□Radio	☐ Contractor	
Other				

# PAY FOR PERFORMANCE APPLICATION FORM

July 1, 2015 - June 30, 2016

	,, .,		·, _ · ·			
<b>Utility Serving Applicant:</b>	☐ Atlantic City Electric	☐ Jersey	Central Power &	Light [	□ PSE&G	
☐ New Jersey Natural Gas	☐ Elizabethtown Gas	☐ Rockla	nd Electric Co.	[	☐ South Jersey Gas	
Other Electric Service Pro	vider (please specify):					
Other Fuel Provider:			_ Dother (Pleas	se specify):_		
Instructions						
Read the Participation Agreement (pages 3 2. Fill out all applicable spaces on this form. No must be listed for the utility rate payer of the 3. Provide a copy of the customer's company 4. Provide the most recent (within 2 years) confutility bills for the project for all account order and separated by account. Utilize U accounts to organize data.	<ul> <li>5. Provide brief description of facility, noting any special or unusual circumstances and/or site conditions.</li> <li>6. Partner must submit the application package via e-mail, mail or fax DIRECTLY to the Market Manager – see back of this form.</li> <li>Approval of this Application is not an approval of the project's scope of work.</li> <li>Scope of work is only approved upon approval of the Energy Reduction Plan. See application and program guidelines for more information.</li> </ul>					
Customer/Owner Ir	nformation (payment	t will be ma	de to entity ent	ered here)		
Company Name			Project Contact/Title			
Company Address		City		State	Zip	
Phone/Fax	E-mail	'	Federal ID/S	SN	NAICS Code	
Partner Informatio	n					
Company Name			Project Contact/Title			
Company Address		City		State	Zip	
Phone	Fax	E-mail				
Project Information	n					
Project Name						
Building Address		City		State	Zip	
Utility Account Number(s): Electric			Gas			
° Note: Please use the back of this page for additional Annual Peak kW Demand		nt.		N 1 CD	. 11:	
Annuai Feak kw Demand	Building Type			Number of B	buildings	
Size of Building(s) (gross sq/ft)		Direct, N	laster or Sub Metered			
Funding						
☐ Check the box if an Energy Savin agencies to pay for energy related				P allows gover	nment	
Do you expect to receive funding	g under any other efficiency pr	rograms?	No ☐ Yes If	Yes, please sp	ecify below:	
Utility Program – Utility:		Progra	Program Name:			
Federal Program – Organization:	:	Program Name:				
Other Program – Organization:		Progra	Program Name:			

<b>Additional Project inform</b>	ation
Additional Utility Account(s)	
Account type	Account number
Additional Comments:	
Additional Comments.	

Complete this application form and send it directly to the Commercial/Industrial Market Manager by e-mail, mail or fax.

New Jersey's Clean Energy Program c/o TRC Energy Services-P4P 900 Route 9 North, Suite 404 • Woodbridge, NJ 07095

> Phone: 866-657-6278 • Fax: 732-855-0422 E-mail: P4P@NJCleanEnergy.com

### Visit our website: NJCleanEnergy.com/P4P

### **Pay For Performance-Existing Buildings**

### **Participation Agreement**

Definitions:

ADMINISTRATOR - New Jersey Board of Public Utilities (NJBPU)

APPLICATION PROCESS - The Program pays incentives in phases upon satisfactory completion of each of three Program milestones - approval of a complete Energy Reduction Plan, installation of all recommended measures per the Energy Reduction Plan, completion of Post-Construction Benchmarking Report (for incentive amounts, please refer to Incentive Amounts). In order to be eligible for Program Incentives, a Participating Customer or an agent authorized by a Customer, must submit to the Market Manager a properly completed application package application form, Participating Customer's company W-9, twelve consecutive months of the project's utility bills and executed Participation Agreement. All components of the application package must be filled out completely, truthfully and accurately. This application package must be received on or before June 30, 2016 in order to be eligible for the Fiscal Year 2016 Incentives. The Market Manager will review the application package to determine if the project is eligible for a Program Incentive. When approved, the Participating Customer will receive an approval letter from their Case Manager with the estimated authorized first incentive amount and the date by which the Energy Reduction Plan must be submitted. Upon receipt of the approval letter, the Participating Customer and Partner may proceed with work on the Energy Reduction Plan. The Market Manager or agent thereof reserves the right to conduct a pre-inspection of the facility prior to the installation of equipment. This will be done prior to the issuance of the Energy Reduction Plan approval letter. Approval of this Application is not an approval of the project's scope of work. Scope of work is only approved upon approval of the Energy Reduction Plan. See application and program guidelines for more information.

CHANGES TO THE PROGRAM – The Program and Participation Agreements may be changed by the Market Manager at any time without notice. Approved applications, however, will be processed to completion under the agreements in effect at the time of the Market Manager's approval.

ELIGIBILITY - Program Incentives are available to existing commercial and industrial buildings with peak kilowatt demand usage of more than 200 kW in any of the most recent preceding twelve months of utility bills, 100 kW for multifamily buildings, and a customer of the New Jersey Utilities. Market Manager has the discretion to approve applications that fall below the 200 kW minimum, 100 kW for multifamily, by no more than 10%. If the Participant is a municipal electric company customer, and a customer of an investor-owned gas New Jersey Utility, only gas measures will be eligible for incentives under the Program. Similarly, if the Participant is an oil/propane customer and a customer of an investor-owned electric New Jersey Utility, only electricity measures will be eligible for incentives under the Program.

Projects may not participate or apply for incentives for energy efficient measures through other New Jersey's Clean Energy Programs while participating in this Program. Equipment procured by participating Customer through another program offered by New Jersey Utilities, as applicable, is not eligible for incentives through this Program. Customers who, from July 1, 2014 - June 30, 2015, have not contributed to the Societal Benefits Charge of the applicable New Jersey Utility, may not be eligible for incentives offered through this program.

ENDORSEMENT – The Market Manager and Administrator do not endorse, support or recommend any particular manufacturer, product or system design in promoting this Program.

ENERGY-EFFICIENT MEASURES – Any device eligible to receive a Program Incentive payment through the New Jersey's Clean Energy Commercial and Industrial Program

ENERGY REDUCTION PLAN – A document created by the Participating Customer's selected Partner that defines several key aspects of the project including (but not limited to) existing conditions as a result of a whole-building technical analysis, benchmarking summaries, recommended measures, financing plan and implementation schedule.

ENERGY REDUCTION PLAN APPROVAL - After application approval, the Participating Customer and Partner must work together to finalize and submit an Energy Reduction Plan which incorporates a work scope that will achieve the minimum 15% reduction in source energy performance target in accordance with the Program rules and policies along with the Benchmarking Tool, modeling software file, a copy of the executed Partner and Participating Customer contract, a copy of the executed Installation Agreement and a Request for Incentive #1 Payment form. All components of the submittal package must be filled out completely, truthfully and accurately. The Market Manager, agents thereof and/or the selected Partner must be provided reasonable access to the Participating Customer's facility, staff, tenants and/or others necessary to develop an Energy Reduction Plan that will achieve the minimum 15% performance target as well as the necessary utility billing data as dictated by the Program. The Energy Reduction Plan submittal package will be reviewed and must be approved by the Market Manager prior to payment of Incentive #1. Upon approval of the submittal package, the Customer will receive an Incentive #1 approval letter indicating the date by which all measures in the Energy Reduction Plan must be installed (no later than twelve months following the Energy Reduction Plan submittal approval date, up to twenty four months with extension approvals).

INCENTIVE AMOUNTS – Incentive #1 - \$0.10 per square foot of the project with a maximum amount of \$50,000 and minimum of \$5,000, not to exceed 50% of the project's annual energy cost and contingent on installation of measures in the Energy Reduction Plan and receipt of a signed Installation Agreement. If installation does not commence within the required timeframe, Incentive #1 may be required to be returned to the program. In the event the project is cancelled and Incentive #1 is not returned, the project may reapply to the program in the future but another Incentive #1 will not be paid. Incentive #2-50% of the total performance-based incentive (combination of Incentives #2 and #3) calculated per Program's incentive structure; Incentive #3 remaining amount based on the realized energy savings of the project. For customers that have successfully participated in the Local Government Energy Audit Program, Incentive #1 will be reduced by 50% to \$0.05 per square foot up to \$25,000. Actual Incentive #1 paid shall not be higher than 5% over the committed amount. Actual Incentive #2 paid shall not be higher than the committed amount, unless the Energy Reduction Plan has been resubmitted due to changes in the work scope. Actual Incentive #3 paid shall be higher or lower than the committed amount based on actual energy savings but shall not be greater than program Incentive Caps.

The Market Manager will provide incentives according to those described in this section or as modified upon notice to Participating Customer. All incentive payments are paid directly to the Participating Customer as indicated on the application form. The Program is not bound to pay any incentive unless the submittal package associated with the incentive payment is approved by the Market Manager who reserves the sole discretion of approving or disapproving the submittal packages.

INCENTIVE CAP – Program Incentives #2 and #3 will be capped not to exceed 50% of the total project cost, lesser of estimated or actual. Incentive #1 will be capped not to exceed 50% of the project's annual energy cost. Program Incentives (Incentive #1, #2 and #3) are restricted to \$1M per gas and electric account (limited to \$2M per project) in a program year. Campus style facilities, which are mastered-metered, are subject to the annual incentive cap of \$1 million per gas and electric account. The Participating Customer will also be subject to an annual Entity Cap of \$4M or \$5M if a Combined Heat and Power/Fuel Cell Application is approved for the same facility (Definition of an Entity can be found in the Board Order Docket No. EO07030203).

INSTALLATION AGREEMENT – The Participating Customer must submit an executed Installation Agreement as part of the Request for Incentive #1 Form. By executing the Installation Agreement, the Customer agrees to install all of the measures in the Energy Reduction Plan, which are estimated to result in meeting or exceeding the minimum 15% performance target. The Customer agrees to the performance-based incentives (Incentives #2 & #3) as indicated in the document which are based on the results of the Energy Reduction Plan. Implementation of the measures must commence in the time period twelve months following the approval date of the Energy Reduction Plan, up to twenty four months with extension approvals. Failure to complete the installation of the measures in the Energy Reduction Plan may result in the repayment of Incentive #1, and the forfeiting of Incentives #2 and #3. In the event the project is cancelled and Incentive #1 is not returned, the project may reapply to the program in the future but another Incentive #1 will not be paid.

LIMITATION OF LIABILITY – By virtue of participating in this Program, Participating Customers agree to waive any and all claims or damages against TRC Energy Services, the Market Manager, and the Administrator, except the receipt of the Program Incentive. Participating Customers agree that the Market Manager's and Administrator's liability, in connection with this Program, is limited to paying the Program Incentive specified. Under no circumstances shall the Market Manager, its representatives, or subcontractors, or the Administrator be liable for any lost profits, special, punitive, consequential or incidental damages or for any other damages or claims connected with or resulting from participation in this Program. Further, any liability attributed to the Market Manager under this Program shall be individual, and not joint and/or several

The Market Manager's review and approval of the Energy Reduction Plan cannot be construed to be a determination as to performance, applicability, dollar savings, energy savings, or any other aspect of the proposed project. The Market Manager and Administrator offer no guarantee or warranty of performance of the project's equipment or system. The participant assumes full responsibility and liability for the installation of all equipment, including but not limited to design, specification, all permits, installation, maintenance, performance and financing. By participating in the program and accepting incentive dollars, you agree to hold harmless the Market Manager and Administrator and their respective staffs with respect to the Project

MARKET MANAGER – TRC Energy Services is responsible for managing the New Jersey Clean Energy Commercial & Industrial Programs.

MEASUREMENT & VERIFICATION APPROVAL – Twelve months subsequent to the Incentive #2 Payment Submittal package approval date, measurement and verification of the projected energy reduction will be conducted by the Participating Customer's Partner using the project's post-installation utility data (supplied by the Customer). The Participating Customer must work with their Partner to submit the Incentive #3 Payment Submittal, consisting of the Post-Construction Benchmarking Report, Benchmarking Tool, and Request for Incentive #3 form. All components of the submittal package must be filled out completely, truthfully and accurately.

Upon review of the submittal package (by the Market Manager or agent thereof), the remaining 50% of the total performance-based incentive (Incentives #2 & #3) will be released to the Participating Customer. If the Post-Construction Benchmarking Report indicates that the project did not meet the minimum performance target, the post-installation completion period may be extended to up to twenty-four months subsequent to the Incentive Payment #2 package approval date. If after this time the minimum performance target is still not met, the final Incentive #3 will not be paid.

NEW JERSEY UTILITIES – The investor-owned electric and/or gas utilities in the State of New Jersey. They are: Atlantic City Electric, Jersey Central Power & Light, Rockland Electric Company, New Jersey Natural Gas, Elizabethtown Gas, PSE&G, and South Jersey Gas.

PARTICIPATING CUSTOMERS – Those non-residential electric and/or gas service customers of the New Jersey Utilities who participate in this Program.

PARTICIPATING CUSTOMER'S CERTIFICATION – Participating Customer agrees that all information is true and that he/she has conformed to all of the Program and equipment requirements per the Program Guidelines. Participating Customer certifies that he/she purchased and installed the equipment listed in the Energy Reduction Plan at their defined New Jersey project location.

PARTNER—An approved professional who provides technical building performance services to Participating Customers, acting as their "energy efficiency expert". Participating Customers are required to hire an approved Pay for Performance Partner to develop the Energy Reduction Plan and facilitate installation of the recommended package of Energy-Efficient Measures. Participants are required to enter into a contractual agreement with a selected Partner which outlines the set of minimum services the Partner will provide to the Participating Customer throughout the life of the project. It is strongly recommended that Participating Customers perform due diligence in selecting a Pay for Performance Partner. Fees charged by the Partner are not regulated by the Program and could vary between Partners. Incentives may cover some, or potentially all, of the Partner fees.

PERFORMANCE-BASED INCENTIVES – The combination of Incentives #2 and #3, which are based on the projected and actual energy reduction performance of the project.

PERFORMANCE TARGET - A minimum of a 15% annual source energy savings must be achieved in order to participate. The performance target is based on reducing the total energy consumption for the facility. No more than 50% of the total source energy savings may be derived from lighting measures; up to 70% lighting savings may be considered but performance target will increase by 1% for each percent over 50% (e.g. project with 60% savings from lighting will have a minimum performance target of 25%). A 4% performance target may be offered to customers whose annual energy consumption is heavily weighted to manufacturing and process loads, as well as hospitals. This approach will be reviewed on a case-by-case basis and must be preapproved by the Market Manager. In order to be considered, the project must involve: A manufacturing facility, including such industries as plastics and packaging, chemicals, petrochemicals, metals, paper and pulp, transportation, biotechnology, pharmaceutical, food and beverage, mining and mineral processing, general manufacturing, equipment manufacturers and data centers; and manufacturing and/or process-related loads, including data center consumption, consume 50% or more of total facility energy consumption. For hospitals, 50% or more of the gross floor area must be used for general medical and surgical services and 50% or more of the licensed beds must provide acute care services. The total energy savings may not come from a single measure. No more than 50% of the total source energy savings may be derived from non-investor owned utilities or fuels.

POST-INSTALLATION APPROVAL – After the complete installation of all measures in the Energy Reduction Plan, the Customer and their Partner must finalize and submit the Incentive #2 Payment Submittal, consisting of the Installation Report, invoices, and Request for Incentive #2 Payment form. All components of the submittal package must be filled out completely, truthfully and accurately. Upon review of the submittal package and verification of the complete installation of all measures in the Energy Reduction Plan (via inspection by the Market Manager or agent thereof), 50% of the total performance based incentive (Incentives #2 & #3) will be released to the Participating Customer. Upon approval of the submittal package, the Customer will receive an Incentive #2 approval letter indicating the date by which the post-installation Measurement & Verification phase began and will end (twelve to twenty four months in length).

The Market Manager reserves the right to verify sales transactions and to have reasonable access to Participating Customer's facility to inspect both pre-existing products or equipment (if applicable) and the Energy-Efficient Measures installed under this Program, either prior to issuing incentives or at a later time. Energy-Efficient Measures must be installed in buildings located within the service territory of one of the New Jersey Utilities (as defined by the Program) as designated on the Participating Customer's Pay for Performance application. Program Incentives are available for qualified Energy-Efficient Measures as listed and described in the Program Guidelines. The Participating Customer must ultimately own the equipment, either through an up-front purchase or at the end of a short-term lease.

PRE-INSTALLED MEASURES - An Energy Reduction Plan must be approved by the program and an approval letter sent to the customer in order for incentives to be committed. Upon receipt of an Energy Reduction Plan, all project facilities must be pre-inspected. Measures installed prior to pre-inspection of the facility shall not be included as part of the ERP scope of work and will not be eligible for incentive

Measure installation undertaken prior to ERP approval, but after pre-inspection, is done at the customer's own risk. In the event that an Energy Reduction Plan is rejected by the program, the customer will not receive any incentives.

PRODUCT INSTALLATION OR EQUIPMENT INSTALLATION – Installation of the Energy-Efficient Measures. Projects with a contract threshold of \$15,444 are required to pay no less than prevailing wage rate to workers employed in the performance of any construction undertaken in connection with Board of Public Utilities financial assistance, or undertaken to fulfill any condition of receiving Board of Public Utilities financial assistance, including the performance of any contract to construct, renovate or otherwise prepare a facility, the operations of which are necessary for the receipt of Board of Public Utilities financial assistance. By submitting an application, or accepting program incentives, applicant agrees to adhere to New Jersey Prevailing Wage requirements, as applicable.

PROGRAM – New Jersey's Clean Energy Pay for Performance Program offered herein by the New Jersey Board of Public Utilities pursuant to state regulatory approval under the New Jersey Electric Discount and Energy Competition Act, NJSA 48:3-49, et seq.

PROGRAM GUIDELINES – See Pay for Performance Program Guidelines available from your Partner.

PROGRAM INCENTIVES – Refers to the amount or level of incentive that the Program provides to participating customers pursuant to the Program offered herein (see the description under "Incentive Amount" heading).

PROGRAM OFFER – The Program covers products purchased and/or services rendered on or after July 1, 2015.

 $PROJECT-A\ commercial\ or\ industrial\ existing\ building\ with\ peak\ demand\ in\ excess\ of\ 200\ kW\ in\ any\ of\ the\ most\ recent\ preceding\ twelve\ months\ of\ electric\ usage,\ 100\ kW\ for\ multifamily\ buildings.\ Multifamily\ building(s)\ must\ be\ four\ (4)\ stories\ or\ greater\ or\ three\ (3)\ stories\ and\ under\ having\ central\ heating,\ cooling,\ or\ metering\ serving\ more\ than\ one\ building.\ Refer\ to\ Multifamily\ Decision\ Tree.$ 

TAX CLEARANCE CERTIFICATION – Businesses must apply for and receive a Tax Clearance Certificate from the New Jersey Division of Taxation before they can receive any incentive, grant or other financial assistance from the Program.

TAX LIABILITY – The Market Manager will not be responsible for any tax liability that may be imposed on any Participating Customer as a result of the payment of Program Incentives. All Participating Customers must supply their federal tax identification number or social security number on the application form in addition to providing a copy of their W-9 form as part of the application package in order to receive a Program Incentive.

TERMINATION – New Jersey's Clean Energy Program reserves the right to extend, modify (this includes modification of Program Incentive levels) or terminate this Program without prior or further notice.

WARRANTIES – THE MARKET MANAGER AND ADMINISTRATOR DO NOT WARRANT THE PERFORMANCE OF INSTALLED EQUIPMENT, AND/OR SERVICES RENDERED AS PART OF THIS PROGRAM, EITHER EXPRESSLY OR IMPLICITY. NO WARRANTIES OR REPRESENTATIONS OF ANY KIND, WHETHER STATUTORY, EXPRESSED, OR IMPLIED, INCLUDING, WITHOUT LIMITATIONS, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE REGARDING EQUIPMENT OR SERVICES PROVIDED BY A MANUFACTURER OR VENDOR. CONTACT YOUR VENDOR/SERVICES PROVIDER FOR DETAILS REGARDING PERFORMANCE AND WARRANTIES.

ACKNOWLEDGEMENT – I have read, understood and am in compliance with all rules and regulations concerning this incentive program. I certify that all information provided is correct to the best of my knowledge, and I give the Market Manager permission to share my records with the New Jersey Board of Public Utilities, and contractors it selects to manage, coordinate or evaluate the Pay For Performance Program, including the release of electric and natural gas utility billing information, as well as make available to the public non-sensitive information. I allow reasonable access to my property to inspect the installation and performance of the technologies and installations that are eligible for incentives under the guidelines of New Jersey's Clean Energy Program. This arrangement supersedes all other communications and representations.

#### CUSTOMER'S SIGNATURE

#### PARTNER SIGNATURE

By signing, I certify that I have read, understand and agree to the Participation Agreement listed above.

IV. ENERGY SAVINGS IMPROVEMENT PLAN (ESIP)



### Your Power to Save

At Home, for Business, and for the Future

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HOME

#### RESIDENTIAL

COMMERCIAL, INDUSTRIAL RND L€CAL GOVERNMENT





#### COMMERCIAL, INDUSTRIAL AND LOCAL GOVERNMENT

**HURRICANE SANDY** 

#### **PROGRAMS**

NJ SMARTSTART BUILDINGS

PAY FOR PERFORMANCE

**COMBINED HEAT & POWER AND FUEL CELLS** 

LOCAL GOVERNMENT ENERGY AUDIT

LARGE ENERGY USERS PROGRAM

**ENERGY SAVINGS IMPROVEMENT PROGRAM** 

DIRECT INSTALL

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OIL, PROPANE & MUNICIPAL **ELECTRIC CUSTOMERS** 

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**PROGRAM UPDATES** 

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#### Energy Savings Improvement Program

A new State law allows government agencies to make energy related improvements to t facilities and pay for the costs using the value of energy savings that result from the imp Under 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 and reduce energy usage with minimal expenditure of new financial resources.

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

> Local Government School Districts (K-12)

All RFPs must be submitted to the Board for approval at ESIP@bpu.state.nj.us.

The Board also adopted protocols to measure energy savings:

Measuring Energy Savings Procedures for Implementation

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

The NJ Board of Public Utilities sponsored Sustainable Jersey in the creation of an ESIF Guidebook that explains how to implement the program. The guidebook also includes or of successful projects and a list of helpful resources.

#### FIRST STEP - ENERGY AUDIT

For local governments interested in pursuing an ESIP, the first step is to perform an ene as prescribed in P.L.2012 c.55.

#### ENERGY REDUCTION PLANS

If you have an ESIP plan that needs to be submitted to the Board of Public Utilities, plea 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)

#### **BPU RULES**

- 1. Public Entity must decide if they will use an ESCO or DIY method or Hybrid thereof prior to issuing the RFP and the RFP must state the intended method. A change in the project procurement model after the RFP closing date will be cause for immediate rejection and disqualification of potential Clean Energy program incentives.
- 2. RFP procedures shall be adhered to as per the legislation, including the use of BPU approved forms. Any alteration of the forms, without prior approval from the BPU shall be grounds for rejection.
- 3. RFP must include copy of an audit (ASHRAE Level II w/Level III for lighting) and audit must be prepared by a firm classified by DPMC in the 036 discipline.
- 4. All firms, including professional services, whether using ESCO or DIY model, must be DPMC classified.
- 5. If an Architect is engaged by the public entity, the architectural fees are the responsibility of the public entity and must be paid directly to the firm. These fees may be included in the energy cost savings analysis and payback.
  - ESCO's may contract directly with an architectural firm, in which case the architectural firm serves as a subcontractor to the ESCO and the project related service costs may be included within the project's economic model.
- 6. Public entity shall conduct pre-bid meetings and site visits per existing statutes.
  - In the interest of open public bidding transparency, it is a requirement of the BPU that all proposers must attend the pre-proposal bid meeting.
- 7. There shall be no negative cash flow in any year of the program. section 7 (1)(a)
  - "the energy savings resulting from the program will be sufficient to cover the cost of the program's energy conservation measures."
- 8. SREC values are not permitted to be used in the energy cost savings calculations.
- 9. Capital cost avoidance values are not to be used in the energy savings calculations.
- 10. Operational and Maintenance (O&M) cost savings may be permitted in the cost savings calculations, but only with supporting documentation.
- 11. Blended utility rates shall not be permitted. Use the actual utility tariff or local contracted rates if there is a third party supplier.
  - For the RFP proposals, the public entity shall define the utility rates in the RFP

- 12. Contracted third party utility rates may only be used for the term of the contract (5 yr. maximum) Subsequent years are to be projected at the utility tariff rates plus the annual BPU escalation rates.
- 13. Public entity shall conduct M&V (measurement and verification) at the one (1) year operational date and shall provide a copy of the M&V report to the Board of Public Utilities.
  - For the RFP proposals, the ESCO shall provide the cost for the one (1) year M&V only. For comparative purposes, the one year M&V pricing shall be indicated on the proposal Form VI, under the "Annual Service Costs" column. Additional M&V costs are at the discretion of the local unit and are not to be included in the proposal.
- 14. The decisions made by BPU staff regarding compliance or other issues that arise in connection with the RFP procurement process shall be considered a final decision of the BPU. Any appeal will need to be through the New Jersey Superior Court, Appellate Division.
- 15. For the RFP proposals only, Demand Response (DR) revenues claimed by ESCO's can only be projected for a maximum period of three (3) years. DR revenue projections beyond three years will not be permitted. DR revenues must be included and presented under the "Energy Rebates/Incentives" column of FORM VI.
- 16. ESCO "fees" proposed during the RFP phase of the project cannot increase post-award. ESCO's are required to maintain the fee percentages through final contract negotiations and construction of the Board approved Energy Savings Plan
- 17. Public Bid openings shall be held on the due date of the proposal submissions. The public entity shall announce the name of the bidder and the total dollar amount. After award of a contract, all proposals received will be made available by the owner for public inspection
- 18. Rejection of bids by the public entity shall be conducted in accordance with the appropriate sections of the applicable legislation, as stated in Title 40A:11-13.2. Additionally all proposals must be returned to the respective ESCO's upon rejection.
- 19. Field changes that exceed 5% of the project cost require BPU approval.
- 20. Energy Savings Plans (ESP) that is dependent upon incentives from the Clean Energy Program must review the current program requirements, at the time of application, for each incentive to insure eligibility. If any program incentive is denied, resubmission of all ESIP related forms will be necessary to remain ESIP qualified.







Existing Window ACs



Existing Walk-in Freezer/Cooler



Existing Lights





# ENERGY STAR<sup>®</sup> Statement of Energy Performance

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### **George Washington Middle School**

**Primary Property Function:** K-12 School

Gross Floor Area (ft²): 126,527

**Built: 1928** 

ENERGY STAR®
Score<sup>1</sup>

For Year Ending: March 31, 2015 Date Generated: July 08, 2015

Sco	ore'				
1. The ENERGY STAI climate and business		ent of a building's energy	efficiency as compared	with similar buildings nation	nwide, adjusting for
Property & Cor	ntact Information				
Property Address George Washington Middle School 155 Washington Place Ridgewood, New Jersey 07450		Property Owner	-	Primary Contact	
Property ID: 446	1819				
Energy Consur	mption and Energy U	se Intensity (EUI)			
Site EUI         Annual Energy by Fuel           69.1 kBtu/ft²         Electric - Grid (kBtu) 2,693,063           Natural Gas (kBtu)         6,053,290           Source EUI         117.1 kBtu/ft²		2,693,061 (31%)	National Median Comparison National Median Site EUI (kBtu/ft²) 78.8 National Median Source EUI (kBtu/ft²) 133.4 % Diff from National Median Source EUI -12% Annual Emissions Greenhouse Gas Emissions (Metric Tons 682 CO2e/year)		133.4 -12%
Signature & S	Stamp of Verifyin	g Professional			
I	(Name) verify tha	at the above information	n is true and correct to	the best of my knowledg	e.
Signature:		_Date:			
, ()			Profession (if applicab	al Engineer Stamp le)	