SUSSEX COUNTY TECHNICAL SCHOOL
MAIN BUILDING
ENERGY ASSESSMENT

for

NEW JERSEY
BUREAU OF PUBLIC UTILITIES

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1.0 INTRODUCTION & BACKGROUND

The Board of Education of the Vocational School in the County of Sussex, owns and operates a 155,732 square foot Main Building at the Sussex County Technical School located in Sparta, New Jersey. The building houses the main educational facility and supporting operations, including the cafeteria, gym, pool, library, and mechanical rooms. The building, consisting of three wings forming a horseshoe, was constructed in the following phases:

- Main wing - 1968
- New wing - 1972
- Shops wing - 1968

The main and new wing are two stories; shops wing is a single story. An indoor pool was added in 1976.

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

This report covers the energy audit for the Main Building at the Sussex County Technical School.

2.0 EXECUTIVE SUMMARY

This report details the results of the 155,732 square foot Main Building at the Sussex County Technical School located in Sparta, New Jersey. The building, which consists of the main educational facility and supporting operations, was constructed in three phases between 1968 and 1972. The following areas were evaluated for energy conservation measures:

- Kitchen hood controller
- Premium efficiency motors
- Reducing excess boiler oxygen
- Boiler replacement
- Variable speed drives
- Replacing pool air handler
- Installing pool cover
- Kitchen hood heat recovery
- Dishwasher heater replacement
- Temperature setback
- Window replacement
- Lighting replacement with occupancy sensors

Various potential Energy Conservation Measures (ECMs) were identified for the above categories. Measures which are recommended for implementation have a payback of 10 years or less. This threshold is considered a viable return on investment. Potential annual savings of $134,700 for the recommended ECMs may be realized with a payback of 6.8 years.

The ECMs identified in this report will allow for the building to reduce its energy usage and if all the recommended ECMs are pursued has the opportunity to qualify for the New Jersey Pay For Performance Program which could provide increased alternate incentives. A summary of the costs, savings, Return-On-Investment (ROI), and paybacks for the recommended ECMs follows:

ECM – 2 Install Premium Efficiency Motors

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		#2 Oil	Total				
$	kW	kWh	gallons	$		$	Years	Years
7,000	3	8,400	0	1,400	2.6	500	5.0	4.6

*Incentive is based on the New Jersey Smart Start Program.

ECM – 3 Reduce Excess O2 in Boiler

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		#2 Oil	Total				
$	kW	kWh	gallons	$		$	Years	Years
62,200	0	0	2,100	7,400	0.8	NA	8.4	NA

*No Incentive is available through the New Jersey Smart Start Program.

ECM – 4 Boiler Replacement

Budgetary Cost	Annual Utility Savings					ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		#2 Oil	Total					
$	kW	kWh	gallons	$			$	Years	Years
278,300	0	0	4,900	16,900		0.5	NA	16.6	NA

*No Incentive is available through the New Jersey Smart Start Program.

ECM – 5 Install VSDs on Hot Water Pumps

Budgetary Cost	Annual Utility Savings					ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		#2 Oil	propane	Total				
$	kW	kWh	gallons	gallons	$		$	Years	Years
62,700	0	44,400	0	0	7,300	0.8	5,400	8.5	7.9

*Incentive is based on the New Jersey Smart Start Program.

ECM – 6 Replace Pool Dectron Unit

Budgetary Cost	Annual Utility Savings					ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		#2 Oil	propane	Total				
$	kW	kWh	gallons	gallons	$		$	Years	Years
347,000	45	33,700	9,300	0	37,100	0.6	NA	9.4	NA

*No incentive is available in New Jersey for this measure.

ECM – 7 Install Pool Cover

Budgetary Cost	Annual Utility Savings					ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		#2 Oil	propane	Total				
$	kW	kWh	gallons	gallons	$		$	Years	Years
27,800	0	0	2,100	3,200	11,900	3.2	NA	2.3	NA

*No incentive is available in New Jersey for this measure.

ECM – 8 Reactivate Kitchen Hood Heat Recovery

Budgetary Cost	Annual Utility Savings					ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		#2 Oil	propane	Total				
$	kW	kWh	gallons	gallons	$		$	Years	Years
25,300	0	(2,300)	900	0	2,600	1.0	NA	9.8	NA

*No incentive is available in New Jersey for this measure.

ECM – 12 Temperature Setback in Isolated Areas

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		#2 Oil	Total				
$	kW	kWh	gallons	$		$	Years	Years
59,600	0	0	7,100	24,500	5.2	NA	2.4	NA

*No incentive is available for this measure in New Jersey.

ECM –16 Lighting Replacements with Occupancy Sensors

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		#2 Oil	Total				
$	kW	kWh	gallons	$		$	Years	Years
58,900	25	175,400	0	25,600	6.4	10,000	2.1	1.7

**Return-On-Investment (ROI) is calculated using the lifetime energy savings (life expectancy times yearly savings) and budgetary cost.*

EXISTING CONDITIONS

3.1 Building – General

The 155,732 square foot Main Building consists of the primary educational facility, and support operations including the cafeteria, gym, pool, library and mechanical rooms. The building houses Career Programs including Business, Construction, Cosmetology, Hospitality, Information Technology/Medical Arts, Transportation, and Visual Communications. The building also houses Academic Programs including English, Foreign Languages, History, Mathematics, Physical Education, and Health Science.

The building's exterior is face brick built on concrete foundation. The roof is flat with a rubber surface, and was replaced in 2006. Most of the building is used approximately ten hours per day, five days a week; however, some areas such as the pool and gym remain open during the evening.

3.2 Utility Usage

The building uses electricity, No. 2 fuel oil, and propane. Water for boiler makeup and potable uses is pumped from an on-site well. Sewer is processed in a wastewater treatment plant on site.

The Main Building shares an electrical meter with the school's Agricultural Building. Electricity is delivered by Jersey Central Power and Light (JCP&L Account No.: 100003809173; Rate: General Service Secondary 3 Phase), via the school's Main Building. Sussex County Technical School is part of a consortium for purchasing electricity. As of May 2009, electricity is supplied by South Jersey Energy (Account No. 08003174220000180538, Rate: Bill_Ready). From July 2008 through June 2009, the combined Main Building and Agricultural Building account had an annual electric consumption of 1.9 million kilowatt-hours (kWh), with a demand peak of approximately 522 kW (occurring in June 2009), and an annual electric cost of $314,200. This results in a blended electric unit cost of $0.165 per kWh. The Main Building's electricity usage is estimated at 95% of the combined amount, based on a survey of lighting and mechanical equipment.

During the site visit, the maintenance staff indicated that the typical voltage delivered to the school is 198 volts; not the 208 volts specified in the utility's rate schedule. In the summer, voltage delivered can drop to 187 volts. The school has a significant number of motors, and the undersupply is affecting their usable life expectancy. The undersupply should be corrected by JCP&L.

As of October 2008, No. 2 fuel oil is delivered by Petroleum Traders (Account No. 190571/1). The majority of oil is used by three Cleaver Brooks model CB810-125 hot water boilers, two Slant/Fin model L-60-P domestic hot water boilers, and the building's 150 kW Cummins emergency generator. From July 2008 through June 2009, the Main Building purchased and consumed approximately 57,421 gallons of No. 2 fuel oil at a cost of $197,500. This results in a fuel oil unit cost of approximately $3.44 per gallon.

Propane is delivered by Amerigas (Account No. 7505031270), and is used mainly for heating the pool and kitchen cooking appliances. From July 2008 through June 2009, the Main Building purchased and consumed approximately 21,309 gallons of propane at a cost of $30,300. This results in a propane unit cost of approximately $1.42 per gallon.

A summary of the monthly electricity, fuel oil and propane usages and charges for the past two years is provided in Appendix A.

3.3 HVAC Systems

Heat for the Main Building is provided by the central hot water boiler plant. Only a few spaces, particularly high heat load areas such as computer rooms, are air conditioned.

3.3.1 Hot Water Heating System

Heat is provided by three 125 HP Cleaver Brooks oil-fired firetube boilers located in the basement mechanical room. The boilers are enabled at an outside temperature below 60°F. One boiler is sufficient for most of the winter. For the coldest days, two boilers are operated. Each boiler has an associated hot water pump that starts when the boiler is enabled. Two of the boilers were installed during initial school construction; the third during erection of the addition.

Hot water is used by cabinet heaters, unit ventilators, and air handlers throughout the building. Many of the technology shops have unit heaters to provide space conditioning.

3.3.2 Air Handling Systems

The Main Building utilizes several types of air handling systems for building conditioning and ventilation.

Rooftop units provide cooling (and in some cases heating) to the library, board office, accounting, main office, CADD room, graphic arts room, science room, gym, pool, kitchen, and bakery. Most of the units are fairly new, and installed economizers increase their efficiency.

Ductless split system air conditioning (AC) units are located in room Nos. 102, 117, 126, 127, 213, 215, and 217. These units vary in age and generally were installed to address spot loads.

Classroom unit ventilators (UVs) are the most common air handling system in the facility. All UVs are served with hot water from the boilers and controlled by the direct digital control (DDC) system via electronic actuators. Some of the controls do not function as originally intended; at times local controls override the system controls.

Several air handlers with hot water and direct expansion (DX) coils provide local conditioning to offices or special use spaces. This includes two units that serve the gym with 100% outside air.

The building also has several window AC units, including the transportation office, nurse's office, industrial/electricity room #136, and kitchen.

3.3.3 Special Systems

The building has several exhaust systems, which are run as needed, to serve the cafeteria kitchen, bakery, and student run restaurant. The largest system, in the main kitchen, has an old heat recovery system that is currently not used; building staff does not feel the system has performed effectively since installation.

The pool has a substantial filtration system with circulator pump. The pool is currently heated by either the central boiler plant during the colder months, or a dedicated smaller propane-fired boiler during the warmer months when the central plant is shut down.

Since this is a technical school, numerous areas are dedicated to special trades including woodworking, HVAC tech, electrical, and printing. Each of these spaces has special requirements and systems (such as boilers and furnaces in the HVAC tech area) that are installed for instructional purposes. In general, these special systems, including local exhaust systems, specialized process equipment, and system mock-ups, were not assessed for energy saving opportunities as they are only used for short periods of time as teaching aids.

3.4 Lighting/Electrical

Lighting in the Main Building was recently upgraded, and consists mainly of efficient T-8 fluorescent fixtures with electronic ballasts, and a small number of inefficient T-12 fixtures with magnetic ballasts (mostly in underutilized areas such as mechanical areas). Most observed locations had screw in compact fluorescent lamps (CFL) installed to replace the original incandescent bulbs. The gym contains 24 high bay 400 watt metal halide fixtures. A recent renovation to the library includes (4) lamp 17 watt efficient fixtures that have been selected to produce elevated lighting levels for reading. High efficiency LED exit signs are located throughout the facility. The hours of operation of the office areas are approximately ten hours per day, five days a week, except multi-use spaces such as meeting rooms and the gym which are occupied into the evening hours. Classrooms areas are occupied nine hours per day six days a week throughout the year due to vocational, summer, and evening programs.

The pool area has (5) multiple metal halide lamp light pods. Each pod consists of (3) 1000 watt and (2) 400 watt industrial high bay fixtures facing upward in each pod. The lighting pods illuminate the pool's dome ceiling and were designed to produce a considerable amount of light to illuminate the large area.

Outdoor lighting consists of high pressure sodium and metal halide fixtures utilizing photo sensors or timers which allow the fixtures to de-energize at a specific time to shut off fixtures during daylight hours. Outdoor lighting fixtures connected to timers turn on and off at a certain time each day. All observed outdoor lighting fixtures were observed to be off during the site visit.

3.5 Control Systems

The Honeywell DDC system is 12 years old and operates appropriately; however, some functions do not operate as originally intended. It currently returns building information (heating only) to a central computer for maintenance staff to monitor and set parameters. This system incorporates setpoint adjustment, real time monitoring, and alarm capabilities. No higher level energy saving strategies such as night setback/shutdown are being used.

4.0 ENERGY CONSERVATION MEASURES

4.1 ECM-1 Install Kitchen Hood Controller

In general, kitchen hoods exhaust a significant amount of air from a building. Proper control of smoke, odors, and cooking effluent requires significant air removal from the cooking surface. The air exhausted must be made up through air handlers or by infiltration. The outside air must be conditioned to internal space temperatures, which further increases the cost of operating the exhaust hood. It is also not unusual for kitchen hoods to be left on when cooking is not being performed.

This ECM proposes that a kitchen hood controller be installed. Kitchen hood controllers use temperature and smoke sensors in the ductwork to determine the need for hood operation. As the heat increases or smoke becomes present, the speed of the exhaust fan is increased. When exhaust is not required, the fan slows down to a minimum speed. This saves electrical fan energy and makeup air energy. Properly installed, the controller is connected to the exhaust fan and HVAC systems for the kitchen.

Operation of the controller requires the staff to turn the controller on at the beginning of the day. The controller then determines the required speed based on input from its sensors. Controller operation can also be dictated from a DDC system, so that during certain hours the hoods are not enabled.

The building has six kitchen hoods in the main kitchen and bakery. These include wall-mounted canopy and island style hoods. Design airflows for each hood could not be determined from equipment data; however, airflow was estimated based on the size of the hood, appliances underneath, and code velocity requirements. When all are running, the hoods exhaust more than 21,000 cfm from the building. It was estimated that the hoods operate six hours per day, each day school is in session. Installing a hood controller will better match the airflow to the exhaust requirement and save energy.

Each hood requires a separate controller with sensors, wiring, and mounting. Information on a kitchen hood controller is included in Appendix B. This kitchen hood controller will have to interact with the heat recovery system if ECM-8 is implemented. (see Section 4.8). It is recommended that the kitchen hoods fans also be replaced as a part of this ECM as they are near the end of their service life. The equipment has an expected lifetime of 15 years, according to ASHRAE, and the estimated annual energy savings was 5,600 kWh and 800 gallons of oil for a total energy savings of 84,000 kWh and 12,000 gallons of oil over the life of the project or $55,000.

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

ECM – 1 Install Kitchen Hoods Controller

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		#2 Oil	Total				
$	kW	kWh	gallons	$		$	Years	Years
133,700	0	5,600	800	3,700	(0.5)	NA	>30	NA

*No Incentive is available through the New Jersey Smart Start Program.

This measure is not recommended.

4.2 ECM-2 Install Premium Efficiency Motors

Some of the existing motors are older and not efficient. For motors operating continuously, excessive amounts of energy are wasted. It is recommended that they be replaced with premium efficiency motors. Installation includes removing the old motors, installing the new motors, reconnecting the output shaft and the electrical wiring, and balancing the system.

The most cost effective motors to replace are the heating hot water pumps and pool filter pumps, which have very high run hours.

The equipment has an expected lifetime of 18 years, according to ASHRAE, and the estimated annual energy savings was 8,400 kWh for a total energy savings of 151,200 kWh over the life of the project or $25,800.

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

ECM – 2 Install Premium Efficiency Motors

Budgetary Cost	Annual Utility Savings *					ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		#2 Oil	Total					
$	kW	kWh	gallons	$			$	Years	Years
7,000	3	8,400	0	1,400		2.6	500	5.0	4.6

*Incentive is based on the New Jersey Smart Start Program.

This measure is recommended.

4.3 ECM-3 Reduce Excess O2 in Boiler

The standard boiler controls on most firetube boilers is a simple linkage system that uses one servo motor to control airflow and fuel flow to the boiler. Adjustments are made across the range of fire to set the proper amount of air with the proper amount of fuel. A safety margin must be placed in the setting for changes in atmospheric conditions and safe operation if the system falls out of adjustment. As time passes between calibration, the boiler can become even more inefficient. This mechanical system creates inefficiencies in the boiler operation by flowing more air through the boiler than is needed which leads to increased stack losses. It is recommended that an O2 control system be installed in the boilers to increase efficiency and reduce excess air.

An O2 control system monitors the amount of oxygen in the stack gases and determines how much air is required for safe operation. Since these systems control fuel and combustion air independently, the amount of air can be continually adjusted to match the exact conditions present. The amount of excess air can be set by the controller. This type of system will not go out of calibration over time.

Since the third boiler has the least use, significant savings could be achieved if this system is installed on only two boilers. Savings can exceed $7,000 per year in oil costs and will optimize boiler operation under all conditions.

The equipment has an expected lifetime of 15 years, according to ASHRAE, and the estimated annual energy savings was 2,100 gallons of oil for a total energy savings of 31,500 gallons of oil over the life of the project or $108,400.

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

ECM – 3 Reduce Excess O2 in Boiler

Budgetary Cost	Annual Utility Savings					ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		#2 Oil	Total					
$	kW	kWh	gallons	$			$	Years	Years
62,200	0	0	2,100	7,400		0.8	NA	8.4	NA

*No Incentive is available through the New Jersey Smart Start Program.

This measure is recommended.

4.4 ECM-4 Boiler Replacement

Two of the existing boilers are reaching the end of their useful life. Of the three 125 HP boilers, two are about 40 years old (1967 and 1970). These boilers require more maintenance than newer boilers and are not reliable, and replacements will be required in the future. Newer boilers are more efficient and more reliable.

The existing fuel oil system limits the options for new boilers. High efficiency firetube boilers similar to the existing boilers would be easiest to install and could continue to operate on fuel oil with efficiencies above 85%. High efficiency condensing boilers, well suited to hot water heating systems can operate with efficiencies greater than 90% (often 95%) but would require a fuel switch to propane. The quantity of propane for storage may make this difficult to implement. Using propane-fired boilers would require an all new fuel delivery system, increasing the costs of the project. However, the boilers have a much smaller footprint and can be rigged into the boiler room with greater ease. Installing new firetube boilers in the boiler room will still be an expensive project as rigging boilers in and out of this space will be costly. These boilers are large and must be brought in nearly fully assembled. Three firetube boilers would be replaced by six 2 million BTU condensing boilers. Because of the increased cost of installation and more costly boiler, this measure considers replacing the existing boilers with new fuel oil-fired firetube boilers similar to the existing.

Based on the age of the boilers and original design information, it is estimated that the old boilers had a thermal efficiency of 80%. New fuel oil firetube boilers at this size have an efficiency of about 88%. Sample cutsheets of a new boiler are included in Appendix E. Using the amount of fuel oil burned by the boilers over the most recent 12 month period, an annual energy savings was calculated.

Due to the cost of the measure, the boiler replacement does not pay for itself based on energy savings alone. However, this measure is recommended due to the age of two of the boilers, and energy savings can be part of the justification. The school could chose to replace just one boiler since only one boiler is needed much of the time with the other newer boiler providing additional heat when needed. Then the oldest boiler could remain only as a backup. Although this would increase the payback, replacing one or two boilers will still be a sizable project with extensive work needed in the boiler room.

The equipment has an expected lifetime of 25 years, according to ASHRAE, and the estimated annual energy savings was 4,900 gallons of oil for a total energy savings of 122,500 gallons of oil over the life of the project or $418,900.

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

ECM – 4 Boiler Replacement

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		#2 Oil	Total				
$	kW	kWh	gallons	$		$	Years	Years
278,300	0	0	4,900	16,900	0.5	NA	16.6	NA

*No Incentive is available through the New Jersey Smart Start Program.

This measure is recommended.

4.5 ECM-5 Install VSDs on Hot Water Pumps

The existing 15 HP heating hot water distribution pumps operate at constant speed whenever the associated boiler is firing, regardless of load. Each pump turns on and remains at full speed until its boiler is not longer needed and shuts down. This is wasteful as the heating load may not require the pump to operate at full flow. It is recommended that the pump be placed on a variable speed drive (VSD) and the pump speed controlled to match the load.

Installing VSDs for the system pumps will require inverter duty, premium efficiency motors (ECM-2) and piping pressure sensors to provide feedback to the drive. As equipment in the heating system satisfies its load, control valves will start closing, reducing system flow. As system flow decreases, pressure will start to increase. The drive will then reduce the speed of the pump to match the pressure output to the pressure setpoint. The piping changes in the boiler room will be minor and should only require pressure sensors to be installed. Piping changes in the remainder of the building will require that any three way valves be replaced with two way valves to reduce the flow when load is decreased.

Since the hot water system has one pump on each boiler, when more than one boiler is in operation, multiple pumps will be operating in parallel. To provide proper flow and operation, the drives should be controlled in parallel so that each drive of an operating pump has that pump at the same speed as the others. Pumps at different speed can cause flow problems, inefficient operation, and dead heading.

To calculate the savings from this measure, a model was developed that stages the pumps on as the outside air temperature drops. One pump always operates when the temperature is below 55°F. The second pump comes on below 40°F, and the third pump comes on below 15°F. Since these pumps must be operated at the same speed whenever in operation, and piping changes in the system are not compatible with constant speed pumps, all three pumps will need to be converted to VSD operation. This increases the cost even though the third pump has minimal operating hours. This also allows facility personnel to rotate the lead boiler to provide even run time.

The equipment has an expected lifetime of 15 years, according to ASHRAE, and the estimated annual energy savings was 5,600 kWh and 800 gallons of oil for a total energy savings of 84,000 kWh and 12,000 gallons of oil over the life of the project or $110,100.

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

ECM – 5 Install VSDs on Hot Water Pumps

Budgetary Cost	Annual Utility Savings					ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		#2 Oil	propane	Total				
$	kW	kWh	gallons	gallons	$		$	Years	Years
62,700	0	44,400	0	0	7,300	0.8	5,400	8.5	7.9

*Incentive is based on the New Jersey Smart Start Program.

This measure is recommended.

4.6 ECM-6 Replace Pool Dectron Unit

The pool area is served by a Dectron air handler, which provides heating and dehumidifcation for the pool space. Dehumidification is important since evaporating water from the pool surface can generate very high levels of humidity in the space. Dectron units use direct expansion refrigeration systems to provide cold coils for dehumidification. Typically, since pool spaces are near 80°F, the air is then reheated up to space temperature. Often this reheat is performed by a hot water coil. The existing unit is original to the building and in poor condition. Newer units have much more efficient refrigeration systems, heat recovery, economizer, and energy efficient controls. It is proposed that the unit, currently past its normal service life, be replaced with a new, more efficient unit.

Minimal information was available on the old unit; therefore, its size and efficiency were estimated by examining the design conditions and discussions with Dectron representatives. After determining the likely operating conditions of the existing unit, a new unit was selected with energy efficient systems. Example cutsheets are including in Appendix G.

The equipment has an expected lifetime of 15 years, according to ASHRAE, and the estimated annual energy savings was 9,300 gallons of oil and 33,700 kWh for a total energy savings of 139,500 gallons of oil and 505,500 kWh over the life of the project or $556,200.

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

ECM – 6 Replace Pool Dectron Unit

Budgetary Cost	Annual Utility Savings					ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		#2 Oil	propane	Total				
$	kW	kWh	gallons	gallons	$		$	Years	Years
347,000	45	33,700	9,300	0	37,100	0.6	NA	9.4	NA

*No incentive is available in New Jersey for this measure.

This measure is recommended.

4.7 ECM-7 Install Pool Cover

The pool is used extensively by the school and community, except for a short shutdown period each summer for maintenance. The pool has a very large surface area that leads to evaporation and heat loss to the space above. Currently, the pool is never covered and the space can become the hot and humid. It is recommended that a pool cover be installed for periods when the pool is not in use.

Covering the pool will significantly reduce evaporation and heat loss. Reducing evaporation decreases the amount of makeup water required. Any makeup water needs to be pumped from the well, treated, and then heated to pool temperature, resulting in energy consumption. Evaporation to the space also increases the work required by the Dectron unit and exhaust fans. It can also make the space uncomfortable.

The pool cover can be installed in multiple units so that some parts can remain covered while other areas are being used. Covers can also be motorized making them easier to install and remove. This pool has over 5,000 square feet of surface area. If the pool can be covered for 2,900 hours per year (33%), over $11,000 per year in propane and fuel oil used to heat the pool can be saved.

The equipment has an expected lifetime of 10 years, according to ASHRAE, and the estimated annual energy savings was 3,200 gallons of propane and 2,100 gallons of oil for a total energy savings of 32,000 gallons of propane and 21,000 gallons of oil over the life of the project or $118,700.

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

ECM – 7 Install Pool Cover

Budgetary Cost	Annual Utility Savings					ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		#2 Oil	propane	Total				
$	kW	kWh	gallons	gallons	$		$	Years	Years
27,800	0	0	2,100	3,200	11,900	3.2	NA	2.3	NA

*No incentive is available in New Jersey for this measure.

This measure is recommended.

4.8 ECM-8 Reactivate Kitchen Hood Heat Recovery

In 1986, a kitchen hood heat recovery system was installed on one of the hood exhaust systems in the kitchen. This system pulled some of the exhaust air (6,000 cfm) from the exhaust duct out and through an air-to-air heat exchanger. A second fan pulled 6,000 cfm of outside air through the opposite side of the heat exchanger and pushed it down into the kitchen area. According to building personnel, this system never worked as intended and has not been used for a number of years. The amount of exhaust heat being rejected by the hoods makes it feasible to correct the system. It is recommended that the system be re-commissioned and put into service.

The existing system has been degraded by years of inactivity and reactivation will require that the fan motors and heat exchanger be replaced. The motors are inefficient and heat exchanger surface is heavily corroded. Once complete, the system should be commissioned to operate per the original specification on the installation drawings (included in Appendix I).

Savings from this measure will be reduced if ECM-1 Install Kitchen Hood Controller is implemented. ECM-1 will reduce the airflow through the heat recovery system reducing the amount of heat recovered.

The project is estimated to save almost $2,600 a year in operating costs, which results in a payback of almost 10 years. However, additional operating time above what was estimated (6 hours per day, 5 days per week) will reduce the payback period.

The equipment has an expected lifetime of 20 years, according to ASHRAE, and the estimated annual energy savings was 900 gallons of oil for a total energy savings of 18,000 gallons of oil over the life of the project or $51,500.

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

ECM – 8 Reactivate Kitchen Hood Heat Recovery

Budgetary Cost	Annual Utility Savings					ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		#2 Oil	propane	Total				
$	kW	kWh	gallons	gallons	$		$	Years	Years
25,300	0	(2,300)	900	0	2,600	1.0	NA	9.8	NA

*No incentive is available in New Jersey for this measure.

This measure is recommended.

4.9 ECM-9 Use High Efficiency Boiler to Heat Pool

During the warmer months when the central heating plant is shut down, a small propane boiler located in the pool mechanical room is used to heat the pool water. This boiler is a standard efficiency boiler installed in 1998. Newer, high efficiency boilers can save energy heating the pool. This ECM evaluates replacing the existing boiler (80% efficient) with a high efficiency (89% efficient) boiler. An example of a high efficiency boiler is included in Appendix J.

These boilers are designed specifically for pools. Higher efficiency (95%+) condensing boilers are available that work efficiently with low temperature return water; however, their stainless steel heat exchangers are not compatible with the high chlorine content of pool water. A heat exchanger can be added to protect the boiler from the pool water; increased boiler and installation costs, and relatively short operating season will not result in a longer payback than installing a high efficiency boiler.

Since the pool boiler has a dedicated propane tank, its use can be directly calculated for a 12 month period. By using this consumption and the old and proposed boiler efficiencies, the new boiler usage can be calculated.

The new boiler is estimated to save 1,400 gallons of propane each year. With a project cost of over $22,000, the payback exceeds 11 years. Increased use of the boiler would reduce this payback period. Using a high efficiency boiler, this boiler may at times be more efficient than the central plant at heating the pool water.

The equipment has an expected lifetime of 20 years, according to ASHRAE, and the estimated annual energy savings was 1,400 gallons of propane for a total energy savings of 28,000 gallons of propane over the life of the project or $39,300.

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

ECM – 9 Use High Efficiency Boiler to Heat Pool

Budgetary Cost	Annual Utility Savings					ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		#2 Oil	propane	Total				
$	kW	kWh	gallons	gallons	$		$	Years	Years
22,600	0	0	0	1,400	2,000	0.7	NA	11.5	NA

*No incentive is available in New Jersey for this measure.

This measure is not recommended.

4.10 ECM-10 Replace DHW Boiler With Condensing Propane Boiler

Domestic hot water is generated by two #2 oil-fired Slant/Fin boilers. These boilers generate 180°F hot water and circulate it through a heat exchanger to produce 120°F hot water that is piped to a large hot water storage tank. These boilers are old and less than 80% efficient. During normal school operating hours they operated for very short periods of time indicating that they are oversized. Sizing calculations were performed using standard hot water loads for schools and it was confirmed that the boiler are oversized. This further reduces the boilers' overall efficiency. It is recommended that they be replaced with propane-fired condensing boilers designed for domestic hot water use.

New, high efficiency domestic hot water boilers are available with efficiencies over 95% that are designed to heat domestic water directly. This eliminates the extra heat exchanger and circulator pump. Since this type of boiler cannot operate on fuel oil, either a new propane tank will have to be installed or a pipe from the tank serving the pool boiler will need to be run to the new boilers. These boilers are also power vented so they will not use the chimney but vent through PVC piping installed at the boiler room wall. Standby losses will be significantly reduced, further increasing the savings. These boiler have variable capacity; therefore, they can match the load to the output to produce extended run times and appropriate system response. Cutsheets of an example boiler are included in Appendix K.

Calculated yearly consumption of fuel oil for domestic hot water heating was about 1,400 gallons. This will be replaced with 1,700 gallons of propane which results in a cost reduction of almost $2,500 per year.

The equipment has an expected lifetime of 20 years, according to ASHRAE, and the estimated annual energy savings was 1,400 gallons of oil for a total energy savings of 2,800 gallons of oil over the life of the project or $49,300.

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

ECM – 10 Replace DHW Boiler with Condensing Propane Boiler

Budgetary Cost	Annual Utility Savings					ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		#2 Oil	propane	Total				
$	kW	kWh	gallons	gallons	$		$	Years	Years
28,300	0	0	1,400	(1,700)	2,500	0.7	NA	11.5	NA

*No incentive is available in New Jersey for this measure.

This measure is not recommended.

4.11 ECM-11 Replace Dishwasher Electric Booster Heater With Propane

Water used in commercial dishwashers is normally heated to about 180°F, which is considerably hotter than a normal domestic hot water system. To prevent scalding, many school hot water systems operate at about 120°F. To provide the proper temperature water to the dishwasher, a booster heater is installed. The simplest equipment is an electric booster heater, which is installed at the school. However, on a per Btu basis, electric heat is the most expensive form of heat. Given the heavy load on the area electrical system, the 54kW booster heater generates a significant load while operating. This ECM evaluates the replacement of the electric booster heater with a propane fired booster heater.

Propane booster heater will be less costly to operate and reduce the load on the electrical system. It can be piped to the propane supply for the kitchen and only requires a vent out of the roof. All other connections are the same. Appendix L provides a sample cutsheet of a propane powered booster heater.

For this calculation, it was estimated that the dishwasher operates for three hours per day and draws 150 gallons per hour of operation. This measure would increase propane use by about 400 gallons but reduce electrical use by 6,200 kWh per year. Overall costs would be reduced by over $600 per year. This measure has a poor payback due to the installed cost of the new equipment.

The equipment has an expected lifetime of 18 years, according to ASHRAE, and the estimated annual energy savings was 6,300 kWh for a total energy savings of 113,400 gallons of oil over the life of the project or $11,600.

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

ECM – 11 Replace Dishwasher Electric Booster Heater with Propane

Budgetary Cost	Annual Utility Savings				1 ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		propane	Total				
$	kW	kWh	gallons	$		$	Years	Years
10,000	54	6,300	(300)	900	0.6	NA	11.3	NA

*No incentive is available for this measure in New Jersey.

This measure is not recommended.

4.12 ECM-12 Temperature Setback In Isolated Areas

In addition to normal school hours, night school and community activities result in utilization of the facility until late in the evening. The building is also occupied by maintenance personnel 24/7. Due to the building's schedule, it is constantly maintained at occupied temperature. Energy savings can be achieved if areas of the school are set back when not occupied.

From field observations during the site visit and discussions with building personnel, it was noted that not all of the building is used after hours for activities, and activities do not extend beyond 11:00 pm. From the information gathered, it was estimated that only 33% of the building is used for after hours activities and requires normal space temperature. The rest of the building can be set back.

For the energy savings calculations, a setback of 8°F was used. It was determined that the building was fully occupied 60 hours per week (school time), partially occupied 45 hours per week (after hours and weekend activities), and unoccupied 63 hours per week. If the building is set back during the unoccupied periods, an energy savings of about 13% will result. This is a significant savings of over $24,000 per year.

The existing system could at one time perform this function; however, the system is in disrepair and the programming will need to be upgraded to be fully functional. It is estimated that this will cost over $30,000, in addition to repairs to thermostats, controllers, and system components. Despite these costs, properly implementing these setbacks will generate an attractive payback.

The equipment has an expected lifetime of 15 years, according to ASHRAE, and the estimated annual energy savings was 7,100 gallons of oil for a total energy savings of 106,500 gallons of oil over the life of the projector $367,900.

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

ECM – 12 Temperature Setback in Isolated Areas

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		#2 Oil	Total				
$	kW	kWh	gallons	$		$	Years	Years
59,600	0	0	7,100	24,500	5.2	NA	2.4	NA

*No incentive is available for this measure in New Jersey.

This measure is recommended.

4.13 ECM-13 Replace Windows in Technology Wing

Over the years, many of the windows at the school have been replaced with new double pane windows. These are an effective replacement of the leaky, single pane windows originally installed. The old windows lead to increased infiltration, cold drafts, and excessive heat loss. The only area of the school that still has original windows is the technology/shop wing. This ECM evaluates replacement of these windows with new energy efficient windows similar to the remainder of the school.

This measure was calculated by determining the square footage of the perimeter length of all the areas that still had original windows. This required using a combination of the original building drawings and the existing field conditions as many of the windows had been covered during a previous energy conservation project. With over 2,300 square feet of old windows remaining, this is a sizable project.

As with most window replacement projects, the energy saved does not alone justify the project. As areas of the school are renovated, it is recommended the windows be replaced to newer energy efficient windows.

The equipment has an expected lifetime of 20 years, according to ASHRAE, and the estimated annual energy savings was 1,900 gallons of oil for a total energy savings of 38,000 gallons of oil over the life of the project or $128,800.

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

ECM – 13 Replace Windows in Technology Wing

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		#2 Oil	Total				
$	kW	kWh	gallons	$		$	Years	Years
145,600	0	0	1,900	6,500	(0.1)	NA	22.6	NA

*No incentive is available for this measure in New Jersey.

This measure is not recommended.

4.14 ECM-14 Install Occupancy Sensors

It is proposed that occupancy sensors be installed in selected rooms to turn off lights when the area is unoccupied. A lighting survey was conducted of all fixtures to determine the average time lights are presently on in each space. An analysis was performed to determine the benefits of utilizing occupancy sensors to turn off lighting while the space is not in use. Occupancy sensors were not considered in mechanical areas, garage areas, and stairways due to safety concerns. Other areas were not considered due to the proposed location of the occupancy sensor. If a sensor does not have a clear view of the occupant's room or hallway, it may darken even with people in the space, creating an unsafe condition.

Daylight sensors were considered for the pool pod fixtures to allow some or all of the (5) fixtures in each pod to be turned off during sunny days. Windows are located around the perimeter of the pool area and would make this space appear to be a good candidate, yet the configuration of the existing and proposed fixtures may be problematic. The fixtures face upward and illuminate the ceiling which in turn bounces light onto the pool. Reducing the lighting to the ceiling would darken the pool and could become a safety concern. Therefore, daylighting in the pool area was not recommended.

The equipment has an expected lifetime of 15 years, according to ASHRAE, and the estimated annual energy savings was 112,500 kWh for a total energy savings of 1,686,800 kWh over the life of the project or $246,300.

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

ECM – 14 Install Occupancy Sensors

Budgetary Cost	Annual Utility Savings					ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		#2 Oil	Total					
$	kW	kWh	gallons	$			$	Years	Years
29,800	0	112,500	0	16,400		7.3	5,000	1.8	1.5

*Incentive is based on the New Jersey Smart Start Prescriptive Lighting Measures.

This measure is recommended when combined with ECM-15; see ECM-16.

4.15 ECM-15 Lighting Replacements

A comprehensive fixture survey was conducted of the entire building. Each switch and circuit was identified, and the number of fixtures, locations, and existing wattage established. The existing base case lighting energy consumption was calculated and compared to the proposed lighting replacements. The lighting in the areas of the facility that have been renovated contain T-8 lamps with electronic ballasts and compact fluorescent lamps, which are regarded as efficient by today's standards. A small portion of the facility's lighting consists of T-12 fixtures with magnetic ballasts. Existing exit signs presently utilize high efficiency LED technology and all original incandescent lighting has been replaced with efficient compact fluorescent fixtures.

The pool area metal halide lamp lighting pods were evaluated using fluorescent high output fixtures to carry the lumens required to match the existing space constraints inside the pod fixture. An architectural evaluation and lighting design would need to be completed before considering this measure.

The following lighting upgrades were also considered where appropriate:

- T-12 34-watt 2 & 4 lamp with magnetic ballast retrofitted to T-8 28-watt lamps and electronic ballasts
- Incandescent lamps to efficient compact fluorescent lamps
- 400-watt metal halide high bay fixtures in the gymnasium to be replaced with new energy efficient high output T-8 54-watt (4) lamp fixtures with electronic ballasts.
- Pool area pod retrofit- (3) 1000-watt to new energy efficient high output T-8 54-watt (6) lamp and (2) 400-watt industrial fixtures to new energy efficient high output T-8 54-watt (4) lamp for each pod
- Outdoor incandescent wall mounted fixtures to outdoor rated efficient compact fluorescent fixtures

The above measures will allow the facility to stock only T-8 fixtures in the future. Presently the facility has a mixture of T-12 and T-8 lamps with multiple ballast combinations. In the future the facility should only purchase low wattage super T-8s and ballasts such as the low wattage 4-foot 28 watt units. These lamps may be directly installed into any existing 34 watt fixture when lamps fail. By installing these lamps over time, the most efficient lighting system available will be consistent throughout the facility.

The equipment has an expected lifetime of 15 years, according to ASHRAE, and the estimated annual energy savings was 64,700 kWh for a total energy savings of 970,900 kWh over the life of the project or $172,000.

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

ECM – 15 Lighting Replacements

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		#2 Oil	Total				
$	kW	kWh	gallons	$		$	Years	Years
27,100	25	64,700	0	11,500	5.4	4,900	2.4	1.9

*Incentive is based on the New Jersey Smart Start Prescriptive Lighting Measures.

This measure is recommended when combined with ECM-14; see ECM-16.

CHA performed a calculation for a proposed lighting fixture replacement for the gymnasium area. The cost for this retrofit was based on an estimate provided by PB Lighting Design on October 25, 2008 for a similar sized gymnasium. The implementation cost and savings related to a proposed gymnasium fixture replacement is presented in Appendix P and summarized as follows:

ECM – 15a Lighting Replacements – Gymnasium

Budgetary Cost	Annual Utility Savings				Total Savings	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		#2 Oil	Total				
$	kW	kWh	gallons	$	$	$	Years	Years
7,200	4	14,400	0	2,700	2,700	2,400	2.6	1.8

*Incentive is based on the New Jersey Smart Start Prescriptive Lighting Measures.

This measure recommended when combined with ECM-14; see ECM-16.

4.16 ECM-16 Lighting Replacements With Occupancy Sensors

This measure is a combination of ECMs 14 and 15 to allow for maximum energy and demand reduction. Due to interactive effects, the energy and cost savings for occupancy sensors and lighting upgrades are not cumulative. Presently, the facility has numerous fixtures that contain T-8, T-12 lamps with magnetic and electric ballasts. To increase reliability and ease of maintenance, the staff has requested that all fixtures with the older technology be upgraded to common T-8 lamps with electronic ballasts throughout the facility. The school should also consider stocking low wattage super low wattage 28-watt T-8s 4-foot lamps to replace the existing 32-watt lamps when they fail. These lamps can be installed in the existing efficient T-8 electronic ballasted fixtures and will increase energy efficiency of the system.

The equipment has an expected lifetime of 15 years, according to ASHRAE, and the estimated annual energy savings was 175,400 kWh of oil for a total energy savings of 2,630,800 kWh the life of the project or $414,300.

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

ECM –16 Lighting Replacements with Occupancy Sensors

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		#2 Oil	Total				
$	kW	kWh	gallons	$		$	Years	Years
56,900	25	175,400	0	27,600	6.3	10,000	2.1	1.7

*Incentive is based on the New Jersey Smart Start Prescriptive Lighting Measures.

This measure is recommended.

4.17 Potential Incentives

The Main Building energy conservation project may be eligible for incentives from the New Jersey Office of Clean Energy. The most significant incentives may be through the New Jersey Pay for Performance (P4P) Program. The P4P program is designed for qualified energy conservation projects in facilities that consume a minimum average electric demand of 200 kW per month (total of 12 months peak demand/12). The combined Main Building and Agricultural Building electric demand over the period from July 2008 to June 2009 was 522 kW. Facilities that meet this criterion must also achieve a minimum performance target of 15% energy reduction which would need to be demonstrated using an approved simulation modeling tool before and after construction. Implementing the measures identified in this report will allow the building to achieve this reduction. To utilize this program a P4P Partner would need to be engaged. Incentives for this program include the following:

- Incentive #1: The P4P Program pays $0.05 per square foot to a maximum of $50,000, not to exceed 50% of the facility's annual energy cost for the P4P Partner to develop an Energy Reduction Plan (ERP). This incentive is paid after approval of the ERP and signed Installation Agreement. Applicant must agree to commit to implementation of the ERP within 6 months or the incentive must be returned to the state. For the 155,732 square foot Main Building, this corresponds to $7,787.

- Incentive #2: Paid after installation of recommended measures; base incentives deliver $0.11/kWh and $1.10/therm not to exceed 30% of total project cost

- Incentive #3: Paid after acceptance of Post-Construction Benchmarking Report showing energy savings over one year utilizing the approved simulation modeling tool and EPA Portfolio Manager. Incentive #3 base incentives deliver $0.07/kWh and $0.70/therm not to exceed 20% of total project cost.

Combining Incentives #2 and #3 will deliver a total of $0.18/ kWh and $1.80/therm not to exceed 50% of total project cost. Incentives for #2 and #3 are increased by $0.005/kWh and $0.05/therm for each percentage increase above the minimum performance target calculated with the approved simulation modeling tool, not to exceed 50% of total project cost.

Incentives are also available for prescriptive measures for various types of equipment. Prescriptive measures are paid after installation and no energy savings verification will be required. There are incentives available for the lighting control ECM suggested in this study.

Lighting energy reduction incentives were calculated utilizing the New Jersey SmartStart Building prescriptive lighting measures and incentive program. This program provides incentives dependent upon the existing fixture type and proposed lighting retrofit measure. Prescriptive lighting incentives were utilized for this report to show savings and incentives that would be received if only lighting implementation was selected. If Sussex County Technical School qualifies and enters into the New Jersey Pay for Performance Program, lighting savings will be included in total building energy usage and savings. Applicants cannot apply for both programs for the same project.

5.0 ALTERNATIVE ENERGY EVALUATION

5.1 Geothermal

Geothermal heat pumps (GHP) transfer heat between the constant temperature of the earth and the building to maintain the building's interior space conditions. Below the surface of the earth throughout New Jersey the temperature remains in the low 50°F range throughout the year. With GHP systems, water is circulated between the building and the piping buried in the ground. The ground heat exchanger in a GHP system is made up of a closed or open loop pipe system. Most common is the closed loop, in which high density polyethylene pipe is buried horizontally at 4-6 feet deep or vertically at 100 to 400 feet deep. These pipes are filled with an environmentally friendly antifreeze/water solution that acts as a heat exchanger. In the summer, the water picks up heat from the building and moves it to the ground. In the winter the system reverses and fluid picks up heat from the ground and moves it to the building. Heat pumps make the collection and transfer of this heat to and from the building possible.

The Main Building has a mixture of systems including air handlers, package rooftop units, unit ventilators, cabinet heaters, and unit heaters. To take advantage of a GHP system, the Main Building would have to install a low temperature closed loop water source heat pump system to realize the benefit of the consistent temperature of the ground. This will also include removal of the existing heating and cooling systems with the exception of the boilers. The new heat pump system would require a cooling tower to reject heat from the system, heat exchangers, and a vertical closed loop ground heat exchanger.

This measure is not recommended due to high cost to replace existing systems to take advantage of geothermal heat transfer.

5.2 Solar

5.2.1 Photovoltaic (PV) Rooftop Solar Power Generation

The Main Building was evaluated for potential to install rooftop photovoltaic (PV) solar panels for the purpose of power generation. Present technology incorporates the use of solar cell arrays that produce direct current (DC) electric current. This DC current is converted to alternating current (AC) with the use of an electrical device called an inverter. The roof of the Main Building has sufficient room to install a solar cell array.

To calculate the PV power generation at the Main Building location, CHA utilized the PVWatts™ solar power generation model. The New Jersey clean power estimator that is provided by the NJCEP is presently going through updates; therefore, they recommend using the PVWatts™ Version 1 calculator. The closest city available in the model is Newark, NJ and a fixed tilt array type was utilized to calculate energy production. PVWatts™ solar power generation model and satellite image of roof area may be found in Appendix R.

The incentives given by the State of New Jersey for non-residential solar PV applications is $1.00 /watt up to 50 kW of installed PV array. Federal tax credits are also available for renewable energy projects up to 30% of insulation costs. The school does not pay Federal taxes and, therefore, would not be able to utilize the Federal tax credit incentive.

Installation of PV arrays in the State of New Jersey will allow the owner to participate in the New Jersey Solar Renewable Energy Certificate (SREC) program. This is a program that has been set up to allow entities with large amounts of environmental emissions to purchase credits from zero emission PV solar-producers. An Alternative Compliance Penalty (ACP) is paid for by the high emission producers and is set each year on a declining scale of 3% per year. One SREC credit is equivalent to 1000 kilowatt hours of PV electrical production; these credits can be traded for period of 15 years from the date of installation. The cost of the APC penalty for 2009 is $689; this is the amount that must be paid per SREC by the high emission producers. The dollar amount that will be paid to the PV producer for 2009 is expected to be $600/SREC credit. Payments that will be received from the PV producer will change from year to year dependent upon supply and demand. As stated above, there is no definitive way to calculate an exact price that will be received by the PV producer per SREC over the next 15 years. R & R Renewable Energy Consultants, a third party SREC broker that has been approved by the NJCEP, estimated an average of $487/ SREC per year and this number was utilized in the cash flow for this report.

As stated previously, the Main Building shares an electrical meter with the Agricultural Building, with a maximum kW demand of 522 kW (occurring in June 2009) and a minimum kW of 270 kW (occurring in August 2008). The monthly average over the year observed was 467 kW. The Main Building uses the majority of the electricity, and only a small portion is used by the Agricultural Building, estimated at 5%. The facility has ample roof area for a PV system, and the existing load should justify the use of the maximum incentive cap of 50 kW of installed PV solar array. Therefore, a 50 kW system size was selected for the calculations. The system costs for PV installations were derived from the most recent NYSERDA (New York State Research and Development Authority) estimates of total cost of system installation. It should be noted that the cost of installation is now $10 per watt or $10,000 per kW of installed system. This has increased in the past few years due to greater national demand for PV power generator systems. Other cost considerations will also need to be considered. PV panels have a multiple decade life span yet the inverter device that converts DC electricity to AC has a planned life span of 10 to 12 years and may need to be replaced multiple times during the useful life of the PV system.

Photovoltaic (PV) Rooftop Solar Power Generation

Budgetary Cost	Annual Utility Savings				Total Savings	New Jersey Renewable Energy Incentive*	New Jersey Renewable SREC**	Payback (without incentive)	Payback (with incentives)
	Electricity		#2 Oil	Total					
$	kW	kWh	gallons	$	$	$	$	Years	Years
500,000	0	59,200	0	9,800	9,800	50,000	28,800	>30	11.7

*Incentive based on New Jersey Renewable Energy Program for non-residential applications of $1.00 per Watt of installed capacity
** Estimated Solar Renewable Energy Certificate Program (SREC) for 15 years at $487/1000 kWh

This measure is not recommended at this time due to the long payback period; however, it could be a potentially viable renewable measure for the school to consider in the future if electricity rates continue to increase and if PV installation costs decline below $10 per watt.

5.2.2 Solar Thermal Domestic Hot Water Plant

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

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

Although there are several options for using active solar thermal systems for space heating, the most common method involves using glazed collectors to heat a liquid held in a storage tank (similar to an active solar hot water system). The most practical system for the Main Building would transfer the heat from the panels to thermal storage tanks and transfer solar produced thermal energy to use for domestic hot water production.

Energy savings for this energy performance measure were performed with the use of a thermal solar water heating calculator developed by the InfinitePower Corporation. Assumptions were entered that closely match the Main Building domestic hot water heating profile. Installation costs were derived from an actual project of similar size by the SOLAR-TEC Corporation incorporating all aspects of a complete installation. This system will include (8) hot water heating collectors, rack mounting system, (4) 120 gallon storage tanks (480 gallon total) and all pumping and heat transfer devices required to connect to the existing domestic hot water system.

As of the writing of this report there are no incentives available for installation of thermal solar systems. Presently there is a Federal tax credit of 30% of installation cost for the thermal applications, however the Sussex County Technical School does not pay Federal taxes and therefore would not benefit from this program.

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

Solar Thermal Domestic Hot Water Plant

Budgetary Cost	Annual Utility Savings				Total Savings	New Jersey Renewable Energy Incentive	Payback (without incentive)	Payback (with incentive)
	Electricity		#2 Oil	Total				
$	kW	kWh	gallons	$	$	$	Years	Years
45,800	0	0	465	1,600	1,600	NA	28.6	NA

* No incentive is available in New Jersey at this time.

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

5.3 Wind

Wind energy is a form of solar energy created by the uneven heating of the Earth's surface by the sun. Most small wind turbines use a horizontal axis propeller, or rotor, to capture the kinetic energy of the wind and convert it into rotary motion to drive a generator, which usually is designed specifically for the wind turbine. The rotor consists of two or three blades, usually made from wood or fiberglass. (These materials give the turbine the needed strength and flexibility, and have the added advantage of not interfering with television signals.) The structural backbone of the wind turbine is called the mainframe, and it includes the "slip-rings" that connect the wind turbine - which rotates as it points itself into changing wind directions - and the fixed tower wiring. The tail aligns the rotor into the wind.

To avoid turbulence and capture greater wind energy, turbines are mounted on towers. As a rule of thumb, turbines should be mounted at least 30 feet above any structures or natural features within 300 feet of the installation. Smaller turbines can go on shorter towers. For example, a 250-Watt turbine may be mounted on a 30-50 foot tower, while a 10 kW turbine will usually need a tower of 80-120 feet. Towers come in a variety of designs, including tubular or latticed, guyed or self-supporting. Wind turbine manufacturers also offer towers, and can ensure that the tower meets required building and safety specifications as well as being compatible with the turbine.

The NJCEP for small wind installations has assigned numerous pre-approved wind turbines for installation in the state New Jersey. Incentives for wind turbine installations are based on kilowatt hours saved in the first year. Systems size under 16,000 kWh per year of production will receive a $3.20 per kWh incentive. Systems producing over 16,000 kWh will receive $51,200 for the first 16,000 kWh of production with an additional $0.50 per kWh up to a maximum cap of 750,000 kWh per year. These incentives can make a project like this very cost effective. Federal tax credits are also available for renewable energy projects up to 30% of insulation costs for systems less than 100 kW. The Sussex Technical High School does not pay Federal taxes and therefore would not be able to utilize the Federal tax credit incentive.

The most important part of any small wind generation project is of course the mean annual wind speed at the height of which the turbine will be installed. The Agricultural Building shares an electric meter with the Main Building, and for this report will be considered as part of the Main Building complex. Due to the size of the Technical High School campus property a turbine heights of 30 m located on the North West side the property would be the only possible location due to tree lines, building structure setbacks and location of athletic fields. A wind resource map downloaded from the AWS Truewind Corporation indicates that that mean annual wind speed at 30 m in the Sussex County area is less than 10.1 miles per hour. Most small wind turbines become financially viable over 10 miles per hour of mean annual wind speed, therefore the ASW Truewind model indicates that installation of a wind turbine may not be applicable for this location.

This model was designed to give a good indication of wind speeds at applicable locations throughout the state. Before progressing too far with any small wind production project at Sussex County Technical School, a wind test tower will need to be installed at the 30 meter tower height and be monitored for an entire year. Consideration should also be given to the location of a turbine and weather it would affect school operations, as well as any effects the turbines site plane will have for the school's neighbors.

An aerial satellite depiction of the school's campus and a wind resource map may be found in Appendix T.

This measure is not recommended due to low mean annual wind speed of the proposed location.

5.4 Combined Heat and Power Generation (CHP)

Combined heat and power (CHP) also known as "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 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 is low. Thermal energy produced by the CHP plant in the warmer months will be wasted.

The most viable selection for a CHP plant at this location would be a reciprocating engine natural gas-fired unit. Presently, there is no natural gas available at the facility, and emission standards do not allow diesel fired CHP units to run continuously.

This measure is not recommended due not having natural gas at the present location and the limited use of summertime thermal production.

5.5 Biomass Power Generation

Biomass power generation is a process in which waste organic materials are used to produce electricity or thermal energy that otherwise would be sent to the landfill or expelled to the atmosphere. To participate in NJCEP's Customer On-Site Renewable Energy (CORE) program, participants must install an on-site sustainable biomass or fuel cell energy generation system. Incentives for bio-power installations are available to support up to 1MW-dc of rated capacity.

*Class I organic residues are eligible for funding through the NJCEP CORE program. Class I wastes include- uses a renewable supply of organic material:

- Wood wastes not adulterated with chemicals, glues or adhesives,
- Agricultural residues (corn stover, rice hulls or nut shells, manures, poultry litter, horse manure, etc) and/or methane gases from landfills,
- Food wastes
- Municipal tree trimming and grass clipping wastes
- Paper and cardboard wastes
- Non adulterated construction wood wastes, pallets
- NJDEP evaluates biomass resources not identified in the RPS

*From NJOCE website

Examples of eligible facilities for a CORE incentive include:

- Digestion of sewage sludge
- Landfill gas facilities
- Combustion of wood wastes to steam turbine
- Gasification of wood wastes to reciprocating engine
- Gasification or pyrolysis of bio-solid wastes to generation equipment

This measure is not recommended due the Main Building not having a waste stream that can be utilized for the production electricity or thermal energy.

5.6 Demand Response Curtailment

Presently the Main Building shares an electrical meter with the Agricultural Building and electricity is delivered and supplied by the Jersey Central Power and Light Corporation (JCP&L). JCP&L 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 JCP&L regional transmission organization and an approved Curtailment Service Providers (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 JCP&L 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 their emergency generators during high electrical demand conditions or during emergencies. Part of the program also will require that program participants to reduce their required load or run their emergency generators with notice to test the system.

Presently the Sussex County Technical School's Main Building (and electrically linked Agricultural Building) utilize one Cummins 150 kW back up generation and has an average monthly kW demand during the observed period of 467 kW. JCP&L utilizes curtailment providers to bundle and organize demand reduction load. A JCP&L pre-approved CSP will require a minimum of 100 kW of load reduction to participate in any curtailment program. The school will need to de-energize their facility during the periods of high grid demand therefore they have the ability to reduce their electrical load by the required 100 kW minimum to enter the JCP&L demand response program. Discussions with the maintenance staff indicate that the amount of connected load may be well below the 100 kW minimum, the only connected load is the boilers, well water pumps, and emergency lighting. It is doubtful that these will exceed the 100kW requirement, however an engineering study would need to be conducted to evaluate actual connected load, and to determine if the present emergency generators will meet emission requirements to be allowed to participate in the demand response program.

The facility may not being able satisfy the Curtailment Service Provider required 100kW minimum; therefore this ECM is not recommended.

6.0 EPA PORTFOLIO MANAGER

The United State Energy Protection Agency (EPA) is a federal agency which leads the nation's environmental research and assessment efforts. The mission of the Environmental Protection Agency is to protect human health and the environment. The EPA has released an interactive energy management tool known as the EPA Portfolio Manager that allows building owners to track and assess energy and water consumption across their facility. This program is designed to allow property owners and managers to share, compare and improve upon their facility's energy consumption. Inputting such parameters at electricity, heating fuel, building characteristics, and location into the website-based program generates a naturalized energy rating score out of 100. Once an account is registered, monthly utility data can be entered to track the savings progress and retrieve an updated energy rating score on a monthly basis.

Since the Agricultural Building and the Main Building at the Sussex County Technical School share an electrical meter, the two building were combined in Portfolio Manager. The combined building is considered a high energy consumer per Portfolio Manager. With a Source Energy Usage Index of 205 $kBTU/ft^2$/year the EPA has scored the combined building at 24 out of 100. The national average energy usage index is 163 $kBTU/ft^2$/year. Several factors are attributable to this score, including wasted energy from several factors including high outside air ventilation, a continuously running building, and poor controls.

Reducing energy loss associated with infiltration, equipment, and occupancy run hours will increase the score. If all the measures identified in this report are fully implemented, it is projected that an energy star rating of 53 can be obtained. Obtaining a score of 75 or higher out of 100 would be required to make the facility eligible for an Energy Star Rating. A higher score could be achieved if measures with higher paybacks that were not recommended were implemented.

A full EPA Energy Star Portfolio Manager Report is located in Appendix U. The user name and password for the building's Portfolio Manager account was provided to Russ Masker, Head of Maintenance, Sussex County Technical School.

7.0 CONCLUSIONS & RECOMMENDATIONS

The energy audit conducted by CHA at the Main Building of the Sussex County Technical School, located in Sparta, New Jersey, identified potential ECMs for motor upgrade, lighting replacements and controls, boiler replacement, variable speed drives, pool heating and cover, temperature setback, and kitchen hood controller and heat recovery. Potential annual savings of $134,700 may be realized for the recommended ECMs, with a summary of the costs, savings, and paybacks as follows:

ECM – 2 Install Premium Efficiency Motors

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		#2 Oil	Total				
$	kW	kWh	gallons	$		$	Years	Years
7,000	3	8,400	0	1,400	2.6	500	5.0	4.6

*Incentive is based on the New Jersey Smart Start Program.

ECM – 3 Reduce Excess O2 in Boiler

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		#2 Oil	Total				
$	kW	kWh	gallons	$		$	Years	Years
62,200	0	0	2,100	7,400	0.8	NA	8.4	NA

*No Incentive is available through the New Jersey Smart Start Program.

ECM – 4 Boiler Replacement

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		#2 Oil	Total				
$	kW	kWh	gallons	$		$	Years	Years
278,300	0	0	4,900	16,900	0.5	NA	16.6	NA

*No Incentive is available through the New Jersey Smart Start Program.

ECM – 5 Install VSDs on Hot Water Pumps

Budgetary Cost	Annual Utility Savings					ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		#2 Oil	propane	Total				
$	kW	kWh	gallons	gallons	$		$	Years	Years
62,700	0	44,400	0	0	7,300	0.8	5,400	8.5	7.9

*Incentive is based on the New Jersey Smart Start Program.

ECM – 6 Replace Pool Dectron Unit

Budgetary Cost	Annual Utility Savings					ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		#2 Oil	propane	Total				
$	kW	kWh	gallons	gallons	$		$	Years	Years
347,000	45	33,700	9,300	0	37,100	0.6	NA	9.4	NA

*No incentive is available in New Jersey for this measure.

ECM – 7 Install Pool Cover

Budgetary Cost	Annual Utility Savings					ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		#2 Oil	propane	Total				
$	kW	kWh	gallons	gallons	$		$	Years	Years
27,800	0	0	2,100	3,200	11,900	3.2	NA	2.3	NA

*No incentive is available in New Jersey for this measure.

ECM – 8 Reactivate Kitchen Hood Heat Recovery

Budgetary Cost	Annual Utility Savings					ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		#2 Oil	propane	Total				
$	kW	kWh	gallons	gallons	$		$	Years	Years
25,300	0	(2,300)	900	0	2,600	1.0	NA	9.8	NA

*No incentive is available in New Jersey for this measure.

ECM – 12 Temperature Setback in Isolated Areas

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		#2 Oil	Total				
$	kW	kWh	gallons	$		$	Years	Years
59,600	0	0	7,100	24,500	5.2	NA	2.4	NA

*No incentive is available for this measure in New Jersey.

ECM –16 Lighting Replacements with Occupancy Sensors

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		#2 Oil	Total				
$	kW	kWh	gallons	$		$	Years	Years
58,900	25	175,400	0	25,600	6.4	10,000	2.1	1.7

APPENDIX A

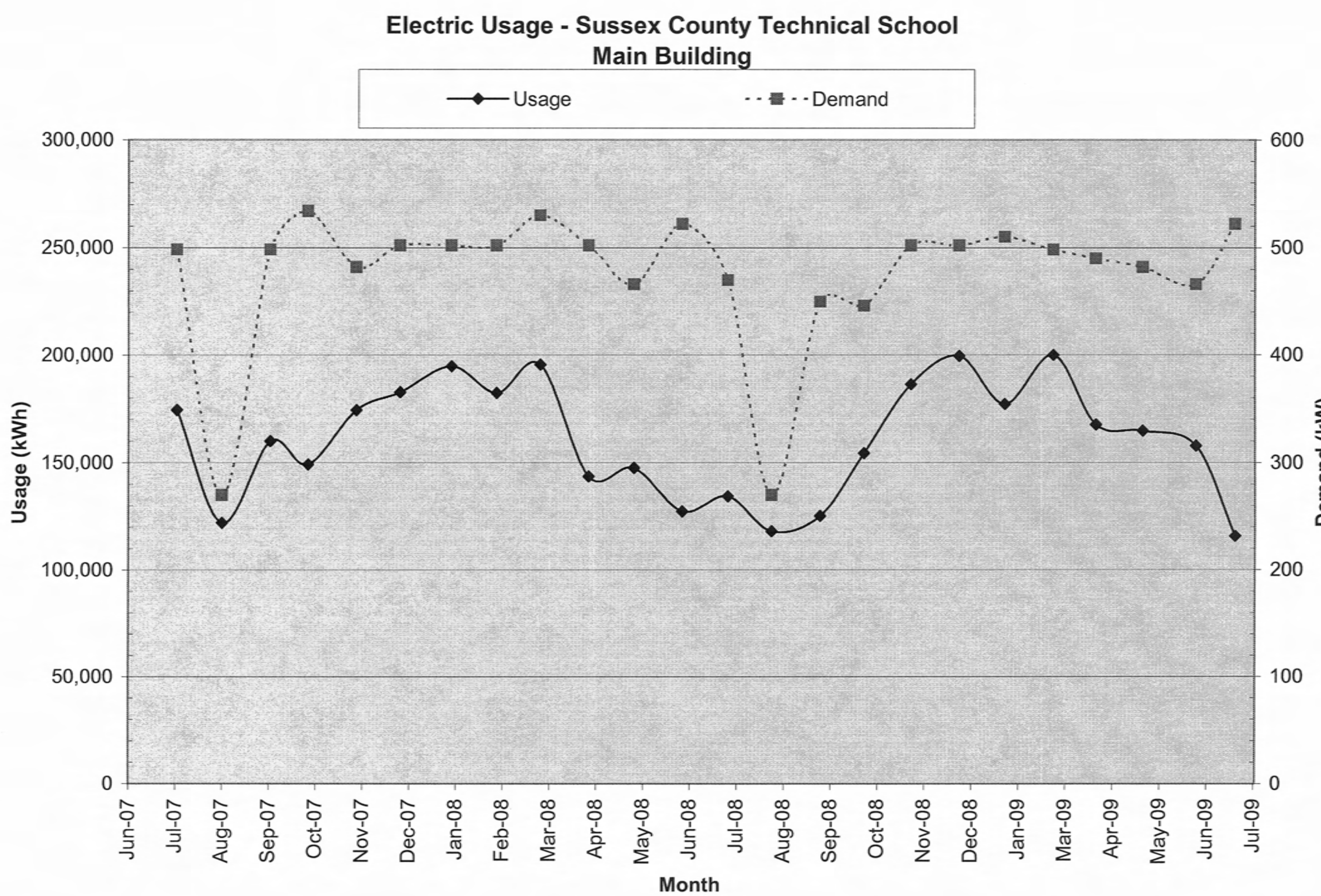
Utility Usage Analysis

New Jersey BPU Energy Audit Program
CHA #20151
Building: Sussex County Technical School (Main Building)

Account Number: 10 00 03 8091 7 3
Jersey Central Power and Lighting

	Period	Electricity Supply kWH	Delivery KW	Cost ($)	Blended Rate ($/kWH)	Unit Cost ($/kWH)	Unit Cost ($/kW)
1	7/24/2007	174,400	498.0	30,181.25	0.1731	0.1532	6.94
2	8/23/2007	122,000	270.0	20,642.41	0.1692	0.1538	6.94
3	9/24/2007	160,000	498.0	26,911.06	0.1682	0.1466	6.94
4	10/19/2007	149,200	534.0	21,495.99	0.1441	0.1248	5.39
5	11/20/2007	174,400	482.0	24,889.37	0.1427	0.1248	6.47
6	12/19/2007	182,800	502.0	27,391.86	0.1498	0.1321	6.47
7	1/22/2008	194,800	502.0	29,591.30	0.1519	0.1352	6.47
8	2/21/2008	182,400	502.0	27,874.25	0.1528	0.1350	6.47
9	3/21/2008	195,600	530.0	28,743.93	0.1470	0.1294	6.47
10	4/22/2008	143,600	502.0	21,596.34	0.1504	0.1278	6.47
11	5/22/2008	147,600	466.0	21,867.97	0.1482	0.1277	6.47
12	6/23/2008	127,400	522.0	23,925.88	0.1878	0.1594	6.94
13	7/23/2008	134,400	470.0	25,032.49	0.1863	0.1620	6.94
14	8/21/2008	118,000	270.0	21,018.36	0.1781	0.1622	6.94
15	9/22/2008	125,200	450.0	22,912.27	0.1830	0.1581	6.94
16	10/21/2008	154,400	446.0	24,126.38	0.1563	0.1376	6.47
17	11/21/2008	186,400	502.0	28,993.56	0.1555	0.1381	6.47
18	12/23/2008	199,600	502.0	31,852.48	0.1596	0.1433	6.47
19	1/22/2009	177,200	510.0	29,227.42	0.1649	0.1463	6.47
20	2/23/2009	200,000	498.0	32,512.33	0.1626	0.1465	6.47
21	3/23/2009	167,600	490.0	27,218.73	0.1624	0.1435	6.47
22	4/23/2009	164,800	482.0	26,655.88	0.1617	0.1428	6.47
23	5/28/2009	157,800	466.0	24,891.53	0.1577	0.1386	6.47
24	6/23/2009	115,800	522.0	19,782.53	0.1708	0.1395	6.94
	Total	3,855,400	534.0	$ 619,336	0.1606	0.1412	6.57
	Most Recent 12 months	1,901,200	522.0	$ 314,224	0.1653	0.1458	6.63

	Electricity Customer Charge	Energy Charge	Transmission Charge	Reconciliation Charge	Delivery Charge kWH	Delivery Charge kW	Non-Utility Gen. Chg	Societal Benefit	Transitional Assessment Charge	System Control	Outdoor Lighting	Total
1	$11.65	$19,963.92	$1,038.55	$249.92	$921.72	$3,456.12	$2,957.82	$881.94	$510.64	$13.78	$175.19	$30,181.25
2	$11.65	$13,965.58	$726.51	$174.83	$661.92	$1,873.80	$2,069.12	$616.95	$357.22	$9.64	$175.19	$20,642.41
3	$11.65	$18,315.52	$952.80	-$850.00	$850.32	$3,456.12	$2,713.60	$809.12	$468.48	$12.64	$170.81	$26,911.06
4	$9.71	$14,095.52	$888.49	-$1,128.10	$783.39	$2,879.15	$2,530.43	$820.54	$436.86	$11.79	$168.21	$21,495.99
5	$11.65	$16,476.27	$1,038.55	-$1,318.64	$917.09	$3,118.54	$2,957.82	$995.30	$510.64	$13.78	$168.37	$24,889.37
6	$11.65	$17,269.85	$1,088.57	-$51.35	$958.73	$3,247.94	$3,100.29	$1,043.24	$535.24	$14.44	$173.26	$27,391.86
7	$11.65	$18,403.54	$1,045.51	$687.45	$1,018.23	$3,247.94	$3,303.81	$1,111.72	$570.37	$15.39	$175.69	$29,591.30
8	$11.65	$17,232.06	$923.76	$643.69	$956.75	$3,247.94	$3,093.50	$1,040.96	$534.07	$14.41	$175.46	$27,874.25
9	$11.65	$18,479.11	$991.89	-$383.68	$1,022.20	$3,429.10	$3,317.38	$1,116.29	$572.72	$15.45	$171.82	$28,743.93
10	$11.65	$13,566.47	$728.20	-$579.28	$764.38	$3,247.94	$2,435.46	$819.53	$420.46	$11.34	$170.19	$21,596.34
11	$11.65	$13,944.36	$748.48	-$595.42	$784.21	$3,015.02	$2,503.30	$842.35	$432.17	$11.66	$170.19	$21,867.97
12	$11.65	$15,879.72	$651.12	-$406.90	$693.65	$3,622.68	$2,177.66	$732.78	$375.96	$10.14	$177.42	$23,925.88
13	$11.65	$17,103.61	$681.54	-$380.62	$723.40	$3,261.80	$2,279.42	$767.02	$393.52	$10.62	$180.53	$25,032.49
14	$11.65	$15,016.56	$598.38	-$334.18	$642.09	$1,873.80	$2,001.28	$673.43	$345.50	$9.32	$180.53	$21,018.36
15	$11.65	$15,932.83	$634.89	-$860.00	$677.78	$3,123.00	$2,123.39	$714.52	$366.59	$9.89	$177.73	$22,912.27
16	$11.65	$16,799.18	$813.99	-$1,340.50	$817.93	$2,885.62	$2,618.62	$881.16	$452.08	$12.20	$174.45	$24,126.38
17	$11.65	$20,280.88	$996.87	-$1,618.32	$976.58	$3,247.94	$3,161.34	$1,201.16	$545.78	$14.73	$174.95	$28,993.56
18	$11.65	$21,717.08	$1,067.46	-$683.78	$1,042.03	$3,247.94	$3,385.22	$1,286.22	$584.43	$15.77	$178.46	$31,852.48
19	$11.65	$19,279.89	$1,088.98	-$243.83	$930.97	$3,299.70	$3,005.31	$1,141.88	$518.84	$14.00	$180.03	$29,227.42
20	$11.65	$21,760.60	$1,287.00	-$275.20	$1,044.01	$3,222.06	$3,392.00	$1,288.80	$585.60	$15.80	$180.01	$32,512.33
21	$11.65	$18,235.38	$1,078.51	-$764.95	$883.37	$3,170.30	$2,842.50	$1,080.01	$490.73	$13.24	$177.99	$27,218.73
22	$11.65	$17,930.73	$1,060.49	-$864.87	$869.49	$3,118.54	$2,795.01	$1,061.97	$482.53	$13.02	$177.32	$26,655.88
23	$11.65	$16,645.42	-	-	$839.74	$3,015.02	$2,693.25	$1,023.31	$464.97	$20.82	$177.35	$24,891.53
24	$11.65	$12,242.98	-	-	$636.14	$3,622.68	$1,980.93	$752.66	$341.99	$16.71	$176.79	$19,782.53
Total	$277.66	$410,537.06	$20,130.54	-$10,923.73	$20,416.12	$74,930.69	$65,438.46	$22,702.86	$11,297.39	$320.58	$4,207.94	
Most Recent 12 months	$139.80	$212,945.14	$9,308.11	-$7,366.25	$10,083.53	$37,088.40	$32,278.27	$11,872.14	$5,572.56	$166.12	$2,136.14	



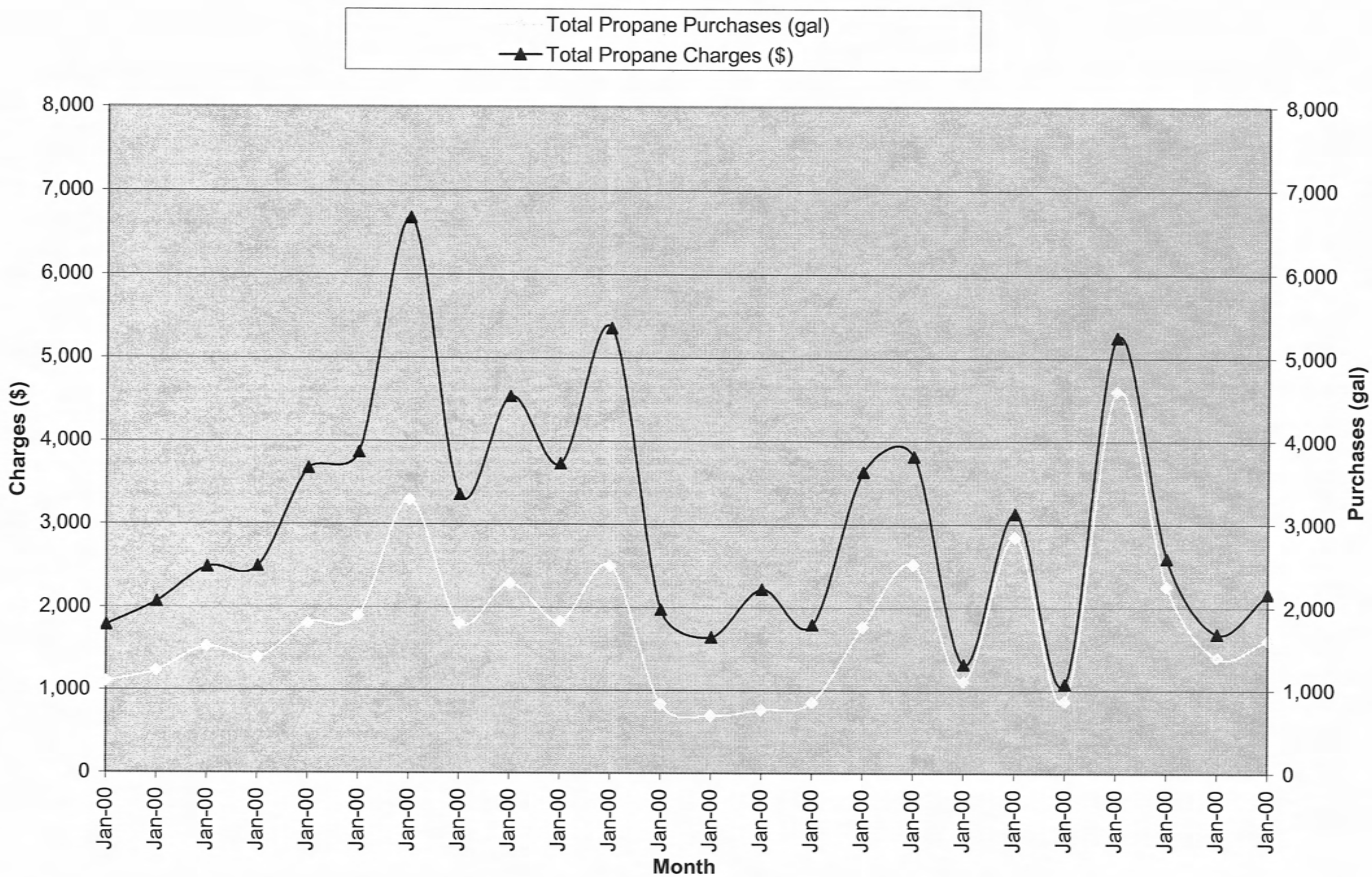
Utility Data - Sussex
Electricity Chart (Main)

New Jersey BPU Energy Audit Program
CHA #20151
Sussex County Technical School

Propane

		Total			Pool (Main Building)			Kitchen (Main Building)			Generator (Main Building)		
	Date	**Charge ($)**	**Gallons**	**$/gal**	**Charge ($)**	**Gallons**	**$/gal**	**Charge ($)**	**Gallons**	**$/gal**	**Charge ($)**	**Gallons**	**$/gal**
1	July-07	1,787	1,102	1.62	1,620	1,000	1.62	167	102	1.64	0	0	-
2	August-07	2,068	1,238	1.67	1,772	1,061	1.67	297	177	1.68	0	0	-
3	September-07	2,486	1,529	1.63	2,010	1,236	1.63	476	292	1.63	0	0	-
4	October-07	2,495	1,394	1.79	2,102	1,175	1.79	393	219	1.79	0	0	-
5	November-07	3,674	1,813	2.03	2,252	1,112	2.03	1,421	702	2.03	0	0	-
6	December-07	3,865	1,902	2.03	2,435	1,200	2.03	1,430	701	2.04	0	0	-
7	January-08	6,677	3,288	2.03	4,650	2,286	2.03	2,026	1,002	2.02	0	0	-
8	February-08	3,352	1,819	1.84	2,378	1,299	1.83	974	519	1.87	0	0	-
9	March-08	4,538	2,291	1.98	4,046	2,041	1.98	491	250	1.97	0	0	-
10	April-08	3,729	1,839	2.03	1,487	730	2.04	1,932	955	2.02	310	154	2.01
11	May-08	5,358	2,496	2.15	3,921	1,828	2.14	1,437	668	2.15	0	0	-
12	June-08	1,974	834	2.37	1,516	636	2.38	458	198	2.32	0	0	-
13	July-08	1,644	692	2.38	1,644	692	2.38	0	0	-	0	0	-
14	August-08	2,218	766	2.90	2,121	726	2.92	98	40	2.43	0	0	-
15	September-08	1,794	854	2.10	1,794	854	2.10	0	0	-	0	0	-
16	October-08	3,628	1,770	2.05	2,748	1,339	2.05	880	431	2.04	0	0	-
17	November-08	3,814	2,520	1.51	2,557	1,694	1.51	1,249	821	1.52	8	4	1.88
18	December-08	1,315	1,109	1.19	817	690	1.18	497	419	1.19	0	0	-
19	January-09	3,126	2,849	1.10	2,821	2,567	1.10	305	282	1.08	0	0	-
20	February-09	1,077	868	1.24	1,077	868	1.24	0	0	-	0	0	-
21	March-09	5,249	4,608	1.14	1,415	1,268	-	3,834	3,340	-	0	0	-
22	April-09	2,591	2,261	1.15	973	849	-	1,618	1,411	-	0	0	-
23	May-09	1,686	1,401	1.20	1,216	1,010	-	470	391	-	0	0	-
24	June-09	2,164	1,613	1.34	1,494	1,114	-	670	499	-	0	0	-
	Total	$ 72,310	42,852	$1.69	$ 50,866	29,273	$1.74	$ 21,125	13,420	$1.57	$ 318	159	$2.01
	Most Recent 12 months	$ 30,307	21,309	$1.42	$ 20,678	13,670	$1.51	$ 9,621	7,635	$1.26	$ 8	4	$1.88

Propane Usage - Sussex County Technical School



Utility Data - Sussex
Propane Chart (Main)

New Jersey BPU Energy Audit Program
CHA #20151
Sussex County Technical School

#2 Fuel Oil

		Total			Main Building			McNeice Auditorium Building			Agriculture Building		
	Date	Charge ($)	Gallons	$/gal	Charge ($)	Gallons	$/gal	Charge ($)	Gallons	$/gal	Charge ($)	Gallons	$/gal
1	July-07	0	0	-	0	0	-	0	0	-	0	0	-
2	August-07	0	0	-	0	0	-	0	0	-	0	0	-
3	September-07	8,540	3,550	2.41	8,540	3,550	2.41	0	0	-	0	0	-
4	October-07	17,002	6,500	2.62	6,539	2,500	2.62	5,231	2,000	2.62	5,231	2,000	2.62
5	November-07	19,862	7,059	2.81	11,318	4,040	2.80	5,734	2,016	2.84	2,811	1,003	2.80
6	December-07	32,273	11,696	2.76	27,549	10,021	2.75	0	0	-	4,723	1,675	2.82
7	January-08	51,894	18,857	2.75	32,002	11,605	2.76	13,670	5,038	2.71	6,222	2,215	2.81
8	February-08	44,342	15,546	2.85	36,502	12,729	2.87	1,397	486	2.88	6,443	2,332	2.76
9	March-08	0	0	-	0	0	-	0	0	-	0	0	-
10	April-08	42,916	12,847	3.34	34,125	10,219	3.34	0	0	-	8,791	2,628	3.35
11	May-08	0	0	-	0	0	-	0	0	-	0	0	-
12	June-08	0	0	-	0	0	-	0	0	-	0	0	-
13	July-08	0	0	-	0	0	-	0	0	-	0	0	-
14	August-08	38,050	11,245	3.38	14,792	4,433	3.34	14,986	4,412	3.40	8,272	2,400	3.45
15	September-08	0	0	-	0	0	-	0	0	-	0	0	-
16	October-08	21,777	6,300	3.46	16,604	4,815	3.45	0	0	-	5,173	1,500	3.45
17	November-08	20,818	6,037	3.45	16,552	4,800	3.45	0	0	-	4,266	1,237	3.45
18	December-08	57,402	16,634	3.45	43,833	12,702	3.45	0	0	-	13,569	3,932	3.45
19	January-09	55,771	16,173	3.45	31,384	9,101	3.45	0	0	-	24,387	7,072	3.45
20	February-09	57,085	16,554	3.45	46,643	13,526	3.45	3,479	1,010	3.44	6,962	2,018	3.45
21	March-09	27,739	8,044	3.45	27,739	8,044	3.45	0	0	-	0	0	-
22	April-09	0	0	-	0	0	-	0	0	-	0	0	-
23	May-09	0	0	-	0	0	-	0	0	-	0	0	-
24	June-09	0	0	-	0	0	-	0	0	-	0	0	-
	Total	$ 495,469	157,043	$3.15	$ 354,122	112,085	$3.16	$ 44,497	14,962	$2.97	$ 96,850	30,011	$3.23
	Most Recent 12 months	$ 278,642	80,987	$3.44	$ 197,548	57,421	$3.44	$ 18,465	5,422	$3.41	$ 62,628	18,159	$3.45

APPENDIX B

ECM-1 Install Kitchen Hood Controller

NJBPU Energy Audits
CHA #20151
Building: Sussex County Vocational School - Main Building

ECM-1 Install Kitchen Hood Controller

	KWh	Gallons	
Total Electrical Savings	5620		
Total Oil Savings		795	
Cost Savings	$929	$2,736	$3,665

Motor Operating Savings

Number of Kitchen Hoods	6		
Hours of Operation (per day)	6		A
Days/Year	190		B
Weeks/Year	38		C
Motor HP	15		D
Equivalent KW	9.33	KW	E
Cost of Electricity	$0.165	KWh	F
Total Time/Year	1140	hrs/year	G
Total KWH/YR	10631	KWh	H

% Rated RPM I	% Run Time J	Time K J * G	Output L I * E ^ 2.5	KWH/YR M L *K	
100%	9%	103	9.325	957	
90%	11%	125	7.166	899	
80%	14%	160	5.338	852	
70%	35%	399	3.823	1,525	
60%	18%	205	2.600	534	
50%	13%	148	1.648	244	
40%	0%	0	0.944	0	
30%	0%	0	0.460	0	
20%	0%	0	0.167	0	
10%	0%	0	0.029	0	
				5,010	N

Total Savings .= H - N 5,620 KWh

Conditioned Make Up Air: Heating

Previous Net Exhaust Volume	21,300	CFM	
New Net Exhaust Volume	15,315	CFM	Note 1
Previous net heat load	687,820	BTU/hr	
new net heat load	494,542	BTU/hr	
Design Indoor Conditions	68	F	
Average Outdoor Air Temp (during Heating)	38.1	F	
Heating Hours (Newark,NJ)	4,427	hrs/yr	
Total Therms Savings	1,114	Therms	

Note 1 Determine the New Exhaust Volume by completing Table 1. The New Exhaust Volume equals the

Table 1

% Rated RPM I	% Run Time J	H * J
100%	9%	9.00%
90%	11%	9.90%
80%	14%	11.20%
70%	35%	24.50%
60%	18%	10.80%
50%	13%	6.50%
40%	0%	0.00%
30%	0%	0.00%
20%	0%	0.00%
10%	0%	0.00%
Avg RPM		71.90%

Cost of Fuel = $3.44 / Gallon

Reduced % =	**100**	**%**
Reduced Electricity Savings =	**5,620**	**kWh**
Reduced Fuel Savings =	**795**	**Gallons**
Reduced Financial Savings =	**$3,665**	

Melink Intelli-Hood®

A Smart Solution to an Industry Problem

The Intelli-Hood® Keypad is easy to operate.

The Melink Intelli-Hood® controls are the *new* industry standard for commercial kitchen ventilation systems. Engineers, consultants and operators are specifying them on thousands of hoods for both new and existing stores.

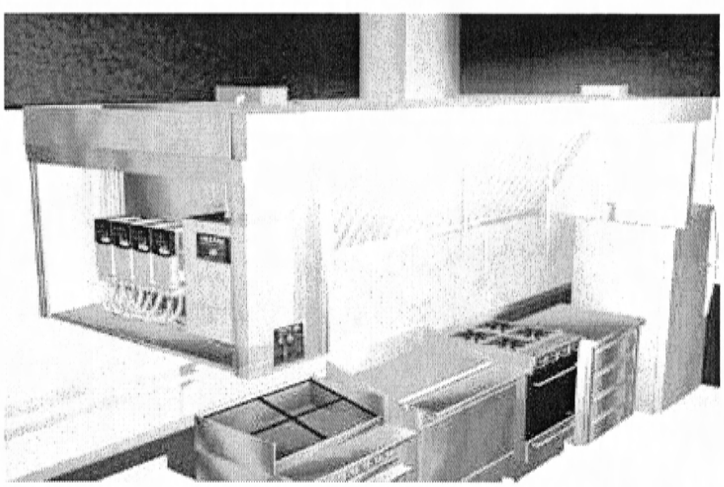
Savings & Benefits

The Intelli-Hood® controls improve hood efficiency up to 50%. Typical annual operating savings are $1,500-$3,000 per hood, with a payback of 1-3 years. They also improve kitchen comfort, indoor air quality, and fire safety.

Simple to Use

The cook/chef presses the light and fan switch on the Keypad. That's it!

The hood lights then turn on and the fans go to a preset minimum speed of 10-50%. When the cooking appliances are turned on, the fan speed increases based on exhaust air temperature. During actual cooking, the speed increases to 100% until the smoke/vapor is removed.

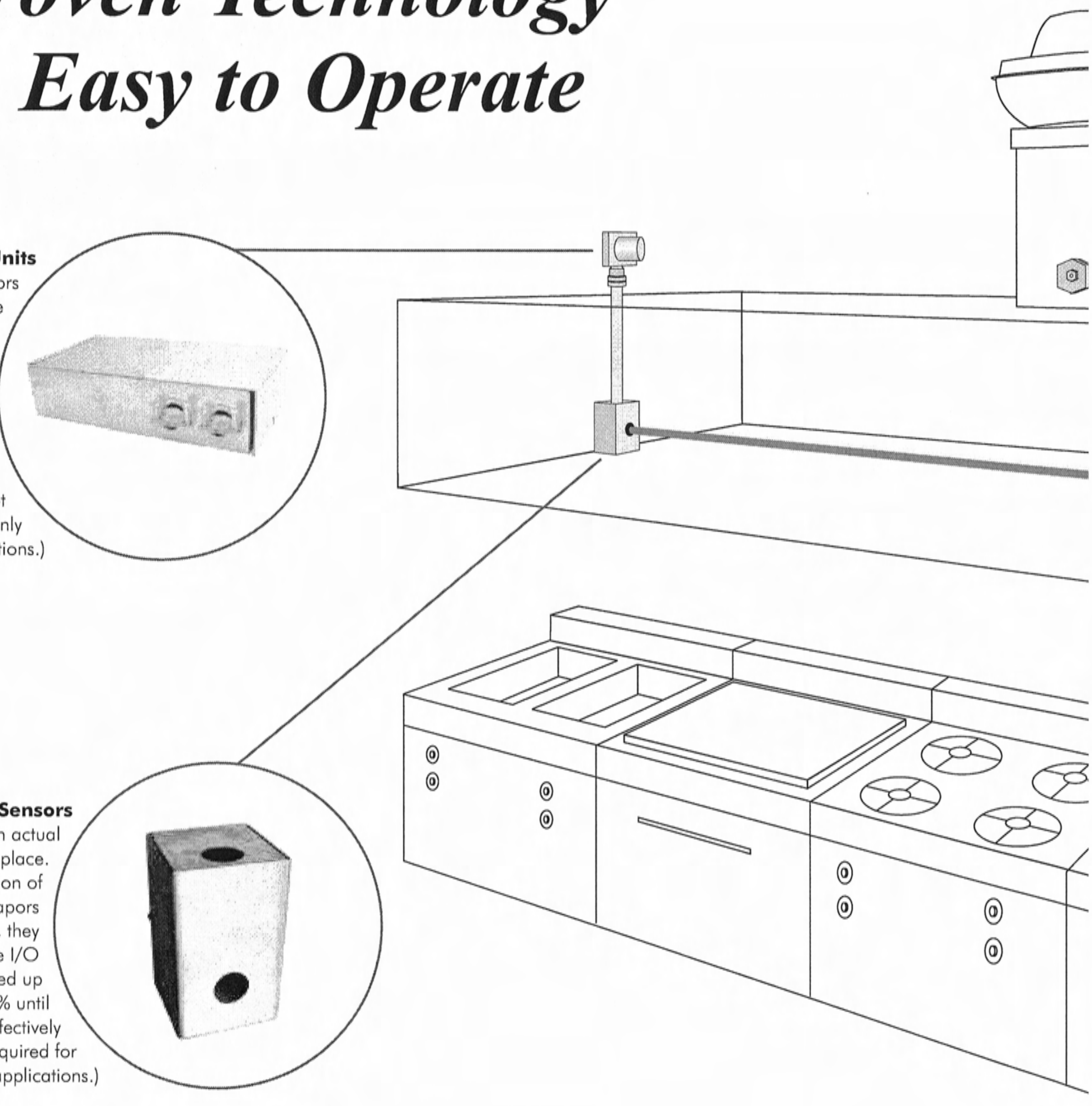


The Intelli-Hood® controls can be specified on new hoods or be retrofitted on existing hoods.

Most commercial kitchen hoods operate at 100% capacity all day, even during idle non-cooking periods. This costs the U.S. food service industry over $2 billion in wasted energy every year.

The Melink Intelli-Hood® controls are the only proven solution to this problem. Using a microprocessor and sensors, they reduce fan speed during idle periods to save both fan energy and conditioned air.

Proven Technology & Easy to Operate

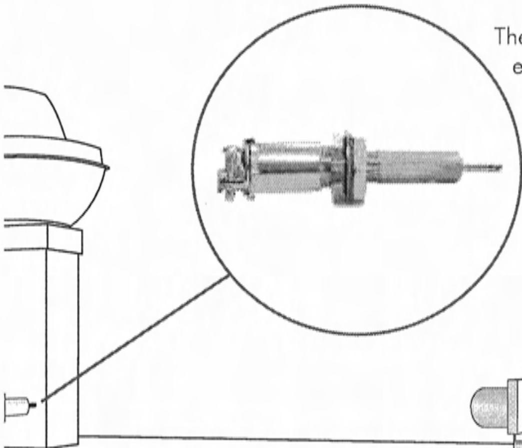


The **Air Purge Units** prevent grease vapors from entering the Optic Sensor housings and collecting on the lenses. Minimizes the need for wiping off lenses to once a month, typically. (Not required for heat-only applications.)

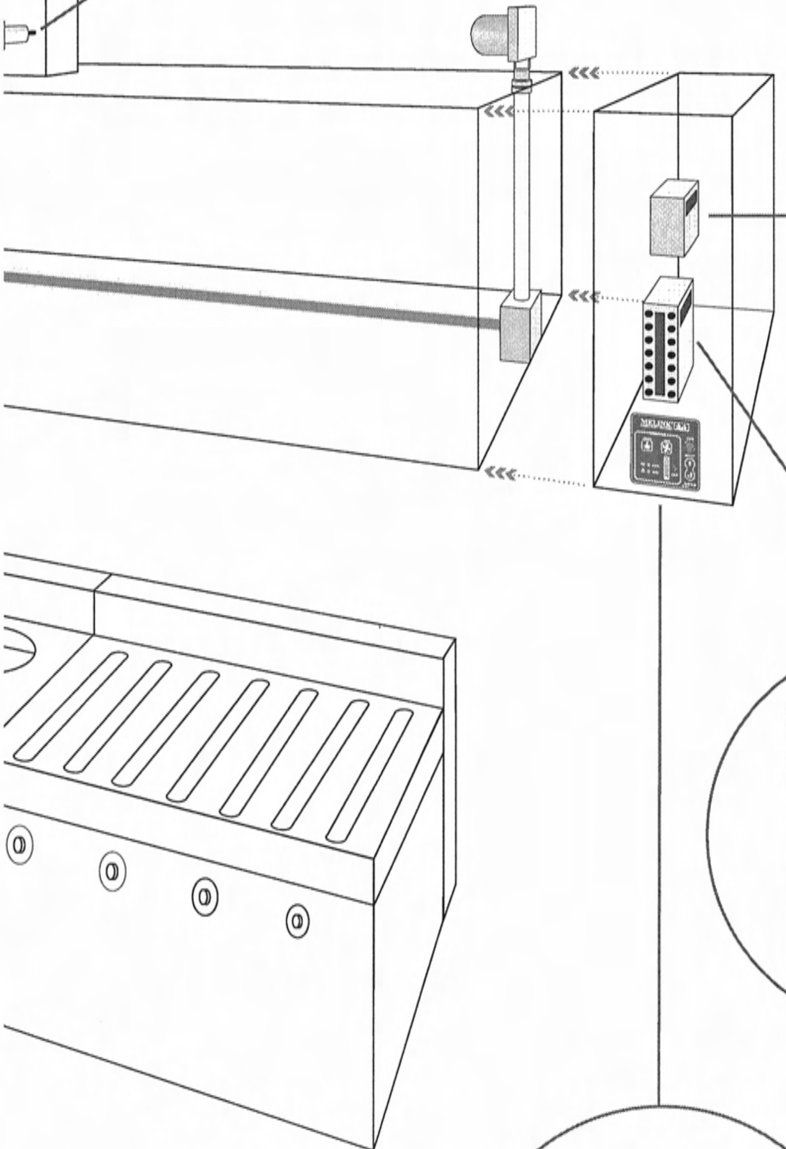
The **Optic Sensors** monitor when actual cooking is taking place. Upon the detection of any smoke/vapors inside the hood, they send a signal to the I/O Processor to speed up the fans to 100% until the effluent is effectively removed. (Not required for heat-only applications.)

Intelli-Hood®
Kitchen Ventilation Controls

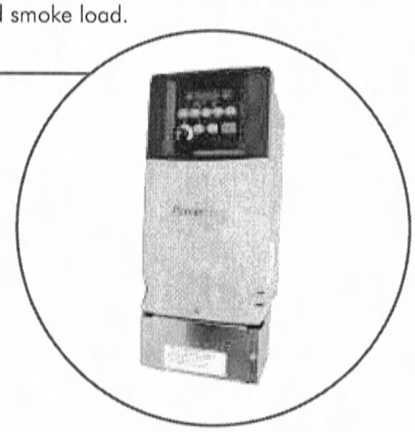
U.S. Patent # 4,903,685
U.S. Patent # 6,170,480 B1
U.S. Patent # 7,048,199
Additional Patents Pending

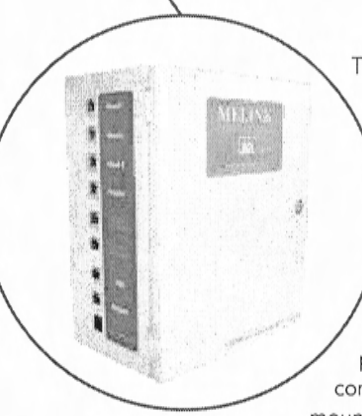


The **Temperature Sensor** monitors the exhaust air temperature in the duct. A signal is transmitted to the I/O Processor to vary the fan speed in proportion to the actual heat load. (To optimize energy savings and kitchen comfort, additional temperature sensors can monitor the outside air and kitchen space temperature.)

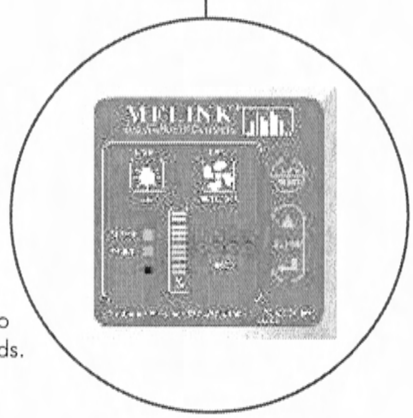


The **Electronic Motor Starter** is a VFD that receives a start/stop command and a 4-20ma signal from the I/O Processor. It varies the fan speed between a minimum and maximum setting based on the actual heat and smoke load.





The **I/O Processor** controls the lights and fan for up to four hoods. It is typically mounted in an end-cabinet, and communicates between the hood sensors and Electronic Motor Starter(s) via plug-and-play cables. It is also connected to the Keypad mounted on the front face of one of the hoods for easy user interface.

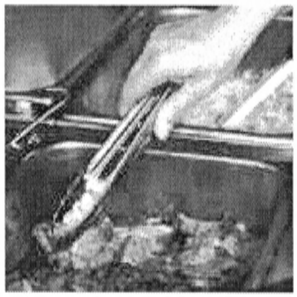


The **Keypad** provides a wide range of functions: light and fan operation, 100% bypass capability, system setup (minimum speed, temperature span) and monitoring (fan speed percentage, temperature, diagnostics). One Keypad can control up to two I/O Processors or 8 hoods.

Approvals
UL Listed, CSA Listed, CE; complies with all applicable codes and standards including NFPA 96, IMC, BOCA, SBCCI, UMC and NSF.

Case Studies

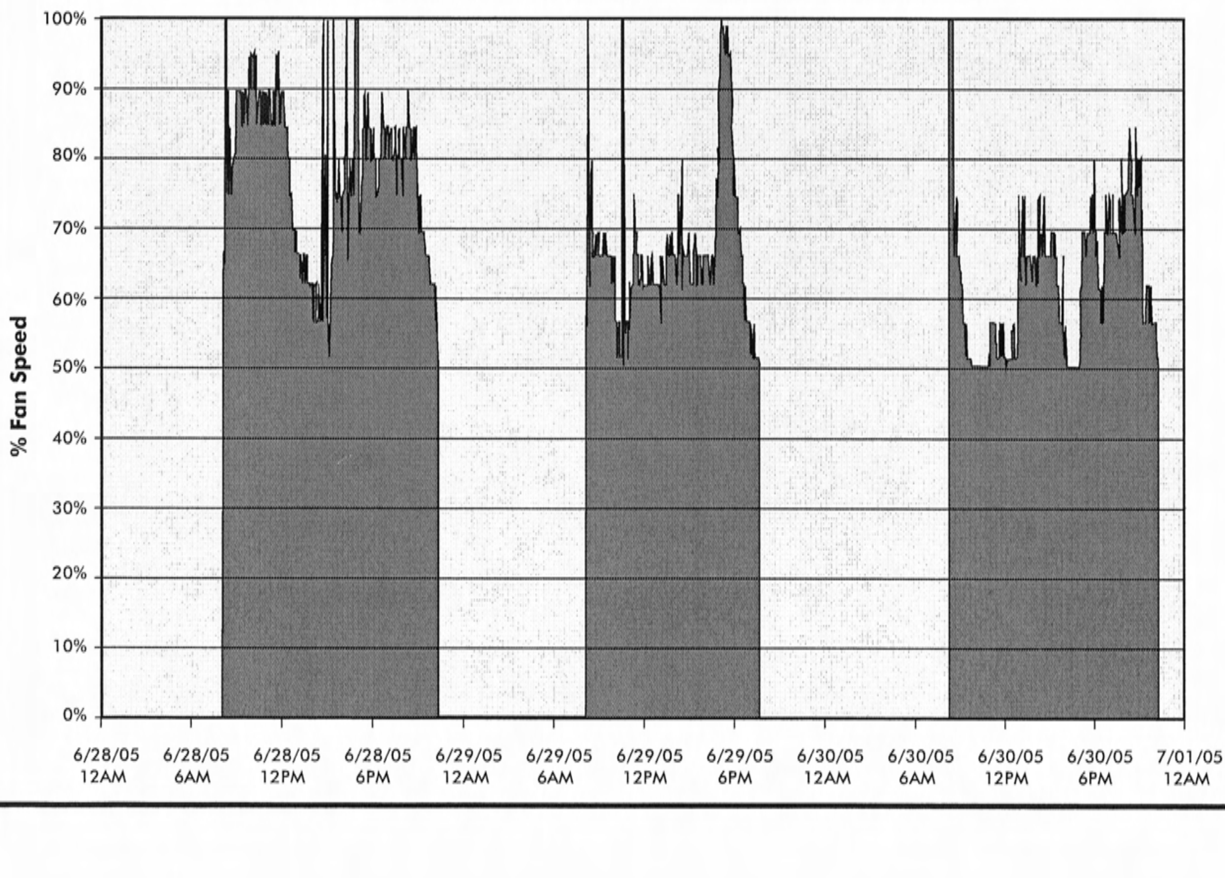
Snapshot of 4 Melink customers



Supermarket	**Restaurant**	**Hotel**	**University**
Annual energy savings per location	Annual energy savings per location	Annual energy savings per location	Annual energy savings per location
$2,340	**$2,040**	**$20,000**	**$17,000**
Current payback	Current payback	Current payback	Current payback
1.8 years	**2.2 years**	**1.3 years**	**1.8 years**

Before-and-After Energy Savings

Actual reading from a current Intelli-Hood customer.



Melink Intelli-Hood®

A New Standard in Kitchen Ventilation

Intelli-Hood® Kitchen Ventilation Controls

Savings & Benefits

Improves Energy Efficiency
The Intelli-Hood® controls improve energy efficiency by reducing the exhaust and make-up fan speeds during idle periods. Typical annual operating savings are $1,500-$3,000 per hood, with a payback of 1-3 years.

Improves Kitchen Comfort
The Intelli-Hood® controls improve kitchen comfort by reducing the supply of hot/humid make-up air during idle periods. They also serve as an economizer when indoor and outdoor conditions are right for free cooling. Finally, the Intelli-Hood® controls reduce hood noise in the kitchen up to 90% when the fans slow down.

Improves Fire Safety
The Intelli-Hood® controls can improve fire safety by monitoring the exhaust air temperature. If the temperature approaches the fusible link rating of the fire suppression system, an alarm can sound and/or the cooking appliances can be shut down.

Improves Occupant Health
The Intelli-Hood® controls can improve indoor air quality (IAQ) by monitoring the CO_2 levels in the dining area. The exhaust and outside air quantities can be increased to 100% if the level exceeds a certain threshold.

Other Intelli-Hood® Advantages

1. *Eliminate drive losses and belt maintenance by specifying direct drive fans.*
2. *Reduce humidity problems associated with a negative building pressure.*
3. *Improve hood and building air balance with variable-speed controls (verses belts and pulleys).*
4. *Extend HVAC equipment life by reducing run time and thus wear/tear of compressors, motors, heaters, etc.*
5. *Prevent simultaneous MUA heating and RTU cooling inside the kitchen during the winter.*
6. *Reduce grease on roof and inside ducts and fans by reducing the "transport" velocity.*

MELINK®

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Printed in the U.S.A.

NJBPU Energy Audits
CHA #20151
Building: Sussex County Vocational School - Main Building

ECM-1 Install Kitchen Hood Controller

Multipliers	
Material:	0.99
Labor:	1.22
Equipment:	1.09

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
						$ -	$ -	$ -	$ -	
Melink Kitchen Hood Controller	6	ea	$ 6,500	$ 4,000		$ 38,610	$ 29,280	$ -	$ 67,890	
Motor Replacement	6	ea	$ 600	$ 250		$ 3,564	$ 1,830	$ -	$ 5,394	
Electrical	6	ea	$ 500	$ 600		$ 2,970	$ 4,392	$ -	$ 7,362	
Controls interface with HVAC	1	ls	$ 1,000	$ 2,500		$ 990	$ 3,050	$ -	$ 4,040	
Hood Fan 1 - 2850 cfm	1	ea	$ 2,400	$ 250		$ 2,376	$ 305	$ -	$ 2,681	
Hood Fan 2 - 1400 cfm	1	ea	$ 1,800	$ 150		$ 1,782	$ 183	$ -	$ 1,965	
Hood Fan 3 - 8000 cfm	1	ea	$ 3,600	$ 290		$ 3,564	$ 354	$ -	$ 3,918	
Hood Fan 4 - 2800 cfm	1	ea	$ 2,400	$ 250		$ 2,376	$ 305	$ -	$ 2,681	
Hood Fan 5 - 1600 cfm	1	ea	$ 1,800	$ 150		$ 1,782	$ 183	$ -	$ 1,965	
Hood Fan 6 - 4650 cfm	1	ea	$ 2,900	$ 250		$ 2,871	$ 305	$ -	$ 3,176	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	

$ 101,072	Subtotal
$ 15,161	15% Contingency
$ 17,435	Contractor 15% O&P
$ -	0% Engineering
$ 133,667	**Total**

APPENDIX C

ECM-2 Install Premium Efficiency Motors

NJBPU Energy Audits
CHA #20151
Building: Sussex County Vocational School - Main Building

ECM-2 Install Premium Efficiency Motors

Demand Cost $/kW-month
$ 6.63

Energy Cost $/kWh
$ 0.146

Multipliers		
Material	Labor	Equipment
0.99	1.22	1.09

Savings Analysis

#	Description	Location	Existing HP	Load Factor	Existing Efficiency[a]	Existing kW	New HP[b]	New Load Factor	New Efficiency[a]	New kW	Demand Savings	Demand Savings $	Annual Hours	kWh Savings	$ kWh Savings	Total $ Savings	Estimated Cost	Payback Years
1	HW P-1	Mech Room	15	0.9	0.875	11.5	15	0.9	0.930	10.8	0.680	$ 54	4,427	3,012	$ 439	$ 493	$ 1,477	3.0
2	HW P-2	Mech Room	15	0.9	0.875	11.5	15	0.9	0.930	10.8	0.680	$ 54	2,922	1,988	$ 290	$ 344	$ 1,477	4.3
3	HW P-3	Mech Room	15	0.9	0.875	11.5	15	0.9	0.930	10.8	0.680	$ 54	1,461	994	$ 145	$ 199	$ 1,477	7.4
4	Pool P-1	Pool	5	0.9	0.852	3.9	5	0.9	0.897	3.7	0.196	$ 16	8,016	1,570	$ 229	$ 244	$ 850	3.5
5	Pool P-2	Pool	5	0.9	0.852	3.9	5	0.9	0.897	3.7	0.196	$ 16	-	-	$ -	$ 16	$ 850	54.5
6	HW Pump	Pool Heat	3	0.9	0.815	2.5	3	0.9	0.882	2.3	0.169	$ 15	4,427	836	$ 122	$ 137	$ 851	6.2
7																		
		Total	58			44.9	58			42.2	2.62	$ 208		8,400	$ 1,224	$ 1,433	$ 6,980	4.9

Cost Estimates

#	Unit Costs Materials	Unit Costs Labor	Unit Costs Equipment	Subtotal Costs Materials	Subtotal Costs Labor	Subtotal Costs Equipment	Total Cost	Remarks
1	$ 999	$ 400	$ -	$ 989	$ 488	$ -	$ 1,477	
2	$ 999	$ 400	$ -	$ 989	$ 488	$ -	$ 1,477	
3	$ 999	$ 400	$ -	$ 989	$ 488	$ -	$ 1,477	
4	$ 550	$ 250	$ -	$ 545	$ 305	$ -	$ 850	
5	$ 550	$ 250	$ -	$ 545	$ 305	$ -	$ 850	
6	$ 550	$ 250	$ 1	$ 545	$ 305	$ 1	$ 851	
7	$ -	$ -		$ -	$ -			
Total								

Notes
a Existing and new efficiencies should be entered if known. If not known, use provided curve fit based on "DOE Survey Installed Average" and NEMA Premium values, respectively.

b Same as existing HP unless resized to better match load

APPENDIX D

ECM-3 Reduce Excess O2 in Boiler

NJBPU Energy Audits
CHA #20151
Building: Sussex County Vocational School - Main Building

ECM-3 Reduce Excess O2 in boiler

Fuel Oil Cost	$ 3.440	/gal
Yearly Oil Usage	53,574	gallons
Excess Air Reduction	4%	
Energy Savings from Reduced Air	4%	
Oil Savings	**2,143**	**gallons/yr**
	$ 7,372	

*Excess O2 can range from 5% to over 10%. Assume 7%
Can be reduced to 3%

NJBPU Energy Audits
CHA #20151
Building: Sussex County Vocational School - Main Building

ECM-3 Reduce Excess O2 in boiler

Multipliers	
Material:	0.99
Labor:	1.22
Equipment:	1.09

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
						$ -	$ -	$ -	$ -	
Oxygen Trim Controller & Sensors	3	ea	$ 8,000	$ 2,500		$ 23,760	$ 9,150	$ -	$ 32,910	
Air servo motor	3	ea	$ 200	$ 150		$ 594	$ 549	$ -	$ 1,143	
Fuel servo motor	3	ea	$ 200	$ 150		$ 594	$ 549	$ -	$ 1,143	
Boiler Mods	3	ea	$ 500	$ 350		$ 1,485	$ 1,281	$ -	$ 2,766	
Startup & Training	1	ls	$ 1,000	$ 5,000		$ 990	$ 6,100	$ -	$ 7,090	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	

$ 45,052	Subtotal
$ 9,010	20% Contingency
$ 8,109	Contractor 15% O&P
$ -	0% Engineering
$ 62,172	**Total**

APPENDIX E

ECM-4 Boiler Replacement

NJBPU Energy Audits
CHA #20151
Building: Sussex County Vocational School - Main Building

ECM-4 Boiler Replacement

Existing Fuel	#2 Oil
Proposed Fuel	#2 Oil

Item	Value	Units	Formula/Comments
Baseline Fuel Use	53,574	Gals #2	Based on historical utility data
Existing Boiler Plant Efficiency	80%		Estimated or Measured
Baseline Boiler Load	6,000,265	Mbtu/yr	Baseline Fuel Use x Existing Efficiency x 140 Mbtu/Gals #2
Baseline Fuel Charges	$184,311	$/yr	
Proposed Boiler Plant Efficiency	88%		New Boiler Efficiency
Proposed Fuel Use	48,703	Gals #2	Baseline Boiler Load / Proposed Efficiency / 140 Mbtu/Gals #2
Annual Savings	4,870	**Gals #2**	Baseline Fuel - Proposed Fuel

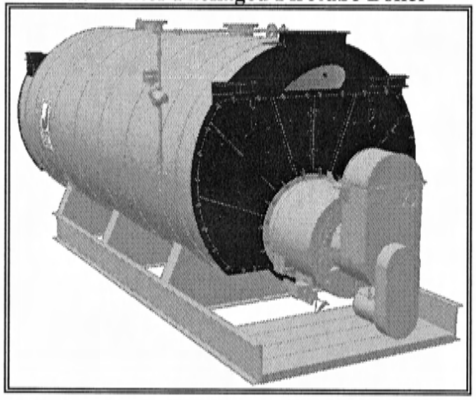
Savings Summary:

Unit Cost	**$**	**3.44**	**$/gal**
	$	**2.46**	**$/therm**
Annual $ Savings	**$**	**16,756**	

MODEL: PFTA 125-4

JOHNSTON BOILER COMPANY

4-Pass Hot Water Packaged Firetube Boiler



Ratings & Performance Data

Horsepower 125		Natural Gas Flow, SCFH (1,000 Btu/ft^3)**	4,907
Total Heating Surface, ft^2	652	Combustion Air (15% Excess), SCFM***	898
Furnace Outside Diameter, in	30.5	Flue Gas Flow Rate, lb/hr***	4,279
Furnace Heat Release Rate, Btu/ft^3 hr**	157,000	Stack Flue Gas Velocity, ft/min***	1,274
Total Combustion Volume, ft^3	52.5	#2 Oil Flow, gal/hr (140,000 Btu/gal)**	33.8
Total Heat Release Rate, Btu/ft^3 hr**	93,000	#6 Oil Flow, gal/hr (150,000 Btu/gal)**	31.2
Water Content Flooded, gal	1,177	Flue Gas Side Pressure Drop, in. H_2O	2.6
Approx. Dry Weight 30#, lb	13,000	Approx. Operating Weight 30#, lb	22,800
Approx. Dry Weight 60#, lb	13,100	Approx. Operating Weight 60#, lb	22,900
Approx. Dry Weight 125#, lb	13,600	Approx. Operating Weight 125#, lb	24,000

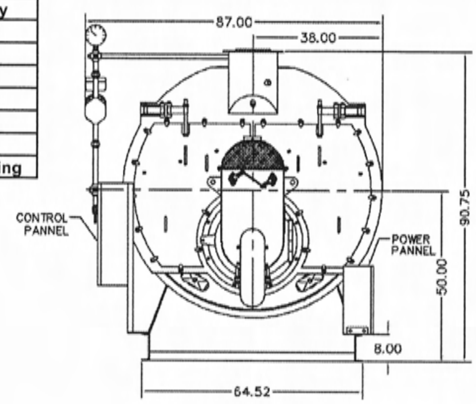
Performance Data*

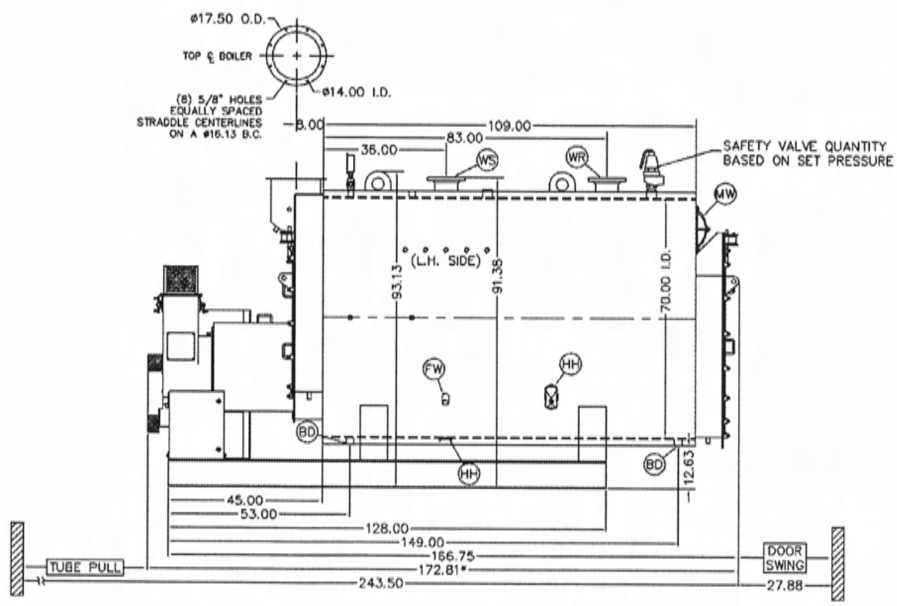
Operating Temperature (F)	Natural Gas		#2 Oil		#6 Oil	
	Stack Temp (F)	%Eff	Stack Temp	%Eff	Stack Temp (F)	%Eff
180	258	85.8	271	88.8	266	89.8
200	277	85.3	290	88.3	286	89.3
220	296	84.8	309	87.8	305	88.8
240	314	84.3	328	87.3	325	88.4

*Based on 20°F difference in supply/return, ** Values calculated at 200°F operating temperature, ***Calculated Firing Natural Gas

Drawings - 4-Pass Hot Water Packaged Firetube Boiler

Connection & Opening Schedule			
Conn.	Description	Type	Qty
FW	Feedwater Inlet	1.50 FNPT	2
WS	Water Supply	6.00 150#RF	1
WR	Water Return	6.00 150#RF	1
DO	Drain Outlet	1.50 FNPT	2
MW	Manway	12 X 16	1
HH	Hand Hole	4 X 6	6
Supply and return outlets ASME flanged drilling			

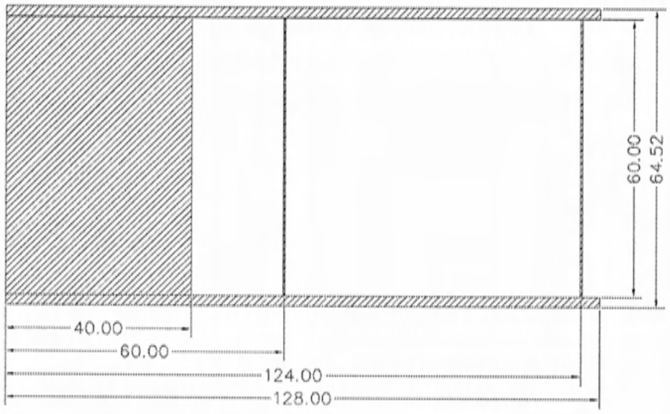


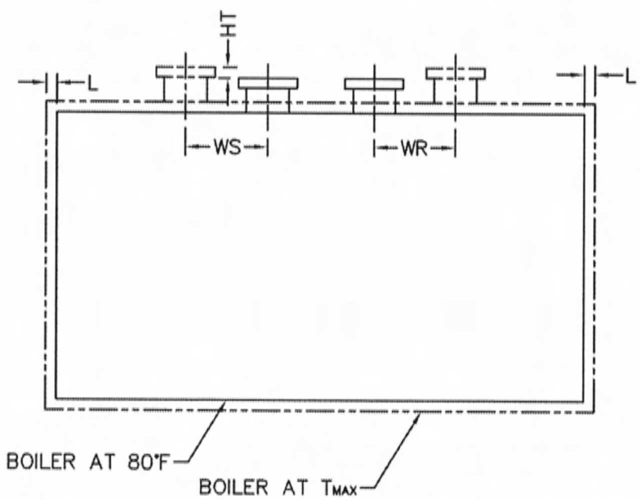


Notes:
30# Hot Water design shown, all dimensions given in inches.
Fuel piping and/or optional boiler trim may increase overall width.
Specifications subject to change to incorporate engineering advances.
***May vary on low-NO$_x$ designs.**

MODEL: PFTA 125-4

Base Diagram



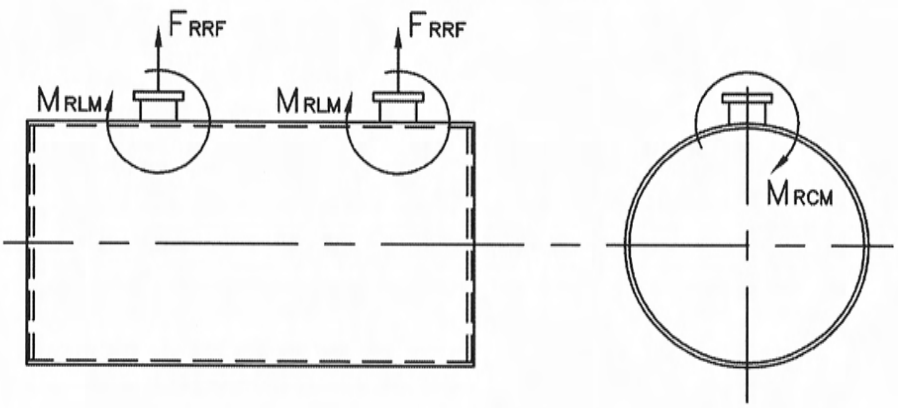


Thermal Expansion				
Metal T_{MAX} (F)	180	200	220	240
L (in)	0.033	0.039	0.046	0.052
WS (in)	0.011	0.013	0.016	0.018
WR (in)	0.017	0.021	0.024	0.027
HT (in)	0.042	0.051	0.059	0.068

MODEL: PFTA 125-4

Nozzle Loadings

Maximum Allowable Load on Outlet & Return Nozzles				
	30# Design	60# Design	125# Design	160# Design
F_{RRF}, lb	3,135	2,555	1,775	2,670
M_{RCM}, in-lb	13,420	13,420	13,420	23,150
M_{RLM}, in-lb	19,790	16,145	11,195	18,630



Stack Emissions-Natural Gas (1,000 Btu/CF)				
	PPMv (Corr to 3% O_2)	lb/MBtu	lb/hr @ Full Rate	Ton/Yr @ Full Rate
NO_x *	110	0.131	0.643	2.814
	30	0.036	0.175	0.768
	9	0.011	0.053	0.230
CO	50	0.037	0.18	0.790
CO_2	2.55 lb/lb fuel	119.76	588	2,574
H_2O	2.03 lb/lb fuel	106.16	521	2,281
Stack Emissions-#2 Oil** (140,000 Btu/gal)				
NO_x	128	0.174	0.825	3.613
CO	50	0.037	0.174	0.762
CO_2	3.20 lb/lb fuel	168.53	798	3,497
H_2O	1.12 lb/lb fuel	71.20	337	1,477

* 110 ppm "A" Burner, 30 ppm A-FGR Burner, 9 ppm FIR Burner

**0.02% fuel bound Nitrogen

Distributed By:

JOHNSTON BOILER COMPANY

300 Pine Street
P.O. Box 300
Ferrysburg, MI 49409-0300
Telephone: (616) 842-5050
Net: www.johnstonboiler.com

Printed Feb. 2008

NJBPU Energy Audits
CHA #20151
Building: Sussex County Vocational School - Main Building

ECM-4 Boiler Replacement

Multipliers	
Material:	0.99
Labor:	1.22
Equipment:	1.09

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
						$ -	$ -	$ -	$ -	
125hp Boiler	2	ea	$ 59,500	$ 8,050		$117,810	$ 19,642	$ -	$ 137,452	
Installation	2	ea	$ 1,500	$ 2,500		$ 2,970	$ 6,100	$ -	$ 9,070	
Start up	2	ea	$ 500	$ 1,000		$ 990	$ 2,440	$ -	$ 3,430	
Piping Modifications	2	ea	$ 2,500	$ 2,000		$ 4,950	$ 4,880	$ -	$ 9,830	
Electrical Modifications	2	ea	$ 1,000	$ 1,200		$ 1,980	$ 2,928	$ -	$ 4,908	
Flue Modifications	2	ea	$ 1,500	$ 900		$ 2,970	$ 2,196	$ -	$ 5,166	
Misc	1	ls	$ 5,000	$ 7,000		$ 4,950	$ 8,540	$ -	$ 13,490	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	

$ 183,346	Subtotal
$ 36,669	20% Contingency
$ 33,002	Contractor 15% O&P
$ 25,302	10% Engineering
$ 278,319	**Total**

APPENDIX F

ECM-5 Install VSDs – HW Pumps

NJBPU Energy Audits
CHA #20151
Building: Sussex County Vocational School - Main Building

ECM-5 Install Variable Speed Drives - HW Pump

Balance Pt	55
VFD Eff.	98.5%

Summary

Each boiler in the main plant has an associated circulator. When the boiler fires, the pump starts. This pump runs at constant speed regardless of load. Pumps stage on with boiler so not all pumps have same runtime.

Pump ID	Qty	HP	Total HP	Existing Motor Motor Eff.	New Motor Motor Eff.	Exist. Motor kW Note 1	New Motor kW Note 2
P-1	1	15.0	15.0	93.0%	93.0%	9.63	9.63
					Total:	9.63	9.63

OAT - DB Avg Temp F	Annual Hours in Bin	Heating Hours Bin	Pump Load %	Existing Pump kWh	Proposed Pump kW	Proposed Pump kWh	Proposed Savings kWh
(A) See Note 3	(C) See Note 3	(D) =IF(A>TP,0,C)	(E) =0.5+0.5*(50-A)/(50-10)) See Note 4	(F) =D*AA	(G) =BB*E^2.5/CC See Note 5	(H) =D*G	(I) =F-H
97.5	3	0	0%	0	0.0	0	0
92.5	34	0	0%	0	0.0	0	0
87.5	131	0	0%	0	0.0	0	0
82.5	500	0	0%	0	0.0	0	0
77.5	620	0	0%	0	0.0	0	0
72.5	664	0	0%	0	0.0	0	0
67.5	854	0	0%	0	0.0	0	0
62.5	927	0	0%	0	0.0	0	0
57.5	600	0	0%	0	0.0	0	0
52.5	610	610	50%	5,872	1.7	1,054	4,818
47.5	611	611	66%	5,881	3.5	2,113	3,768
42.5	656	656	84%	6,315	6.3	4,146	2,169
37.5	1,023	1,023	50%	9,847	1.7	1,767	8,080
32.5	734	734	60%	7,065	2.7	2,000	5,065
27.5	334	334	70%	3,215	4.0	1,338	1,877
22.5	252	252	80%	2,426	5.6	1,410	1,016
17.5	125	125	90%	1,203	7.5	939	265
12.5	47	47	67%	452	3.6	169	284
7.5	22	22	84%	212	6.3	139	73
2.5	13	13	100%	125	9.8	127	-2
-2.5	0	0	0%	0	0.0	0	0
-7.5	0	0	0%	0	0.0	0	0
	8,760	4,427		42,613		15,201	27,412

Pump ID	Qty	HP	Total HP	Existing Motor Motor Eff.	New Motor Motor Eff.	Exist. Motor kW Note 1	New Motor kW Note 2
P-2	1	15.0	15.0	93.0%	93.0%	9.63	9.63
					Total:	9.63	9.63

OAT - DB Avg Temp F	Annual Hours in Bin	Heating Hours Bin	Pump Load %	Existing Pump kWh	Proposed Pump kW	Proposed Pump kWh	Proposed Savings kWh
(A) See Note 3	(C) See Note 3	(D) =IF(A>TP,0,C)	(E) =0.5+0.5*(50-A)/(50-10)) See Note 4	(F) =D*AA	(G) =BB*E^2.5/CC See Note 5	(H) =D*G	(I) =F-H
97.5	3	0	0%	0	0.0	0	0
92.5	34	0	0%	0	0.0	0	0
87.5	131	0	0%	0	0.0	0	0
82.5	500	0	0%	0	0.0	0	0
77.5	620	0	0%	0	0.0	0	0
72.5	664	0	0%	0	0.0	0	0
67.5	854	0	0%	0	0.0	0	0
62.5	927	0	0%	0	0.0	0	0
57.5	600	0	0%	0	0.0	0	0
52.5	610	610	0%	0	0.0	0	0
47.5	611	611	0%	0	0.0	0	0
42.5	656	656	0%	0	0.0	0	0
37.5	1,023	1,023	50%	9,847	1.7	1,767	8,080
32.5	734	734	60%	7,065	2.7	2,000	5,065
27.5	334	334	70%	3,215	4.0	1,338	1,877
22.5	252	252	80%	2,426	5.6	1,410	1,016
17.5	125	125	90%	1,203	7.5	939	265
12.5	47	47	67%	452	3.6	169	284
7.5	22	22	84%	212	6.3	139	73
2.5	13	13	100%	125	9.8	127	-2
-2.5	0	0	0%	0	0.0	0	0
-7.5	0	0	0%	0	0.0	0	0
	8,760	4,427		24,546		7,889	16,657

Pump ID	Qty	HP	Total HP	Existing Motor Motor Eff.	New Motor Motor Eff.	Exist. Motor kW Note 1	New Motor kW Note 2
P-3	1	15.0	15.0	93.0%	93.0%	9.63	9.63
					Total:	9.63	9.63

OAT - DB Avg Temp F	Annual Hours in Bin	Heating Hours Bin	Pump Load %	Existing Pump kWh	Proposed Pump kW	Proposed Pump kWh	Proposed Savings kWh
(A) See Note 3	(C) See Note 3	(D) =IF(A>TP,0,C)	(E) =0.5+0.5*(50-A)/(50-10)) See Note 4	(F) =D*AA	(G) =BB*E^2.5/CC See Note 5	(H) =D*G	(I) =F-H
97.5	3	0	0%	0	0.0	0	0
92.5	34	0	0%	0	0.0	0	0
87.5	131	0	0%	0	0.0	0	0
82.5	500	0	0%	0	0.0	0	0
77.5	620	0	0%	0	0.0	0	0
72.5	664	0	0%	0	0.0	0	0
67.5	854	0	0%	0	0.0	0	0
62.5	927	0	0%	0	0.0	0	0
57.5	600	0	0%	0	0.0	0	0
52.5	610	610	0%	0	0.0	0	0
47.5	611	611	0%	0	0.0	0	0
42.5	656	656	0%	0	0.0	0	0
37.5	1,023	1,023	0%	0	0.0	0	0
32.5	734	734	0%	0	0.0	0	0
27.5	334	334	0%	0	0.0	0	0
22.5	252	252	0%	0	0.0	0	0
17.5	125	125	0%	0	0.0	0	0
12.5	47	47	67%	452	3.6	169	284
7.5	22	22	84%	212	6.3	139	73
2.5	13	13	100%	125	9.8	127	-2
-2.5	0	0	0%	0	0.0	0	0
-7.5	0	0	0%	0	0.0	0	0
	8,760	4,427		789		435	354

Total	67,949		23,525	44,424	kWh

Notes:
1) Existing motor power was estimated
2) New motor power is the same as Existing motor power adjusted for the new efficiency, if a new motor is proposed.
3) Weather data from NOAA for Newark,NJ
4) The pump load is estimated at 100% at 10 deg. OAT and 50% at 50 deg. OAT and varies linearly in between.
5) The required VFD motor draw is based on a 2.5 power relationship to load.

NJBPU Energy Audits
CHA #20151
Building: Sussex County Vocational School - Main Building

ECM-5 Install Variable Speed Drives - HW pumps

Multipliers	
Material:	0.99
Labor:	1.22
Equipment:	1.09

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
						$ -	$ -	$ -	$ -	
15 hp VFD	3	ea	$ 2,336	$ 772		$ 6,938	$ 2,826	$ -	$ 9,763	
Electrical - misc.	3	ea	$ 250	$ 300		$ 743	$ 1,098	$ -	$ 1,841	
Pressure Sensor	3	ea	$ 150	$ 250		$ 446	$ 915	$ -	$ 1,361	
Controls - Programming	1	ls	$ 1,000	$ 2,000		$ 990	$ 2,440	$ -	$ 3,430	
Replace 2-way valves	1	ls	$ 10,000	$ 2,000		$ 9,900	$ 2,440	$ -	$ 12,340	assume (5) 2" valves+
Misc Piping changes	1	ls	$ 2,000	$ 1,200		$ 1,980	$ 1,464	$ -	$ 3,444	
Misc Controls	1	ls	$ 2,500	$ 1,500		$ 2,475	$ 1,830	$ -	$ 4,305	
						$ -	$ -	$ -	$ -	

$ 36,483	Subtotal
$ 10,945	30% Contingency
$ 7,114	Contractor 15% O&P
$ 8,181	15% Engineering
$ 62,724	**Total**

APPENDIX G

ECM-6 Replace Pool Dectron Unit

ECM-6 Replace Pool Dectron Unit

DESCRIPTION:

Replace existing dehumidification system to reduce ventilation heating costs.

GIVEN:

Heating Energy Cost	=	$	3.44	$/gal (Fuel Oil #2)
Water Cost	=		0.00	$/kGal
Electrical Use Cost	=	$	0.146	/Kwh
Electrical Use Cost	=		6.63	/Kw
Area of Pool Water Surface	=		5,050	square feet
Pool Room Area			17,250	square feet
Temperature of Water	=		82	F
Temperature of Air	=		78	F
Make-up water temperature	=		55	F
Elevation of location	=		984	feet
Relative Humidity of air at above temperature	=		60%	
Pa=saturation pressure at air temp Dew Pt.	=		0.58038	" Hg
Pw=saturation vapor pressure at surface temperature	=		1.10249	" Hg
Wi=humidity ratio of pool (design)	=		0.01276	W (Lbw/Lba)
Wo=humidity ratio of outdoor air (design)	=		0.00929	W (Lbw/Lba)
Hours of operation	=		8016	hours
Condensing Fan HP			3	HP
Increased Blower Fan HP	=		1	HP
KW of Compressor	=		25	Kw
Compressor Coefficient of Performance (COP)	=		2.5	COP

ASSUMPTION:

Heating Efficiency	=		78%	
Compressor Cycling Percentage	=		65%	
Average Return Air Temperature	= 60% RH	78 F	32.7	Enthalpy
Activity Factor	(hotel, health clubs=1.3, Schools=1.6, Public=2.0)		1.6	
Temperature of Outside Air	=		85	F
Average Relative Humidity of air at above temperature	=		35%	
Proposed Design Outside Air			0.5	cfm / square feet
Air System Efficiency Improvement Factor			9%	

FORMULA:

Cost of Heating ($/MMBH) = (Cost of Fuel ($/unit)) / ((Heating Efficiency (%)) x (Conversion (btu/unit))
Cost of Water ($/1000 gallons) = (Cost of Water ($/unit)) x (Conversion (unit/1000 gallons))
Evaporation Rate (lb/hr/sf) = (0.05 x (Saturation Air Pressure (Water)(Pw) - Saturation Air Pressure (Air) (Pa)) (Simplified Equation from ASHRAE)
Evaporation of water (lb/hr) = (Evaporation rate) x (Activity Factor) x (Surface Area of pool) (Without cover, With cover assumed to be zero)
Evaporation of water (gallon/year) = (Evaporation (lbs/hr)) x (Hours/Year) / (Water Density (lb/ gallon))
Water Cost ($) = (Evaporation of water(gallon/year)) x (Water Cost ($/1000 gallons))
Pool Heat Loss (Btu) = (40) x ((Pool Temperature)-(Air Temperature)^(1/3)) (Simplified equation from ASHRAE Fund Chapter 4) (Used constant of 40 and 20 in leui of 80)
Pool Heat Load (MMBtu) = (Heat Loss (btu)) x (Hours/Year) / (1,000,000btu/MMBtu)
Pool Heat Costs ($) = Pool Heat Load (MMBH) x (Cost of Heating ($/MMbh))
Outside air quantity required = ((Evaporation rate / ((60min/hr) x (0.075) x (humidity ratio inside(Wi) - humidity ratio outside(Wo))
Ventilation Usage (mbh) =(1.08 x OA Cfm x (Return Air Temperature - Outside Air Temperature) x (Hours in bin) / (1000 btu/MBh)
Ventilation Cost ($) = Ventilation Usage (mbh) x (Cost of Heating ($/MMbh)) x (1000 Mbh/MMbh)
Fan Air System Costs ($) = (Horsepower x 0.746 kw/hp x Hours of operation x $/kwh)
Compressor System Costs ($) = (kW x % cycling x Hours of operation x $/kwh)
Demand Savings ($) = (kW x months/year x $/kw)
Pool Dehumidification System Recovered Heat = (Compressor Energy) x (Conversion Factor) x (Coefficient of Performance)

CALCULATION:

Cost of Heating=($ 3.44) / (78%) / (0.1400 MMbh/gallon) = $ 31.50 $/MMBtu
Cost of Water=($ - ($/unit)) x (1.0 1000 gallons/1000 gallons) = $ - $/1000 gallons

POOL EVAPORATION LOSSES

Evaporation Rate (0.05 x (Pw-Pa))=	(	0.035) x ((	1.10249) - (	0.58038)) =	0.0183	lb/hr/sq ft
Evaporation of water =	(0.0183) x (		1.6) x (	5,050) =	147.65	lb/hr
Evaporation of water =	(	147.7) x (	8016) / (	8.33 lb/gallon) =	142,086	gallons
Water Cost =	((		142,086) gallons x ($	-) / 1000 gallons =	$ -	

POOL AREA VENTILATION

Outside air quantity required = (	147.65) / (60 x 0.075 x	0.013 -	0.00929065	)) =	9,469	cfm
Outside air required with dehumidifier= (		0.5 cfm/sf)*(	17,250 -	5,050) =	6,100	cfm

AIR SYSTEM ENERGY

	HP	Conversion	ADD KW	HOURS		KWH	
Condensing Fan Energy =	(3.00)*(	0.746)=(	2.24)*(	8016) = (		17940	kwh
Compressor Energy =		(70%)*(	25.00)*(	8016)=(		140280	kwh
Subtotal	(17940)+(	140280)=(	158220 kwh)*(	$ 0.1460)/kwh =		$ 23,100	
			ADD KW	Months		KW	
Fan KW Demand:		(	2.24)*(	12)=(		27	kw
Pool Compressor Demand:		(	25.00)*(	12)=(		300	kw
Subtotal	(27)+(	300)=(	327 kw)*(	$ 6.6)/kw =		$ 2,166	
Total Existing Air System Energy Costs:						$ 25,266	

PROPOSED AIR SYSTEM ENERGY

	HP	Conversion	ADD KW	HOURS		KWH	
Increased Blower Fan Energy =	(1.00)*(	0.746)=(	0.75)*(	8016) = (		5980	kwh
Compressor Energy =		(65%)*(	25.00)*(	8016	91%	118537	kwh
Subtotal	(5980)+(	118537)=(	124517 kwh)*(	$ 0.1460)/kwh =		$ 18,179	
			ADD KW	Months		KW	
Fan KW Demand:		(	0.75)*(	12)=(		9	kw
Pool Compressor Demand:		(	25.00)*(	12	91%	273	kw
Subtotal	(9)+(	273)=(	282 kw)*(	$ 6.6)/kw =		$ 1,868	
Total Existing Air System Energy Costs:						$ 20,048	

	Compressor Energy	MMBtu/kwh	COP		
Pool Dehumidification System Recovered Heat = (	118537 kwh) x (	0.003413) x (	2.5) =	1,011	MMBtu
Additional Fuel Cost Required for Reheat =	(	1011 MMBtu) x ($ 31.50 $/MMBtu) =		$ 31,861	

RESULT:

Annual Existing Electric Use	**158,220**	**kwh**	**327**	**kW**	**=>**	**$**	**25,266**
Annual Existing Heating Use	**1,011**	**MMBtu**			**=>**	**$**	**31,861**
TOTAL EXISTING COST PER YEAR						**$**	**57,127**

Annual Proposed Electric Use	**124,517**	**kwh**	**282**	**kW**	**=>**	**$**	**20,048**
Annual Proposed Heating Use		**MMBtu**			**=>**		
TOTAL PROPOSED COST PER YEAR						**$**	**20,048**

Annual Proposed Electric Savings	**33,703**	**kwh**	**=>**		**$**	**5,218**
Annual Proposed Heating Savings	**1,011**	**MMBtu**	**=>**		**$**	**31,861**
TOTAL PROPOSED SAVINGS PER YEAR					**$**	**37,080**

Load Summary and DRY-O-TRON® Selection

August 17, 2009

Job Number: 3000257-2
Job Name: Sussex County Vocational School
Room Temperature: 82 °F **Heat Index:** 84.25 °F
Relative Humidity Range: **Occupied:** 59% **Unoccupied:** 50%
Active Hours: 12
Outdoor Condition for: Newark, NJ
Summer Design: DB 93.0 °F WB 74.0 °F
Winter Design: DB 10.0 °F WB 8.0 °F
Altitude: 30
Selection Mode: NORMAL MODE

Refrigerant : R134A

Load Sources	Load Active	Load Inactive	Surface	Activity Factor	Water Temp	Primary Water Heater
School or University / Public Fa	224.1	136.7	5,050	1.00	82	Dry-O-Tron
Outdoor Air	-3.3	- - -	6000 CFM			
Spectators	0.0	- - -	0@0.1550			
Total Dehumidification Load Lb/h	220.8	136.7				

DRY-O-TRON® SELECTION: 1 x RS-182 Smart Saver (Refrigerant)/Purge

Summer Design Day Runtime: 85%

Pool Dehumidifier Unit Schedule

8/17/2009

Sussex County Vocational School

Location	Newark, NJ		
Description		Room Volume	~~111~~ ft³
Model Number	RS-182 (Smart Saver (Refrigerant)/Purge)	Cabinet Size	202
Nomenclature	RSH182ZDSXD1945Q963ZDZOZZFE18		

Supply Fan

CFM	Air Changes Unit	Air Changes Total	Type	E.S.P SA	E.S.P RA	E.S.P Total	HP	FLA	VFD
19,000	~~10,270.3~~	~~10,270.3~~	BI DWDI	0.5	0.5	1.0	15.00	18.80	No

ASHRAE Recommends 4 to 8 air changes

Exhaust / Outdoor Air

	CFM	Location	Fan Type	E.S.P EA	E.S.P RA	E.S.P Total	HP	FLA	VFD	OA
Min EF1	6,600	Unit Mounted	FC DWDI	0.0	0.5	0.5	7.50	9.90	No	6,000
Purge Mode EF2	14,300	Unit Mounted	FC DWDI	0.0	0.5	0.5	10.00	13.00	No	19,000

Compressor(s)

Refrigerant **R-134A** # of Compressor **2** Stages **2** # of Independant Refrigerant Circuits **2**

Compressor Number	LRA	RLA	kW	Capacity (btu/h)	Compressor Type
Compressor #1	218	40.00	18.6	268,600	semi-hermetic
Compressor #2	218	40.00	18.6	268,600	semi-hermetic

Refrigerant Coil Data

Space Temperature (°F)	82.0		
Reheat Coil Capacity (btu/h)	635,710		
	Minimum RH	Maximum RH	Selected RH
Relative Humidity (%RH)	50	60	59
Moisture Removal Capacity (lb/h)	190.68	228.65	225.47
Evaporator Coil Sensible Capacity (btu/h)	336,260	291,890	296,327
Net Sensible Capacity Including Outside Air Load (btu/h)	186,789	142,419	146,856
Net Sensible Capacity Not Including Outside Air Load (btu/h)	258,069	213,699	218,136

Pool Water Heater

Heater	Type	Capacity (btu/h)	GPM	Connection Informations Type	Size	Max PD PSIG	Max PD FT
#1	CuNi Vented Coax.	222,624	40.00	CPVC Schedule 80 Connections	1 1/2	6.00	13.86

Pool Water Auxiliary Heater

Auxiliary	Type	Capacity (btu/h)	Location
#1			Remote

* Please validate all information with DECTRON engineering

Pool Dehumidifier Unit Schedule

8/17/2009

Sussex County Vocational School

Location	Newark, NJ		
Description		Room Volume	111 ft^3
Model Number	RS-182 (Smart Saver (Refrigerant)/Purge)	Cabinet Size	202
Nomenclature	RSH182ZDSXD1945Q963ZDZOZZFE18		

Space Heating Hot Water Coil

			Normal Mode	Purge Mode
Location	Unit Mounted			
GPM	70.00	Capacity (btu/h)	709,644	1,101,350
Number of Rows	2	Entering Air Temp. (°F)	70.6	10.0
Pressure Drop (PSIG)	5.10	Leaving Air Temp. (°F)	105.0	63.4
		Entering Water Temp. (°F)	180.0	180.0
		Leaving Water Temp. (°F)	159.2	147.8

Valve	3-Way By Dectron, Unit Mounted	Valve Type	Ball	Valve Size	1-1/2"	Pressure Drop (PSI)	5.83
Connection Size : IN (OD)	2-1/2"	OUT (FPT)	2-1/2"				

Smart Saver Heat Recovery Coils

			Exhaust Air	Outside Air
Refrigerant	R-134A			
Location	Unit Mounted	CFM	6,600	6,000
Capacity (mbh)	233.3	Entering Dry Bulb (°F)	82.0	10.0
Coating	Hypoxy	Leaving Dry Bulb (°F)	0.0	46.0
		Rows	6	4
		Fins per Inch	10	10

Leaving Air Temperatures (Not Including Outside Air)

Dehumidification Mode (°F)	100.4	Air Conditioning Mode (°F)	71.4
Pool Water Heating Mode (°F)	89.6	Recirculation Mode (°F)	83.9

Electrical Data

	Unit Rating	Service & Lights
MCA (Amps)	119	---
MOP (Amps)	150	15 A
Nominal unit kW	54	---
EER (Energy Efficiency Ratio)	9.96	---
Voltage	460	120
Phase	3	1
Hertz	60	60

Pool Dehumidifier Unit Schedule

8/17/2009

Sussex County Vocational School				
Location	Newark, NJ			
Description		Room Volume	111	ft³
Model Number	RS-182 (Smart Saver (Refrigerant)/Purge)	Cabinet Size	202	
Nomenclature	RSH182ZDSXD1945Q963ZDZOZZFE18			

Air Cooled Condenser					
Model	KVG212L				
Location	Remote (Split)				
Tag					
Ambient Temp.	95	°F	Voltage	460/3/60	
Capacity	781,200	Btu/hr	Motor HP	0.95 kW	hp
Fan Arrangement	2 x 2		Motor FLA	2.80	
Weight	1,910.00	lbs	Motor RPM	550	rpm
Distance	50	ft	MCA	11.90	
			Fuse/MOP	15	
Unit Liquid Level	0	ft	Unit Liquid Connection	1 1/8"	
Unit Gas Level	0	ft	Unit Gas Connection	1 3/8"	

Control Panel	P48 - Split electrical, contactor(s), ambient fan cycling (4,5,6) low speed Ziehl-abegg
Control Panel Voltage	24/1/60
Control Panel Options	N - None

Circuits Number	Capacity (btu/hr)	Factory Charge (lbs)	System Charge (lbs)	Field Charge (lbs)	Liquid	Gas
Circuit #1	310,691	88.09	208.26	120.17	1 3/8"	2 1/8"
Circuit #2	310,691	88.09	208.26	120.17	1 3/8"	2 1/8"

Line Sizes must be same size as UNIT Connections and will be size adjusted at the point of connection to the Outdoor Air Cooled Condenser

SUPPLY AIR			
BLOWER ORIENTATION	ROTATION (FACING LEFT HAND SIDE)		CHECK BOX
HORIZ. -A-	C.W.	27 1/2	
	C.C.W.	14	
TOP -C-	C.W.	21	
	C.C.W.	9 1/2	
BOTTOM -E-	C.W.	8	
	C.C.W.	19 1/2	

AIR FLOW				
ORIENTATION (FACING S/A)	S/A	R/A	O/A	E/A
HORIZONTAL				
TOP			√	
BOTTOM				
LEFT				
RIGHT	CONTACT FACTORY			

PIPE CONNECTIONS			
OPTION	BOTTOM	(FACING S/A) LEFT	RIGHT
DRAIN			
POOL WATER			
AIR COOLED A/C			
WATER COOLED A/C			
HEATING COIL			

Dectron DRY-O-TRON®

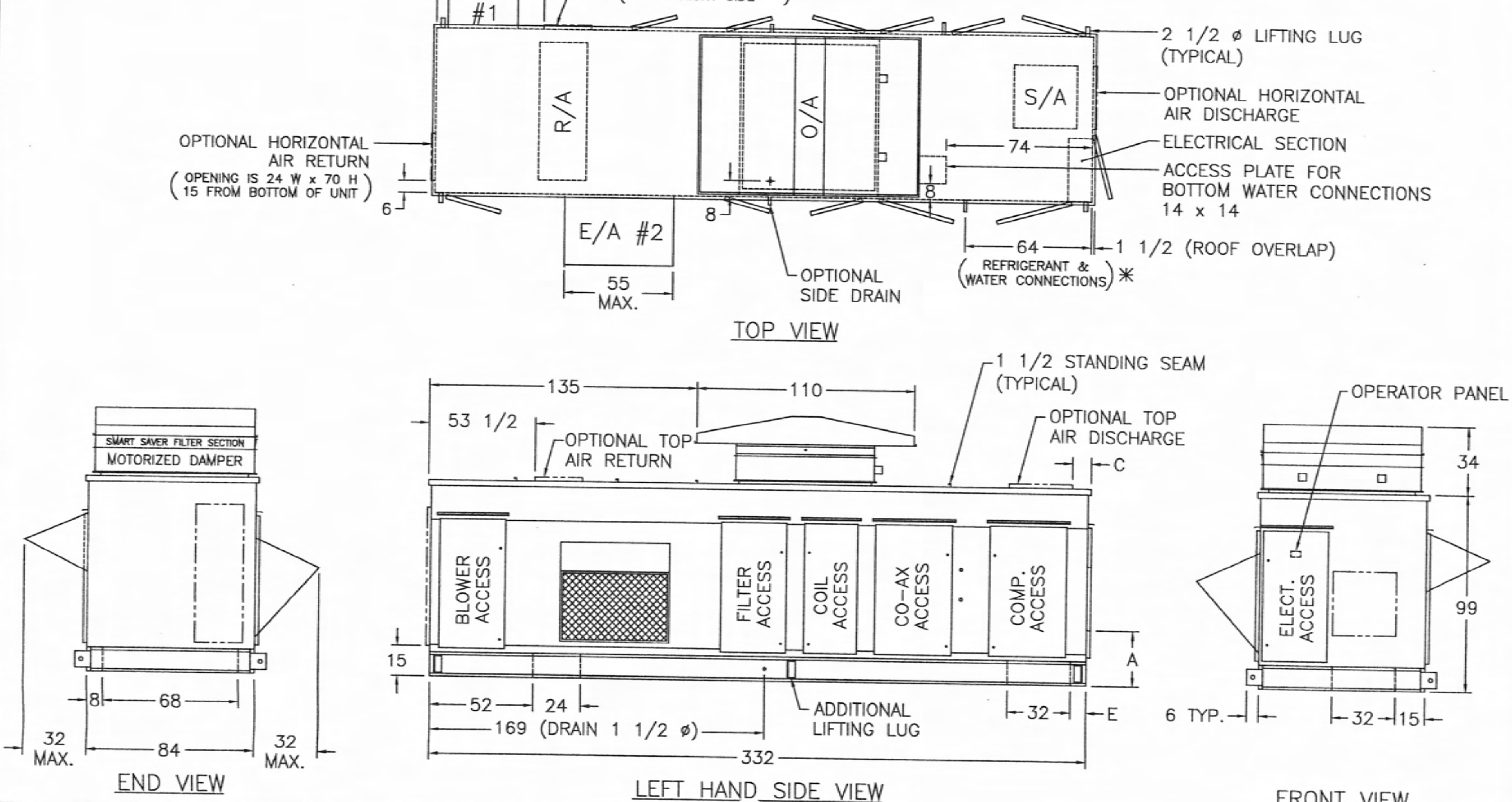
NO. DESSIN: DWG. NO: RS-NM-242-004 AE REV: 1

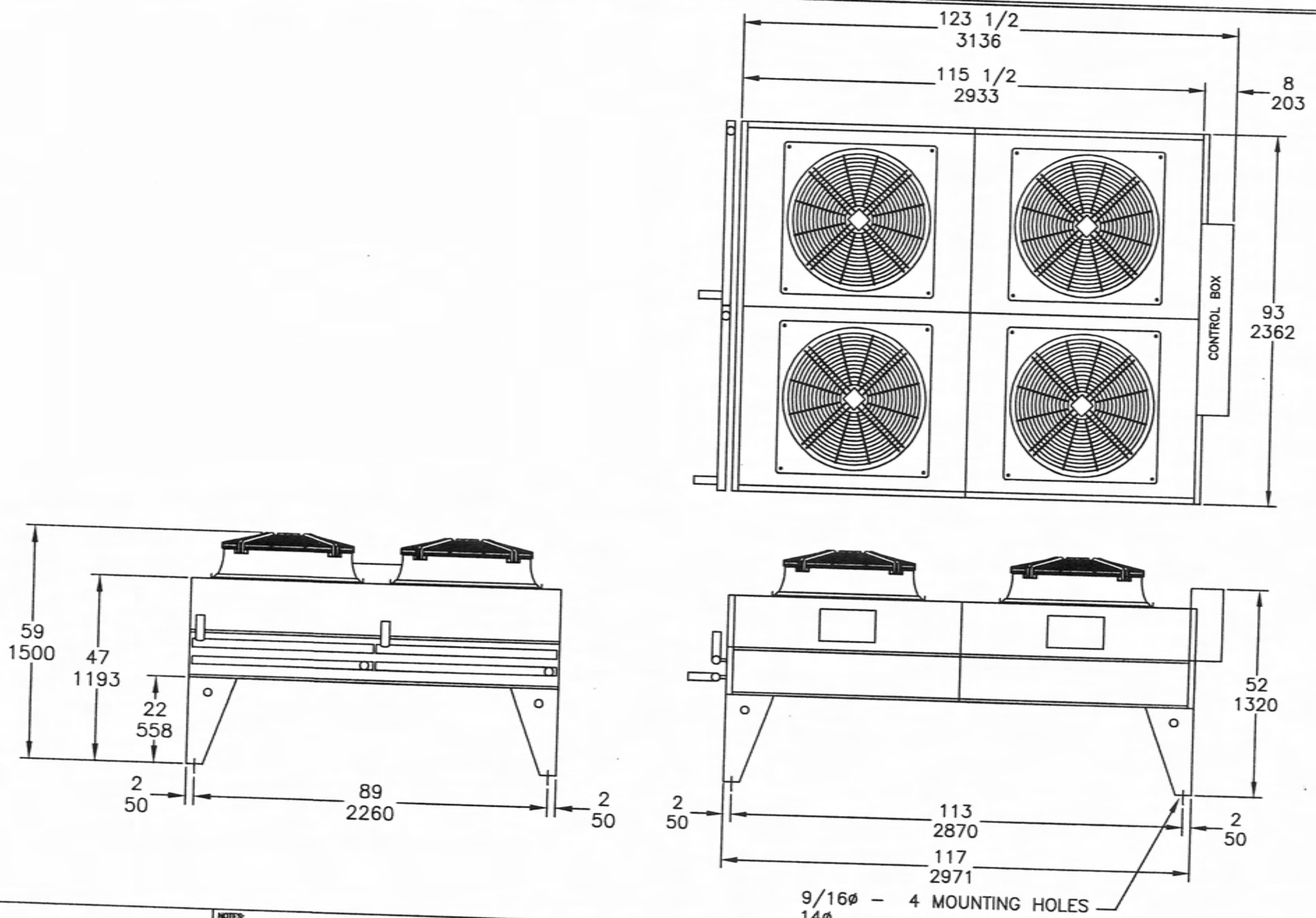
TITRE: TITLE: MODEL RS/RA5 -182/-202/-242 SMART SAVER & PURGE

NOTES: ALL DIMENSIONS ARE IN INCHES.

Sussex County Vocational School-3000257-2
RS-182
Weight = 17090 lbs ±10%

✱– ALL EXTERNAL WATER PIPING REQUIRES HEAT TRACING. (BY OTHERS)





REV	DATE	BY	DESCRIPTION

NOTES:

DIMENSIONS ARE IN INCHES / MM

DRAW BY: X.Q.Z.	DATE: 2008-07-30
CHECK BY:	DATE:

DESCRIPTION:

Dectron international

DWG NO: DLVC220

REV

NJBPU Energy Audits
CHA #20151
Building: Sussex County Vocational School - Main Building

ECM-6 Replace Pool Dectron Unit

Multipliers	
Material:	1.00
Labor:	1.10
Equipment:	1.00

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
						$ -	$ -	$ -	$ -	
Demo	1	ea		$ 8,400		$ -	$ 9,240	$ -	$ 9,240	
Install new dehumidification systems	1	ea	$ 175,000	$ 35,000		$ 175,000	$ 38,500	$ -	$ 213,500	
Roof Curb Modifications	1	ea	$ 4,000	$ 1,750		$ 4,000	$ 1,925	$ -	$ 5,925	
Misc	1	ea	$ 8,750	$ 1,750		$ 8,750	$ 1,925	$ -	$ 10,675	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	

Note: Structural Analysis is needed to insure existing roof will support weight of proposed Dectron Unit

$ 239,340	Subtotal
$ 47,868	20% Contingency
$ 35,901	15% Contractor O&P
$ 23,934	10% Engineering
$ 347,043	**Total**

APPENDIX H

ECM-7 Install Pool Cover

NJBPU Energy Audits
CHA #20151
Building: Sussex County Vocational School - Main Building

ECM-7 Install Pool Cover

DESCRIPTION: Install a pool cover to cover the pool when it is not in use. This reduces evaporation, make-up water, heat loss and ventilation costs.

GIVEN:

Heating Energy Cost	=	$ 1.51	$/gal (LP Gas)
Water Cost	=	$ -	$/kGal
Area of Pool Water Surface	=	5,050	square feet
Temperature of Water	=	82	F
Temperature of Air	=	78	F
Make-up water temperature	=	55	F
Elevation of location	=	984	feet
Relative Humidity of air at above temperature	=	60%	
Pa=saturation pressure at air temp Dew Pt.	=	0.58038	" Hg
Pw=saturation vapor pressure at surface temperature	=	1.10249	" Hg
Wi=humidity ratio of pool (design)	=	0.01276	W (Lbw/Lba)
Wo=humidity ratio of outdoor air (design)	=	0.00842	W (Lbw/Lba)
Hours of operation	=	8016	hours
Unoccupied Hours (Time when pool cover can be used)	=	2920	hours

ASSUMPTION:

Pool Cover R-value			4.0
Heating Efficiency			80%
Average Return Air Temperature	60% RH	78 F	32.7 Enthalpy
Activity Factor	(hotel, health clubs=1.3, Schools=1.6, Public=2.0)		1.6

FORMULA:

Cost of Heating ($/MMBH) = (Cost of Fuel ($/unit)) / ((Heating Efficiency (%)) x (Conversion (btu/unit))
Cost of Water ($/1000 gallons) = (Cost of Water ($/unit)) x (Conversion (unit/1000 gallons))
Evaporation Rate (lb/hr/sf) = (0.05 x (Saturation Air Pressure (Water)(Pw) - Saturation Air Pressure (Air) (Pa)) (Simplified Equation from ASHRAE)
Evaporation of water (lb/hr) = (Evaporation rate) x (Activity Factor) x (Surface Area of pool) (Without cover, With cover assumed to be zero)
Evaporation of water (gallon/year) = (Evaporation (lbs/hr)) x (Hours/Year) / (Water Density (lb/ gallon))
Water Cost ($) = (Evaporation of water(gallon/year)) x (Water Cost ($/1000 gallons))
Pool Heat Loss w/o cover (Btu) = (40) x ((Pool Temperature)-(Air Temperature)^(1/3)) (Simplified equation from ASHRAE Fund Chapter 4) (Used constant of 40 and 20 in leui of 80)
Pool Heat Loss w cover (Btu) = (1 / (R value)) x ((Pool Temperature) - (Air Temperature)))
Pool Heat Load (MMBtu) = (Heat Loss (btu)) x (Hours/Year) / (1,000,000btu/MMBtu)
Pool Heat Costs ($) = Pool Heat Load (MMBH) x (Cost of Heating ($/MMbh))
Outside air quantity required = ((Evaporation rate / ((60min/hr) x (0.075) x (humidity ratio inside(Wi) - humidity ratio outside(Wo))
Ventilation Usage (mbh) =(1.08 x OA Cfm x (Return Air Temperature - Outside Air Temperature) x (Hours in bin) / (1000 btu/MBh)
Ventilation Cost ($) = Ventilation Usage (mbh) x (Cost of Heating ($/MMbh)) x (1000 Mbh/MMbh)

CALCULATION:

Cost of Heating=($ 1.51) / (80%) / (0.0915 MMbh/gallon) = $ 20.66 $/MMBtu
Cost of Water=($ - ($/unit)) x (1.0 1000 gallons/1000 gallon) = $ - $/1000 gallons

POOL EVAPORATION LOSSES

Evaporation Rate (0.05 x (Pw-Pa))= (0.035) x ((1.1024911) - (0.58038326)) = 0.0183 lb/hr/sq ft
Evaporation of water = (0.0183) x (1.6) x (5,050) = 147.65 lb/hr
Evaporation of water w/o cover= (147.7) x (8016) / (8.33 lb/gallon) = 142,086 gallons
Evaporation of water with pool cover = (147.7) x (5096) / (8.33 lb/gallon) = 90,328 gallons
Water Cost w/o Cover = ((142,086) gallons x ($ -) / 1000 gallons = $ -
Water Cost w/o Cover = ((90,328) gallons x ($ -) / 1000 gallons = $ -

POOL HEAT LOSSES

Pool Heat Loss w/o cover = (20) x ((82.0) - (78.0)^(1/3)) x (5,050)= 160,253 btu/hr
Pool Heat Load w/o cover = (160,253) x (8016) / (1,000,000 btu/MMBtu) = 1,285 MMBtu
Evaporated Water Heat Loss = (142,086) x (8.33 lb/gallon) x (82 - 55))/1E 6 btu/MMBtu = 32 MMBtu
Pool Heat Loss w/ cover = (0.25) x ((82.0) - (78.0)) x (5,050)= 2,003 btu/hr
Pool Heat Load w/ cover = ((160,253) x (5096) + (2,003) x (2,920))/1E 6 btu/MMBtu = 823 MMBtu
Evaporated Water Heat Loss = (90,328) x (8.33 lb/gallon) x (82 - 55))/1E 6 btu/MMBtu = 20 MMBtu
Heat Loss Cost w/o Cover = (1,285 + 32) MMBtu x ($ 20.665 $/MMBtu) = $ 27,206
Heat Loss Cost w/ Cover = (823 + 20) MMBtu x ($ 20.665 $/MMBtu) = $ 17,417

RESULT:

Annual Exist. Water Use	**142,086**	**gallons**	**=>**	**$ -**
Annual Exist. Water Heating Use	**17,986**	**gallons**	**=>**	**$ 27,206**
Annual Proposed Water Use	**90,328**	**gallons**	**=>**	**$ -**
Annual Proposed Water Heating Use	**11,514**	**gallons**	**=>**	**$ 17,417**
Annual Proposed Water Savings	**51,758**	**gallons**	**=>**	**$ -**
Annual Proposed Water Heating Savings	**6,472**	**gallons**	**=>**	**$ 9,790**

NJBPU Energy Audits
CHA #20151
Building: Sussex County Vocational School - Main Building

ECM-7 Install Pool Cover

Multipliers	
Material:	0.99
Labor:	1.22
Equipment:	1.09

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
						$ -	$ -	$ -	$ -	
Swimming pool cover	5050	sf	$ 1.30	$ 0.50		$ 6,499	$ 3,081	$ -	$ 9,580	
Hardware	2	ea	$ 4,000			$ 7,920	$ -	$ -	$ 7,920	
Misc	1	ea	$ 500	$ 1,000		$ 495	$ 1,220	$ -	$ 1,715	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	

$ 19,215	Subtotal
$ 5,764	30% Contingency
$ 2,882	Contractor 15% O&P
	Engineering
$ 27,862	**Total**

APPENDIX I

ECM-8 Reactivate Kitchen Hood Heat Recovery

NJBPU Energy Audits
CHA #20151
Building: Sussex County Vocational School - Main Building

ECM-7 Reactivate Kitchen Heat Recovery

Fuel Oil Cost	$ 3.44	/gal
Electricity Cost	$ 0.165	/kWh
Boiler Efficiency	80%	
Estimated Hood Exhaust	8,000	cfm
Heat Recovery Flow	6,000	cfm
Heat Recovery Fan	3	hp
Heat Supply Fan	3	hp
Hours of Operation	1,140	/yr
Heating Hours	4,427	/yr
Heat Recovery Hours	576	/yr
Average Exhaust Temp	75	F
HEX Efficiency	70%	original design
Building Balance Point	55	F

Fuel Oil Savings	859	**gallons**
	$ 2,957	**per year**
Electric Usage	2,321	**kWh**
	$ 384	**per year**
Savings	$ 2,573	**per year**

	time	Heating	Hood Op.	Heat Recovered		Boiler Input	Electric Usage
Average Temp	**(hrs)**	**(hrs)**	**(hrs)**	**Btu/hr**	**MBtu/yr**	**(gal)**	**(kWh)**
97.5	3	0	-	-	-	-	0
92.5	34	0	-	-	-	-	0
87.5	131	0	-	-	-	-	0
82.5	500	0	-	-	-	-	0
77.5	620	0	-	-	-	-	0
72.5	664	0	-	11,340	-	-	0
67.5	854	0	-	34,020	-	-	0
62.5	927	0	-	56,700	-	-	0
57.5	600	0	-	79,380	-	-	0
52.5	610	610	79	102,060	8,102	72	320
47.5	611	611	80	124,740	9,919	89	320
42.5	656	656	85	147,420	12,585	112	344
37.5	1,023	1,023	133	170,100	22,645	202	536
32.5	734	734	96	192,780	18,414	164	385
27.5	334	334	43	215,460	9,365	84	175
22.5	252	252	33	238,140	7,810	70	132
17.5	125	125	16	260,820	4,243	38	66
12.5	47	47	6	283,500	1,734	15	25
7.5	22	22	3	306,180	877	8	12
2.5	13	13	2	328,860	556	5	7

(A) BAKERY FRESH AIR VENTILATION SYSTEM

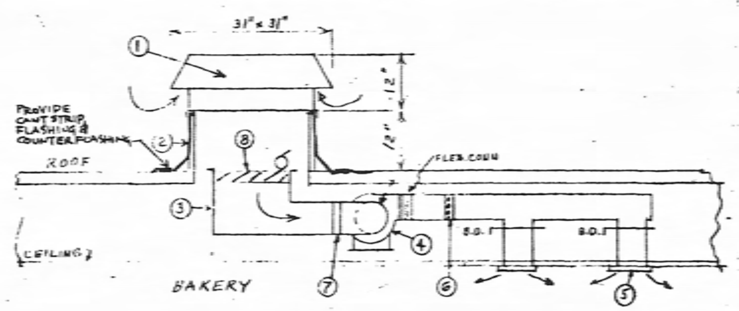


DIAGRAM OF BAKERY FRESH AIR SYSTEM
NO SCALE

SPECIFICATIONS

(1) ALUMINUM AIR INTAKE VENTILATOR, 20"x 20" THROAT, 350 FPM INTAKE, 700 FPM THROAT VELOCITY, 1500 CFM CAPACITY. CARNES MODEL GIAB W/ BIRD SCREEN.

(2) ALUMINUM ROOF CURB, 24" x 24" x 16" HIGH, CARNES MODEL CFAB.

(3) GALVANIZED STEEL DUCTWORK, WITH 1½" FIBERGLASS INSULATION AND VAPOR BARRIER. VELOCITIES SHALL BE - SUPPLY 1000 FPM MAX @ 0.10" S.P., SUCTION 850 FPM MAX. @ 0.08" S.P.. BASE ALLOWANCE 40 LIN. FT. LOCATE AS DIRECTED BY ARCH.

(4) BLOWER 1500 CFM @ ½" S.P., ⅓ H.P., 200/208/230V, 3 PHASE, MOUNT WITH VIBRATION ISOLATORS. HANG FROM ROOF JOISTS.

(5) ADJUSTABLE 4 WAY DIFFUSERS, CARNES MODEL KSA2D 15"x15". LOCATE AS DIRECTED BY ARCH. 2 REQUIRED.

(6) SUBMIT ALTERNATE COST FOR 15KW, 4 STAGE, ELECTRIC DUCT HEATER - 208V, 3 PH W/ DUCT STAT. INSTALLED.

(7) 2" PERMANENT FILTER - WASHABLE & VACUUM CLEANABLE.

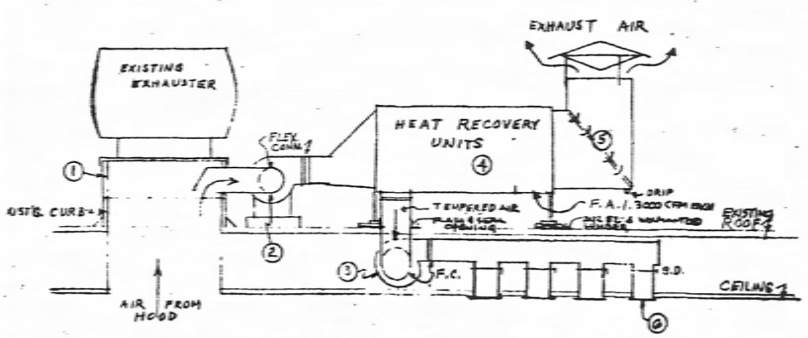
(8) MOTOR OPERATED DAMPER INTERLOCK WITH BLOWER MOTOR.

NOTES

1. REOPEN 3 - 4'x 4' EXHAUST OPENINGS IN BAKERY CEILING THAT ARE SEALED. INSTALL WIRE MESH OR GRILLES IN OPENING WITH ⅜"x ⅜" MAXIMUM SIZE OPENINGS.
2. INCREASE EXISTING EXHAUST 1500 CFM. (CHANGE FAN PULLEYS AND BELT, OR MOTOR AS REQUIRED).
3. ADJUST EXISTING SUPPLY REGISTERS AND LOUVERS AS DIRECTED.
4. BLOWER SWITCH ON WALL OF BAKERY WHERE DIRECTED.
5. ROOF FLASHING BY CERTIFIED ROOFER.
6. SUBMIT DETAILED PLAN TO ARCHITECT BEFORE STARTING INSTALLATION FOR HIS APPROVAL.
7. ELECTRICAL WIRING IS TO BE INCLUDED.

(BID - FURNISH AND INSTALL BAKERY VENTILATION SYSTEM, BALANCE NEW & EXISTING REGISTERS, GRILLES & FANS.)

(B) KITCHEN HEAT RECOVERY SYSTEM



SCHEMATIC DIAGRAM - KITCHEN HEAT RECOVERY SYSTEM
NO SCALE

SPECIFICATIONS

(1) NEW 16" HIGH CURB EXTENSION - REMOUNT & RECONNECT EXISTING EXHAUSTER.

(2) EXHAUST BLOWER 6,000 CFM, 1.6" S.P., 3 H.P. 200/208/230V, 3 PHASE, RAINTITE COVER, VIBRATION ISOLATION MOUNTS.

(3) SAME AS (2) EXCEPT NO RAINTITE COVER.

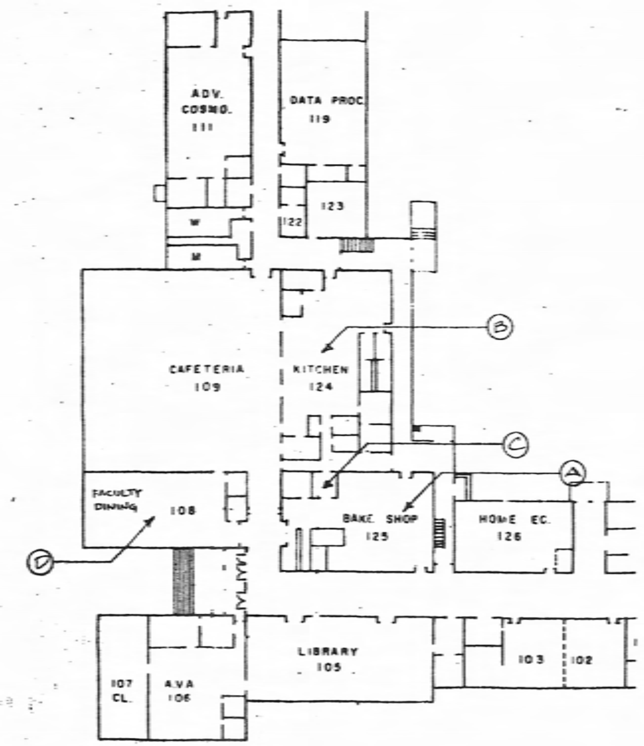
(4) HEAT RECOVERY UNIT, 2 REQUIRED, 3000 CFM CAPACITY EACH. EXOTHERMICS MODEL 4000AL-58°. 70% EFF. MIN.

(5) DUCTWORK - GALVANIZED STEEL, R-8 INSULATION WITH VAPOR BARRIER FROM CURB TO HEAT RECOVERY UNIT AND FROM UNIT TO ROOF. R-4 INSULATION BELOW ROOF. INSULATE BLOWER ON ROOF W/ R8.

(6) DIFFUSERS - 4 WAY PERFORATED ALUMINUM, ADJUSTABLE. CARNES MODEL SPDB 224 P12x12A; FOUR REQUIRED.

NOTES

1. INSTALL SWITCH ON KITCHEN WALL FOR SYSTEM. ALSO INTERLOCK WITH HOOD EXHAUSTER.
2. BASE BID TO INCLUDE ALL ROOFTOP DUCTWORK AND 40 LIN. FT. ABOVE CEILING
3. SUBMIT PLAN WITH DUCTSIZES & REGISTER LOCATIONS TO ARCHITECT FOR APPROVAL
4. ELECTRIC WIRING IS INCLUDED. SYSTEM TO BE COMPLETE AND OPERATIONAL.



KEY MAP

NOTES:

1) PROVIDE SEPARATE BIDS FOR EACH ITEM - HOUSE: A, B, C & D
2) BID PRICE SHALL INCLUDE GUARANTEE OF ALL MATERIALS & WORKMANSHIP FOR ONE YEAR. PROVIDE ONE YEAR SERVICE AT NO EXTRA COST.

VENTILATION SPECIFICATIONS

A. Installation

1. The mechanical installation shall conform to all relevant parts of the New Jersey Unified Construction code, the current "Boca Basic Mechanical Code" all local regulations, and manufacturer's specifications.
2. Provide all items necessary for complete operating systems (whether or not specifically shown on the drawings) including: rooftop HVAC units, fans, supply & return ductwork, diffusers, curbs, motorized dampers & thermostats. Provide all materials for "pent-house" construction. Provide all electrical connections to equipment, as required.
3. Before commencing work, submit detailed shop drawings to the architect for his approval. The architect shall approve the exact location of all equipment, ductwork & roof openings in the field before work begins.
4. All rotating mechanical equipment shall be mounted or supported on vibration isolators.
5. Where roof penetrations are required, the contractor shall carefully provide all necessary flashing & counter flashing of the proper type. The contractor shall assure that the owner's existing roof warranties remain in effect, by employing a qualified, bonded roof subcontractor whose installation is approved in advance by the original roof manufacturer.
6. Completed air handling systems shall be adjusted and balanced. Upon completion, contractor shall operate all HVAC systems and instruct owner's representatives with all details of operation.
7. The mechanical contractor shall submit two bound sets of all shop drawings, maintenance instructions, operating instructions and other drawings of all major items of equipment. (CONTINUED ON PAGE 2.)

ALAN SPECTOR & ASSOCIATES
Architecture • Planning • Solar Design

Certificate C-6403

Alterations to Ventilation Systems at
SUSSEX COUNTY VOCATIONAL-TECHNICAL SCHOOL
105 North Church Road
Sparta Township, N.J.

TITLE	DR. BY	CKD. BY	NO.
(A) BAKERY & (B) KITCHEN VENTILATION			

DRAWING 1 of 2

RELEASED FOR BID: 7/28/86

NJBPU Energy Audits
CHA #20151
Building: Sussex County Vocational School - Main Building

ECM-7 Reactivate Kitchen Heat Recovery

Multipliers	
Material:	0.99
Labor:	1.22
Equipment:	1.09

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
						$ -	$ -	$ -	$ -	
Replace Heat Exchangers	2	ea	$ 6,000	$ 750		$ 11,880	$ 1,830	$ -	$ 13,710	
Ductwork mods	1	ls	$ 500	$ 500		$ 495	$ 610	$ -	$ 1,105	
Replace Fan Motors	2	ea	$ 550	$ 250		$ 1,089	$ 610	$ -	$ 1,699	premium efficiency
System refurbish	1	ls	$ 500	$ 500		$ 495	$ 610	$ -	$ 1,105	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	

$ 17,619	Subtotal
$ 4,405	25% Contingency
$ 3,304	15% Contractor O&P
$ -	0% Engineering
$ 25,327	**Total**

APPENDIX J

ECM-9 Use High Efficiency Boiler to Heat Pool

NJBPU Energy Audits
CHA #20151
Building: Sussex County Vocational School - Main Building

ECM-9 Use High Efficiency Boiler to heat pool

Existing Fuel	Propane
Proposed Fuel	Propane

Item	Value	Units	Formula/Comments
Baseline Fuel Use	13,670	Gals LPG	Based on historical utility data
Existing Boiler Plant Efficiency	80%		Estimated or Measured
Baseline Boiler Load	995,176	Mbtu/yr	Baseline Fuel Use x Existing Efficiency x 91 Mbtu/Gals LPG
Proposed Boiler Plant Efficiency	89%		New Boiler Efficiency
Proposed Fuel Use	12,288	Gals LPG	Baseline Boiler Load / Proposed Efficiency / 91 Mbtu/Gals LPG
Annual Savings	1,382	**Gals LPG**	Baseline Fuel - Proposed Fuel

Savings Summary:

Unit Cost	**$ 1.42**	**$/gal propane**
Annual $ Savings	**$ 1,963**	

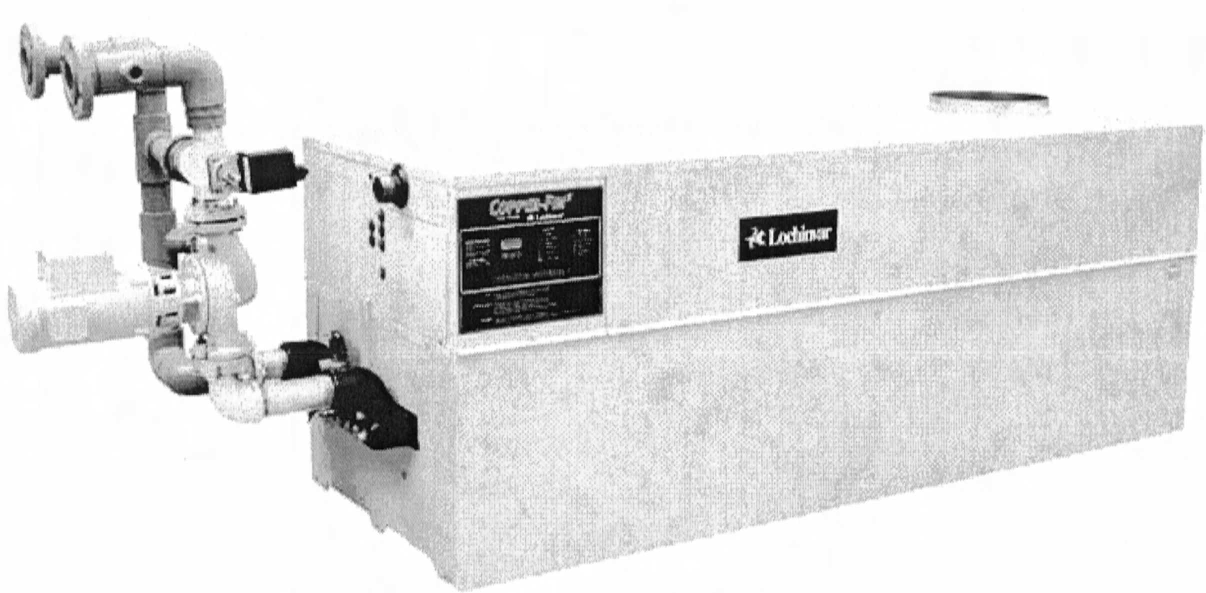
Lochinvar®
High Efficiency Water Heaters, Boilers and Pool Heaters

COPPER-FIN²®

Gas Heaters For Commercial Pool Applications

High Efficiency In A Space-Saving Design

sample



Lochinvar THE BUILT-IN ADVANTAGE

From 500,000 to 2,070,000 Btu/hr
Up to 89% Thermal Efficiency
Less Than 30 ppm NOx Rating

LOW NOX Certified

MULTI-STACK

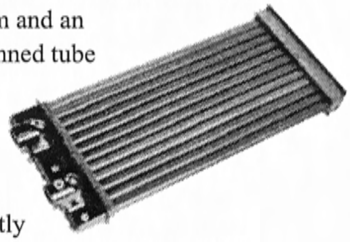
COPPER-FIN2® Commercial Gas Heaters

Thermal Efficiency Is Higher...While Footprint And Vent Sizes Are Smaller

Lochinvar's Copper-Fin2® line of high efficiency commercial gas heaters gives you all the advantages of copper-finned tube heat exchanger technology plus the benefits of a sealed combustion system. Every Copper-Fin2 model offers four major advantages: higher efficiency, smaller footprint, smaller vent diameters and a wide variety of venting options.

Outstanding Thermal Efficiency

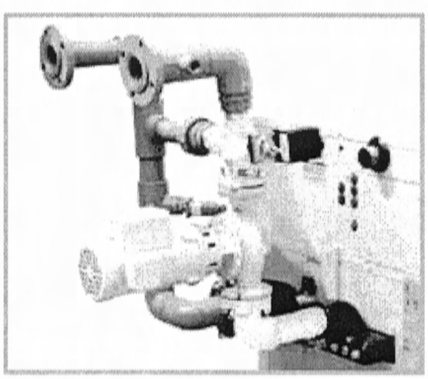
Copper-Fin2 gas heaters offer a remarkably high 89% thermal efficiency. This means that 89¢ out of every fuel dollar goes into heating the water, dramatically reducing the operating cost of the equipment. Copper-Fin2 achieves this efficiency through the combination of an advanced fan assisted combustion system and an exclusive gasketless copper-finned tube heat exchanger. A time tested and proven combination.



The heat energy from the combustion process is efficiently transferred into the water as it passes through the solid copper-finned tube heat exchanger. The sealed combustion design of the Copper-Fin2 reduces external heat loss. This means that the energy dollars heat the water, not the mechanical room. It also ensures that the jacket stays cooler, providing greater safety and requiring less clearance from combustible walls - just 1" in most cases.

Automatic Pumped Bypass Standard

All Copper-Fin2 heaters are equipped with an automatic high temperature CPVC pumped bypass to ensure proper flow and return water temperatures to the heater. This results in longer equipment life and trouble free operation. The CPVC bypass is provided as standard equipment in a horizontal configuration. A vertical configuration is also available offering the flexibility to meet mechanical room space requirements or piping constraints.

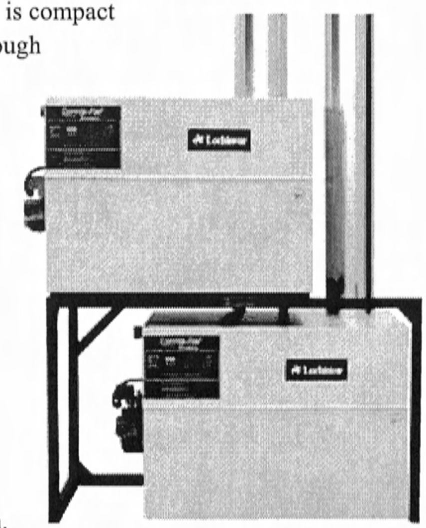


Meets The Toughest Air Quality Standards

Because of our unique fan-assisted combustion process, the Copper-Fin2 exceeds today's toughest NO_x emissions requirements. An independent certification laboratory test gave us a rating of less than 30 ppm —corrected to 3% O_2. And less NO_x means a cleaner environment.

Compact Design - For Installation Ease

The Copper-Fin2 is compact enough to fit through standard 36" doorways with ease. Even our 2 million Btu/hr model is only 33-1/2" wide. This space-saving design frees up more space in the mechanical room.



MULTI-STACK

And our optional Multi-Stack™ frame lets you put two units in the footprint of just one. See Multi-Stack frame literature for more details. (Indoor use only)

Making Installation Easier...For Less

High-efficiency, fan-assisted combustion means you can use a smaller diameter vent stack — up to 8" smaller than typically required. This makes installation less expensive and more flexible.

Vent Cost Savings

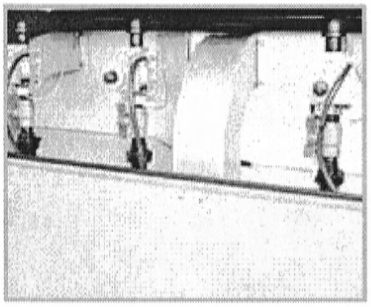
Btu/hr INPUT	CONVENTIONAL VENT SIZE	COPPER-FIN2 VENT SIZE	$ SAVINGS*
500,000	10"	6"	$ 657
650,000	12"	8"	$ 731
750,000	14"	8"	$ 1,450
990,000	16"	10"	$ 1,790
1,260,000	16"	12"	$ 1,463
1,440,000	18"	12"	$ 2,432
1,800,000	20"	14"	$ 3,526
2,070,000	22"	14"	$ 3,738

**Comparison based on 25' vent system using Type "B" double wall vent material, storm collar and vent cap.*

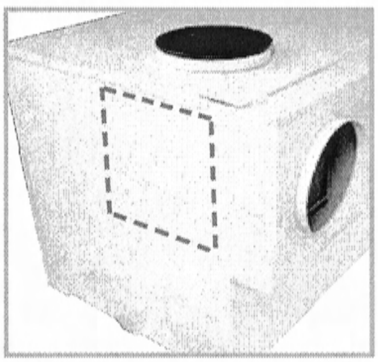
The Proven Performers

Service & Installation Ease

All Copper-Fin² models offer a service friendly design with gas inlet and shutoff cocks, electrical and EMS connections toward the front of the unit, and a slide out control panel. The referenced gas valve design improves operational performance by monitoring the pressure in the sealed combustion chamber to maintain the optimum air/fuel mixture.



All models feature alternate air inlet connections for greater installation flexibility. This field convertible option provides the ability to connect the air inlet on either the right side or the rear of the unit. And the built-in air inlet filter reduces maintenance and improves performance by trapping dust and airborne particulates that can foul the burners and blowers.



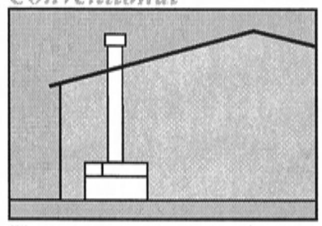
You'll also save installation time and expense with Lochinvar's direct vent option, featuring our innovative Aire-Lock™ combustion system. The Aire-Lock™ direct vent option allows the installer to vent the products of combustion directly through a side wall without the use of an auxiliary power vent cap. By using approved vent material and an air intake pipe, this option effectively "detaches" the unit from the mechanical room by pulling all combustion air from outside the building and venting all combustion by-products outside through a side wall. A feature that can really simplify an installation while reducing overall installed costs.

Control at your fingertips

The enhanced operator interface panel provides fingertip control of the built-in digital temperature controller and can monitor up to four temperature readouts; inlet, outlet, pool and system temperature with the ability to adjust pool temperature. Its refined user friendly design simplifies service by providing "slide-out" access to electronics and controls.

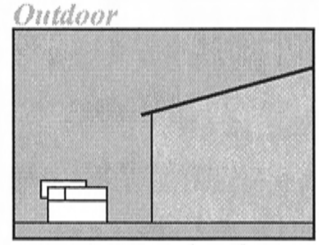
Flexible Venting Options

Conventional



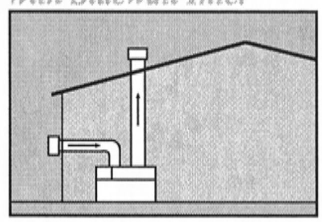
Vents into conventional flue or vent breaching using Type B double wall vent.

Outdoor



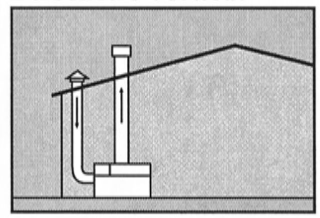
Requires optional outdoor vent cap. Use when indoor space is a problem or if outdoor location gives better access.

DirectAire Vertical with Sidewall Inlet



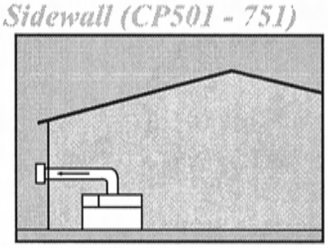
Draws fresh air from outside and vents through conventional vertical flue.

DirectAire Vertical



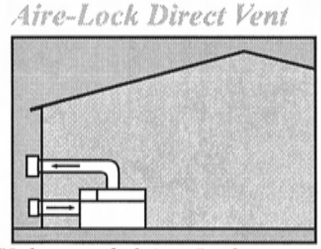
Draws fresh air from outside and vents through conventional vertical flue.

Sidewall (CP501 - 751)



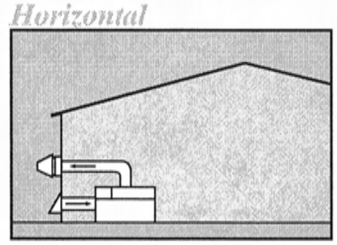
Draws fresh air from inside the room. Vents up to 50 equivalent feet directly through the outside wall without the need for a powered sidewall cap.

Aire-Lock Direct Vent



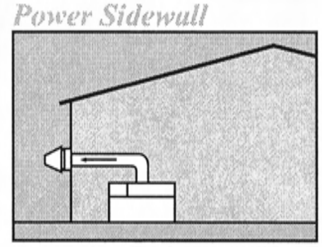
Utilizes sealed Aire-Lock combustion system to draw fresh air 50 equivalent feet from a sidewall. Vents horizontally up to 50 equivalent feet through the sidewall using Category IV approved vent material.

Power DirectAire Horizontal



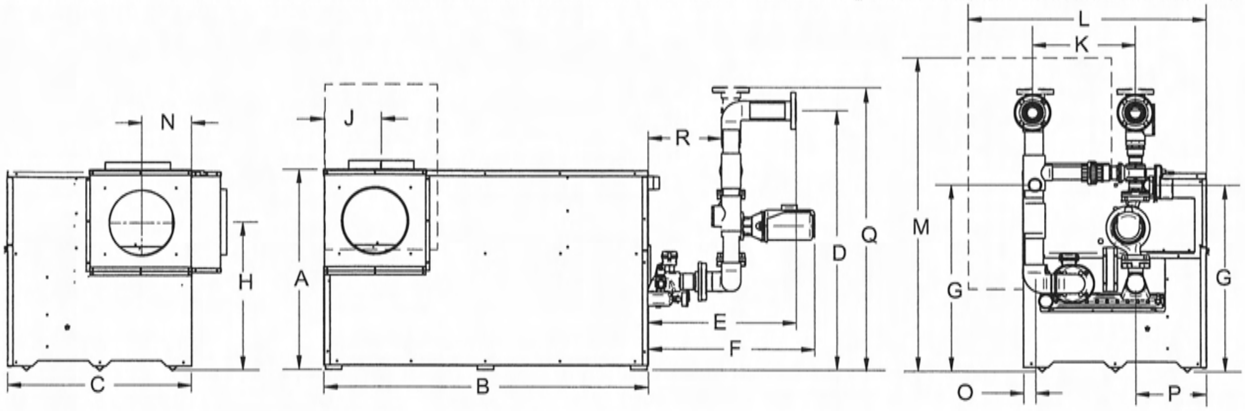
Draws fresh air from outside and vents through sidewall using optional powered vent cap.

Power Sidewall



Vents directly through the outside wall using an optional powered sidewall cap. Ideal when a vent stack is not practical.

COPPER-FIN2® Commercial Gas Heater Dimensions & Specifications



Model Number	Btu/hr Input	Btu/hr Output	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	Vent Size	Air Inlet	Gas Conn	Shipping Weight
CPN501	500,000	445,000	31-1/2"	45-1/2"	22-1/4"	38"	20-1/4"	26-1/2"	29"	23"	7"	12-3/4"	28"	38"	8"	1/2"	9"	41-1/8"	9-3/4"	6"	6"	1-1/4"	480
CPN651	650,000	578,500	31-1/2"	56-3/4"	22-1/4"	38"	20-1/4"	26-1/2"	29"	23"	8-1/2"	12-3/4"	38"	38"	8"	1/2"	9"	41-1/8"	9-3/4"	8"	8"	1-1/4"	550
CPN751	750,000	667,500	31-1/2"	64"	22-1/4"	38"	20-1/4"	26-1/2"	29"	23"	8-1/2"	12-3/4"	38"	38"	8"	1/2"	9"	41-1/8"	9-3/4"	8"	8"	1-1/4"	605
CPN0991	990,000	881,100	36"	48-1/4"	33-1/2"	47"	26-3/4"	30-1/4"	34"	27"	8"	18-1/4"	42"	48"	9-1/4"	2-1/4"	13"	51-1/4"	13-1/4"	10"	10"	2"	930
CPN1261	1,260,000	1,121,400	36"	58-1/2"	33-1/2"	47"	26-3/4"	30-1/4"	34"	27"	9"	18-1/4"	42"	48"	9-1/4"	2-1/4"	13"	51-1/4"	13-1/4"	12"	12"	2"	995
CPN1441	1,440,000	1,281,600	36"	68-3/4"	33-1/2"	47"	26-3/4"	30-1/4"	34"	27"	9"	18-1/4"	42"	48"	9-1/4"	2-1/4"	13"	51-1/4"	13-1/4"	12"	12"	2"	1,130
CPN1801*	1,800,000	1,602,000	36"	82-1/4"	33-1/2"	47"	26-3/4"	30-1/4"	34"	27"	10"	18-1/4"	42"	48"	9-1/4"	2-1/4"	13"	51-1/4"	13-1/4"	14"	12"	2"	1,285
CPN2071*	2,070,000	1,842,300	36"	92-1/2"	33-1/2"	47"	26-3/4"	30-1/4"	34"	27"	10"	18-1/4"	42"	48"	9-1/4"	2-1/4"	13"	51-1/4"	13-1/4"	14"	12"	2"	1,400

Notes: *Change 'N' to 'L' for LP gas models.*
Performance data is based on manufacturer test results.
No deration on LP models.
**Cupro Nickel Heat Exchanger is standard on these models.*

Standard Features

- Up to 89% Thermal Efficiency
- Digital Operator Interface
- Less Than 30 ppm NOx Rating
- ASME Gasketless Copper Finned-Tube Heat Exchanger (CP501-1441)
- ASME Gasketless Cupro Nickel Finned-Tube Heat Exchanger (CP1801-2071)
- High Temperature CPVC Automatic Pumped Bypass
- Flanged Inlet/Outlet Fittings
- Loch-Heat™ Ceramic Tile Sealed Combustion Chamber
- Combustion Air Filter
- Field Convertible Air Inlet Connection
- Programmable Temperature Setpoint
- Inlet & Outlet Temperature Sensor
- Pool Temperature Sensor
- Hot Surface Ignition System
- Stainless Steel Burners
- Referenced Gas Valves
- ASME 160 psi Working Pressure
- 110°F Safety Limit
- 24V Controls
- Flow Switch
- Air Pressure Switch
- Remote Control Compatible
- Adjustable High Limit w/ Manual Reset
- 150 psi ASME Temperature and Pressure Relief Valve
- Slide-Out Control Panel with Plug-In Components
- 5-Year Limited Warranty on Heat Exchanger (See warranty for details)

Optional Equipment

- Alarm Bell
- Cupro Nickel Heat Exchanger (CP501-1441)
- High Gas Pressure Switch w/ Manual Reset
- Low Gas Pressure Switch w/ Manual Reset
- Multi-Stack Frame (Horizontal Bypass Only)
- Pump Delay
- Pump Purge w/ Maintenance Timer
- Vertical Mounted Pumped Bypass

Available Firing Systems

F9	Electronic Control with Hot-Surface Ignition (Standard)
F13	GE GAP/FM/IRI
F7	California Code

Venting Options

- Aire-Lock Direct Vent Sealed Combustion
- Conventional
- DirectAire® Vertical
- DirectAire® Vertical w/ Sidewall Inlet
- Outdoor
- Powered DirectAire® Horizontal
- Powered Sidewall
- Sidewall (CP501-751)

FOR EASE IN ORDERING BY MODEL NUMBER

CP N 501 F9

MODEL / FUEL TYPE / Btu/hr INPUT / FIRING CONTROLS

This heater is 500,000 Btu/hr natural gas Copper-Fin2 pool heater. It has F9 firing controls.

Lochinvar® High Efficiency Water Heaters, Boilers and Pool Heaters

AHRI MEMBER

Lochinvar Corporation • 300 Maddox Simpson Pkwy • Lebanon, TN 37090 • 615-889-8900 / Fax: 615-547-1000
www.Lochinvar.com

NJBPU Energy Audits
CHA #20151
Building: Sussex County Vocational School - Main Building

ECM-9 Use High Efficiency Boiler to heat pool

Multipliers	
Material:	0.99
Labor:	1.22
Equipment:	1.09

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
						$ -	$ -	$ -	$ -	
Pool Water Heater 600 MBH	1	ea	$ 8,900			$ 8,811	$ -	$ -	$ 8,811	
						$ -	$ -	$ -	$ -	
Start up	1	ea	$ 100	$ 500		$ 99	$ 610	$ -	$ 709	
Piping Modification	1	ea	$ 500	$ 1,000		$ 495	$ 1,220	$ -	$ 1,715	
Flue mods	1	ea	$ 2,350	$ 800		$ 2,327	$ 976	$ -	$ 3,303	
Electrical mods	1	ea	$ 200	$ 300		$ 198	$ 366	$ -	$ 564	
Removal of old boiler	1	ea	$ 100	$ 400		$ 99	$ 488	$ -	$ 587	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	

$ 15,689	Subtotal
$ 3,922	25% Contingency
$ 2,942	Contractor 15% O&P
$ -	0% Engineering
$ 22,552	**Total**

APPENDIX K

ECM-10 Replace DHW Boiler with Condensing Boiler

NJBPU Energy Audits
CHA #20151
Building: Sussex County Vocational School - Main Building

ECM-10 Replace DHW Boiler with Condensing Boiler

Existing Fuel	#2 Oil
Proposed Fuel	Propane

Item	Value	Units	Formula/Comments
Baseline Fuel Use	1,436	Gals #2	Based on historical utility data
Existing Boiler Plant Efficiency	78%		Estimated or Measured
Baseline Boiler Load	155,355	Mbtu/yr	Baseline Fuel Use x Existing Efficiency x 138.7 Mbtu/Gals #2
Proposed Boiler Plant Efficiency	98%		New Boiler Efficiency
Proposed Fuel Use	1,742	Gals LPG	Baseline Boiler Load / Proposed Efficiency / 91 Mbtu/Gals LPG
Annual Savings	1,436	**Gals #2**	Baseline Fuel

Savings Summary:

Unit Cost	**$ 1.42**	**$/gal propane**
	$ 3.44	**$/gal oil**
Annual $ Savings	**$ 2,467**	

NJBPU Energy Audits
CHA #20151
Building: Sussex County Vocational School - Main Building

ECM-10 - DHW Load Calculations

DHW Usage

Number of Students	825	students	
Faculty and Staff	120	F&S	
Total Occupants	945	occupants	
Occupied hours per day	10	hrs	
Open School Days	180	days/yr	
Usage Factor	1.8	gallons/day/occupant	
Daily DHW Usage	1,701	gallons/day	
Hourly DHW Usage	170	gallons/hr	
Annual DHW Usage	306,180	gallons/year	
Hot Water Temperature	120	F	
Average Feed Water Temperature	58.5	F	
Annual DHW Heating Load	156,854,483	Btu/yr	
Existing Boiler Plant Efficiency	78%		
Annual Fuel Usage	1,450	gallons #2/yr	#2 fuel Oil heating value is 138,700 btu/gal
Annual Fuel Usage for Entire Building	21,309	gallons #2/yr	based on historical utility data
Percent Fuel used for DHW	6.80%		

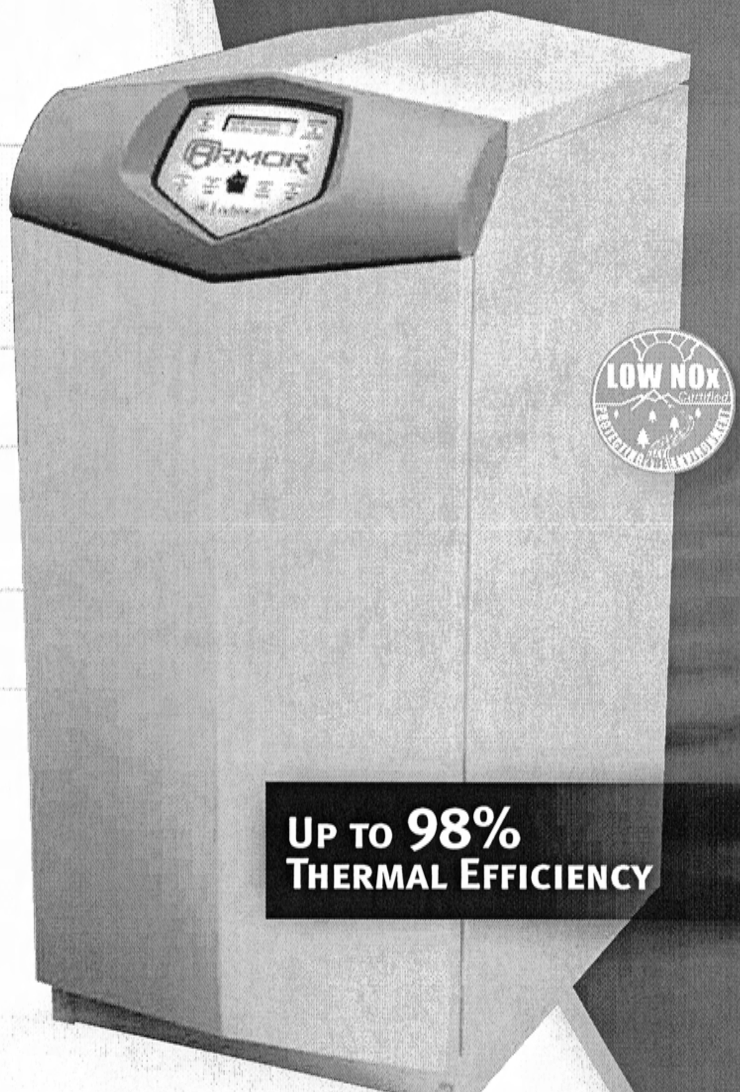
DHW Heater Sizing

Recovery rate	0.3	gph/occupant
Water Heater Peak Flow Rate	284	gallons/hour
Heating Load	145,236	Btu/hr

CONDENSING COMMERCIAL GAS WATER HEATERS

Sample

ARMOR®
CONDENSING WATER HEATER



SMART SYSTEM™
CONTROL WITH CASCADING SEQUENCER

UP TO 98% THERMAL EFFICIENCY

8 MODELS FROM 150,000 TO 800,000 BTU/HR

5:1 TURNDOWN FIRING RATE

LESS THAN 20 ppm NOx

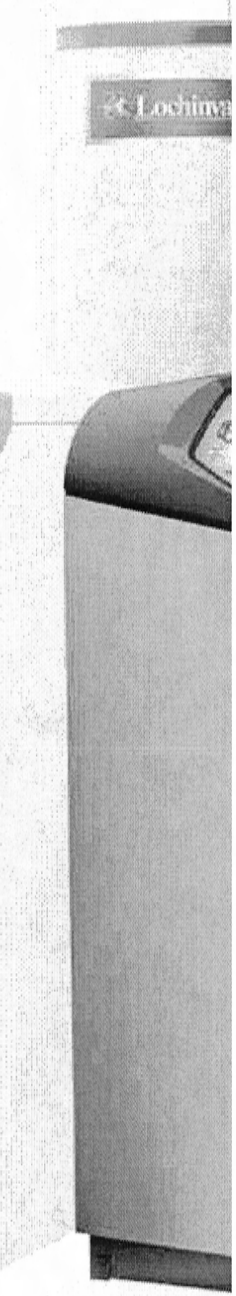
UP TO 98% THERMAL EFFICIENCY

Lochinvar®
High Efficiency Water Heaters, Boilers and Pool Heaters

lochinvar.com

ARMOR™
CONDENSING WATER HEATER

A Better Way to Achieve 98% Thermal Efficiency



There are several tank-type commercial water heaters on the market with thermal efficiencies of 95% or higher. They all promise tremendous savings on operating costs compared to standard-efficiency units, but none of them truly measures up to the Lochinvar ARMOR™.

ARMOR is a fully condensing commercial gas water heater. Available in eight models with inputs ranging from 150,000 to 800,000 Btu/hr, the ARMOR achieves thermal efficiencies up to 98%.

ARMOR delivers long-lasting life-cycle efficiency surpassing any commercial unit in its class. When you look beyond the numbers you'll discover the many ways that ARMOR technology is in a class by itself!

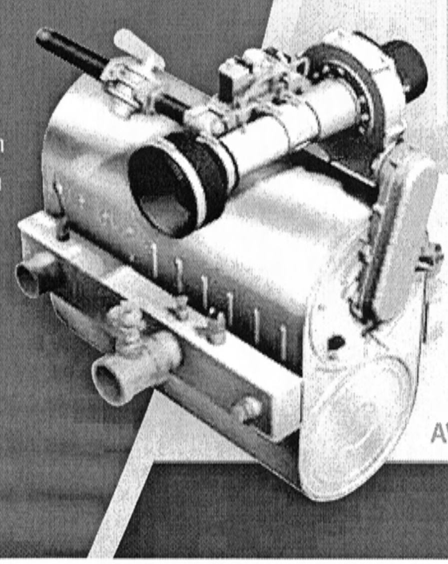
Fully Modulating with 5:1 Turndown

ARMOR features advanced Negative Regulation (Neg/Reg) sealed combustion technology, permitting fan speed to constantly adjust the volume of fuel and air entering the burner. This ensures that ARMOR can safely and reliably operate with supply gas pressure as low as 4 inches water column.

ARMOR is equipped with fully modulating combustion with 5:1 turndown. This means ARMOR can fire as low as 20% of maximum input when water heating demand is lowest, and increase the firing rate up to 100% as demand increases. The result is better overall efficiency and less cycling, compared to all other tank-type units which are "on-off," which means they can only fire at 100% of maximum input.

Stainless Steel Condensing Heat Exchanger

The ARMOR's stainless steel heat exchanger is built to ASME Section IV requirements. Its design provides superior resistance to corrosion caused by condensation from low entering water temperatures. Traditional commercial water heaters will fail early with low entering water temperatures; however, with the ARMOR the lower the supply water temperature the more efficiently it performs throughout the life of the heater.



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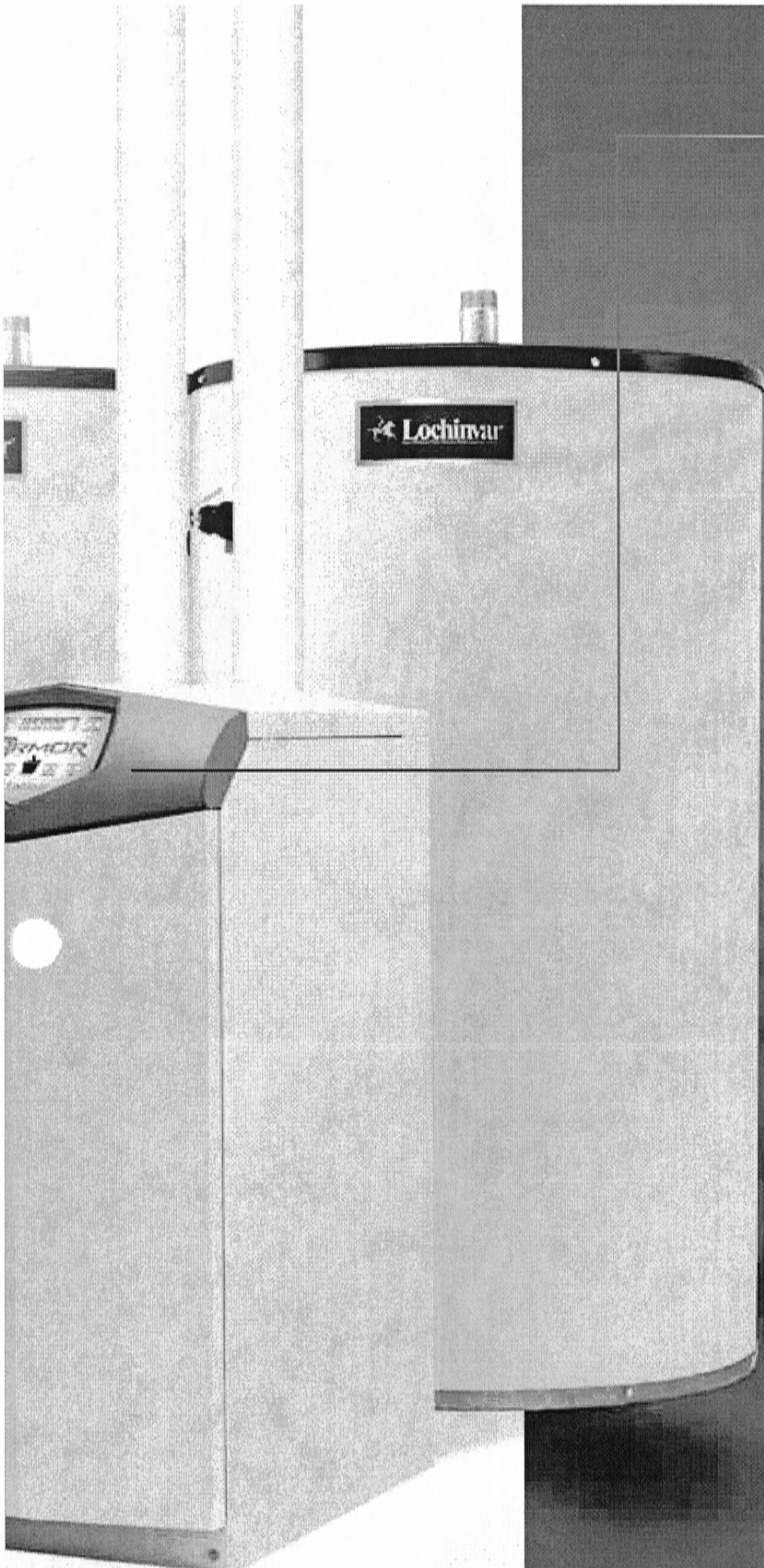


SMART SYSTEM™

The Ultimate Water Heater Operating Control

Easy to use – makes setup and service a breeze

2-line 16-character LCD display of setup, system status and diagnostic data in words, not codes

Water heater pump control:
- Pump delay with freeze protection
- Pump exercise

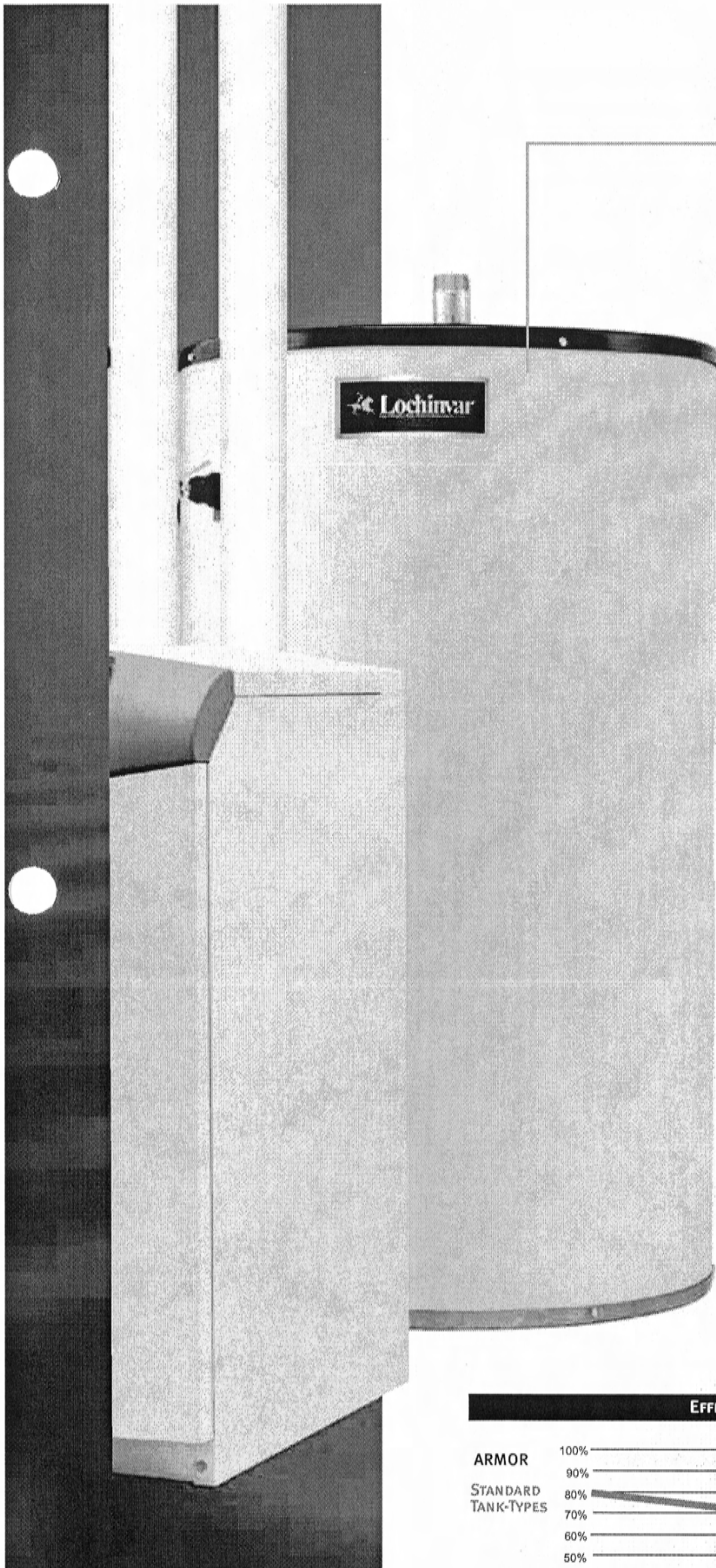
High-voltage terminal strip:
- 110 Vac input to water heater
- 110 Vac output to pump

Low-voltage terminal strip with 22 points of connection

Built-in cascading sequencer controls up to 8 Armor units without the added cost of a separate third-party sequencer

Interface for optional SMART SYSTEM PC software for advanced setup and diagnostics

2-line 16-character LCD display of setup, system status and diagnostic data in words, not codes



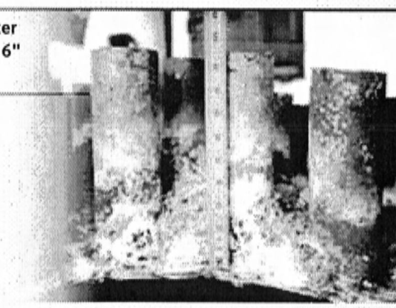
Separate Tank for Flexibility, Lower Replacement Costs

With standard tank-type water heaters, your choices are limited when it comes to matching input with storage capacity to meet "peak demand" delivery requirements. With ARMOR, you can match one or more water heaters with inputs ranging from 150,000 to 800,000 with one or more storage tanks in a wide variety of sizes. Lochinvar Lock-Temp® tanks are available to meet the need, from our 80-gallon vertical to the 5000-gallon vertical or horizontal model. Another advantage of the ARMOR "dual component" system is lower replacement costs. Standard tank-type designs require replacement of the entire water heater. With ARMOR, you'll save time and money by only replacing individual components as needed, such as the pump or storage tank.

Long-Lasting "Life Cycle" Efficiency

In a standard tank-type water heater, lime scale builds up over time on important heat transfer surfaces, insulating the water from the heat source. This decreases thermal efficiency and increases operating cost. Just 1/4" of lime scale in the tank can increase operating costs as much as 25%!

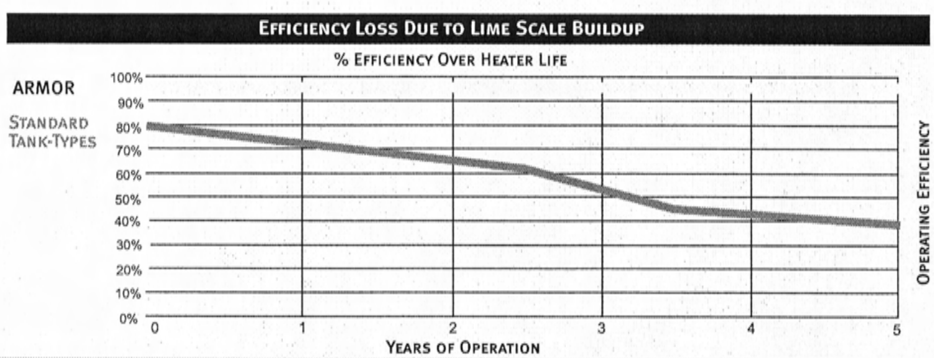
Traditional tank-type water heater flue tubes with nearly 6" of lime scale buildup



This buildup in the bottom of the tank and around the flue tubes can cause tank-type heaters to fail in as little as 2-3 years.

ARMOR's "dual component" concept eliminates the impact of lime scale, maintaining a high-rated thermal efficiency and low operating cost throughout its long life cycle.

The chart below illustrates how ARMOR is a better way, delivering true "life cycle efficiency" compared to standard tank-type units.



Easy, Flexible Installation and Service

Vent using PVC, CPVC or SS – Up to 100 feet of air intake and 100 feet of exhaust vent with PVC, CPVC or SS.

Conduit Knockouts – For field wiring connections.

User-Friendly Terminal Strip – Allows 22 points of low-voltage field connections for additional safeties or accessories.

Easy-Access Cabinet – Front and top panels are hand-removable, without tools.

Leveling Legs – Certified for installation on combustible floors.

Water Heater Circulating Pump – Included as standard equipment.

Small Footprint – Conserves valuable floor space.

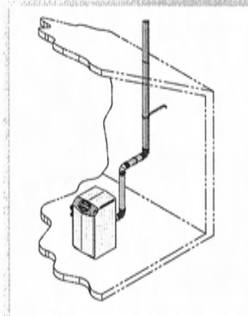
Lightweight Design – Easy to handle, simple to install.

Natural to LP Gas Conversion – Simple and fast

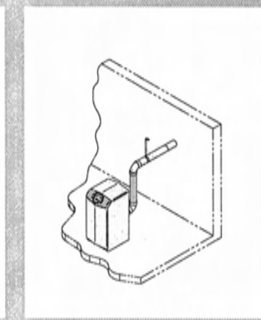
Low-voltage terminal strip with 22 points of connection

7 Venting Options!

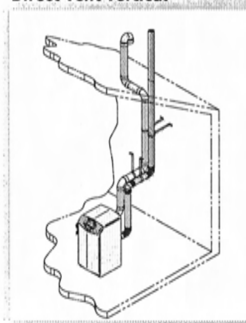
Room Air Vertical



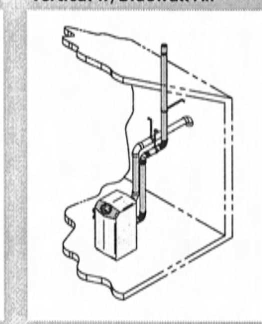
Room Air Sidewall



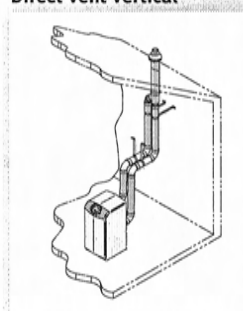
Direct Vent Vertical



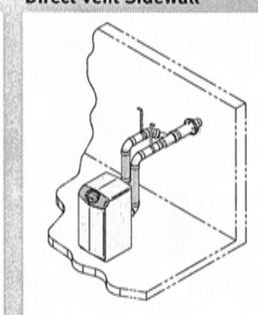
Vertical w/Sidewall Air



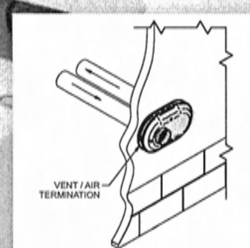
Direct Vent Vertical*



Direct Vent Sidewall*

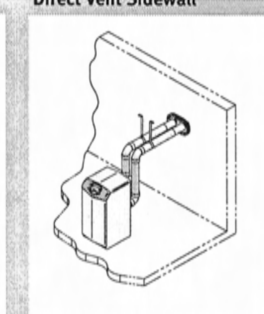


**Optional Concentric Vent Kit Sold Separately*



Sidewall Vent Termination Factory Supplied and Shipped Standard with Every Model

Direct Vent Sidewall

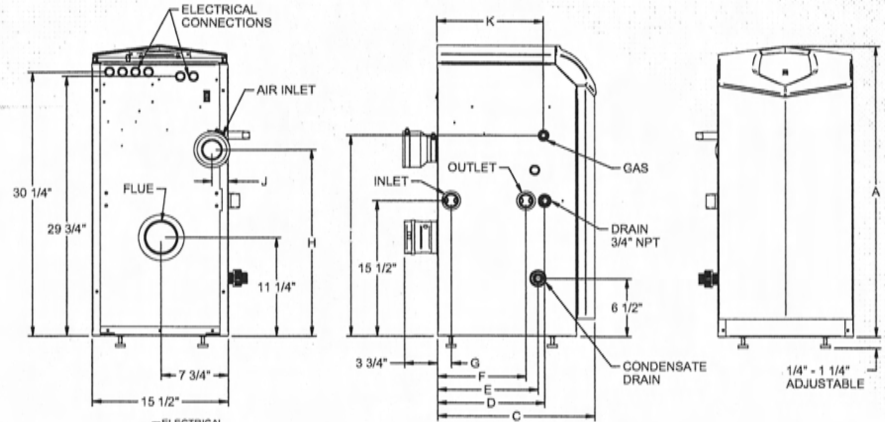


Sidewall Vent Termination

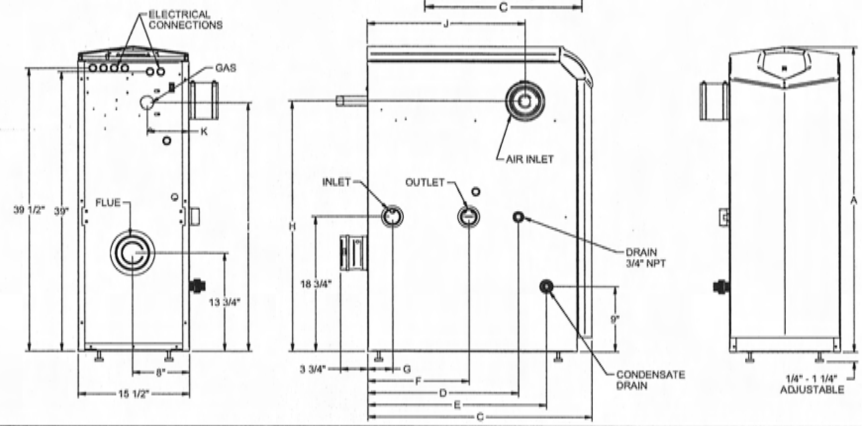
AW (150-199)

Armor™ Water Heater Dimensions and Specifications

Models 150-199



Models 285-800



Model Number Guide

AW	N	150	PM
Model	Natural Gas	Btu/hr Input	Pump Mount

*Armor Water Heater, Natural Gas, **150**,000 Btu/hr Input, Pump Mount*

Model Number	Btu/hr Input	GPH @ 100° Rise	A	C	D	E	F	G	H	I	J	K	Gas Conn.	Water Conn.	Air Inlet	Vent Size	Shipping Wt. (lbs.)
AWN150PM	150,000	174	33-1/4"	18"	12-1/4"	11-1/2"	10"	1-1/2"	21-1/4"	23"	1-3/4"	12"	1/2"	1-1/4"	3"	3"	165
AWN199PM	199,999	235	33-1/4"	22-1/4"	16-1/2"	15-3/4"	14-1/4"	5-1/4"	21-1/4"	23"	1-3/4"	16-1/4"	1/2"	1-1/4"	3"	3"	185
AWN285PM	285,000	339	42-1/2"	19-3/4"	12-3/4"	13-1/2"	6"	2"	34"	31"	11-3/4"	4-1/4"	3/4"	2"	4"	4"	235
AWN399PM	399,999	475	42-1/2"	27"	21"	20-3/4"	14"	3-1/2"	34"	34"	18-3/4"	2"	1"	2"	4"	4"	295
AWN500PM	500,000	594	42-1/2"	31-1/4"	21"	25"	14"	3-1/2"	35"	35"	22"	5-3/4"	1"	2"	4"	4"	335
AWN600PM	600,000	713	42-1/2"	36-1/4"	25"	21"	14"	3-1/2"	36"	32-3/4"	19-1/2"	5-1/2"	1-1/2"	2"	4"	4"	380
AWN700PM	700,000	832	42-1/2"	40-1/4"	29"	23"	17"	3-1/2"	36"	32-3/4"	23-1/2"	3-1/4"	1-1/2"	2"	4"	6"	461
AWN800PM	800,000	950	42-1/2"	45-1/4"	33-1/4"	23"	17"	3-1/2"	36"	32-3/4"	27-3/4"	3-1/4"	1-1/2"	2"	4"	6"	527

Standard Features

› **Up to 98% Thermal Efficiency**
› **Modulating Burner with 5:1 Turndown**
 › Direct-Spark Ignition
 › Low NOx Operation
 › Sealed Combustion
 › Low Gas Pressure Operation
› **Vertical & Horizontal Direct-Vent**
 › PVC, CPVC or SS Venting up to 100 Feet
 › PVC/CPVC Sidewall Vent Termination
› **Stainless Steel Heat Exchanger**
 › All Welded Construction, Gasketless Design
 › 160 psi Working Pressure
 › ASME Construction (AW 285-800)
› Natural to L.P. Conversion Kit
› All Bronze Circulating Pump
› On/Off Switch
› Flow Switch
› ASME Temperature & Pressure Relief Valve
› Temperature & Pressure Gauge (AW 500-800)
› Downstream Test Valves (AW 500-800)
› Adjustable Leveling Legs
› Tank Sensor
› Manual Reset High Limit
› Condensate Trap
› Zero Clearances to Combustible Material
› 5 Year Limited Warranty (See Warranty for Details)
› 1 Year Parts Warranty (See Warranty for Details)

Smart System Features

› **SMART SYSTEM Digital Operating Control**
› 2 line, 16 Character Display
› Dual Level Password Security
› Built in Cascading Sequencer for up to 8 Water Heaters
› Building Management System Integration with 0-10 VDC Input
› Low Water Flow Safety Control & Indication
› Inlet & Outlet Temperature Sensors & Readout
› Flue Temperature Sensor
› Water Heater Pump Control
› Pump Delay with Freeze Protection
› Pump Exercise
› Night Setback
› Time Clock
› Service Reminder
› **High Voltage Terminal Strip**
 › 120 VAC / 60 Hertz / 1 Phase Power Supply
 › Pump Control Contacts
› **Low Voltage Terminal Strip**
 › 24 VAC Auxiliary Device Relay
 › Auxiliary Proving Switch Contacts
 › Flow Switch Contacts
 › Alarm on Any Failure Contacts
 › Runtime Contacts
 › Tank Sensor Contacts
 › Cascade Contacts
 › 0-10 VDC BMS External Control Contact

Optional Equipment

› Adjustable High Limit w/ Manual Reset
› Alarm Bell
› Condensate Neutralization Kit
› High & Low Gas Pressure Switches (AW 500-800)
› Concentric Vent Kit (3" & 4" PVC/CPVC only)
› SMART SYSTEM PC Software
› Room Air Vent Kits
› Multi-Stack Frame

Firing Control Systems

› M9 Standard Construction
› M7 California Code (AW 285-800)
› M13 CSD1 / FM / GE Gap (AW 500-800)

H AHRI MEMBER

Lochinvar®
High Efficiency Water Heaters, Boilers and Pool Heaters

NJBPU Energy Audits
CHA #20151
Building: Sussex County Vocational School - Main Building

ECM-10 Replace DHW Boiler with Condensing Boiler

Multipliers	
Material:	0.99
Labor:	1.22
Equipment:	1.09

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
						$ -	$ -	$ -	$ -	
DHW Water Heater 150 MBH	2	ea	$ 4,400	$ 1,000		$ 8,712	$ 2,440	$ -	$ 11,152	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	
Start up	2	ea	$ 50	$ 350		$ 99	$ 854	$ -	$ 953	
Piping Modification	2	ea	$ 800	$ 1,000		$ 1,584	$ 2,440	$ -	$ 4,024	
Flue mods	2	ea	$ 100	$ 250		$ 198	$ 610	$ -	$ 808	
Electrical mods	2	ea	$ 200	$ 300		$ 396	$ 732	$ -	$ 1,128	
Removal of old boilers	2	ea	$ 200	$ 500		$ 396	$ 1,220	$ -	$ 1,616	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	

$ 19,681	Subtotal
$ 4,920	25% Contingency
$ 3,690	Contractor 15% O&P
$ -	0% Engineering
$ 28,291	**Total**

APPENDIX L

ECM-11 Convert Booster Heater from Electric to Propane

NJBPU Energy Audits
CHA #20151
Building: Sussex County Vocational School - Main Building

ECM-11 Convert Booster Heater from Electric to Propane

		Existing	Proposed	
1	Water Use/Hour (estimated)	150	150	gph
2	Operating Hours/Day	3	3	hrs
3	Days/Week	5	5	days
4	Weeks/Year	38	38	weeks
5	Final Rinse Use	75%	75%	
6	Water Use/Year	64,125	64,125	gallons/yr
7	Primary Heat required to raise the temperature from 50 degree F to 140 degree F	622	622	gallons/yr propane
8	Booster Heat required to raise the temperature from 140 degree F to 180 degree F (kWh)	6,256		kWh
9	Booster Heat required to raise the temperature from 140 degree F to 180 degree F (gallons propane)		276	gallons

Booster Heater Size		54	kW
Heating Capacity at 40F rise		9.2	gpm
		553	gph
Cost of Electric	$	0.165	/ kWh
Cost of Propane	$	1.42	/ Gallons Propane
Savings			
Electric Savings	$	1,034	/yr
Propane Savings	$	(392)	/yr
Financial Savings	$	642	

Note 1: Heat required = 8.33 x Specific Heat for Water x Temp diff x Gallon Use/Boiler Efficiency

POWERMITE® GAS BOOSTER WATER HEATERS

Models PMG-60, PMG-100, PMG-200

The Hatco Powermite Gas Booster Water Heater provides 180°F (82°C) sanitizing hot water and long life dependability. Designed to fit under the dishtable, near the dishwasher, minimizes the heat loss that can occur when heaters are installed in a remote location.

FLEXIBILITY

All models can operate on either natural or propane gas and feature a burner system that utilizes both primary and secondary air for consistent ignition.

PMG-60... for single tank, door-type machines. It has 58,000 BTU heating capacity with a storage capacity of 3.2 gallons (12 liters) and has an output equivalent to approximately 13.5kW. This unit can naturally and safely vent directly into the room. Consult local codes for venting requirements. The PMG-60 can increase the temperature of 135 gallons/hour (511 liter/hr) by 40°F (22°C).

PMG-100... for 2-tank, conveyor machines. It has 105,000 BTU heating capacity with a storage capacity of 5 gallons (19 liters) and has an output equivalent to approximately 24kW. The PMG-100 can increase the temperature of 241 gallons/hour (912 liter/hr) by 40°F (22°C).

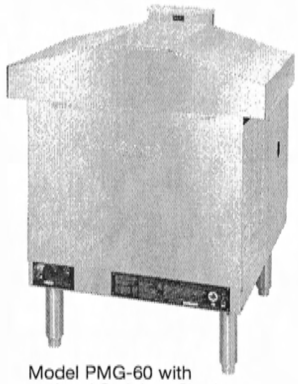
PMG-200... for large, conveyor-type dishwashing operations. This 195,000 BTU gas booster water heater has an output equivalent to approximately 45kW and has a 5 gallon (19 liter) storage capacity. The PMG-200 can increase the temperature of 452 gallons/hour (1711 liter/hr) by 40°F (22°C).

Models PMG-100 and -200 use a forced draft system with a 4" (102 mm) diameter adapter provided to allow the installer to hook up the exhaust venting to meet regulatory and local codes.

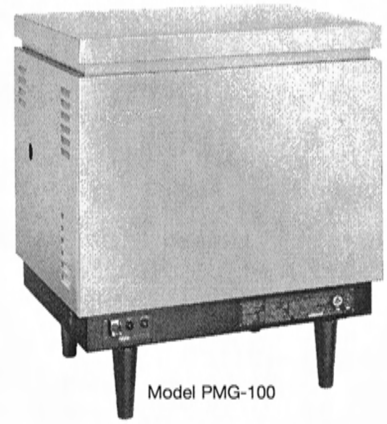
QUALITY

The following features assure the best performance for years to come:

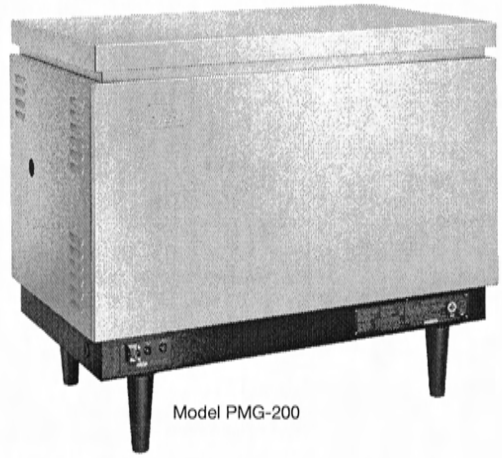
- Stainless steel tanks.
- Stainless steel front and top, with powdercoat sides and back (stainless steel body available).
- Finned tube copper heat exchanger.
- Spark to light with standing pilot.
- Eight blade type burners in the PMG-60, three tube type burners in the PMG-100, six tube type burners in the PMG-200.
- Temperature/pressure relief valve.
- Pressure reducing valve.
- Two temperature/pressure gauges.
- Low-water cut-off.
- Blended phosphate water treatment system.
- Shock absorber.



Model PMG-60 with optional Stainless Steel Body and Base and PMGH-60 Exhaust Hood



Model PMG-100



Model PMG-200

BOOSTER SIZING

Water Temperature Recovery Table in GPH (LPH) and °F (°C)

Model	Input MBH (1,000 BTU/HR)	Temperature Rise				
		30° (16°)	40° (22°)	50° (28°)	60° (30°)	70° (39°)
PMG-60	58	181 (685)	135 (511)	108 (409)	90 (341)	77 (292)
PMG-100	105	321 (1215)	241 (912)	193 (731)	161 (610)	138 (522)
PMG-200	195	602 (2279)	452 (1711)	361 (1367)	301 (1139)	258 (977)

Note: Installations above 2,000 ft. (610 m) will reduce the above capacities and may require orifice changes to meet IAS safety compliance. Consult "Installation and Operating Manual" for sizing adjustments and orifice changes.

WATER QUALITY REQUIREMENTS

Incoming water in excess of 3.0 grains of hardness per gallon (GPG) (.75 grains of hardness per liter) must be treated and softened before being supplied to booster heater(s). Water containing over 3.0 GPG (.75 GPL) will decrease the efficiency and reduce the operating life of the unit. ***Note: Product failure caused by liming or sediment buildup is not covered under warranty.***

HATCO CORPORATION P.O. Box 340500 Milwaukee, WI 53234-0500 U.S.A.
(800) 558-0607 • (414) 671-6350 • Fax (800) 543-7521 • Int'l. Fax (414) 671-3976
www.hatcocorp.com • E-mail: equipsales@hatcocorp.com

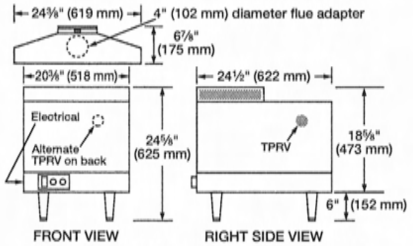
Form No. PMG Spec Sheet

Printed in U.S.A.
January 2007

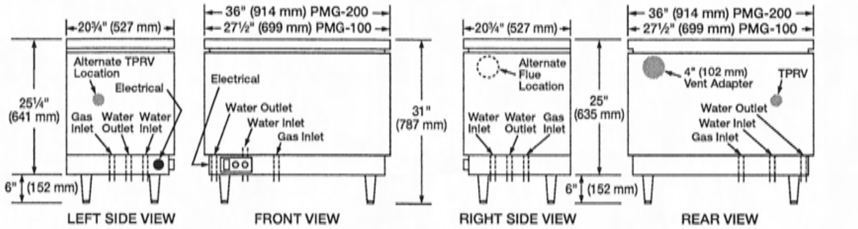
ITEM#

POWERMITE® GAS BOOSTER WATER HEATERS

Models PMG-60, PMG-100, PMG-200



Model PMG-60 & optional PMGH-60 Hood



Models PMG-100 & PMG-200

SPECIFICATIONS

Capacity

PMG-60	Input 58,000 BTUs/Hour. Output – 46,000 = 13.4kW
PMG-100	Input 105,000 BTUs/Hour. Output – 84,800 = 24.8kW
PMG-200	Input 195,000 BTUs/Hour. Output – 156,000 = 45.7kW

Fuel

All Models	Natural or Propane Gas

Electrical

PMG-60	120 VAC, 210 watt, 1.75 amps.
PMGH-60	120 VAC, 18 watt, 0.15 amps.
PMG-100/200	120 VAC, 360 watt, 3.00 amps.

Connections

PMG-60	Gas – ½" NPT, Water – ¾" NPT, Electric – 120 VAC, 15 amp.
PMG-100/200	Gas – ¾" NPT, Water – ¾" NPT, Electric – 120 VAC, 15 amp.

Fluing

PMG-60	Direct – combustion air enters bottom, flue gasses exit sides at top of unit.
PMG-100/200	Direct – combustion air enters bottom, flue gasses exit right side or back at top of unit. 4" (102 mm) flue round.

Operating Water Pressure

All Models	150 PSI max. Relief valve set at 150 PSI, 210°F (99°C)

Shipping Weight

PMG-60	130 lbs. (59 kg) dry.
PMG-100	180 lbs. (82 kg) dry.
PMG-200	215 lbs. (98 kg) dry.

DIMENSIONS

PMG-60: 20³/₈"W x 24¹/₂"D x 24⁵/₈"H* (518 x 622 x 625 mm).
PMG-100: 27¹/₂"W x 20³/₄"D x 31"H* (699 x 527 x 787 mm).
PMG-200: 36"W x 20³/₄"D x 31"H* (914 x 527 x 787 mm).
PMGH-60 Hood: 24³/₈"W x 13³/₈"D⁺ x 6⁷/₈"H• (619 x 340 x 175 mm).

* Height includes 6" (152 mm) legs.
⁺ Add 4" (102 mm) for flue adapter.
• Adds 4" (102 mm) to width and 5⁷/₈" (149 mm) to height of PMG-60.

Gas Inlet Pressure

	Water Column	
Gas Type	Minimum	Maximum
Natural	5.0" (127 mm)	10.5" (267 mm)
Propane/LP	11.0" (279 mm)	13.0" (330 mm)

Operating Pressure Specifications at Manifold

	Water Column At Pressure Tap
Gas Type	High Burn
Natural	3.5" (89 mm)
Propane/LP	10.0" (254 mm)

Vent^

PMGH-60	4" (102 mm) diameter vent pipe adapter
PMG-100/200	Forced draft system with 4" (102 mm) diameter vent pipe adapter.

^ Before installing any method of venting you should contact the local code authority or your gas supplier to make sure that the final installation will be acceptable to the authorities who have jurisdiction.
The proper method of venting a power vented gas appliance is too complicated to cover in this specification sheet and is explained in detail in the National Fuel Gas Code. Before installing the venting system, the person or agency making the installation must be familiar and experienced with the guidelines of the National Fuel Gas Code.

ALL INSTALLATIONS MUST BE MADE BY A QUALIFIED INSTALLER IN ACCORDANCE WITH THE NATIONAL FUEL GAS CODE OR LOCAL CODES.

OPTIONS (NOT FOR RETROFIT)

- ❑ Stainless Steel Body, Base, and Sides
- ❑ Pressure Reducing Valves (Brass or Iron)
- ❑ 6"-7" (152-178 mm) Adjustable Stainless Steel Legs (4)
- ❑ Floor Mounting Hardware
- ❑ Security Package

ACCESSORIES

- ❑ Exhaust Hood PMGH-60 (For PMG-60 only)
- ❑ High Altitude Orifice Kit

PRODUCT SPECS

Gas Booster Water Heater

The Gas Booster Water Heater to supply the final 180°F (82°C) rinse for the dishwasher shall be a Hatco Powermite® Model ...., as manufactured for commercial use by the Hatco Corporation, Milwaukee, WI 53234 U.S.A.

With 24/7 service (U.S and Canada only), the booster shall have the capacity to heat ....gph (lph) from 110°F to 180°F (43°C to 82°C) and it shall be rated at ....btu, 120 volts, single phase. The stainless steel tank shall be designed for a working pressure of 150 psi (1034 kPa) and hydrostatically tested at 300 psi (2069 kPa).

The heater shall be complete with all internal plumbing, including ¾" NPT pipe and fittings from inlet and outlet. All controls shall be built-in, and carry safety approval in accordance with ANSI 21.10.3. Sanitary approval shall be in accordance with NSF Standard 5. Proper surface mounting circuit breaker or fused disconnect switch shall be provided by electrical contractor.

The gas fired heating system shall be controlled by close tolerance immersion thermostats. The booster shall be protected with high temperature limit switch (ECO) and low water cut-off.

The heater shall consist of stainless steel front, top, and stainless steel adjustable legs or stainless steel front and silver-gray hammertone sides and back with standard 6" (152 mm) legs.

The heater shall include a temperature/pressure relief valve, high-temperature limit, pressure reducing valve with bypass, indicating temperature/pressure gauge, shock absorber, and blended phosphate water treatment system.

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Printed in U.S.A.
January 2007

Form No. PMG Spec Sheet

NJBPU Energy Audits
CHA #20151
Building: Sussex County Vocational School - Main Building

ECM-11 Convert Booster Heater from Electric to Natural Gas

Multipliers	
Material:	0.99
Labor:	1.22
Equipment:	1.09

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
						$ -	$ -	$ -	$ -	
Propane Booster Heater 195MBTUH	1	ea	$ 6,200	$ 100	$ -	$ 6,138	$ 122	$ -	$ 6,260	
Piping Mods (water and propane)	1	ls	$ 250	$ 500	$ -	$ 248	$ 610	$ -	$ 858	
Venting	1	ls	$ 200	$ 150	$ -	$ 198	$ 183	$ -	$ 381	
Electrical Mods	1	ls	$ 125	$ 200	$ -	$ 124	$ 244	$ -	$ 368	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	

$ 7,866	Subtotal
$ 787	10% Contingency
$ 1,298	15% Contractor O&P
$ -	0% Engineering
$ 9,951	**Total**

APPENDIX M

ECM-12 Temperature Setback in Isolated Areas

NJBPU Energy Audits
CHA #20151
Building: Sussex County Vocational School - Main Building

ECM-12 Temperature Setback in Isolated Areas

Fuel Oil Cost	$ 3.44	
Heating Oil Usage	53,574	gallons #2
Hours - Full Occupied	60	hrs/week
Hours - Partial Occupied	45	hrs/week
Hours - Unoccupied	63	hrs/week
Occ. Temp. Setpoint	70	F
Unocc. Temp. Setpoint	62	F
% Partial Occupied	33%	
Aver. Temp. Occupied	70	F
Aver. Temp. Partial Occ.	64.6	F
Aver. Temp. Unocc.	62	F
Overall Average Temp.	65.6	F
Savings per Degree of Setback	3%	per EPA Energy Star
Total Savings	13.3%	
Fuel Oil Savings	**7,129**	**gallons**
	$ 24,527	**per year**

NJBPU Energy Audits
CHA #20151
Building: Sussex County Vocational School - Main Building

ECM-12 Temperature Setback in Isolated Areas

Multipliers	
Material:	0.99
Labor:	1.22
Equipment:	1.09

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
						$ -	$ -	$ -	$ -	
Upgrade Controls for Setback	1	ls	$ 30,000	$ 5,000		$ 29,700	$ 6,100	$ -	$ 35,800	
Replace controllers/thermostats	1	ls	$ 5,000	$ 2,000		$ 4,950	$ 2,440	$ -	$ 7,390	correct faulty equipment
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	

$ 43,190	Subtotal
$ 8,638	20% Contingency
$ 7,774	Contractor 15% O&P
$ -	0% Engineering
$ 59,602	**Total**

APPENDIX N

ECM-13 Replace Windows in Technology Wing

NJBPU Energy Audits
CHA #20151
Building: Sussex County Vocational School - Main Building

*Change U-value and air infiltration rates based on new windows or storm windows
See block load spreadsheet for U-values

ECM-13 Replace Windows in Technology Wing

Description

Windows can lead to increased energy consumption due to infiltration/exfiltration and heat gain/loss. Replacing older windows with more panes and low-emissivity coatings and insulated frames can decrease energy usage.

Given

Cooling Hours per Week	0	Hours		
Heating Hours per Week	168	Hours		
Heating Energy Cost	$3.44	$/klbs		
Cooling Cost		$/ton day		
Occupied Cooling Setpoint Temperature	75.0	Degrees F		(Assumption)
Occupied Cooling Avg Space Air Enthalpy	25.5	btu/# air		(Assumption)
Occupied Heatng Setpoint Temperature	70.0	Degrees F	Occupied	(Assumption)
Unoccupied Heating Setpoint Temperature	70.0	Degrees F	Unoccupied	(Assumption)
Window Area	2,367	sq.ft.		(From window survey)
Window Perimeter	3,074	ft		(From window survey)
Proposed U factor	0.50	Btu/(h*sqft*degf)		(From window vendor)
Proposed Air Infiltration	0.20	cfm/ft		(From window vendor)
Cooling Conversion	12,000	Btu/ton		
Heating Btu Conversion	1,000,000	Btu/MMBtu		

Assumptions

Existing U factor	1.05	Btu/(h*sqft*degf)	(From ASHRAE Fundamentals)
Existing Air Infiltration	0.30	cfm/ft	(From ASHRAE Fundamentals)
Fuel Oil Heat Content	140,000	Btu/gal	
Boiler Efficiency	80%		

Formula

Cooling Energy Conduction = (Existing U x Area x (OA Temp - RA Temp) x Op Hours)

Heating Energy Conduction = (Existing U x Area x (RA Temp - OA Temp) x Op Hours)
Cooling Energy Infiltration = (4.5 x Leakage x Perimeter x (OA Enthalpy - RA Enthalpy) x Op Hours)
Heating Energy Infiltration = 1.08 x Leakage x Perimeter x (RA temp - OA temp) x Op Hours)
Load = (Conduction) + (Infiltration)
Cooling Energy = (Cooling Load) / (12,000 Btu/Ton) x (kw/Ton)
Heating Energy = (Heating Load) / (1,000,000 Btu/MMBtu) / (Boiler Efficiency)
Energy Cost = (Energy) x (Cost/Unit)

Existing Operation	OA Enthalphy	OA Temp	Total Hours	Cooling Occupied Hours	Heating Occupied Hours	Heating Unoccupied Hours	Cooling Occupied Conduction	Heating Occupied Conduction	Heating Unoccupied Conduction	Cooling Occupied Infiltration	Heating Occupied Infiltration	Heating Unoccupied Infiltration
Cooling	38.3	92.5	37	0.0	0.0	0.0	0	0	0	0	0	0
Cooling	36.6	87.5	131	0.0	0.0	0.0	0	0	0	0	0	0
Cooling	33.5	82.5	500	0.0	0.0	0.0	0	0	0	0	0	0
Cooling	31.6	77.5	620	0.0	0.0	0.0	0	0	0	0	0	0
Heating	30.3	72.5	664	0.0	0.0	0.0	0	0	0	0	0	0
Heating	27.9	67.5	854	0.0	854.0	0.0	0	5,305,522	0	0	2,126,347	0
Heating	24.6	62.5	927	0.0	927.0	0.0	0	17,277,115	0	0	6,924,320	0
Heating	21.6	57.5	600	0.0	600.0	0.0	0	18,637,664	0	0	7,469,601	0
Heating	18.7	52.5	610	0.0	610.0	0.0	0	26,527,609	0	0	10,631,733	0
Heating	16.2	47.5	611	0.0	611.0	0.0	0	34,162,838	0	0	13,691,779	0
Heating	14.3	42.5	656	0.0	656.0	0.0	0	44,829,795	0	0	17,966,881	0
Heating	12.4	37.5	1,023	0.0	1023.0	0.0	0	82,620,765	0	0	33,112,743	0
Heating	10.4	32.5	734	0.0	734.0	0.0	0	68,400,227	0	0	27,413,437	0
Heating	8.7	27.5	334	0.0	334.0	0.0	0	35,274,886	0	0	14,137,465	0
Heating	7	22.5	252	0.0	252.0	0.0	0	29,745,712	0	0	11,921,484	0
Heating	5.4	17.5	125	0.0	125.0	0.0	0	16,307,956	0	0	6,535,901	0
Heating	3.9	12.5	47	0.0	47.0	0.0	0	6,715,772	0	0	2,691,546	0
Heating	2.5	7.5	22	0.0	22.0	0.0	0	3,416,905	0	0	1,369,427	0
Heating	1.2	2.5	13	0.0	13.0	0.0	0	2,180,607	0	0	873,943	0
Heating	-0.2	-2.5	0	0.0	0.0	0.0	0	0	0	0	0	0
Heating	-1.4	-7.5	0	0.0	0.0	0.0	0	0	0	0	0	0
Subtotal =			8,760	0	6,808	0	0	391,403,370	0 btu	0	156,866,607	0 btu

	Conduction	Infiltration		
Cooling Load =	(0) + (	0) =		0 btu
	Cooling Load	Btu/ton		
Cooling Energy =	(0)/(	12000) / (	24) =	0.00 ton day
	Cooling Energy	Cooling Cost		
Cooling Energy Cost =	(0.00) x (	$0.000) =		$ -
	Conduction	Infiltration		
Heating Load =	(391403370) + (	156866607) =		548,269,977 btu
	Heating Load	Heat Content		
Heating Energy =	(548269977)/(	140000)/(	80%) =	4,895 gallons
	Heating Energy	Heating Cost		
Heating Energy Cost =	(4895.27) x (	$3.440) =		$ 16,841

Operation	OA Enthalpy	OA Temp	Total Hours	Cooling Occupied Hours	Heating Occupied Hours	Heating Unoccupied Hours	Cooling Occupied Conduction	Heating Occupied Conduction	Heating Unoccupied Conduction	Cooling Occupied Infiltration	Heating Occupied Infiltration	Heating Unoccupied Infiltration
Cooling	38.3	92.5	51	0.0	0.0	0.0	0	0	0	0	0	0
Cooling	36.6	87.5	146	0.0	0.0	0.0	0	0	0	0	0	0
Cooling	33.5	82.5	298	0.0	0.0	0.0	0	0	0	0	0	0
Cooling	31.6	77.5	476	0.0	0.0	0.0	0	0	0	0	0	0
Heating	30.3	72.5	662	0.0	0.0	0.0	0	0	0	0	0	0
Heating	27.9	67.5	740	0.0	740.3	0.0	0	2,190,186	0	0	1,228,896	0
Heating	24.6	62.5	765	0.0	765.3	0.0	0	6,792,536	0	0	3,811,237	0
Heating	21.6	57.5	733	0.0	733.3	0.0	0	10,847,340	0	0	6,086,354	0
Heating	18.7	52.5	668	0.0	668.3	0.0	0	13,839,608	0	0	7,765,292	0
Heating	16.2	47.5	659	0.0	659.3	0.0	0	17,554,045	0	0	9,849,432	0
Heating	14.3	42.5	685	0.0	685.3	0.0	0	22,301,421	0	0	12,513,146	0
Heating	12.4	37.5	739	0.0	739.3	0.0	0	28,433,942	0	0	15,954,054	0
Heating	10.4	32.5	717	0.0	717.3	0.0	0	31,831,690	0	0	17,860,503	0
Heating	8.7	27.5	543	0.0	543.2	0.0	0	27,321,091	0	0	15,329,642	0
Heating	7	22.5	318	0.0	318.1	0.0	0	17,882,573	0	0	10,033,766	0
Heating	5.4	17.5	245	0.0	245.1	0.0	0	15,227,712	0	0	8,544,146	0
Heating	3.9	12.5	156	0.0	156.1	0.0	0	10,619,442	0	0	5,958,483	0
Heating	2.5	7.5	92	0.0	92.0	0.0	0	6,807,335	0	0	3,819,540	0
Heating	1.2	2.5	36	0.0	36.0	0.0	0	2,876,839	0	0	1,614,171	0
Heating	-0.2	-2.5	19	0.0	19.0	0.0	0	1,630,801	0	0	915,029	0
Heating	-1.4	-7.5	8	0.0	8.0	0.0	0	733,673	0	0	411,658	0
Subtotal =			8,760	0	7,126	0	0	216,890,235	0 btu	0	121,695,348	0 btu

	Conduction	Infiltration	
Cooling Load =	(0) + (	0) =	0 btu
	Cooling Load	Btu/ton	
Cooling Energy =	(0)/(	12000) / (24.00) =	0.00 ton day
	Cooling Energy	Cooling Cost	
Cooling Energy Cost =	(0.00) x (	$0.000) =	$ -
	Conduction	Infiltration	
Heating Load =	(216890235) + (	121695348) =	338,585,583 btu
	Heating Load	Heat Content	
Heating Energy =	(338585583)/(	140000.00) / (80%) =	3023 gallons
	Heating Energy	Heating Cost	
Heating Energy Cost =	(3023.09) x (	$3.440) =	$ 10,400

Summary

EXISTING COOLING ENERGY	0.00	ton day	$ -
EXISTING HEATING ENERGY	4895	gallons	$ 16,841.28
EXISTING ENERGY COST			$ 16,841.28

PROPOSED COOLING ENERGY	0.00	ton day	$ -
PROPOSED HEATING ENERGY	3023	gallons	$ 10,400.38
PROPOSED ENERGY COST			$ 10,400.38

COOLING ENERGY SAVINGS	0.00	ton day	$ -
HEATING ENERGY SAVINGS	1872	gallons	$ 6,440.90
ENERGY COST SAVINGS			$ 6,440.90

Comments

NJBPU Energy Audits
CHA #20151
Building: Sussex County Vocational School - Main Building

ECM-13 Replace Windows in Technology Wing

	Width	Height	Area	Quantity	Total	Linear Ft	Total
Name	ft	ft	sf	(#)	sf	ft	ft
Type "C"	3.7	6.25	22.9	47	1,077	30.8	1449
old wing-large "A"	4.0	6.25	25.0	40	1,000	32.5	1300
old wing-small "B"	4.0	4.83	19.3	15	290	21.7	325
			0.0		-		
			0.0		-		
				102	2,367		3,074

NJBPU Energy Audits
CHA #20151
Building: Sussex County Vocational School - Main Building

ECM-13 Replace Windows in Technology Wing

Multipliers	
Material:	0.99
Labor:	1.22
Equipment:	1.09

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
						$ -	$ -	$ -	$ -	
Type "A" windows	40	ea	$ 495	$ 110		$ 19,602	$ 5,368	$ -	$ 24,970	
Type "B" windows	15	ea	$ 375	$ 74		$ 5,569	$ 1,345	$ -	$ 6,914	
Type "C" windows	47	ea	$ 495	$ 110		$ 23,032	$ 6,307	$ -	$ 29,340	
Old Window Removal	102	ea	$ -	$ 100		$ -	$ 12,444	$ -	$ 12,444	
Trim Work/Opening Repair	102	ea	$ 50	$ 150		$ 5,049	$ 18,666	$ -	$ 23,715	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	

$ 97,383	Subtotal
$ 29,215	30% Contingency
$ 18,990	15% Contractor O&P
$ -	0% Engineering
$ 145,587	**Total**

APPENDIX O

ECM-14 Install Occupancy Sensors

Energy Audit of Sussex County Technical School Facilities

CHA Project No. 20151 Main Building

ECM-14 Install Occupancy Sensors

$0.146 $/kWh

$6.63 $/kW

Field Code	Area Description	No. of Fixtures	Standard Fixture Code	NYSERDA Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	RETROFIT CONDITIONS: Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	COST & SAVINGS ANALYSIS: Annual kWh Saved	Annual $ Saved	Retrofit Cost	NJ Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(kW Saved) * ($/kWh)	Cost for renovations to lighting system		Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
	Main Building - Interior																						
202	Room 100	2	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2808	185.3	2	2T 17 R F 4 (ELE)	F22ILL	33	0.1	OCC	1800	118.8	66.5	$9.71	$118.75	$20.00	12.2	10.2
202	Room 100	4	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2808	370.7	4	2T 17 R F 4 (ELE)	F22ILL	33	0.1	None	2808	370.7	0.0	$0.00	$0.00	$0.00		
202	Room 100	4	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2808	370.7	4	2T 17 R F 4 (ELE)	F22ILL	33	0.1	OCC	1800	237.6	133.1	$19.43	$118.75	$20.00	6.1	5.1
202	Room 100	3	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2808	278.0	3	2T 17 R F 4 (ELE)	F22ILL	33	0.1	OCC	1800	178.2	99.8	$14.57	$118.75	$20.00	8.2	6.8
46	Room 100	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	168.5	1	W 32 C F 2 (ELE)	F42LL	60	0.1	None	2808	168.5	0.0	$0.00	$0.00	$0.00		
46	Room 100	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	337.0	2	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1800	216.0	121.0	$17.66	$118.75	$20.00	6.7	5.6
238	Room 100	8	DC 32 P F 2	F42LL	60	0.5	SW	2808	1,347.8	8	DC 32 P F 2	F42LL	60	0.5	OCC	1800	864.0	483.8	$70.64	$118.75	$20.00	1.7	1.4
46	Room 101	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	337.0	2	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1800	216.0	121.0	$17.66	$118.75	$20.00	6.7	5.6
202	Room 101	2	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2808	185.3	2	2T 17 R F 4 (ELE)	F22ILL	33	0.1	OCC	1800	118.8	66.5	$9.71	$118.75	$20.00	12.2	10.2
46	Room 101	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	505.4	3	W 32 C F 2 (ELE)	F42LL	60	0.2	None	2808	505.4	0.0	$0.00	$0.00	$0.00		
46	Room 101	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	673.9	4	W 32 C F 2 (ELE)	F42LL	60	0.2	None	2808	673.9	0.0	$0.00	$0.00	$0.00		
46	Room 102	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	673.9	4	W 32 C F 2 (ELE)	F42LL	60	0.2	None	2808	673.9	0.0	$0.00	$0.00	$0.00		
46	Room 102	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	673.9	4	W 32 C F 2 (ELE)	F42LL	60	0.2	None	2808	673.9	0.0	$0.00	$0.00	$0.00		
46	Room 102	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	673.9	4	W 32 C F 2 (ELE)	F42LL	60	0.2	None	2808	673.9	0.0	$0.00	$0.00	$0.00		
202	Library	4	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2808	370.7	4	2T 17 R F 4 (ELE)	F22ILL	33	0.1	C-OCC	1800	237.6	133.1	$19.43	$202.50	$35.00	10.4	8.6
202	Library	4	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2808	370.7	4	2T 17 R F 4 (ELE)	F22ILL	33	0.1	C-OCC	1800	237.6	133.1	$19.43	$202.50	$35.00	10.4	8.6
202	Library	4	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2808	370.7	4	2T 17 R F 4 (ELE)	F22ILL	33	0.1	C-OCC	1800	237.6	133.1	$19.43	$202.50	$35.00	10.4	8.6
202	Room 105	45	2T 17 R F 4 (ELE)	F22ILL	33	1.5	SW	2808	4,169.9	45	2T 17 R F 4 (ELE)	F22ILL	33	1.5	C-OCC	1800	2,673.0	1,496.9	$218.54	$405.00	$70.00	1.9	1.5
46	Room 105	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,010.9	6	W 32 C F 2 (ELE)	F42LL	60	0.4	C-OCC	1800	648.0	362.9	$52.98	$202.50	$35.00	3.8	3.2
46	Room 106	9	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,516.3	9	W 32 C F 2 (ELE)	F42LL	60	0.5	None	2808	1,516.3	0.0	$0.00	$0.00	$0.00		
46	Room 106	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,347.8	8	W 32 C F 2 (ELE)	F42LL	60	0.5	None	2808	1,347.8	0.0	$0.00	$0.00	$0.00		
46	Room 106	9	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,516.3	9	W 32 C F 2 (ELE)	F42LL	60	0.5	None	2808	1,516.3	0.0	$0.00	$0.00	$0.00		
46	Room 106	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	168.5	1	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1800	108.0	60.5	$8.83	$118.75	$20.00	13.4	11.2
46	Room 106	1	W 32 C F 2 (ELE)	F42LL	60	0.1	Breaker	8760	525.6	1	W 32 C F 2 (ELE)	F42LL	60	0.1	None	8760	525.6	0.0	$0.00	$0.00	$0.00		
202	Room 106	2	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2808	185.3	2	2T 17 R F 4 (ELE)	F22ILL	33	0.1	OCC	1800	118.8	66.5	$9.71	$118.75	$20.00	12.2	10.2
202	Room 106	2	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2808	185.3	2	2T 17 R F 4 (ELE)	F22ILL	33	0.1	OCC	1800	118.8	66.5	$9.71	$118.75	$20.00	12.2	10.2
46	Room 106	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	505.4	3	W 32 C F 2 (ELE)	F42LL	60	0.2	OCC	1800	324.0	181.4	$26.49	$118.75	$20.00	4.5	3.7
46	Room 106	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853.3	11	W 32 C F 2 (ELE)	F42LL	60	0.7	None	2808	1,853.3	0.0	$0.00	$0.00	$0.00		
46	Room 106	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853.3	11	W 32 C F 2 (ELE)	F42LL	60	0.7	None	2808	1,853.3	0.0	$0.00	$0.00	$0.00		
70	Room 107	4	W 32 C F 1	F41LL	32	0.1	SW	2808	359.4	4	W 32 C F 1	F41LL	32	0.1	None	2808	359.4	0.0	$0.00	$0.00	$0.00		
46	Room 108	24	W 32 C F 2 (ELE)	F42LL	60	1.4	SW	2808	4,043.5	24	W 32 C F 2 (ELE)	F42LL	60	1.4	None	2808	4,043.5	0.0	$0.00	$0.00	$0.00		
35	Gift Shop	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	1000	540.0	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	None	1000	540.0	0.0	$0.00	$0.00	$0.00		
46	Room 109	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,347.8	8	W 32 C F 2 (ELE)	F42LL	60	0.5	None	2808	1,347.8	0.0	$0.00	$0.00	$0.00		
46	Room 109	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	673.9	4	W 32 C F 2 (ELE)	F42LL	60	0.2	None	2808	673.9	0.0	$0.00	$0.00	$0.00		
46	Room 109	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	1,684.8	10	W 32 C F 2 (ELE)	F42LL	60	0.6	None	2808	1,684.8	0.0	$0.00	$0.00	$0.00		
46	Room 109	68	W 32 C F 2 (ELE)	F42LL	60	4.1	SW	2808	11,456.6	68	W 32 C F 2 (ELE)	F42LL	60	4.1	None	2808	11,456.6	0.0	$0.00	$0.00	$0.00		
46	Mens #1	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	499.2	4	W 32 C F 2 (ELE)	F42LL	60	0.2	None	2080	499.2	0.0	$0.00	$0.00	$0.00		
46	Womens #1	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	374.4	3	W 32 C F 2 (ELE)	F42LL	60	0.2	None	2080	374.4	0.0	$0.00	$0.00	$0.00		
46	Room 111	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	337.0	2	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1800	216.0	121.0	$17.66	$118.75	$20.00	6.7	5.6
46	Room 111	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,010.9	6	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1800	648.0	362.9	$52.98	$118.75	$20.00	2.2	1.9
46	Room 111	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	168.5	1	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1800	108.0	60.5	$8.83	$118.75	$20.00	13.4	11.2
46	Room 111	9	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,516.3	9	W 32 C F 2 (ELE)	F42LL	60	0.5	OCC	1800	972.0	544.3	$79.47	$118.75	$20.00	1.5	1.2
46	Room 111	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853.3	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1800	1,188.0	665.3	$97.13	$118.75	$20.00	1.2	1.0
46	Room 111	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853.3	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1800	1,188.0	665.3	$97.13	$118.75	$20.00	1.2	1.0
46	Room 111	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853.3	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1800	1,188.0	665.3	$97.13	$118.75	$20.00	1.2	1.0
46	Room 111	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,010.9	6	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1800	648.0	362.9	$52.98	$118.75	$20.00	2.2	1.9
46	Room 112	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842.4	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1800	540.0	302.4	$44.15	$118.75	$20.00	2.7	2.2
46	Room 112	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842.4	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1800	540.0	302.4	$44.15	$118.75	$20.00	2.7	2.2
46	Room 112	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842.4	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1800	540.0	302.4	$44.15	$118.75	$20.00	2.7	2.2
46	Room 112	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842.4	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1800	540.0	302.4	$44.15	$118.75	$20.00	2.7	2.2
46	Room 113	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842.4	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1800	540.0	302.4	$44.15	$118.75	$20.00	2.7	2.2
46	Room 113	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842.4	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1800	540.0	302.4	$44.15	$118.75	$20.00	2.7	2.2
46	Room 113	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842.4	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1800	540.0	302.4	$44.15	$118.75	$20.00	2.7	2.2
46	Room 113	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842.4	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1800	540.0	302.4	$44.15	$118.75	$20.00	2.7	2.2
46	Room 114	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	505.4	3	W 32 C F 2 (ELE)	F42LL	60	0.2	OCC	1800	324.0	181.4	$26.49	$118.75	$20.00	4.5	3.7
46	Room 115	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853.3	11	W 32 C F 2 (ELE)	F42LL	60	0.7	None	2808	1,853.3	0.0	$0.00	$0.00	$0.00		
46	Room 115	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853.3	11	W 32 C F 2 (ELE)	F42LL	60	0.7	None	2808	1,853.3	0.0	$0.00	$0.00	$0.00		
46	Room 115	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853.3	11	W 32 C F 2 (ELE)	F42LL	60	0.7	None	2808	1,853.3	0.0	$0.00	$0.00	$0.00		
46	Room 115	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853.3	11	W 32 C F 2 (ELE)	F42LL	60	0.7	None	2808	1,853.3	0.0	$0.00	$0.00	$0.00		
46	Room 115	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	505.4	3	W 32 C F 2 (ELE)	F42LL	60	0.2	OCC	1800	324.0	181.4	$26.49	$118.75	$20.00	4.5	3.7
46	Room 116	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	337.0	2	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1800	216.0	121.0	$17.66	$118.75	$20.00	6.7	5.6
46	Room 117	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	1,684.8	10	W 32 C F 2 (ELE)	F42LL	60	0.6	OCC	1800	1,080.0	604.8	$88.30	$118.75	$20.00	1.3	1.1
46	Room 117	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	1,684.8	10	W 32 C F 2 (ELE)	F42LL	60	0.6	OCC	1800	1,080.0	604.8	$88.30	$118.75	$20.00	1.3	1.1
46	Room 117	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	168.5	1	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1800	108.0	60.5	$8.83	$118.75	$20.00	13.4	11.2
46	Room 117	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	337.0	2	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1800	216.0	121.0	$17.66	$118.75	$20.00	6.7	5.6
46	Vestibule near Room 117	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	3744	449.3	2	W 32 C F 2 (ELE)	F42LL	60	0.1	None	3744	449.3	0.0	$0.00	$0.00	$0.00		
46	Vestibule near Room 117	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	3744	898.6	4	W 32 C F 2 (ELE)	F42LL	60	0.2	None	3744	898.6	0.0	$0.00	$0.00	$0.00		
46	Room 118	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	1,684.8	10	W 32 C F 2 (ELE)	F42LL	60	0.6	None	2808	1,684.8	0.0	$0.00	$0.00	$0.00		
46	Room 118	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	1,684.8	10	W 32 C F 2 (ELE)	F42LL	60	0.6	None	2808	1,684.8	0.0	$0.00	$0.00	$0.00		
46	Room 118	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	1,684.8	10	W 32 C F 2 (ELE)	F42LL	60	0.6	None	2808	1,684.8	0.0	$0.00	$0.00	$0.00		
46	Room 118	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	1,684.8	10	W 32 C F 2 (ELE)	F42LL	60	0.6	None	2808	1,684.8	0.0	$0.00	$0.00	$0.00		
46	Room 119A	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842.4	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1800	540.0	302.4	$44.15	$118.75	$20.00	2.7	2.2
46	Room 119A	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842.4	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1800	540.0	302.4	$44.15	$118.75	$20.00	2.7	2.2
46	Room 119A	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842.4	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1800	540.0	302.4	$44.15	$118.75	$20.00	2.7	2.2
46	Room 119A	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842.4	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1800	540.0	302.4	$44.15	$118.75	$20.00	2.7	2.2
46	Room 119B	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	1,684.8	10	W 32 C F 2 (ELE)	F42LL	60	0.6	OCC	1800	1,080.0	604.8	$88.30	$118.75	$20.00	1.3	1.1
46	Room 119B	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	1,684.8	10	W 32 C F 2 (ELE)	F42LL	60	0.6	OCC	1800	1,080.0	604.8	$88.30	$118.75	$20.00	1.3	1.1
46	Room 119B	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	1,684.8	10	W 32 C F 2 (ELE)	F42LL	60	0.6	OCC	1800	1,080.0	604.8	$88.30	$118.75	$20.00	1.3	1.1
46	Room 119B	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	1,684.8	10	W 32 C F 2 (ELE)	F42LL	60	0.6	OCC	1800	1,080.0	604.8	$88.30	$118.75	$20.00	1.3	1.1

Field Code	Area Description	No. of Fixtures	Standard Fixture Code	NYSERDA Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	RETROFIT CONDITIONS: Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	COST & SAVINGS ANALYSIS: Annual kWh Saved	Annual $ Saved	Retrofit Cost	NJ Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(kW Saved) * ($/kWh)	Cost for renovations to lighting system		Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
46	Room 123	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	673.9	4	W 32 C F 2 (ELE)	F42LL	60	0.2	OCC	1800	432.0	241.9	$35.32	$118.75	$20.00	3.4	2.8
46	Room 123	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	673.9	4	W 32 C F 2 (ELE)	F42LL	60	0.2	OCC	1800	432.0	241.9	$35.32	$118.75	$20.00	3.4	2.8
46	Room 123	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	673.9	4	W 32 C F 2 (ELE)	F42LL	60	0.2	OCC	1800	432.0	241.9	$35.32	$118.75	$20.00	3.4	2.8
46	Room near 123	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	673.9	4	W 32 C F 2 (ELE)	F42LL	60	0.2	OCC	1800	432.0	241.9	$35.32	$118.75	$20.00	3.4	2.8
35	Room 124	26	T 32 R F 3 (ELE)	F43ILL/2	90	2.3	SW	2808	6,570.7	26	T 32 R F 3 (ELE)	F43ILL/2	90	2.3	None	2808	6,570.7	0.0	$0.00	$0.00	$0.00		
35	Room 124	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	2808	505.4	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	OCC	1800	324.0	181.4	$26.49	$118.75	$20.00	4.5	3.7
46	Mens # 2	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	499.2	4	W 32 C F 2 (ELE)	F42LL	60	0.2	None	2080	499.2	0.0	$0.00	$0.00	$0.00		
46	Womens #2	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	499.2	4	W 32 C F 2 (ELE)	F42LL	60	0.2	None	2080	499.2	0.0	$0.00	$0.00	$0.00		
202	Office	8	2T 17 R F 4 (ELE)	F22ILL	33	0.3	SW	2600	686.4	8	2T 17 R F 4 (ELE)	F22ILL	33	0.3	None	2600	686.4	0.0	$0.00	$0.00	$0.00		
46	Office	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2600	312.0	2	W 32 C F 2 (ELE)	F42LL	60	0.1	None	2600	312.0	0.0	$0.00	$0.00	$0.00		
x1	near 125	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13.1	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8760	13.1	0.0	$0.00	$0.00	$0.00		
35	Room 125	21	T 32 R F 3 (ELE)	F43ILL/2	90	1.9	SW	2808	5,307.1	21	T 32 R F 3 (ELE)	F43ILL/2	90	1.9	None	2808	5,307.1	0.0	$0.00	$0.00	$0.00		
46	Room 125	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	168.5	1	W 32 C F 2 (ELE)	F42LL	60	0.1	None	2808	168.5	0.0	$0.00	$0.00	$0.00		
46	Room 125	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	337.0	2	W 32 C F 2 (ELE)	F42LL	60	0.1	None	2808	337.0	0.0	$0.00	$0.00	$0.00		
46	Room 126	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,010.9	6	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1800	648.0	362.9	$52.98	$118.75	$20.00	2.2	1.9
46	Room 126	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,010.9	6	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1800	648.0	362.9	$52.98	$118.75	$20.00	2.2	1.9
46	Room 126	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,010.9	6	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1800	648.0	362.9	$52.98	$118.75	$20.00	2.2	1.9
46	Room 127	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	168.5	1	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1800	108.0	60.5	$8.83	$118.75	$20.00	13.4	11.2
46	Room 127	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853.3	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1800	1,188.0	665.3	$97.13	$118.75	$20.00	1.2	1.0
46	Room 127	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853.3	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1800	1,188.0	665.3	$97.13	$118.75	$20.00	1.2	1.0
46	Room 127	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853.3	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1800	1,188.0	665.3	$97.13	$118.75	$20.00	1.2	1.0
46	Room 127	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	168.5	1	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1800	108.0	60.5	$8.83	$118.75	$20.00	13.4	11.2
46	Mens #3	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	374.4	3	W 32 C F 2 (ELE)	F42LL	60	0.2	None	2080	374.4	0.0	$0.00	$0.00	$0.00		
46	Womens #3	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	374.4	3	W 32 C F 2 (ELE)	F42LL	60	0.2	None	2080	374.4	0.0	$0.00	$0.00	$0.00		
46	Stairway	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	3744	1,123.2	5	W 32 C F 2 (ELE)	F42LL	60	0.3	None	3744	1,123.2	0.0	$0.00	$0.00	$0.00		
98	Hallway near Room 100	50	T 32 R F 2	F42LL	60	3.0	SW	3744	11,232.0	50	T 32 R F 2	F42LL	60	3.0	None	3744	11,232.0	0.0	$0.00	$0.00	$0.00		
x1	Hallway near Room 100	3	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	39.4	3	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8760	39.4	0.0	$0.00	$0.00	$0.00		
70	Hall near Room 125 and 124	14	W 32 C F 1	F41LL	32	0.4	SW	3744	1,677.3	14	W 32 C F 1	F41LL	32	0.4	None	3744	1,677.3	0.0	$0.00	$0.00	$0.00		
70	Stairs	4	W 32 C F 1	F41LL	32	0.1	SW	3744	479.2	4	W 32 C F 1	F41LL	32	0.1	None	3744	479.2	0.0	$0.00	$0.00	$0.00		
46	Hall near Room 117	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	3744	898.6	4	W 32 C F 2 (ELE)	F42LL	60	0.2	None	3744	898.6	0.0	$0.00	$0.00	$0.00		
70	Hallway near Room 112	46	W 32 C F 1	F41LL	32	1.5	SW	3744	5,511.2	46	W 32 C F 1	F41LL	32	1.5	None	3744	5,511.2	0.0	$0.00	$0.00	$0.00		
x2	Hallway near Room 112	3	XX 3.0 W CF 2	ELED1.5/2	3	0.0	Breaker	8760	78.8	3	XX 3.0 W CF 2	ELED1.5/2	3	0.0	None	8760	78.8	0.0	$0.00	$0.00	$0.00		
232	Area Between Room 127 and Gym	5	R 100 C I 1	i100/1	100	0.5	SW	3744	1,872.0	5	R 100 C I 1	i100/1	100	0.5	OCC	1800	900.0	972.0	$141.91	$118.75	$20.00	0.8	0.7
x1	Area Between Room 127 and Gym	3	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	39.4	3	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8760	39.4	0.0	$0.00	$0.00	$0.00		
98	Area Between Room 127 and Gym	12	T 32 R F 2	F42LL	60	0.7	SW	3744	2,695.7	12	T 32 R F 2	F42LL	60	0.7	OCC	1800	1,296.0	1,399.7	$204.35	$118.75	$20.00	0.6	0.5
18	Area Between Room 127 and Gym	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	3744	1,258.0	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	OCC	1800	604.8	653.2	$95.36	$118.75	$20.00	1.2	1.0
18	Area Between Room 127 and Gym	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	SW	3744	419.3	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	OCC	1800	201.6	217.7	$31.79	$118.75	$20.00	3.7	3.1
18	Area Between Room 127 and Gym	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	Breaker	8760	981.1	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	None	8760	981.1	0.0	$0.00	$0.00	$0.00		
18	Area Between Room 127 and Gym	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	SW	3744	419.3	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	OCC	1800	201.6	217.7	$31.79	$118.75	$20.00	3.7	3.1
x1	Gym Lobby	3	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	39.4	3	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8760	39.4	0.0	$0.00	$0.00	$0.00		
98	Gym Lobby	22	T 32 R F 2	F42LL	60	1.3	SW	3650	4,818.0	22	T 32 R F 2	F42LL	60	1.3	OCC	1800	2,376.0	2,442.0	$356.53	$118.75	$20.00	0.3	0.3
235	Gym Offices	4	R 75 C Q 1	h75/1	75	0.3	SW	3650	1,095.0	4	R 75 C Q 1	h75/1	75	0.3	OCC	1800	540.0	555.0	$81.03	$118.75	$20.00	1.5	1.2
235	Gym Offices	4	R 75 C Q 1	h75/1	75	0.3	SW	3650	1,095.0	4	R 75 C Q 1	h75/1	75	0.3	OCC	1800	540.0	555.0	$81.03	$118.75	$20.00	1.5	1.2
235	Gym Offices	4	R 75 C Q 1	h75/1	75	0.3	SW	3650	1,095.0	4	R 75 C Q 1	h75/1	75	0.3	OCC	1800	540.0	555.0	$81.03	$118.75	$20.00	1.5	1.2
235	Gym Offices	6	R 75 C Q 1	h75/1	75	0.5	SW	3650	1,642.5	6	R 75 C Q 1	h75/1	75	0.5	OCC	1800	810.0	832.5	$121.55	$118.75	$20.00	1.0	0.8
235	Gym Offices	6	R 75 C Q 1	h75/1	75	0.5	SW	3650	1,642.5	6	R 75 C Q 1	h75/1	75	0.5	OCC	1800	810.0	832.5	$121.55	$118.75	$20.00	1.0	0.8
x1	Gym	4	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	52.6	4	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8760	52.6	0.0	$0.00	$0.00	$0.00		
9	Gym	24	High Bay MH 400 35 Feet High	MH400/1	458	11.0	SW	3650	40,120.8	24	High Bay MH 400 35 Feet High	MH400/1	458	11.0	None	3650	40,120.8	0.0	$0.00	$0.00	$0.00		
46	Aux Gym	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	3650	876.0	4	W 32 C F 2 (ELE)	F42LL	60	0.2	None	3650	876.0	0.0	$0.00	$0.00	$0.00		
46	Aux Gym	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	3650	876.0	4	W 32 C F 2 (ELE)	F42LL	60	0.2	None	3650	876.0	0.0	$0.00	$0.00	$0.00		
46	Aux Gym	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	3650	876.0	4	W 32 C F 2 (ELE)	F42LL	60	0.2	None	3650	876.0	0.0	$0.00	$0.00	$0.00		
46	Aux Gym	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	3650	438.0	2	W 32 C F 2 (ELE)	F42LL	60	0.1	None	3650	438.0	0.0	$0.00	$0.00	$0.00		
232	Aux Gym	3	R 100 C I 1	i100/1	100	0.3	SW	3650	1,095.0	3	R 100 C I 1	i100/1	100	0.3	None	3650	1,095.0	0.0	$0.00	$0.00	$0.00		
46	Gym - Boys	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	3650	438.0	2	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1800	216.0	222.0	$32.41	$118.75	$20.00	3.7	3.0
50	Gym - Boys	2	W 32 W F 2 (ELE) Pull Chain (500 hrs	F42LL	60	0.1	SW	3650	438.0	2	W 32 W F 2 (ELE) Pull Chain (500 hrs	F42LL	60	0.1	OCC	1800	216.0	222.0	$32.41	$118.75	$20.00	3.7	3.0
46	Gym - Boys	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	3650	219.0	1	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1800	108.0	111.0	$16.21	$118.75	$20.00	7.3	6.1
46	Gym - Boys	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	3650	438.0	2	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1800	216.0	222.0	$32.41	$118.75	$20.00	3.7	3.0
46	Gym - Boys	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	3650	1,533.0	7	W 32 C F 2 (ELE)	F42LL	60	0.4	None	3650	1,533.0	0.0	$0.00	$0.00	$0.00		
98	Gym - Boys	8	T 32 R F 2	F42LL	60	0.5	SW	3650	1,752.0	8	T 32 R F 2	F42LL	60	0.5	None	3650	1,752.0	0.0	$0.00	$0.00	$0.00		
46	Gym - Girls	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	3650	438.0	2	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1800	216.0	222.0	$32.41	$118.75	$20.00	3.7	3.0
50	Gym - Girls	2	W 32 W F 2 (ELE) Pull Chain (500 hrs	F42LL	60	0.1	SW	3650	438.0	2	W 32 W F 2 (ELE) Pull Chain (500 hrs	F42LL	60	0.1	OCC	1800	216.0	222.0	$32.41	$118.75	$20.00	3.7	3.0
46	Gym - Girls	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	3650	219.0	1	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1800	108.0	111.0	$16.21	$118.75	$20.00	7.3	6.1
46	Gym - Girls	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	3650	438.0	2	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1800	216.0	222.0	$32.41	$118.75	$20.00	3.7	3.0
46	Gym - Girls	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	3650	1,533.0	7	W 32 C F 2 (ELE)	F42LL	60	0.4	None	3650	1,533.0	0.0	$0.00	$0.00	$0.00		
98	Gym - Girls	8	T 32 R F 2	F42LL	60	0.5	SW	3650	1,752.0	8	T 32 R F 2	F42LL	60	0.5	None	3650	1,752.0	0.0	$0.00	$0.00	$0.00		
46	Next to Gym - Boys	9	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	3650	1,971.0	9	W 32 C F 2 (ELE)	F42LL	60	0.5	OCC	1800	972.0	999.0	$145.85	$118.75	$20.00	0.8	0.7
227	Next to Gym - Boys	1	W60CF1	F81EL	60	0.1	SW	3744	224.6	1	W60CF1	F81EL	60	0.1	OCC	1800	108.0	116.6	$17.03	$118.75	$20.00	7.0	5.8
105	Entrance Near Pool	6	W 32 F 1	F41LL	32	0.2	SW	3744	718.8	6	W 32 F 1	F41LL	32	0.2	OCC	1800	345.6	373.2	$54.49	$118.75	$20.00	2.2	1.8
105	Hallway Near Pool	11	W 32 F 1	F41LL	32	0.4	Breaker	8760	3,083.5	11	W 32 F 1	F41LL	32	0.4		8760	3,083.5	0.0	$0.00	$0.00	$0.00		
x1	Hallway Near Pool	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13.1	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8760	13.1	0.0	$0.00	$0.00	$0.00		
x1	Hallway Near Gym	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13.1	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8760	13.1	0.0	$0.00	$0.00	$0.00		
98	Hallway Near Gym	14	T 32 R F 2	F42LL	60	0.8	SW	3744	3,145.0	14	T 32 R F 2	F42LL	60	0.8	None	3744	3,145.0	0.0	$0.00	$0.00	$0.00		
46	Washroom	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	374.4	3	W 32 C F 2 (ELE)	F42LL	60	0.2	None	2080	374.4	0.0	$0.00	$0.00	$0.00		
46	Basement Mechanical Room	14	W 32 C F 2 (ELE)	F42LL	60	0.8	SW	3744	3,145.0	14	W 32 C F 2 (ELE)	F42LL	60	0.8	None	3744	3,145.0	0.0	$0.00	$0.00	$0.00		
46	Maintenance Storage	6	W 32 C F 2 (ELE)	F42LL	60	0.4	Breaker	8760	3,153.6	6	W 32 C F 2 (ELE)	F42LL	60	0.4	None	8760	3,153.6	0.0	$0.00	$0.00	$0.00		
98	Room 132	9	T 32 R F 2	F42LL	60	0.5	SW	2808	1,516.3	9	T 32 R F 2	F42LL	60	0.5	OCC	1800	972.0	544.3	$79.47	$118.75	$20.00	1.5	1.2
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,684.8	10	T 32 R F 2	F42LL	60	0.6	OCC	1800	1,080.0	604.8	$88.30	$118.75	$20.00	1.3	1.1
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,684.8	10	T 32 R F 2	F42LL	60	0.6	OCC	1800	1,080.0	604.8	$88.30	$118.75	$20.00	1.3	1.1
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,684.8	10	T 32 R F 2	F42LL	60	0.6	OCC	1800	1,080.0	604.8	$88.30	$118.75	$20.00	1.3	1.1
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,684.8	10	T 32 R F 2	F42LL	60	0.6	OCC	1800	1,080.0	604.8	$88.30	$118.75	$20.00	1.3	1.1
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,684.8	10	T 32 R F 2	F42LL	60	0.6	OCC	1800	1,080.0	604.8	$88.30	$118.75	$20.00	1.3	1.1
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,684.8	10	T 32 R F 2	F42LL	60	0.6	OCC	1800	1,080.0	604.8	$88.30	$118.75	$20.00	1.3	1.1
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,684.8	10	T 32 R F 2	F42LL	60	0.6	OCC	1800	1,080.0	604.8	$88.30	$118.75	$20.00	1.3	1.1
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,684.8	10	T 32 R F 2	F42LL	60	0.6	OCC	1800	1,080.0	604.8	$88.30	$118.75	$20.00	1.3	1.1
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,684.8	10	T 32 R F 2	F42LL	60	0.6	OCC	1800	1,080.0	604.8	$88.30	$118.75	$20.00	1.3	1.1
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,684.8	10	T 32 R F 2	F42LL	60	0.6	OCC	1800	1,080.0	604.8	$88.30	$118.75	$20.00	1.3	1.1

										RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS					
Field Code	Area Description	No. of Fixtures	Standard Fixture Code	NYSERDA Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual $ Saved	Retrofit Cost	NJ Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(kW Saved) * ($/kWh)	Cost for renovations to lighting system		Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,684.8	10	T 32 R F 2	F42LL	60	0.6	OCC	1800	1,080.0	604.8	$88.30	$118.75	$20.00	1.3	1.1
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,684.8	10	T 32 R F 2	F42LL	60	0.6	OCC	1800	1,080.0	604.8	$88.30	$118.75	$20.00	1.3	1.1
x1	Room 132	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13.1	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8760	13.1	0.0	$0.00	$0.00	$0.00		
98	Room 132	4	T 32 R F 2	F42LL	60	0.2	SW	2808	673.9	4	T 32 R F 2	F42LL	60	0.2	None	2808	673.9	0.0	$0.00	$0.00	$0.00		
98	Room 132	2	T 32 R F 2	F42LL	60	0.1	SW	2808	337.0	2	T 32 R F 2	F42LL	60	0.1	OCC	1800	216.0	121.0	$17.66	$118.75	$20.00	6.7	5.6
98	Room 132	2	T 32 R F 2	F42LL	60	0.1	SW	2808	337.0	2	T 32 R F 2	F42LL	60	0.1	OCC	1800	216.0	121.0	$17.66	$118.75	$20.00	6.7	5.6
46	Room 133	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	337.0	2	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1800	216.0	121.0	$17.66	$118.75	$20.00	6.7	5.6
98	Room 134	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,684.8	10	T 32 R F 2	F42LL	60	0.6	OCC	1800	1,080.0	604.8	$88.30	$118.75	$20.00	1.3	1.1
98	Room 134	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,684.8	10	T 32 R F 2	F42LL	60	0.6	OCC	1800	1,080.0	604.8	$88.30	$118.75	$20.00	1.3	1.1
98	Room 134	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,684.8	10	T 32 R F 2	F42LL	60	0.6	OCC	1800	1,080.0	604.8	$88.30	$118.75	$20.00	1.3	1.1
98	Room 134	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,684.8	10	T 32 R F 2	F42LL	60	0.6	OCC	1800	1,080.0	604.8	$88.30	$118.75	$20.00	1.3	1.1
98	Room 134	8	T 32 R F 2	F42LL	60	0.5	SW	2808	1,347.8	8	T 32 R F 2	F42LL	60	0.5	OCC	1800	864.0	483.8	$70.64	$118.75	$20.00	1.7	1.4
98	Room 134	8	T 32 R F 2	F42LL	60	0.5	SW	2808	1,347.8	8	T 32 R F 2	F42LL	60	0.5	OCC	1800	864.0	483.8	$70.64	$118.75	$20.00	1.7	1.4
98	Room 134	8	T 32 R F 2	F42LL	60	0.5	SW	2808	1,347.8	8	T 32 R F 2	F42LL	60	0.5	OCC	1800	864.0	483.8	$70.64	$118.75	$20.00	1.7	1.4
98	Room 134	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,684.8	10	T 32 R F 2	F42LL	60	0.6	OCC	1800	1,080.0	604.8	$88.30	$118.75	$20.00	1.3	1.1
98	Room 134	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,684.8	10	T 32 R F 2	F42LL	60	0.6	OCC	1800	1,080.0	604.8	$88.30	$118.75	$20.00	1.3	1.1
98	Room 134	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,684.8	10	T 32 R F 2	F42LL	60	0.6	OCC	1800	1,080.0	604.8	$88.30	$118.75	$20.00	1.3	1.1
98	Room 134	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,684.8	10	T 32 R F 2	F42LL	60	0.6	OCC	1800	1,080.0	604.8	$88.30	$118.75	$20.00	1.3	1.1
239	Room 134	4	R 150 C I 1	I150/1	150	0.6	SW	2808	1,684.8	4	R 150 C I 1	I150/1	150	0.6	None	2808	1,684.8	0.0	$0.00	$0.00	$0.00		
232	Room 134	5	R 100 C I 1	I100/1	100	0.5	SW	2808	1,404.0	5	R 100 C I 1	I100/1	100	0.5	None	2808	1,404.0	0.0	$0.00	$0.00	$0.00		
x1	Room 134	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13.1	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8760	13.1	0.0	$0.00	$0.00	$0.00		
70	Room 134	2	W 32 C F 1	F41LL	32	0.1	SW	2808	179.7	2	W 32 C F 1	F41LL	32	0.1	OCC	1800	115.2	64.5	$9.42	$118.75	$20.00	12.6	10.5
98	Room 134	6	T 32 R F 2	F42LL	60	0.4	SW	2808	1,010.9	6	T 32 R F 2	F42LL	60	0.4	OCC	1800	648.0	362.9	$52.98	$118.75	$20.00	2.2	1.9
98	Room 134	2	T 32 R F 2	F42LL	60	0.1	SW	2808	337.0	2	T 32 R F 2	F42LL	60	0.1	OCC	1800	216.0	121.0	$17.66	$118.75	$20.00	6.7	5.6
98	Room 134	2	T 32 R F 2	F42LL	60	0.1	SW	2808	337.0	2	T 32 R F 2	F42LL	60	0.1	OCC	1800	216.0	121.0	$17.66	$118.75	$20.00	6.7	5.6
46	Room 135	12	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	2,021.8	12	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1800	1,296.0	725.8	$105.96	$118.75	$20.00	1.1	0.9
46	Room 135	12	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	2,021.8	12	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1800	1,296.0	725.8	$105.96	$118.75	$20.00	1.1	0.9
46	Room 135	12	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	2,021.8	12	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1800	1,296.0	725.8	$105.96	$118.75	$20.00	1.1	0.9
46	Room 135	12	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	2,021.8	12	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1800	1,296.0	725.8	$105.96	$118.75	$20.00	1.1	0.9
46	Room 135	12	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	2,021.8	12	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1800	1,296.0	725.8	$105.96	$118.75	$20.00	1.1	0.9
x1	Room 135	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13.1	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8760	13.1	0.0	$0.00	$0.00	$0.00		
46	Room 135	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,347.8	8	W 32 C F 2 (ELE)	F42LL	60	0.5	OCC	1800	864.0	483.8	$70.64	$118.75	$20.00	1.7	1.4
46	Room 135	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	673.9	4	W 32 C F 2 (ELE)	F42LL	60	0.2	OCC	1800	432.0	241.9	$35.32	$118.75	$20.00	3.4	2.8
46	Room 135	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	337.0	2	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1800	216.0	121.0	$17.66	$118.75	$20.00	6.7	5.6
46	Room 135	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	673.9	4	W 32 C F 2 (ELE)	F42LL	60	0.2	None	2808	673.9	0.0	$0.00	$0.00	$0.00		
46	Room 136	15	W 32 C F 2 (ELE)	F42LL	60	0.9	SW	2808	2,527.2	15	W 32 C F 2 (ELE)	F42LL	60	0.9	OCC	1800	1,620.0	907.2	$132.45	$118.75	$20.00	0.9	0.7
202	Room 136	8	2T 17 R F 4 (ELE)	F22ILL	33	0.3	SW	2808	741.3	8	2T 17 R F 4 (ELE)	F22ILL	33	0.3	OCC	1800	475.2	266.1	$38.85	$118.75	$20.00	3.1	2.5
46	Room 136	24	W 32 C F 2 (ELE)	F42LL	60	1.4	SW	2808	4,043.5	24	W 32 C F 2 (ELE)	F42LL	60	1.4	OCC	1800	2,592.0	1,451.5	$211.92	$118.75	$20.00	0.6	0.5
46	Room 136	14	W 32 C F 2 (ELE)	F42LL	60	0.8	SW	2808	2,358.7	14	W 32 C F 2 (ELE)	F42LL	60	0.8	OCC	1800	1,512.0	846.7	$123.62	$118.75	$20.00	1.0	0.8
98	Room 136	4	T 32 R F 2	F42LL	60	0.2	SW	2808	673.9	4	T 32 R F 2	F42LL	60	0.2	None	2808	673.9	0.0	$0.00	$0.00	$0.00		
98	Room 136	6	T 32 R F 2	F42LL	60	0.4	SW	2808	1,010.9	6	T 32 R F 2	F42LL	60	0.4	C-OCC	1800	648.0	362.9	$52.98	$202.50	$35.00	3.8	3.2
46	Science Storage	9	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	1000	540.0	9	W 32 C F 2 (ELE)	F42LL	60	0.5	OCC	200	108.0	432.0	$63.07	$118.75	$20.00	1.9	1.6
46	Bathroom Near Room 136	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2080	249.6	2	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1200	144.0	105.6	$15.42	$59.38	$20.00	3.9	2.6
202	Bathroom Near Room 136	2	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2080	137.3	2	2T 17 R F 4 (ELE)	F22ILL	33	0.1	OCC	1200	79.2	58.1	$8.48	$59.38	$20.00	7.0	4.6
231	Bathroom Near Room 136	2	R 60 C I 1	I60/1	60	0.1	SW	2080	249.6	2	R 60 C I 1	I60/1	60	0.1	None	2080	249.6	0.0	$0.00	$0.00	$0.00		
98	Wash Room / Janitor Closet	4	T 32 R F 2	F42LL	60	0.2	SW	2080	499.2	4	T 32 R F 2	F42LL	60	0.2	OCC	1800	432.0	67.2	$9.81	$118.75	$20.00	12.1	10.1
98	Room 139	8	T 32 R F 2	F42LL	60	0.5	SW	2808	1,347.8	8	T 32 R F 2	F42LL	60	0.5	OCC	1800	864.0	483.8	$70.64	$118.75	$20.00	1.7	1.4
98	Room 139	2	T 32 R F 2	F42LL	60	0.1	SW	2808	337.0	2	T 32 R F 2	F42LL	60	0.1	None	2808	337.0	0.0	$0.00	$0.00	$0.00		
98	Room 139	2	T 32 R F 2	F42LL	60	0.1	SW	2808	337.0	2	T 32 R F 2	F42LL	60	0.1	None	2808	337.0	0.0	$0.00	$0.00	$0.00		
98	Room 139	6	T 32 R F 2	F42LL	60	0.4	SW	2808	1,010.9	6	T 32 R F 2	F42LL	60	0.4	None	2808	1,010.9	0.0	$0.00	$0.00	$0.00		
98	Room 139	12	T 32 R F 2	F42LL	60	0.7	SW	2808	2,021.8	12	T 32 R F 2	F42LL	60	0.7	OCC	1800	1,296.0	725.8	$105.96	$118.75	$20.00	1.1	0.9
98	Room 139	12	T 32 R F 2	F42LL	60	0.7	SW	2808	2,021.8	12	T 32 R F 2	F42LL	60	0.7	OCC	1800	1,296.0	725.8	$105.96	$118.75	$20.00	1.1	0.9
98	Room 139	12	T 32 R F 2	F42LL	60	0.7	SW	2808	2,021.8	12	T 32 R F 2	F42LL	60	0.7	OCC	1800	1,296.0	725.8	$105.96	$118.75	$20.00	1.1	0.9
98	Room 139	12	T 32 R F 2	F42LL	60	0.7	SW	2808	2,021.8	12	T 32 R F 2	F42LL	60	0.7	OCC	1800	1,296.0	725.8	$105.96	$118.75	$20.00	1.1	0.9
x1	Room 139	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13.1	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8760	13.1	0.0	$0.00	$0.00	$0.00		
98	Room 140	14	T 32 R F 2	F42LL	60	0.8	SW	2808	2,358.7	14	T 32 R F 2	F42LL	60	0.8	OCC	1800	1,512.0	846.7	$123.62	$118.75	$20.00	1.0	0.8
98	Room 140	14	T 32 R F 2	F42LL	60	0.8	SW	2808	2,358.7	14	T 32 R F 2	F42LL	60	0.8	OCC	1800	1,512.0	846.7	$123.62	$118.75	$20.00	1.0	0.8
98	Room 140	14	T 32 R F 2	F42LL	60	0.8	SW	2808	2,358.7	14	T 32 R F 2	F42LL	60	0.8	OCC	1800	1,512.0	846.7	$123.62	$118.75	$20.00	1.0	0.8
98	Room 140	14	T 32 R F 2	F42LL	60	0.8	SW	2808	2,358.7	14	T 32 R F 2	F42LL	60	0.8	OCC	1800	1,512.0	846.7	$123.62	$118.75	$20.00	1.0	0.8
x1	Room 140	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13.1	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8760	13.1	0.0	$0.00	$0.00	$0.00		
18	Room 140	10	T 32 R F 4 (ELE)	F44ILL	112	1.1	SW	2808	3,145.0	10	T 32 R F 4 (ELE)	F44ILL	112	1.1	OCC	1800	2,016.0	1,129.0	$164.83	$118.75	$20.00	0.7	0.6
98	Room 140	4	T 32 R F 2	F42LL	60	0.2	SW	2808	673.9	4	T 32 R F 2	F42LL	60	0.2	None	2808	673.9	0.0	$0.00	$0.00	$0.00		
98	Room 140	6	T 32 R F 2	F42LL	60	0.4	SW	2808	1,010.9	6	T 32 R F 2	F42LL	60	0.4	None	2808	1,010.9	0.0	$0.00	$0.00	$0.00		
98	Room 141	7	T 32 R F 2	F42LL	60	0.4	SW	2808	1,179.4	7	T 32 R F 2	F42LL	60	0.4	OCC	1800	756.0	423.4	$61.81	$118.75	$20.00	1.9	1.6
98	Room 141	7	T 32 R F 2	F42LL	60	0.4	SW	2808	1,179.4	7	T 32 R F 2	F42LL	60	0.4	OCC	1800	756.0	423.4	$61.81	$118.75	$20.00	1.9	1.6
98	Room 141	5	T 32 R F 2	F42LL	60	0.3	SW	2808	842.4	5	T 32 R F 2	F42LL	60	0.3	OCC	1800	540.0	302.4	$44.15	$118.75	$20.00	2.7	2.2
98	Room 141	11	T 32 R F 2	F42LL	60	0.7	SW	2808	1,853.3	11	T 32 R F 2	F42LL	60	0.7	OCC	1800	1,188.0	665.3	$97.13	$118.75	$20.00	1.2	1.0
98	Room 141	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,684.8	10	T 32 R F 2	F42LL	60	0.6	OCC	1800	1,080.0	604.8	$88.30	$118.75	$20.00	1.3	1.1
98	Room 141	11	T 32 R F 2	F42LL	60	0.7	SW	2808	1,853.3	11	T 32 R F 2	F42LL	60	0.7	OCC	1800	1,188.0	665.3	$97.13	$118.75	$20.00	1.2	1.0
98	Room 141	11	T 32 R F 2	F42LL	60	0.7	SW	2808	1,853.3	11	T 32 R F 2	F42LL	60	0.7	OCC	1800	1,188.0	665.3	$97.13	$118.75	$20.00	1.2	1.0
98	Room 141	7	T 32 R F 2	F42LL	60	0.4	SW	2808	1,179.4	7	T 32 R F 2	F42LL	60	0.4	OCC	1800	756.0	423.4	$61.81	$118.75	$20.00	1.9	1.6
98	Room 141	11	T 32 R F 2	F42LL	60	0.7	SW	2808	1,853.3	11	T 32 R F 2	F42LL	60	0.7	OCC	1800	1,188.0	665.3	$97.13	$118.75	$20.00	1.2	1.0
98	Room 141	11	T 32 R F 2	F42LL	60	0.7	SW	2808	1,853.3	11	T 32 R F 2	F42LL	60	0.7	OCC	1800	1,188.0	665.3	$97.13	$118.75	$20.00	1.2	1.0
98	Room 141	11	T 32 R F 2	F42LL	60	0.7	SW	2808	1,853.3	11	T 32 R F 2	F42LL	60	0.7	OCC	1800	1,188.0	665.3	$97.13	$118.75	$20.00	1.2	1.0
98	Room 141	13	T 32 R F 2	F42LL	60	0.8	SW	2808	2,190.2	13	T 32 R F 2	F42LL	60	0.8	OCC	1800	1,404.0	786.2	$114.79	$118.75	$20.00	1.0	0.9
x1	Room 141	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13.1	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8760	13.1	0.0	$0.00	$0.00	$0.00		
98	Room 141 - Locker Room	6	T 32 R F 2	F42LL	60	0.4	SW	2808	1,010.9	6	T 32 R F 2	F42LL	60	0.4	OCC	1800	648.0	362.9	$52.98	$118.75	$20.00	2.2	1.9
98	Room 141 - Class Room	8	T 32 R F 2	F42LL	60	0.5	SW	2808	1,347.8	8	T 32 R F 2	F42LL	60	0.5	OCC	1800	864.0	483.8	$70.64	$118.75	$20.00	1.7	1.4
46	Room 141 - Tool Room	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	673.9	4	W 32 C F 2 (ELE)	F42LL	60	0.2	OCC	1800	432.0	241.9	$35.32	$118.75	$20.00	3.4	2.8
98	Room 141 - Tool Room	6	T 32 R F 2	F42LL	60	0.4	SW	2808	1,010.9	6	T 32 R F 2	F42LL	60	0.4	OCC	1800	648.0	362.9	$52.98	$118.75	$20.00	2.2	1.9
98	Room 141 - Storage	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,684.8	10	T 32 R F 2	F42LL	60	0.6	None	2808	1,684.8	0.0	$0.00	$0.00	$0.00		
46	Room 142	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	1000	420.0	7	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1800	756.0	-336.0	-$49.06	$118.75	$20.00		
46	Room 142	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179.4	7	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1800	756.0	423.4	$61.81	$118.75	$20.00	1.9	1.6
46	Room 142	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179.4	7	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1800	756.0	423.4	$61.81	$118.75	$20.00	1.9	1.6
46	Room 142	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179.4	7	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1800	756.0	423.4	$61.81	$118.75	$20.00	1.9	1.6

										RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS					
	Area Description	No. of Fixtures	Standard Fixture Code	NYSERDA Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual $ Saved	Retrofit Cost	NJ Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(kW Saved) * ($/kWh)	Cost for renovations to lighting system		Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
46	Room 142	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179.4	7	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1800	756.0	423.4	$61.81	$118.75	$20.00	1.9	1.6
46	Room 142	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179.4	7	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1800	756.0	423.4	$61.81	$118.75	$20.00	1.9	1.6
46	Room 142	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179.4	7	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1800	756.0	423.4	$61.81	$118.75	$20.00	1.9	1.6
x1	Room 142	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13.1	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8760	13.1	0.0	$0.00	$0.00	$0.00		
46	Room 142	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	673.9	4	W 32 C F 2 (ELE)	F42LL	60	0.2	OCC	1800	432.0	241.9	$35.32	$118.75	$20.00	3.4	2.8
46	Room 142	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	337.0	2	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1800	216.0	121.0	$17.66	$118.75	$20.00	6.7	5.6
46	Room 142	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	337.0	2	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1800	216.0	121.0	$17.66	$118.75	$20.00	6.7	5.6
46	Room 142	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,347.8	8	W 32 C F 2 (ELE)	F42LL	60	0.5	OCC	1800	864.0	483.8	$70.64	$118.75	$20.00	1.7	1.4
18	Room 143	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	SW	2808	1,887.0	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	None	2808	1,887.0	0.0	$0.00	$0.00	$0.00		
18	Room 143	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	SW	2808	2,830.5	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	OCC	1800	1,814.4	1,016.1	$148.35	$118.75	$20.00	0.8	0.7
18	Room 143	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2808	3,774.0	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	OCC	1800	2,419.2	1,354.8	$197.79	$118.75	$20.00	0.6	0.5
18	Room 143	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2808	3,774.0	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	OCC	1800	2,419.2	1,354.8	$197.79	$118.75	$20.00	0.6	0.5
18	Room 143	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2808	3,774.0	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	OCC	1800	2,419.2	1,354.8	$197.79	$118.75	$20.00	0.6	0.5
18	Room 143	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2808	3,774.0	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	OCC	1800	2,419.2	1,354.8	$197.79	$118.75	$20.00	0.6	0.5
18	Room 143	14	T 32 R F 4 (ELE)	F44ILL	112	1.6	SW	2808	4,402.9	14	T 32 R F 4 (ELE)	F44ILL	112	1.6	OCC	1800	2,822.4	1,580.5	$230.76	$118.75	$20.00	0.5	0.4
x1	Room 143	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13.1	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8760	13.1	0.0	$0.00	$0.00	$0.00		
46	Room 144	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842.4	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1800	540.0	302.4	$44.15	$118.75	$20.00	2.7	2.2
46	Room 144	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842.4	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1800	540.0	302.4	$44.15	$118.75	$20.00	2.7	2.2
46	Room 144	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842.4	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1800	540.0	302.4	$44.15	$118.75	$20.00	2.7	2.2
46	Room 144	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842.4	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1800	540.0	302.4	$44.15	$118.75	$20.00	2.7	2.2
46	Room 144	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842.4	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1800	540.0	302.4	$44.15	$118.75	$20.00	2.7	2.2
46	Room 144	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,010.9	6	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1800	648.0	362.9	$52.98	$118.75	$20.00	2.2	1.9
46	Room 144	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842.4	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1800	540.0	302.4	$44.15	$118.75	$20.00	2.7	2.2
x1	Room 144	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13.1	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8760	13.1	0.0	$0.00	$0.00	$0.00		
46	Room 145	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842.4	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1800	540.0	302.4	$44.15	$118.75	$20.00	2.7	2.2
46	Room 145	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842.4	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1800	540.0	302.4	$44.15	$118.75	$20.00	2.7	2.2
46	Room 145	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842.4	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1800	540.0	302.4	$44.15	$118.75	$20.00	2.7	2.2
46	Room 145	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842.4	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1800	540.0	302.4	$44.15	$118.75	$20.00	2.7	2.2
46	Room 145	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842.4	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1800	540.0	302.4	$44.15	$118.75	$20.00	2.7	2.2
98	Hall between Room 144 and 145	8	T 32 R F 2	F42LL	60	0.5	SW	2808	1,347.8	8	T 32 R F 2	F42LL	60	0.5	None	2808	1,347.8	0.0	$0.00	$0.00	$0.00		
x1	Hall between Room 144 and 145	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13.1	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8760	13.1	0.0	$0.00	$0.00	$0.00		
98	Hall between Room 142 and 136	27	T 32 R F 2	F42LL	60	1.6	SW	3744	6,065.3	27	T 32 R F 2	F42LL	60	1.6	None	3744	6,065.3	0.0	$0.00	$0.00	$0.00		
x1	Hall between Room 142 and 136	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13.1	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8760	13.1	0.0	$0.00	$0.00	$0.00		
98	Hall around Room 139	12	T 32 R F 2	F42LL	60	0.7	SW	3744	2,695.7	12	T 32 R F 2	F42LL	60	0.7	None	3744	2,695.7	0.0	$0.00	$0.00	$0.00		
x1	Hall around Room 139	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13.1	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8760	13.1	0.0	$0.00	$0.00	$0.00		
98	Hall by Room 141	12	T 32 R F 2	F42LL	60	0.7	SW	3744	2,695.7	12	T 32 R F 2	F42LL	60	0.7	None	3744	2,695.7	0.0	$0.00	$0.00	$0.00		
x1	Hall by Room 141	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13.1	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8760	13.1	0.0	$0.00	$0.00	$0.00		
98	Vestibule by Room 136	1	T 32 R F 2	F42LL	60	0.1	SW	3744	224.6	1	T 32 R F 2	F42LL	60	0.1	None	3744	224.6	0.0	$0.00	$0.00	$0.00		
8	Pool Boiler Room	4	MH 175	MH175/1	215	0.9	SW	3744	3,219.8	4	MH 175	MH175/1	215	0.9	None	3744	3,219.8	0.0	$0.00	$0.00	$0.00		
70	Pool Boiler Room	8	W 32 C F 1	F41LL	32	0.3	SW	2080	532.5	8	W 32 C F 1	F41LL	32	0.3	None	2080	532.5	0.0	$0.00	$0.00	$0.00		
70	Pool Room Men's	1	W 32 C F 1	F41LL	32	0.0	SW	2080	66.6	1	W 32 C F 1	F41LL	32	0.0	OCC	1200	38.4	28.2	$4.11	$118.75	$20.00	28.9	24.0
70	Pool Room Women's	1	W 32 C F 1	F41LL	32	0.0	SW	2080	66.6	1	W 32 C F 1	F41LL	32	0.0	OCC	1200	38.4	28.2	$4.11	$118.75	$20.00	28.9	24.0
10	Pool Pod Up- Lighting	15	High Bay MH 1000 50 Feet High	MH1000/1	1080	16.2	Sw	2080	33,696.0	15	High Bay MH 1000 50 Feet High	MH1000/1	1080	16.2	None	2080	33,696.0	0.0	$0.00	$0.00	$0.00		
9	Pool Pod Up- Lighting	10	High Bay MH 400 35 Feet High	MH400/1	458	4.6	Sw	2080	9,526.4	10	High Bay MH 400 35 Feet High	MH400/1	458	4.6	None	2080	9,526.4	0.0	$0.00	$0.00	$0.00		
46	Room 201	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179.4	7	W 32 C F 2 (ELE)	F42LL	60	0.4	None	2808	1,179.4	0.0	$0.00	$0.00	$0.00		
46	Room 201	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179.4	7	W 32 C F 2 (ELE)	F42LL	60	0.4	None	2808	1,179.4	0.0	$0.00	$0.00	$0.00		
46	Room 201	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179.4	7	W 32 C F 2 (ELE)	F42LL	60	0.4	None	2808	1,179.4	0.0	$0.00	$0.00	$0.00		
46	Room 202	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179.4	7	W 32 C F 2 (ELE)	F42LL	60	0.4	None	2808	1,179.4	0.0	$0.00	$0.00	$0.00		
46	Room 202	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179.4	7	W 32 C F 2 (ELE)	F42LL	60	0.4	None	2808	1,179.4	0.0	$0.00	$0.00	$0.00		
46	Room 202	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179.4	7	W 32 C F 2 (ELE)	F42LL	60	0.4	None	2808	1,179.4	0.0	$0.00	$0.00	$0.00		
46	Room 203	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179.4	7	W 32 C F 2 (ELE)	F42LL	60	0.4	None	2808	1,179.4	0.0	$0.00	$0.00	$0.00		
46	Room 203	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179.4	7	W 32 C F 2 (ELE)	F42LL	60	0.4	None	2808	1,179.4	0.0	$0.00	$0.00	$0.00		
46	Room 203	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179.4	7	W 32 C F 2 (ELE)	F42LL	60	0.4	None	2808	1,179.4	0.0	$0.00	$0.00	$0.00		
46	Room 204	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179.4	7	W 32 C F 2 (ELE)	F42LL	60	0.4	None	2808	1,179.4	0.0	$0.00	$0.00	$0.00		
46	Room 204	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179.4	7	W 32 C F 2 (ELE)	F42LL	60	0.4	None	2808	1,179.4	0.0	$0.00	$0.00	$0.00		
46	Room 204	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179.4	7	W 32 C F 2 (ELE)	F42LL	60	0.4	None	2808	1,179.4	0.0	$0.00	$0.00	$0.00		
46	Room 205	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842.4	5	W 32 C F 2 (ELE)	F42LL	60	0.3	None	2808	842.4	0.0	$0.00	$0.00	$0.00		
46	Room 205	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842.4	5	W 32 C F 2 (ELE)	F42LL	60	0.3	None	2808	842.4	0.0	$0.00	$0.00	$0.00		
46	Room 205	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842.4	5	W 32 C F 2 (ELE)	F42LL	60	0.3	None	2808	842.4	0.0	$0.00	$0.00	$0.00		
46	Room 206	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842.4	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1800	540.0	302.4	$44.15	$118.75	$20.00	2.7	2.2
46	Room 206	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842.4	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1800	540.0	302.4	$44.15	$118.75	$20.00	2.7	2.2
46	Room 206	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842.4	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1800	540.0	302.4	$44.15	$118.75	$20.00	2.7	2.2
46	Room 207	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853.3	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1800	1,188.0	665.3	$97.13	$118.75	$20.00	1.2	1.0
46	Room 207	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853.3	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1800	1,188.0	665.3	$97.13	$118.75	$20.00	1.2	1.0
46	Room 207	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853.3	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1800	1,188.0	665.3	$97.13	$118.75	$20.00	1.2	1.0
98	Room 207	1	T 32 R F 2	F42LL	60	0.1	SW	2808	168.5	1	T 32 R F 2	F42LL	60	0.1	OCC	1800	108.0	60.5	$8.83	$118.75	$20.00	13.4	11.2
46	Room 207	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842.4	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1800	540.0	302.4	$44.15	$118.75	$20.00	2.7	2.2
46	Room 207	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	168.5	1	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1800	108.0	60.5	$8.83	$118.75	$20.00	13.4	11.2
46	Room 208	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853.3	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1800	1,188.0	665.3	$97.13	$118.75	$20.00	1.2	1.0
46	Room 208	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853.3	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1800	1,188.0	665.3	$97.13	$118.75	$20.00	1.2	1.0
46	Room 208	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853.3	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1800	1,188.0	665.3	$97.13	$118.75	$20.00	1.2	1.0
98	Room 208	1	T 32 R F 2	F42LL	60	0.1	SW	2808	168.5	1	T 32 R F 2	F42LL	60	0.1	OCC	1800	108.0	60.5	$8.83	$118.75	$20.00	13.4	11.2
46	Room 208	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842.4	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1800	540.0	302.4	$44.15	$118.75	$20.00	2.7	2.2
x1	Second Floor Hallway	2	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	26.3	2	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8760	26.3	0.0	$0.00	$0.00	$0.00		
98	Second Floor Hallway	28	T 32 R F 2	F42LL	60	1.7	SW	3744	6,289.9	28	T 32 R F 2	F42LL	60	1.7	None	3744	6,289.9	0.0	$0.00	$0.00	$0.00		
46	Stairway	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	3744	1,347.8	6	W 32 C F 2 (ELE)	F42LL	60	0.4	None	3744	1,347.8	0.0	$0.00	$0.00	$0.00		
46	Second Floor Men's	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	374.4	3	W 32 C F 2 (ELE)	F42LL	60	0.2	None	2080	374.4	0.0	$0.00	$0.00	$0.00		
46	Second Floor Women's	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	374.4	3	W 32 C F 2 (ELE)	F42LL	60	0.2	None	2080	374.4	0.0	$0.00	$0.00	$0.00		
231	Second Floor Wet Closet	2	R 60 C I 1	I60/1	60	0.1	SW	2808	337.0	2	R 60 C I 1	I60/1	60	0.1	OCC	1800	216.0	121.0	$17.66	$118.75	$20.00	6.7	5.6
46	Room 209	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	1,684.8	10	W 32 C F 2 (ELE)	F42LL	60	0.6	OCC	1800	1,080.0	604.8	$88.30	$118.75	$20.00	1.3	1.1
46	Room 209	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	1,684.8	10	W 32 C F 2 (ELE)	F42LL	60	0.6	OCC	1800	1,080.0	604.8	$88.30	$118.75	$20.00	1.3	1.1
46	Room 210	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842.4	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1800	540.0	302.4	$44.15	$118.75	$20.00	2.7	2.2
46	Room 210	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842.4	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1800	540.0	302.4	$44.15	$118.75	$20.00	2.7	2.2
46	Room 210	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842.4	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1800	540.0	302.4	$44.15	$118.75	$20.00	2.7	2.2
46	Room 210	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842.4	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1800	540.0	302.4	$44.15	$118.75	$20.00	2.7	2.2

										RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS					
	Area Description	No. of Fixtures	Standard Fixture Code	NYSERDA Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual $ Saved	Retrofit Cost	NJ Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(kW Saved) * ($/kWh)	Cost for renovations to lighting system		Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
46	Room 211	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842.4	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1800	540.0	302.4	$44.15	$118.75	$20.00	2.7	2.2
46	Room 211	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842.4	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1800	540.0	302.4	$44.15	$118.75	$20.00	2.7	2.2
46	Room 211	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842.4	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1800	540.0	302.4	$44.15	$118.75	$20.00	2.7	2.2
46	Room 211	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842.4	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1800	540.0	302.4	$44.15	$118.75	$20.00	2.7	2.2
46	Room 212A and 212B	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853.3	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1800	1,188.0	665.3	$97.13	$118.75	$20.00	1.2	1.0
46	Room 212A and 212B	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853.3	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1800	1,188.0	665.3	$97.13	$118.75	$20.00	1.2	1.0
46	Room 212A and 212B	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853.3	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1800	1,188.0	665.3	$97.13	$118.75	$20.00	1.2	1.0
46	Room 212A and 212B	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853.3	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1800	1,188.0	665.3	$97.13	$118.75	$20.00	1.2	1.0
46	Room 213	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853.3	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1800	1,188.0	665.3	$97.13	$118.75	$20.00	1.2	1.0
46	Room 213	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853.3	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1800	1,188.0	665.3	$97.13	$118.75	$20.00	1.2	1.0
46	Room 213	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853.3	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1800	1,188.0	665.3	$97.13	$118.75	$20.00	1.2	1.0
46	Room 213	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853.3	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1800	1,188.0	665.3	$97.13	$118.75	$20.00	1.2	1.0
81	Room 213	3	S 34 C F 2	F42EE	72	0.2	SW	2808	606.5	3	S 34 C F 2	F42EE	72	0.2	OCC	1800	388.8	217.7	$31.79	$118.75	$20.00	3.7	3.1
46	Room 214	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,347.8	8	W 32 C F 2 (ELE)	F42LL	60	0.5	OCC	1800	864.0	483.8	$70.64	$118.75	$20.00	1.7	1.4
46	Room 214	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,347.8	8	W 32 C F 2 (ELE)	F42LL	60	0.5	OCC	1800	864.0	483.8	$70.64	$118.75	$20.00	1.7	1.4
46	Room 214	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,347.8	8	W 32 C F 2 (ELE)	F42LL	60	0.5	OCC	1800	864.0	483.8	$70.64	$118.75	$20.00	1.7	1.4
46	Room 214	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,347.8	8	W 32 C F 2 (ELE)	F42LL	60	0.5	OCC	1800	864.0	483.8	$70.64	$118.75	$20.00	1.7	1.4
46	Room 215	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179.4	7	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1800	756.0	423.4	$61.81	$118.75	$20.00	1.9	1.6
46	Room 215	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179.4	7	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1800	756.0	423.4	$61.81	$118.75	$20.00	1.9	1.6
46	Room 215	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179.4	7	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1800	756.0	423.4	$61.81	$118.75	$20.00	1.9	1.6
46	Room 215	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179.4	7	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1800	756.0	423.4	$61.81	$118.75	$20.00	1.9	1.6
46	Room 217	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,347.8	8	W 32 C F 2 (ELE)	F42LL	60	0.5	OCC	1800	864.0	483.8	$70.64	$118.75	$20.00	1.7	1.4
46	Room 217	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,347.8	8	W 32 C F 2 (ELE)	F42LL	60	0.5	OCC	1800	864.0	483.8	$70.64	$118.75	$20.00	1.7	1.4
46	Room 217	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,347.8	8	W 32 C F 2 (ELE)	F42LL	60	0.5	OCC	1800	864.0	483.8	$70.64	$118.75	$20.00	1.7	1.4
46	Room 217	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,347.8	8	W 32 C F 2 (ELE)	F42LL	60	0.5	OCC	1800	864.0	483.8	$70.64	$118.75	$20.00	1.7	1.4
46	Room 218a	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	505.4	3	W 32 C F 2 (ELE)	F42LL	60	0.2	OCC	1800	324.0	181.4	$26.49	$118.75	$20.00	4.5	3.7
46	Room 218a	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	505.4	3	W 32 C F 2 (ELE)	F42LL	60	0.2	OCC	1800	324.0	181.4	$26.49	$118.75	$20.00	4.5	3.7
46	Room 218a	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	505.4	3	W 32 C F 2 (ELE)	F42LL	60	0.2	OCC	1800	324.0	181.4	$26.49	$118.75	$20.00	4.5	3.7
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,010.9	6	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1800	648.0	362.9	$52.98	$118.75	$20.00	2.2	1.9
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,010.9	6	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1800	648.0	362.9	$52.98	$118.75	$20.00	2.2	1.9
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,010.9	6	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1800	648.0	362.9	$52.98	$118.75	$20.00	2.2	1.9
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,010.9	6	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1800	648.0	362.9	$52.98	$118.75	$20.00	2.2	1.9
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,010.9	6	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1800	648.0	362.9	$52.98	$118.75	$20.00	2.2	1.9
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,010.9	6	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1800	648.0	362.9	$52.98	$118.75	$20.00	2.2	1.9
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,010.9	6	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1800	648.0	362.9	$52.98	$118.75	$20.00	2.2	1.9
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,010.9	6	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1800	648.0	362.9	$52.98	$118.75	$20.00	2.2	1.9
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,010.9	6	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1800	648.0	362.9	$52.98	$118.75	$20.00	2.2	1.9
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,010.9	6	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1800	648.0	362.9	$52.98	$118.75	$20.00	2.2	1.9
70	Stairs between 214 and 215	3	W 32 C F 1	F41LL	32	0.1	SW	2808	269.6	3	W 32 C F 1	F41LL	32	0.1	None	2808	269.6	0.0	$0.00	$0.00	$0.00		
46	Between 215 and 216	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	673.9	4	W 32 C F 2 (ELE)	F42LL	60	0.2	None	2808	673.9	0.0	$0.00	$0.00	$0.00		
46	Between 215 and 216	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	3744	2,471.0	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1800	1,188.0	1,283.0	$187.32	$118.75	$20.00	0.6	0.5
70	Stairs at 219	4	W 32 C F 1	F41LL	32	0.1	SW	3744	479.2	4	W 32 C F 1	F41LL	32	0.1	None	3744	479.2	0.0	$0.00	$0.00	$0.00		
176	Hallway	23	1T 32 R F 2 (ELE)	F42LL	60	1.4	SW	3744	5,166.7	23	1T 32 R F 2 (ELE)	F42LL	60	1.4	None	3744	5,166.7	0.0	$0.00	$0.00	$0.00		
x1	Hallway	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13.1	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8760	13.1	0.0	$0.00	$0.00	$0.00		
x2	Hallway	2	XX 3.0 W CF 2	ELED1.5/2	3	0.0	Breaker	8760	52.6	2	XX 3.0 W CF 2	ELED1.5/2	3	0.0	None	8760	52.6	0.0	$0.00	$0.00	$0.00		
46	Men's	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	374.4	3	W 32 C F 2 (ELE)	F42LL	60	0.2	None	2080	374.4	0.0	$0.00	$0.00	$0.00		
46	Women's	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	374.4	3	W 32 C F 2 (ELE)	F42LL	60	0.2	None	2080	374.4	0.0	$0.00	$0.00	$0.00		
	Main Building - Exterior																						
141	Old Wing	4	HPS 250	HPS250/1	295	1.2	Timer	2600	3,068.0	4	HPS 250	HPS250/1	295	1.2	None	2600	3,068.0	0.0	$0.00	$0.00	$0.00		
229	Outside	8	WP200 I 1	i200/1	200	1.6	Timer	2600	4,160.0	8	WP200 I 1	i200/1	200	1.6	None	2600	4,160.0	0.0	$0.00	$0.00	$0.00		
237	New Wing - South Wing	1	WP 400 Po HPS	hps400/1	465	0.5	Timer	2600	1,209.0	1	WP 400 Po HPS	hps400/1	465	0.5	None	2600	1,209.0	0.0	$0.00	$0.00	$0.00		
141	New Wing - South Wing	1	HPS 250	HPS250/1	295	0.3	Timer	2600	767.0	1	HPS 250	HPS250/1	295	0.3	None	2600	767.0	0.0	$0.00	$0.00	$0.00		
229	New Wing - South Wing	6	WP200 I 1	i200/1	200	1.2	Timer	2600	3,120.0	6	WP200 I 1	i200/1	200	1.2	None	2600	3,120.0	0.0	$0.00	$0.00	$0.00		
141	Light Pole	9	HPS 250	HPS250/1	295	2.7	Timer	2600	6,903.0	9	HPS 250	HPS250/1	295	2.7	None	2600	6,903.0	0.0	$0.00	$0.00	$0.00		
236	New - East Wall	1	MV 250	mv250/1	290	0.3	Timer	2600	754.0	1	MV 250	mv250/1	290	0.3	None	2600	754.0	0.0	$0.00	$0.00	$0.00		
141	New - East Wall	1	HPS 250	HPS250/1	295	0.3	Timer	2600	767.0	1	HPS 250	HPS250/1	295	0.3	None	2600	767.0	0.0	$0.00	$0.00	$0.00		
236	New - North Wall	2	MV 250	mv250/1	290	0.6	Timer	2600	1,508.0	2	MV 250	mv250/1	290	0.6	None	2600	1,508.0	0.0	$0.00	$0.00	$0.00		
229	New - North Wall	2	WP200 I 1	i200/1	200	0.4	Timer	2600	1,040.0	2	WP200 I 1	i200/1	200	0.4	None	2600	1,040.0	0.0	$0.00	$0.00	$0.00		
229	Board of Foyer	2	WP200 I 1	i200/1	200	0.4	Timer	2600	1,040.0	2	WP200 I 1	i200/1	200	0.4	None	2600	1,040.0	0.0	$0.00	$0.00	$0.00		
236	New - West Wall	5	MV 250	mv250/1	290	1.5	Timer	2600	3,770.0	5	MV 250	mv250/1	290	1.5	None	2600	3,770.0	0.0	$0.00	$0.00	$0.00		
240	New - West Wall Flag Pole	1	R 250 Q 1	h250/1	250	0.3	Timer	2600	650.0	1	R 250 Q 1	h250/1	250	0.3	None	2600	650.0	0.0	$0.00	$0.00	$0.00		
236	New - West Wall Flag Pole	1	MV 250	mv250/1	290	0.3	Timer	2600	754.0	1	MV 250	mv250/1	290	0.3	None	2600	754.0	0.0	$0.00	$0.00	$0.00		
229	New - West Wall Flag Pole	2	WP200 I 1	i200/1	200	0.4	Timer	2600	1,040.0	2	WP200 I 1	i200/1	200	0.4	None	2600	1,040.0	0.0	$0.00	$0.00	$0.00		
236	Behind WT Room	1	MV 250	mv250/1	290	0.3	Timer	2600	754.0	1	MV 250	mv250/1	290	0.3	None	2600	754.0	0.0	$0.00	$0.00	$0.00		
229	Behind WT Room	1	WP200 I 1	i200/1	200	0.2	Timer	2600	520.0	1	WP200 I 1	i200/1	200	0.2	None	2600	520.0	0.0	$0.00	$0.00	$0.00		
45	Behind WT Room	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	Timer	2600	70.2	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	None	2600	70.2	0.0	$0.00	$0.00	$0.00		
236	Outside Pool	3	MV 250	mv250/1	290	0.9	Timer	2600	2,262.0	3	MV 250	mv250/1	290	0.9	None	2600	2,262.0	0.0	$0.00	$0.00	$0.00		
65	Outside Pool	1	I 100	I100/1	100	0.1	Timer	2600	260.0	1	I 100	I100/1	100	0.1	None	2600	260.0	0.0	$0.00	$0.00	$0.00		
141	South Side - Shop Wing	7	HPS 250	HPS250/1	295	2.1	Timer	2600	5,369.0	7	HPS 250	HPS250/1	295	2.1	None	2600	5,369.0	0.0	$0.00	$0.00	$0.00		
141	East Side	2	HPS 250	HPS250/1	295	0.6	Timer	2600	1,534.0	2	HPS 250	HPS250/1	295	0.6	None	2600	1,534.0	0.0	$0.00	$0.00	$0.00		
141	North Side	4	HPS 250	HPS250/1	295	1.2	Timer	2600	3,068.0	4	HPS 250	HPS250/1	295	1.2	None	2600	3,068.0	0.0	$0.00	$0.00	$0.00		
229	South Side - Shop Wing	9	WP200 I 1	i200/1	200	1.8	Timer	2600	4,680.0	9	WP200 I 1	i200/1	200	1.8	None	2600	4,680.0	0.0	$0.00	$0.00	$0.00		
229	East Side	6	WP200 I 1	i200/1	200	1.2	Timer	2600	3,120.0	6	WP200 I 1	i200/1	200	1.2	None	2600	3,120.0	0.0	$0.00	$0.00	$0.00		
229	North Side	8	WP200 I 1	i200/1	200	1.6	Timer	2600	4,160.0	8	WP200 I 1	i200/1	200	1.6	None	2600	4,160.0	0.0	$0.00	$0.00	$0.00		
230	North Side	2	WP400MH1	MH400/1	458	0.9	Timer	2600	2,381.6	2	WP400MH1	MH400/1	458	0.9	None	2600	2,381.6	0.0	$0.00	$0.00	$0.00		
	Total	2,803				214.9			616,522	2,803				215			504,067	112,455	16,418	$29,799	5,045		
																	Demand Savings		0.0	$0			
																	kWh Savings		112,455	$16,418			
																	Total Savings			$16,418		1.8	1.5

APPENDIX P

ECM-15 Lighting Replacements

Energy Audit of Sussex County Technical School Facilities
CHA Project No. 20151 Main Building
ECM-15 Lighting Replacements

Cost of Electricity: $0.146 $/kWh
$6.63 $/kW

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS					
	Area Description	No. of Fixtures	Standard Fixture Code	NYSERDA Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual $ Saved	Retrofit Cost	NJ Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated daily hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(kWh Saved) * ($/kWh)	Cost for renovations to lighting system	Prescriptive Lighting Measures	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
	Main Building - Interior																						
202	Room 100	2	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2808	185	2	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2,808	185	-	$ -	$ -	$0		
202	Room 100	4	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2808	371	4	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2,808	371	-	$ -	$ -	$0		
202	Room 100	4	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2808	371	4	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2,808	371	-	$ -	$ -	$0		
202	Room 100	3	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2808	278	3	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2,808	278	-	$ -	$ -	$0		
46	Room 100	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	168	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2,808	168	-	$ -	$ -	$0		
46	Room 100	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	337	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2,808	337	-	$ -	$ -	$0		
238	Room 100	8	DC 32 P F 2	F42LL	60	0.5	SW	2808	1,348	8	DC 32 P F 2	F42LL	60	0.5	SW	2,808	1,348	-	$ -	$ -	$0		
46	Room 101	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	337	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2,808	337	-	$ -	$ -	$0		
202	Room 101	2	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2808	185	2	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2,808	185	-	$ -	$ -	$0		
46	Room 101	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	505	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2,808	505	-	$ -	$ -	$0		
46	Room 101	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	674	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2,808	674	-	$ -	$ -	$0		
46	Room 102	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	674	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2,808	674	-	$ -	$ -	$0		
46	Room 102	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	674	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2,808	674	-	$ -	$ -	$0		
46	Room 102	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	674	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2,808	674	-	$ -	$ -	$0		
202	L:ibrary	4	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2808	371	4	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2,808	371	-	$ -	$ -	$0		
202	L:ibrary	4	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2808	371	4	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2,808	371	-	$ -	$ -	$0		
202	L:ibrary	4	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2808	371	4	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2,808	371	-	$ -	$ -	$0		
202	Room 105	45	2T 17 R F 4 (ELE)	F22ILL	33	1.5	SW	2808	4,170	45	2T 17 R F 4 (ELE)	F22ILL	33	1.5	SW	2,808	4,170	-	$ -	$ -	$0		
46	Room 105	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,011	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2,808	1,011	-	$ -	$ -	$0		
46	Room 106	9	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,516	9	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2,808	1,516	-	$ -	$ -	$0		
46	Room 106	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,348	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2,808	1,348	-	$ -	$ -	$0		
46	Room 106	9	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,516	9	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2,808	1,516	-	$ -	$ -	$0		
46	Room 106	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	168	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2,808	168	-	$ -	$ -	$0		
46	Room 106	1	W 32 C F 2 (ELE)	F42LL	60	0.1	Breaker	8760	526	1	W 32 C F 2 (ELE)	F42LL	60	0.1	Breaker	8,760	526	-	$ -	$ -	$0		
202	Room 106	2	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2808	185	2	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2,808	185	-	$ -	$ -	$0		
202	Room 106	2	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2808	185	2	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2,808	185	-	$ -	$ -	$0		
46	Room 106	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	505	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2,808	505	-	$ -	$ -	$0		
46	Room 106	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2,808	1,853	-	$ -	$ -	$0		
46	Room 106	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2,808	1,853	-	$ -	$ -	$0		
70	Room 107	4	W 32 C F 1	F41LL	32	0.1	SW	2808	359	4	W 32 C F 1	F41LL	32	0.1	SW	2,808	359	-	$ -	$ -	$0		
46	Room 108	24	W 32 C F 2 (ELE)	F42LL	60	1.4	SW	2808	4,044	24	W 32 C F 2 (ELE)	F42LL	60	1.4	SW	2,808	4,044	-	$ -	$ -	$0		
35	Gift Shop	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	1000	540	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	1,000	540	-	$ -	$ -	$0		
46	Room 109	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,348	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2,808	1,348	-	$ -	$ -	$0		
46	Room 109	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	674	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2,808	674	-	$ -	$ -	$0		
46	Room 109	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	1,685	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2,808	1,685	-	$ -	$ -	$0		
46	Room 109	68	W 32 C F 2 (ELE)	F42LL	60	4.1	SW	2808	11,457	68	W 32 C F 2 (ELE)	F42LL	60	4.1	SW	2,808	11,457	-	$ -	$ -	$0		
46	Mens #1	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	499	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2,080	499	-	$ -	$ -	$0		
46	Womens #1	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	374	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2,080	374	-	$ -	$ -	$0		
46	Room 111	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	337	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2,808	337	-	$ -	$ -	$0		
46	Room 111	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,011	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2,808	1,011	-	$ -	$ -	$0		
46	Room 111	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	168	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2,808	168	-	$ -	$ -	$0		
46	Room 111	9	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,516	9	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2,808	1,516	-	$ -	$ -	$0		
46	Room 111	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2,808	1,853	-	$ -	$ -	$0		
46	Room 111	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2,808	1,853	-	$ -	$ -	$0		
46	Room 111	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2,808	1,853	-	$ -	$ -	$0		
46	Room 111	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,011	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2,808	1,011	-	$ -	$ -	$0		
46	Room 112	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,808	842	-	$ -	$ -	$0		
46	Room 112	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,808	842	-	$ -	$ -	$0		
46	Room 112	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,808	842	-	$ -	$ -	$0		
46	Room 112	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,808	842	-	$ -	$ -	$0		
46	Room 113	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,808	842	-	$ -	$ -	$0		
46	Room 113	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,808	842	-	$ -	$ -	$0		
46	Room 113	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,808	842	-	$ -	$ -	$0		
46	Room 113	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,808	842	-	$ -	$ -	$0		
46	Room 114	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	505	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2,808	505	-	$ -	$ -	$0		
46	Room 115	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2,808	1,853	-	$ -	$ -	$0		
46	Room 115	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2,808	1,853	-	$ -	$ -	$0		
46	Room 115	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2,808	1,853	-	$ -	$ -	$0		
46	Room 115	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2,808	1,853	-	$ -	$ -	$0		
46	Room 115	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	505	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2,808	505	-	$ -	$ -	$0		
46	Room 116	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	337	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2,808	337	-	$ -	$ -	$0		
46	Room 117	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	1,685	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2,808	1,685	-	$ -	$ -	$0		
46	Room 117	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	1,685	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2,808	1,685	-	$ -	$ -	$0		
46	Room 117	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	168	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2,808	168	-	$ -	$ -	$0		
46	Room 117	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	337	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2,808	337	-	$ -	$ -	$0		
46	Vestibule near Room 117	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	3744	449	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	3,744	449	-	$ -	$ -	$0		
46	Vestibule near Room 117	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	3744	899	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	3,744	899	-	$ -	$ -	$0		
46	Room 118	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	1,685	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2,808	1,685	-	$ -	$ -	$0		
46	Room 118	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	1,685	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2,808	1,685	-	$ -	$ -	$0		
46	Room 118	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	1,685	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2,808	1,685	-	$ -	$ -	$0		
46	Room 118	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	1,685	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2,808	1,685	-	$ -	$ -	$0		
46	Room 119A	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,808	842	-	$ -	$ -	$0		
46	Room 119A	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,808	842	-	$ -	$ -	$0		
46	Room 119A	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,808	842	-	$ -	$ -	$0		
46	Room 119A	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,808	842	-	$ -	$ -	$0		
46	Room 119B	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	1,685	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2,808	1,685	-	$ -	$ -	$0		
46	Room 119B	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	1,685	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2,808	1,685	-	$ -	$ -	$0		
46	Room 119B	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	1,685	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2,808	1,685	-	$ -	$ -	$0		
46	Room 119B	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	1,685	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2,808	1,685	-	$ -	$ -	$0		
46	Room 123	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	674	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2,808	674	-	$ -	$ -	$0		
46	Room 123	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	674	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2,808	674	-	$ -	$ -	$0		
46	Room 123	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	674	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2,808	674	-	$ -	$ -	$0		
46	Room near 123	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	674	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2,808	674	-	$ -	$ -	$0		
35	Room 124	26	T 32 R F 3 (ELE)	F43ILL/2	90	2.3	SW	2808	6,571	26	T 32 R F 3 (ELE)	F43ILL/2	90	2.3	SW	2,808	6,571	-	$ -	$ -	$0		
35	Room 124	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	2808	505	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	2,808	505	-	$ -	$ -	$0		
46	Mens # 2	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	499	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2,080	499	-	$ -	$ -	$0		

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS					
Field Code	Area Description	No. of Fixtures	Standard Fixture Code	NYSERDA Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual $ Saved	Retrofit Cost	NJ Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated daily hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(kWh Saved) * ($/kWh)	Cost for renovations to lighting system	Prescriptive Lighting Measures	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
46	Womens #2	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	499	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2,080	499	-	$ -	$ -	$0		
202	Office	8	2T 17 R F 4 (ELE)	F22ILL	33	0.3	SW	2600	686	8	2T 17 R F 4 (ELE)	F22ILL	33	0.3	SW	2,600	686	-	$ -	$ -	$0		
46	Office	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2600	312	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2,600	312	-	$ -	$ -	$0		
x1	near 125	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8,760	13	-	$ -	$ -	$0		
35	Room 125	21	T 32 R F 3 (ELE)	F43ILL/2	90	1.9	SW	2808	5,307	21	T 32 R F 3 (ELE)	F43ILL/2	90	1.9	SW	2,808	5,307	-	$ -	$ -	$0		
46	Room 125	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	168	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2,808	168	-	$ -	$ -	$0		
46	Room 125	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	337	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2,808	337	-	$ -	$ -	$0		
46	Room 126	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,011	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2,808	1,011	-	$ -	$ -	$0		
46	Room 126	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,011	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2,808	1,011	-	$ -	$ -	$0		
46	Room 126	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,011	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2,808	1,011	-	$ -	$ -	$0		
46	Room 127	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	168	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2,808	168	-	$ -	$ -	$0		
46	Room 127	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2,808	1,853	-	$ -	$ -	$0		
46	Room 127	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2,808	1,853	-	$ -	$ -	$0		
46	Room 127	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2,808	1,853	-	$ -	$ -	$0		
46	Room 127	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	168	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2,808	168	-	$ -	$ -	$0		
46	Mens #3	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	374	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2,080	374	-	$ -	$ -	$0		
46	Womens #3	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	374	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2,080	374	-	$ -	$ -	$0		
46	Stairway	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	3744	1,123	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	3,744	1,123	-	$ -	$ -	$0		
98	Hallway near Room 100	50	T 32 R F 2	F42LL	60	3.0	SW	3744	11,232	50	T 32 R F 2	F42LL	60	3.0	SW	3,744	11,232	-	$ -	$ -	$0		
x1	Hallway near Room 100	3	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	39	3	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8,760	39	-	$ -	$ -	$0		
70	Hall near Room 125 and 124	14	W 32 C F 1	F41LL	32	0.4	SW	3744	1,677	14	W 32 C F 1	F41LL	32	0.4	SW	3,744	1,677	-	$ -	$ -	$0		
70	Stairs	4	W 32 C F 1	F41LL	32	0.1	SW	3744	479	4	W 32 C F 1	F41LL	32	0.1	SW	3,744	479	-	$ -	$ -	$0		
46	Hall near Room 117	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	3744	899	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	3,744	899	-	$ -	$ -	$0		
70	Hallway near Room 112	46	W 32 C F 1	F41LL	32	1.5	SW	3744	5,511	46	W 32 C F 1	F41LL	32	1.5	SW	3,744	5,511	-	$ -	$ -	$0		
x2	Hallway near Room 112	3	XX 3.0 W CF 2	ELED1.5/2	3	0.0	Breaker	8760	79	3	XX 3.0 W CF 2	ELED1.5/2	3	0.0	Breaker	8,760	79	-	$ -	$ -	$0		
232	Area Between Room 127 and Gym	5	R 100 C I 1	i100/1	100	0.5	SW	3744	1,872	5	WP 42 1	CF42/1-L	48	0.2	SW	3,744	899	973	$ 162.81	$ 506.25	$0	3.1	3.1
x1	Area Between Room 127 and Gym	3	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	39	3	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8,760	39	-	$ -	$ -	$0		
98	Area Between Room 127 and Gym	12	T 32 R F 2	F42LL	60	0.7	SW	3744	2,696	12	T 32 R F 2	F42LL	60	0.7	SW	3,744	2,696	-	$ -	$ -	$0		
18	Area Between Room 127 and Gym	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	3744	1,258	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	3,744	1,258	-	$ -	$ -	$0		
18	Area Between Room 127 and Gym	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	SW	3744	419	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	SW	3,744	419	-	$ -	$ -	$0		
18	Area Between Room 127 and Gym	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	Breaker	8760	981	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	Breaker	8,760	981	-	$ -	$ -	$0		
18	Area Between Room 127 and Gym	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	SW	3744	419	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	SW	3,744	419	-	$ -	$ -	$0		
x1	Gym Lobby	3	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	39	3	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8,760	39	-	$ -	$ -	$0		
98	Gym Lobby	22	T 32 R F 2	F42LL	60	1.3	SW	3650	4,818	22	T 32 R F 2	F42LL	60	1.3	SW	3,650	4,818	-	$ -	$ -	$0		
235	Gym Offices	4	R 75 C Q 1	h75/1	75	0.3	SW	3650	1,095	4	WP 42 1	CF42/1-L	48	0.2	SW	3,650	701	394	$ 66.15	$ 405.00	$0	6.1	6.1
235	Gym Offices	4	R 75 C Q 1	h75/1	75	0.3	SW	3650	1,095	4	WP 42 1	CF42/1-L	48	0.2	SW	3,650	701	394	$ 66.15	$ 405.00	$0	6.1	6.1
235	Gym Offices	4	R 75 C Q 1	h75/1	75	0.3	SW	3650	1,095	4	WP 42 1	CF42/1-L	48	0.2	SW	3,650	701	394	$ 66.15	$ 405.00	$0	6.1	6.1
235	Gym Offices	6	R 75 C Q 1	h75/1	75	0.5	SW	3650	1,643	6	WP 42 1	CF42/1-L	48	0.3	SW	3,650	1,051	591	$ 99.22	$ 607.50	$0	6.1	6.1
235	Gym Offices	6	R 75 C Q 1	h75/1	75	0.5	SW	3650	1,643	6	WP 42 1	CF42/1-L	48	0.3	SW	3,650	1,051	591	$ 99.22	$ 607.50	$0	6.1	6.1
x1	Gym	4	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	53	4	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8,760	53	-	$ -	$ -	$0		
9	Gym	24	High Bay MH 400 35 Feet High	MH400/1	458	11.0	SW	3650	40,121	24	P 54 C F 4	F45GHL	294	7.1	SW	3,650	25,754	14,366	$ 2,410.64	$ 7,200.00	$2,400	2.6	1.8
46	Aux Gym	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	3650	876	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	3,650	876	-	$ -	$ -	$0		
46	Aux Gym	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	3650	876	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	3,650	876	-	$ -	$ -	$0		
46	Aux Gym	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	3650	876	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	3,650	876	-	$ -	$ -	$0		
46	Aux Gym	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	3650	438	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	3,650	438	-	$ -	$ -	$0		
232	Aux Gym	3	R 100 C I 1	i100/1	100	0.3	SW	3650	1,095	3	WP 42 1	CF42/1-L	48	0.1	SW	3,650	526	569	$ 95.54	$ 303.75	$0	3.2	3.2
46	Gym - Boys	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	3650	438	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	3,650	438	-	$ -	$ -	$0		
50	Gym - Boys	2	W 32 W F 2 (ELE) Pull Chain (500 hrs.)	F42LL	60	0.1	SW	3650	438	2	W 32 W F 2 (ELE) Pull Chain (500 hrs.)	F42LL	60	0.1	SW	3,650	438	-	$ -	$ -	$0		
46	Gym - Boys	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	3650	219	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	3,650	219	-	$ -	$ -	$0		
46	Gym - Boys	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	3650	438	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	3,650	438	-	$ -	$ -	$0		
46	Gym - Boys	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	3650	1,533	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	3,650	1,533	-	$ -	$ -	$0		
98	Gym - Boys	8	T 32 R F 2	F42LL	60	0.5	SW	3650	1,752	8	T 32 R F 2	F42LL	60	0.5	SW	3,650	1,752	-	$ -	$ -	$0		
46	Gym - Girls	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	3650	438	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	3,650	438	-	$ -	$ -	$0		
50	Gym - Girls	2	W 32 W F 2 (ELE) Pull Chain (500 hrs.)	F42LL	60	0.1	SW	3650	438	2	W 32 W F 2 (ELE) Pull Chain (500 hrs.)	F42LL	60	0.1	SW	3,650	438	-	$ -	$ -	$0		
46	Gym - Girls	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	3650	219	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	3,650	219	-	$ -	$ -	$0		
46	Gym - Girls	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	3650	438	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	3,650	438	-	$ -	$ -	$0		
46	Gym - Girls	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	3650	1,533	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	3,650	1,533	-	$ -	$ -	$0		
98	Gym - Girls	8	T 32 R F 2	F42LL	60	0.5	SW	3650	1,752	8	T 32 R F 2	F42LL	60	0.5	SW	3,650	1,752	-	$ -	$ -	$0		
46	Next to Gym - Boys	9	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	3650	1,971	9	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	3,650	1,971	-	$ -	$ -	$0		
227	Next to Gym - Boys	1	W60CF1	F81EL	60	0.1	SW	3744	225	1	W60CF1	F81EL	60	0.1	SW	3,744	225	-	$ -	$ -	$0		
105	Entrance Near Pool	6	W 32 F 1	F41LL	32	0.2	SW	3744	719	6	W 32 F 1	F41LL	32	0.2	SW	3,744	719	-	$ -	$ -	$0		
105	Hallway Near Pool	11	W 32 F 1	F41LL	32	0.4	Breaker	8760	3,084	11	W 32 F 1	F41LL	32	0.4	Breaker	8,760	3,084	-	$ -	$ -	$0		
x1	Hallway Near Pool	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8,760	13	-	$ -	$ -	$0		
x1	Hallway Near Gym	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8,760	13	-	$ -	$ -	$0		
98	Hallway Near Gym	14	T 32 R F 2	F42LL	60	0.8	SW	3744	3,145	14	T 32 R F 2	F42LL	60	0.8	SW	3,744	3,145	-	$ -	$ -	$0		
46	Washroom	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	374	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2,080	374	-	$ -	$ -	$0		
46	Basement Mechanical Room	14	W 32 C F 2 (ELE)	F42LL	60	0.8	SW	3744	3,145	14	W 32 C F 2 (ELE)	F42LL	60	0.8	SW	3,744	3,145	-	$ -	$ -	$0		
46	Maintenance Storage	6	W 32 C F 2 (ELE)	F42LL	60	0.4	Breaker	8760	3,154	6	W 32 C F 2 (ELE)	F42LL	60	0.4	Breaker	8,760	3,154	-	$ -	$ -	$0		
98	Room 132	9	T 32 R F 2	F42LL	60	0.5	SW	2808	1,516	9	T 32 R F 2	F42LL	60	0.5	SW	2,808	1,516	-	$ -	$ -	$0		
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	SW	2,808	1,685	-	$ -	$ -	$0		
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	SW	2,808	1,685	-	$ -	$ -	$0		
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	SW	2,808	1,685	-	$ -	$ -	$0		
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	SW	2,808	1,685	-	$ -	$ -	$0		
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	SW	2,808	1,685	-	$ -	$ -	$0		
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	SW	2,808	1,685	-	$ -	$ -	$0		
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	SW	2,808	1,685	-	$ -	$ -	$0		
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	SW	2,808	1,685	-	$ -	$ -	$0		
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	SW	2,808	1,685	-	$ -	$ -	$0		
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	SW	2,808	1,685	-	$ -	$ -	$0		
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	SW	2,808	1,685	-	$ -	$ -	$0		
x1	Room 132	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8,760	13	-	$ -	$ -	$0		
98	Room 132	4	T 32 R F 2	F42LL	60	0.2	SW	2808	674	4	T 32 R F 2	F42LL	60	0.2	SW	2,808	674	-	$ -	$ -	$0		
98	Room 132	2	T 32 R F 2	F42LL	60	0.1	SW	2808	337	2	T 32 R F 2	F42LL	60	0.1	SW	2,808	337	-	$ -	$ -	$0		
98	Room 132	2	T 32 R F 2	F42LL	60	0.1	SW	2808	337	2	T 32 R F 2	F42LL	60	0.1	SW	2,808	337	-	$ -	$ -	$0		
46	Room 133	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	337	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2,808	337	-	$ -	$ -	$0		
98	Room 134	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	SW	2,808	1,685	-	$ -	$ -	$0		
98	Room 134	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	SW	2,808	1,685	-	$ -	$ -	$0		
98	Room 134	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	SW	2,808	1,685	-	$ -	$ -	$0		
98	Room 134	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	SW	2,808	1,685	-	$ -	$ -	$0		
98	Room 134	8	T 32 R F 2	F42LL	60	0.5	SW	2808	1,348	8	T 32 R F 2	F42LL	60	0.5	SW	2,808	1,348	-	$ -	$ -	$0		
98	Room 134	8	T 32 R F 2	F42LL	60	0.5	SW	2808	1,348	8	T 32 R F 2	F42LL	60	0.5	SW	2,808	1,348	-	$ -	$ -	$0		
98	Room 134	8	T 32 R F 2	F42LL	60	0.5	SW	2808	1,348	8	T 32 R F 2	F42LL	60	0.5	SW	2,808	1,348	-	$ -	$ -	$0		

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS					
Field Code	Area Description	No. of Fixtures	Standard Fixture Code	NYSERDA Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual $ Saved	Retrofit Cost	NJ Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated daily hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(kWh Saved) * ($/kWh)	Cost for renovations to lighting system	Prescriptive Lighting Measures	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
98	Room 134	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	SW	2,808	1,685	-	$ -	$ -	$0		
98	Room 134	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	SW	2,808	1,685	-	$ -	$ -	$0		
98	Room 134	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	SW	2,808	1,685	-	$ -	$ -	$0		
98	Room 134	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	SW	2,808	1,685	-	$ -	$ -	$0		
239	Room 134	4	R 150 C I 1	I150/1	150	0.6	SW	2808	1,685	4	WP 42 1	CF42/1-L	48	0.2	SW	2,808	539	1,146	$ 199.73	$ 405.00	$0	2.0	2.0
232	Room 134	5	R 100 C I 1	I100/1	100	0.5	SW	2808	1,404	5	WP 42 1	CF42/1-L	48	0.2	SW	2,808	674	730	$ 127.28	$ 506.25	$0	4.0	4.0
x1	Room 134	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8,760	13	-	$ -	$ -	$0		
70	Room 134	2	W 32 C F 1	F41LL	32	0.1	SW	2808	180	2	W 32 C F 1	F41LL	32	0.1	SW	2,808	180	-	$ -	$ -	$0		
98	Room 134	6	T 32 R F 2	F42LL	60	0.4	SW	2808	1,011	6	T 32 R F 2	F42LL	60	0.4	SW	2,808	1,011	-	$ -	$ -	$0		
98	Room 134	2	T 32 R F 2	F42LL	60	0.1	SW	2808	337	2	T 32 R F 2	F42LL	60	0.1	SW	2,808	337	-	$ -	$ -	$0		
98	Room 134	2	T 32 R F 2	F42LL	60	0.1	SW	2808	337	2	T 32 R F 2	F42LL	60	0.1	SW	2,808	337	-	$ -	$ -	$0		
46	Room 135	12	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	2,022	12	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2,808	2,022	-	$ -	$ -	$0		
46	Room 135	12	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	2,022	12	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2,808	2,022	-	$ -	$ -	$0		
46	Room 135	12	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	2,022	12	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2,808	2,022	-	$ -	$ -	$0		
46	Room 135	12	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	2,022	12	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2,808	2,022	-	$ -	$ -	$0		
46	Room 135	12	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	2,022	12	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2,808	2,022	-	$ -	$ -	$0		
x1	Room 135	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8,760	13	-	$ -	$ -	$0		
46	Room 135	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,348	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2,808	1,348	-	$ -	$ -	$0		
46	Room 135	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	674	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2,808	674	-	$ -	$ -	$0		
46	Room 135	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	337	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2,808	337	-	$ -	$ -	$0		
46	Room 135	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	674	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2,808	674	-	$ -	$ -	$0		
46	Room 136	15	W 32 C F 2 (ELE)	F42LL	60	0.9	SW	2808	2,527	15	W 32 C F 2 (ELE)	F42LL	60	0.9	SW	2,808	2,527	-	$ -	$ -	$0		
202	Room 136	8	2T 17 R F 4 (ELE)	F22ILL	33	0.3	SW	2808	741	8	2T 17 R F 4 (ELE)	F22ILL	33	0.3	SW	2,808	741	-	$ -	$ -	$0		
46	Room 136	24	W 32 C F 2 (ELE)	F42LL	60	1.4	SW	2808	4,044	24	W 32 C F 2 (ELE)	F42LL	60	1.4	SW	2,808	4,044	-	$ -	$ -	$0		
46	Room 136	14	W 32 C F 2 (ELE)	F42LL	60	0.8	SW	2808	2,359	14	W 32 C F 2 (ELE)	F42LL	60	0.8	SW	2,808	2,359	-	$ -	$ -	$0		
98	Room 136	4	T 32 R F 2	F42LL	60	0.2	SW	2808	674	4	T 32 R F 2	F42LL	60	0.2	SW	2,808	674	-	$ -	$ -	$0		
98	Room 136	6	T 32 R F 2	F42LL	60	0.4	SW	2808	1,011	6	T 32 R F 2	F42LL	60	0.4	SW	2,808	1,011	-	$ -	$ -	$0		
46	Science Storage	9	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	1000	540	9	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	1,000	540	-	$ -	$ -	$0		
46	Bathroom Near Room 136	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2080	250	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2,080	250	-	$ -	$ -	$0		
202	Bathroom Near Room 136	2	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2080	137	2	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2,080	137	-	$ -	$ -	$0		
231	Bathroom Near Room 136	2	R 60 C I 1	I60/1	60	0.1	SW	2080	250	2	CF 26	CF42/1-L	48	0.1	SW	2,080	200	50	$ 9.20	$ 40.50	$0	4.4	4.4
98	Wash Room / Janitor Closet	4	T 32 R F 2	F42LL	60	0.2	SW	2080	499	4	T 32 R F 2	F42LL	60	0.2	SW	2,080	499	-	$ -	$ -	$0		
98	Room 139	8	T 32 R F 2	F42LL	60	0.5	SW	2808	1,348	8	T 32 R F 2	F42LL	60	0.5	SW	2,808	1,348	-	$ -	$ -	$0		
98	Room 139	2	T 32 R F 2	F42LL	60	0.1	SW	2808	337	2	T 32 R F 2	F42LL	60	0.1	SW	2,808	337	-	$ -	$ -	$0		
98	Room 139	2	T 32 R F 2	F42LL	60	0.1	SW	2808	337	2	T 32 R F 2	F42LL	60	0.1	SW	2,808	337	-	$ -	$ -	$0		
98	Room 139	6	T 32 R F 2	F42LL	60	0.4	SW	2808	1,011	6	T 32 R F 2	F42LL	60	0.4	SW	2,808	1,011	-	$ -	$ -	$0		
98	Room 139	12	T 32 R F 2	F42LL	60	0.7	SW	2808	2,022	12	T 32 R F 2	F42LL	60	0.7	SW	2,808	2,022	-	$ -	$ -	$0		
98	Room 139	12	T 32 R F 2	F42LL	60	0.7	SW	2808	2,022	12	T 32 R F 2	F42LL	60	0.7	SW	2,808	2,022	-	$ -	$ -	$0		
98	Room 139	12	T 32 R F 2	F42LL	60	0.7	SW	2808	2,022	12	T 32 R F 2	F42LL	60	0.7	SW	2,808	2,022	-	$ -	$ -	$0		
98	Room 139	12	T 32 R F 2	F42LL	60	0.7	SW	2808	2,022	12	T 32 R F 2	F42LL	60	0.7	SW	2,808	2,022	-	$ -	$ -	$0		
x1	Room 139	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8,760	13	-	$ -	$ -	$0		
98	Room 140	14	T 32 R F 2	F42LL	60	0.8	SW	2808	2,359	14	T 32 R F 2	F42LL	60	0.8	SW	2,808	2,359	-	$ -	$ -	$0		
98	Room 140	14	T 32 R F 2	F42LL	60	0.8	SW	2808	2,359	14	T 32 R F 2	F42LL	60	0.8	SW	2,808	2,359	-	$ -	$ -	$0		
98	Room 140	14	T 32 R F 2	F42LL	60	0.8	SW	2808	2,359	14	T 32 R F 2	F42LL	60	0.8	SW	2,808	2,359	-	$ -	$ -	$0		
98	Room 140	14	T 32 R F 2	F42LL	60	0.8	SW	2808	2,359	14	T 32 R F 2	F42LL	60	0.8	SW	2,808	2,359	-	$ -	$ -	$0		
x1	Room 140	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8,760	13	-	$ -	$ -	$0		
18	Room 140	10	T 32 R F 4 (ELE)	F44ILL	112	1.1	SW	2808	3,145	10	T 32 R F 4 (ELE)	F44ILL	112	1.1	SW	2,808	3,145	-	$ -	$ -	$0		
98	Room 140	4	T 32 R F 2	F42LL	60	0.2	SW	2808	674	4	T 32 R F 2	F42LL	60	0.2	SW	2,808	674	-	$ -	$ -	$0		
98	Room 140	6	T 32 R F 2	F42LL	60	0.4	SW	2808	1,011	6	T 32 R F 2	F42LL	60	0.4	SW	2,808	1,011	-	$ -	$ -	$0		
98	Room 141	7	T 32 R F 2	F42LL	60	0.4	SW	2808	1,179	7	T 32 R F 2	F42LL	60	0.4	SW	2,808	1,179	-	$ -	$ -	$0		
98	Room 141	7	T 32 R F 2	F42LL	60	0.4	SW	2808	1,179	7	T 32 R F 2	F42LL	60	0.4	SW	2,808	1,179	-	$ -	$ -	$0		
98	Room 141	5	T 32 R F 2	F42LL	60	0.3	SW	2808	842	5	T 32 R F 2	F42LL	60	0.3	SW	2,808	842	-	$ -	$ -	$0		
98	Room 141	11	T 32 R F 2	F42LL	60	0.7	SW	2808	1,853	11	T 32 R F 2	F42LL	60	0.7	SW	2,808	1,853	-	$ -	$ -	$0		
98	Room 141	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	SW	2,808	1,685	-	$ -	$ -	$0		
98	Room 141	11	T 32 R F 2	F42LL	60	0.7	SW	2808	1,853	11	T 32 R F 2	F42LL	60	0.7	SW	2,808	1,853	-	$ -	$ -	$0		
98	Room 141	11	T 32 R F 2	F42LL	60	0.7	SW	2808	1,853	11	T 32 R F 2	F42LL	60	0.7	SW	2,808	1,853	-	$ -	$ -	$0		
98	Room 141	7	T 32 R F 2	F42LL	60	0.4	SW	2808	1,179	7	T 32 R F 2	F42LL	60	0.4	SW	2,808	1,179	-	$ -	$ -	$0		
98	Room 141	11	T 32 R F 2	F42LL	60	0.7	SW	2808	1,853	11	T 32 R F 2	F42LL	60	0.7	SW	2,808	1,853	-	$ -	$ -	$0		
98	Room 141	11	T 32 R F 2	F42LL	60	0.7	SW	2808	1,853	11	T 32 R F 2	F42LL	60	0.7	SW	2,808	1,853	-	$ -	$ -	$0		
98	Room 141	11	T 32 R F 2	F42LL	60	0.7	SW	2808	1,853	11	T 32 R F 2	F42LL	60	0.7	SW	2,808	1,853	-	$ -	$ -	$0		
98	Room 141	13	T 32 R F 2	F42LL	60	0.8	SW	2808	2,190	13	T 32 R F 2	F42LL	60	0.8	SW	2,808	2,190	-	$ -	$ -	$0		
x1	Room 141	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8,760	13	-	$ -	$ -	$0		
98	Room 141 - Locker Room	6	T 32 R F 2	F42LL	60	0.4	SW	2808	1,011	6	T 32 R F 2	F42LL	60	0.4	SW	2,808	1,011	-	$ -	$ -	$0		
98	Room 141 - Class Room	8	T 32 R F 2	F42LL	60	0.5	SW	2808	1,348	8	T 32 R F 2	F42LL	60	0.5	SW	2,808	1,348	-	$ -	$ -	$0		
46	Room 141 - Tool Room	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	674	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2,808	674	-	$ -	$ -	$0		
98	Room 141 - Tool Room	6	T 32 R F 2	F42LL	60	0.4	SW	2808	1,011	6	T 32 R F 2	F42LL	60	0.4	SW	2,808	1,011	-	$ -	$ -	$0		
98	Room 141 - Storage	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	SW	2,808	1,685	-	$ -	$ -	$0		
46	Room 142	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	1000	420	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	1,000	420	-	$ -	$ -	$0		
46	Room 142	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2,808	1,179	-	$ -	$ -	$0		
46	Room 142	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2,808	1,179	-	$ -	$ -	$0		
46	Room 142	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2,808	1,179	-	$ -	$ -	$0		
46	Room 142	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2,808	1,179	-	$ -	$ -	$0		
46	Room 142	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2,808	1,179	-	$ -	$ -	$0		
46	Room 142	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2,808	1,179	-	$ -	$ -	$0		
x1	Room 142	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8,760	13	-	$ -	$ -	$0		
46	Room 142	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	674	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2,808	674	-	$ -	$ -	$0		
46	Room 142	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	337	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2,808	337	-	$ -	$ -	$0		
46	Room 142	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	337	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2,808	337	-	$ -	$ -	$0		
46	Room 142	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,348	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2,808	1,348	-	$ -	$ -	$0		
18	Room 143	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	SW	2808	1,887	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	SW	2,808	1,887	-	$ -	$ -	$0		
18	Room 143	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	SW	2808	2,830	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	SW	2,808	2,830	-	$ -	$ -	$0		
18	Room 143	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2808	3,774	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2,808	3,774	-	$ -	$ -	$0		
18	Room 143	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2808	3,774	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2,808	3,774	-	$ -	$ -	$0		
18	Room 143	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2808	3,774	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2,808	3,774	-	$ -	$ -	$0		
18	Room 143	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2808	3,774	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2,808	3,774	-	$ -	$ -	$0		
18	Room 143	14	T 32 R F 4 (ELE)	F44ILL	112	1.6	SW	2808	4,403	14	T 32 R F 4 (ELE)	F44ILL	112	1.6	SW	2,808	4,403	-	$ -	$ -	$0		
x1	Room 143	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8,760	13	-	$ -	$ -	$0		
46	Room 144	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,808	842	-	$ -	$ -	$0		
46	Room 144	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,808	842	-	$ -	$ -	$0		
46	Room 144	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,808	842	-	$ -	$ -	$0		
46	Room 144	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,808	842	-	$ -	$ -	$0		
46	Room 144	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,808	842	-	$ -	$ -	$0		

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS					
Field Code	Area Description	No. of Fixtures	Standard Fixture Code	NYSERDA Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual $ Saved	Retrofit Cost	NJ Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated daily hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(kWh Saved) * ($/kWh)	Cost for renovations to lighting system	Prescriptive Lighting Measures	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
46	Room 144	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,011	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2,808	1,011	-	$ -	$ -	$0		
46	Room 144	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,808	842	-	$ -	$ -	$0		
x1	Room 144	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8,760	13	-	$ -	$ -	$0		
46	Room 145	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,808	842	-	$ -	$ -	$0		
46	Room 145	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,808	842	-	$ -	$ -	$0		
46	Room 145	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,808	842	-	$ -	$ -	$0		
46	Room 145	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,808	842	-	$ -	$ -	$0		
46	Room 145	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,808	842	-	$ -	$ -	$0		
98	Hall between Room 144 and 145	8	T 32 R F 2	F42LL	60	0.5	SW	2808	1,348	8	T 32 R F 2	F42LL	60	0.5	SW	2,808	1,348	-	$ -	$ -	$0		
x1	Hall between Room 144 and 145	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8,760	13	-	$ -	$ -	$0		
98	Hall between Room 142 and 136	27	T 32 R F 2	F42LL	60	1.6	SW	3744	6,065	27	T 32 R F 2	F42LL	60	1.6	SW	3,744	6,065	-	$ -	$ -	$0		
x1	Hall between Room 142 and 136	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8,760	13	-	$ -	$ -	$0		
98	Hall around Room 139	12	T 32 R F 2	F42LL	60	0.7	SW	3744	2,696	12	T 32 R F 2	F42LL	60	0.7	SW	3,744	2,696	-	$ -	$ -	$0		
x1	Hall around Room 139	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8,760	13	-	$ -	$ -	$0		
98	Hall by Room 141	12	T 32 R F 2	F42LL	60	0.7	SW	3744	2,696	12	T 32 R F 2	F42LL	60	0.7	SW	3,744	2,696	-	$ -	$ -	$0		
x1	Hall by Room 141	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8,760	13	-	$ -	$ -	$0		
98	Vestibule by Room 136	1	T 32 R F 2	F42LL	60	0.1	SW	3744	225	1	T 32 R F 2	F42LL	60	0.1	SW	3,744	225	-	$ -	$ -	$0		
8	Pool Boiler Room	4	MH 175	MH175/1	215	0.9	SW	3744	3,220	4	MH 175	MH175/1	215	0.9	SW	3,744	3,220	-	$ -	$ -	$0		
70	Pool Boiler Room	8	W 32 C F 1	F41LL	32	0.3	SW	2080	532	8	W 32 C F 1	F41LL	32	0.3	SW	2,080	532	-	$ -	$ -	$0		
70	Pool Room Men's	1	W 32 C F 1	F41LL	32	0.0	SW	2080	67	1	W 32 C F 1	F41LL	32	0.0	SW	2,080	67	-	$ -	$ -	$0		
70	Pool Room Women's	1	W 32 C F 1	F41LL	32	0.0	SW	2080	67	1	W 32 C F 1	F41LL	32	0.0	SW	2,080	67	-	$ -	$ -	$0		
10	Pool Pod Up- Lighting	15	High Bay MH 1000 50 Feet High	MH1000/1	1080	16.2	Sw	2080	33,696	15	C 54 C F 6	F46GHL	351	5.3	Sw	2,080	10,951	22,745	$ 4,190.73	$ 7,687.50	$1,500	1.8	1.5
9	Pool Pod Up- Lighting	10	High Bay MH 400 35 Feet High	MH400/1	458	4.6	Sw	2080	9,526	10	P 54 C F 4	F45GHL	294	2.9	Sw	2,080	6,115	3,411	$ 628.51	$ 3,000.00	$1,000	4.8	3.2
46	Room 201	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2,808	1,179	-	$ -	$ -	$0		
46	Room 201	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2,808	1,179	-	$ -	$ -	$0		
46	Room 201	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2,808	1,179	-	$ -	$ -	$0		
46	Room 202	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2,808	1,179	-	$ -	$ -	$0		
46	Room 202	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2,808	1,179	-	$ -	$ -	$0		
46	Room 202	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2,808	1,179	-	$ -	$ -	$0		
46	Room 203	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2,808	1,179	-	$ -	$ -	$0		
46	Room 203	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2,808	1,179	-	$ -	$ -	$0		
46	Room 203	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2,808	1,179	-	$ -	$ -	$0		
46	Room 204	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2,808	1,179	-	$ -	$ -	$0		
46	Room 204	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2,808	1,179	-	$ -	$ -	$0		
46	Room 204	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2,808	1,179	-	$ -	$ -	$0		
46	Room 205	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,808	842	-	$ -	$ -	$0		
46	Room 205	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,808	842	-	$ -	$ -	$0		
46	Room 205	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,808	842	-	$ -	$ -	$0		
46	Room 206	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,808	842	-	$ -	$ -	$0		
46	Room 206	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,808	842	-	$ -	$ -	$0		
46	Room 206	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,808	842	-	$ -	$ -	$0		
46	Room 207	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2,808	1,853	-	$ -	$ -	$0		
46	Room 207	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2,808	1,853	-	$ -	$ -	$0		
46	Room 207	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2,808	1,853	-	$ -	$ -	$0		
98	Room 207	1	T 32 R F 2	F42LL	60	0.1	SW	2808	168	1	T 32 R F 2	F42LL	60	0.1	SW	2,808	168	-	$ -	$ -	$0		
46	Room 207	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,808	842	-	$ -	$ -	$0		
46	Room 207	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	168	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2,808	168	-	$ -	$ -	$0		
46	Room 208	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2,808	1,853	-	$ -	$ -	$0		
46	Room 208	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2,808	1,853	-	$ -	$ -	$0		
46	Room 208	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2,808	1,853	-	$ -	$ -	$0		
98	Room 208	1	T 32 R F 2	F42LL	60	0.1	SW	2808	168	1	T 32 R F 2	F42LL	60	0.1	SW	2,808	168	-	$ -	$ -	$0		
46	Room 208	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,808	842	-	$ -	$ -	$0		
x1	Second Floor Hallway	2	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	26	2	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8,760	26	-	$ -	$ -	$0		
98	Second Floor Hallway	28	T 32 R F 2	F42LL	60	1.7	SW	3744	6,290	28	T 32 R F 2	F42LL	60	1.7	SW	3,744	6,290	-	$ -	$ -	$0		
46	Stairway	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	3744	1,348	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	3,744	1,348	-	$ -	$ -	$0		
46	Second Floor Men's	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	374	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2,080	374	-	$ -	$ -	$0		
46	Second Floor Women's	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	374	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2,080	374	-	$ -	$ -	$0		
231	Second Floor Wet Closet	2	R 60 C I 1	I60/1	60	0.1	SW	2808	337	2	CF 26	CF42/1-L	48	0.1	SW	2,808	270	67	$ 11.75	$ 40.50	$0	3.4	3.4
46	Room 209	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	1,685	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2,808	1,685	-	$ -	$ -	$0		
46	Room 209	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	1,685	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2,808	1,685	-	$ -	$ -	$0		
46	Room 210	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,808	842	-	$ -	$ -	$0		
46	Room 210	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,808	842	-	$ -	$ -	$0		
46	Room 210	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,808	842	-	$ -	$ -	$0		
46	Room 210	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,808	842	-	$ -	$ -	$0		
46	Room 211	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,808	842	-	$ -	$ -	$0		
46	Room 211	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,808	842	-	$ -	$ -	$0		
46	Room 211	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,808	842	-	$ -	$ -	$0		
46	Room 211	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,808	842	-	$ -	$ -	$0		
46	Room 212A and 212B	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2,808	1,853	-	$ -	$ -	$0		
46	Room 212A and 212B	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2,808	1,853	-	$ -	$ -	$0		
46	Room 212A and 212B	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2,808	1,853	-	$ -	$ -	$0		
46	Room 212A and 212B	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2,808	1,853	-	$ -	$ -	$0		
46	Room 213	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2,808	1,853	-	$ -	$ -	$0		
46	Room 213	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2,808	1,853	-	$ -	$ -	$0		
46	Room 213	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2,808	1,853	-	$ -	$ -	$0		
46	Room 213	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2,808	1,853	-	$ -	$ -	$0		
81	Room 213	3	S 34 C F 2	F42EE	72	0.2	SW	2808	607	3	S 28 C F 2	F42SSILL	48	0.1	SW	2,808	404	202	$ 35.25	$ 344.25	$30	9.8	8.9
46	Room 214	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,348	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2,808	1,348	-	$ -	$ -	$0		
46	Room 214	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,348	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2,808	1,348	-	$ -	$ -	$0		
46	Room 214	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,348	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2,808	1,348	-	$ -	$ -	$0		
46	Room 214	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,348	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2,808	1,348	-	$ -	$ -	$0		
46	Room 215	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2,808	1,179	-	$ -	$ -	$0		
46	Room 215	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2,808	1,179	-	$ -	$ -	$0		
46	Room 215	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2,808	1,179	-	$ -	$ -	$0		
46	Room 215	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2,808	1,179	-	$ -	$ -	$0		
46	Room 217	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,348	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2,808	1,348	-	$ -	$ -	$0		
46	Room 217	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,348	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2,808	1,348	-	$ -	$ -	$0		
46	Room 217	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,348	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2,808	1,348	-	$ -	$ -	$0		
46	Room 217	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,348	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2,808	1,348	-	$ -	$ -	$0		
46	Room 218a	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	505	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2,808	505	-	$ -	$ -	$0		
46	Room 218a	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	505	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2,808	505	-	$ -	$ -	$0		
46	Room 218a	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	505	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2,808	505	-	$ -	$ -	$0		

Field Code	Area Description	EXISTING CONDITIONS: No. of Fixtures	Standard Fixture Code	NYSERDA Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated daily hours for the usage group	(kW/space) * (Annual Hours)
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,011
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,011
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,011
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,011
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,011
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,011
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,011
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,011
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,011
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,011
70	Stairs between 214 and 215	3	W 32 C F 1	F41LL	32	0.1	SW	2808	270
46	Between 215 and 216	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	674
46	Between 215 and 216	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	3744	2,471
70	Stairs at 219	4	W 32 C F 1	F41LL	32	0.1	SW	3744	479
176	Hallway	23	1T 32 R F 2 (ELE)	F42LL	60	1.4	SW	3744	5,167
x1	Hallway	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13
x2	Hallway	2	XX 3.0 W CF 2	ELED1.5/2	3	0.0	Breaker	8760	53
46	Men's	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	374
46	Women's	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	374
	Main Building - Exterior								
141	Old Wing	4	HPS 250	HPS250/1	295	1.2	Timer	2600	3,068
229	Outside	8	WP200 I 1	i200/1	200	1.6	Timer	2600	4,160
237	New Wing - South Wing	1	WP 400 Po HPS	hps400/1	465	0.5	Timer	2600	1,209
141	New Wing - South Wing	1	HPS 250	HPS250/1	295	0.3	Timer	2600	767
229	New Wing - South Wing	6	WP200 I 1	i200/1	200	1.2	Timer	2600	3,120
141	Light Pole	9	HPS 250	HPS250/1	295	2.7	Timer	2600	6,903
236	New - East Wall	1	MV 250	mv250/1	290	0.3	Timer	2600	754
141	New - East Wall	1	HPS 250	HPS250/1	295	0.3	Timer	2600	767
236	New - North Wall	2	MV 250	mv250/1	290	0.6	Timer	2600	1,508
229	New - North Wall	2	WP200 I 1	i200/1	200	0.4	Timer	2600	1,040
229	Board of Foyer	2	WP200 I 1	i200/1	200	0.4	Timer	2600	1,040
236	New - West Wall	5	MV 250	mv250/1	290	1.5	Timer	2600	3,770
240	New - West Wall Flag Pole	1	R 250 Q 1	h250/1	250	0.3	Timer	2600	650
236	New - West Wall Flag Pole	1	MV 250	mv250/1	290	0.3	Timer	2600	754
229	New - West Wall Flag Pole	2	WP200 I 1	i200/1	200	0.4	Timer	2600	1,040
236	Behind WT Room	1	MV 250	mv250/1	290	0.3	Timer	2600	754
229	Behind WT Room	1	WP200 I 1	i200/1	200	0.2	Timer	2600	520
45	Behind WT Room	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	Timer	2600	70
236	Outside Pool	3	MV 250	mv250/1	290	0.9	Timer	2600	2,262
65	Outside Pool	1	I 100	I100/1	100	0.1	Timer	2600	260
141	South Side - Shop Wing	7	HPS 250	HPS250/1	295	2.1	Timer	2600	5,369
141	East Side	2	HPS 250	HPS250/1	295	0.6	Timer	2600	1,534
141	North Side	4	HPS 250	HPS250/1	295	1.2	Timer	2600	3,068
229	South Side - Shop Wing	9	WP200 I 1	i200/1	200	1.8	Timer	2600	4,680
229	East Side	6	WP200 I 1	i200/1	200	1.2	Timer	2600	3,120
229	North Side	8	WP200 I 1	i200/1	200	1.6	Timer	2600	4,160
230	North Side	2	WP400MH1	MH400/1	458	0.9	Timer	2600	2,382
	Total	2,803				214.9			616,522

Field Code	Area Description	RETROFIT CONDITIONS: Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	COST & SAVINGS ANALYSIS: Annual kWh Saved	Annual $ Saved	Retrofit Cost	NJ Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(kWh Saved) * ($/kWh)	Cost for renovations to lighting system	Prescriptive Lighting Measures	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2,808	1,011	-	$ -	$ -	$0		
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2,808	1,011	-	$ -	$ -	$0		
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2,808	1,011	-	$ -	$ -	$0		
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2,808	1,011	-	$ -	$ -	$0		
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2,808	1,011	-	$ -	$ -	$0		
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2,808	1,011	-	$ -	$ -	$0		
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2,808	1,011	-	$ -	$ -	$0		
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2,808	1,011	-	$ -	$ -	$0		
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2,808	1,011	-	$ -	$ -	$0		
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2,808	1,011	-	$ -	$ -	$0		
70	Stairs between 214 and 215	3	W 32 C F 1	F41LL	32	0.1	SW	2,808	270	-	$ -	$ -	$0		
46	Between 215 and 216	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2,808	674	-	$ -	$ -	$0		
46	Between 215 and 216	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	3,744	2,471	-	$ -	$ -	$0		
70	Stairs at 219	4	W 32 C F 1	F41LL	32	0.1	SW	3,744	479	-	$ -	$ -	$0		
176	Hallway	23	1T 32 R F 2 (ELE)	F42LL	60	1.4	SW	3,744	5,167	-	$ -	$ -	$0		
x1	Hallway	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8,760	13	-	$ -	$ -	$0		
x2	Hallway	2	XX 3.0 W CF 2	ELED1.5/2	3	0.0	Breaker	8,760	53	-	$ -	$ -	$0		
46	Men's	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2,080	374	-	$ -	$ -	$0		
46	Women's	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2,080	374	-	$ -	$ -	$0		
	Main Building - Exterior														
141	Old Wing	4	HPS 250	HPS250/1	295	1.2	Timer	2,600	3,068	-	$ -	$ -	$0		
229	Outside	8	WP 42 1	CF42/1-L	48	0.4	Timer	2,600	998	3,162	$ 558.34	$ 810.00	$0	1.5	1.5
237	New Wing - South Wing	1	WP 400 Po HPS	hps400/1	465	0.5	Timer	2,600	1,209	-	$ -	$ -	$0		
141	New Wing - South Wing	1	HPS 250	HPS250/1	295	0.3	Timer	2,600	767	-	$ -	$ -	$0		
229	New Wing - South Wing	6	WP 42 1	CF42/1-L	48	0.3	Timer	2,600	749	2,371	$ 418.75	$ 607.50	$0	1.5	1.5
141	Light Pole	9	HPS 250	HPS250/1	295	2.7	Timer	2,600	6,903	-	$ -	$ -	$0		
236	New - East Wall	1	MV 250	mv250/1	290	0.3	Timer	2,600	754	-	$ -	$ -	$0		
141	New - East Wall	1	HPS 250	HPS250/1	295	0.3	Timer	2,600	767	-	$ -	$ -	$0		
236	New - North Wall	2	MV 250	mv250/1	290	0.6	Timer	2,600	1,508	-	$ -	$ -	$0		
229	New - North Wall	2	WP 42 1	CF42/1-L	48	0.1	Timer	2,600	250	790	$ 139.58	$ 202.50	$0	1.5	1.5
229	Board of Foyer	2	WP 42 1	CF42/1-L	48	0.1	Timer	2,600	250	790	$ 139.58	$ 202.50	$0	1.5	1.5
236	New - West Wall	5	MV 250	mv250/1	290	1.5	Timer	2,600	3,770	-	$ -	$ -	$0		
240	New - West Wall Flag Pole	1	WP 42 1	CF42/1-L	48	0.0	Timer	2,600	125	525	$ 92.75	$ 101.25	$0	1.1	1.1
236	New - West Wall Flag Pole	1	MV 250	mv250/1	290	0.3	Timer	2,600	754	-	$ -	$ -	$0		
229	New - West Wall Flag Pole	2	WP 42 1	CF42/1-L	48	0.1	Timer	2,600	250	790	$ 139.58	$ 202.50	$0	1.5	1.5
236	Behind WT Room	1	MV 250	mv250/1	290	0.3	Timer	2,600	754	-	$ -	$ -	$0		
229	Behind WT Room	1	WP 42 1	CF42/1-L	48	0.0	Timer	2,600	125	395	$ 69.79	$ 101.25	$0	1.5	1.5
45	Behind WT Room	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	Timer	2,600	70	-	$ -	$ -	$0		
236	Outside Pool	3	MV 250	mv250/1	290	0.9	Timer	2,600	2,262	-	$ -	$ -	$0		
65	Outside Pool	1	CF 26	CFQ26/1-L	27	0.0	Timer	2,600	70	190	$ 33.52	$ 40.50	$0	1.2	1.2
141	South Side - Shop Wing	7	HPS 250	HPS250/1	295	2.1	Timer	2,600	5,369	-	$ -	$ -	$0		
141	East Side	2	HPS 250	HPS250/1	295	0.6	Timer	2,600	1,534	-	$ -	$ -	$0		
141	North Side	4	HPS 250	HPS250/1	295	1.2	Timer	2,600	3,068	-	$ -	$ -	$0		
229	South Side - Shop Wing	9	WP 42 1	CF42/1-L	48	0.4	Timer	2,600	1,123	3,557	$ 628.13	$ 911.25	$0	1.5	1.5
229	East Side	6	WP 42 1	CF42/1-L	48	0.3	Timer	2,600	749	2,371	$ 418.75	$ 607.50	$0	1.5	1.5
229	North Side	8	WP 42 1	CF42/1-L	48	0.4	Timer	2,600	998	3,162	$ 558.34	$ 810.00	$0	1.5	1.5
230	North Side	2	WP400MH1	MH400/1	458	0.9	Timer	2,600	2,382	-	$ -	$ -	$0		
	Total	2,472			27,521	190			551,793	64,729	$11,465	$27,061	$4,930		
									Demand Savings		25.3	$2,015			
									kWh Savings		64,729	$9,451			
									Total savings			$11,465		2.36	1.9

Note: Existing burnt out lamps will be re-energized therefore hours of operation will rise to normal creating an energy

APPENDIX Q

ECM-16 Lighting Replacements with Occupancy Sensors

Energy Audit of Sussex County Technical School Facilities
CHA Project No. 20151 Main Building
ECM-16 Lighting Replacements with Occupancy Sensors

Cost of Electricity: $0.146 $/kWh
$6.63 $/kW

	EXISTING CONDITIONS										RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS					
Field Code	Area Description	No. of Fixtures	Standard Fixture Code	NYSERDA Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual $ Saved	Retrofit Cost	NJ Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(kW Saved) * ($/kWh)	Cost for renovations to lighting system		Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
	Main Building - Interior																						
202	Room 100	2	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2808	185	2	2T 17 R F 4 (ELE)	F22ILL	33	0.1	OCC	1,800	119	67	$ 9.71	$ 118.75	$ 20	12.2	10.2
202	Room 100	4	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2808	371	4	2T 17 R F 4 (ELE)	F22ILL	33	0.1	None	2,808	371	-	$ -	$ -	$ -		
202	Room 100	4	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2808	371	4	2T 17 R F 4 (ELE)	F22ILL	33	0.1	OCC	1,800	238	133	$ 19.43	$ 118.75	$ 20	6.1	5.1
202	Room 100	3	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2808	278	3	2T 17 R F 4 (ELE)	F22ILL	33	0.1	OCC	1,800	178	100	$ 14.57	$ 118.75	$ 20	8.2	6.8
46	Room 100	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	168	1	W 32 C F 2 (ELE)	F42LL	60	0.1	None	2,808	168	-	$ -	$ -	$ -		
46	Room 100	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	337	2	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1,800	216	121	$ 17.66	$ 118.75	$ 20	6.7	5.6
238	Room 100	8	DC 32 P F 2	F42LL	60	0.5	SW	2808	1,348	8	DC 32 P F 2	F42LL	60	0.5	OCC	1,800	864	484	$ 70.64	$ 118.75	$ 20	1.7	1.4
46	Room 101	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	337	2	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1,800	216	121	$ 17.66	$ 118.75	$ 20	6.7	5.6
202	Room 101	2	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2808	185	2	2T 17 R F 4 (ELE)	F22ILL	33	0.1	OCC	1,800	119	67	$ 9.71	$ 118.75	$ 20	12.2	10.2
46	Room 101	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	505	3	W 32 C F 2 (ELE)	F42LL	60	0.2	None	2,808	505	-	$ -	$ -	$ -		
46	Room 101	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	674	4	W 32 C F 2 (ELE)	F42LL	60	0.2	None	2,808	674	-	$ -	$ -	$ -		
46	Room 102	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	674	4	W 32 C F 2 (ELE)	F42LL	60	0.2	None	2,808	674	-	$ -	$ -	$ -		
46	Room 102	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	674	4	W 32 C F 2 (ELE)	F42LL	60	0.2	None	2,808	674	-	$ -	$ -	$ -		
46	Room 102	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	674	4	W 32 C F 2 (ELE)	F42LL	60	0.2	None	2,808	674	-	$ -	$ -	$ -		
202	Library	4	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2808	371	4	2T 17 R F 4 (ELE)	F22ILL	33	0.1	C-OCC	1,800	238	133	$ 19.43	$ 202.50	$ 35	10.4	8.6
202	Library	4	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2808	371	4	2T 17 R F 4 (ELE)	F22ILL	33	0.1	C-OCC	1,800	238	133	$ 19.43	$ 202.50	$ 35	10.4	8.6
202	Library	4	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2808	371	4	2T 17 R F 4 (ELE)	F22ILL	33	0.1	C-OCC	1,800	238	133	$ 19.43	$ 202.50	$ 35	10.4	8.6
202	Room 105	45	2T 17 R F 4 (ELE)	F22ILL	33	1.5	SW	2808	4,170	45	2T 17 R F 4 (ELE)	F22ILL	33	1.5	C-OCC	1,800	2,673	1,497	$ 218.54	$ 405.00	$ 70	1.9	1.5
46	Room 105	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,011	6	W 32 C F 2 (ELE)	F42LL	60	0.4	C-OCC	1,800	648	363	$ 52.98	$ 202.50	$ 35	3.8	3.2
46	Room 106	9	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,516	9	W 32 C F 2 (ELE)	F42LL	60	0.5	None	2,808	1,516	-	$ -	$ -	$ -		
46	Room 106	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,348	8	W 32 C F 2 (ELE)	F42LL	60	0.5	None	2,808	1,348	-	$ -	$ -	$ -		
46	Room 106	9	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,516	9	W 32 C F 2 (ELE)	F42LL	60	0.5	None	2,808	1,516	-	$ -	$ -	$ -		
46	Room 106	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	168	1	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1,800	108	60	$ 8.83	$ 118.75	$ 20	13.4	11.2
46	Room 106	1	W 32 C F 2 (ELE)	F42LL	60	0.1	Breaker	8760	526	1	W 32 C F 2 (ELE)	F42LL	60	0.1	None	8,760	526	-	$ -	$ -	$ -		
202	Room 106	2	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2808	185	2	2T 17 R F 4 (ELE)	F22ILL	33	0.1	OCC	1,800	119	67	$ 9.71	$ 118.75	$ 20	12.2	10.2
202	Room 106	2	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2808	185	2	2T 17 R F 4 (ELE)	F22ILL	33	0.1	OCC	1,800	119	67	$ 9.71	$ 118.75	$ 20	12.2	10.2
46	Room 106	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	505	3	W 32 C F 2 (ELE)	F42LL	60	0.2	OCC	1,800	324	181	$ 26.49	$ 118.75	$ 20	4.5	3.7
46	Room 106	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	None	2,808	1,853	-	$ -	$ -	$ -		
46	Room 106	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	None	2,808	1,853	-	$ -	$ -	$ -		
70	Room 107	4	W 32 C F 1	F41LL	32	0.1	SW	2808	359	4	W 32 C F 1	F41LL	32	0.1	None	2,808	359	-	$ -	$ -	$ -		
46	Room 108	24	W 32 C F 2 (ELE)	F42LL	60	1.4	SW	2808	4,044	24	W 32 C F 2 (ELE)	F42LL	60	1.4	None	2,808	4,044	-	$ -	$ -	$ -		
35	Gift Shop	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	1000	540	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	None	1,000	540	-	$ -	$ -	$ -		
46	Room 109	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,348	8	W 32 C F 2 (ELE)	F42LL	60	0.5	None	2,808	1,348	-	$ -	$ -	$ -		
46	Room 109	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	674	4	W 32 C F 2 (ELE)	F42LL	60	0.2	None	2,808	674	-	$ -	$ -	$ -		
46	Room 109	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	1,685	10	W 32 C F 2 (ELE)	F42LL	60	0.6	None	2,808	1,685	-	$ -	$ -	$ -		
46	Room 109	68	W 32 C F 2 (ELE)	F42LL	60	4.1	SW	2808	11,457	68	W 32 C F 2 (ELE)	F42LL	60	4.1	None	2,808	11,457	-	$ -	$ -	$ -		
46	Mens #1	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	499	4	W 32 C F 2 (ELE)	F42LL	60	0.2	None	2,080	499	-	$ -	$ -	$ -		
46	Womens #1	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	374	3	W 32 C F 2 (ELE)	F42LL	60	0.2	None	2,080	374	-	$ -	$ -	$ -		
46	Room 111	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	337	2	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1,800	216	121	$ 17.66	$ 118.75	$ 20	6.7	5.6
46	Room 111	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,011	6	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1,800	648	363	$ 52.98	$ 118.75	$ 20	2.2	1.9
46	Room 111	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	168	1	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1,800	108	60	$ 8.83	$ 118.75	$ 20	13.4	11.2
46	Room 111	9	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,516	9	W 32 C F 2 (ELE)	F42LL	60	0.5	OCC	1,800	972	544	$ 79.47	$ 118.75	$ 20	1.5	1.2
46	Room 111	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1,800	1,188	665	$ 97.13	$ 118.75	$ 20	1.2	1.0
46	Room 111	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1,800	1,188	665	$ 97.13	$ 118.75	$ 20	1.2	1.0
46	Room 111	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1,800	1,188	665	$ 97.13	$ 118.75	$ 20	1.2	1.0
46	Room 111	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,011	6	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1,800	648	363	$ 52.98	$ 118.75	$ 20	2.2	1.9
46	Room 112	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1,800	540	302	$ 44.15	$ 118.75	$ 20	2.7	2.2
46	Room 112	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1,800	540	302	$ 44.15	$ 118.75	$ 20	2.7	2.2
46	Room 112	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1,800	540	302	$ 44.15	$ 118.75	$ 20	2.7	2.2
46	Room 112	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1,800	540	302	$ 44.15	$ 118.75	$ 20	2.7	2.2
46	Room 113	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1,800	540	302	$ 44.15	$ 118.75	$ 20	2.7	2.2
46	Room 113	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1,800	540	302	$ 44.15	$ 118.75	$ 20	2.7	2.2
46	Room 113	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1,800	540	302	$ 44.15	$ 118.75	$ 20	2.7	2.2
46	Room 113	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1,800	540	302	$ 44.15	$ 118.75	$ 20	2.7	2.2
46	Room 114	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	505	3	W 32 C F 2 (ELE)	F42LL	60	0.2	OCC	1,800	324	181	$ 26.49	$ 118.75	$ 20	4.5	3.7
46	Room 115	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	None	2,808	1,853	-	$ -	$ -	$ -		
46	Room 115	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	None	2,808	1,853	-	$ -	$ -	$ -		
46	Room 115	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	None	2,808	1,853	-	$ -	$ -	$ -		
46	Room 115	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	None	2,808	1,853	-	$ -	$ -	$ -		
46	Room 115	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	505	3	W 32 C F 2 (ELE)	F42LL	60	0.2	OCC	1,800	324	181	$ 26.49	$ 118.75	$ 20	4.5	3.7
46	Room 116	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	337	2	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1,800	216	121	$ 17.66	$ 118.75	$ 20	6.7	5.6
46	Room 117	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	1,685	10	W 32 C F 2 (ELE)	F42LL	60	0.6	OCC	1,800	1,080	605	$ 88.30	$ 118.75	$ 20	1.3	1.1
46	Room 117	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	1,685	10	W 32 C F 2 (ELE)	F42LL	60	0.6	OCC	1,800	1,080	605	$ 88.30	$ 118.75	$ 20	1.3	1.1
46	Room 117	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	168	1	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1,800	108	60	$ 8.83	$ 118.75	$ 20	13.4	11.2
46	Room 117	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	337	2	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1,800	216	121	$ 17.66	$ 118.75	$ 20	6.7	5.6
46	Vestibule near Room 117	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	3744	449	2	W 32 C F 2 (ELE)	F42LL	60	0.1	None	3,744	449	-	$ -	$ -	$ -		
46	Vestibule near Room 117	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	3744	899	4	W 32 C F 2 (ELE)	F42LL	60	0.2	None	3,744	899	-	$ -	$ -	$ -		
46	Room 118	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	1,685	10	W 32 C F 2 (ELE)	F42LL	60	0.6	None	2,808	1,685	-	$ -	$ -	$ -		
46	Room 118	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	1,685	10	W 32 C F 2 (ELE)	F42LL	60	0.6	None	2,808	1,685	-	$ -	$ -	$ -		
46	Room 118	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	1,685	10	W 32 C F 2 (ELE)	F42LL	60	0.6	None	2,808	1,685	-	$ -	$ -	$ -		
46	Room 118	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	1,685	10	W 32 C F 2 (ELE)	F42LL	60	0.6	None	2,808	1,685	-	$ -	$ -	$ -		
46	Room 119A	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1,800	540	302	$ 44.15	$ 118.75	$ 20	2.7	2.2
46	Room 119A	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1,800	540	302	$ 44.15	$ 118.75	$ 20	2.7	2.2
46	Room 119A	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1,800	540	302	$ 44.15	$ 118.75	$ 20	2.7	2.2
46	Room 119A	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1,800	540	302	$ 44.15	$ 118.75	$ 20	2.7	2.2
46	Room 119B	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	1,685	10	W 32 C F 2 (ELE)	F42LL	60	0.6	OCC	1,800	1,080	605	$ 88.30	$ 118.75	$ 20	1.3	1.1
46	Room 119B	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	1,685	10	W 32 C F 2 (ELE)	F42LL	60	0.6	OCC	1,800	1,080	605	$ 88.30	$ 118.75	$ 20	1.3	1.1
46	Room 119B	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	1,685	10	W 32 C F 2 (ELE)	F42LL	60	0.6	OCC	1,800	1,080	605	$ 88.30	$ 118.75	$ 20	1.3	1.1
46	Room 119B	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	1,685	10	W 32 C F 2 (ELE)	F42LL	60	0.6	OCC	1,800	1,080	605	$ 88.30	$ 118.75	$ 20	1.3	1.1
46	Room 123	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	674	4	W 32 C F 2 (ELE)	F42LL	60	0.2	OCC	1,800	432	242	$ 35.32	$ 118.75	$ 20	3.4	2.8
46	Room 123	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	674	4	W 32 C F 2 (ELE)	F42LL	60	0.2	OCC	1,800	432	242	$ 35.32	$ 118.75	$ 20	3.4	2.8
46	Room 123	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	674	4	W 32 C F 2 (ELE)	F42LL	60	0.2	OCC	1,800	432	242	$ 35.32	$ 118.75	$ 20	3.4	2.8
46	Room near 123	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	674	4	W 32 C F 2 (ELE)	F42LL	60	0.2	OCC	1,800	432	242	$ 35.32	$ 118.75	$ 20	3.4	2.8
35	Room 124	26	T 32 R F 3 (ELE)	F43ILL/2	90	2.3	SW	2808	6,571	26	T 32 R F 3 (ELE)	F43ILL/2	90	2.3	None	2,808	6,571	-	$ -	$ -	$ -		
35	Room 124	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	2808	505	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	OCC	1,800	324	181	$ 26.49	$ 118.75	$ 20	4.5	3.7

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS					
Field Code	Area Description	No. of Fixtures	Standard Fixture Code	NYSERDA Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual $ Saved	Retrofit Cost	NJ Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(kW Saved) * ($/kWh)	Cost for renovations to lighting system		Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
46	Mens # 2	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	499	4	W 32 C F 2 (ELE)	F42LL	60	0.2	None	2,080	499	-	$ -	$ -	$ -		
46	Womens #2	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	499	4	W 32 C F 2 (ELE)	F42LL	60	0.2	None	2,080	499	-	$ -	$ -	$ -		
202	Office	8	2T 17 R F 4 (ELE)	F22ILL	33	0.3	SW	2600	686	8	2T 17 R F 4 (ELE)	F22ILL	33	0.3	None	2,600	686	-	$ -	$ -	$ -		
46	Office	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2600	312	2	W 32 C F 2 (ELE)	F42LL	60	0.1	None	2,600	312	-	$ -	$ -	$ -		
x1	near 125	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8,760	13	-	$ -	$ -	$ -		
35	Room 125	21	T 32 R F 3 (ELE)	F43ILL/2	90	1.9	SW	2808	5,307	21	T 32 R F 3 (ELE)	F43ILL/2	90	1.9	None	2,808	5,307	-	$ -	$ -	$ -		
46	Room 125	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	168	1	W 32 C F 2 (ELE)	F42LL	60	0.1	None	2,808	168	-	$ -	$ -	$ -		
46	Room 125	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	337	2	W 32 C F 2 (ELE)	F42LL	60	0.1	None	2,808	337	-	$ -	$ -	$ -		
46	Room 126	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,011	6	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1,800	648	363	$ 52.98	$ 118.75	$ 20	2.2	1.9
46	Room 126	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,011	6	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1,800	648	363	$ 52.98	$ 118.75	$ 20	2.2	1.9
46	Room 126	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,011	6	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1,800	648	363	$ 52.98	$ 118.75	$ 20	2.2	1.9
46	Room 127	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	168	1	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1,800	108	60	$ 8.83	$ 118.75	$ 20	13.4	11.2
46	Room 127	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1,800	1,188	665	$ 97.13	$ 118.75	$ 20	1.2	1.0
46	Room 127	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1,800	1,188	665	$ 97.13	$ 118.75	$ 20	1.2	1.0
46	Room 127	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1,800	1,188	665	$ 97.13	$ 118.75	$ 20	1.2	1.0
46	Room 127	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	168	1	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1,800	108	60	$ 8.83	$ 118.75	$ 20	13.4	11.2
46	Mens #3	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	374	3	W 32 C F 2 (ELE)	F42LL	60	0.2	None	2,080	374	-	$ -	$ -	$ -		
46	Womens #3	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	374	3	W 32 C F 2 (ELE)	F42LL	60	0.2	None	2,080	374	-	$ -	$ -	$ -		
46	Stairway	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	3744	1,123	5	W 32 C F 2 (ELE)	F42LL	60	0.3	None	3,744	1,123	-	$ -	$ -	$ -		
98	Hallway near Room 100	50	T 32 R F 2	F42LL	60	3.0	SW	3744	11,232	50	T 32 R F 2	F42LL	60	3.0	None	3,744	11,232	-	$ -	$ -	$ -		
x1	Hallway near Room 100	3	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	39	3	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8,760	39	-	$ -	$ -	$ -		
70	Hall near Room 125 and 124	14	W 32 C F 1	F41LL	32	0.4	SW	3744	1,677	14	W 32 C F 1	F41LL	32	0.4	None	3,744	1,677	-	$ -	$ -	$ -		
70	Stairs	4	W 32 C F 1	F41LL	32	0.1	SW	3744	479	4	W 32 C F 1	F41LL	32	0.1	None	3,744	479	-	$ -	$ -	$ -		
46	Hall near Room 117	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	3744	899	4	W 32 C F 2 (ELE)	F42LL	60	0.2	None	3,744	899	-	$ -	$ -	$ -		
70	Hallway near Room 112	46	W 32 C F 1	F41LL	32	1.5	SW	3744	5,511	46	W 32 C F 1	F41LL	32	1.5	None	3,744	5,511	-	$ -	$ -	$ -		
x2	Hallway near Room 112	3	XX 3.0 W CF 2	ELED1.5/2	3	0.0	Breaker	8760	79	3	XX 3.0 W CF 2	ELED1.5/2	3	0.0	None	8,760	79	-	$ -	$ -	$ -		
232	Area Between Room 127 and Gym	5	R 100 C I 1	i100/1	100	0.5	SW	3744	1,872	5	WP 42 1	CF42/1-L	48	0.2	OCC	1,800	432	1,440	$ 230.93	$ 625.00	$ 20	2.7	2.6
x1	Area Between Room 127 and Gym	3	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	39	3	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8,760	39	-	$ -	$ -	$ -		
98	Area Between Room 127 and Gym	12	T 32 R F 2	F42LL	60	0.7	SW	3744	2,696	12	T 32 R F 2	F42LL	60	0.7	OCC	1,800	1,296	1,400	$ 204.35	$ 118.75	$ 20	0.6	0.5
18	Area Between Room 127 and Gym	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	3744	1,258	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	OCC	1,800	605	653	$ 95.36	$ 118.75	$ 20	1.2	1.0
18	Area Between Room 127 and Gym	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	SW	3744	419	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	OCC	1,800	202	218	$ 31.79	$ 118.75	$ 20	3.7	3.1
18	Area Between Room 127 and Gym	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	Breaker	8760	981	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	None	8,760	981	-	$ -	$ -	$ -		
18	Area Between Room 127 and Gym	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	SW	3744	419	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	OCC	1,800	202	218	$ 31.79	$ 118.75	$ 20	3.7	3.1
x1	Gym Lobby	3	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	39	3	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8,760	39	-	$ -	$ -	$ -		
98	Gym Lobby	22	T 32 R F 2	F42LL	60	1.3	SW	3650	4,818	22	T 32 R F 2	F42LL	60	1.3	OCC	1,800	2,376	2,442	$ 356.53	$ 118.75	$ 20	0.3	0.3
235	Gym Offices	4	R 75 C Q 1	h75/1	75	0.3	SW	3650	1,095	4	WP 42 1	CF42/1-L	48	0.2	OCC	1,800	346	749	$ 118.00	$ 523.75	$ 20	4.4	4.3
235	Gym Offices	4	R 75 C Q 1	h75/1	75	0.3	SW	3650	1,095	4	WP 42 1	CF42/1-L	48	0.2	OCC	1,800	346	749	$ 118.00	$ 523.75	$ 20	4.4	4.3
235	Gym Offices	4	R 75 C Q 1	h75/1	75	0.3	SW	3650	1,095	4	WP 42 1	CF42/1-L	48	0.2	OCC	1,800	346	749	$ 118.00	$ 523.75	$ 20	4.4	4.3
235	Gym Offices	6	R 75 C Q 1	h75/1	75	0.5	SW	3650	1,643	6	WP 42 1	CF42/1-L	48	0.3	OCC	1,800	518	1,124	$ 177.01	$ 726.25	$ 20	4.1	4.0
235	Gym Offices	6	R 75 C Q 1	h75/1	75	0.5	SW	3650	1,643	6	WP 42 1	CF42/1-L	48	0.3	OCC	1,800	518	1,124	$ 177.01	$ 726.25	$ 20	4.1	4.0
x1	Gym	4	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	53	4	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8,760	53	-	$ -	$ -	$ -		
9	Gym	24	High Bay MH 400 35 Feet High	MH400/1	458	11.0	SW	3650	40,121	24	P 54 C F 4	F45GHL	294	7.1	None	3,650	25,754	14,366	$ 2,410.64	$ 7,200.00	$ 2,400	2.6	1.8
46	Aux Gym	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	3650	876	4	W 32 C F 2 (ELE)	F42LL	60	0.2	None	3,650	876	-	$ -	$ -	$ -		
46	Aux Gym	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	3650	876	4	W 32 C F 2 (ELE)	F42LL	60	0.2	None	3,650	876	-	$ -	$ -	$ -		
46	Aux Gym	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	3650	876	4	W 32 C F 2 (ELE)	F42LL	60	0.2	None	3,650	876	-	$ -	$ -	$ -		
46	Aux Gym	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	3650	438	2	W 32 C F 2 (ELE)	F42LL	60	0.1	None	3,650	438	-	$ -	$ -	$ -		
232	Aux Gym	3	R 100 C I 1	i100/1	100	0.3	SW	3650	1,095	3	WP 42 1	CF42/1-L	48	0.1	None	3,650	526	569	$ 95.54	$ 303.75	$ -	3.2	3.2
46	Gym - Boys	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	3650	438	2	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1,800	216	222	$ 32.41	$ 118.75	$ 20	3.7	3.0
50	Gym - Boys	2	W 32 W F 2 (ELE) Pull Chain (500 hrs.)	F42LL	60	0.1	SW	3650	438	2	W 32 W F 2 (ELE) Pull Chain (500 hrs.)	F42LL	60	0.1	OCC	1,800	216	222	$ 32.41	$ 118.75	$ 20	3.7	3.0
46	Gym - Boys	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	3650	219	1	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1,800	108	111	$ 16.21	$ 118.75	$ 20	7.3	6.1
46	Gym - Boys	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	3650	438	2	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1,800	216	222	$ 32.41	$ 118.75	$ 20	3.7	3.0
46	Gym - Boys	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	3650	1,533	7	W 32 C F 2 (ELE)	F42LL	60	0.4	None	3,650	1,533	-	$ -	$ -	$ -		
98	Gym - Boys	8	T 32 R F 2	F42LL	60	0.5	SW	3650	1,752	8	T 32 R F 2	F42LL	60	0.5	None	3,650	1,752	-	$ -	$ -	$ -		
46	Gym - Girls	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	3650	438	2	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1,800	216	222	$ 32.41	$ 118.75	$ 20	3.7	3.0
50	Gym - Girls	2	W 32 W F 2 (ELE) Pull Chain (500 hrs.)	F42LL	60	0.1	SW	3650	438	2	W 32 W F 2 (ELE) Pull Chain (500 hrs.)	F42LL	60	0.1	OCC	1,800	216	222	$ 32.41	$ 118.75	$ 20	3.7	3.0
46	Gym - Girls	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	3650	219	1	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1,800	108	111	$ 16.21	$ 118.75	$ 20	7.3	6.1
46	Gym - Girls	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	3650	438	2	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1,800	216	222	$ 32.41	$ 118.75	$ 20	3.7	3.0
46	Gym - Girls	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	3650	1,533	7	W 32 C F 2 (ELE)	F42LL	60	0.4	None	3,650	1,533	-	$ -	$ -	$ -		
98	Gym - Girls	8	T 32 R F 2	F42LL	60	0.5	SW	3650	1,752	8	T 32 R F 2	F42LL	60	0.5	None	3,650	1,752	-	$ -	$ -	$ -		
46	Next to Gym - Boys	9	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	3650	1,971	9	W 32 C F 2 (ELE)	F42LL	60	0.5	OCC	1,800	972	999	$ 145.85	$ 118.75	$ 20	0.8	0.7
227	Next to Gym - Boys	1	W60CF1	F81EL	60	0.1	SW	3744	225	1	W60CF1	F81EL	60	0.1	OCC	1,800	108	117	$ 17.03	$ 118.75	$ 20	7.0	5.8
105	Entrance Near Pool	6	W 32 F 1	F41LL	32	0.2	SW	3744	719	6	W 32 F 1	F41LL	32	0.2	OCC	1,800	346	373	$ 54.49	$ 118.75	$ 20	2.2	1.8
105	Hallway Near Pool	11	W 32 F 1	F41LL	32	0.4	Breaker	8760	3,084	11	W 32 F 1	F41LL	32	0.4		8,760	3,084	-	$ -	$ -	$ -		
x1	Hallway Near Pool	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8,760	13	-	$ -	$ -	$ -		
x1	Hallway Near Gym	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8,760	13	-	$ -	$ -	$ -		
98	Hallway Near Gym	14	T 32 R F 2	F42LL	60	0.8	SW	3744	3,145	14	T 32 R F 2	F42LL	60	0.8	None	3,744	3,145	-	$ -	$ -	$ -		
46	Washroom	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	374	3	W 32 C F 2 (ELE)	F42LL	60	0.2	None	2,080	374	-	$ -	$ -	$ -		
46	Basement Mechanical Room	14	W 32 C F 2 (ELE)	F42LL	60	0.8	SW	3744	3,145	14	W 32 C F 2 (ELE)	F42LL	60	0.8	None	3,744	3,145	-	$ -	$ -	$ -		
46	Maintenance Storage	6	W 32 C F 2 (ELE)	F42LL	60	0.4	Breaker	8760	3,154	6	W 32 C F 2 (ELE)	F42LL	60	0.4	None	8,760	3,154	-	$ -	$ -	$ -		
98	Room 132	9	T 32 R F 2	F42LL	60	0.5	SW	2808	1,516	9	T 32 R F 2	F42LL	60	0.5	OCC	1,800	972	544	$ 79.47	$ 118.75	$ 20	1.5	1.2
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	OCC	1,800	1,080	605	$ 88.30	$ 118.75	$ 20	1.3	1.1
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	OCC	1,800	1,080	605	$ 88.30	$ 118.75	$ 20	1.3	1.1
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	OCC	1,800	1,080	605	$ 88.30	$ 118.75	$ 20	1.3	1.1
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	OCC	1,800	1,080	605	$ 88.30	$ 118.75	$ 20	1.3	1.1
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	OCC	1,800	1,080	605	$ 88.30	$ 118.75	$ 20	1.3	1.1
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	OCC	1,800	1,080	605	$ 88.30	$ 118.75	$ 20	1.3	1.1
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	OCC	1,800	1,080	605	$ 88.30	$ 118.75	$ 20	1.3	1.1
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	OCC	1,800	1,080	605	$ 88.30	$ 118.75	$ 20	1.3	1.1
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	OCC	1,800	1,080	605	$ 88.30	$ 118.75	$ 20	1.3	1.1
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	OCC	1,800	1,080	605	$ 88.30	$ 118.75	$ 20	1.3	1.1
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	OCC	1,800	1,080	605	$ 88.30	$ 118.75	$ 20	1.3	1.1
x1	Room 132	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8,760	13	-	$ -	$ -	$ -		
98	Room 132	4	T 32 R F 2	F42LL	60	0.2	SW	2808	674	4	T 32 R F 2	F42LL	60	0.2	None	2,808	674	-	$ -	$ -	$ -		
98	Room 132	2	T 32 R F 2	F42LL	60	0.1	SW	2808	337	2	T 32 R F 2	F42LL	60	0.1	OCC	1,800	216	121	$ 17.66	$ 118.75	$ 20	6.7	5.6
98	Room 132	2	T 32 R F 2	F42LL	60	0.1	SW	2808	337	2	T 32 R F 2	F42LL	60	0.1	OCC	1,800	216	121	$ 17.66	$ 118.75	$ 20	6.7	5.6
46	Room 133	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	337	2	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1,800	216	121	$ 17.66	$ 118.75	$ 20	6.7	5.6
98	Room 134	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	OCC	1,800	1,080	605	$ 88.30	$ 118.75	$ 20	1.3	1.1
98	Room 134	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	OCC	1,800	1,080	605	$ 88.30	$ 118.75	$ 20	1.3	1.1
98	Room 134	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	OCC	1,800	1,080	605	$ 88.30	$ 118.75	$ 20	1.3	1.1
98	Room 134	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	OCC	1,800	1,080	605	$ 88.30	$ 118.75	$ 20	1.3	1.1
98	Room 134	8	T 32 R F 2	F42LL	60	0.5	SW	2808	1,348	8	T 32 R F 2	F42LL	60	0.5	OCC	1,800	864	484	$ 70.64	$ 118.75	$ 20	1.7	1.4

Field Code	Area Description	EXISTING CONDITIONS: No. of Fixtures	Standard Fixture Code	NYSERDA Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	RETROFIT CONDITIONS: No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	COST & SAVINGS ANALYSIS: Annual kWh Saved	Annual $ Saved	Retrofit Cost	NJ Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(kW Saved) * ($/kWh)	Cost for renovations to lighting system		Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
98	Room 134	8	T 32 R F 2	F42LL	60	0.5	SW	2808	1,348	8	T 32 R F 2	F42LL	60	0.5	OCC	1,800	864	484	$ 70.64	$ 118.75	$ 20	1.7	1.4
98	Room 134	8	T 32 R F 2	F42LL	60	0.5	SW	2808	1,348	8	T 32 R F 2	F42LL	60	0.5	OCC	1,800	864	484	$ 70.64	$ 118.75	$ 20	1.7	1.4
98	Room 134	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	OCC	1,800	1,080	605	$ 88.30	$ 118.75	$ 20	1.3	1.1
98	Room 134	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	OCC	1,800	1,080	605	$ 88.30	$ 118.75	$ 20	1.3	1.1
98	Room 134	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	OCC	1,800	1,080	605	$ 88.30	$ 118.75	$ 20	1.3	1.1
98	Room 134	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	OCC	1,800	1,080	605	$ 88.30	$ 118.75	$ 20	1.3	1.1
239	Room 134	4	R 150 C I 1	I150/1	150	0.6	SW	2808	1,685	4	WP 42 1	CF42/1-L	48	0.2	None	2,808	539	1,146	$ 199.73	$ 405.00	$ -	2.0	2.0
232	Room 134	5	R 100 C I 1	I100/1	100	0.5	SW	2808	1,404	5	WP 42 1	CF42/1-L	48	0.2	None	2,808	674	730	$ 127.28	$ 506.25	$ -	4.0	4.0
x1	Room 134	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8,760	13	-	$ -	$ -	$ -		
70	Room 134	2	W 32 C F 1	F41LL	32	0.1	SW	2808	180	2	W 32 C F 1	F41LL	32	0.1	OCC	1,800	115	65	$ 9.42	$ 118.75	$ 20	12.6	10.5
98	Room 134	6	T 32 R F 2	F42LL	60	0.4	SW	2808	1,011	6	T 32 R F 2	F42LL	60	0.4	OCC	1,800	648	363	$ 52.98	$ 118.75	$ 20	2.2	1.9
98	Room 134	2	T 32 R F 2	F42LL	60	0.1	SW	2808	337	2	T 32 R F 2	F42LL	60	0.1	OCC	1,800	216	121	$ 17.66	$ 118.75	$ 20	6.7	5.6
98	Room 134	2	T 32 R F 2	F42LL	60	0.1	SW	2808	337	2	T 32 R F 2	F42LL	60	0.1	OCC	1,800	216	121	$ 17.66	$ 118.75	$ 20	6.7	5.6
46	Room 135	12	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	2,022	12	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1,800	1,296	726	$ 105.96	$ 118.75	$ 20	1.1	0.9
46	Room 135	12	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	2,022	12	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1,800	1,296	726	$ 105.96	$ 118.75	$ 20	1.1	0.9
46	Room 135	12	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	2,022	12	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1,800	1,296	726	$ 105.96	$ 118.75	$ 20	1.1	0.9
46	Room 135	12	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	2,022	12	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1,800	1,296	726	$ 105.96	$ 118.75	$ 20	1.1	0.9
46	Room 135	12	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	2,022	12	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1,800	1,296	726	$ 105.96	$ 118.75	$ 20	1.1	0.9
x1	Room 135	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8,760	13	-	$ -	$ -	$ -		
46	Room 135	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,348	8	W 32 C F 2 (ELE)	F42LL	60	0.5	OCC	1,800	864	484	$ 70.64	$ 118.75	$ 20	1.7	1.4
46	Room 135	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	674	4	W 32 C F 2 (ELE)	F42LL	60	0.2	OCC	1,800	432	242	$ 35.32	$ 118.75	$ 20	3.4	2.8
46	Room 135	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	337	2	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1,800	216	121	$ 17.66	$ 118.75	$ 20	6.7	5.6
46	Room 135	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	674	4	W 32 C F 2 (ELE)	F42LL	60	0.2	None	2,808	674	-	$ -	$ -	$ -		
46	Room 136	15	W 32 C F 2 (ELE)	F42LL	60	0.9	SW	2808	2,527	15	W 32 C F 2 (ELE)	F42LL	60	0.9	OCC	1,800	1,620	907	$ 132.45	$ 118.75	$ 20	0.9	0.7
202	Room 136	8	2T 17 R F 4 (ELE)	F22ILL	33	0.3	SW	2808	741	8	2T 17 R F 4 (ELE)	F22ILL	33	0.3	OCC	1,800	475	266	$ 38.85	$ 118.75	$ 20	3.1	2.5
46	Room 136	24	W 32 C F 2 (ELE)	F42LL	60	1.4	SW	2808	4,044	24	W 32 C F 2 (ELE)	F42LL	60	1.4	OCC	1,800	2,592	1,452	$ 211.92	$ 118.75	$ 20	0.6	0.5
46	Room 136	14	W 32 C F 2 (ELE)	F42LL	60	0.8	SW	2808	2,359	14	W 32 C F 2 (ELE)	F42LL	60	0.8	OCC	1,800	1,512	847	$ 123.62	$ 118.75	$ 20	1.0	0.8
98	Room 136	4	T 32 R F 2	F42LL	60	0.2	SW	2808	674	4	T 32 R F 2	F42LL	60	0.2	None	2,808	674	-	$ -	$ -	$ -		
98	Room 136	6	T 32 R F 2	F42LL	60	0.4	SW	2808	1,011	6	T 32 R F 2	F42LL	60	0.4	C-OCC	1,800	648	363	$ 52.98	$ 202.50	$ 35	3.8	3.2
46	Science Storage	9	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	1000	540	9	W 32 C F 2 (ELE)	F42LL	60	0.5	OCC	200	108	432	$ 63.07	$ 118.75	$ 20	1.9	1.6
46	Bathroom Near Room 136	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2080	250	2	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1,200	144	106	$ 15.42	$ 59.38	$ 20	3.9	2.6
202	Bathroom Near Room 136	2	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2080	137	2	2T 17 R F 4 (ELE)	F22ILL	33	0.1	OCC	1,200	79	58	$ 8.48	$ 59.38	$ 20	7.0	4.6
231	Bathroom Near Room 136	2	R 60 C I 1	I60/1	60	0.1	SW	2080	250	2	CF 26	CF42/1-L	48	0.1	None	2,080	200	50	$ 9.20	$ 40.50	$ -	4.4	4.4
98	Wash Room / Janitor Closet	4	T 32 R F 2	F42LL	60	0.2	SW	2080	499	4	T 32 R F 2	F42LL	60	0.2	OCC	1,800	432	67	$ 9.81	$ 118.75	$ 20	12.1	10.1
98	Room 139	8	T 32 R F 2	F42LL	60	0.5	SW	2808	1,348	8	T 32 R F 2	F42LL	60	0.5	OCC	1,800	864	484	$ 70.64	$ 118.75	$ 20	1.7	1.4
98	Room 139	2	T 32 R F 2	F42LL	60	0.1	SW	2808	337	2	T 32 R F 2	F42LL	60	0.1	None	2,808	337	-	$ -	$ -	$ -		
98	Room 139	2	T 32 R F 2	F42LL	60	0.1	SW	2808	337	2	T 32 R F 2	F42LL	60	0.1	None	2,808	337	-	$ -	$ -	$ -		
98	Room 139	6	T 32 R F 2	F42LL	60	0.4	SW	2808	1,011	6	T 32 R F 2	F42LL	60	0.4	None	2,808	1,011	-	$ -	$ -	$ -		
98	Room 139	12	T 32 R F 2	F42LL	60	0.7	SW	2808	2,022	12	T 32 R F 2	F42LL	60	0.7	OCC	1,800	1,296	726	$ 105.96	$ 118.75	$ 20	1.1	0.9
98	Room 139	12	T 32 R F 2	F42LL	60	0.7	SW	2808	2,022	12	T 32 R F 2	F42LL	60	0.7	OCC	1,800	1,296	726	$ 105.96	$ 118.75	$ 20	1.1	0.9
98	Room 139	12	T 32 R F 2	F42LL	60	0.7	SW	2808	2,022	12	T 32 R F 2	F42LL	60	0.7	OCC	1,800	1,296	726	$ 105.96	$ 118.75	$ 20	1.1	0.9
98	Room 139	12	T 32 R F 2	F42LL	60	0.7	SW	2808	2,022	12	T 32 R F 2	F42LL	60	0.7	OCC	1,800	1,296	726	$ 105.96	$ 118.75	$ 20	1.1	0.9
x1	Room 139	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8,760	13	-	$ -	$ -	$ -		
98	Room 140	14	T 32 R F 2	F42LL	60	0.8	SW	2808	2,359	14	T 32 R F 2	F42LL	60	0.8	OCC	1,800	1,512	847	$ 123.62	$ 118.75	$ 20	1.0	0.8
98	Room 140	14	T 32 R F 2	F42LL	60	0.8	SW	2808	2,359	14	T 32 R F 2	F42LL	60	0.8	OCC	1,800	1,512	847	$ 123.62	$ 118.75	$ 20	1.0	0.8
98	Room 140	14	T 32 R F 2	F42LL	60	0.8	SW	2808	2,359	14	T 32 R F 2	F42LL	60	0.8	OCC	1,800	1,512	847	$ 123.62	$ 118.75	$ 20	1.0	0.8
98	Room 140	14	T 32 R F 2	F42LL	60	0.8	SW	2808	2,359	14	T 32 R F 2	F42LL	60	0.8	OCC	1,800	1,512	847	$ 123.62	$ 118.75	$ 20	1.0	0.8
x1	Room 140	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8,760	13	-	$ -	$ -	$ -		
18	Room 140	10	T 32 R F 4 (ELE)	F44ILL	112	1.1	SW	2808	3,145	10	T 32 R F 4 (ELE)	F44ILL	112	1.1	OCC	1,800	2,016	1,129	$ 164.83	$ 118.75	$ 20	0.7	0.6
98	Room 140	4	T 32 R F 2	F42LL	60	0.2	SW	2808	674	4	T 32 R F 2	F42LL	60	0.2	None	2,808	674	-	$ -	$ -	$ -		
98	Room 140	6	T 32 R F 2	F42LL	60	0.4	SW	2808	1,011	6	T 32 R F 2	F42LL	60	0.4	None	2,808	1,011	-	$ -	$ -	$ -		
98	Room 141	7	T 32 R F 2	F42LL	60	0.4	SW	2808	1,179	7	T 32 R F 2	F42LL	60	0.4	OCC	1,800	756	423	$ 61.81	$ 118.75	$ 20	1.9	1.6
98	Room 141	7	T 32 R F 2	F42LL	60	0.4	SW	2808	1,179	7	T 32 R F 2	F42LL	60	0.4	OCC	1,800	756	423	$ 61.81	$ 118.75	$ 20	1.9	1.6
98	Room 141	5	T 32 R F 2	F42LL	60	0.3	SW	2808	842	5	T 32 R F 2	F42LL	60	0.3	OCC	1,800	540	302	$ 44.15	$ 118.75	$ 20	2.7	2.2
98	Room 141	11	T 32 R F 2	F42LL	60	0.7	SW	2808	1,853	11	T 32 R F 2	F42LL	60	0.7	OCC	1,800	1,188	665	$ 97.13	$ 118.75	$ 20	1.2	1.0
98	Room 141	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	OCC	1,800	1,080	605	$ 88.30	$ 118.75	$ 20	1.3	1.1
98	Room 141	11	T 32 R F 2	F42LL	60	0.7	SW	2808	1,853	11	T 32 R F 2	F42LL	60	0.7	OCC	1,800	1,188	665	$ 97.13	$ 118.75	$ 20	1.2	1.0
98	Room 141	11	T 32 R F 2	F42LL	60	0.7	SW	2808	1,853	11	T 32 R F 2	F42LL	60	0.7	OCC	1,800	1,188	665	$ 97.13	$ 118.75	$ 20	1.2	1.0
98	Room 141	7	T 32 R F 2	F42LL	60	0.4	SW	2808	1,179	7	T 32 R F 2	F42LL	60	0.4	OCC	1,800	756	423	$ 61.81	$ 118.75	$ 20	1.9	1.6
98	Room 141	11	T 32 R F 2	F42LL	60	0.7	SW	2808	1,853	11	T 32 R F 2	F42LL	60	0.7	OCC	1,800	1,188	665	$ 97.13	$ 118.75	$ 20	1.2	1.0
98	Room 141	11	T 32 R F 2	F42LL	60	0.7	SW	2808	1,853	11	T 32 R F 2	F42LL	60	0.7	OCC	1,800	1,188	665	$ 97.13	$ 118.75	$ 20	1.2	1.0
98	Room 141	11	T 32 R F 2	F42LL	60	0.7	SW	2808	1,853	11	T 32 R F 2	F42LL	60	0.7	OCC	1,800	1,188	665	$ 97.13	$ 118.75	$ 20	1.2	1.0
98	Room 141	13	T 32 R F 2	F42LL	60	0.8	SW	2808	2,190	13	T 32 R F 2	F42LL	60	0.8	OCC	1,800	1,404	786	$ 114.79	$ 118.75	$ 20	1.0	0.9
x1	Room 141	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8,760	13	-	$ -	$ -	$ -		
98	Room 141 - Locker Room	6	T 32 R F 2	F42LL	60	0.4	SW	2808	1,011	6	T 32 R F 2	F42LL	60	0.4	OCC	1,800	648	363	$ 52.98	$ 118.75	$ 20	2.2	1.9
98	Room 141 - Class Room	8	T 32 R F 2	F42LL	60	0.5	SW	2808	1,348	8	T 32 R F 2	F42LL	60	0.5	OCC	1,800	864	484	$ 70.64	$ 118.75	$ 20	1.7	1.4
46	Room 141 - Tool Room	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	674	4	W 32 C F 2 (ELE)	F42LL	60	0.2	OCC	1,800	432	242	$ 35.32	$ 118.75	$ 20	3.4	2.8
98	Room 141 - Tool Room	6	T 32 R F 2	F42LL	60	0.4	SW	2808	1,011	6	T 32 R F 2	F42LL	60	0.4	OCC	1,800	648	363	$ 52.98	$ 118.75	$ 20	2.2	1.9
98	Room 141 - Storage	10	T 32 R F 2	F42LL	60	0.6	SW	2808	1,685	10	T 32 R F 2	F42LL	60	0.6	None	2,808	1,685	-	$ -	$ -	$ -		
46	Room 142	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	1000	420	7	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1,800	756	(336)	$ (49.06)	$ 118.75	$ 20		
46	Room 142	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1,800	756	423	$ 61.81	$ 118.75	$ 20	1.9	1.6
46	Room 142	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1,800	756	423	$ 61.81	$ 118.75	$ 20	1.9	1.6
46	Room 142	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1,800	756	423	$ 61.81	$ 118.75	$ 20	1.9	1.6
46	Room 142	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1,800	756	423	$ 61.81	$ 118.75	$ 20	1.9	1.6
46	Room 142	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1,800	756	423	$ 61.81	$ 118.75	$ 20	1.9	1.6
46	Room 142	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1,800	756	423	$ 61.81	$ 118.75	$ 20	1.9	1.6
x1	Room 142	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8,760	13	-	$ -	$ -	$ -		
46	Room 142	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	674	4	W 32 C F 2 (ELE)	F42LL	60	0.2	OCC	1,800	432	242	$ 35.32	$ 118.75	$ 20	3.4	2.8
46	Room 142	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	337	2	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1,800	216	121	$ 17.66	$ 118.75	$ 20	6.7	5.6
46	Room 142	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	337	2	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1,800	216	121	$ 17.66	$ 118.75	$ 20	6.7	5.6
46	Room 142	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,348	8	W 32 C F 2 (ELE)	F42LL	60	0.5	OCC	1,800	864	484	$ 70.64	$ 118.75	$ 20	1.7	1.4
18	Room 143	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	SW	2808	1,887	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	None	2,808	1,887	-	$ -	$ -	$ -		
18	Room 143	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	SW	2808	2,830	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	OCC	1,800	1,814	1,016	$ 148.35	$ 118.75	$ 20	0.8	0.7
18	Room 143	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2808	3,774	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	OCC	1,800	2,419	1,355	$ 197.79	$ 118.75	$ 20	0.6	0.5
18	Room 143	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2808	3,774	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	OCC	1,800	2,419	1,355	$ 197.79	$ 118.75	$ 20	0.6	0.5
18	Room 143	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2808	3,774	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	OCC	1,800	2,419	1,355	$ 197.79	$ 118.75	$ 20	0.6	0.5
18	Room 143	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2808	3,774	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	OCC	1,800	2,419	1,355	$ 197.79	$ 118.75	$ 20	0.6	0.5
18	Room 143	14	T 32 R F 4 (ELE)	F44ILL	112	1.6	SW	2808	4,403	14	T 32 R F 4 (ELE)	F44ILL	112	1.6	OCC	1,800	2,822	1,581	$ 230.76	$ 118.75	$ 20	0.5	0.4
x1	Room 143	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8,760	13	-	$ -	$ -	$ -		
46	Room 144	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1,800	540	302	$ 44.15	$ 118.75	$ 20	2.7	2.2
46	Room 144	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1,800	540	302	$ 44.15	$ 118.75	$ 20	2.7	2.2

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS					
Field Code	Area Description	No. of Fixtures	Standard Fixture Code	NYSERDA Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual $ Saved	Retrofit Cost	NJ Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(kW Saved) * ($/kWh)	Cost for renovations to lighting system		Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
46	Room 144	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1,800	540	302	$ 44.15	$ 118.75	$ 20	2.7	2.2
46	Room 144	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1,800	540	302	$ 44.15	$ 118.75	$ 20	2.7	2.2
46	Room 144	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1,800	540	302	$ 44.15	$ 118.75	$ 20	2.7	2.2
46	Room 144	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,011	6	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1,800	648	363	$ 52.98	$ 118.75	$ 20	2.2	1.9
46	Room 144	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1,800	540	302	$ 44.15	$ 118.75	$ 20	2.7	2.2
x1	Room 144	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8,760	13	-	$ -	$ -	$ -		
46	Room 145	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1,800	540	302	$ 44.15	$ 118.75	$ 20	2.7	2.2
46	Room 145	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1,800	540	302	$ 44.15	$ 118.75	$ 20	2.7	2.2
46	Room 145	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1,800	540	302	$ 44.15	$ 118.75	$ 20	2.7	2.2
46	Room 145	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1,800	540	302	$ 44.15	$ 118.75	$ 20	2.7	2.2
46	Room 145	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1,800	540	302	$ 44.15	$ 118.75	$ 20	2.7	2.2
98	Hall between Room 144 and 145	8	T 32 R F 2	F42LL	60	0.5	SW	2808	1,348	8	T 32 R F 2	F42LL	60	0.5	None	2,808	1,348	-	$ -	$ -	$ -		
x1	Hall between Room 144 and 145	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8,760	13	-	$ -	$ -	$ -		
98	Hall between Room 142 and 136	27	T 32 R F 2	F42LL	60	1.6	SW	3744	6,065	27	T 32 R F 2	F42LL	60	1.6	None	3,744	6,065	-	$ -	$ -	$ -		
x1	Hall between Room 142 and 136	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8,760	13	-	$ -	$ -	$ -		
98	Hall around Room 139	12	T 32 R F 2	F42LL	60	0.7	SW	3744	2,696	12	T 32 R F 2	F42LL	60	0.7	None	3,744	2,696	-	$ -	$ -	$ -		
x1	Hall around Room 139	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8,760	13	-	$ -	$ -	$ -		
98	Hall by Room 141	12	T 32 R F 2	F42LL	60	0.7	SW	3744	2,696	12	T 32 R F 2	F42LL	60	0.7	None	3,744	2,696	-	$ -	$ -	$ -		
x1	Hall by Room 141	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8,760	13	-	$ -	$ -	$ -		
98	Vestibule by Room 136	1	T 32 R F 2	F42LL	60	0.1	SW	3744	225	1	T 32 R F 2	F42LL	60	0.1	None	3,744	225	-	$ -	$ -	$ -		
8	Pool Boiler Room	4	MH 175	MH175/1	215	0.9	SW	3744	3,220	4	MH 175	MH175/1	215	0.9	None	3,744	3,220	-	$ -	$ -	$ -		
70	Pool Boiler Room	8	W 32 C F 1	F41LL	32	0.3	SW	2080	532	8	W 32 C F 1	F41LL	32	0.3	None	2,080	532	-	$ -	$ -	$ -		
70	Pool Room Men's	1	W 32 C F 1	F41LL	32	0.0	SW	2080	67	1	W 32 C F 1	F41LL	32	0.0	OCC	1,200	38	28	$ 4.11	$ 118.75	$ 20	28.9	24.0
70	Pool Room Women's	1	W 32 C F 1	F41LL	32	0.0	SW	2080	67	1	W 32 C F 1	F41LL	32	0.0	OCC	1,200	38	28	$ 4.11	$ 118.75	$ 20	28.9	24.0
10	Pool Pod Up- Lighting	15	High Bay MH 1000 50 Feet High	MH1000/1	1080	16.2	Sw	2080	33,696	15	C 54 C F 6	F46GHL	351	5.3	None	2,080	10,951	22,745	$ 4,190.73	$ 7,687.50	$ 1,500	1.8	1.5
9	Pool Pod Up- Lighting	10	High Bay MH 400 35 Feet High	MH400/1	458	4.6	Sw	2080	9,526	10	P 54 C F 4	F45GHL	294	2.9	None	2,080	6,115	3,411	$ 628.51	$ 3,000.00	$ 1,000	4.8	3.2
46	Room 201	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	None	2,808	1,179	-	$ -	$ -	$ -		
46	Room 201	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	None	2,808	1,179	-	$ -	$ -	$ -		
46	Room 201	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	None	2,808	1,179	-	$ -	$ -	$ -		
46	Room 202	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	None	2,808	1,179	-	$ -	$ -	$ -		
46	Room 202	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	None	2,808	1,179	-	$ -	$ -	$ -		
46	Room 202	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	None	2,808	1,179	-	$ -	$ -	$ -		
46	Room 203	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	None	2,808	1,179	-	$ -	$ -	$ -		
46	Room 203	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	None	2,808	1,179	-	$ -	$ -	$ -		
46	Room 203	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	None	2,808	1,179	-	$ -	$ -	$ -		
46	Room 204	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	None	2,808	1,179	-	$ -	$ -	$ -		
46	Room 204	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	None	2,808	1,179	-	$ -	$ -	$ -		
46	Room 204	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	None	2,808	1,179	-	$ -	$ -	$ -		
46	Room 205	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	None	2,808	842	-	$ -	$ -	$ -		
46	Room 205	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	None	2,808	842	-	$ -	$ -	$ -		
46	Room 205	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	None	2,808	842	-	$ -	$ -	$ -		
46	Room 206	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1,800	540	302	$ 44.15	$ 118.75	$ 20	2.7	2.2
46	Room 206	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1,800	540	302	$ 44.15	$ 118.75	$ 20	2.7	2.2
46	Room 206	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1,800	540	302	$ 44.15	$ 118.75	$ 20	2.7	2.2
46	Room 207	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1,800	1,188	665	$ 97.13	$ 118.75	$ 20	1.2	1.0
46	Room 207	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1,800	1,188	665	$ 97.13	$ 118.75	$ 20	1.2	1.0
46	Room 207	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1,800	1,188	665	$ 97.13	$ 118.75	$ 20	1.2	1.0
98	Room 207	1	T 32 R F 2	F42LL	60	0.1	SW	2808	168	1	T 32 R F 2	F42LL	60	0.1	OCC	1,800	108	60	$ 8.83	$ 118.75	$ 20	13.4	11.2
46	Room 207	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1,800	540	302	$ 44.15	$ 118.75	$ 20	2.7	2.2
46	Room 207	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	168	1	W 32 C F 2 (ELE)	F42LL	60	0.1	OCC	1,800	108	60	$ 8.83	$ 118.75	$ 20	13.4	11.2
46	Room 208	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1,800	1,188	665	$ 97.13	$ 118.75	$ 20	1.2	1.0
46	Room 208	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1,800	1,188	665	$ 97.13	$ 118.75	$ 20	1.2	1.0
46	Room 208	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1,800	1,188	665	$ 97.13	$ 118.75	$ 20	1.2	1.0
98	Room 208	1	T 32 R F 2	F42LL	60	0.1	SW	2808	168	1	T 32 R F 2	F42LL	60	0.1	OCC	1,800	108	60	$ 8.83	$ 118.75	$ 20	13.4	11.2
46	Room 208	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1,800	540	302	$ 44.15	$ 118.75	$ 20	2.7	2.2
x1	Second Floor Hallway	2	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	26	2	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8,760	26	-	$ -	$ -	$ -		
98	Second Floor Hallway	28	T 32 R F 2	F42LL	60	1.7	SW	3744	6,290	28	T 32 R F 2	F42LL	60	1.7	None	3,744	6,290	-	$ -	$ -	$ -		
46	Stairway	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	3744	1,348	6	W 32 C F 2 (ELE)	F42LL	60	0.4	None	3,744	1,348	-	$ -	$ -	$ -		
46	Second Floor Men's	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	374	3	W 32 C F 2 (ELE)	F42LL	60	0.2	None	2,080	374	-	$ -	$ -	$ -		
46	Second Floor Women's	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	374	3	W 32 C F 2 (ELE)	F42LL	60	0.2	None	2,080	374	-	$ -	$ -	$ -		
231	Second Floor Wet Closet	2	R 60 C I 1	I60/1	60	0.1	SW	2808	337	2	CF 26	CF42/1-L	48	0.1	OCC	1,800	173	164	$ 25.88	$ 159.25	$ 20	6.2	5.4
46	Room 209	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	1,685	10	W 32 C F 2 (ELE)	F42LL	60	0.6	OCC	1,800	1,080	605	$ 88.30	$ 118.75	$ 20	1.3	1.1
46	Room 209	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	1,685	10	W 32 C F 2 (ELE)	F42LL	60	0.6	OCC	1,800	1,080	605	$ 88.30	$ 118.75	$ 20	1.3	1.1
46	Room 210	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1,800	540	302	$ 44.15	$ 118.75	$ 20	2.7	2.2
46	Room 210	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1,800	540	302	$ 44.15	$ 118.75	$ 20	2.7	2.2
46	Room 210	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1,800	540	302	$ 44.15	$ 118.75	$ 20	2.7	2.2
46	Room 210	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1,800	540	302	$ 44.15	$ 118.75	$ 20	2.7	2.2
46	Room 211	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1,800	540	302	$ 44.15	$ 118.75	$ 20	2.7	2.2
46	Room 211	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1,800	540	302	$ 44.15	$ 118.75	$ 20	2.7	2.2
46	Room 211	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1,800	540	302	$ 44.15	$ 118.75	$ 20	2.7	2.2
46	Room 211	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	842	5	W 32 C F 2 (ELE)	F42LL	60	0.3	OCC	1,800	540	302	$ 44.15	$ 118.75	$ 20	2.7	2.2
46	Room 212A and 212B	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1,800	1,188	665	$ 97.13	$ 118.75	$ 20	1.2	1.0
46	Room 212A and 212B	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1,800	1,188	665	$ 97.13	$ 118.75	$ 20	1.2	1.0
46	Room 212A and 212B	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1,800	1,188	665	$ 97.13	$ 118.75	$ 20	1.2	1.0
46	Room 212A and 212B	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1,800	1,188	665	$ 97.13	$ 118.75	$ 20	1.2	1.0
46	Room 213	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1,800	1,188	665	$ 97.13	$ 118.75	$ 20	1.2	1.0
46	Room 213	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1,800	1,188	665	$ 97.13	$ 118.75	$ 20	1.2	1.0
46	Room 213	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1,800	1,188	665	$ 97.13	$ 118.75	$ 20	1.2	1.0
46	Room 213	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	1,853	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1,800	1,188	665	$ 97.13	$ 118.75	$ 20	1.2	1.0
81	Room 213	3	S 34 C F 2	F42EE	72	0.2	SW	2808	607	3	S 28 C F 2	F42SSILL	48	0.1	OCC	1,800	259	347	$ 56.44	$ 463.00	$ 50	8.2	7.3
46	Room 214	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,348	8	W 32 C F 2 (ELE)	F42LL	60	0.5	OCC	1,800	864	484	$ 70.64	$ 118.75	$ 20	1.7	1.4
46	Room 214	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,348	8	W 32 C F 2 (ELE)	F42LL	60	0.5	OCC	1,800	864	484	$ 70.64	$ 118.75	$ 20	1.7	1.4
46	Room 214	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,348	8	W 32 C F 2 (ELE)	F42LL	60	0.5	OCC	1,800	864	484	$ 70.64	$ 118.75	$ 20	1.7	1.4
46	Room 214	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,348	8	W 32 C F 2 (ELE)	F42LL	60	0.5	OCC	1,800	864	484	$ 70.64	$ 118.75	$ 20	1.7	1.4
46	Room 215	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1,800	756	423	$ 61.81	$ 118.75	$ 20	1.9	1.6
46	Room 215	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1,800	756	423	$ 61.81	$ 118.75	$ 20	1.9	1.6
46	Room 215	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1,800	756	423	$ 61.81	$ 118.75	$ 20	1.9	1.6
46	Room 215	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,179	7	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1,800	756	423	$ 61.81	$ 118.75	$ 20	1.9	1.6
46	Room 217	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,348	8	W 32 C F 2 (ELE)	F42LL	60	0.5	OCC	1,800	864	484	$ 70.64	$ 118.75	$ 20	1.7	1.4
46	Room 217	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,348	8	W 32 C F 2 (ELE)	F42LL	60	0.5	OCC	1,800	864	484	$ 70.64	$ 118.75	$ 20	1.7	1.4
46	Room 217	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,348	8	W 32 C F 2 (ELE)	F42LL	60	0.5	OCC	1,800	864	484	$ 70.64	$ 118.75	$ 20	1.7	1.4

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS					
Field Code	Area Description	No. of Fixtures	Standard Fixture Code	NYSERDA Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual $ Saved	Retrofit Cost	NJ Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(kW Saved) * ($/kWh)	Cost for renovations to lighting system		Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
46	Room 217	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	1,348	8	W 32 C F 2 (ELE)	F42LL	60	0.5	OCC	1,800	864	484	$ 70.64	$ 118.75	$ 20	1.7	1.4
46	Room 218a	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	505	3	W 32 C F 2 (ELE)	F42LL	60	0.2	OCC	1,800	324	181	$ 26.49	$ 118.75	$ 20	4.5	3.7
46	Room 218a	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	505	3	W 32 C F 2 (ELE)	F42LL	60	0.2	OCC	1,800	324	181	$ 26.49	$ 118.75	$ 20	4.5	3.7
46	Room 218a	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	505	3	W 32 C F 2 (ELE)	F42LL	60	0.2	OCC	1,800	324	181	$ 26.49	$ 118.75	$ 20	4.5	3.7
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,011	6	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1,800	648	363	$ 52.98	$ 118.75	$ 20	2.2	1.9
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,011	6	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1,800	648	363	$ 52.98	$ 118.75	$ 20	2.2	1.9
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,011	6	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1,800	648	363	$ 52.98	$ 118.75	$ 20	2.2	1.9
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,011	6	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1,800	648	363	$ 52.98	$ 118.75	$ 20	2.2	1.9
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,011	6	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1,800	648	363	$ 52.98	$ 118.75	$ 20	2.2	1.9
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,011	6	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1,800	648	363	$ 52.98	$ 118.75	$ 20	2.2	1.9
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,011	6	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1,800	648	363	$ 52.98	$ 118.75	$ 20	2.2	1.9
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,011	6	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1,800	648	363	$ 52.98	$ 118.75	$ 20	2.2	1.9
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,011	6	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1,800	648	363	$ 52.98	$ 118.75	$ 20	2.2	1.9
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	1,011	6	W 32 C F 2 (ELE)	F42LL	60	0.4	OCC	1,800	648	363	$ 52.98	$ 118.75	$ 20	2.2	1.9
70	Stairs between 214 and 215	3	W 32 C F 1	F41LL	32	0.1	SW	2808	270	3	W 32 C F 1	F41LL	32	0.1	None	2,808	270	-	$ -	$ -	$ -		
46	Between 215 and 216	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	674	4	W 32 C F 2 (ELE)	F42LL	60	0.2	None	2,808	674	-	$ -	$ -	$ -		
46	Between 215 and 216	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	3744	2,471	11	W 32 C F 2 (ELE)	F42LL	60	0.7	OCC	1,800	1,188	1,283	$ 187.32	$ 118.75	$ 20	0.6	0.5
70	Stairs at 219	4	W 32 C F 1	F41LL	32	0.1	SW	3744	479	4	W 32 C F 1	F41LL	32	0.1	None	3,744	479	-	$ -	$ -	$ -		
176	Hallway	23	1T 32 R F 2 (ELE)	F42LL	60	1.4	SW	3744	5,167	23	1T 32 R F 2 (ELE)	F42LL	60	1.4	None	3,744	5,167	-	$ -	$ -	$ -		
x1	Hallway	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	13	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	None	8,760	13	-	$ -	$ -	$ -		
x2	Hallway	2	XX 3.0 W CF 2	ELED1.5/2	3	0.0	Breaker	8760	53	2	XX 3.0 W CF 2	ELED1.5/2	3	0.0	None	8,760	53	-	$ -	$ -	$ -		
46	Men's	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	374	3	W 32 C F 2 (ELE)	F42LL	60	0.2	None	2,080	374	-	$ -	$ -	$ -		
46	Women's	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	374	3	W 32 C F 2 (ELE)	F42LL	60	0.2	None	2,080	374	-	$ -	$ -	$ -		
	Main Building - Exterior																						
141	Old Wing	4	HPS 250	HPS250/1	295	1.2	Timer	2600	3,068	4	HPS 250	HPS250/1	295	1.2	None	2,600	3,068	-	$ -	$ -	$ -		
229	Outside	8	WP200 I 1	i200/1	200	1.6	Timer	2600	4,160	8	WP 42 1	CF42/1-L	48	0.4	None	2,600	998	3,162	$ 558.34	$ 810.00	$ -	1.5	1.5
237	New Wing - South Wing	1	WP 400 Po HPS	hps400/1	465	0.5	Timer	2600	1,209	1	WP 400 Po HPS	hps400/1	465	0.5	None	2,600	1,209	-	$ -	$ -	$ -		
141	New Wing - South Wing	1	HPS 250	HPS250/1	295	0.3	Timer	2600	767	1	HPS 250	HPS250/1	295	0.3	None	2,600	767	-	$ -	$ -	$ -		
229	New Wing - South Wing	6	WP200 I 1	i200/1	200	1.2	Timer	2600	3,120	6	WP 42 1	CF42/1-L	48	0.3	None	2,600	749	2,371	$ 418.75	$ 607.50	$ -	1.5	1.5
141	Light Pole	9	HPS 250	HPS250/1	295	2.7	Timer	2600	6,903	9	HPS 250	HPS250/1	295	2.7	None	2,600	6,903	-	$ -	$ -	$ -		
236	New - East Wall	1	MV 250	mv250/1	290	0.3	Timer	2600	754	1	MV 250	mv250/1	290	0.3	None	2,600	754	-	$ -	$ -	$ -		
141	New - East Wall	1	HPS 250	HPS250/1	295	0.3	Timer	2600	767	1	HPS 250	HPS250/1	295	0.3	None	2,600	767	-	$ -	$ -	$ -		
236	New - North Wall	2	MV 250	mv250/1	290	0.6	Timer	2600	1,508	2	MV 250	mv250/1	290	0.6	None	2,600	1,508	-	$ -	$ -	$ -		
229	New - North Wall	2	WP200 I 1	i200/1	200	0.4	Timer	2600	1,040	2	WP 42 1	CF42/1-L	48	0.1	None	2,600	250	790	$ 139.58	$ 202.50	$ -	1.5	1.5
229	Board of Foyer	2	WP200 I 1	i200/1	200	0.4	Timer	2600	1,040	2	WP 42 1	CF42/1-L	48	0.1	None	2,600	250	790	$ 139.58	$ 202.50	$ -	1.5	1.5
236	New - West Wall	5	MV 250	mv250/1	290	1.5	Timer	2600	3,770	5	MV 250	mv250/1	290	1.5	None	2,600	3,770	-	$ -	$ -	$ -		
240	New - West Wall Flag Pole	1	R 250 Q 1	h250/1	250	0.3	Timer	2600	650	1	WP 42 1	CF42/1-L	48	0.0	None	2,600	125	525	$ 92.75	$ 101.25	$ -	1.1	1.1
236	New - West Wall Flag Pole	1	MV 250	mv250/1	290	0.3	Timer	2600	754	1	MV 250	mv250/1	290	0.3	None	2,600	754	-	$ -	$ -	$ -		
229	New - West Wall Flag Pole	2	WP200 I 1	i200/1	200	0.4	Timer	2600	1,040	2	WP 42 1	CF42/1-L	48	0.1	None	2,600	250	790	$ 139.58	$ 202.50	$ -	1.5	1.5
236	Behind WT Room	1	MV 250	mv250/1	290	0.3	Timer	2600	754	1	MV 250	mv250/1	290	0.3	None	2,600	754	-	$ -	$ -	$ -		
229	Behind WT Room	1	WP200 I 1	i200/1	200	0.2	Timer	2600	520	1	WP 42 1	CF42/1-L	48	0.0	None	2,600	125	395	$ 69.79	$ 101.25	$ -	1.5	1.5
45	Behind WT Room	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	Timer	2600	70	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	None	2,600	70	-	$ -	$ -	$ -		
236	Outside Pool	3	MV 250	mv250/1	290	0.9	Timer	2600	2,262	3	MV 250	mv250/1	290	0.9	None	2,600	2,262	-	$ -	$ -	$ -		
65	Outside Pool	1	I 100	I100/1	100	0.1	Timer	2600	260	1	CF 26	CFQ26/1-L	27	0.0	None	2,600	70	190	$ 33.52	$ 40.50	$ -	1.2	1.2
141	South Side - Shop Wing	7	HPS 250	HPS250/1	295	2.1	Timer	2600	5,369	7	HPS 250	HPS250/1	295	2.1	None	2,600	5,369	-	$ -	$ -	$ -		
141	East Side	2	HPS 250	HPS250/1	295	0.6	Timer	2600	1,534	2	HPS 250	HPS250/1	295	0.6	None	2,600	1,534	-	$ -	$ -	$ -		
141	North Side	4	HPS 250	HPS250/1	295	1.2	Timer	2600	3,068	4	HPS 250	HPS250/1	295	1.2	None	2,600	3,068	-	$ -	$ -	$ -		
229	South Side - Shop Wing	9	WP200 I 1	i200/1	200	1.8	Timer	2600	4,680	9	WP 42 1	CF42/1-L	48	0.4	None	2,600	1,123	3,557	$ 628.13	$ 911.25	$ -	1.5	1.5
229	East Side	6	WP200 I 1	i200/1	200	1.2	Timer	2600	3,120	6	WP 42 1	CF42/1-L	48	0.3	None	2,600	749	2,371	$ 418.75	$ 607.50	$ -	1.5	1.5
229	North Side	8	WP200 I 1	i200/1	200	1.6	Timer	2600	4,160	8	WP 42 1	CF42/1-L	48	0.4	None	2,600	998	3,162	$ 558.34	$ 810.00	$ -	1.5	1.5
230	North Side	2	WP400MH1	MH400/1	458	0.9	Timer	2600	2,382	2	WP400MH1	MH400/1	458	0.9	None	2,600	2,382	-	$ -	$ -	$ -		
	Total	2,803				214.9			616,522	2,803				189.6			441,139		$ 27,621	56,860	9,975		
																		Demand Savings	25.3	$2,015			
																		kWh Savings	175,384	$25,606			
																		Total Savings		$27,621		2.1	1.7

APPENDIX R

Photovoltaic (PV) Rooftop Solar Power Generation

AC Energy & Cost Savings

Station Identification	
City:	Newark
State:	New_Jersey
Latitude:	40.70° N
Longitude:	74.17° W
Elevation:	9 m
PV System Specifications	
DC Rating:	50.0 kW
DC to AC Derate Factor:	0.770
AC Rating:	38.5 kW
Array Type:	Fixed Tilt
Array Tilt:	40.7°
Array Azimuth:	180.0°
Energy Specifications	
Cost of Electricity:	14.0 ¢/kWh

Results			
Month	Solar Radiation ($kWh/m^2/day$)	AC Energy (kWh)	Energy Value ($)
1	3.36	4139	579.46
2	4.05	4469	625.66
3	4.58	5422	759.08
4	4.84	5299	741.86
5	5.30	5838	817.32
6	5.33	5506	770.84
7	5.27	5561	778.54
8	5.25	5503	770.42
9	5.06	5338	747.32
10	4.46	5027	703.78
11	3.15	3588	502.32
12	2.87	3460	484.40
Year	4.46	59150	8281.00

Output Hourly Performance Data

Output Results as Text

About the Hourly Performance Data

Saving Text from a Browser

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

Please send questions and comments regarding PVWATTS to Webmaster

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

PVWatts Cautions for Interpreting the Results

The monthly and yearly energy production are modeled using the PV system parameters you selected and weather data that are typical or representative of long-term averages. For reference, or comparison with local information, the solar radiation values modeled for the PV array are included in the performance results.

Because weather patterns vary from year-to-year, the values in the tables are better indicators of long-term performance than performance for a particular month or year. PV performance is largely proportional to the amount of solar radiation received, which may vary from the long-term average by ± 30% for monthly values and ± 10% for yearly values. How the solar radiation might vary for your location may be evaluated by examining the tables in the *Solar Radiation Data Manual for Flat-Plate and Concentrating Collectors* (http://rredc.nrel.gov/solar/old_data/nsrdb/redbook/).

For these variations and the uncertainties associated with the weather data and the model used to model the PV performance, future months and years may be encountered where the actual PV performance is less than or greater than the values shown in the table. The variations may be as much as 40% for individual months and up to 20% for individual years. Compared to long-term performance over many years, the values in the table are accurate to within 10% to 12%.

If the default overall DC to AC derate factor is used, the energy values in the table will overestimate the actual energy production if nearby buildings, objects, or other PV modules and array structure shade the PV modules; if tracking mechanisms for one- and two-axis tracking systems do not keep the PV arrays at the optimum orientation with respect to the sun's position; if soiling or snow cover related losses exceed 5%; or if the system performance has degraded from new. (PV performance /pically degrades 1% per year.) If any of these situations exist, an overall DC to AC derate factor should be used with PVWATTS that was calculated using system specific component derate factors for *shading*, *sun-tracking*, *soiling*, and *age*.

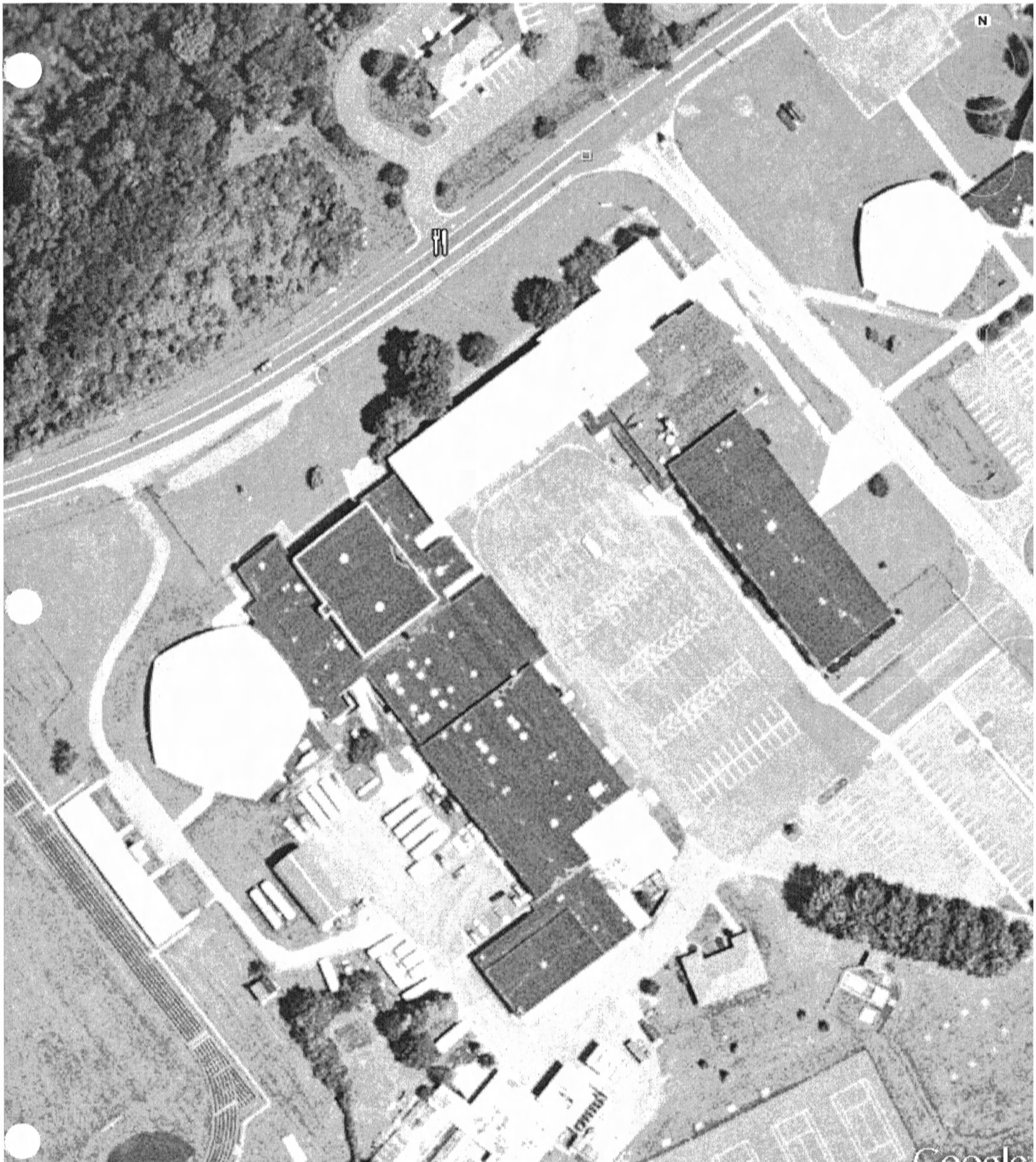
The PV system size is the nameplate DC power rating. The energy production values in the table are valid only for crystalline silicon PV systems.

The cost savings are determined as the product of the number of kilowatt hours (kWh) and the cost of electricity per kWh. These cost savings occur if the owner uses all the electricity produced by the PV system, or if the owner has a net-metering agreement with the utility. With net-metering, the utility bills the owner for the net electricity consumed. When electricity flows from the utility to the owner, the meter spins forward. When electricity flows from the PV system to the utility, the meter spins backwards.

If net-metering isn't available and the PV system sends surplus electricity to the utility grid, the utility generally buys the electricity from the owner at a lower price than the owner pays the utility for electricity. In this case, the cost savings shown in the table should be reduced.

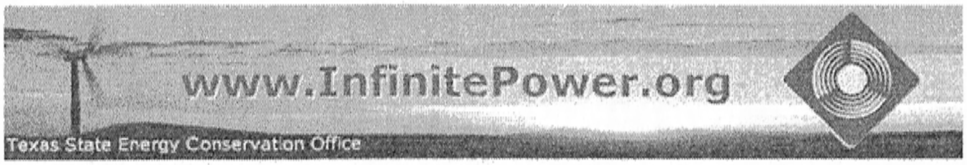
Besides the cost savings shown in the table, other benefits of PV systems include greater energy independence and a reduction in fossil fuel usage and air pollution. For commercial customers, additional cost savings may come from reducing demand charges. Homeowners can often include the cost of the PV system in their home mortgage as a way of accommodating the PV system's initial cost.

To accelerate the use of PV systems, many state and local governments offer financial incentives and programs. Go to http://www.nrel.gov/stateandlocal for more information.


N
© 2009 Tele Atlas
Google
Imagery Date: Jul 5, 2007
41°05'42.39" N 74°39'17.08" W elev 676 ft
Eye alt 1461 ft

APPENDIX S

Solar Thermal Domestic Hot Water Plant



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What Can I Do?
Electric Choice
Home Energy
FAQs
LEARN
Fact Sheets
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SOLAR WATER HEATING CALCULATOR

RENEWABLE ENERGY
THE INFINITE POWER OF TEXAS

Water heating is a major energy consumer. Although the energy consumed daily is often less than for air conditioning or heating, it is required year round, making it a good application of solar energy.

Use this calculator to explore the energy usage of your water heater, and to estimate whether a solar water heater could save you money.

Water Heater Characteristics			
Physical		**Thermal**	
? Diameter (feet)	3.5	? Water Inlet Temperature (Degrees F)	55
? Capacity (gallons)	480	? Ambient Temperature (Degrees F)	70
? Surface Area (calculated - sq ft)	92.58	? Hot Water Temperature (Degrees F)	135
? Effective R-value	50	? Hot Water Usage (Gallons per Day)	675
Energy Use			
18470		? Heat Delivered in Hot Water (BTU/hr)	
120.4		? Heat loss through insulation (BTU/hr)	

Gas vs. Electric Water Heating		
Gas		**Electric**
0.7948	? Overall Efficiency	0.9737
0.8	? Conversion Efficiency	0.98
23240 BTU/hr	? Power Into Water Heater	18970 BTU/hr
Cost		
$ 1.2 /Therm	? Utility Rates	$ 0.14 /kWh
$ 2442.98ℓ	? Yearly Water Heating Cost	$ 6813.68(
How Does Solar Compare?		
? Solar Water Heater Cost: $ 26490		? Percentage Solar: 70
15.4903ℓ years for gas	? Payback Time for Solar System	5.553952years for electric

More information on solar water heating:

- Fact sheet - Solar Water Heaters (requires Adobe Acrobat reader)
- Fact sheet - Solar Water Heaters for Swimming Pools (requires Adobe Acrobat reader)
- Kids fact sheet - Heat from the Sun (requires Adobe Acrobat reader)

NJBPU Energy Audits
CHA #20151
Building: Sussex County Vocational School - Main Building

Multipliers	
Material:	0.99
Labor:	1.22
Equipment:	1.09

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
Synergy Solar Thermal System	4	ea				$ -	$ -	$ 3,600	$ 14,400	
Piping modifications	1	ls	$ 3,000	$ 3,500		$ 2,970	$ 4,270	$ -	$ 7,240	
Electrical modifications	1	ls	$ 1,000	$ 1,000		$ 990	$ 1,220	$ -	$ 2,210	
Building modifications	1	ls	$ 1,500	$ 1,200		$ 1,485	$ 1,464	$ -	$ 2,949	
120 GallonStorage Tanks	4	ea	$ 450	$ 250		$ 1,800	$ 1,000	$ -	$ 2,800	
15 Gallon Drip Tank	4	ea	$ 150	$ 78		$ 600	$ 312	$ -	$ 912	
						$ -	$ -	$ -	$ -	

$ 30,511	Subtotal
$ 4,577	15% Contingency
$ 4,577	15% Contractor O&P
$ 6,102	20% Engineering
$ 45,767	**Total**

APPENDIX T

Wind


N
©2009 Google
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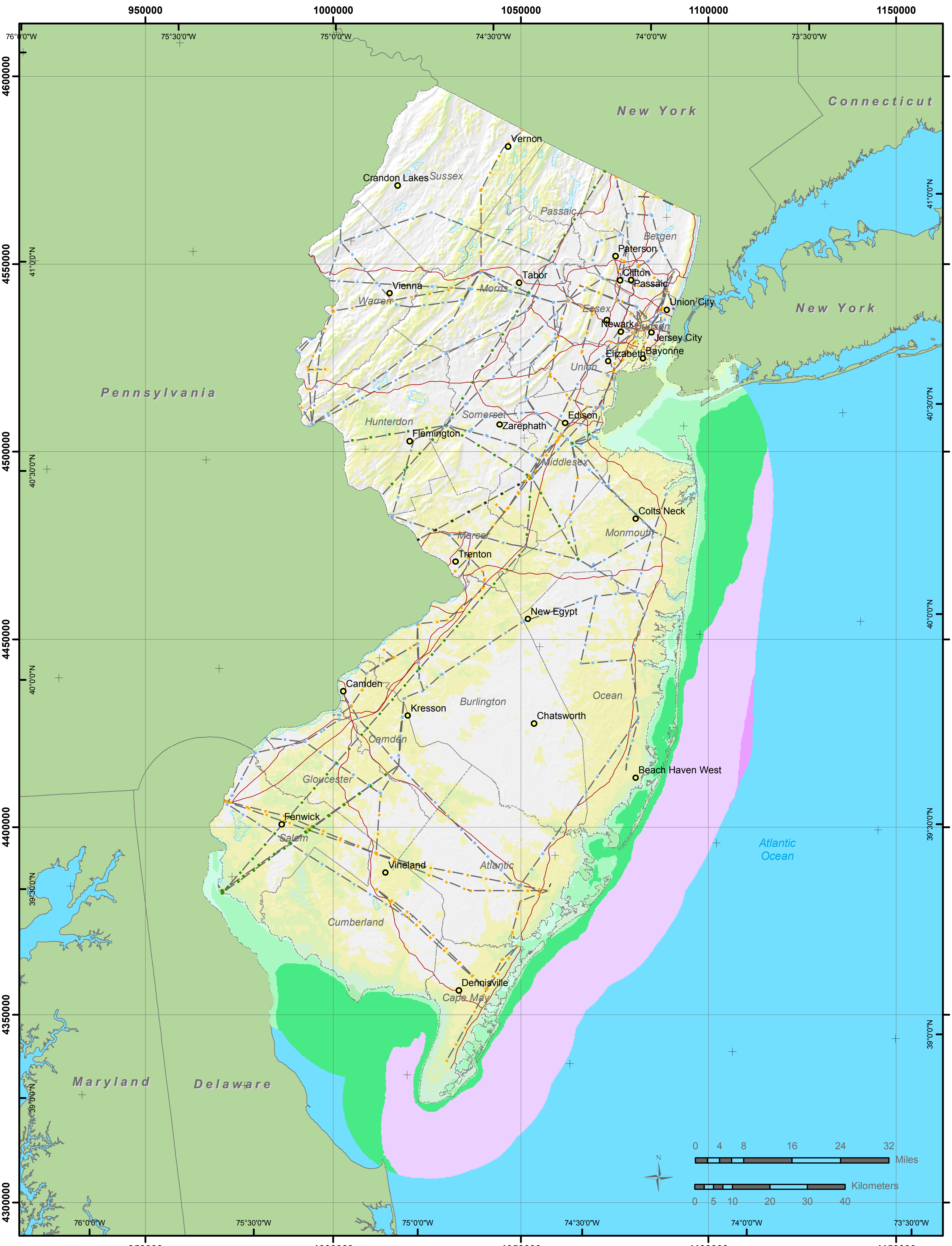
Imagery Date: Jul 5, 2007
41°05'44.07" N 74°39'18.57" W elev 676 ft
Eye alt 3230 ft



Wind Resource of New Jersey

Mean Annual Wind Speed at 30 Meters

Features

- City
- Interstate Highway
- County Boundary
- Water Body

Generalized Transmission Line

Category

- Under 100 kV
- 100 kV-161 kV
- 230 kV-287 kV
- 345 kV
- 500 kV
- 735 kV +
- Step-Up
- DC Line

Mean Speed at 30 m

mph	m/s
< 10.1	< 4.5
10.1 - 11.2	4.5 - 5.0
11.2 - 12.3	5.0 - 5.5
12.3 - 13.4	5.5 - 6.0
13.4 - 14.5	6.0 - 6.5
14.5 - 15.7	6.5 - 7.0
15.7 - 16.8	7.0 - 7.5
16.8 - 17.9	7.5 - 8.0
17.9 - 19.0	8.0 - 8.5
> 19.0	> 8.5

AWS Truewind

Projection: Tranverse Mercator, UTM Zone 17 WGS84
Spatial Resolution of Wind Resource Data: 200m
This map was created by AWS Truewind using the MesoMap system and historical weather data. Although it is believed to represent an accurate overall picture of the wind energy resource, estimates at any location should be confirmed by measurement.

The transmission line information was obtained by AWS Truewind from the Global Energy Decisions Velocity Suite. AWS does not warrant the accuracy of the transmission line information.

APPENDIX U

EPA Portfolio Manager

OMB No. 2060-0347

STATEMENT OF ENERGY PERFORMANCE
Main and Agricultural Building

Building ID: 1800470
For 12-month Period Ending: May 31, 2009[1]
Date SEP becomes ineligible: N/A

Date SEP Generated: August 07, 2009

Facility
Main and Agricultural Building
105 North Church Road
Sparta, NJ 07871

Facility Owner
Sussex County Technical School
105 North Church Road
Sparta, NJ 07871

Primary Contact for this Facility
Russ Masker
105 North Church Road
Sparta, NJ 07871

Year Built: 1968
Gross Floor Area (ft²): 166,111

Energy Performance Rating[2] (1-100) 24

Site Energy Use Summary[3]	
Propane (kBtu)	1,847,812
Fuel Oil (No. 2) (kBtu)	10,581,241
Electricity (kBtu)	6,449,807
Natural Gas (kBtu)[4]	0
Total Energy (kBtu)	18,878,860

Energy Intensity[5]	
Site (kBtu/ft²/yr)	114
Source (kBtu/ft²/yr)	205

Emissions (based on site energy use)
Greenhouse Gas Emissions ($MtCO_2e$/year) 1,949

Electric Distribution Utility
Jersey Central Power & Lt Co

National Average Comparison	
National Average Site EUI	90
National Average Source EUI	163
% Difference from National Average Source EUI	26%
Building Type	K-12 School

Stamp of Certifying Professional

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

Meets Industry Standards[6] **for Indoor Environmental Conditions:**	
Ventilation for Acceptable Indoor Air Quality	**N/A**
Acceptable Thermal Environmental Conditions	**N/A**
Adequate Illumination	**N/A**

Certifying Professional
N/A

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

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

EPA Form 5900-16

ENERGY STAR® Data Checklist for Commercial Buildings

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

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

CRITERION	VALUE AS ENTERED IN PORTFOLIO MANAGER	VERIFICATION QUESTIONS	NOTES	☑
Building Name	Main and Agricultural Building	Is this the official building name to be displayed in the ENERGY STAR Registry of Labeled Buildings?		☐
Type	K-12 School	Is this an accurate description of the space in question?		☐
Location	105 North Church Road , Sparta, NJ 07871	Is this address accurate and complete? Correct weather normalization requires an accurate zip code.		☐
Single Structure	Single Facility	Does this SEP represent a single structure? SEPs cannot be submitted for multiple-building campuses (with the exception of acute care or children's hospitals) nor can they be submitted as representing only a portion of a building		☐

Main Building (K-12 School)

CRITERION	VALUE AS ENTERED IN PORTFOLIO MANAGER	VERIFICATION QUESTIONS	NOTES	☑
Gross Floor Area	155,732 Sq. Ft.	Does this square footage include all supporting functions such as kitchens and break rooms used by staff, storage areas, administrative areas, elevators, stairwells, atria, vent shafts, etc. Also note that existing atriums should only include the base floor area that it occupies. Interstitial (plenum) space between floors should not be included in the total. Finally gross floor area is not the same as leasable space. Leasable space is a subset of gross floor area.		☐
Open Weekends?	Yes	Is this building normally open at all on the weekends? This includes activities beyond the work conducted by maintenance, cleaning, and security personnel. Weekend activity could include any time when the space is used for classes, performances or other school or community activities. If the building is open on the weekend as part of the standard schedule during one or more seasons, the building should select ?yes? for open weekends. The ?yes? response should apply whether the building is open for one or both of the weekend days.		☐
Number of PCs	375	Is this the number of personal computers in the K12 School?		☐
Number of walk-in refrigeration/freezer units	1	Is this the total number of commercial walk-in type freezers and coolers? These units are typically found in storage and receiving areas.		☐
Presence of cooking facilities	Yes	Does this school have a dedicated space in which food is prepared and served to students? If the school has space in which food for students is only kept warm and/or served to students, or has only a galley that is used by teachers and staff then the answer is "no".		☐
Percent Cooled	10 %	Is this the percentage of the total floor space within the facility that is served by mechanical cooling equipment?		☐
Percent Heated	100 %	Is this the percentage of the total floor space within the facility that is served by mechanical heating equipment?		☐

Months	11 (Optional)	Is this school in operation for at least 8 months of the year?		☐
High School?	Yes	Is this building a high school (teaching grades 10, 11, and/or 12)? If the building teaches to high school students at all, the user should check 'yes' to 'high school'. For example, if the school teaches to grades K-12 (elementary/middle and high school), the user should check 'yes' to 'high school'.		☐

Agricultural Building (Other)

CRITERION	VALUE AS ENTERED IN PORTFOLIO MANAGER	VERIFICATION QUESTIONS	NOTES	☑
Gross Floor Area	10,379 Sq. Ft.	Does this square footage include all supporting functions such as kitchens and break rooms used by staff, storage areas, administrative areas, elevators, stairwells, atria, vent shafts, etc. Also note that existing atriums should only include the base floor area that it occupies. Interstitial (plenum) space between floors should not be included in the total. Finally gross floor area is not the same as leasable space. Leasable space is a subset of gross floor area.		☐
Number of PCs	N/A(Optional)	Is this the number of personal computers in the space?		☐
Weekly operating hours	N/A(Optional)	Is this the total number of hours per week that the space is 75% occupied? This number should exclude hours when the facility is occupied only by maintenance, security, or other support personnel. For facilities with a schedule that varies during the year, "operating hours/week" refers to the total weekly hours for the schedule most often followed.		☐
Workers on Main Shift	N/A(Optional)	Is this the number of employees present during the main shift? Note this is not the total number of employees or visitors who are in a building during an entire 24 hour period. For example, if there are two daily 8 hour shifts of 100 workers each, the Workers on Main Shift value is 100.		☐

ENERGY STAR® Data Checklist
for Commercial Buildings

Energy Consumption

Power Generation Plant or Distribution Utility: Jersey Central Power & Lt Co

Fuel Type: Electricity		
Meter: Electric (kWh (thousand Watt-hours)) **Space(s):** Entire Facility		
Start Date	**End Date**	**Energy Use (kWh (thousand Watt-hours))**
04/24/2009	05/28/2009	157,800.00
03/24/2009	04/23/2009	164,800.00
02/24/2009	03/23/2009	167,600.00
01/23/2009	02/23/2009	200,000.00
12/24/2008	01/22/2009	177,200.00
11/22/2008	12/23/2008	199,600.00
10/22/2008	11/21/2008	186,400.00
09/23/2008	10/21/2008	154,400.00
08/22/2008	09/22/2008	125,200.00
07/24/2008	08/21/2008	118,000.00
06/24/2008	07/23/2008	134,400.00
Electric Consumption (kWh (thousand Watt-hours))		**1,785,400.00**
Electric Consumption (kBtu)		**6,091,784.80**
Total Electricity Consumption (kBtu)		**6,091,784.80**
Is this the total Electricity consumption at this building including all Electricity meters?		☐

Fuel Type: Fuel Oil (No. 2)		
Meter: Oil - Main Building (Gallons) **Space(s):** Main Building		
Start Date	**End Date**	**Energy Use (Gallons)**
04/02/2009	05/01/2009	0.00
03/02/2009	04/01/2009	0.00
02/02/2009	03/01/2009	8,044.00
01/02/2009	02/01/2009	13,526.00
12/02/2008	01/01/2009	9,101.00
11/02/2008	12/01/2008	12,702.00
10/02/2008	11/01/2008	4,800.00
09/02/2008	10/01/2008	4,815.00
08/02/2008	09/01/2008	0.00
07/02/2008	08/01/2008	4,433.40

06/02/2008	07/01/2008	0.00
Oil - Main Building Consumption (Gallons)		**57,421.40**
Oil - Main Building Consumption (kBtu)		**8,038,984.52**
Meter: Oil - Agricultural Building (Gallons) **Space(s):** Agricultural Building		
Start Date	**End Date**	**Energy Use (Gallons)**
05/01/2009	05/31/2009	0.00
04/01/2009	04/30/2009	0.00
03/01/2009	03/31/2009	0.00
02/01/2009	02/28/2009	2,018.00
01/01/2009	01/31/2009	7,072.00
12/01/2008	12/31/2008	3,932.00
11/01/2008	11/30/2008	1,237.00
10/01/2008	10/31/2008	1,500.00
09/01/2008	09/30/2008	0.00
08/01/2008	08/31/2008	2,400.00
07/01/2008	07/31/2008	0.00
06/01/2008	06/30/2008	0.00
Oil - Agricultural Building Consumption (Gallons)		**18,159.00**
Oil - Agricultural Building Consumption (kBtu)		**2,542,256.37**
Total Fuel Oil (No. 2) Consumption (kBtu)		**10,581,240.88**
Is this the total Fuel Oil (No. 2) consumption at this building including all Fuel Oil (No. 2) meters?		☐

Fuel Type: Propane		
Meter: Propane - Kitchen, Pool and Generator (Gallons) **Space(s):** Main Building		
Start Date	**End Date**	**Energy Use (Gallons)**
05/01/2009	05/31/2009	1,401.00
04/01/2009	04/30/2009	2,260.71
03/01/2009	03/31/2009	4,607.80
02/01/2009	02/28/2009	867.50
01/01/2009	01/31/2009	2,848.70
12/01/2008	12/31/2008	1,109.30
11/01/2008	11/30/2008	2,519.70
10/01/2008	10/31/2008	1,770.00
09/01/2008	09/30/2008	854.20
08/01/2008	08/31/2008	765.60
07/01/2008	07/31/2008	692.00
06/01/2008	06/30/2008	833.50
Propane - Kitchen, Pool and Generator Consumption (Gallons)		**20,530.01**
Propane - Kitchen, Pool and Generator Consumption (kBtu)		**1,847,811.76**
Total Propane Consumption (kBtu)		**1,847,811.76**

Is this the total Propane consumption at this building including all Propane meters?	☐

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

Certifying Professional

(When applying for the ENERGY STAR, this must be the same PE that signed and stamped the SEP.)

Name: ____ Date: ____________

Signature: __________________________________

Signature is required when applying for the ENERGY STAR.

FOR YOUR RECORDS ONLY. DO NOT SUBMIT TO EPA.

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

Facility
Main and Agricultural Building
105 North Church Road
Sparta, NJ 07871

Facility Owner
Sussex County Technical School
105 North Church Road
Sparta, NJ 07871

Primary Contact for this Facility
Russ Masker
105 North Church Road
Sparta, NJ 07871

General Information

Main and Agricultural Building	
Gross Floor Area Excluding Parking: (ft^2)	166,111
Year Built	1968
For 12-month Evaluation Period Ending Date:	May 31, 2009

Facility Space Use Summary

Main Building	
Space Type	K-12 School
Gross Floor Area(ft2)	155,732
Open Weekends?	Yes
Number of PCs	375
Number of walk-in refrigeration/freezer units	1
Presence of cooking facilities	Yes
Percent Cooled	10
Percent Heated	100
Months°	11
High School?	Yes
School District°	N/A

Agricultural Building	
Space Type	Other - Other
Gross Floor Area(ft2)	10,379
Number of PCs°	N/A
Weekly operating hours°	N/A
Workers on Main Shift°	N/A

Energy Performance Comparison

	Evaluation Periods		Comparisons		
Performance Metrics	**Current** (Ending Date 05/31/2009)	**Baseline** (Ending Date 06/30/2008)	**Rating of 75**	**Target**	**National Average**
Energy Performance Rating	24	26	75	N/A	50
Energy Intensity					
Site (kBtu/ft2)	114	108	70	N/A	90
Source (kBtu/ft2)	205	202	127	N/A	163
Energy Cost					
$/year	$ 604,213.69	$ 537,714.96	$ 374,171.22	N/A	$ 478,479.82
$/ft2/year	$ 3.64	$ 3.24	$ 2.25	N/A	$ 2.88
Greenhouse Gas Emissions					
$MtCO_2e$/year	1,949	1,884	1,207	N/A	1,543
$kgCO_2e$/ft2/year	12	11	7	N/A	10

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

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

APPENDIX V

Equipment Inventory

New Jersey BPU Energy Audit Program
CHA #20151
Sussex County Technical School
Main Building

Description	Manufacturer Name	Model No.	Equipment Type	Capacity/Size	Location	Date Installed	Useable Life Expectancy	Other Info.
Boiler #1	Cleaver Brooks	CB810-125 (S/N L-50266)	Package Boiler	5.23 MMBtu/hr (input) 375 gph fuel oil	Boiler Room	1970		- Constant speed pump - Honeywell building controls
Boiler #2	Cleaver Brooks	CB810-125 (S/N L-42735)	Package Boiler	5.23 MMBtu/hr (input) 375 gph fuel oil	Boiler Room	1967		- Constant speed pump - Honeywell building controls
Boiler #3	Cleaver Brooks	CB810-125 (S/N L-42734)	Package Boiler	5.23 MMBtu/hr (input) 375 gph fuel oil	Boiler Room	1989		- Constant speed pump - Honeywell building controls
Main Heat Loop Circulator Pumps (3)	B&G	Size 1531	Circulator Pumps	15 HP, 3 Phase, 208 volts	Boiler Room	Various		For CB boilers
Pool Boiler	Bryan	F650-WP-G1 (S/N 81616)	Pool Heater	Input - 650/325 MBH, output - 520 MBH Propane - max input: 260 CFH, max output: 130 CFH	Pool Mech Room	1998		Propane fired with circulator pump
Pool Heat Loop Circulator Pump	Aurora	344BF	Circulator Pump		Pool Mech Room			For pool boiler
Pool Filter Pump					Pool Mech Room			
Well Pump								Controlled by pressure switch
Compressor #1	Ingersol-Rand		Air Compressor		Boiler Room			Serving Shop Wing
Compressor #2	Speedaire	4ME98	Air Compressor	5 HP	Boiler Room			Serving Pneumatics
Diesel Shop Compressor				10 Hp motor	Diesel Shop			In corner of Diesel Shop
Water Heater #1	Slant/Fin	Liberty L-60-P	Domestic Hot Water Boiler	364 Btu/hr (input) 2.6 gpg oil	Boiler Room			Water Temp. @ 170 °F Water Pressure @ 20 psi
Water Heater #2	Slant/Fin	Liberty L-60-P	Domestic Hot Water Boiler	364 Btu/hr (input) 2.6 gpg oil	Boiler Room			Water Temp. @ 140 °F Water Pressure @ 15 psi
Emergency Generator	Cummins	DGFA-5690529 (S/N H 040685664)	Emergency Generator	150 kW				Diesel
Heat Exchanger	Exothermics-Eclipse, Inc.	Model 4000AL S/N 797432A	Energy Recovery System	Exhaust Fan 3-Hp 81.5%				- Doesn't work - Drawings show 2 units, 3000 CFM each, 70% EFF min. - Exhaust blower 6,000 CFM, 3 HP.
R.T.#1	Lennox		Package Rooftop Unit		Library			Programable Thermostat AC set to 67 degrees
R.T.#2	Lennox		Package Rooftop Unit		Library			Programable Thermostat AC set to 67 degrees
R.T.#3	Lennox		Package Rooftop Unit		Board Office			Has electric heat capability
R.T.#4	Lennox		Package Rooftop Unit		Accounting			Has electric heat capability
R.T.#5	Lennox	CHA16-653-54	Package Rooftop Unit	3/4 Hp blower	Main Office	May-94		
R.T.#6	Lennox	LCA120SN1Y	Package Rooftop Unit	3/4 Hp blower	Rm#145			CADD Room 1 compressor, R22, economizer
R.T.#7	Lennox	LCA120SN1Y	Package Rooftop Unit	3/4 Hp blower	Rm#144			Graphic Arts Room 1 compressor, R22, economizer

New Jersey BPU Energy Audit Program
CHA #20151
Sussex County Technical School
Main Building

Description	Manufacturer Name	Model No.	Equipment Type	Capacity/Size	Location	Date Installed	Useable Life Expectancy	Other Info.
R.T.#8	Lennox	LCA180SN1Y	Package Rooftop Unit	3 Hp blower	Rm#136			Science Room 3 compressors, R22
R.T.#9	Dectron		Pool Dehumidifier and Heat Unit	> 5tons	Pool	1969		
R.T.#10	Lennox	CHA15-653-3Y (S/N 5488J01944)	Central Cooling Air Conditioner	Indoor Blower: 3/4 Hp Outdoor Fan: 1/4 Hp	Kitchen Roof			R22: 9 lb, 4 oz (SHUTDOWN?)
R.T.#11	Trane	TCD181C30ACA (S/N 531101531D)			Bake Shop	Aug-05		2 compressors (Broken)
Split System AC	Trane	TTA120B300BA	Condensing Unit		Bakery	Jun-94		2 compressors (R22) Programable Thermostat
HVAC	Trane	Climate Changer K115250	HVAC Unit		Main Office and Guidance			R12
HVAC	York	K4E0090A33A (NOE7793…)	HVAC Unit		Weight Room	2007		Can also heat, no baseboard heating in room.
HVAC	AAF	H2060HVZA (S/N 470396-01)	HVAC Unit		Above Walkin Refrigerator			
HVAC	Air Flow	CCT-8A20-UD (S/N 016HB068)	HVAC Unit		Rm#143			Liebert Cabinet AC
HVAC			HVAC Unit		Diesel Shop (in tool room)			Not operational during audit
Split System AC	Fujitsu		Package Rooftop Unit		Rm#213			
Split System AC	Fujitsu		Package Rooftop Unit		Rm#215			
Split System AC	Fujitsu?		Package Rooftop Unit		Rm#217			
Split System AC	Fujitsu	ADU30CLX (S/N DEN00764)	Condensing Unit	30,300 Btu/hr	End of New Wing (Rm#117)			R410A
Split System AC	EMI	DF011D0AAUA	Condensing Unit		Front of Building, Rm#102			R22
Split System AC	Lennox	11524-411-1P	Condensing Unit		Faculty Break Rm#126	Apr-92		Uses R22
Split System AC	Lennox	LSA0906-14 (S/N 5698J01242)	Condensing Unit		Cosmotology Rm#127			1 compressor, uses R22
Air Handler	Trane	BTA090300M8			Cosmo Rm#111	Jul-88		
Air Handler	Trane	SUW-503A (S/N OF12373)	Standalone Air Handler		Staff Dining Room			
R.T. Heat Unit #1		120-BHW-4-A (S/N 971234669)		1.5 Hp	Gym	Dec-97		Gym heating through walls
R.T. Heat Unit #2		120-BHW-4-A (S/N 971234670)		1.5 Hp	Gym	Dec-97		Gym heating through walls
Window AC Units (4)	Various	Various	Window AC	Various	Various			
56" Ceiling Fans (4)	Grainger	4C855A	Ceiling Fan		Gym			
Exhaust Fans #1-5			Roof Exhaust Fans		Kitchen and Cafeteria			2 of 5 were operating
Exhaust Fans #6-11			Roof Exhaust Fans		2nd floor of Old Wing			3 of 6 were operating
Exhaust Fans #12-18			Roof Exhaust Fans		Gym and Shop Wing			4 of 7 were operating

New Jersey BPU Energy Audit Program
CHA #20151
Sussex County Technical School
Main Building

Description	Manufacturer Name	Model No.	Equipment Type	Capacity/Size	Location	Date Installed	Useable Life Expectancy	Other Info.
Exhaust Fans #19-25			Roof Exhaust Fans		Gym boys/girls rooms			5 of 7 were operating
Exhaust Fans #26-34			Roof Exhaust Fans		Shop wing			5 of 9 were operating
Exhaust Fans #39-54			Roof Exhaust Fans		Roof			
Exhaust Fan	Dayton	6K123BA	Roof Exhaust Fan		Pool			
Exhaust Fan			Roof Exhaust Fan		New Wing			
Exhaust Fan			Roof Exhaust Fan		Boys and Girls Locker Rm#14			
Exhaust Fan 1A			Roof Exhaust Fan		Bake Shop			
Dust Collector			Dust Collector		Carpentry Shop			
Unit Heater	Dayton		Overhead Door Heater		Rm#136			Small electric unit
Unit Heater	Nesbitt		Ceiling Heater		Girls gym locker			
Unit Heater			Ceiling Heater		Room 141			For classroom inside Diesel Shop
Unit Heaters (4)			Ceiling Heater		Room 141			- Diesel Shop. Tied into boilers. - 3 on durin visit, 1 broken & to be repaired. - Fans work for circulation.
Unit Heaters (6)			Ceiling Heater		Room 142			Autoshop
K.H.#1			Kitchen Hood		Kitchen Fryer			4' x 9.5'
K.H.#2			Kitchen Hood		Culinary Range			4' x 7'
K.H.#3			Kitchen Hood		Center Island			10' x 7'
K.H.#4			Kitchen Hood		Covection Ovens			14' x 4'
K.H.#5			Kitchen Hood		Stove Bake Shop			3' x 8'
K.H.#6			Kitchen Hood		Staff Kitchen			3' x 15.5'
Walk-in Refrigerator and Freezer Units	Various	Various	Refrigerator and Freezer Units	Various	Kitchen, Bake Shop and Staff Dining	Various		
Gas fired boiler Super Steamer	Vulcan-Hart	VHL2E			Kitchen			6 psi pressure steam cooker, 35 watts
Steamer	Southbend	ECX-6S (S/N 42258-80-3870)			Kitchen			
Hot water tank			Hot water tank	50 gallons, 208 volt, 12 kW	Kitchen			
Dishwasher hot water booster			Dishwasher hot water booster	54 kW	Kitchen			
Ice Machine	ICE-O-MATIC				Kitchen			
Kettle	Vulcan-Hart	Velt-40			Kitchen			
Refrigerator (2)			Vitamin water		Kitchen			
Vending			Dasani water (sm)		Kitchen			Not used
Vending			Icecream		Cafeteria			
Vending			Coffee		Cafeteria			
Vending			Snacks		Cafeteria			
Vending			Dasani water (lg)		Cafeteria			
Vending			Snapple		Cafeteria			
Refrigerator			Snapple (sm)		Staff Dining			

New Jersey BPU Energy Audit Program
CHA #20151
Sussex County Technical School
Main Building

Description	Manufacturer Name	Model No.	Equipment Type	Capacity/Size	Location	Date Installed	Useable Life Expectancy	Other Info.
Refrigerator			Cashier's Display		Staff Dining			
Gas fired dryers (2)					Laundry Room			
Washing Machine #1			Large laundry washing machine		Laundry Room			
Washing Machine #2			Small laundry washing machine					
Educational Shop Equipment	Various	Various	Auto lifts, welders, wood shop equipment, autoshop equipment and compressors	Various	Various	Various		

Energy Audit of Sussex County Technical School Facilities

CHA Project No. 20151 Main Building

Existing Lighting

Cost of Electricity: $0.146 $/kWh

$6.63 $/kW

Field Code	Area Description	No. of Fixtures	Standard Fixture Code	NYSERDA Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Retrofit Control	Annual kWh	Notes
		EXISTING CONDITIONS									
	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	Retrofit control device	(kW/space) * (Annual Hours)	
	Main Building - Interior										
202	Room 100	2	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2808	OCC	185	
202	Room 100	4	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2808	None	371	
202	Room 100	4	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2808	OCC	371	
202	Room 100	3	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2808	OCC	278	
46	Room 100	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	None	168	
46	Room 100	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	OCC	337	
238	Room 100	8	DC 32 P F 2	F42LL	60	0.5	SW	2808	OCC	1,348	
46	Room 101	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	OCC	337	
202	Room 101	2	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2808	OCC	185	
46	Room 101	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	None	505	
46	Room 101	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	None	674	
46	Room 102	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	None	674	
46	Room 102	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	None	674	
46	Room 102	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	None	674	
202	L:ibrary	4	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2808	C-OCC	371	
202	L:ibrary	4	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2808	C-OCC	371	
202	L:ibrary	4	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2808	C-OCC	371	
202	Room 105	45	2T 17 R F 4 (ELE)	F22ILL	33	1.5	SW	2808	C-OCC	4,170	Needs two occ sensors (TC)
46	Room 105	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	C-OCC	1,011	
46	Room 106	9	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	None	1,516	
46	Room 106	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	None	1,348	
46	Room 106	9	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	None	1,516	
46	Room 106	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	OCC	168	
46	Room 106	1	W 32 C F 2 (ELE)	F42LL	60	0.1	Breaker	8760	None	526	
202	Room 106	2	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2808	OCC	185	
202	Room 106	2	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2808	OCC	185	
46	Room 106	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	OCC	505	
46	Room 106	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	None	1,853	
46	Room 106	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	None	1,853	
70	Room 107	4	W 32 C F 1	F41LL	32	0.1	SW	2808	None	359	
46	Room 108	24	W 32 C F 2 (ELE)	F42LL	60	1.4	SW	2808	None	4,044	
35	Gift Shop	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	1000	None	540	
46	Room 109	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	None	1,348	
46	Room 109	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	None	674	
46	Room 109	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	None	1,685	
46	Room 109	68	W 32 C F 2 (ELE)	F42LL	60	4.1	SW	2808	None	11,457	
46	Mens #1	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	None	499	
46	Womens #1	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	None	374	
46	Room 111	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	OCC	337	
46	Room 111	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	OCC	1,011	
46	Room 111	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	OCC	168	
46	Room 111	9	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	OCC	1,516	
46	Room 111	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	OCC	1,853	
46	Room 111	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	OCC	1,853	
46	Room 111	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	OCC	1,853	
46	Room 111	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	OCC	1,011	
46	Room 112	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	OCC	842	
46	Room 112	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	OCC	842	
46	Room 112	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	OCC	842	
46	Room 112	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	OCC	842	
46	Room 113	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	OCC	842	
46	Room 113	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	OCC	842	
46	Room 113	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	OCC	842	
46	Room 113	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	OCC	842	
46	Room 114	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	OCC	505	

		EXISTING CONDITIONS									
Field Code	Area Description Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of Fixtures No. of fixtures before the retrofit	Standard Fixture Code "Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	NYSERDA Fixture Code Code from Table of Standard Fixture Wattages	Watts per Fixture Value from Table of Standard Fixture Wattages	kW/Space (Watts/Fixt) * (Fixt No.)	Exist Control Pre-inst. control device	Annual Hours Estimated annual hours for the usage group	Retrofit Control Retrofit control device	Annual kWh (kW/space) * (Annual Hours)	Notes
46	Room 115	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	None	1,853	
46	Room 115	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	None	1,853	
46	Room 115	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	None	1,853	
46	Room 115	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	None	1,853	
46	Room 115	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	OCC	505	
46	Room 116	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	OCC	337	
46	Room 117	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	OCC	1,685	
46	Room 117	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	OCC	1,685	
46	Room 117	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	OCC	168	
46	Room 117	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	OCC	337	
46	Vestibule near Room 117	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	3744	None	449	
46	Vestibule near Room 117	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	3744	None	899	
46	Room 118	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	None	1,685	
46	Room 118	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	None	1,685	
46	Room 118	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	None	1,685	
46	Room 118	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	None	1,685	
46	Room 119A	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	OCC	842	
46	Room 119A	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	OCC	842	
46	Room 119A	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	OCC	842	
46	Room 119A	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	OCC	842	
46	Room 119B	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	OCC	1,685	
46	Room 119B	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	OCC	1,685	
46	Room 119B	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	OCC	1,685	
46	Room 119B	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	OCC	1,685	
46	Room 123	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	OCC	674	
46	Room 123	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	OCC	674	
46	Room 123	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	OCC	674	
46	Room near 123	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	OCC	674	
35	Room 124	26	T 32 R F 3 (ELE)	F43ILL/2	90	2.3	SW	2808	None	6,571	
35	Room 124	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	2808	OCC	505	
46	Mens # 2	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	None	499	
46	Womens #2	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	None	499	
202	Office	8	2T 17 R F 4 (ELE)	F22ILL	33	0.3	SW	2600	None	686	
46	Office	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2600	None	312	
x1	near 125	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	None	13	
35	Room 125	21	T 32 R F 3 (ELE)	F43ILL/2	90	1.9	SW	2808	None	5,307	
46	Room 125	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	None	168	
46	Room 125	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	None	337	
46	Room 126	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	OCC	1,011	
46	Room 126	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	OCC	1,011	
46	Room 126	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	OCC	1,011	
46	Room 127	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	OCC	168	
46	Room 127	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	OCC	1,853	
46	Room 127	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	OCC	1,853	
46	Room 127	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	OCC	1,853	
46	Room 127	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	OCC	168	
46	Mens #3	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	None	374	
46	Womens #3	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	None	374	
46	Stairway	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	3744	None	1,123	
98	Hallway near Room 100	50	T 32 R F 2	F42LL	60	3.0	SW	3744	None	11,232	
x1	Hallway near Room 100	3	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	None	39	
70	Hall near Room 125 and 124	14	W 32 C F 1	F41LL	32	0.4	SW	3744	None	1,677	
70	Stairs	4	W 32 C F 1	F41LL	32	0.1	SW	3744	None	479	
46	Hall near Room 117	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	3744	None	899	
70	Hallway near Room 112	46	W 32 C F 1	F41LL	32	1.5	SW	3744	None	5,511	
x2	Hallway near Room 112	3	XX 3.0 W CF 2	ELED1.5/2	3	0.0	Breaker	8760	None	79	
232	Area Between Room 127 and Gym	5	R 100 C I 1	i100/1	100	0.5	SW	3744	OCC	1,872	
x1	Area Between Room 127 and Gym	3	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	None	39	
98	Area Between Room 127 and Gym	12	T 32 R F 2	F42LL	60	0.7	SW	3744	OCC	2,696	
18	Area Between Room 127 and Gym	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	3744	OCC	1,258	

Field Code	Area Description	No. of Fixtures	Standard Fixture Code	NYSERDA Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Retrofit Control	Annual kWh	Notes
	EXISTING CONDITIONS										
	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	Retrofit control device	(kW/space) * (Annual Hours)	
18	Area Between Room 127 and Gym	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	SW	3744	OCC	419	
18	Area Between Room 127 and Gym	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	Breaker	8760	None	981	
18	Area Between Room 127 and Gym	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	SW	3744	OCC	419	
x1	Gym Lobby	3	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	None	39	
98	Gym Lobby	22	T 32 R F 2	F42LL	60	1.3	SW	3650	OCC	4,818	
235	Gym Offices	4	R 75 C Q 1	h75/1	75	0.3	SW	3650	OCC	1,095	
235	Gym Offices	4	R 75 C Q 1	h75/1	75	0.3	SW	3650	OCC	1,095	
235	Gym Offices	4	R 75 C Q 1	h75/1	75	0.3	SW	3650	OCC	1,095	
235	Gym Offices	6	R 75 C Q 1	h75/1	75	0.5	SW	3650	OCC	1,643	
235	Gym Offices	6	R 75 C Q 1	h75/1	75	0.5	SW	3650	OCC	1,643	
x1	Gym	4	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	None	53	
9	Gym	24	High Bay MH 400 35 Feet High	MH400/1	458	11.0	SW	3650	None	40,121	
46	Aux Gym	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	3650	None	876	
46	Aux Gym	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	3650	None	876	
46	Aux Gym	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	3650	None	876	
46	Aux Gym	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	3650	None	438	
232	Aux Gym	3	R 100 C I 1	i100/1	100	0.3	SW	3650	None	1,095	
46	Gym - Boys	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	3650	OCC	438	
50	Gym - Boys	2	W 32 W F 2 (ELE) Pull Chain (500 hrs.)	F42LL	60	0.1	SW	3650	OCC	438	
46	Gym - Boys	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	3650	OCC	219	
46	Gym - Boys	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	3650	OCC	438	
46	Gym - Boys	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	3650	None	1,533	
98	Gym - Boys	8	T 32 R F 2	F42LL	60	0.5	SW	3650	None	1,752	
46	Gym - Girls	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	3650	OCC	438	
50	Gym - Girls	2	W 32 W F 2 (ELE) Pull Chain (500 hrs.)	F42LL	60	0.1	SW	3650	OCC	438	
46	Gym - Girls	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	3650	OCC	219	
46	Gym - Girls	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	3650	OCC	438	
46	Gym - Girls	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	3650	None	1,533	
98	Gym - Girls	8	T 32 R F 2	F42LL	60	0.5	SW	3650	None	1,752	
46	Next to Gym - Boys	9	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	3650	OCC	1,971	
227	Next to Gym - Boys	1	W60CF1	F81EL	60	0.1	SW	3744	OCC	225	
105	Entrance Near Pool	6	W 32 F 1	F41LL	32	0.2	SW	3744	OCC	719	
105	Hallway Near Pool	11	W 32 F 1	F41LL	32	0.4	Breaker	8760		3,084	
x1	Hallway Near Pool	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	None	13	
x1	Hallway Near Gym	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	None	13	
98	Hallway Near Gym	14	T 32 R F 2	F42LL	60	0.8	SW	3744	None	3,145	
46	Washroom	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	None	374	
46	Basement Mechanical Room	14	W 32 C F 2 (ELE)	F42LL	60	0.8	SW	3744	None	3,145	
46	Maintenance Storage	6	W 32 C F 2 (ELE)	F42LL	60	0.4	Breaker	8760	None	3,154	
98	Room 132	9	T 32 R F 2	F42LL	60	0.5	SW	2808	OCC	1,516	
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	OCC	1,685	
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	OCC	1,685	
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	OCC	1,685	
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	OCC	1,685	
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	OCC	1,685	
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	OCC	1,685	
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	OCC	1,685	
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	OCC	1,685	
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	OCC	1,685	
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	OCC	1,685	
98	Room 132	10	T 32 R F 2	F42LL	60	0.6	SW	2808	OCC	1,685	
x1	Room 132	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	None	13	
98	Room 132	4	T 32 R F 2	F42LL	60	0.2	SW	2808	None	674	
98	Room 132	2	T 32 R F 2	F42LL	60	0.1	SW	2808	OCC	337	
98	Room 132	2	T 32 R F 2	F42LL	60	0.1	SW	2808	OCC	337	
46	Room 133	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	OCC	337	
98	Room 134	10	T 32 R F 2	F42LL	60	0.6	SW	2808	OCC	1,685	
98	Room 134	10	T 32 R F 2	F42LL	60	0.6	SW	2808	OCC	1,685	
98	Room 134	10	T 32 R F 2	F42LL	60	0.6	SW	2808	OCC	1,685	
98	Room 134	10	T 32 R F 2	F42LL	60	0.6	SW	2808	OCC	1,685	

		EXISTING CONDITIONS									
	Area Description	No. of Fixtures	Standard Fixture Code	NYSERDA Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Retrofit Control	Annual kWh	
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	Retrofit control device	(kW/space) * (Annual Hours)	Notes
98	Room 134	8	T 32 R F 2	F42LL	60	0.5	SW	2808	OCC	1,348	
98	Room 134	8	T 32 R F 2	F42LL	60	0.5	SW	2808	OCC	1,348	
98	Room 134	8	T 32 R F 2	F42LL	60	0.5	SW	2808	OCC	1,348	
98	Room 134	10	T 32 R F 2	F42LL	60	0.6	SW	2808	OCC	1,685	
98	Room 134	10	T 32 R F 2	F42LL	60	0.6	SW	2808	OCC	1,685	
98	Room 134	10	T 32 R F 2	F42LL	60	0.6	SW	2808	OCC	1,685	
98	Room 134	10	T 32 R F 2	F42LL	60	0.6	SW	2808	OCC	1,685	
239	Room 134	4	R 150 C I 1	i150/1	150	0.6	SW	2808	None	1,685	On Occupancy Sensor
232	Room 134	5	R 100 C I 1	i100/1	100	0.5	SW	2808	None	1,404	On Occupancy Sensor
x1	Room 134	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	None	13	
70	Room 134	2	W 32 C F 1	F41LL	32	0.1	SW	2808	OCC	180	
98	Room 134	6	T 32 R F 2	F42LL	60	0.4	SW	2808	OCC	1,011	
98	Room 134	2	T 32 R F 2	F42LL	60	0.1	SW	2808	OCC	337	
98	Room 134	2	T 32 R F 2	F42LL	60	0.1	SW	2808	OCC	337	
46	Room 135	12	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	OCC	2,022	
46	Room 135	12	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	OCC	2,022	
46	Room 135	12	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	OCC	2,022	
46	Room 135	12	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	OCC	2,022	
46	Room 135	12	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	OCC	2,022	
x1	Room 135	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	None	13	
46	Room 135	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	OCC	1,348	
46	Room 135	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	OCC	674	
46	Room 135	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	OCC	337	
46	Room 135	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	None	674	
46	Room 136	15	W 32 C F 2 (ELE)	F42LL	60	0.9	SW	2808	OCC	2,527	
202	Room 136	8	2T 17 R F 4 (ELE)	F22ILL	33	0.3	SW	2808	OCC	741	
46	Room 136	24	W 32 C F 2 (ELE)	F42LL	60	1.4	SW	2808	OCC	4,044	
46	Room 136	14	W 32 C F 2 (ELE)	F42LL	60	0.8	SW	2808	OCC	2,359	
98	Room 136	4	T 32 R F 2	F42LL	60	0.2	SW	2808	None	674	
98	Room 136	6	T 32 R F 2	F42LL	60	0.4	SW	2808	C-OCC	1,011	Ceiling Occupancy
46	Science Storage	9	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	1000	OCC	540	
46	Bathroom Near Room 136	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2080	OCC	250	SAME SWITCH
202	Bathroom Near Room 136	2	2T 17 R F 4 (ELE)	F22ILL	33	0.1	SW	2080	OCC	137	
231	Bathroom Near Room 136	2	R 60 C I 1	I60/1	60	0.1	SW	2080	None	250	Low to no use
98	Wash Room / Janitor Closet	4	T 32 R F 2	F42LL	60	0.2	SW	2080	OCC	499	
98	Room 139	8	T 32 R F 2	F42LL	60	0.5	SW	2808	OCC	1,348	
98	Room 139	2	T 32 R F 2	F42LL	60	0.1	SW	2808	None	337	
98	Room 139	2	T 32 R F 2	F42LL	60	0.1	SW	2808	None	337	
98	Room 139	6	T 32 R F 2	F42LL	60	0.4	SW	2808	None	1,011	
98	Room 139	12	T 32 R F 2	F42LL	60	0.7	SW	2808	OCC	2,022	
98	Room 139	12	T 32 R F 2	F42LL	60	0.7	SW	2808	OCC	2,022	
98	Room 139	12	T 32 R F 2	F42LL	60	0.7	SW	2808	OCC	2,022	
98	Room 139	12	T 32 R F 2	F42LL	60	0.7	SW	2808	OCC	2,022	
x1	Room 139	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	None	13	
98	Room 140	14	T 32 R F 2	F42LL	60	0.8	SW	2808	OCC	2,359	
98	Room 140	14	T 32 R F 2	F42LL	60	0.8	SW	2808	OCC	2,359	
98	Room 140	14	T 32 R F 2	F42LL	60	0.8	SW	2808	OCC	2,359	
98	Room 140	14	T 32 R F 2	F42LL	60	0.8	SW	2808	OCC	2,359	
x1	Room 140	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	None	13	
18	Room 140	10	T 32 R F 4 (ELE)	F44ILL	112	1.1	SW	2808	OCC	3,145	
98	Room 140	4	T 32 R F 2	F42LL	60	0.2	SW	2808	None	674	
98	Room 140	6	T 32 R F 2	F42LL	60	0.4	SW	2808	None	1,011	
98	Room 141	7	T 32 R F 2	F42LL	60	0.4	SW	2808	OCC	1,179	
98	Room 141	7	T 32 R F 2	F42LL	60	0.4	SW	2808	OCC	1,179	
98	Room 141	5	T 32 R F 2	F42LL	60	0.3	SW	2808	OCC	842	
98	Room 141	11	T 32 R F 2	F42LL	60	0.7	SW	2808	OCC	1,853	
98	Room 141	10	T 32 R F 2	F42LL	60	0.6	SW	2808	OCC	1,685	
98	Room 141	11	T 32 R F 2	F42LL	60	0.7	SW	2808	OCC	1,853	
98	Room 141	11	T 32 R F 2	F42LL	60	0.7	SW	2808	OCC	1,853	
98	Room 141	7	T 32 R F 2	F42LL	60	0.4	SW	2808	OCC	1,179	

		EXISTING CONDITIONS									
	Area Description	No. of Fixtures	Standard Fixture Code	NYSERDA Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Retrofit Control	Annual kWh	
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	Retrofit control device	(kW/space) * (Annual Hours)	Notes
98	Room 141	11	T 32 R F 2	F42LL	60	0.7	SW	2808	OCC	1,853	
98	Room 141	11	T 32 R F 2	F42LL	60	0.7	SW	2808	OCC	1,853	
98	Room 141	11	T 32 R F 2	F42LL	60	0.7	SW	2808	OCC	1,853	
98	Room 141	13	T 32 R F 2	F42LL	60	0.8	SW	2808	OCC	2,190	
x1	Room 141	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	None	13	
98	Room 141 - Locker Room	6	T 32 R F 2	F42LL	60	0.4	SW	2808	OCC	1,011	
98	Room 141 - Class Room	8	T 32 R F 2	F42LL	60	0.5	SW	2808	OCC	1,348	
46	Room 141 - Tool Room	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	OCC	674	
98	Room 141 - Tool Room	6	T 32 R F 2	F42LL	60	0.4	SW	2808	OCC	1,011	
98	Room 141 - Storage	10	T 32 R F 2	F42LL	60	0.6	SW	2808	None	1,685	
46	Room 142	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	1000	OCC	420	
46	Room 142	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	OCC	1,179	
46	Room 142	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	OCC	1,179	
46	Room 142	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	OCC	1,179	
46	Room 142	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	OCC	1,179	
46	Room 142	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	OCC	1,179	
46	Room 142	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	OCC	1,179	
x1	Room 142	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	None	13	
46	Room 142	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	OCC	674	
46	Room 142	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	OCC	337	
46	Room 142	2	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	OCC	337	
46	Room 142	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	OCC	1,348	
18	Room 143	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	SW	2808	None	1,887	
18	Room 143	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	SW	2808	OCC	2,830	
18	Room 143	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2808	OCC	3,774	
18	Room 143	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2808	OCC	3,774	
18	Room 143	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2808	OCC	3,774	
18	Room 143	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2808	OCC	3,774	
18	Room 143	14	T 32 R F 4 (ELE)	F44ILL	112	1.6	SW	2808	OCC	4,403	
x1	Room 143	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	None	13	
46	Room 144	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	OCC	842	
46	Room 144	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	OCC	842	
46	Room 144	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	OCC	842	
46	Room 144	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	OCC	842	
46	Room 144	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	OCC	842	
46	Room 144	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	OCC	1,011	
46	Room 144	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	OCC	842	
x1	Room 144	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	None	13	
46	Room 145	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	OCC	842	
46	Room 145	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	OCC	842	
46	Room 145	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	OCC	842	
46	Room 145	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	OCC	842	
46	Room 145	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	OCC	842	
98	Hall between Room 144 and 145	8	T 32 R F 2	F42LL	60	0.5	SW	2808	None	1,348	
x1	Hall between Room 144 and 145	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	None	13	
98	Hall between Room 142 and 136	27	T 32 R F 2	F42LL	60	1.6	SW	3744	None	6,065	
x1	Hall between Room 142 and 136	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	None	13	
98	Hall around Room 139	12	T 32 R F 2	F42LL	60	0.7	SW	3744	None	2,696	
x1	Hall around Room 139	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	None	13	
98	Hall by Room 141	12	T 32 R F 2	F42LL	60	0.7	SW	3744	None	2,696	
x1	Hall by Room 141	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	None	13	
98	Vestibule by Room 136	1	T 32 R F 2	F42LL	60	0.1	SW	3744	None	225	
8	Pool Boiler Room	4	MH 175	MH175/1	215	0.9	SW	3744	None	3,220	
70	Pool Boiler Room	8	W 32 C F 1	F41LL	32	0.3	SW	2080	None	532	
70	Pool Room Men's	1	W 32 C F 1	F41LL	32	0.0	SW	2080	OCC	67	
70	Pool Room Women's	1	W 32 C F 1	F41LL	32	0.0	SW	2080	OCC	67	
10	Pool Pod Up- Lighting	15	High Bay MH 1000 50 Feet High	MH1000/1	1080	16.2	Sw	2080	None	33,696	(5) Pool Multiple Lamp Up-Lighting Pods
9	Pool Pod Up- Lighting	10	High Bay MH 400 35 Feet High	MH400/1	458	4.6	Sw	2080	None	9,526	
46	Room 201	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	None	1,179	
46	Room 201	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	None	1,179	

Field Code	Area Description	No. of Fixtures	Standard Fixture Code	NYSERDA Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Retrofit Control	Annual kWh	Notes
		EXISTING CONDITIONS									
	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	Retrofit control device	(kW/space) * (Annual Hours)	
46	Room 201	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	None	1,179	
46	Room 202	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	None	1,179	
46	Room 202	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	None	1,179	
46	Room 202	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	None	1,179	
46	Room 203	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	None	1,179	
46	Room 203	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	None	1,179	
46	Room 203	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	None	1,179	
46	Room 204	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	None	1,179	
46	Room 204	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	None	1,179	
46	Room 204	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	None	1,179	
46	Room 205	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	None	842	
46	Room 205	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	None	842	
46	Room 205	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	None	842	
46	Room 206	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	OCC	842	
46	Room 206	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	OCC	842	
46	Room 206	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	OCC	842	
46	Room 207	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	OCC	1,853	
46	Room 207	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	OCC	1,853	
46	Room 207	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	OCC	1,853	
98	Room 207	1	T 32 R F 2	F42LL	60	0.1	SW	2808	OCC	168	
46	Room 207	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	OCC	842	
46	Room 207	1	W 32 C F 2 (ELE)	F42LL	60	0.1	SW	2808	OCC	168	
46	Room 208	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	OCC	1,853	
46	Room 208	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	OCC	1,853	
46	Room 208	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	OCC	1,853	
98	Room 208	1	T 32 R F 2	F42LL	60	0.1	SW	2808	OCC	168	
46	Room 208	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	OCC	842	
x1	Second Floor Hallway	2	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	None	26	
98	Second Floor Hallway	28	T 32 R F 2	F42LL	60	1.7	SW	3744	None	6,290	
46	Stairway	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	3744	None	1,348	
46	Second Floor Men's	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	None	374	
46	Second Floor Women's	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	None	374	
231	Second Floor Wet Closet	2	R 60 C I 1	I60/1	60	0.1	SW	2808	OCC	337	
46	Room 209	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	OCC	1,685	
46	Room 209	10	W 32 C F 2 (ELE)	F42LL	60	0.6	SW	2808	OCC	1,685	
46	Room 210	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	OCC	842	
46	Room 210	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	OCC	842	
46	Room 210	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	OCC	842	
46	Room 210	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	OCC	842	
46	Room 211	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	OCC	842	
46	Room 211	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	OCC	842	
46	Room 211	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	OCC	842	
46	Room 211	5	W 32 C F 2 (ELE)	F42LL	60	0.3	SW	2808	OCC	842	
46	Room 212A and 212B	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	OCC	1,853	
46	Room 212A and 212B	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	OCC	1,853	
46	Room 212A and 212B	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	OCC	1,853	
46	Room 212A and 212B	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	OCC	1,853	
46	Room 213	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	OCC	1,853	
46	Room 213	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	OCC	1,853	
46	Room 213	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	OCC	1,853	
46	Room 213	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	2808	OCC	1,853	
81	Room 213	3	S 34 C F 2	F42EE	72	0.2	SW	2808	OCC	607	
46	Room 214	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	OCC	1,348	
46	Room 214	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	OCC	1,348	
46	Room 214	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	OCC	1,348	
46	Room 214	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	OCC	1,348	
46	Room 215	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	OCC	1,179	
46	Room 215	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	OCC	1,179	
46	Room 215	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	OCC	1,179	
46	Room 215	7	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	OCC	1,179	

	EXISTING CONDITIONS										
Field Code	Area Description	No. of Fixtures	Standard Fixture Code	NYSERDA Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Retrofit Control	Annual kWh	Notes
	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	Retrofit control device	(kW/space) * (Annual Hours)	
46	Room 217	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	OCC	1,348	
46	Room 217	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	OCC	1,348	
46	Room 217	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	OCC	1,348	
46	Room 217	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	2808	OCC	1,348	
46	Room 218a	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	OCC	505	
46	Room 218a	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	OCC	505	
46	Room 218a	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	OCC	505	
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	OCC	1,011	
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	OCC	1,011	
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	OCC	1,011	
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	OCC	1,011	
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	OCC	1,011	
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	OCC	1,011	
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	OCC	1,011	
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	OCC	1,011	
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	OCC	1,011	
46	Room 218b	6	W 32 C F 2 (ELE)	F42LL	60	0.4	SW	2808	OCC	1,011	
70	Stairs between 214 and 215	3	W 32 C F 1	F41LL	32	0.1	SW	2808	None	270	
46	Between 215 and 216	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2808	None	674	
46	Between 215 and 216	11	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	3744	OCC	2,471	
70	Stairs at 219	4	W 32 C F 1	F41LL	32	0.1	SW	3744	None	479	
176	Hallway	23	1T 32 R F 2 (ELE)	F42LL	60	1.4	SW	3744	None	5,167	
x1	Hallway	1	X 1.5 W LED	ELED1.5/1	1.5	0.0	Breaker	8760	None	13	
x2	Hallway	2	XX 3.0 W CF 2	ELED1.5/2	3	0.0	Breaker	8760	None	53	
46	Men's	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	None	374	
46	Women's	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	2080	None	374	
	Main Building - Exterior										
141	Old Wing	4	HPS 250	HPS250/1	295	1.2	Timer	2600	None	3,068	Photo Cell as well
229	Outside	8	WP200 I 1	i200/1	200	1.6	Timer	2600	None	4,160	Photo Cell as well
237	New Wing - South Wing	1	WP 400 Po HPS	hps400/1	465	0.5	Timer	2600	None	1,209	Photo Cell as well
141	New Wing - South Wing	1	HPS 250	HPS250/1	295	0.3	Timer	2600	None	767	Photo Cell as well
229	New Wing - South Wing	6	WP200 I 1	i200/1	200	1.2	Timer	2600	None	3,120	Photo Cell as well
141	Light Pole	9	HPS 250	HPS250/1	295	2.7	Timer	2600	None	6,903	Photo Cell as well
236	New - East Wall	1	MV 250	mv250/1	290	0.3	Timer	2600	None	754	Photo Cell as well
141	New - East Wall	1	HPS 250	HPS250/1	295	0.3	Timer	2600	None	767	Photo Cell as well
236	New - North Wall	2	MV 250	mv250/1	290	0.6	Timer	2600	None	1,508	Photo Cell as well
229	New - North Wall	2	WP200 I 1	i200/1	200	0.4	Timer	2600	None	1,040	Photo Cell as well
229	Board of Foyer	2	WP200 I 1	i200/1	200	0.4	Timer	2600	None	1,040	Photo Cell as well
236	New - West Wall	5	MV 250	mv250/1	290	1.5	Timer	2600	None	3,770	Photo Cell as well
240	New - West Wall Flag Pole	1	R 250 Q 1	h250/1	250	0.3	Timer	2600	None	650	Photo Cell as well
236	New - West Wall Flag Pole	1	MV 250	mv250/1	290	0.3	Timer	2600	None	754	Photo Cell as well
229	New - West Wall Flag Pole	2	WP200 I 1	i200/1	200	0.4	Timer	2600	None	1,040	Photo Cell as well
236	Behind WT Room	1	MV 250	mv250/1	290	0.3	Timer	2600	None	754	Photo Cell as well
229	Behind WT Room	1	WP200 I 1	i200/1	200	0.2	Timer	2600	None	520	Photo Cell as well
45	Behind WT Room	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	Timer	2600	None	70	Photo Cell as well
236	Outside Pool	3	MV 250	mv250/1	290	0.9	Timer	2600	None	2,262	Photo Cell as well
65	Outside Pool	1	I 100	I100/1	100	0.1	Timer	2600	None	260	Photo Cell as well
141	South Side - Shop Wing	7	HPS 250	HPS250/1	295	2.1	Timer	2600	None	5,369	Photo Cell as well
141	East Side	2	HPS 250	HPS250/1	295	0.6	Timer	2600	None	1,534	Photo Cell as well
141	North Side	4	HPS 250	HPS250/1	295	1.2	Timer	2600	None	3,068	Photo Cell as well
229	South Side - Shop Wing	9	WP200 I 1	i200/1	200	1.8	Timer	2600	None	4,680	Photo Cell as well
229	East Side	6	WP200 I 1	i200/1	200	1.2	Timer	2600	None	3,120	Photo Cell as well
229	North Side	8	WP200 I 1	i200/1	200	1.6	Timer	2600	None	4,160	Photo Cell as well
230	North Side	2	WP400MH1	MH400/1	458	0.9	Timer	2600	None	2,382	Photo Cell as well
	Total	**2,803**				**214.9**				**616,522**	