LOCAL GOVERNMENT ENERGY AUDIT PROGRAM: ENERGY AUDIT REPORT

PREPARED FOR:

CAPE MAY TECHNICAL SCHOOL
188 CREST HAVEN ROAD
CAPE MAY COURT HOUSE, NJ 08210
ATTN: STEPHEN O' CONNOR
COUNTY ADMINISTRATOR

PREPARED BY:

CONCORD ENGINEERING GROUP
520 S. BURNT MILL ROAD
VOORHEES, NJ 08043
TELEPHONE: (856) 427-0200
FACSIMILE: (856) 427-6529
WWW.CEG-INC.NET

CEG CONTACT:

SAM DORIA
DIRECTOR OF COMMISSIONING
EMAIL: SDORIA@CEG-INC.NET

REPORT ISSUANCE: **FINAL, OCTOBER 8, 2010**

PROJECT NO: **9C10037**

Table of Contents

REPORT DISCLAIMER

The information contained within this report, including any attachment(s), is intended solely for use by the named addressee(s). If you are not the intended recipient, or a person designated as responsible for delivering such messages to the intended recipient, you are not authorized to disclose, copy, distribute or retain this report, in whole or in part, without written authorization from Concord Engineering Group, Inc., 520 S. Burnt Mill Road, Voorhees, NJ 08043.

This report may contain proprietary, confidential or privileged information. If you have received this report in error, please notify the sender immediately. Thank you for your anticipated cooperation.

I. EXECUTIVE SUMMARY

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

Cape May County Technical School
County of Cape May
4 Moore Road
Cape May Court House, NJ 08210

Municipal Contact Person: Stephen O'Conner
Facility Contact Person: James Owens

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

The annual energy costs at this facility are as follows:

Electricity	$362,689
#2 Fuel Oil	$17,658
Natural Gas	$228,726
Total	$609,073

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

Table 1
Financial Summary Table

ENERGY CONSERVATION MEASURES (ECM's)					
ECM NO.	**DESCRIPTION**	**NET INSTALLATION COST[A]**	**ANNUAL SAVINGS[B]**	**SIMPLE PAYBACK (Yrs)**	**SIMPLE LIFETIME ROI**
ECM #07-1	Lighting Upgrades	$29,250	$5,622	5.2	188.3%
ECM #07-2	Lighting Controls	$25,620	$7,517	3.4	340.1%
ECM #07-3	Install T-5 Lighting in Gyms	$12,930	$4,528	2.9	425.3%
ECM #07-4	Boiler Room 213 Condensing Boiler Installation	$131,000	$9,066	14.4	107.6%
ECM #07-5	Boiler Room 328 Condensing Boiler Installation	$161,000	$16,765	9.6	212.4%
ECM #07-6	Greenhouse Condensing Boiler Installation	$83,940	$7,322	11.5	161.7%
ECM #07-7	Boiler Room 115 Domestic Hot Water Upgrade	$46,000	$7,130	6.5	86.0%
ECM #07-8	Variable Speed Hot Water Heating Pumps	$21,132	$2,870	7.4	103.7%
ECM #07-9	Packaged Rooftop Unit Replacement	$22,677	$1,029	22.0	-31.9%
ECM #07-10	Condensing Unit Replacements	$51,792	$4,301	12.0	24.6%
ECM #07-11	Condensing Unit Heater Installation	$18,000	$1,085	16.6	-9.6%
ECM #07-12	Demand Control Ventilation	$106,000	$19,626	5.4	177.7%
ECM #07-13	Heating Ventilation Unit Controls	$750	$2,199	0.3	4298.0%
ECM #07-14	Premium Efficiency Motors	$8,134	$640	12.7	18.0%
ECM #07-15	MELINK Kitchen Exhaust	$22,563	$1,021	22.1	-32.1%
ECM #07-16	Walk-in Refigerator/ Freezer Controls	$5,600	$903	6.2	141.8%
ECM #07-17	Walk-in Refigerator/ Freezer Condensing Unit	$32,000	$3,024	10.6	41.8%

Notes: A. Cost takes into consideration applicable NJ Smart StartTM incentives.
B. Savings takes into consideration applicable maintenance savings.

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

Table 2
Estimated Energy Savings Summary Table

ENERGY CONSERVATION MEASURES (ECM's)					
ECM NO.	DESCRIPTION	ANNUAL UTILITY REDUCTION			
		ELECTRIC DEMAND (KW)	ELECTRIC CONSUMPTION (KWH)	NATURAL GAS (THERMS)	#2 FUEL OIL (GALLONS)
ECM #07-1	Lighting Upgrades	15.7	40,158.9	0.0	0.0
ECM #07-2	Lighting Controls	0.0	53,693.0	0.0	0.0
ECM #07-3	Install T-5 Lighting in Gyms	6.9	17,893.2	0.0	0.0
ECM #07-4	Boiler Room 213 Condensing Boiler Installation	0.0	0.0	6,126.0	0.0
ECM #07-5	Boiler Room 328 Condensing Boiler Installation	0.0	0.0	11,328.0	0.0
ECM #07-6	Greenhouse Condensing Boiler Installation	0.0	0.0	-7,003.0	7,431.0
ECM #07-7	Boiler Room 115 Domestic Hot Water Upgrade	0.0	0.0	4,818.0	0.0
ECM #07-8	Variable Speed Hot Water Heating Pumps	0.0	20,500.0	0.0	0.0
ECM #07-9	Packaged Rooftop Unit Replacement	5.3	7,350.0	0.0	0.0
ECM #07-10	Condensing Unit Replacements	0.0	30,720.0	0.0	0.0
ECM #07-11	Condensing Unit Heater Installation	0.0	0.0	1,606.0	0.0
ECM #07-12	Demand Control Ventilation	0.0	96,050.0	4,175.0	0.0
ECM #07-13	Heating Ventilation Unit Controls	0.0	15,710.0	0.0	0.0
ECM #07-14	Premium Efficiency Motors	1.0	4,570.0	0.0	0.0
ECM #07-15	MELINK Kitchen Exhaust	0.0	3,371.0	370.0	0.0
ECM #07-16	Walk-in Refigerator/ Freezer Controls	0.0	6,448.0	0.0	0.0
ECM #07-17	Walk-in Refigerator/ Freezer Condensing Unit	0.0	21,602.0	0.0	0.0

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

- **ECM #1:** Lighting Upgrades
- **ECM #2:** Lighting Controls
- **ECM #3:** Install T-5 Lighting in Gyms
- **ECM #5:** Boiler Room 328 Condensing Boiler Installation
- **ECM #7:** Boiler Room 115 Domestic Hot Water Upgrade
- **ECM #8:** Variable Speed Hot Water Pumps
- **ECM #12:** Demand Control Ventilation
- **ECM #13:** Heating Ventilation Unit Controls
- **ECM #16:** Walk in Refrigerator/Freezer Controls

Renewable energy measures were not considered for Cape May Technical High School due to the orientation of the building, shading factor and the amount of HVAC equipment on the roof.

CEG also performed a Combined Heat and Power (CHP) analysis for the Crest Haven Complex which included the Technical High School as well as other large user facilities in the county complex. Results of this analysis are included in this report in the Distributed Energy Measures section. The analysis shows the financial benefits of the system as a whole. Benefits to the Technical High School include chilled and hot water for heating and cooling, and generated electricity from the plant to offset grid purchased electricity.

In addition to the ECMs, there are maintenance and operational measures that can provide significant energy savings and provide immediate benefit. The ECMs listed above represent investments that can be made to the facility which are justified by the savings seen overtime. However, the maintenance items and small operational improvements below are typically achievable with on site staff or maintenance contractors and in turn have the potential to provide substantial operational savings compared to the costs associated. The following are recommendations which should be considered a priority in achieving an energy efficient building:

1. Chemically clean the condenser and evaporator coils periodically to optimize efficiency. Poorly maintained heat transfer surfaces can reduce efficiency 5-10%.
2. Maintain all weather stripping on entrance doors.
3. Clean all light fixtures to maximize light output.
4. Provide more frequent air filter changes to decrease overall system power usage and maintain better IAQ.

Overall, the Cape May Technical High School appears to be operating at a lower efficiency level compared to other high schools in the region. With the implementation of the above recommended measures, Cape May County can realize important energy savings at the Technical High School.

II. INTRODUCTION

This comprehensive energy audit covers the 241,084 SF Technical School, a single story facility comprised of various building trade shops (masonry, carpentry, plumbing, HVAC, etc.), classrooms, science labs, automotive/small engine shops, conference center, media center, administration offices, cafeteria, kitchen, and gymnasiums.

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

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

Existing building architectural and engineering drawings (where available) are utilized for additional background information. The building envelope, lighting systems, HVAC equipment, and controls information gathered from building drawings allow for a more accurate and detailed review of the building. The information is compared to the energy usage profiles developed from utility data. Through the review of the architectural and engineering drawings a building profile can be defined that documents building age, type, usage, major energy consuming equipment or systems, etc.

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

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

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

III. METHOD OF ANALYSIS

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

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

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

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

ECM Calculation Equations:

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

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

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

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

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

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

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

IV. HISTORIC ENERGY CONSUMPTION/COST

A. Energy Usage / Tariffs

The energy usage for the facility has been tabulated and plotted in graph form as depicted within this section. Each energy source has been identified and monthly consumption and cost noted per the information provided by the Owner.

The electric usage profile represents the actual electrical usage for the facility. Atlantic City Electric provides electricity to the facility under their Monthly General Service rate structure. The electric utility measures consumption in kilowatt-hours (KWH) and maximum demand in kilowatts (KW). One KWH usage is equivalent to 1000 watts running for one hour. One KW of electric demand is equivalent to 1000 watts running at any given time. The basic usage charges are shown as generation service and delivery charges along with several non-utility generation charges. Rates used in this report reflect the historical data received for the facility.

The heating oil usage profile shows the actual #2 oil usage for the facility. Riggins Oil provides oil to the facility based on market driven costs. The oil utility is measured in gallons. One gallon of #2 heating oil is equivalent to 140,000 BTUs of energy.

The gas usage profile shows the actual natural gas energy usage for the facility. South Jersey Gas provides natural gas to the facility under the Firm Transportation rate structure. The gas utility measures consumption in cubic feet x 100 (CCF), and converts the quantity into Therms of energy. One Therm is equivalent to 100,000 BTUs of energy.

The third party commodity providers for the utilities are Woodruff Energy for the natural gas and South Jersey Energy Company for the electricity. Commodity and delivery is billed separately for each respective utility service.

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

Description	Average
Electricity	14.0 ¢ / kWh
Natural Gas	$1.48 / Therm
#2 Fuel Oil	$2.38 / Gallon

Table 3
Electricity Billing Data

ELECTRIC USAGE SUMMARY

Utility Provider: Atlantic City Electric
Rate: Monthly General Service
Meter No: 35123928
Customer ID No: -
Third Party Utility S.J. Energy Co
TPS Meter / Acct No: 1165 5539 9991

MONTH OF USE	CONSUMPTION KWH	DEMAND	TOTAL BILL
Jan-10	168,215	598.3	$24,290
Feb-10	246,116	624.2	$33,668
Mar-10	202,302	625.6	$28,172
Apr-10	191,353	610.3	$26,933
May-10	227,325	689.4	$31,475
Jun-09	245,063	784.0	$34,249
Jul-09	189,631	825.9	$27,987
Aug-09	202,859	660.1	$28,711
Sep-09	208,627	759.9	$30,051
Oct-09	246,691	771.4	$34,259
Nov-09	203,651	667.0	$28,349
Dec-09	252,331	617.8	$34,545
Totals	**2,584,164**	**825.9 Max**	**$362,689**

AVERAGE DEMAND 686.2 KW average
AVERAGE RATE $0.140 $/kWh

Note: The billing period for April, 2009 was measured from April 6, 2009 to May 21, 2009 this extended metering period accounts for the spike in electrical usage plotted for this month.

Figure 1
Electricity Usage Profile

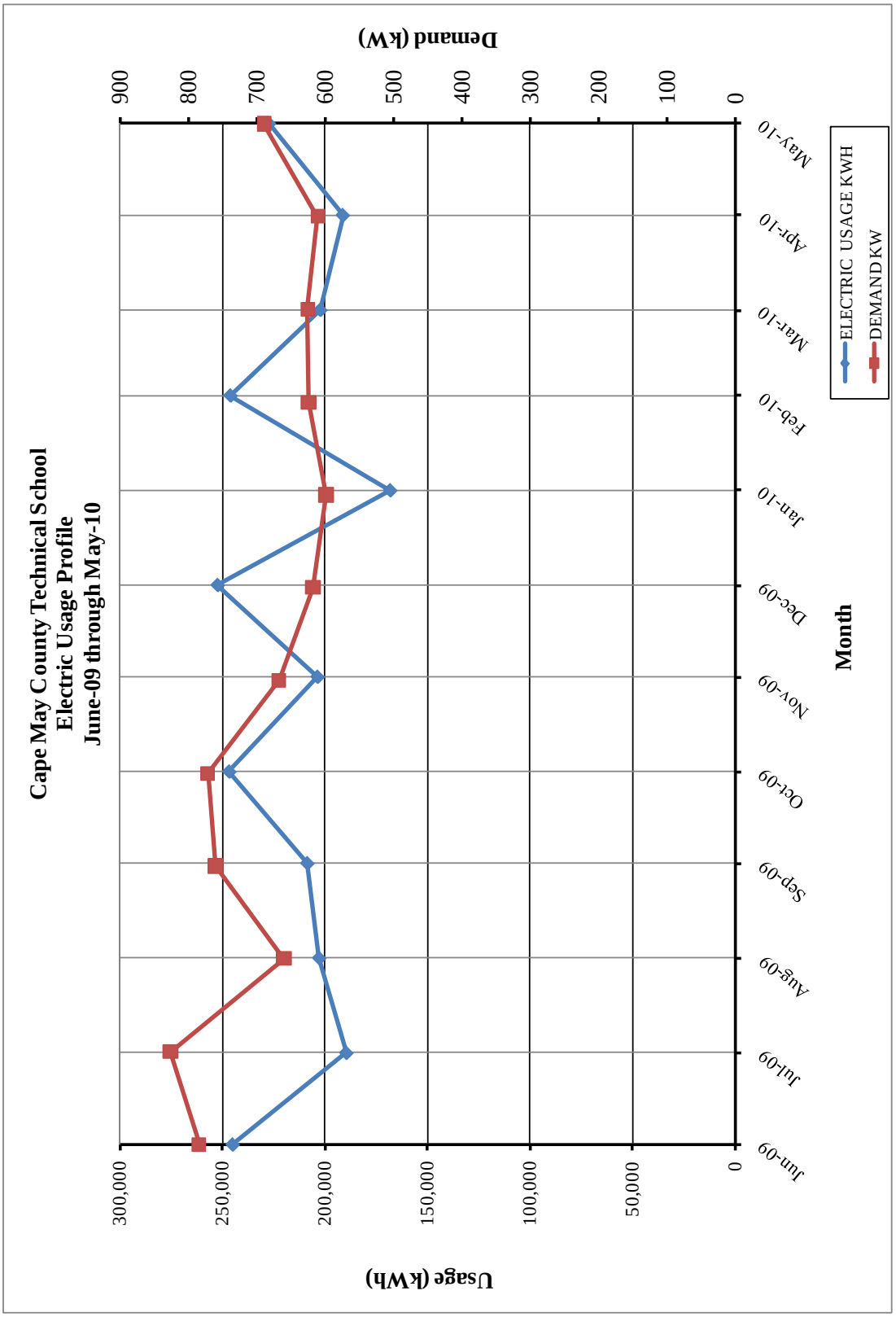


Table 4
Natural Gas Billing Data

NATURAL GAS USAGE SUMMARY		
Utility Provider:	South Jersey Gas	
Rate:	Firm Transportation	
Meter No:	197504, 4379388, 0455059, 0463306, 0341483, 0439871e, 0504592	
Point of Delivery ID:	-	
Third Party Utility Provider:	Woodruff Energy	
TPS Meter No:	-	
MONTH OF USE	**CONSUMPTION (THERMS)**	**TOTAL BILL**
Jun-09	5,900.55	$9,818.32
Jul-09	1,233.23	$2,091.55
Aug-09	590.30	$1,075.62
Sep-09	2,095.10	$3,550.44
Oct-09	7,849.98	$13,095.80
Nov-09	11,231.96	$18,597.65
Dec-09	23,448.46	$38,723.16
Jan-10	31,171.50	$43,050.12
Feb-10	31,788.82	$44,051.09
Mar-10	19,486.82	$27,035.88
Apr-10	11,688.19	$16,266.58
May-10	8,143.08	$11,370.21
TOTALS	**154,627.99**	**$228,726.42**
AVERAGE RATE:	**$1.48**	**$/THERM**

Figure 2
Natural Gas Usage Profile

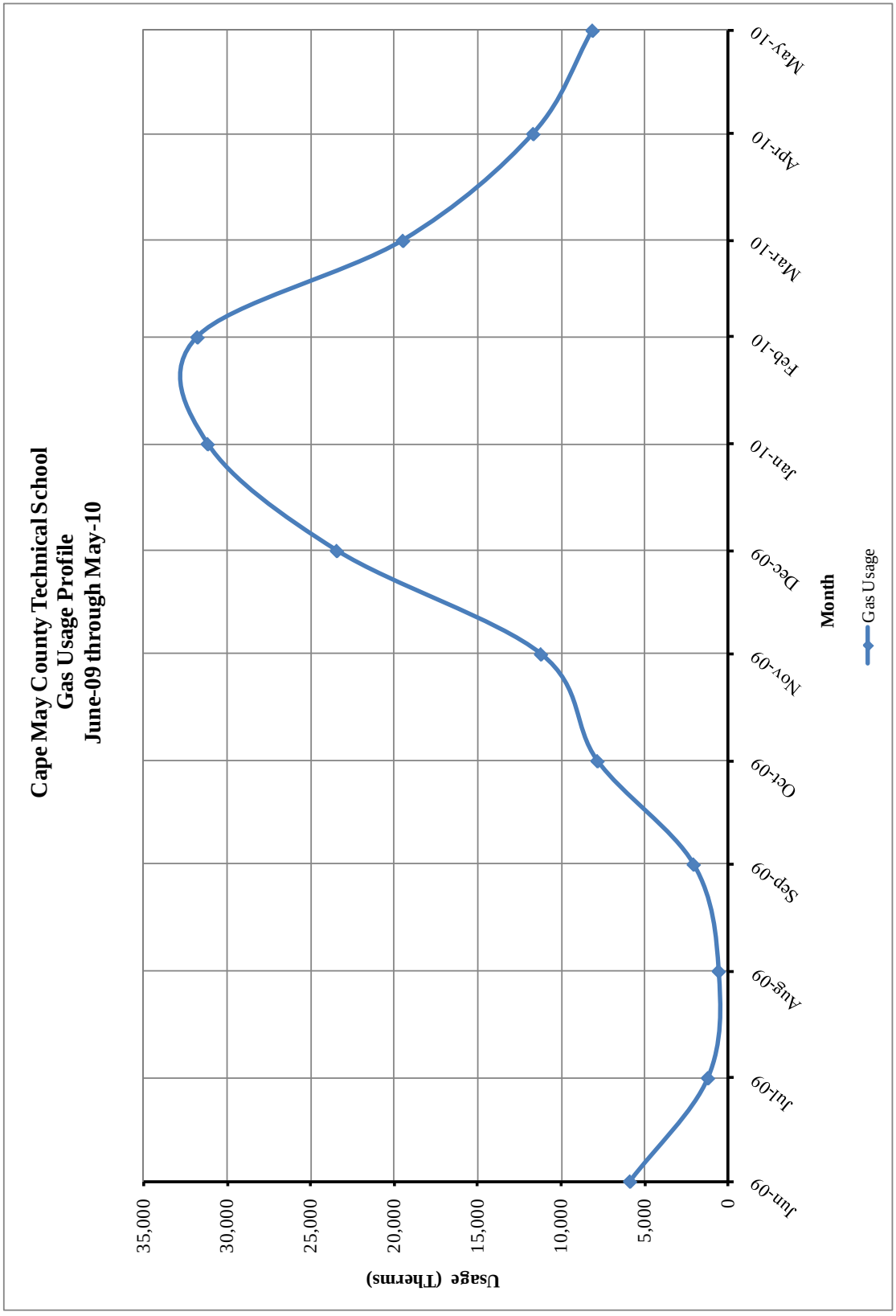
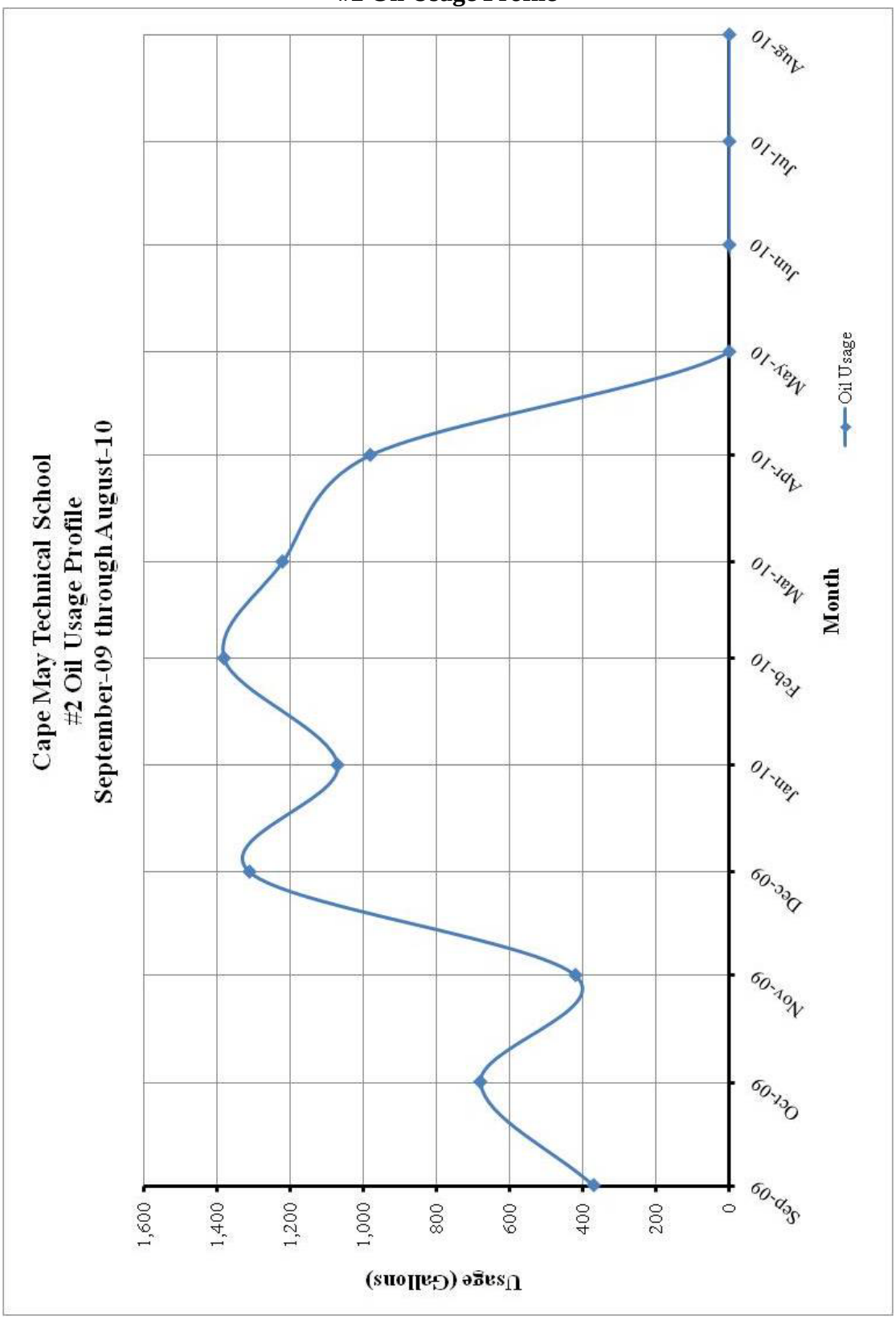


Table 5
#2 Oil Billing Data

#2 OIL USAGE SUMMARY		
Utility Provider:	Riggins Oil	
Rate:	Variable	
Meter No:		
Point of Delivery ID:		
Third Party Utility Provider:		
TPS Meter No:		
MONTH OF USE	**CONSUMPTION (GALLONS)**	**TOTAL BILL**
Sep-09	370	$773.53
Oct-09	680	$1,598.19
Nov-09	420	$961.59
Dec-09	1,310	$3,035.45
Jan-10	1,070	$2,649.99
Feb-10	1,380	$3,184.98
Mar-10	1,220	$2,961.66
Apr-10	980	$2,492.97
May-10	0	$0.00
Jun-10	0	$0.00
Jul-10	0	$0.00
Aug-10	0	$0.00
TOTALS	**7,431**	**$17,658.36**
AVERAGE RATE:	**$2.38**	**$/Gallaon**

Figure 3
#2 Oil Usage Profile



B. Energy Use Index (EUI)

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

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

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

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

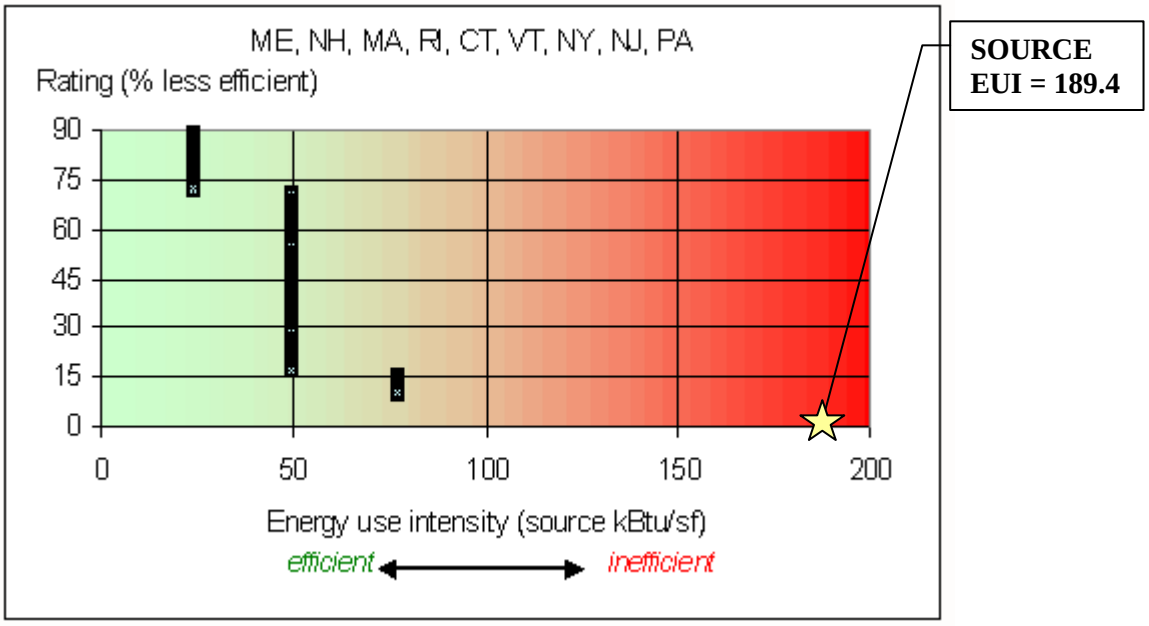
$$Building\ Source\ EUI = \frac{(Electric\ Usage\ in\ kBtu\ X\ SS\ Ratio + Gas\ Usage\ in\ kBtu\ X\ SS\ Ratio)}{Building\ Square\ Footage}$$

Table 6
Facility Energy Use Index (EUI) Calculation

ENERGY USE INTENSITY CALCULATION						
ENERGY TYPE	BUILDING USE			SITE ENERGY	SITE-SOURCE RATIO	SOURCE ENERGY
	kWh	Therms	Gallons	kBtu		kBtu
ELECTRIC	2584164.0			8,822,336	3.340	29,466,602
NATURAL GAS		154628.0		15,462,799	1.047	16,189,551
FUEL OIL			0.0	0	1.010	0
PROPANE			0.0	0	1.010	0
TOTAL				24,285,135		45,656,152
*Site - Source Ratio data is provided by the Energy Star Performance Rating Methodology for Incorporating Source Energy Use document issued Dec 2007.						
BUILDING AREA		241,084	SQUARE FEET			
BUILDING SITE EUI		*100.73*	kBtu/SF/YR			
BUILDING SOURCE EUI		*189.38*	kBtu/SF/YR			

Figure 4 below depicts a national EUI grading for the source use of High Schools.

Figure 4
Source Energy Use Intensity Distributions: High Schools



C. EPA Energy Benchmarking System

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

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

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

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

User Name: capemaytech
Password: lgeaceg2010

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

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

Table 6
ENERGY STAR Performance Rating

ENERGY STAR PERFORMANCE RATING		
FACILITY DESCRIPTION	**ENERGY PERFORMANCE RATING**	**NATIONAL AVERAGE**
Cape May Technical High School	13	50

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

V. FACILITY DESCRIPTION

The 241,084 SF Technical High School is a single story facility comprised of various building trade shops (masonry, carpentry, plumbing, HVAC, etc.), classrooms, science labs, automotive/small engine shops, conference center, media center, administration offices, cafeteria, kitchen, gymnasiums and auditorium. The original building was built in 1969 and consisted of several building trade shops and classrooms. In 1972, a culinary arts, health services, and classrooms were added. In 1979, classrooms, conference center, cosmetology, media center, additional construction trade shops, graphic arts, etc. were added. The 1993 addition consisted of a gym and several support spaces. The final addition in 2007 included a science wing, auxiliary gym and HVAC upgrades to numerous rooftops.

The building construction is CMU block with face brick. The exterior walls of the 1969, 1972 and 1979 sections have minimal insulation typical of the time period. It is unknown if the CMU blocks are filled. The 1993 addition has 4" rigid insulation under an EPDM white roof with 2" of rigid insulation and a 1¾ inch air space between 4" brick and 12" CMU. The 2007 addition has 3" rigid insulation under a SBS Mineral Cap sheet roof with 2 base felts along with 1" rigid insulation, 1¾ air space between 4' brick veneer and 12'CMU for the exterior walls. The windows throughout the facility are in good condition and appeared to be maintained. The window type throughout the facility is double thermopane, with aluminum frames and the exterior doors have 1" insulated glass with aluminum frames. Most doorways in the school are double doors with weather stripping that appears to be in good condition.

HVAC System

Most of the heating for the school is performed by hot water boilers located in each of the sections. Additional heating and cooling is achieved through gas-fired, direct expansion rooftop equipment. Smaller spaces are cooled by split condensing units and window air conditioning units.

The original 1969 facility is heated by three (3) Aerco Benchmark BMK-2.0 GWB modular condensing boilers (each rated at 2,000 MBH input and 1,720 to 1,840 MBH output). Hot water is distributed by two (2) 7.5HP Bell & Gossett centrifugal pumps with one pump as a standby unit. The 1979 addition is heated by two (2) Weil-McLain sectional, cast iron boilers (each rated at 4,690 MBH input and 3,770 output). Two (2) Armstrong centrifugal pumps (200 GPM at 60' TDH) distribute the hot water to the spaces. The 1993 gymnasium section is heated by a Weil-McLain 1494 Series 3 cast iron, sectional boiler (4,690 MBH input and 3,770 output) and includes two (2) 7.5 HP Bell & Gosett double-suction, centrifugal pumps (275 GPM at 50' TDH). The final addition in 2007 included two (2) Aerco KC-1000 GWB modular condensing boilers (each rated at 1,000 MBH input and 860 to 930 output) with two (2) 7.5 HP Bell & Gossett centrifugal pumps (150 GPM at 82' TDH).

The major rooftop units (10-tons or larger) include a 10-Ton Carrier 48TME012 gas-fired, DX cooling unit (114,000Btuh cooling and 144,000 Btuh heating), a 10-Ton Trane THC120A4 with electric heating (54 kW) and DX cooling, a 15-Ton Lennox LCA180 cooling only unit, two (2) 12.5-Ton Carrier Gemini Split 38ARD014 condensing units, a 12.5-Ton Lennox LCA150 cooling only unit, three (3) 25-Ton Trane RAUCC304 Condensing units, a 20-Ton Trane SFHF254 gas-fired, DX cooling unit (254,000 Btuh cooling and 289,000 Btuh heating), a 10-Ton Trane Precedent YHC120 gas-fired, DX unit (120,000 Btuh cooling and 200,000 Btuh heating), a 12.5-Ton Trane Voyager

TCD151 DX cooling only unit (151,000 Btuh cooling), four (4) gas-fired, make-up air units by Trane rated at 480,000, 400,000, 240,000, and 80,000 Btuh output respectively, and two (2) nominal 50-Ton Trane Intellipak SLHF554 DX cooling, hot water heating units. Numerous air handling units throughout the facility range from 2,000 CFM to 15,000 CFM and contain hot water coils and DX coils fed by rooftop condensers.

Exhaust System

Air is exhausted from the toilet rooms, lockers, shops, science labs and common areas through typical centrifugal roof exhaust fans. These fans are manually controlled by local disconnect switches at the individual fans or interlocked with the equipment that heats/cools or ventilates the space. The kitchen hood exhaust fan is also a typical centrifugal roof fan and controlled by a remote switch located in the kitchen area. This fan is only operated as needed. It was noted during the survey that several fans in unoccupied areas were operating.

HVAC System Controls

Currently, the HVAC systems are controlled via pneumatic and DDC control systems. Most equipment is controlled manually or by stand alone controllers integral to the equipment. A Johnson Controls Metasys DDC control system is used for all HVAC equipment installed during the 2007 additions and upgrades.

Domestic Hot Water

Domestic hot water for the original building is generated by a 1969 vintage A. O. Smith hot water heater (rated at 670 MBH input) with a 1,469 gallon storage tank, and four (4) circulation pumps. The new science wing addition has an A. O. Smith Cyclone hot water heater rated at 150 MBH input. The gym addition has a Bradford White hot water heater with 80-gallon capacity and an input of 200 MBH. The 300 Section uses the sectional boilers to produce domestic hot water thru a tank with a heat exchanger. Finally, the auxiliary gym has a Bradford White 48-gallon capacity hot water heater with an input of 65 MBH.

Lighting

Typical lighting throughout the facility is fluorescent tube fixtures with T-8 lamps and electronic ballasts. A small number of older T12 lamps with magnetic ballasts have been observed and are recommended for replacement. In addition, the exit signs with compact fluorescent lamps should be replaced with LED technology units. All lighting is manually controlled in the building with the exception of some areas within the new additions. See the **Investment Grade Lighting Audit Appendix** for details.

VI. MAJOR EQUIPMENT LIST

The equipment list is considered major energy consuming equipment and through energy conservation measures could yield substantial energy savings. The list shows the major equipment in the facility and all pertinent information utilized in energy savings calculations. An approximate age was assigned to the equipment in some cases if a manufactures date was not shown on the equipment's nameplate. The ASHRAE service life for the equipment along with the remaining useful life is also shown in the Appendix.

Refer to the **Major Equipment List Appendix** for this facility.

VII. ENERGY CONSERVATION MEASURES

ECM #07-1: LIGHTING UPGRADES

Description:

New fluorescent lamps and ballasts are available as direct replacements for the existing lamps and ballasts. A simple change from the old to the new can provide substantial savings. A typical drop-ceiling lay in fixture with four, 4-foot lamps (40 Watt lamps) has a total wattage of about 188 Watts. By retrofitting with new lamps, reflector and electronic ballasts the total wattage would be reduced to 91 Watts per fixture and the space light levels and light quality would increase by about 15% and 35%, respectively.

CEG recommends a replacement of the existing fixtures containing T12 lamps and magnetic ballasts with fixtures containing T8 lamps and electronic ballasts. The new energy efficient, T8 fixtures will provide adequate lighting and will save the Owner on electrical costs due to the better performance of the electronic ballasts. In addition to functional cost savings, the fixture replacement will also provide operational cost savings. The operational cost savings will be realized through the lesser number of lamps that will be required to be replaced per year. The expected lamp life of a T8 lamp, approximately 30,000 burn-hours, in comparison to the existing T12 lamps, approximately 20,000 burn-hours, will provide the Owner with fewer lamps to replace per year. Based on the operating hours of this facility, the owner will be changing approximately 33% less lamps per year.

Compact fluorescent lamps (CFL's) were created to be direct replacements for the standard incandescent lamps which are common to table lamps, spot lights, hi-hats, bathroom vanity lighting, etc. The light output of the CFL has been designed to resemble the incandescent lamp. The color rendering index (CRI) of the CFL is much higher than standard fluorescent lighting, and therefore provides a much "truer" light. The CFL is available in a myriad of shapes and sizes depending on the specific application. Typical replacements are: a 13-Watt CFL for a 40-Watt incandescent lamp, a 15-Watt CFL for a 60-Watt incandescent lamp, an 18-Watt CFL for a 75-Watt incandescent lamp, and a 23-Watt CFL for a 100-Watt incandescent lamp.

The CFL is also available for a number of "brightness colors" that is indicated by the Kelvin rating. A 2700K CFL is the "warmest" color available and is closest in color to the incandescent lamp. CFL's are also available in 3000K, 3500K, and 4100K. The 4100K would be the "brightest" or "coolest" output. A CFL can be chosen to screw right into your existing fixtures, or hardwired into your existing fixtures.

This ECM shall replace all T12 fixtures throughout the facility with new T8 fixtures. In addition, this ECM also replaces all incandescent lamps with their compact fluorescent equivalents.

Energy Savings Calculations:

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

NJ Smart Start® Program Incentives are calculated as follows:

From Appendix B, the replacement of a T-12 fixture to a T-5 or T-8 fixture warrants the following incentive: T-5 or T-8 (1-4 lamp) = $10 per fixture.

$$\text{Smart Start®}\ \textit{Incentive} = (\#\ \textit{of}\ 1-4\ \textit{lamp fixtures} \times\ \$10)$$

$$\text{Smart Start®}\ \textit{Incentive} = (307 \times\ \$10) = \$3{,}070$$

Energy Savings Summary:

ECM #07-1 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$32,320
NJ Smart Start Equipment Incentive ($):	$3,070
Net Installation Cost ($):	$29,250
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$5,622
Total Yearly Savings ($/Yr):	$5,622
Estimated ECM Lifetime (Yr):	15
Simple Payback	5.2
Simple Lifetime ROI	188.3%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$84,330
Internal Rate of Return (IRR)	18%
Net Present Value (NPV)	$37,865.07

ECM #07-2: LIGHTING CONTROLS

Description:

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

Lighting controls come in many forms. Sometimes an additional switch is adequate to provide reduced lighting levels when full light output is not needed. Occupancy sensors detect motion and will switch the lights on when the room is occupied. Occupancy sensors can either be mounted in place of a current wall switch, or on the ceiling to cover large areas.

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

- Occupancy Sensors for Lighting Control 10% - 20% energy savings.

Savings resulting from the implementation of this ECM for energy management controls are estimated to be 10% of the total light energy controlled by occupancy sensors and 10% to 20% of the total light energy controlled by daylight or combination of control technologies (savings vary depending on space type and conditions surveyed in the field. The majority of the savings is expected to be after school hours when rooms are left with lights on.

This ECM includes replacement of standard wall switches with sensors wall switches for all individual offices, classrooms, large bathrooms, and libraries. Sensors shall be manufactured by Sensorswitch, Watt Stopper or equivalent.

The **Investment Grade Lighting Audit Appendix** of this report includes the summary of lighting controls implemented in this ECM and outlines the proposed controls, costs, savings, and payback periods. The calculations adjust the lighting power usage by the applicable percent savings for each area that includes lighting controls.

Energy Savings Calculations:

$$Energy\ Savings = \left(10\% \times Occuapancy\ Sensored\ Light\ Energy\ \left(kWh/Yr\right)\right)$$

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

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

Wall Mounted Sensor =	$160/unit including material and labor.
2 Pole Power Pack w/Dual Tech. Occupancy Sensor =	$225/unit including material and labor.
Daylight Sensor/Dimming Ballast =	$280/Unit including material and labor.

See the **Investment Grade Lighting Audit Appendix** for details.

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

Occupancy Sensor Wall Mounted (existing facility only) = $20 per sensor.
Occupancy Sensor Remote Mounted (existing facility only) = $35 per sensor

$$\text{Smart Start®}\ Incentive = \left(\#\ of\ \ wall\ mount \times\ \$\ 20\right) + \left(\#\ of\ \ ceiling\ mount \times 35\right)$$
$$= \left(107 \times \$35\right) + \left(38 \times \$20\right) = \$4{,}505$$

Energy Savings Summary:

ECM #07-2 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$30,125
NJ Smart Start Equipment Incentive ($):	$4,505
Net Installation Cost ($):	$25,620
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$7,517
Total Yearly Savings ($/Yr):	$7,517
Estimated ECM Lifetime (Yr):	15
Simple Payback	3.4
Simple Lifetime ROI	340.1%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$112,755
Internal Rate of Return (IRR)	29%
Net Present Value (NPV)	$64,117.46

ECM #07-3: INSTALL T-5 LIGHTING SYSTEM IN BOTH GYMS

Description:

The existing Gymnasium and Auxiliary Gymnasium lighting systems comprise of a total of sixty-two (62) 400-Watt Metal-Halide (MH) fixtures which have poor lumen maintenance (approximately 30% reduction in lighting output at 40% of rated lamp life). Also, the fixture ballast can be very noisy, requiring up to 10 minutes for re-striking after shutdown, and there is a noticeable color shift as the lamp approaches the end of its life.

This ECM would replace each of the existing Gymnasium and Auxiliary Gymnasium light fixtures with new T-5 high-bay light fixtures which would include five, 4-foot T5 High Output (HO) lamps. The T-5 HO lamps are rated for 20,000 hours versus the 10,000 hours for the 400-Watt MH lamps so there would be a savings in replacement cost/labor. In addition, the T-5 HO lamps have better lighting quality and lumen maintenance.

The two (2) gyms are used 3,800 hours per year by the students (year round) and by the community an additional 900 hours per year. The existing fixtures use 465 Watts per fixture and the new 5-lamp, T-5 HO light fixtures will use 354 Watts per fixture.

Energy Savings Calculation:

The annual energy savings = 62 Fixtures x (465W – 354W) x 4,700 hours = 32,345 kWh
Energy Cost Savings = 32,345 kWh x $0.14/kWh = $7,302

The cost of the 5-lamp, 54W T-5 HO light fixture with specular reflector is $240 installed.

Total Cost = 62 Fixtures x $240/Fixture = $14,880

The SmartStart Building® incentive is $25 per fixture which equates to: $25 x 62 fixtures = $1,550

Net Installed Cost = $12,930

Energy Savings Summary:

ECM #07-3 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$14,480
NJ Smart Start Equipment Incentive ($):	$1,550
Net Installation Cost ($):	$12,930
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$4,528
Total Yearly Savings ($/Yr):	$4,528
Estimated ECM Lifetime (Yr):	15
Simple Payback	2.9
Simple Lifetime ROI	425.3%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$67,920
Internal Rate of Return (IRR)	35%
Net Present Value (NPV)	$41,124.97

ECM #07-4: BOILER ROOM 213 - CONDENSING BOILER INSTALLATION

Description:

The existing boiler for the 200 Section of the building is a Weil-McLain 1494 Series 3 sectional, cast iron boiler with an input of 4,691 MBH and an output of 3,770 MBH. This boiler was installed in 1993 to provide heating hot water for Section 200. New condensing boilers could substantially improve the operating efficiency of the heating system of the 200 section of the building. Condensing boiler's peak efficiency tops out at 99% depending on return water temperature. Due to the operating conditions of this section of the building, the annual average operating efficiency of the proposed condensing boiler is expected to be 88%. The existing boiler's thermal efficiency is approximately 75%, which makes the condensing boiler a 13% increase in efficiency. This ECM is based on variable supply water temperature adjusted based on outdoor temperature.

This ECM includes installation of two condensing gas-fired modular boilers to replace the existing sectional boiler located in Boiler Room 213. The basis for this ECM is Aerco Benchmark BMK-2.0LN condensing modular boiler or equivalent.

Energy Savings Calculations:

Existing HW Boiler:

Rated Output Capacity = 3,770 MBH natural gas

Combustion Efficiency = 80%
Radiation Losses = 5%
Thermal Efficiency = 75%

Replacement Boilers:

High Efficiency Condensing Modular Boilers (with Sequencing Control & O/A HW Reset)

Net Rated Capacity = 2,000 MBH Nat. Gas x 2 units = 4,000 MBH
Combustion Efficiency = 89%
Radiation Losses = 0.5%
Thermal Efficiency = 88.5%

Operating Data:

Heating Season Fuel Consumption = 40,160 Therms (based on gas billing data during heating season)

Average Cost of Natural Gas = $1.48/Therm

Operating Hours during Heating Season: 3,240 hrs
Energy Savings = Old Boiler Energy Input * ((New Boiler Efficiency – Old Boiler) / New Boiler Efficiency))

Energy Savings = 40,160 Therms x (0.885-0.75)
(0.885)
= 6,126 Therms

Cost Savings = Annual Energy Savings * $/Therm = 6,126 Therms * $1.48/Therm = $9,066

Installed cost of two (2) Aerco Benchmark BMK-2.0LN condensing modular boilers or equivalent (including removal of existing boiler) = $135,000.

From the **NJ Smart Start Appendix**, the installation of these new modular condensing boilers warrants the following incentive: $1.00 per MBH.

$$\text{Smart Start®}\ Incentive = (Boiler\ MBH \times \$1.00) = (4{,}000 \times \$1.00) = \$4{,}000$$

Energy Savings Summary:

ECM #07-4 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$135,000
NJ Smart Start Equipment Incentive ($):	$4,000
Net Installation Cost ($):	$131,000
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$9,066
Total Yearly Savings ($/Yr):	$9,066
Estimated ECM Lifetime (Yr):	30
Simple Payback	14.4
Simple Lifetime ROI	107.6%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$271,980
Internal Rate of Return (IRR)	6%
Net Present Value (NPV)	$46,697.60

ECM #07-5: BOILER ROOM 328 - CONDENSING BOILER INSTALLATION

Description:

The existing boilers for the 300 Section of the building are two (2) Weil-McLain No. 94 sectional, cast iron boilers with an input of 4,690 MBH and an output of 3,770 MBH. These two (2) boilers were installed in 1979 and are beyond the 30-year service life of a typical cast iron boiler as defined by ASHRAE. The equipment appears to be in poor operating condition. For boilers that have almost reached their useful life, it is difficult to predict the point at which the boiler becomes inoperable. With the increased efficiency of the condensing boilers, the savings can be substantial.

New condensing boilers could substantially improve the operating efficiency of the heating system of the 300 Section of the building. Condensing boiler's peak efficiency tops out at 99% depending on return water temperature. Due to the operating conditions of this section of the building, the annual average operating efficiency of the proposed condensing boiler is expected to be 88%. The existing boiler's thermal efficiency is approximately 70%, which makes the condensing boiler an 18% increase in efficiency. This ECM is based on variable supply water temperature adjusted based on outdoor temperature.

This ECM includes installation of two modular condensing gas-fired boilers to replace the existing sectional boilers located in Boiler Room 328. The basis for this ECM is Aerco Benchmark BMK-2.0LN condensing boiler or equivalent. The boiler installation is based on replacing one of the two existing sectional cast iron boilers and using the second boiler as a backup unit.

Energy Savings Calculations:

<u>One of the Existing HW Cast Iron Sectional Boilers:</u>

Rated Output Capacity = 3,770 MBH natural gas

Combustion Efficiency = 75%
Radiation Losses = 5%
Thermal Efficiency = 70%

<u>Replacement Boilers:</u>

High Efficiency Condensing Modular Boilers (with Sequencing Control & O/A HW Reset)

Net Rated Capacity = 2,000 MBH Nat. Gas x 2 units = 4,000 MBH
Combustion Efficiency = 89%
Radiation Losses = 0.5%
Thermal Efficiency = 88.5%

<u>Operating Data:</u>

Heating Season Fuel Consumption = 54,190 Therms (based on gas billing data during heating season)

Average Cost of Natural Gas = $1.48/Therm

Operating Hours during Heating Season: 3,240 hrs

Energy Savings = Old Boiler Energy Input * ((New Boiler Efficiency – Old Boiler) / New Boiler Efficiency))

Energy Savings = 54,190 Therms x $\frac{(0.885-0.70)}{(0.885)}$

= 11,328 Therms

Cost Savings = Annual Energy Savings * $/Therm = 11,328 Therms * $1.48/Therm = $16,765

Installed cost of two (2) Aerco Benchmark BMK-2.0LN condensing modular boilers or equivalent (including removal of existing boiler which will need to be completely disassembled) = $165,000.

From the **NJ Smart Start Appendix**, the installation of these new modular condensing boilers warrants the following incentive: $1.00 per MBH.

$$\text{Smart Start®}\ Incentive = (Boiler\ MBH \times \$1.00) = (4{,}000 \times \$1.00) = \$4{,}000$$

Energy Savings Summary:

ECM #07-5 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$165,000
NJ Smart Start Equipment Incentive ($):	$4,000
Net Installation Cost ($):	$161,000
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$16,765
Total Yearly Savings ($/Yr):	$16,765
Estimated ECM Lifetime (Yr):	30
Simple Payback	9.6
Simple Lifetime ROI	212.4%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$502,950
Internal Rate of Return (IRR)	10%
Net Present Value (NPV)	$167,601.40

ECM #07-6: GREENHOUSE - CONDENSING BOILER INSTALLATION

Description:

The existing boiler for the Greenhouse and Instructional Room is an oil-fired Weil-McLain PL-584-W-F cast iron boiler with a rated output capacity of 633 MBH when new. This boiler was installed in 1973 and is beyond the 30-year service life of a typical cast iron boiler as defined by ASHRAE. The equipment appears to be in very poor operating condition and is fired by #2 fuel oil. For a boiler that has surpassed its useful life, it is difficult to predict the point at which the boiler becomes inoperable. With the increased efficiency of a gas-fired condensing boiler, the savings can be substantial.

A new gas-fired condensing boiler could substantially improve the operating efficiency of the heating system of this building. Condensing boiler's peak efficiency tops out at 98% depending on return water temperature. Due to the operating conditions of this building, the annual average operating efficiency of the proposed condensing boiler is expected to be 89%. The existing boiler's thermal efficiency is approximately 60% (based on its age and condition), which makes the gas-fired condensing boiler a 29% increase in efficiency over the existing oil-fired boiler. This ECM is based on variable supply water temperature adjusted based on outdoor temperature.

This ECM includes installation of a condensing gas-fired modular boiler to replace the existing oil-fired boiler located in the Greenhouse Mechanical Room. The basis for this ECM is an Aerco Modulex Model No. MLX-606 gas-fired modular condensing boiler or equivalent. The boiler installation is based on replacing the existing cast iron boiler and running a gas line from the gas meter across the street.

Energy Savings Calculations:

<u>Existing HW Boiler:</u>

Rated Output Capacity = 633 MBH (#2 fuel oil)

Combustion Efficiency = 65%
Radiation Losses = 5%
Thermal Efficiency = 60%

<u>Replacement Boiler:</u>

High Efficiency Gas-Fired Condensing Modular Boiler (with Sequencing Control & O/A HW Reset)

Net Rated Capacity = 606 MBH Nat. Gas
Combustion Efficiency = 89%
Radiation Losses = 0.5%
Thermal Efficiency = 88.5%

Operating Data:

HIGH EFFICIENCY GAS BOILER CALCULATIONS			
ECM INPUTS	**EXISTING**	**PROPOSED**	**SAVINGS**
ECM INPUTS	Existing Cast Iron Boilers	New Condensing Boilers	
Fuel Oil Usage (Gallons)	7,431	0	
Natural Gas Usage (Therms)	0	7,003	
Boiler Efficiency (%)	60%	89%	29%
Fuel Heat Value (BTU/Fuel Unit)	139,000	100,000	
Equivalent Building Heat Usage (MMBTUs)	620	620	
Fuel Oil Cost ($/Gallon)	2.38	2.38	
Natural Gas Cost ($/Therm)	1.48	1.48	
ENERGY SAVINGS CALCULATIONS			
ECM RESULTS	**EXISTING**	**PROPOSED**	**SAVINGS**
Fuel Oil Usage (Gallons)	7,431	0	7,431
Natural Gas Usage (Therms)	0	7,003	-7,003
Energy Cost ($)	$17,686	$10,364	$7,322
COMMENTS:	Proposed Boiler Aerco Modulex Model No. MLX-606 gas-fired modular condensing boiler		

Installed cost of an Aerco Modulex Model No. MLX-606 gas-fired, modular, condensing boiler or equivalent (including removal of existing boiler and installation of natural gas line) = $85,000.

From the **NJ Smart Start Appendix**, the installation of this new modular condensing boiler warrants the following incentive: $1.75 per MBH.

$$\text{Smart Start®}\ \textit{Incentive} = (\textit{Boiler MBH} \times \$1.75) = (606 \times \$1.75) = \$1{,}060$$

Energy Savings Summary:

ECM #07-6 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$85,000
NJ Smart Start Equipment Incentive ($):	$1,060
Net Installation Cost ($):	$83,940
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$7,322
Total Yearly Savings ($/Yr):	$7,322
Estimated ECM Lifetime (Yr):	30
Simple Payback	11.5
Simple Lifetime ROI	161.7%
Simple Lifetime Maintenance Savings	0
Simple Lifetime Savings	$219,660
Internal Rate of Return (IRR)	8%
Net Present Value (NPV)	$59,574.43

ECM #07-7: BOILER RM 115 – DOMESTIC HOT WATER UPGRADE

Description:

The existing domestic hot water heater is a 1969 vintage A.O. Smith/Burkay Model BC 670 780 with 670,000 Btu/h input natural gas heater and an existing estimated 70% thermal efficiency. This model is considered a hot water boiler. It works in conjunction with a hot water storage tank and pumping system to maintain adequate domestic hot water temperature throughout the 100 section. This is a typical design seen throughout many schools in the State. Standby heat losses occur when large quantities of hot water are stored for long periods of time. The hot water boiler is responsible for maintaining the temperature in the storage tank at all times regardless if the system is calling for water. The boiler fires to overcome the standby heat losses in the storage tank, heating water that is not going to be used at that time. This style of system is inefficient and should be replaced.

This energy conservation measure will replace the existing natural gas-fired hot water generator and storage tank with four (4) tankless gas-fired water heaters by Noritz or equivalent. Installation will require the removal of the hot water generator and storage tank. Four (4) wall-mounted tankless water heaters and controller will be installed in place of the existing system.

Energy Savings Calculations:

Existing Natural Gas DHW Heater (1 unit)

Rated Capacity = 670 MBH input
Combustion Efficiency = 75%
Age & Radiation Losses = 5%
Thermal Efficiency = 70%
Flow Rate = 22.0 GPM

Proposed Natural Gas-Fired, Tankless DHW Heater (2 Units)

Rated Capacity = 380 MBH input each; total of 760 MBH
Thermal Efficiency = 80%
Total Peak Flow Rate = 26.4 GPM

DHW heater Operating Hrs/Day. = 6 Hrs.

DHW heater Operating Hrs/Yr. = 2,190 Hrs.

Annual Natural Gas Usage

Annual Gas Usage = GPM x 500 x ΔT x Operating Hrs

Annual Gas Usage = 22 GPM x 500 x 100°F x 2,190 Hrs = 2,409,000,000 Btu/Year

Annual Gas Usage = (2,409,000,000 Btu/Year) / 100,000 Btu/Therm = 24,090 Therms/Year

The above calculation represents the natural gas used for heating only the water being used in the school. This will remain the same with the tankless heater. The following calculation represents the annual savings from not maintaining the 20°F temperature rise of the hot water generator.

Annual Gas Savings = 22 GPM x 500 x 20°F x 2,190 Hrs = 481,800,000 Btu/Year

Annual Gas Savings = (481,800,000 Btu/Year) / 100,000 Btu/Therm = 4,818 Therms/Year

Existing Natural Gas Usage = 24,090 Therms/Year + 4,818 Therms/Year = 28,908 Therms/Year

Annual Gas Savings = 4,818 Therms/Year

Annual Cost Savings = 4,818 Therms/Year x $1.48/Therm = $7,130/Year

NJ Smart Start® Program Incentives are not currently available for this ECM.

The installed cost of two (2) Noritz Model NC380 Series ASME Tankless Water Heaters or equal with removal of the existing gas-fired hot water heater, tank, and piping along with the new piping, flues, controls, etc. is $46,000.

Energy Savings Summary:

ECM #07-7 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$46,000
NJ Smart Start Equipment Incentive ($):	$0
Net Installation Cost ($):	$46,000
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$7,130
Total Yearly Savings ($/Yr):	$7,130
Estimated ECM Lifetime (Yr):	12
Simple Payback	6.5
Simple Lifetime ROI	86.0%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$85,560
Internal Rate of Return (IRR)	11%
Net Present Value (NPV)	$24,972.05

ECM #07-8: VARIABLE SPEED HOT WATER HEATING PUMPS

Description:

Heating hot water for the 200 and 300 Sections of the building is distributed via two (2) 7.5 HP pumps and two (2) 5HP pumps respectively. The pumps operate 24 hours a day from October t thru April, during which only one pump is required to satisfy the building load, the pumps are alternated bi-weekly. The pumps are sized to supply constant volume flow at the maximum flow and head pressure to feed all of the required building zones under design conditions. But with a fixed speed circulating pump, the open zone valves will see an increase in flow, with a corresponding drop in heat transfer along with considerable velocity noise. In addition, because of the cast iron, sectional boilers, the higher return water temperatures will cause the boilers to short-cycle, reducing the boiler overall efficiency and consuming more natural gas.

This ECM would install four (4) variable speed controllers on the four (4) hot water pumps mentioned above with the appropriate temperature sensors and controls to vary the pump speed. The existing motors will be replaced with premium efficiency inverter duty capable motors.

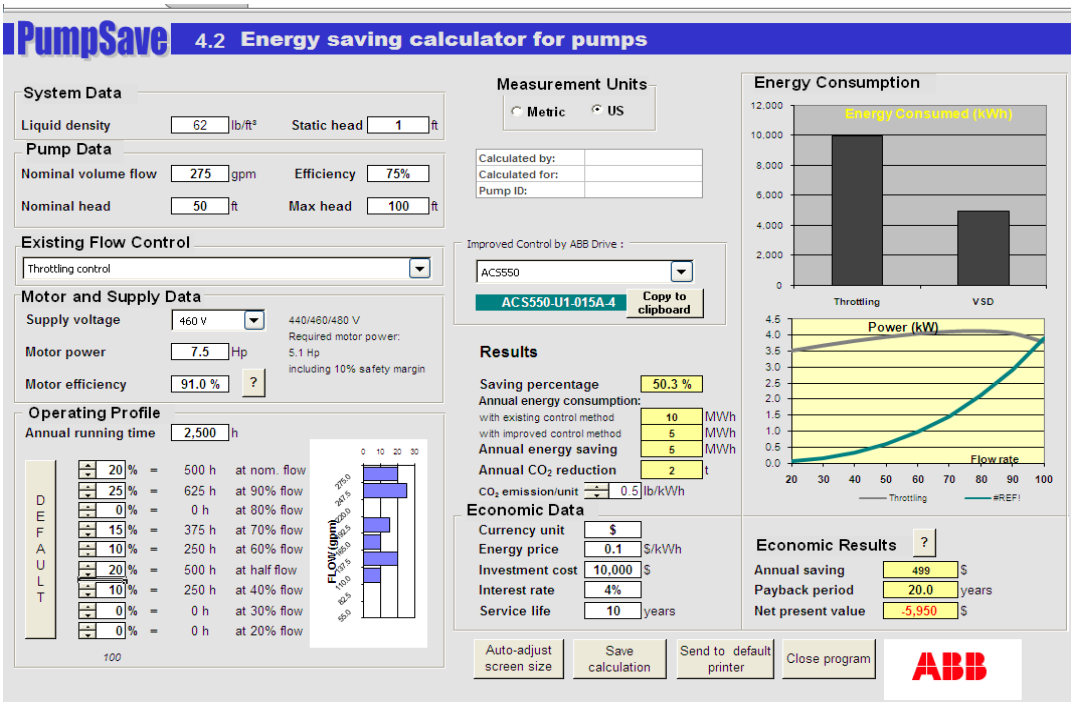
Energy Savings Calculations:

$$Cons.Volume\ Power(HP) = \frac{Specific\ Gravity \times Flow\ Rate\left(\frac{Gal}{\min}\right) \times Head(Ft)}{3960 \times Pump\ Efficiency(\%) \times Motor\ Efficiency(\%)}$$

$$Energy\ Cons.(kWh) = Power(HP) \times 0.746\left(\frac{KW}{HP}\right) \times Operation(Hrs.)$$

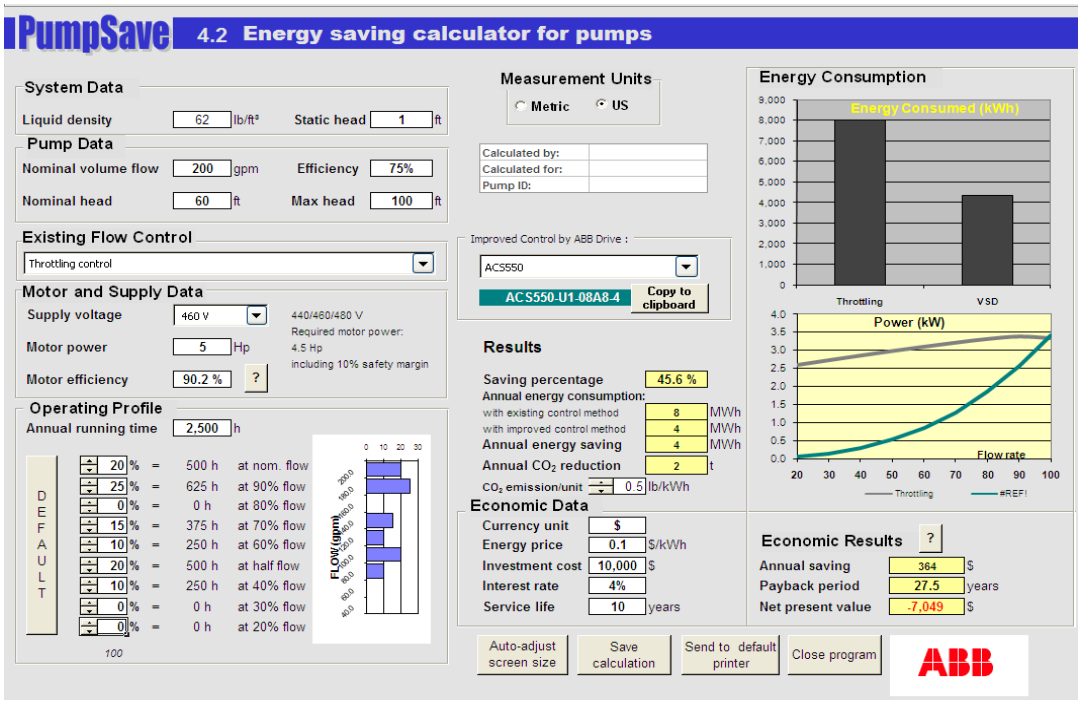
$$Energy\ Cost = Energy\ Usage(kWh) \times Ave\ Electric\ Cost\left(\frac{\$}{kWh}\right)$$

VFD Pumping Energy for 7.5 Horsepower Pumps:



BOILER HOT WATER PUMPS VFD CALULATION			
ECM INPUTS	**EXISTING**	**PROPOSED**	**SAVINGS**
ECM INPUTS	CV Pumps	VFD Pumps	
Flow Control	CV	VFD	
Flow (GPM)	275	275	
Head (Ft)	50	50	
Pump Efficiency (%)	75%	75%	
Motor Efficiency (%)	84%	91%	
Operating Hrs	2500	2500	
Elec Cost ($/kWh)	0.140	0.140	
ENERGY SAVINGS CALCULATIONS			
ECM RESULTS	**EXISTING**	**PROPOSED**	**SAVINGS**
Electric Energy (kWh)	10,279	4,800	5,479
Electric Energy Cost ($)	$1,439	$672	$767
COMMENTS:	VFD pump energy is based on ABB energy savings calculator for pumps, "Pump Save," version 4.2. Flow rate for VFD Pump calculation is summarized in the operating profile shown in the Pump Save output.		

VFD Pumping Energy for 5 Horsepower Pumps:



BOILER HOT WATER PUMPS VFD CALULATION			
ECM INPUTS	**EXISTING**	**PROPOSED**	**SAVINGS**
ECM INPUTS	CV Pumps	VFD Pumps	
Flow Control	CV	VFD	
Flow (GPM)	200	275	
Head (Ft)	60	50	
Pump Efficiency (%)	75%	75%	
Motor Efficiency (%)	84%	90%	
Operating Hrs	2500	2500	
Elec Cost ($/kWh)	0.140	0.140	
ENERGY SAVINGS CALCULATIONS			
ECM RESULTS	**EXISTING**	**PROPOSED**	**SAVINGS**
Electric Energy (kWh)	8,971	4,200	4,771
Electric Energy Cost ($)	$1,256	$588	$668
COMMENTS:	VFD pump energy is based on ABB energy savings calculator for pumps, "Pump Save," version 4.2. Flow rate for VFD Pump calculation is summarized in the operating profile shown in the Pump Save output.		

Installation cost for the four VFDs, four premium efficiency inverter motors, and controls is estimated to be $21,132.

Energy Savings Summary:

ECM #07-8 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$21,132
NJ Smart Start Equipment Incentive ($):	$0
Net Installation Cost ($):	$21,132
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$2,870
Total Yearly Savings ($/Yr):	$2,870
Estimated ECM Lifetime (Yr):	15
Simple Payback	7.4
Simple Lifetime ROI	103.7%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$43,050
Internal Rate of Return (IRR)	11%
Net Present Value (NPV)	$13,129.87

ECM #07-9: REPLACE TWO CARRIER PACKAGED ROOFTOP UNITS

Description:

The 200 Section of the facility has a Reception/Meeting and Nurse's Area that are heated/cooled by two (2) packaged Carrier units. The units are seventeen years old and are in poor condition having exceeded their service life of 15 years per ASHRAE. This energy conservation measure includes replacement of these two (2) rooftop units with high-efficiency gas-fired/DX cooling rooftop units.

The Owner should have a Professional Engineer verify heating and cooling loads prior to moving forward with this ECM.

Energy Savings Calculations:

Estimated Full Load Cooling Hours.	= 1,400 hrs/yr.
Average Cost of Electricity	= $0.14/kWh
Total Rated Cooling Capacity	= 10.5 Tons (Two Units)
Existing System Efficiency	= 8.0 EER
Proposed System Efficiency	= 12.0 EER

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

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

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

$$EnergySavings = \frac{10.5\ (Tons) \times 12{,}000\left(\frac{Btu}{Ton\ hr}\right)}{1000\left(\frac{Wh}{kWh}\right)} \times \left(\frac{1}{8\left(\frac{Btu}{W}\right)} - \frac{1}{12\left(\frac{Btu}{W}\right)}\right) \times 1{,}400\ hours$$

$= 7{,}350$ kWh

$$\text{Cooling Cost Savings} = 7{,}350\ (\text{kWh}) \times 0.14\left(\frac{\$}{\text{kWh}}\right) = \$1{,}029$$

Total installation cost for the 7.5-Ton and 3.0-Ton high-efficiency rooftop units including removal of existing is estimated at $23,500.

From the NJ Smart Start® Program appendix, the packaged unit replacement falls under the category "Electric Unitary HVAC" and warrants an incentive based on efficiency (EER) at or above 11.5. The program incentives are calculated as follows:

Central DX AC Systems

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

Energy Savings Summary:

ECM #07-9 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$23,500
NJ Smart Start Equipment Incentive ($):	$823
Net Installation Cost ($):	$22,677
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$1,029
Total Yearly Savings ($/Yr):	$1,029
Estimated ECM Lifetime (Yr):	15
Simple Payback	22.0
Simple Lifetime ROI	-31.9%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$15,435
Internal Rate of Return (IRR)	-4%
Net Present Value (NPV)	($10,392.86)

ECM #07-10: REPLACE TWELVE (12) SPLIT SYSTEM UNITS

Description:

There are twelve (12) 2-Ton split system condensing units on the roof that are beyond the service life of 15 years as recommended by ASHRAE. This ECM would replace these units with high-efficiency evaporators and condensing units.

Energy Savings Calculations:

Estimated Full Load Cooling Hours.	= 1,400 hrs/yr.
Average Cost of Electricity	= $0.14/kWh
Total Rated Cooling Capacity	= 24 Tons (Twelve units)
Existing System Efficiency	= 7.0 SEER (Units are 19+ years old & in poor condition)
Proposed System Efficiency	= 15.0 SEER

Cooling Savings Calculation:

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

$$EnergySavings = \frac{24\,(Tons)\times 12{,}000\left(\frac{Btu}{Ton\ hr}\right)}{1000\left(\frac{Wh}{kWh}\right)}\times\left(\frac{1}{7\left(\frac{Btu}{W}\right)}-\frac{1}{15\left(\frac{Btu}{W}\right)}\right)\times 1{,}400\ hours$$

$$= 30{,}720\ \text{kWh}$$

$$\text{Cooling Cost Savings} = 30{,}720\,(\text{kWh})\times 0.14\left(\frac{\$}{\text{kWh}}\right) = \$4{,}301$$

Total installation cost for the twelve (12) 2-Ton high-efficiency units is estimated at $54,000.

Energy Savings Summary:

ECM #07-10 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$54,000
NJ Smart Start Equipment Incentive ($):	$2,208
Net Installation Cost ($):	$51,792
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$4,301
Total Yearly Savings ($/Yr):	$4,301
Estimated ECM Lifetime (Yr):	15
Simple Payback	12.0
Simple Lifetime ROI	24.6%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$64,515
Internal Rate of Return (IRR)	0%
Net Present Value (NPV)	($446.94)

ECM #07-11: SCIENCE FISH ROOM 308 - CONDENSING UNIT HEATERS

Description:

The Science Wing Fish Room (1,200 SF) has a glass roof enclosure with two (2) hot water unit heaters mounted from the ceiling steel structure. These unit heaters were installed in 1979, are rated at approximately 80,000 Btuh output each and are used to keep the fish room at 70°F in the wintertime. The hot water is produced by the Weil McLain sectional boilers in Room 328 (70% thermal efficiency).

This ECM would upgrade this fish room greenhouse by installing more efficient gas-fired, condensing unit heaters rated at 91% thermal efficiency. Unit heaters with power venting, separated combustion and secondary condensing heat exchangers are the most efficient unit heaters on the market. The installation will require running gas lines from the nearest point, installation of venting and unit combustion air piping, and proper condensate drains.

Energy Savings Calculations:

ECM INPUT			
	EXISTING	**PROPOSED**	**SAVINGS**
Unit Heater Capacity, BTU/Hr	80,000	80,000	
Total Number of Units	2	2	
Heating System Efficiency	70%	90%	20%
Design Interior Temp	70	70	
Design Outdoor Temp	13	13	
Design Temperature Difference	57	57	
Heating Degree Days	5,073	5,073	
Fuel Cost per Unit ($/Therm)	$1.48		
ENERGY SAVINGS CALCULATIONS			
ECM RESULTS	**EXISTING**	**PROPOSED**	**SAVINGS**
Annual Energy Consumption, Therms	4,882	3,797	1,085
Annual Energy Cost	$7,226	$5,620	$1,606
COMMENTS:			

The cost of removing the two (2) existing units, running gas lines, vent and combustion air piping, two (2) Reznor condensing unit heaters (80,000 Btuh output each) or equal and controls is estimated to be $18,000.

NJ Smart Start® Program Incentives are not currently available for this ECM.

Energy Savings Summary:

ECM #07-11 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$18,000
NJ Smart Start Equipment Incentive ($):	$0
Net Installation Cost ($):	$18,000
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$1,606
Total Yearly Savings ($/Yr):	$1,606
Estimated ECM Lifetime (Yr):	15
Simple Payback	11.2
Simple Lifetime ROI	-9.6%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$16,275
Internal Rate of Return (IRR)	0%
Net Present Value (NPV)	$1,172.32

ECM #07-12: DEMAND CONTROLLED VENTILATION (DCV)

Description:

The existing HVAC units that serve the Main Gym, the Auxiliary Gym, Weight Room and Cafeteria were found to be running at design airflows even though the rooms were completely unoccupied during several site visits. The outside air volume is typically based on the maximum occupancy of the space conditioned. When a given space is not fully occupied the outside air quantity delivered to the space is greater than the amount needed for adequate ventilation.

Demand Controlled Ventilation (DCV) is a means to provide active, zone level control of ventilation for spaces within a facility. The basic premise behind DCV is monitoring indoor CO2 levels versus outdoor CO2 levels in order to provide proper ventilation to the spaces within the facility as well as saving costly dollars treating unconditioned ventilation air. Carbon dioxide ventilation control or demand controlled ventilation (DCV) allows for the measurement and control of outside air ventilation levels to a target cfm/person ventilation rate in the space (i.e., 15 cfm/person) based on the number of people in the space. It is a direct measure of ventilation effectiveness and is a method whereby buildings can regain active and automatic zone level ventilation control, without having to open windows. The fixed ventilation approach depends on a set-it-and-forget-it methodology that is completely unresponsive to changes in the way spaces are utilized/occupied or how equipment is maintained.

A DCV system utilizes various control algorithms to maintain a base ventilation rate. The system monitors space CO_2 levels and the algorithm automatically adjusts the outdoor and return air dampers to provide the quantity of outdoor air to maintain the required CO_2 level in the space. System designs are normally designed for maximum occupancy and the ventilation rates are designed for this (maximum) occupancy. In areas where occupancy swings are prevalent there is ample opportunity to reduce outdoor air quantity to satisfy the needs of the actual number of occupants present. By installing the DCV controls, energy savings are realized by the reduced quantities of outdoor air that do not require heating and cooling energy from the HVAC equipment.

This ECM will install a CO_2 demand ventilation system on the Main Gym, the Auxiliary Gym, the Weight Room and the Cafeteria air handling units. Installation cost includes CO_2 sensors, damper motors, VFD's, wiring, programming, etc. and are estimated to be $106,000 for these five (5) large air handling units.

Energy Savings Calculations:

Energy savings calculations for these HVAC modifications have been completed utilizing Trane Trace 700™ energy savings calculation program. A comparative analysis between the existing controls and the new DCV-based controls is utilized to calculate the estimated savings.

NJ Smart Start® Program Incentives are not currently available for this ECM.

Maintenance Savings have not been calculated at this time because information was not available to baseline the savings.

Based on the energy model results, the resultant Energy and Cost Savings are as follows:

ENERGY MODEL RESULTS						
UNIT	**ELECTRICAL**			**NATURAL GAS**		**TOTAL COST SAVINGS**
Unit Tag	**Usage Reduction (kWh)**	**Demand Reduction (kW)**	**COST SAVINGS**	**Usage Reduction (THERMS)**	**COST SAVINGS**	
AHU-1	20,375	-	$2,853	900	$1,332	$4,185
AHU-2	20,375	-	$2,853	900	$1,332	$4,185
RTU-3	22,400	-	$3,136	975	$1,443	$4,579
RTU-4	14,300	-	$2,002	680	$1,006	$3,008
AHU-4	18,600	-	$2,604	720	$1,066	$3,670
Totals	**96,050**	**-**	**$13,447**	**4,175**	**$6,179**	**$19,626**

*Cost savings calculated at $0.14/kWh and $1.48/Therm

Energy Savings Summary:

ECM #07-12 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$106,000
NJ Smart Start Equipment Incentive ($):	$0
Net Installation Cost ($):	$106,000
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$19,626
Total Yearly Savings ($/Yr):	$19,626
Estimated ECM Lifetime (Yr):	15
Simple Payback	5.4
Simple Lifetime ROI	177.7%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$294,390
Internal Rate of Return (IRR)	0%
Net Present Value (NPV)	$128,293.91

ECM #07-13: WOODSHOP H&V UNIT – NEW CONTROLS

Description:

The woodshop unit is used to heat/ventilate the space and is a Nesbitt H&V Air Handling Unit, System No. WG 12 R3 with a hot water coil and a 5 HP supply air fan. During several site inspections, the unit was running at full air flow with no occupancy in the space. This ECM would install a new controller and occupancy sensor that would reduce the airflow to a preset minimum when the space is unoccupied. This would require new controls and a new outside air damper actuator.

Energy Savings Calculations:

The following energy savings are based on the assumption that the 5 HP supply air fan is running constantly, as observed in the visits to the site.

Hours of Operation = 4,500 Hours/ Year (Based on 6 month heating season)
Cost Of Electricity = $ .14/kWh

$$Fan\ Power\ Conversion = HP \times 746 \frac{Watts}{HP} = Watts$$

$$Fan\ Power\ Conversion = 5\,HP \times 746 \frac{Watts}{HP} = 3{,}770\,Watts$$

$$Current\ Fan\ Energy = 3.77\,kW \times 8760\,Hours = 32{,}674.8\ kWh$$

$$New\ Fan\ Energy = 3.77\,kW \times 4500\,Hours = 16{,}965\ kWh$$

$$Fan\ Energy\ Savings = 32{,}674.8\,kWh - 16{,}965\ kWh = 15{,}709.8\ kWh$$

$$Cost\ Savings = 15{,}709.8\,kWh \times \$.14/kWh = \$2{,}199/Year$$

Installed cost of a programmable thermostat with occupied/unoccupied control system and outside air damper actuator is $750.

Energy Savings Summary:

ECM #07-13 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$750
NJ Smart Start Equipment Incentive ($):	$0
Net Installation Cost ($):	$750
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$2,199
Total Yearly Savings ($/Yr):	$2,199
Estimated ECM Lifetime (Yr):	15
Simple Payback	0.3
Simple Lifetime ROI	4298.0%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$32,985
Internal Rate of Return (IRR)	0%
Net Present Value (NPV)	$25,501.52

ECM #07-14: PREMIUM EFFICIENCY MOTORS

Description:

Older electric motors equal to or greater than 5 horsepower range from 82 to 89% efficient. The improved efficiency of the NEMA Premium® efficient motors is primarily due to better designs with use of better materials to reduce losses. Surprisingly, the electricity used to power a motor represents 95 % of its total lifetime operating cost. This energy conservation measure would replace all older, inefficient motors equal to or greater than 5 HP with NEMA Premium® Efficient Motors. NEMA Premium® is the most efficient motor designation in the marketplace today.

Energy Savings Calculations:

Using an Excel spreadsheet, the energy & cost savings were calculated for all fan/pump motors in this facility that are greater than 5 HP and not premium efficient. Excel spreadsheets are used to calculate the energy savings for each size motor and create the tables below. Estimated motor costs were received from a local supplier and installation estimates were also secured from another local installer who also is capable of aligning the installed motors. The costs include allowances for engineering, design and a 25% contingency for the retrofit work. In retrofit work motor installers are frequently required to replace sheaves, pump couplings of other parts that have deteriorated with age or have become "frozen and difficult to remove".

Hours of Operation = 4,500 Hours/ Year (Based on 6 month heating season)
Motor Load Factor = 90%
Cost Of Electricity = $ .14/kWh

$$EnergyUsage = \frac{HP \times 0.746 \left(\frac{KW}{HP} \right) \times Operating\ Hrs \times Load\ Factor.}{Efficiency\ (\%)}$$

$$Energy\ Cost = Energy\ Use \times Elec\ Cost \left(\frac{\$}{kWh} \right)$$

The following summary table outlines the energy savings for this facility:

NEMA Premium Efficient Motor Replacement						
Equipment Tag	**Motor HP**	**Existing Efficiency**	**NEMA Premium Efficiency**	**kW Savings**	**kWh Savings**	**Cost Savings**
P-1A	7.5	88.5%	91.0%	0.16	703	$98
P-2A	5	86.5%	89.5%	0.13	585	$82
SA-1	7.5	88.5%	91.0%	0.16	703	$98
SA-2	5	86.5%	89.5%	0.13	585	$82
AHU-1	7.5	88.5%	91.0%	0.16	703	$98
AHU-2	7.5	88.5%	91.0%	0.16	703	$98
AHU-12	5	86.5%	89.5%	0.13	585	$82
AHU-15	5	86.5%	89.5%	0.13	585	$82
Total Savings				**1.0**	**4,570**	**$640**

The following table outlines the motor replacements for this facility:

MOTOR REPLACEMENT PLAN							
Motor HP	**QTY**	**ENCL. TYPE**	**No. of POLEs**	**INSTALLED Cost ****	**TOTAL COST**	**TOTAL SAVINGS**	**Simple Payback**
7.5	1	TEFC	4-Pole	$1,390	$1,309	$98.48	13.3
5	1	TEFC	4-Pole	$1,020	$966	$81.95	11.8
7.5	1	TEFC	4-Pole	$1,390	$1,309	$98.48	13.3
5	1	TEFC	4-Pole	$1,020	$966	$81.95	11.8
7.5	1	TEFC	4-Pole	$1,390	$1,309	$98.48	13.3
7.5	1	TEFC	4-Pole	$1,390	$1,309	$98.48	13.3
5	1	TEFC	4-Pole	$1,020	$966	$81.95	11.8
5	1	TEFC	4-Pole	$1,020	$966	$81.95	11.8
				Totals:	*$8,134*	*$640*	*12.7*

****SmartStart Building incentives are included in total cost.**

NJ Smart Start® Program Incentives are as follows:

SmartStart Building® incentive for 5 hp NEMA motor = $54/motor.

SmartStart Building® incentive for 7.5 hp NEMA motor = $81/motor.

Energy Savings Summary:

ECM #07-14 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$8,620
NJ Smart Start Equipment Incentive ($):	$486
Net Installation Cost ($):	$8,134
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$640
Total Yearly Savings ($/Yr):	$640
Estimated ECM Lifetime (Yr):	15
Simple Payback	12.7
Simple Lifetime ROI	18.0%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$9,600
Internal Rate of Return (IRR)	0%
Net Present Value (NPV)	($493.72)

ECM #07-15: KITCHEN EXHAUST SYSTEM – VARIABLE AIR VOLUME

Description:

Standard kitchen hood controls consist of switches and relays that interlock the kitchen hood exhaust fan with the 100% outside air unit that provides make-up air for this system. Normal occupation of kitchen hood system is limited to occupied hours. During the site inspection, the kitchen exhaust hood fan was running continuously along with the 100% outside air unit during no cooking operations. The current operation of the system, as witnessed is not necessary and is costing the school district many dollars in utility costs for natural gas and electric. Based on the above, there is great potential energy savings through better controls of the hood exhaust fan and make-up air unit. The 3 HP kitchen exhaust fan and the 5 HP make-up air supply fan consume large amounts of electricity when operating and if controlled properly, the energy consumption can be reduced.

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

Energy Savings Calculations:

Detailed calculations for the proposed kitchen hood control system can be found in **Kitchen Exhaust Calculations Appendix**. It is pertinent to note that the calculation assumes the kitchen hood exhaust fan and make-up air unit are manually turned off for approximately 10 hours per day. If the exhaust hoods are run additional hours, the payback would be improved.

Installed cost of the kitchen hoods control system is $22,563. The calculated energy savings equals approximately $1,021 per year.

Energy Savings Summary:

ECM #07-15 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$22,563
NJ Smart Start Equipment Incentive ($):	$0
Net Installation Cost ($):	$22,563
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$1,021
Total Yearly Savings ($/Yr):	$1,021
Estimated ECM Lifetime (Yr):	15
Simple Payback	22.1
Simple Lifetime ROI	-32.1%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$15,315
Internal Rate of Return (IRR)	0%
Net Present Value (NPV)	($10,374.37)

ECM #07-16: WALK-IN REFRIGERATOR/FREEZER CONTROLS

Description:

The two (2) refrigerated walk-in cooler/freezers have a bank of evaporator fans that circulate the cold air over and under the food. These banks of evaporator fans (typically 1/20 HP motors) run continuously and give off heat that must be removed by the refrigeration.

This measure would install an evaporator fan controller that features two-speed operation of the evaporator fans – high speed during cooling, and low speed when not cooling manufactured by Frigitek or equivalent. The estimated energy savings assumes that the cooler is not opened for 10 hours per day.

Energy Savings Calculations:

Installing controllers on each of the three (3) evaporator fan motors in the two (2) walk-in cooler/freezers (total of four evaporators with three fans each) would save approximately 537.4 kWh/month x 12 months = 6,448.4 kWh/Year.

Annual Energy Cost Savings = 6,448.4 kWh x $0.14/kWh = $902.78/Year

Refer to the **Frigitek Analysis Appendix** for detailed energy savings calculations.

NJ Smart Start® Program Incentives are not currently available for this ECM.

The cost of these controllers installed and wired is estimated at $5,600.

Energy Savings Summary:

ECM #07-16 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$5,600
NJ Smart Start Equipment Incentive ($):	$0
Net Installation Cost ($):	$5,600
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$903
Total Yearly Savings ($/Yr):	$903
Estimated ECM Lifetime (Yr):	15
Simple Payback	6.2
Simple Lifetime ROI	141.8%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$13,542
Internal Rate of Return (IRR)	0%
Net Present Value (NPV)	$5,177.33

ECM #07-17: WALK-IN REFRIGERATOR/FREEZER CONDENSING UNITS

Description:

The two (2) existing 3-Ton rooftop condensing units that serve the evaporation coils in the respective walk-in refrigerator/freezers are in very poor condition and inefficient. The estimated SEER of the existing rooftop condensing units is 6.0. The two (2) walk-in refrigerator/freezers that are located near the kitchen consume approximately 60,400 kWh per year x $0.14/kWh or an annual cost of $8,456.

High-Efficiency remote refrigeration systems consist of high-efficiency scroll compressors, better head pressure control, matching evaporator coils, and a master controller. The seasonal energy efficiency rating (SEER) for these high-efficiency condensing units is 12.

This ECM would replace the two (2) rooftop condensing units with Copeland X-Line ZX Scroll Outdoor Condensing Units or Equal and the respective evaporator coils with new matching units.

Energy Savings Calculations:

Estimated Full-Load Operating Hours.	= 3,600 hrs/yr.
Average Cost of Electricity	= $0.14/kWh
Total Rated Cooling Capacity	= 6 Tons (two units)
Existing System Efficiency	= 6.0 SEER (Units are 29+ years old & in poor condition)
Proposed System Efficiency	= 12.0 SEER

Cooling Savings Calculation:

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

$$EnergySavings = \frac{6\,(Tons)\times 12{,}000\left(\frac{Btu}{Ton\ hr}\right)}{1000\left(\frac{Wh}{kWh}\right)}\times\left(\frac{1}{6\left(\frac{Btu}{W}\right)}-\frac{1}{12\left(\frac{Btu}{W}\right)}\right)\times 3{,}600\ hours$$

$$= 21{,}602\ \text{kWh}$$

$$\text{Cooling Cost Savings} = 21{,}602\,(\text{kWh})\times 0.14\left(\frac{\$}{\text{kWh}}\right) = \$3{,}024$$

Total installation cost for the two (2) 3-Ton high-efficiency units along with matching evaporator coils is estimated at $32,000.

Energy Savings Summary:

ECM #07-17 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$32,000
NJ Smart Start Equipment Incentive ($):	$0
Net Installation Cost ($):	$32,000
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$3,024
Total Yearly Savings ($/Yr):	$3,024
Estimated ECM Lifetime (Yr):	15
Simple Payback	10.6
Simple Lifetime ROI	41.8%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$45,360
Internal Rate of Return (IRR)	0%
Net Present Value (NPV)	$4,100.32

VIII. CARBON FOOTPRINT IMPACT

CEG was tasked with developing a baseline and revised Carbon footprint based on collected utility data and the recommended energy conservation measures. The "baseline" carbon footprint will indicate the current state of the Technical School's energy usage as it pertains to carbon production and the "revised" carbon footprint will calculate the estimated future decrease in carbon production based on the implementation of the recommended energy conservation and renewable measures.

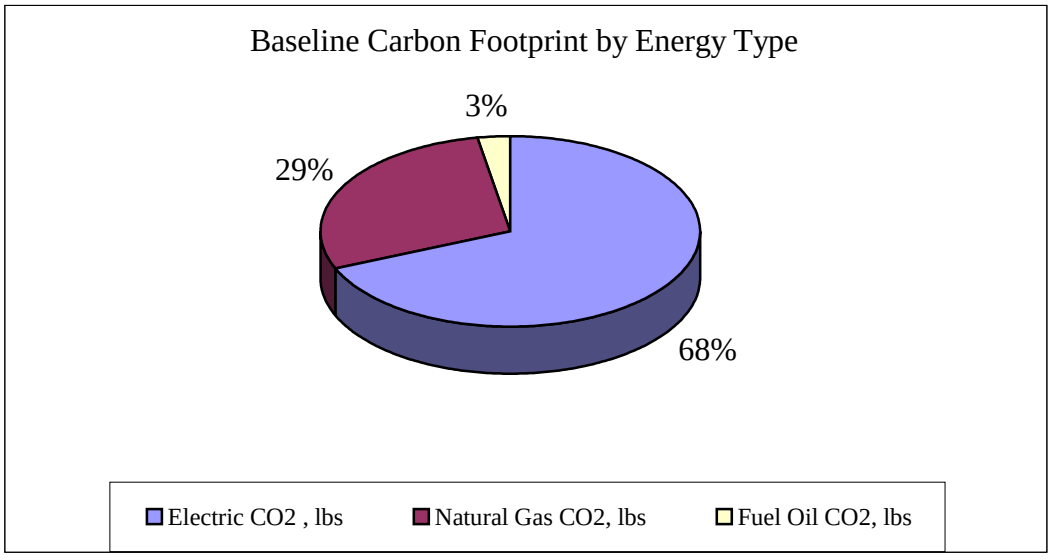
The Carbon Emissions were calculated based on emissions factor data published by the U.S. Environmental Protection Agency (EPA). These factors show equivalent pounds (or metric tons) of Carbon Dioxide per unit of fuel usage. The following table of factors were use to calculate the baseline and revised Carbon Footprints.

Table 8
EPA Emissions Factors

Energy Type	Emissions Factor	
Electricity	1.583	lbs CO_2 / kWh
Natural Gas	11.023	lbs CO_2 / therm
Fuel Oil	22.200	lbs CO_2 / gallon
Propane	13.440	lbs CO_2 / gallon

Baseline Carbon Footprint

No.	Building/Source	Electric CO2 Emissions, lbs	Natural Gas CO2, lbs	Fuel Oil CO2, lbs	Total CO2 Emissions, lbs
7	Technical High School	4,090,522.4	1,704,481.8	164,968.2	5,959,972.4



Energy Conservation Measures Carbon Reduction

No.	Building/Source	Electric CO2 Emissions, lbs	Natural Gas CO2, lbs	Fuel Oil CO2, lbs	Total CO2 Emissions, lbs
ECM #07-1	Lighting Upgrades	63,568.3	0.0	0.0	63,568.3
ECM #07-2	Lighting Controls	84,991.7	0.0	0.0	84,991.7
ECM #07-3	Install T-5 Lighting in Gyms	28,323.5	0.0	0.0	28,323.5
ECM #07-4	Boiler Room 213 Condensing Boiler Installation	0.0	67,527.6	0.0	67,527.6
ECM #07-5	Boiler Room 328 Condensing Boiler Installation	0.0	124,869.8	0.0	124,869.8
ECM #07-6	Greenhouse Condensing Boiler Installation	0.0	(77,194.9)	164,968.2	87,773.3
ECM #07-7	Boiler Room 115 Domestic Hot Water Upgrade	0.0	53,109.4	0.0	53,109.4
ECM #07-8	Variable Speed Hot Water Heating Pumps	32,449.8	0.0	0.0	32,449.8
ECM #07-9	Packaged Rooftop Unit Replacement	11,634.5	0.0	0.0	11,634.5
ECM #07-10	Condensing Unit Replacements	48,627.3	0.0	0.0	48,627.3
ECM #07-11	Condensing Unit Heater Installation	0.0	17,703.1	0.0	17,703.1
ECM #07-12	Demand Control Ventilation	152,039.4	46,021.5	0.0	198,060.9
ECM #07-13	Heating Ventilation Unit Controls	24,867.7	0.0	0.0	24,867.7
ECM #07-14	Premium Efficiency Motors	7,233.9	0.0	0.0	7,233.9
ECM #07-15	MELINK Kitchen Exhaust	5,336.0	4,078.6	0.0	9,414.6
ECM #07-16	Walk-in Refigerator/ Freezer Controls	10,206.7	0.0	0.0	10,206.7
ECM #07-17	Walk-in Refigerator/ Freezer Condensing Unit	34,194.2	0.0	0.0	34,194.2
	TOTAL CARBON REDUCTION	503,472.9	236,115.1	164,968.2	904,556.1
	TOTAL RECOMMENDED	**396,446.9**	**224,000.7**	**0.0**	**620,447.6**

Revised Carbon Footprint –Recommended Options

No.	Building/Source	Electric CO2 Emissions, lbs	Natural Gas CO2, lbs	Fuel Oil CO2, lbs	Total CO2 Emissions, lbs
7	Technical High School	3,694,075.5	1,480,481.1	164,968.2	5,339,524.8

IX. DISTRIBUTED ENERGY MEASURES

Background

CEG evaluated the existing Crest Haven Complex for the feasibility of installing a new CHP system. Through the analysis of the CMC campus energy usage and generation systems, it was determined that the construction of a distributed generation plant to serve only the larger buildings at the Crest Haven Complex would be more beneficial. This concept reduced the distribution cost and improved the balance between the electrical and the thermal energy profile. These buildings were the Nursing Home, the Correctional Center, the Health Department, the Special Education School, the Technical High School, and the Administration building. These buildings together accounted for 80 % of the energy consumed for the entire complex. The simple payback analysis shows a simple payback of about 9.9 years with an annual energy savings of about $710,000 per year.

Current Energy Consumption and Cost

CMC has provided the energy invoice data for a period from 2005 to 2008 (partial year) which is summarized as follows:

		Gas Cost (per therm)	Electric Cost (per KWhr)
2005	Unit Price	$1.14382	$0.14905
	Total Cost	$650,354	$1,260,936
2006	Unit Price	$1.52168	$0.16293
	Total Cost	$335,444	$1,449,783
2007	Unit Price	$1.68452	$0.15773
	Total Cost	$519,080	$1,652,527
2008	Unit Price	$1.58056	$0.16875
	Total Cost	$246,895	$1,003,725 (part year cost)

It must be noted that the average electrical unit cost data above is skewed by a large number of meters with low electrical consumption. In the case of these meters the lump sum meter charge is a large portion of the cost, resulting in the average electrical unit cost being much higher than the actual electrical energy charge. In 2007 the central facility buildings (large loads) had the following electrical consumption and average cost:

Maximum Demand	3,071 KW
Average Load	1,571 KW
Average Unit Cost	$0.1371 per KWhr

In addition the average natural gas consumption was 4.027 MMBtu/hr.

As expected the electrical and natural gas consumption coincides with ambient temperature and activity in the facility buildings which are not continuously occupied. As a result the peak electrical and natural gas (heating) consumptions are not coincident. It is expected that the near term future

building additions and modifications will provide an additional summer time chilling load. The new building additions and modifications will also increase the thermal heating load which will improve the shoulder month (spring and fall) thermal energy load profile. In order to further improve the coincidental thermal and electrical loads for a CHP installation, the engine exhaust heat can be used to generate chilled water in an absorption chiller configuration,

As stated above the cost of electricity for the major loads was about $0.1371/KWhr in 2007. For the purpose of this CHP Opinion it has been assumed that electricity has continued to escalate in accordance with the national averages and a rate of $0.15/KWhr has been used. It may be possible to take credit for demand charge savings and obtain additional project income from the PJM Demand Response Program with the addition of a demand response generator, or over sizing the proposed CHP engine. This CHP Option could be explored during the more detailed Conceptual Design Phase. For this CHP Opinion it has been assumed that CMC would receive a onetime Demand Response Program payment for the new CHP plant.

This CHP Opinion is based on reasonable natural gas fuel prices and hot water efficiencies which would be applicable for CHP systems of this nature. This natural gas rate has been set to $9.00 per MMBtu based on the average NYMEX Henry Hub rate over the past ten years. This rate is significantly lower than the rate that CMC is paying for their building services. In addition this CHP Opinion has also utilized the CHP natural gas rate. State of New Jersey has passed bill A3339 which eliminates the sales and use tax (about 7%) on natural gas being used for CHP.

Combined Heat and Power

Combined heat and power, or cogeneration is the simultaneous production of two useful forms of energy (electricity and thermal) from a single fuel source. The standard CHP system is comprised of a prime mover (reciprocating engine or turbine generator) and a heat recovery unit. The heat recovery unit utilizes the waste and exhaust heat from the prime mover to produce hot water or steam. The hot water or steam can in turn be utilized to produce chilled water. In some cases the prime mover exhaust can be directly vented into an absorption chiller, which will produce chilled water without the need for a heat recovery unit.

Depending on the design and application, CHP systems can have total efficiencies of 70% to 90%. This is much higher than the traditional utility grid generation with simple cycle generators (25% to 45%) and combined cycle power plants (50% to 60%) due to the more complete utilization of the exhaust and/or waste heat from the prime mover. The higher efficiency of CHP can result in significant energy cost savings. In addition, the higher fuel efficiency results in lower emissions per unit of power produced compared to traditional electrical and steam generating units.

The efficiency and cost savings of CHP systems depend on the complete use of the exhaust thermal energy from the prime mover. The economics of CHP are very sensitive to the thermal energy production and consumption. If the prime mover exhaust thermal energy cannot be completely used, the system efficiency is reduced, which will negatively impact the project lifecycle cost and payback. Therefore when examining a potential CHP system it is important to consider the thermal load profiles first and then review the electrical profiles.

CHP Opportunity Analysis

The normal CHP heat/electrical "rule of thumb" relationship between non-supplementary fired heat recovery and electrical generation is 4 to 6 MMbtu/hr for gas turbine prime movers and 2 to 4 MMbtu/hr for gas reciprocating engine prime movers per 1 MW of electric generation. Based on this CHP heat/electrical relationship, the average thermal load is low compared to the electrical average load for the CMC campus. Due to the mismatch of thermal and electrical loads, a CHP configuration designed to generate the full electrical load will not be economically feasible since it will generate more heat than can be used on a regular basis.

Based on the CMC electrical and thermal loads this CHP Opinion has evaluated a 1.4 MW reciprocating engine generator with exhaust heat recovery for the generation of hot and chilled water. The engine generator electrical capacity is slightly less than the average electrical load and therefore will operate continuously throughout the year in a base or high part load mode. The engine generator will operate in parallel with the local utility, with the utility supplying the peak electrical requirements.

For the current evaluation it has been assumed that engine waste heat recovery (about 2 MMBtu/hr net) is from the engine exhaust only, however additional lube oil and jacket water heat recovery may be possible which may improve the overall project economics. The advantage of this system is that it will produce the base load thermal and electrical requirements for the facility; however the peak electrical and thermal loads will have to be generated on site or purchased from the grid. The disadvantage is that the reciprocating engine is only available with natural gas combustion and cannot run on liquid fuel.

The reciprocating engine will require post combustion emission controls to comply with the current NJ DEP air permit requirements. This system will reduce green house gas emissions over the current steam boilers, or in comparison with a new central utility plant without CHP and grid supplied electrical power.

The installed capital cost budget for this CHP Opinion is based upon standard commercial construction (equipment and material specifications, and labor costs) in a new facility in a suburban environment. Operation and maintenance costs are based upon industry standard rates and equipment vendor technical specifications and recommendations. Due to the nature of the equipment and power generation market, there is limited opportunity to specify multiple vendors for specific engine sizes and characteristics, and, in some cases only a single manufacture exists for a particular engine size and type.

The capital cost estimates include the engine generator sets, heat recovery equipment, new building, and associated balance of plant equipment to form a complete combined heat and power system. The capital cost does not include an offsetting credit for existing boiler replacements, new hot water generators or standby power generators that may be avoided as a result of the installation of the CHP system. However, the new building would include adequate space to install backup boilers and chillers required to service the new addition to the Correctional Center, which will allow for more usable space within the Center itself. In addition the CHP system will function as redundancy for the boilers and chillers for the Correctional Center thus reducing the amount of boiler and chiller capacity required.

The new CHP system and interconnection to the CMC facilities could be expected to have the following capital cost:

Equipment	$1,833,000	
Power Island		
Mechanical		
Electrical & Controls		
Construction	$2,209,000	
Building		
Labor and Materials		
Construction Management		
Mechanical & Electrical Interconnection	$1,343,000	
Engineering and Project Management	$747,000	
Contingency	$919,000	Total
	$7,051,000	

The CHP proforma is based on the following basic assumptions:

Boiler Fuel (natural gas)	$9.00 per MMBtu
CHP Fuel (natural gas less sales & use tax)	$8.63 per MMBtu
Offset Boiler Efficiency	75%
Electricity (energy and supply)	$0.15 per KWhr
CHP System Availability	92%
Thermal Heat Recovery (annual average)	75%
System Heat Recovery Thermal Loss	7%
Power Island Parasitic Electrical Load	2%

Based on the examined configuration, and the assumptions above, the CHP proforma should be expected to be as follows:

Average Electrical Gen	1,428	KW
Average Heat Recovery	2.163	MBtu/hr
Average Heat Rate (HHV)	9,456	Btu/KWhr
Annual Electrical Generated	11,278,367	KWhr
Annual Thermal Generated	17,428,286	MBtu
Offset Electrical Cost	$1,583,483	
Offset Thermal Cost	$209,139	
Total Annual Offset	$1,792,622	
CHP Fuel Consumption	$910,858	
CHP Maintenance	$169,176	
Total CHP Annual Cost	$1,080,034	
Annual Savings	$712,588	
Simple Payback	9.89	

The simple payback can be further reduced by the current grant and capital offsets as follows:

Initial Capital Cost	$7,051,000
NJ BPU Grant ($450/KW installed)	($642,000)
One Time Demand Response Payment	($120,000)
New Equipment Offset (boilers & chillers)	($678,000)
Net Capital Cost	$5,611,000
Simple Payback	7.78 years

Conclusions and Recommendations

The CHP system appears to have a reasonable simple payback, based upon the configuration assumptions noted above. Any additional waste heat thermal energy being used by CMC will be offsetting much higher energy costs than shown in the pro forma, which should result in higher cost savings.

In order to reduce operations cost and maximize the thermal consumption this system should be located adjacent to the major facility buildings with a thermal and electrical connection to the CMC facility. Further, the new CHP plant could be designed and operated in conjunction with the other boiler facilities in order to reduce or eliminate and additional operator manpower costs. Based on the basic proforma in this letter it is our opinion that CHP does make sense and that it should be pursued in more detail with a full feasibility study.

If the option to use a third party is considered the inclusion of additional overhead and profit will reduce the payback slightly from what is shown above. However, the third party owner operator, would allow the 10% Federal Investment Tax Credit and five (5) year Accelerated Depreciation for CHP projects to be monetized back to CMC, offsetting some of these fees.

It should be noted this project is consistent with the State of New Jersey Energy Master Plan Study and is eligible for a number of potential Federal and State grants, rebates and other incentives.

X. ENERGY PURCHASING AND PROCUREMENT STRATEGY

Load Profile:

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

Electricity:

The electricity usage profile demonstrates a typical cooling load profile for school facilities that have occupancy during the summer months. Historical usage is relatively steady throughout the year with an average combined monthly usage of 215,347kWh and an average monthly demand of 686.2kW. Largest consumption months were February, May, June, October and December. All accounts for the Technical School are currently receiving Third Party Supplier (TPS) electric supply service.

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

Natural Gas & Fuel Oil:

The Natural Gas Usage Profile demonstrates a very typical natural gas (heat load) profile. A base-load shaping (flat) will secure more competitive energy prices when procuring through an alternative energy source. The greenhouse is fueled by #2 fuel oil. The average annual consumption is 7,431 gals at $2.38/gal.

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

Tariff Analysis:

Electricity:

The County facilities receive electric distribution service through Atlantic City Electric (AECO) on rate schedule's MGS (Monthly General Service) and AGS (Annual General Service) and has contracted with a third party supplier (TPS) to provide electric commodity supply service. For electric supply (generation) service, the client has a choice to either use AECO's default service rate BGS-FP or contract with a Third Party Supplier (TPS) to supply electric.

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

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

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

The current BGS-FP average price to compare for AECO's MGS rate schedule is $0.1159/kWh and for AECO's AGS rate schedule $0.1144/kWh. Based upon the current third party supplier electric rate for the facility's accounts under agreement with South Jersey Energy, these facilities are currently experiencing a savings over the BGS-FP default rate with AECO.

The utility, AECO will continue to be responsible for maintaining the existing network of wires, pipes and poles that make up the delivery system, which will serve all consumers, regardless of whom they choose to purchase their electricity from. AECO's delivery service rate includes the following charges: Customer Service Charge, Distribution Charge, Market Transition, Transition Bond Charge, Non Utility Generation Charge, Societal Benefits Charge (SBC), Infrastructure Investment Charge, System Control Charge, Regulatory Assets Recovery Charge, and Regional Greenhouse Gas Initiative Charge.

Natural Gas:

The Technical School currently receives natural gas distribution service through South Jersey Gas (SJG) on rate schedule GSG (General Service GAs) and has contracted with Woodruff Energy, a Third Party Supplier (TPS) to provide firm natural gas commodity service. For natural gas supply service, the client has a choice to either use SJG's default service rate BGSS or contract with a Third Party Supplier (TPS) to supply natural gas.

SJG provides basic gas supply service (BGSS) to customers who choose not to shop from a Third Party Supplier (TPS) for natural gas commodity. The option is essential to protect the reliability of service to consumers as well as protecting consumers if a third party supplier defaults or fails to provide commodity service. Please refer to the link below for a recap of monthly natural gas BGSS charges from SJG. http://www.southjerseygas.com/108/tariff/bgssrates.pdf

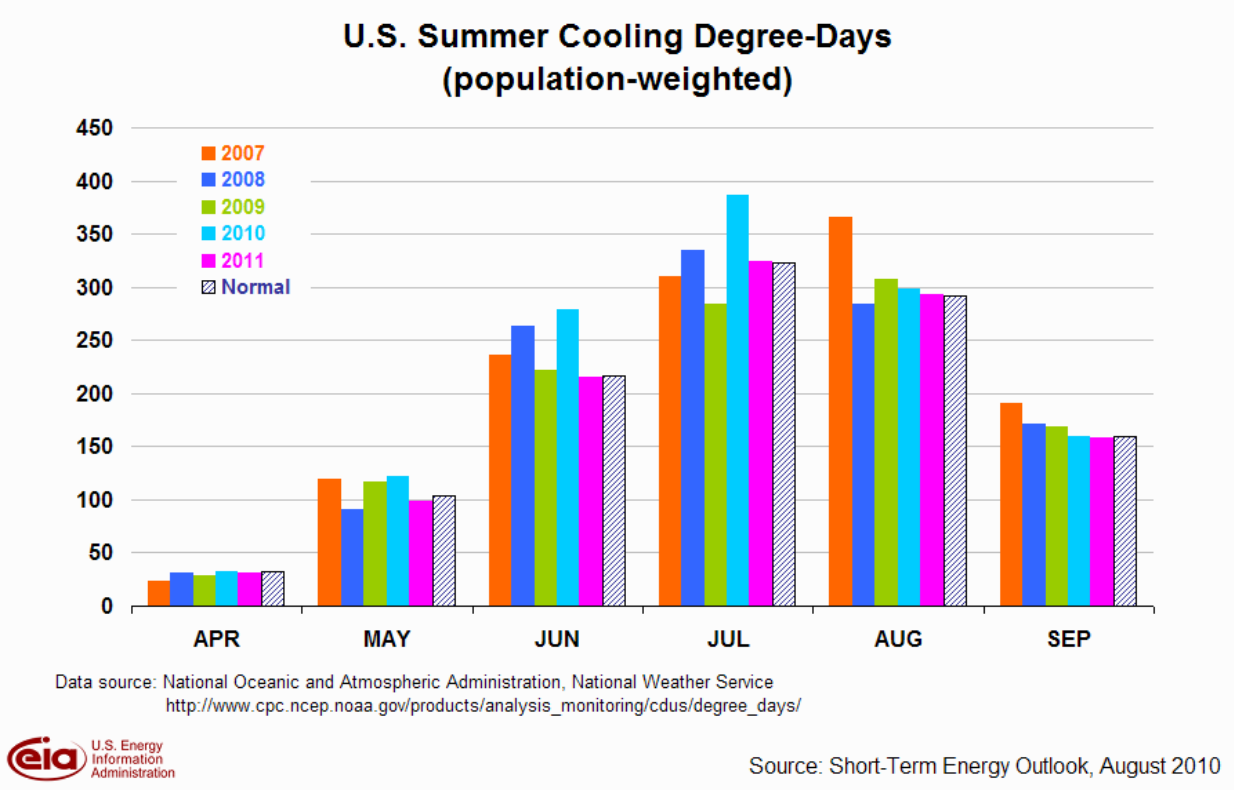
The BGSS average price to compare for the same time period of bills received and analyzed fluctuated between $0.4752/therm and $.7791/therm. Based upon the current third party supplier's natural gas rate billed ($1.205/therm & $0.928/therm) by TPS Woodruff Energy, the facility accounts did not experience a savings over the BGSS default rate with SJG.

The utility, SJG is responsible for maintaining the existing network of underground pipes that make up the delivery system, which will serve all consumers, regardless of whom they choose to purchase their natural gas from. SJG's delivery service rates includes the following charges: Customer Service Charge, Delivery Charge, Line Loss, and Applicable Riders that include: Societal Benefits Charge (SBC), Balancing Service Clause, Temperature Adjustment Clause, Conservation Incentive Program and Energy Efficient Tracker.

Electric and Natural Gas Commodities Market Overview:

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

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



Short Term Energy Outlook - US Energy Information Administration (8/10/2010):

U.S. Natural Gas Prices. *The Henry Hub spot price averaged $4.63 per MMBtu in July, $0.17 per MMBtu lower than the average spot price in June.). The forecast price for the second half of 2010 averages $4.66 per MMBtu, about the same as last month's Outlook. A small decline in U.S. production and increased consumption are projected to lead to higher prices in 2011, when the projected Henry Hub spot price averages $4.98 per MMBtu.*

Uncertainty over future natural gas prices is lower this year compared with last year at this time. Natural gas futures for October 2010 delivery for the 5-day period ending August 5 averaged $4.74 per MMBtu, and the average implied volatility over the same period was 51 percent. This produced lower and upper bounds for the 95-percent confidence interval of $3.26 and $6.89 per MMBtu, respectively. At this time last year the natural gas October 2009 futures contract averaged $4.16 per MMBtu and implied volatility averaged 80 percent. The corresponding lower and upper limits of the 95-percent confidence interval were $2.32 and $7.47 per MMBtu.

U.S. Electricity Consumption. *Temperatures during this year's summer season continue to be well above normal in sharp contrast to the mild summer of 2009. Weather has been particularly hot in the Northeast during June and July. Total cooling degree-days during the last 2 months were 54 percent higher than normal in the Mid-Atlantic region and 73 percent higher than normal in New England (U.S. Summer Cooling Degree Days). EIA projects that*

total consumption of electricity will grow by 4 percent during 2010. Growth is expected to slow to a rate of 0.4 percent in 2011 as summer temperatures are assumed to return to more normal levels.

U.S. Electricity Retail Prices. *EIA estimates that residential retail electricity prices during the first half of 2010 were about the same as in the first half of 2009. However, rising fuel costs for natural gas and coal are likely to push up retail prices later this year, causing prices over the entire year to grow by about 0.6 percent. Increased fuel costs are expected to push residential prices higher by about 2.9 percent during 2011.*

Recommendations:

1. CEG recommends an aggregated approach for 3rd party commodity supply procurement strategies for both electric and natural gas supply service. In reviewing the County of Cape May as a whole, some county facilities are procuring electric supply and natural gas from a TPS, however by aggregating all sites in the county for electricity and natural gas procurement, the County could see a significant reduction in energy supply costs. Energy commodities are among the most volatile of all commodities, however at this point and time, energy is extremely competitive. Cape May County could realize up to a 20% reduction in energy supply costs for both electricity and natural gas, if it were to aggregate usage and take advantage of these current market prices quickly, before energy increases.

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

   Overall, after review of the utility consumption, billing, and current commodity pricing outlook, CEG recommends that the Technical High School in conjunction with the Bridge Commission, Library's, County Facilities and Special Services School utilize the advisement of 3rd party unbiased Energy Consulting Firm experienced in the aggregation of facilities and procurement of retail natural gas and electricity commodity. The Energy Consulting Firm should incorporate a rational, defensible strategy for purchasing commodity in volatile markets based upon the following:

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

2. CEG recommends that the Technical High School, schedule a meeting with the current natural gas utility provider to review the facilities current rate tariff's and site locations in an effort to Master Bill contiguous properties for natural gas distribution service. This meeting would provide insight regarding opportunities that are currently available to reduce individual metered customer service charges.

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

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

XI. INSTALLATION FUNDING OPTIONS

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

i. *Energy Savings Improvement Program (ESIP)* – Public Law 2009, Chapter 4 authorizes government entities to make energy related improvements to their facilities and par for the costs using the value of energy savings that result from the improvements. The "Energy Savings Improvement Program (ESIP)" law provides a flexible approach that can allow all government agencies in New Jersey to improve and reduce energy usage with minimal expenditure of new financial resources.

ii. *Municipal Bonds* – Municipal bonds are a bond issued by a city or other local government, or their agencies. Potential issuers of municipal bonds include cities, counties, redevelopment agencies, school districts, publicly owned airports and seaports, and any other governmental entity (or group of governments) below the state level. Municipal bonds may be general obligations of the issuer or secured by specified revenues. Interest income received by holders of municipal bonds is often exempt from the federal income tax and from the income tax of the state in which they are issued, although municipal bonds issued for certain purposes may not be tax exempt.

iii. *Power Purchase Agreement* – Public Law 2008, Chapter 3 authorizes contractor of up to fifteen (15) years for contracts commonly known as "power purchase agreements." These are programs where the contracting unit (Owner) procures a contract for, in most cases, a third party to install, maintain, and own a renewable energy system. These renewable energy systems are typically solar panels, windmills or other systems that create renewable energy. In exchange for the third party's work of installing, maintaining and owning the renewable energy system, the contracting unit (Owner) agrees to purchase the power generated by the renewable energy system from the third party at agreed upon energy rates.

iv. *Pay For Performance* – The New Jersey Smart Start Pay for Performance program includes incentives based on savings resulted from implemented ECMs. The program is available for all buildings with average demand loads above 200 KW. The facility's participation in the program is assisted by an approved program partner. An "Energy Reduction Plan" is created with the facility and approved partner to shown at least 15% reduction in the building's current energy use. Multiple energy conservation measures implemented together are applicable toward the total savings of at least 15%. No more than 50% of the total energy savings can result from lighting upgrades / changes.

Total incentive is capped at 50% of the project cost. The program savings is broken down into three benchmarks; Energy Reduction Plan, Project Implementation, and

Measurement and Verification. Each step provides additional incentives as the energy reduction project continues. The benchmark incentives are as follows:

1. *Energy Reduction Plan* – Upon completion of an energy reduction plan by an approved program partner, the incentive will grant $0.10 per square foot between $5,000 and $50,000, and not to exceed 50% of the facility's annual energy expense. (Benchmark #1 is not provided in addition to the local government energy audit program incentive.)

2. *Project Implementation* – Upon installation of the recommended measures along with the "Substantial Completion Construction Report," the incentive will grant savings per KWH or Therm based on the program's rates. Minimum saving must be 15%. (Example $0.11 / kWh for 15% savings, $0.12/ kWh for 17% savings, … and $1.10 / Therm for 15% savings, $1.20 / Therm for 17% saving, …) Increased incentives result from projected savings above 15%.

3. *Measurement and Verification* – Upon verification 12 months after implementation of all recommended measures, that actual savings have been achieved, based on a completed verification report, the incentive will grant additional savings per kWh or Therm based on the program's rates. Minimum savings must be 15%. (Example $0.07 / kWh for 15% savings, $0.08/ kWh for 17% savings, … and $0.70 / Therm for 15% savings, $0.80 / Therm for 17% saving, …) Increased incentives result from verified savings above 15%.

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

The following table provides an outline of the potential applicability of the available funding options to each energy conservation measure proposed in the report. This table should be used as a guideline only and further review of these program funds should be verified with their respective administrators.

ECM No.	Description	I ESIP	II Municipal Bonds	III PPA	IV Pay for Performance
ECM #07-1	Lighting Upgrades	X	X		X
ECM #07-2	Lighting Controls	X	X		X
ECM #07-3	Install T-5 Lighting in Gyms	X	X		X
ECM #07-4	Boiler Room 213 Condensing Boiler	X	X		X
ECM #07-5	Boiler Room 328 Condensing Boiler	X	X		X
ECM #07-6	Greenhouse Condensing Boiler Installation	X	X		X
ECM #07-7	Boiler Room 115 Domestic Hot Water	X	X		X
ECM #07-8	Variable Speed Hot Water Heating Pumps	X	X		X
ECM #07-9	Packaged Rooftop Unit Replacement	X	X		X
ECM #07-10	Condensing Unit Replacements	X	X		X
ECM #07-11	Condensing Unit Heater Installation	X	X		X
ECM #07-12	Demand Control Ventilation	X	X		X
ECM #07-13	Heating Ventilation Unit Controls	X	X		X
ECM #07-14	Premium Efficiency Motors	X	X		X
ECM #07-15	MELINK Kitchen Exhaust	X	X		X
ECM #07-16	Walk-in Refigerator/ Freezer Controls	X	X		X
ECM #07-17	Walk-in Refigerator/ Freezer Condensing Unit	X	X		X

XII. ADDITIONAL RECOMMENDATIONS

The following recommendations include no cost/low cost measures, Operation & Maintenance (O&M) items, and water conservation measures with attractive paybacks. These measures are not eligible for the Smart Start Buildings incentives from the office of Clean Energy but save energy none the less.

- VendMiser on all vending machines—typical Coca-Cola machine consumes approximately 5,000 kWh/yr
- Install faucet aerators at each sink – very cost effective means for saving water < 0.5 year simple payback.
- Retrofit landscape irrigation with updated controllers, master valves, flow sensors, and moisture sensors.
- ECM motors on all small exhaust fans (¼, ½, and ¾ HP motors). Up to 30% savings for fans that run 24/7.
- Install low water flow kitchen pre-rinse sprayer heads used to pre-rinse pots, pans, etc.
- Install water-saving flush valve kits on all urinals.
- Chemically clean the condenser and evaporator coils periodically to optimize efficiency. Poorly maintained heat transfer surfaces can reduce efficiency 5-10%.
- Maintain all weather stripping on windows and doors.
- Use cog-belts instead of v-belts on all belt-driven fans, etc. These can reduce electrical consumption of the motor by 2-5%.
- Reduce lighting in specified areas where the foot candle levels are above 70 in private offices and above 30 in corridor, lobbies, etc.
- Clean all light fixtures to maximize light output.
- Confirm that outside air economizers on the rooftop units are functioning properly to take advantage of free cooling.

ECM COST & SAVINGS BREAKDOWN

CONCORD ENGINEERING GROUP

Technical High School

ECM ENERGY AND FINANCIAL COSTS AND SAVINGS SUMMARY

ECM NO.	DESCRIPTION	INSTALLATION COST				YEARLY SAVINGS			ECM LIFETIME	LIFETIME ENERGY SAVINGS	LIFETIME MAINTENANCE SAVINGS	LIFETIME ROI	SIMPLE PAYBACK	INTERNAL RATE OF RETURN (IRR)	NET PRESENT VALUE (NPV)
		MATERIAL	LABOR	REBATES, INCENTIVES	NET INSTALLATION COST	ENERGY	MAINT. / SREC	TOTAL		(Yearly Saving * ECM Lifetime)	(Yearly Maint Svaing * ECM Lifetime)	(Lifetime Savings - Net Cost) / (Net Cost)	(Net cost / Yearly Savings)	$\sum_{n=0}^{N} \frac{C_n}{(1+IRR)^n}$	$\sum_{n=0}^{N} \frac{C_n}{(1+DR)^n}$
		($)	($)	($)	($)	($/Yr)	($/Yr)	($/Yr)	(Yr)	($)	($)	(%)	(Yr)	($)	($)
ECM #07-1	Lighting Upgrades	$29,000	$3,320	$3,070	$29,250	$5,622	$0	$5,622	15	$84,330	$0	188.3%	5.2	17.51%	$37,865.07
ECM #07-2	Lighting Controls	$24,100	$6,025	$4,505	$25,620	$7,517	$0	$7,517	15	$112,755	$0	340.1%	3.4	28.67%	$64,117.46
ECM #07-3	Install T-5 Lighting in Gyms	$13,000	$1,480	$1,550	$12,930	$4,528	$0	$4,528	15	$67,920	$0	425.3%	2.9	34.61%	$41,124.97
ECM #07-4	Boiler Room 213 Condensing Boiler Installation	$119,000	$16,000	$4,000	$131,000	$9,066	$0	$9,066	30	$271,980	$0	107.6%	14.4	5.55%	$46,697.60
ECM #07-5	Boiler Room 328 Condensing Boiler Installation	$119,000	$46,000	$4,000	$161,000	$16,765	$0	$16,765	30	$502,950	$0	212.4%	9.6	9.78%	$167,601.40
ECM #07-6	Greenhouse Condensing Boiler Installation	$76,500	$8,500	$1,060	$83,940	$7,322	$0	$7,322	30	$219,660	$0	161.7%	11.5	7.81%	$59,574.43
ECM #07-7	Boiler Room 115 Domestic Hot Water Upgrade	$36,800	$9,200	$0	$46,000	$7,130	$0	$7,130	12	$85,560	$0	86.0%	6.5	11.13%	$24,972.05
ECM #07-8	Variable Speed Hot Water Heating Pumps	$14,088	$7,044	$0	$21,132	$2,870	$0	$2,870	15	$43,050	$0	103.7%	7.4	10.57%	$13,129.87
ECM #07-9	Packaged Rooftop Unit Replacement	$18,800	$4,700	$823	$22,677	$1,029	$0	$1,029	15	$15,435	$0	-31.9%	22.0	-4.46%	($10,392.86)
ECM #07-10	Condensing Unit Replacements	$36,000	$18,000	$2,208	$51,792	$4,301	$0	$4,301	15	$64,515	$0	24.6%	12.0	0.00%	$0.00
ECM #07-11	Condensing Unit Heater Installation	$14,400	$3,600	$0	$18,000	$1,085	$0	$1,085	15	$16,275	$0	-9.6%	16.6	0.00%	$0.00
ECM #07-12	Demand Control Ventilation	$84,800	$21,200	$0	$106,000	$19,626	$0	$19,626	15	$294,390	$0	177.7%	5.4	0.00%	$0.00
ECM #07-13	Heating Ventilation Unit Controls	$750	$0	$0	$750	$2,199	$0	$2,199	15	$32,985	$0	4298.0%	0.3	0.00%	$0.00
ECM #07-14	Premium Efficiency Motors	$6,896	$1,724	$486	$8,134	$640	$0	$640	15	$9,600	$0	18.0%	12.7	0.00%	$0.00
ECM #07-15	MELINK Kitchen Exhaust	$22,563	$0	$0	$22,563	$1,021	$0	$1,021	15	$15,315	$0	-32.1%	22.1	0.00%	$0.00
ECM #07-16	Walk-in Refigerator/ Freezer Controls	$4,480	$1,120	$0	$5,600	$903	$0	$903	15	$13,542	$0	141.8%	6.2	0.00%	$0.00
ECM #07-17	Walk-in Refigerator/ Freezer Condensing Unit	$25,600	$6,400	$0	$32,000	$3,024	$0	$3,024	15	$45,360	$0	41.8%	10.6	0.00%	$0.00

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

Concord Engineering Group, Inc.

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

SmartStart Building Incentives

The NJ SmartStart Buildings Program offers financial incentives on a wide variety of building system equipment. The incentives were developed to help offset the initial cost of energy-efficient equipment. The following tables show the current available incentives as of February, 2010:

Electric Chillers

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

Energy Efficiency must comply with ASHRAE 90.1-2004

Gas Cooling

Gas Absorption Chillers	$185 - $400 per ton
Gas Engine-Driven Chillers	Calculated through custom measure path)

Desiccant Systems

$1.00 per cfm – gas or electric

Electric Unitary HVAC

Unitary AC and Split Systems	$73 - $93 per ton
Air-to-Air Heat Pumps	$73 - $92 per ton
Water-Source Heat Pumps	$81 per ton
Packaged Terminal AC & HP	$65 per ton
Central DX AC Systems	$40- $72 per ton
Dual Enthalpy Economizer Controls	$250
Occupancy Controlled Thermostat (Hospitality & Institutional Facility)	$75 per thermostat

Energy Efficiency must comply with ASHRAE 90.1-2004

Ground Source Heat Pumps

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

Energy Efficiency must comply with ASHRAE 90.1-2004

Gas Heating

Gas Fired Boilers < 300 MBH	$300 per unit
Gas Fired Boilers ≥ 300 - 1500 MBH	$1.75 per MBH
Gas Fired Boilers ≥1500 - ≤ 4000 MBH	$1.00 per MBH
Gas Fired Boilers > 4000 MBH	(Calculated through Custom Measure Path)
Gas Furnaces	$300 - $400 per unit, AFUE ≥ 92%

Variable Frequency Drives

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

Natural Gas Water Heating

Gas Water Heaters ≤ 50 gallons	$50 per unit
Gas-Fired Water Heaters > 50 gallons	$1.00 - $2.00 per MBH
Gas-Fired Booster Water Heaters	$17 - $35 per MBH
Gas Fired Tankless Water Heaters	$300 per unit

Prescriptive Lighting

Retro fit of T12 to T-5 or T-8 Lamps w/Electronic Ballast in Existing Facilities	$10 per fixture (1-4 lamps)
Replacement of T12 with new T-5 or T-8 Lamps w/Electronic Ballast in Existing Facilities	$25 per fixture (1-2 lamps) $30 per fixture (3-4 lamps)
Replacement of incandescent with screw-in PAR 38 or PAR 30 (CFL) bulb	$7 per bulb
T-8 reduced Wattage (28w/25w 4', 1-4 lamps) Lamp & ballast replacement	$10 per fixture
Hard-Wired Compact Fluorescent	$25 - $30 per fixture
Metal Halide w/Pulse Start	$25 per fixture
LED Exit Signs	$10 - $20 per fixture
T-5 and T-8 High Bay Fixtures	$16 - $284 per fixture
HID ≥ 100w Retrofit with induction lamp, power coupler and generator (must be 30% less watts/fixture than HID system)	$50 per fixture
HID ≥ 100w Replacement with new HID ≥ 100w	$70 per fixture
LED Refrigerator/Freezer case lighting replacement of fluorescent in medium and low temperature display case	$42 per 5 foot $65 per 6 foot

Lighting Controls – Occupancy Sensors

Wall Mounted	$20 per control
Remote Mounted	$35 per control
Daylight Dimmers	$25 per fixture
Occupancy Controlled hi-low Fluorescent Controls	$25 per fixture controlled

Lighting Controls – HID or Fluorescent Hi-Bay Controls

Occupancy hi-low	$75 per fixture controlled
Daylight Dimming	$75 per fixture controlled
Daylight Dimming - office	$50 per fixture controlled

Premium Motors

Three-Phase Motors	$45 - $700 per motor
Fractional HP Motors Electronic Communicated Motors (replacing shaded pole motors in refrigerator/freezer cases)	$40 per electronic communicated motor

Other Equipment Incentives

Performance Lighting	$1.00 per watt per SF below program incentive threshold, currently 5% more energy efficient than ASHRAE 90.1-2004 for New Construction and Complete Renovation
Custom Electric and Gas Equipment Incentives	not prescriptive
Custom Measures	$0.16 KWh and $1.60/Therm of 1st year savings, or a buy down to a 1 year payback on estimated savings. Minimum required savings of 75,000 KWh or 1,500 Therms and a IRR of at least 10%.
Multi Measures Bonus	15%

STATEMENT OF ENERGY PERFORMANCE
01.07 Technical High School

Building ID: 2405469
For 12-month Period Ending: December 31, 2009[1]
Date SEP becomes ineligible: N/A
Date SEP Generated: September 01, 2010

Facility
01.07 Technical High School
188 Crest Haven Road
Cape May Court House, NJ 08210

Facility Owner
Cape May County
4 Moore Road
Cape May Court House, NJ 08210

Primary Contact for this Facility
AnnMarie McMahon
4 Moore Road
Cape May Court House, NJ 08210

Year Built: 1969
Gross Floor Area (ft²): 230,000

Energy Performance Rating[2] (1-100) 13

Site Energy Use Summary[3]

Electricity - Grid Purchase(kBtu)	8,817,168
Natural Gas (kBtu)[4]	15,462,809
Total Energy (kBtu)	24,279,977

Energy Intensity[5]

Site (kBtu/ft²/yr)	106
Source (kBtu/ft²/yr)	198

Emissions (based on site energy use)

Greenhouse Gas Emissions ($MtCO_2e$/year)	2,165

Electric Distribution Utility
Pepco - Atlantic City Electric Co

National Average Comparison

National Average Site EUI	73
National Average Source EUI	137
% Difference from National Average Source EUI	45%
Building Type	K-12 School

Stamp of Certifying Professional

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

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

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

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

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

ENERGY STAR® Data Checklist for Commercial Buildings

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

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

CRITERION	VALUE AS ENTERED IN PORTFOLIO MANAGER	VERIFICATION QUESTIONS	NOTES	☑
Building Name	01.07 Technical High School	Is this the official building name to be displayed in the ENERGY STAR Registry of Labeled Buildings?		☐
Type	K-12 School	Is this an accurate description of the space in question?		☐
Location	188 Crest Haven Road, Cape May Court House, NJ 08210	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		☐
Technical High School (K-12 School)				
CRITERION	**VALUE AS ENTERED IN PORTFOLIO MANAGER**	**VERIFICATION QUESTIONS**	**NOTES**	☑
Gross Floor Area	230,000 Sq. Ft.	Does this square footage include all supporting functions such as kitchens and break rooms used by staff, storage areas, administrative areas, elevators, stairwells, atria, vent shafts, etc. Also note that existing atriums should only include the base floor area that it occupies. Interstitial (plenum) space between floors should not be included in the total. Finally gross floor area is not the same as leasable space. Leasable space is a subset of gross floor area.		☐
Open Weekends?	No	Is this building normally open at all on the weekends? This includes activities beyond the work conducted by maintenance, cleaning, and security personnel. Weekend activity could include any time when the space is used for classes, performances or other school or community activities. If the building is open on the weekend as part of the standard schedule during one or more seasons, the building should select ?yes? for open weekends. The ?yes? response should apply whether the building is open for one or both of the weekend days.		☐
Number of PCs	403 (Default)	Is this the number of personal computers in the K12 School?		☐
Number of walk-in refrigeration/freezer units	2	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	100 %	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'.		

ENERGY STAR® Data Checklist for Commercial Buildings

Energy Consumption

Power Generation Plant or Distribution Utility: Pepco - Atlantic City Electric Co

Fuel Type: Electricity

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

Start Date	End Date	Energy Use (kWh (thousand Watt-hours))
12/01/2009	12/31/2009	252,331.00
11/01/2009	11/30/2009	203,651.00
10/01/2009	10/31/2009	246,691.00
09/01/2009	09/30/2009	208,627.00
08/01/2009	08/31/2009	202,859.00
07/01/2009	07/31/2009	189,631.00
06/01/2009	06/30/2009	245,063.00
05/01/2009	05/31/2009	227,325.00
04/01/2009	04/30/2009	191,353.00
03/01/2009	03/31/2009	202,302.00
02/01/2009	02/28/2009	246,116.00
01/01/2009	01/31/2009	168,215.00
Electric Consumption (kWh (thousand Watt-hours))		**2,584,164.00**
Electric Consumption (kBtu (thousand Btu))		**8,817,167.57**
Total Electricity (Grid Purchase) Consumption (kBtu (thousand Btu))		**8,817,167.57**
Is this the total Electricity (Grid Purchase) consumption at this building including all Electricity meters?		☐

Fuel Type: Natural Gas

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

Start Date	End Date	Energy Use (therms)
12/01/2009	12/31/2009	8,143.08
11/01/2009	11/30/2009	11,688.19
10/01/2009	10/31/2009	19,486.82
09/01/2009	09/30/2009	31,788.82
08/01/2009	08/31/2009	31,171.50
07/01/2009	07/31/2009	23,448.46
06/01/2009	06/30/2009	11,231.96
05/01/2009	05/31/2009	7,849.98
04/01/2009	04/30/2009	2,095.10
03/01/2009	03/31/2009	590.30

02/01/2009	02/28/2009	1,233.33
01/01/2009	01/31/2009	5,900.55
Gas Consumption (therms)		**154,628.09**
Gas Consumption (kBtu (thousand Btu))		**15,462,809.00**
Total Natural Gas Consumption (kBtu (thousand Btu))		**15,462,809.00**
Is this the total Natural Gas consumption at this building including all Natural Gas meters?		☐

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

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

Certifying Professional

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

Name: _____ Date: _____

Signature: _____

Signature is required when applying for the ENERGY STAR.

FOR YOUR RECORDS ONLY. DO NOT SUBMIT TO EPA.

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

Facility
01.07 Technical High School
188 Crest Haven Road
Cape May Court House, NJ 08210

Facility Owner
Cape May County
4 Moore Road
Cape May Court House, NJ 08210

Primary Contact for this Facility
AnnMarie McMahon
4 Moore Road
Cape May Court House, NJ 08210

General Information

01.07 Technical High School	
Gross Floor Area Excluding Parking: (ft^2)	230,000
Year Built	1969
For 12-month Evaluation Period Ending Date:	December 31, 2009

Facility Space Use Summary

Technical High School	
Space Type	K-12 School
Gross Floor Area(ft^2)	230,000
Open Weekends?	No
Number of PCs[d]	403
Number of walk-in refrigeration/freezer units	2
Presence of cooking facilities	Yes
Percent Cooled	100
Percent Heated	100
Months[o]	11
High School?	Yes
School District[o]	Cape May

Energy Performance Comparison

	Evaluation Periods		Comparisons		
Performance Metrics	**Current** (Ending Date 12/31/2009)	**Baseline** (Ending Date 12/31/2009)	**Rating of 75**	**Target**	**National Average**
Energy Performance Rating	13	13	75	N/A	50
Energy Intensity					
Site (kBtu/ft^2)	106	106	57	N/A	73
Source (kBtu/ft^2)	198	198	107	N/A	137
Energy Cost					
$/year	$ 591,415.42	$ 591,415.42	$ 318,536.33	N/A	$ 407,329.88
$/$ft^2$/year	$ 2.57	$ 2.57	$ 1.38	N/A	$ 1.77
Greenhouse Gas Emissions					
$MtCO_2e$/year	2,165	2,165	1,166	N/A	1,491
$kgCO_2e/ft^2$/year	9	9	5	N/A	6

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

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

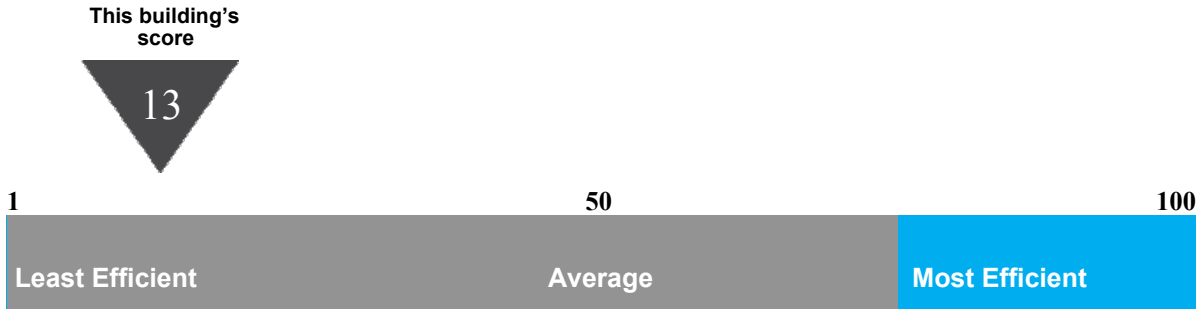
Statement of Energy Performance

2009

01.07 Technical High School
188 Crest Haven Road
Cape May Court House, NJ 08210

Portfolio Manager Building ID: 2405469

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



This building uses 198 kBtu per square foot per year.*

*Based on source energy intensity for the 12 month period ending December 2009

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

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

Date of certification

EPA United States Environmental Protection Agency

Date Generated: 09/01/2010

MAJOR EQUIPMENT LIST

Concord Engineering Group

Cape May County - Technical High School

Boilers

Tag	B-1 thru B-3	B-4 and B-5			
Unit Type	Modular Condensing	Modular Condensing	Cast Iron Sectional	Cast Iron Sectional	Cast Iron Sectional
Qty	3	2	1	1	2
Location	Room 115 (Section 100 Boiler Rm)	Room 182 Mech Rm	Room 213	Greenhouse	Room 328
Area Served	Section 100	Science Wing 100 Bldg	200 Bldg	Greenhous/Instructional Room	300 Bldg
Manufacturer	Aerco	Aerco	Weil-McLain	Weil-McLain	Weil-McLain
Model #	Benchmark BMK- 2.0 GWB	KC-1000 GWB	1494 Series 3	PL-584-W-F	AH-994 WF Series 2
Serial #	G-06-1887, 1888, & 1889	N/A	N/A	N/A	460623 &460628
Input Capacity (MBH)	2,000	1,000	4,691	6.5 gal/hr	4,691
Rated Output Capacity (MBH)	1,720-1,840	860 - 930	3,770	633	3,770
Approx. Efficiency %	86% to 92%	86% to 93%	75%	60%	80%
Fuel	Nat Gas	Nat Gas	Nat Gas	#2 Fuel Oil	Nat Gas
Approx Age	3	3	17	37	31
Ashrae Service Life	20	20	30	30	30
Remaining Life	17	17	13	**7**	**1**
Comments			5HP Blower, Power Flame Burner	500 Gallon Oil Tank	Makes DHW with tank and HX

MAJOR EQUIPMENT LIST

Concord Engineering Group

Cape May County Technical High School

Hot Water Pumps

Tag					
Unit Type	Centrifugal	Centrifugal	Centrifugal	Centrifugal	Centrifugal
Qty	1	1	1	1	1
Location	Boiler Room 115	Boiler Room 115	Boiler Room 182	Boiler Room 182	Boiler Room 213
Area Served	Section 100	Section 100	Science Wing 100 Bldg	Science Wing 100 Bldg	200 Bldg
Manufacturer	Bell & Gossett	Bell & Gossett	Bell & Gossett	Bell & Gossett	Bell & Gosett
Model #	185011 E70	185011 A20	1531 BF 2BC	1531 BF 2BC	VSC 7.375 BF RHR
Serial #	N/A	N/A	N/A	N/A	N/A
Horse Power	7.5	7.5	7.5	7.5	7.5
Flow	N/A	N/A	150 GPM @ 82 ' TDH	150 GPM @ 82 ' TDH	275 GPM @ 50' TDH
Motor Info	Century 7.5 HP	Marathon	Baldor	Baldor	US Electric
Electrical Power	208/460 3-Phase	208/460 3-Phase	208/460 3-Phase	208/460 3-Phase	208/460 3-Phase
RPM	1725	1745	1800	1800	1750
Motor Efficiency %	Not on tag	82.9%	85.5%	85.5%	84%
Approx Age	3	3	3	3	17
Ashrae Service Life	20	20	20	20	20
Remaining Life	17	17	17	17	3
Comments		On Standby	Danfoss VFD's - VLT 6000	Danfoss VFD's - VLT 6000	

Hot Water Pumps

Tag					
Unit Type	Centrifugal	Centrifugal	Centrifugal	Centrifugal	Centrifugal
Qty	1	1	1	2	1
Location	Boiler Room 213	Boiler Room 328	Boiler Room 328	Greenhouse	Instructional Room
Area Served	200 Bldg	300 Bldg	300 Bldg	Greenhouse	Greenhouse
Manufacturer	Bell & Gosett	Armstrong	Armstrong	Bell & Gossett	Bell & Gossett
Model #	VSC 7.375 BF RHR	B19359-002	B19359-002	#100	#100
Serial #	N/A	N/A	N/A	N/A	N/A
Horse Power	7.5	5	5	1/4	1/12
Flow	275 GPM @ 50' TDH	200 GPM @ 60' TDH	200 GPM @ 60' TDH	33 GPM	8.3 GPM
Motor Info	US Electric	Marathon	Marathon	N/A	N/A
Electrical Power	208/460 3-Phase	208/460 3-Phase	208/460 3-Phase	N/A	N/A
RPM	1740	1740	1740	N/A	N/A
Motor Efficiency %	84%	Not on tag	Not on tag	N/A	N/A
Approx Age	17	N/A	N/A	N/A	N/A
Ashrae Service Life	20	20	20	20	20
Remaining Life	3	N/A	N/A	N/A	N/A
Comments	On Standby		On Standby		

MAJOR EQUIPMENT LIST

Concord Engineering Group

Cape May County Technical High School

Rooftop / AC Units

Tag			RTU-8	RTU-7
Unit Type	DX Cooling/Gas-Fired Heating	DX Cooling/Electric Heat	DX Cooling/	DX Cooling/
Qty	1	1	1	1
Location	Roof	Roof	Roof	Roof
Area Served			Early Childhood 323	Faculty Lounge 322
Manufacturer	Carrier	Trane	Trane	Trane
Model #	48TME012-A-601--	THC120A4R0A10E--	THC072A4R0A1VC--	TSC048A4ROA28C--
Serial #	0208G20696	331101958L	716100456L	716100139L
Cooling Type	DX Coil	DX Coil	DX Coil	DX Coil
Cooling Capacity (Tons)	10-Tons	10-Tons	6-Tons (73.6 MBH)	4-Tons (46.9 MBH)
Cooling Efficiency (SEER/EER)	EER = 11.3	EER = 10.1	EER = 12.3	SEER = 12.1
Heating Type	Gas-Fired	Electric	Cooling Only	Cooling Only
Heating Input (MBH)	180	54 kW	Cooling Only	Cooling Only
Efficiency	80%		Cooling Only	Cooling Only
Approx Age	2	7	3	3
Ashrae Service Life	15	15	15	15
Remaining Life	13	8	12	12
Comments				

Rooftop / AC Units

Tag				RTU-6
Unit Type	DX Cooling/	DX Cooling/	DX Cooling/	DX Cooling/
Qty	1	1	1	1
Location	Roof	Roof	Roof	Roof
Area Served				Technology 306
Manufacturer	Lennox	Lennox	Carrier Gemini	Trane
Model #	LCA180SN1G	LCA150SN2G	38ARD014	THC092A4ROA21C--
Serial #	5697A00057	5696M00381	3503F51305	716100268L
Cooling Type	DX Coil	DX Coil	DX Coil	DX Coil
Cooling Capacity (Tons)	15	12.5	12.5	7.5
Cooling Efficiency (SEER/EER)	EER = 8.4	EER = 8.5	EER = 9.3	EER = 10.1
Heating Type	Cooling Only	Cooling Only	Cooling Only	Cooling Only
Heating Input (MBH)	Cooling Only	Cooling Only	Cooling Only	Cooling Only
Efficiency	Cooling Only	Cooling Only	Cooling Only	Cooling Only
Approx Age	13	13	7	3
Ashrae Service Life	15	15	15	15
Remaining Life	2	2	8	12
Comments				

Rooftop / AC Units

Tag			RTU-3	ERV-1
Unit Type	DX Cooling/Gas-Fired Heat	DX Cooling/Gas-Fired Heat	DX Cooling/	Energy Recovery
Qty	1	1	1	1
Location	Roof	Roof	Roof	Roof
Area Served	Reception/Meeting	Nurse's Area	AUXILIARY GYM-WEST	Serves RTU-4
Manufacturer	Carrier	Carrier	Trane	Innovent
Model #	48LJD008 -- 621EB	48LJE004 -- 631GA	SFHFF254PA37C3--	E-RHXC-1A/SP-2800--
Serial #	3093G34370	3593G01602	C07B01585	206285
Cooling Type	DX Coil	DX Coil	DX Coil	N/A
Cooling Capacity (Tons)	7.5-Tons 78.3 MBH	3-Tons 30.1 MBH	20-Tons	N/A
Cooling Efficiency (SEER/EER)	EER = 8	SEER = 8.2	EER = 9.5	N/A
Heating Type	Gas-Fired	Gas-Fired	Cooling Only	O/A 2,800 CFM
Heating Input (MBH)	125	74	Cooling Only	E/A 2,800 CFM
Efficiency	80%	80%	Cooling Only	75%
Approx Age	17	17	3	3
Ashrae Service Life	15	15	15	15
Remaining Life	2	2	12	12
Comments				

Rooftop / AC Units

Tag	RTU-4	RTU-5	RTU-1	RTU-2
Unit Type	DX Cooling/	DX Cooling/	DX Cooling/	DX Cooling/
Qty	1	1	1	1
Location	Roof	Roof	Roof	Roof
Area Served	Weight Room	Small Engine - 118	NEW WING - WEST	NEW WING - EAST
Manufacturer	Trane Precedent	Trane Voyager	Trane Intellipak	Trane Intellipak
Model #	YHC120A4RHA2KE--	TCD151C40ABB	SLHFF554CA56C5AD9C--	SLHFF554CA56C5AD9C--
Serial #	715100642L	7161001770	C07B01583	C07B01584
Cooling Type	DX Coil	DX Coil	DX Coil	DX Coil
Cooling Capacity (Tons)	10-Tons	12.5 - Tons	46.2 - Tons	46.2 - Tons
Cooling Efficiency (SEER/EER)	EER = 10.1	EER = 9.5	EER = 9.3	EER = 9.3
Heating Type	Gas-Fired	Cooling Only	Cooling Only	Cooling Only
Heating Input (MBH)	250	Cooling Only	Cooling Only	Cooling Only
Efficiency	80%	Cooling Only	Cooling Only	Cooling Only
Approx Age	3	3	3	3
Ashrae Service Life	15	15	15	15
Remaining Life	12	12	12	12
Comments				

Rooftop / AC Units

Tag	RTU-9			
Unit Type				
Qty	1	1		
Location	Roof	Roof		
Area Served	Finance 126, 126A, 125 A,B,C			
Manufacturer	Trane Precedent	Carrier		
Model #	YHC120A4RHA2KE--	48SS-036120321AA		
Serial #	715107842K	1498G10697		
Cooling Type	DX Coil	DX Coil		
Cooling Capacity (Tons)	7.5 - Tons	3-Tons		
Cooling Efficiency (SEER/EER)	EER = 10.2	SEER = 9.5		
Heating Type	Cooling Only	Gas-Fired		
Heating Input (MBH)	Cooling Only	120		
Efficiency	Cooling Only	81%		
Approx Age	3	12		
Ashrae Service Life	15	15		
Remaining Life	12	3		
Comments				

MAJOR EQUIPMENT LIST

Concord Engineering Group

Cape May County Technical High School

MAKE-UP AIR UNITS

Tag	MUA-1	MUA-2	MUA-3	MUA-4
Unit Type	Indirect Gas-Fired	Indirect Gas-Fired	Indirect Gas-Fired	Indirect Gas-Fired
Qty	1	1	1	1
Location	Roof	Roof	Roof	Roof
Area Served	Kitchen Hood - 124	Small Engine - 408	Exploratory 406 Hood	Diesel-Combustion Air
Manufacturer	Trane	Trane	Trane	Trane
Model #	GRAA60GFHFON3CG102A--	GRAA30GFHFON2CE102A--	GRAA50GFHFON2CG102A--	GRAA10GFHF0N2CB102A--
Serial #	F07D04203	F07D04204	F07D04205	F07D04206
Heating Type	Gas-Fired	Gas-Fired	Gas-Fired	Gas-Fired
Heating Input (MBH)	600	300	500	100
Efficiency	80%	80%	80%	80%
Fuel	Natural Gas	Natural Gas	Natural Gas	Natural Gas
Approx Age	3	3	3	3
Ashrae Service Life	15	15	15	15
Remaining Life	12	12	12	12
Comments				

MAJOR EQUIPMENT LIST

Concord Engineering Group

Cape May County Technical High School

Domestic Hot Water

Tag				
Unit Type	DHW Heater	DHW Heater	DHW Heater	DHW Heater
Qty	1	1	1	1
Location	Boiler Room 115	Boiler Room 182	Boiler Room 213	Weight Rm Storage
Area Served	Old 100 Section	Science Wing - 100 BLDG	200 BLDG	Aux Gym Lockers/RR
Manufacturer	A O Smith	A O Smith Cyclone	Bradford White	Bradford White
Model #	BC670-780	BTH 150 970	D80T1993N	50T65FB3N
Serial #	780-J82-28397	J06M009374		CH8104597
Recovery (Gallons/Hour)	563	170.9	194	
Size (Gallons)	1,469	100	80	48
Input Capacity (MBH/KW)	670 MBH	150	200	65
Fuel	Natural Gas	Natural Gas	Natural Gas	Natural Gas
Approx Age	41	4	1	3
Ashrae Service Life	20	20	20	20
Remaining Life	21	16	19	17
Comments	Four (4) Recirc Pumps			

MAJOR EQUIPMENT LIST

Concord Engineering Group

Cape May County Technical High School

SPLIT CONDENSING UNITS

Tag				
Unit Type	Split CU	Split CU	Split CU	Split CU
Qty	1	1	1	4
Location	Roof	Roof	Roof	Roof
Area Served			BLDG 300	
Manufacturer	Payne Heating & Cooling	Trane XR 12	Carrier	Trane XE 1200
Model #	PA10JA024000ACAA	2TTR2036A1000AA	38TKB018300	TTP042D300A0
Serial #	2803E09992	3301PJ73F	3092E12700	Z324RTT2F, Z324RER2F, Z324RUP2F, Z324RFS2F
Cooling Type	DX Coil	DX Coil	DX Coil	DX Coil
Cooling Capacity (Tons)	2-Tons	3-Tons	1-Ton	3.5-Tons
Cooling Efficiency (SEER/EER)	SEER = 7 (Estimated)	SEER=12	SEER= 8 (Estimated)	SEER = 12
Approx Age	21	7	21	9
Ashrae Service Life	20	20	20	20
Remaining Life	1	13	1	11
Comments				

Tag				
Unit Type	Split CU	Split CU	Split CU	Split CU
Qty	1	1	2	1
Location	Roof	Roof	Roof	Roof
Area Served				
Manufacturer	Trane XB 14	Carrier Gemini Split	Payne Heating & Cooling	Trane XE 1200
Model #	4TTB4036E1000AB	38ARD014 --- 601 --	PA10JA024 - C	TTP042D300A0
Serial #	10212YSS5F	4203F59265	2803E09996	Z324RRC2F
Cooling Type	DX Coil	DX Coil	DX Coil	DX Coil
Cooling Capacity (Tons)	3-Tons	10.5 - Tons	2-Tons	3.5-Tons
Cooling Efficiency (SEER/EER)	SEER = 14	EER = 7 (Estimated)	SEER = 7 (Estimated)	SEER = 12
Approx Age	1	18	21	9
Ashrae Service Life	20	20	20	20
Remaining Life	19	2	1	11
Comments				

Tag				
Unit Type	Split CU	Split CU	Split CU	Split CU
Qty	2	1	1	1
Location	Roof	Roof	Roof	Roof
Area Served				
Manufacturer	Payne Heating & Cooling	Trane XE 1200	Trane XE 1200	Trane XE 1200
Model #	PA10JA024 - C	TTP042D300A0	TTP042D300A0	TTP042D300A0
Serial #	2803E09988 & 2803E10108	Z133Y6X2F	Z324RKR2F	Z324RHD2F
Cooling Type	DX Coil	DX Coil	DX Coil	DX Coil
Cooling Capacity (Tons)	2-Tons	3.5-Tons	3.5-Tons	3.5-Tons
Cooling Efficiency (SEER/EER)	SEER = 7 (Estimated)	SEER = 12	SEER = 12	SEER = 12
Approx Age	21	9	9	9
Ashrae Service Life	20	20	20	20
Remaining Life	1	11	11	11
Comments				

Tag				
Unit Type	Split CU	Split CU	Split CU	Split CU
Qty	1	2	2	1
Location	Roof	Roof	Roof	Roof
Area Served		MAIN GYM		
Manufacturer	Stulz Air Tech (SATS)	Trane	Trane XB-13	Payne Heating & Cooling
Model #	SLO040H22-G	RAUCC304EY13AB ---	2TTB3042A1000AA	PA10JA024 - C
Serial #	E 07C 379284 01 01	C07B01347 & C07B01348	7024M9B3F & 7023PF13F	280BE09990
Cooling Type	DX Coil	DX Coil	DX Coil	DX Coil
Cooling Capacity (Tons)	3.5 -Tons	30-Tons	3.5-Tons	2-Tons
Cooling Efficiency (SEER/EER)	SEER = 7 (Estimated)	EER = 11.3	SEER = 13	SEER = 7 (Estimated)
Approx Age	18	3	3	21
Ashrae Service Life	20	20	20	20
Remaining Life	2	17	17	1
Comments				

Tag				
Unit Type	Split CU	Split CU	Split CU	Split CU
Qty	1	1	1	1
Location	Roof	Roof	Courtyard	Courtyard
Area Served		Cafeteria - 125		Guidance Office Entrance
Manufacturer	Intercity Products	Trane	Carrier	Sanyo
Model #	AD024GD	RAUCC304EY13AB ---	38TKB024300	SAP241C
Serial #	L922675155	C07B01346	3092E14968	01-496-52
Cooling Type	DX Coil	DX Coil	DX Coil	DX Coil
Cooling Capacity (Tons)	2-Tons	30-Tons	2-Tons	2-Tons
Cooling Efficiency (SEER/EER)	SEER = 7 (Estimated)	EER = 11.3	SEER = 7 (Estimated	SEER = 7 (Estimated)
Approx Age	18	3	18	18
Ashrae Service Life	20	20	20	20
Remaining Life	2	17	2	2
Comments				

Tag				
Unit Type	Split CU	Split CU		
Qty	1	1		
Location	Roof	Courtyard		
Area Served	Room 306 a & b	Guidance Offices		
Manufacturer	Liebert	Mitsubishi		
Model #	Mini-Mate 2MM 36E	PUHY-P72TGMU-A		
Serial #		84W00365		
Cooling Type	DX Coil	DX Coil		
Cooling Capacity (Tons)	3-Tons	6-Tons		
Cooling Efficiency (SEER/EER)	SEER = 12.0	EER = 10.3		
Approx Age	3	2		
Ashrae Service Life	20	20		
Remaining Life	17	18		
Comments				

MAJOR EQUIPMENT LIST

Concord Engineering Group

Cape May County - Technical High School

Air Handling Units

Tag		AHU 1 & 2	AHU-3	AHU-9
Location	Mechanical Room	Mechanical Room	Mechanical Room	Mechanical Room
Area Served	Store/Cafeteria	Gym BLDG 200	Gym Instructors	Director's Office
Manufacturer	Trane M-Series	Carrier	Carrier	Carrier
Qty	1	1	1	1
Model #	MCCB014UA0C0UB	39LC118	38TH060	38TH024
Serial #	K07B17383	N/A	N/A	N/A
Cooling Coil	DX Coil	DX Coil	DX Coil	DX Coil
Cooling Capacity, Mbh	250	332	58.4	15.4
Supply Flow, CFM	6,820	7,200	1,450	475
Heating Type	Hot Water	Hot Water	Hot Water	Hot Water
Input (MBh)	20.7 GPM @ 180°F	23.8 GPM @ 180°F	7.3 GPM @ 180°F	1.5 GPM @ 180°F
Output (MBh)	218.7	284.5	110	20.5
Supply Motor HP	7.5	5	1.5	1/8
Supply Motor Efficiency	N/A	N/A	N/A	N/A
Approx. Age	N/A	17	17	17
ASHRAE Service Life	20	20	20	20
Remaining Life		3	3	3
Notes				

Tag	AHU-10	AHU-12	AHU-15	
Location	BLDG 100	BLDG 300	BLDG 300	Ceiling
Area Served	Main Office	Cosmetology	Room 329	Guidance Office Entrance
Manufacturer	Carrier	Carrier	Carrier	RESCO
Qty	1	1	1	1
Model #	42DC08	30LC12	39 LC 08	FG3AAA024000AAAA
Serial #	N/A	N/A	N/A	1093V12682
Cooling Coil	DX Coil	N/A	DX Coil	DX Coil
Cooling Capacity, Mbh	22.6 MBH	N/A	121.3 MBH	2-Tons
Supply Flow, CFM	670	6,000	3,750	N/A
Heating Type	Hot Water	Hot Water	Hot Water	N/A
Input (MBh)	1.8 GPM @ 180°F	50 GPM @ 180°F	8.8 GPM @ 180°F	N/A
Output (MBh)	19.9	555	92.4	N/A
Supply Motor HP	1/4	5	3	N/A
Supply Motor Efficiency	N/A	N/A	N/A	N/A
Approx. Age	17	17	17	17
ASHRAE Service Life	20	20	20	20
Remaining Life	3	3	3	3
Notes				

MAJOR EQUIPMENT LIST

Concord Engineering Group

CAPE MAY COUNTY TECHNICAL HIGH SCHOOL

Large Exhaust Fans			
Tag	**EF-18**	**EF-40**	**EF-3**
Unit Type	Roof Exhaust	Roof Exhaust	Roof Exhaust
Qty	1	1	1
Location	Roof	Roof	Roof
Area Served	Cosmetology		
Manufacturer	Greenheck	Greenheck	Greenheck
Model #	GB-260-20	CUBE-300-20-6	GB-220-20
Serial #	93C04319	03G27775	93G09870
Fan HP	2HP (2-speed)	2HP	2HP
Fan CFM	6,000/2,000		4,975
Approx Age	17	7	17
Ashrae Service Life	20	20	20
Remaining Life	3	13	3
Comments			

Exhaust Fans Continued			
Tag	**EF-7**	**EF-11**	
Unit Type	Roof Exhaust	Roof Exhaust	
Qty	1	1	
Location	Roof	Roof	
Area Served	Garage		
Manufacturer	Greenheck	Greenheck	
Model #	GB-300-30	GB-300-30	
Serial #	93G07791	03G27774	
Fan HP	3HP	3HP	
Fan CFM	5,400		
Approx Age	17	7	
Ashrae Service Life	20	20	
Remaining Life	3	13	
Comments			

Investment Grade Lighting Audit

CEG Job #: 9C10037
Project: Technical School
Address: 188 Crest Haven Road
Cape May, NJ
Building SF: 230,000

Technical School

KWH COST: $0.140

ECM #07-1: Lighting Upgrade - General

EXISTING LIGHTING										PROPOSED LIGHTING										SAVINGS			
CEG Type	Fixture Location	Yearly Usage	No. Fixts	No. Lamps	Fixture Type	Fixt Watts	Total kW	kWh/Yr Fixtures	Yearly $ Cost	No. Fixts	No. Lamps	Retro-Unit Description	Watts Used	Total kW	kWh/Yr Fixtures	Yearly $ Cost	Unit Cost (INSTALLED)	Total Cost	kW Savings	kWh/Yr Savings	Yearly $ Savings	Yearly Simple Payback
232.21	Classroom 167	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	1.03	2,683.2	$375.65	12	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.31	Diesel Shop	2600	22	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	1.28	3,317.6	$464.46	22	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
237.21	Diesel Shop Restroom	1300	1	3	2x2, 3 Lamp, 17w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	48	0.05	62.4	$8.74	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
232.21	Classroom 186	2600	6	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.52	1,341.6	$187.82	6	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Corridor	3600	14	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.81	2,923.2	$409.25	14	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
227.21	Cust. Closet	800	1	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.06	46.4	$6.50	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.31	Boiler Room	4200	18	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	1.04	4,384.8	$613.87	18	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
232.21	Faculty Lounge	2600	3	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.26	670.8	$93.91	3	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.31	Small Engine/Marine	2600	24	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	1.39	3,619.2	$506.69	24	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
237.21	Small Engine/Marine Restroom	1300	1	3	2x2, 3 Lamp, 17w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	48	0.05	62.4	$8.74	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.31	Small Engine/Marine Storage	800	3	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	0.17	139.2	$19.49	3	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
232.21	Classroom 164	2600	9	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.77	2,012.4	$281.74	9	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
232.21	Conf. Room	2600	6	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.52	1,341.6	$187.82	6	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.31	Classroom 160	2600	36	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	2.09	5,428.8	$760.03	36	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.31	Classroom & Prep Room 165	2600	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	0.12	301.6	$42.22	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.31	Office 163	2600	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	0.12	301.6	$42.22	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.31	Office 161	2600	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	0.12	301.6	$42.22	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00

Investment Grade Lighting Audit

221.31	Office 159	2600	14	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	0.81	2,111.2	$295.57	14	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.31	Classroom & Prep Room 158	2600	15	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	0.87	2,262.0	$316.68	15	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.31	Classroom & Prep Room 156	2600	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	0.23	603.2	$84.45	4	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.31	Classroom 154	2600	9	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	0.52	1,357.2	$190.01	9	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.31	Classroom 152	2600	9	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	0.52	1,357.2	$190.01	9	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.31	Classroom 150	2600	9	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	0.52	1,357.2	$190.01	9	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.31	Classroom 151	2600	9	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	0.52	1,357.2	$190.01	9	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.31	Classroom 153	2600	9	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	0.52	1,357.2	$190.01	9	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.31	Classroom & Prep Room 155	2600	15	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	0.87	2,262.0	$316.68	15	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.31	Classroom & Prep Room 157	2600	14	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	0.81	2,111.2	$295.57	14	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Corridor	3600	32	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.86	6,681.6	$935.42	32	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Women's Restroom	1300	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.06	75.4	$10.56	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Girl's Restroom	2600	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.12	301.6	$42.22	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Men's Restroom	1300	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.06	75.4	$10.56	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Boy's Restroom	2600	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.12	301.6	$42.22	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
232.21	Classroom 176	2600	9	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.77	2,012.4	$281.74	9	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
232.21	Classroom 178	2600	9	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.77	2,012.4	$281.74	9	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Corridor	3600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.70	2,505.6	$350.78	12	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Restroom	2600	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.06	150.8	$21.11	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.34	Classroom 109	2600	72	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	4.18	10,857.6	$1,520.06	72	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.34	Auto Shop	2600	72	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	4.18	10,857.6	$1,520.06	72	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00

Investment Grade Lighting Audit

227.21	Corridor	3600	26	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.51	5,428.8	$760.03	26	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Corridor	3600	4	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.23	835.2	$116.93	4	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.31	Classroom 107	2600	56	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	3.25	8,444.8	$1,182.27	56	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.34	Classroom 111	2600	86	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	4.99	12,968.8	$1,815.63	86	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Cust. Closet	800	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.06	46.4	$6.50	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.34	Elec. Closet	800	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.06	46.4	$6.50	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.34	Classroom 106	2600	56	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	3.25	8,444.8	$1,182.27	56	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.31	Classroom 112	2600	56	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	3.25	8,444.8	$1,182.27	56	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Office 113	2600	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.17	452.4	$63.34	3	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.34	Vestibule	3600	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.06	208.8	$29.23	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	SRO	2600	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.17	452.4	$63.34	3	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.14	Boiler Room	4200	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., No Lens	58	0.23	974.4	$136.42	4	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
612		4200	4	1	Pendant Mnt., 200w A19 Lamp	200	0.80	3,360.0	$470.40	4	1	(1) 42w CFL Lamp	42	0.17	705.6	$98.78	$20.00	$80.00	0.63	2654.4	$371.62	0.22
651		4200	3	1	Pendant Mnt., 26w CFL Lamp	26	0.08	327.6	$45.86	3	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.31	Classroom 116	2600	44	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	2.55	6,635.2	$928.93	44	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Restroom	2600	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.12	301.6	$42.22	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Elec. Room	800	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.06	46.4	$6.50	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	Classroom 117	2600	12	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.25	3,244.8	$454.27	12	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	Classroom 118	2600	12	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.25	3,244.8	$454.27	12	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
232.21	Classroom 119	2600	17	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	1.46	3,801.2	$532.17	17	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Classroom 120	2600	26	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.51	3,920.8	$548.91	26	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Women's Restroom	1300	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.12	150.8	$21.11	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00

Investment Grade Lighting Audit

221.11	Cust. Closet	800	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.06	46.4	$6.50	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Men's Restroom	1300	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.12	150.8	$21.11	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Classroom 122	2600	16	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.93	2,412.8	$337.79	16	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.25	Bakery Serving Area	2600	4	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., White Diffuser	58	0.23	603.2	$84.45	4	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Bakery	2600	14	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.81	2,111.2	$295.57	14	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Bakery Restroom	1300	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.06	75.4	$10.56	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
227.21	Corridor	3600	14	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.81	2,923.2	$409.25	14	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Kitchen	2600	34	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.97	5,127.2	$717.81	34	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Kitchen Office	2600	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.23	603.2	$84.45	4	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.31	Faculty Dining	2600	17	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	0.99	2,563.6	$358.90	17	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Kit. Storage	2600	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.12	301.6	$42.22	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Staff Restroom	1300	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.12	150.8	$21.11	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
227.21	Corridor	3600	25	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.45	5,220.0	$730.80	25	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	Cafeteria	2600	27	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	2.81	7,300.8	$1,022.11	27	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
227.21	Classroom 105	2600	41	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	2.38	6,182.8	$865.59	41	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.25	Asst. Sup. Offices	2600	6	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., White Diffuser	58	0.35	904.8	$126.67	6	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Office	2600	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.12	301.6	$42.22	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.31	Conf. Room	2600	12	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	0.70	1,809.6	$253.34	12	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Main Office Hall	2600	6	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.35	904.8	$126.67	6	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.25	Office 101E	2600	4	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., White Diffuser	58	0.23	603.2	$84.45	4	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.25	Guidance Office	2600	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., White Diffuser	58	0.12	301.6	$42.22	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00

Investment Grade Lighting Audit

222.25	Guidance Office	2600	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., White Diffuser	58	0.12	301.6	$42.22	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Office 101	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.70	1,809.6	$253.34	12	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Office	2600	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.06	150.8	$21.11	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.25	Copy Room	2600		2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., White Diffuser	58	0.00	0.0	$0.00	0	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.31	Adult H.S. Offices	2600	24	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	1.39	3,619.2	$506.69	24	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Summer School Office	2600	24	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	1.39	3,619.2	$506.69	24	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Classroom 143	2600	24	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	1.39	3,619.2	$506.69	24	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
227.21	Corridor	3600	7	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.41	1,461.6	$204.62	7	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
8	Lobby	3600	6	8	4x4, 8 Lamp 32w T8, Recessed Mnt., White Diffuser	208	1.25	4,492.8	$628.99	6	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Men's Restroom	1300	3	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.17	226.2	$31.67	3	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.41		1300	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic Lens	58	0.12	150.8	$21.11	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Women's Restroom	1300	3	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.17	226.2	$31.67	3	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.41		1300	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic Lens	58	0.12	150.8	$21.11	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
242.25	Classroom 139	2600	88	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., White Diffuser	104	9.15	23,795.2	$3,331.33	88	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
232.22	Classroom 138	2600	48	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	4.13	10,732.8	$1,502.59	48	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Cust. Closet	800	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.06	46.4	$6.50	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
232.21	Classroom 137	2600	39	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	3.35	8,720.4	$1,220.86	39	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Prep Room	2600	8	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.46	1,206.4	$168.90	8	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Classroom 135	2600	44	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	2.55	6,635.2	$928.93	44	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.25		2600	5	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., White Diffuser	58	0.29	754.0	$105.56	5	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Classroom 135 Restroom	2600	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic	58	0.12	301.6	$42.22	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Classroom 135 Storage	2600	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic	58	0.12	301.6	$42.22	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00

Investment Grade Lighting Audit

222.21	Classroom 134	2600	11	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.64	1,658.8	$232.23	11	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Classroom 134 Restroom	2600	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.12	301.6	$42.22	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Classroom 134 Storage	2600	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.17	452.4	$63.34	3	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Classroom 132	2600	14	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.81	2,111.2	$295.57	14	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Classroom 133	2600	11	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.64	1,658.8	$232.23	11	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
227.21	Corridor	3600	15	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.87	3,132.0	$438.48	15	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Elec. Closet	800	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.12	92.8	$12.99	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
232.22	Classroom 131	2600	48	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	4.13	10,732.8	$1,502.59	48	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Classroom 131 Restroom	2600	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.12	301.6	$42.22	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Admissions Office	2600	6	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.35	904.8	$126.67	6	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Storage	800	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.06	46.4	$6.50	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.21	Teen Center	2600	16	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.93	2,412.8	$337.79	16	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
127.21	Corridor	3600	19	2	2x2, 2 Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	1.48	5,335.2	$746.93	19	3	3 Lamp, 17w T8, Elect. Ballast; retorfit	47	0.89	3214.8	$450.07	$100.00	$1,900.00	0.59	2120.4	$296.86	6.40
127.21		3600	56	2	2x2, 2 Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	4.37	15,724.8	$2,201.47	56	3	3 Lamp, 17w T8, Elect. Ballast; retorfit	47	2.63	9475.2	$1,326.53	$100.00	$5,600.00	1.74	6249.6	$874.94	6.40
601		2600	6	2	(2) 7w CFL Exit Sign	16	0.10	249.6	$34.94	6	1	LED Exit Sign	2	0.01	31.2	$4.37	$65.00	$390.00	0.08	218.4	$30.58	12.76
127.21	Vestibule	3600	4	2	2x2, 2 Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	0.31	1,123.2	$157.25	4	3	3 Lamp, 17w T8, Elect. Ballast; retorfit	47	0.19	676.8	$94.75	$100.00	$400.00	0.12	446.4	$62.50	6.40
122.21	Nurse	2600	13	2	2x4, 2-Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	1.01	2,636.4	$369.10	13	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.75	1960.4	$274.46	$100.00	$1,300.00	0.26	676	$94.64	13.74
127.21		2600	3	2	2x2, 2 Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	0.23	608.4	$85.18	3	3	3 Lamp, 17w T8, Elect. Ballast; retorfit	47	0.14	366.6	$51.32	$100.00	$300.00	0.09	241.8	$33.85	8.86
601		2600	2	2	(2) 7w CFL Exit Sign	16	0.03	83.2	$11.65	2	1	LED Exit Sign	2	0.00	10.4	$1.46	$65.00	$130.00	0.03	72.8	$10.19	12.76
121.45	Nurse Restroom	1300	2	2	1x4, 2-Lamp, 34w T12, Mag. Ballast, Wall Mnt., White Diffuser	78	0.16	202.8	$28.39	2	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.12	150.8	$21.11	$100.00	$200.00	0.04	52	$7.28	27.47
127.21	Buildings & Grounds Hall	4200	8	2	2x2, 2 Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	0.62	2,620.8	$366.91	8	3	3 Lamp, 17w T8, Elect. Ballast; retorfit	47	0.38	1579.2	$221.09	$100.00	$800.00	0.25	1041.6	$145.82	5.49
601		8760	2	2	(2) 7w CFL Exit Sign	16	0.03	280.3	$39.24	2	1	LED Exit Sign	2	0.00	35.04	$4.91	$65.00	$130.00	0.03	245.28	$34.34	3.79
127.21	Men's Locker	2600	5	2	2x2, 2 Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	0.39	1,014.0	$141.96	5	3	3 Lamp, 17w T8, Elect. Ballast; retorfit	47	0.24	611	$85.54	$100.00	$500.00	0.16	403	$56.42	8.86

Investment Grade Lighting Audit

121.45	Men's Locker	2600	2	2	1x4, 2-Lamp, 34w T12, Mag. Ballast, Wall Mnt., White Diffuser	78	0.16	405.6	$56.78	2	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.12	301.6	$42.22	$100.00	$200.00	0.04	104	$14.56	13.74
122.21	Women's Restroom	1300	3	2	2x4, 2-Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	0.23	304.2	$42.59	3	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.17	226.2	$31.67	$100.00	$300.00	0.06	78	$10.92	27.47
122.21	B & G Offices	2600	8	2	2x4, 2-Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	0.62	1,622.4	$227.14	8	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.46	1206.4	$168.90	$100.00	$800.00	0.16	416	$58.24	13.74
121.36	Maintenance Shop	2600	22	2	1x4, 2-Lamp, 34w T12, Mag. Ballast, Pendant Mnt., Clear Acrylic Lens	78	1.72	4,461.6	$624.62	22	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	1.28	3317.6	$464.46	$100.00	$2,200.00	0.44	1144	$160.16	13.74
127.21	Gym	2600	28	2	2x2, 2 Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	2.18	5,678.4	$794.98	28	3	3 Lamp, 17w T8, Elect. Ballast; retorfit	47	1.32	3421.6	$479.02	$100.00	$2,800.00	0.87	2256.8	$315.95	8.86
601		8760	6	2	(2) 7w CFL Exit Sign	16	0.10	841.0	$117.73	6	1	LED Exit Sign	2	0.01	105.12	$14.72	$65.00	$390.00	0.08	735.84	$103.02	3.79
770		4700	50	1	400w MH, Prismatic Lens	465	23.25	109,275.0	$15,298.50	50	6	2x4 54w T5HO 6 Lamp w/Reflecter	354	17.70	83190	$11,646.60	$240.00	$12,000.00	5.55	26085	$3,651.90	3.29
745	Gym Storage	2600	9	1	250w MH Down Light w/Prismatic Lens	295	2.66	6,903.0	$966.42	9	6	2x4, 6 Lamp, 32w T8, Elect. Ballast, Lo Bay	168	1.51	3931.2	$550.37	$220.00	$1,980.00	1.14	2971.8	$416.05	4.76
121.31		2600	6	2	1x4, 2-Lamp, 34w T12, Mag. Ballast, Pendant Mnt., Prismatic Lens	78	0.47	1,216.8	$170.35	6	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.35	904.8	$126.67	$100.00	$600.00	0.12	312	$43.68	13.74
121.31	Generator Room	2600	6	2	1x4, 2-Lamp, 34w T12, Mag. Ballast, Pendant Mnt., Prismatic Lens	78	0.47	1,216.8	$170.35	6	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.35	904.8	$126.67	$100.00	$600.00	0.12	312	$43.68	13.74
121.31	Boiler Room	4200	6	2	1x4, 2-Lamp, 34w T12, Mag. Ballast, Pendant Mnt., Prismatic Lens	78	0.47	1,965.6	$275.18	6	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.35	1461.6	$204.62	$100.00	$600.00	0.12	504	$70.56	8.50
122.21	Boy's Locker Room	2600	12	2	2x4, 2-Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	0.94	2,433.6	$340.70	12	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.70	1809.6	$253.34	$100.00	$1,200.00	0.24	624	$87.36	13.74
127.21		2600	4	2	2x2, 2 Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	0.31	811.2	$113.57	4	3	3 Lamp, 17w T8, Elect. Ballast; retorfit	47	0.19	488.8	$68.43	$100.00	$400.00	0.12	322.4	$45.14	8.86
122.21	Boy's Locker Room Offices	2600	3	2	2x4, 2-Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	0.23	608.4	$85.18	3	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.17	452.4	$63.34	$100.00	$300.00	0.06	156	$21.84	13.74
122.21	Girl's Locker Room	2600	12	2	2x4, 2-Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	0.94	2,433.6	$340.70	12	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.70	1809.6	$253.34	$100.00	$1,200.00	0.24	624	$87.36	13.74
127.21		2600	4	2	2x2, 2 Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	0.31	811.2	$113.57	4	3	3 Lamp, 17w T8, Elect. Ballast; retorfit	47	0.19	488.8	$68.43	$100.00	$400.00	0.12	322.4	$45.14	8.86
122.21	Girl's Locker Room Offices	2600	3	2	2x4, 2-Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	0.23	608.4	$85.18	3	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.17	452.4	$63.34	$100.00	$300.00	0.06	156	$21.84	13.74
122.21	P.T. Room	2600	4	2	2x4, 2-Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	0.31	811.2	$113.57	4	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.23	603.2	$84.45	$100.00	$400.00	0.08	208	$29.12	13.74
127.21		2600	1	2	2x2, 2 Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	0.08	202.8	$28.39	1	3	3 Lamp, 17w T8, Elect. Ballast; retorfit	47	0.05	122.2	$17.11	$100.00	$100.00	0.03	80.6	$11.28	8.86
127.21	Ticket Window	800	3	2	2x2, 2 Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	0.23	187.2	$26.21	3	3	3 Lamp, 17w T8, Elect. Ballast; retorfit	47	0.14	112.8	$15.79	$100.00	$300.00	0.09	74.4	$10.42	28.80
122.21	Men's Restroom	1300	3	2	2x4, 2-Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	0.23	304.2	$42.59	3	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.17	226.2	$31.67	$100.00	$300.00	0.06	78	$10.92	27.47
121.41		1300	2	2	1x4, 2-Lamp, 34w T12, Mag. Ballast, Wall Mnt., Prismatic Lens	78	0.16	202.8	$28.39	2	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.12	150.8	$21.11	$100.00	$200.00	0.04	52	$7.28	27.47

Investment Grade Lighting Audit

122.21	Women's Restroom	1300	3	2	2x4, 2-Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	0.23	304.2	$42.59	3	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.17	226.2	$31.67	$100.00	$300.00	0.06	78	$10.92	27.47
121.41		1300	2	2	1x4, 2-Lamp, 34w T12, Mag. Ballast, Wall Mnt., Prismatic Lens	78	0.16	202.8	$28.39	2	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.12	150.8	$21.11	$100.00	$200.00	0.04	52	$7.28	27.47
127.21		1300	1	2	2x2, 2 Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	0.08	101.4	$14.20	1	3	3 Lamp, 17w T8, Elect. Ballast; retorfit	47	0.05	61.1	$8.55	$100.00	$100.00	0.03	40.3	$5.64	17.72
121.34	Cust. Closet	800	2	2	1x4, 2-Lamp, 34w T12, Mag. Ballast, Pendant Mnt., No Lens	78	0.16	124.8	$17.47	2	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.12	92.8	$12.99	$100.00	$200.00	0.04	32	$4.48	44.64
132.21	Classroom 204	2600	12	3	2x4, 3-Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	127	1.52	3,962.4	$554.74	12	2	2 Lamp, 32w T8, Elect. Ballast, Specular Reflector; retrofit	58	0.70	1809.6	$253.34	$100.00	$1,200.00	0.83	2152.8	$301.39	3.98
132.21	Classroom 203	2600	12	3	2x4, 3-Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	127	1.52	3,962.4	$554.74	12	2	2 Lamp, 32w T8, Elect. Ballast, Specular Reflector; retrofit	58	0.70	1809.6	$253.34	$100.00	$1,200.00	0.83	2152.8	$301.39	3.98
110.11	Hall Display Cases	4200	12	1	2' Channel, 1-Lamp, 20w T12, Mag. Ballast, Surface Mnt., No Lens	22	0.26	1,108.8	$155.23	12	1	1 Lamp, 17w T8, Elect. Ballast, Fixture	18	0.22	907.2	$127.01	$80.00	$960.00	0.05	201.6	$28.22	34.01
127.21	Lobby	3600	11	2	2x2, 2 Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	0.86	3,088.8	$432.43	11	3	3 Lamp, 17w T8, Elect. Ballast; retorfit	47	0.52	1861.2	$260.57	$100.00	$1,100.00	0.34	1227.6	$171.86	6.40
232.21	Aux Gym Lobby	3600	7	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.60	2,167.2	$303.41	7	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
770	Aux Gym	4700	12	1	400w MH, Prismatic Lens	465	5.58	26,226.0	$3,671.64	12	6	2x4 54w T5HO 6 Lamp w/Reflecter	354	4.25	19965.6	$2,795.18	$240.00	$2,880.00	1.33	6260.4	$876.46	3.29
232.21	Women's Locker Room	2600	5	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.43	1,118.0	$156.52	5	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
232.21	Men's Locker Room	2600	5	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.43	1,118.0	$156.52	5	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
227.21	Locker Room Hall	2600	3	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.17	452.4	$63.34	3	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
232.21	Weight Room	2600	10	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.86	2,236.0	$313.04	10	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.31	Gym Storage	2600	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	0.23	603.2	$84.45	4	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
217.21	Corridor	3600	30	1	2x2, 1 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	30	0.90	3,240.0	$453.60	30	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
227.21	Office Reception Area	2600	15	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.87	2,262.0	$316.68	15	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.41	Restroom	2600	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic Lens	58	0.12	301.6	$42.22	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
227.21	Copy Room	2600	4	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.23	603.2	$84.45	4	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
227.21	Conf. Room	2600	6	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.35	904.8	$126.67	6	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
227.21	Principal's Office	2600	10	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.58	1,508.0	$211.12	10	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00

Investment Grade Lighting Audit

217.21	Office Hall	2600	5	1	2x2, 1 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	30	0.15	390.0	$54.60	5	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
227.21	Side Office 1	2600	4	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.23	603.2	$84.45	4	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
227.21	Side Office 2	2600	4	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.23	603.2	$84.45	4	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
227.21	Side Office 3	2600	4	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.23	603.2	$84.45	4	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Classroom 303	2600	10	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.58	1,508.0	$211.12	10	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
612	Elec. Room	800	2	1	Pendant Mnt., 200w A19 Lamp	200	0.40	320.0	$44.80	2	1	(1) 42w CFL Lamp	42	0.08	67.2	$9.41	$20.00	$40.00	0.32	252.8	$35.39	1.13
651		800	2	1	Pendant Mnt., 26w CFL Lamp	26	0.05	41.6	$5.82	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Offices	2600	11	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.64	1,658.8	$232.23	11	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Classroom 307	2600	10	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.58	1,508.0	$211.12	10	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Prep Room	2600	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.17	452.4	$63.34	3	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Classroom 308	2600	30	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.74	4,524.0	$633.36	30	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.31	Classroom 309	2600	20	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	1.16	3,016.0	$422.24	20	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.31	Classroom 310	2600	20	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	1.16	3,016.0	$422.24	20	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.31	Classroom 311	2600	20	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	1.16	3,016.0	$422.24	20	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.31	Classroom 312	2600	20	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	1.16	3,016.0	$422.24	20	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.31	Classroom 313	2600	16	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	0.93	2,412.8	$337.79	16	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.31	Classroom 314	2600	20	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	1.16	3,016.0	$422.24	20	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.31	Classroom 315	2600	20	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	1.16	3,016.0	$422.24	20	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.31	Classroom 316	2600	20	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	1.16	3,016.0	$422.24	20	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.11	Book Room	2600	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Indirect	58	0.23	603.2	$84.45	4	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
613	Cust. Closet	800	2	1	"Keyless" Socket, 100w A19 Lamp	100	0.20	160.0	$22.40	2	1	(1) 26w CFL Lamp	26	0.05	41.6	$5.82	$20.00	$40.00	0.15	118.4	$16.58	2.41
217.21	Corridor	2600	30	1	2x2, 1 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	30	0.90	2,340.0	$327.60	30	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00

Investment Grade Lighting Audit

121.14	Display Case 1	4200	1	2	1x4, 2-Lamp, 34w T12, Mag. Ballast, Surface Mnt., No Lens	78	0.08	327.6	$45.86	1	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.06	243.6	$34.10	$100.00	$100.00	0.02	84	$11.76	8.50
232.21	Classroom 318	2600	8	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.69	1,788.8	$250.43	8	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
232.21	Classroom 319	2600	8	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.69	1,788.8	$250.43	8	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
232.21	Classroom 320	2600	8	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.69	1,788.8	$250.43	8	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
232.21	Classroom 321	2600	8	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.69	1,788.8	$250.43	8	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Faculty Lounge	2600	7	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.41	1,055.6	$147.78	7	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
232.21	Classroom 323	2600	15	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	1.29	3,354.0	$469.56	15	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
217.21	Office & Restrooms	2600	6	1	2x2, 1 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	30	0.18	468.0	$65.52	6	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11		2600	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.12	301.6	$42.22	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.31	Classroom 324	2600	18	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	1.04	2,714.4	$380.02	18	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
232.21	Classroom 325	2600	42	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	3.61	9,391.2	$1,314.77	42	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Classroom 326	2600	38	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	2.20	5,730.4	$802.26	38	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
612	Garage Bay/Storage	1300	5	1	Pendant Mnt., 200w A19 Lamp	200	1.00	1,300.0	$182.00	5	1	(1) 42w CFL Lamp	42	0.21	273	$38.22	$20.00	$100.00	0.79	1027	$143.78	0.70
612	Elec. Room/Storage	1300	6	1	Pendant Mnt., 200w A19 Lamp	200	1.20	1,560.0	$218.40	6	1	(1) 42w CFL Lamp	42	0.25	327.6	$45.86	$20.00	$120.00	0.95	1232.4	$172.54	0.70
612	Boiler Room	4200	8	1	Pendant Mnt., 200w A19 Lamp	200	1.60	6,720.0	$940.80	8	1	(1) 42w CFL Lamp	42	0.34	1411.2	$197.57	$20.00	$160.00	1.26	5308.8	$743.23	0.22
222.21	Classroom 329	2600	24	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.39	3,619.2	$506.69	24	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Control Room	2600	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.17	452.4	$63.34	3	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21		2600	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.06	150.8	$21.11	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
612	A/V Storage	800	4	1	Pendant Mnt., 200w A19 Lamp	200	0.80	640.0	$89.60	4	1	(1) 42w CFL Lamp	42	0.17	134.4	$18.82	$20.00	$80.00	0.63	505.6	$70.78	1.13
222.31	Classroom 330	2600	38	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	2.20	5,730.4	$802.26	38	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
612	Storage/Supplies	800	4	1	Pendant Mnt., 200w A19 Lamp	200	0.80	640.0	$89.60	4	1	(1) 42w CFL Lamp	42	0.17	134.4	$18.82	$20.00	$80.00	0.63	505.6	$70.78	1.13
232.21	Classroom 331	2600	6	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.52	1,341.6	$187.82	6	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.14		2600	38	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., No Lens	58	2.20	5,730.4	$802.26	38	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00

Investment Grade Lighting Audit

221.11	Classroom 348	2600	11	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.64	1,658.8	$232.23	11	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
227.21		2600	3	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.17	452.4	$63.34	3	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
232.21	Classroom 351	2600	6	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.52	1,341.6	$187.82	6	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.31	Classroom 332	2600	44	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	2.55	6,635.2	$928.93	44	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
612	Storage	800	2	1	Pendant Mnt., 200w A19 Lamp	200	0.40	320.0	$44.80	2	1	(1) 42w CFL Lamp	42	0.08	67.2	$9.41	$20.00	$40.00	0.32	252.8	$35.39	1.13
227.21	Conf. Room	2600	48	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	2.78	7,238.4	$1,013.38	48	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Storage	800	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.12	92.8	$12.99	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
612		800	2	1	Pendant Mnt., 200w A19 Lamp	200	0.40	320.0	$44.80	2	1	(1) 42w CFL Lamp	42	0.08	67.2	$9.41	$20.00	$40.00	0.32	252.8	$35.39	1.13
227.21	Media Center	2600	56	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	3.25	8,444.8	$1,182.27	56	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
232.22	Library Offices	2600	6	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.52	1,341.6	$187.82	6	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.22	Media Center	2600	18	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.04	2,714.4	$380.02	18	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
227.21	Classroom 338	2600	13	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.75	1,960.4	$274.46	13	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
227.21	Classroom 338B	2600	20	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.16	3,016.0	$422.24	20	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Kitchen	2600	53	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	3.07	7,992.4	$1,118.94	53	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Motel	2600	12	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.70	1,809.6	$253.34	12	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Laundry Room	2600	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.23	603.2	$84.45	4	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Classroom 343	2600	10	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.58	1,508.0	$211.12	10	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.11	Men's Restroom	1300	3	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Indirect	58	0.17	226.2	$31.67	3	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Women's Restroom	1300	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.17	226.2	$31.67	3	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
	Totals		2992	488			226.68	663,318.3	$92,864.56	2992	116			40.285	154156.3	$21,581.88		$48,240.00	22.80	73776.6	$10,328.73	4.67

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

CEG Job #: 9C10037
Project: Technical School
Address: 188 Crest Haven Road
Cape May, NJ
Building SF: 230000

Technical School

KWH COST: $0.140

ECM #07-2: Lighting Controls

EXISTING LIGHTINC										PROPOSED LIGHTING CONTROLS											SAVINGS			
CEG Type	Fixture Location	Yearly Usage	No. Fixts	No. Lamps	Fixture Type	Fixt Watts	Total kW	kWh/Yr Fixtures	Yearly $ Cost	No. Fixts	No. Cont.	Controls Description	Watts Used	Total kW	Reduction (%)	kWh/Yr Fixtures	Yearly $ Cost	Unit Cost (INSTALLED)	Total Cost	kW Savings	kWh/Yr Savings	Yearly $ Savings	Yearly Simple Payback
232.2	Classroom 167	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	1.03	2,683.2	$375.65	12	0	No Change	86	1.03	0%	2683.2	$375.65	$0.00	$0.00	0.00	0	$0.00	0.00
221.3	Diesel Shop	2600	22	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	1.28	3,317.6	$464.46	22	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	1.28	10%	2985.84	$418.02	$225.00	$225.00	0.00	331.76	$46.45	4.84
237.2	Diesel Shop Restroom	1300	1	3	2x2, 3 Lamp, 17w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	48	0.05	62.4	$8.74	1	0	No Change	48	0.05	0%	62.4	$8.74	$0.00	$0.00	0.00	0	$0.00	0.00
232.2	Classroom 186	2600	6	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.52	1,341.6	$187.82	6	0	No Change	86	0.52	0%	1341.6	$187.82	$0.00	$0.00	0.00	0	$0.00	0.00
222.2	Corridor	3600	14	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.81	2,923.2	$409.25	14	0	No Change	58	0.81	0%	2923.2	$409.25	$0.00	$0.00	0.00	0	$0.00	0.00
227.2	Cust. Closet	800	1	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.06	46.4	$6.50	1	0	No Change	58	0.06	0%	46.4	$6.50	$0.00	$0.00	0.00	0	$0.00	0.00
221.3	Boiler Room	4200	18	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	1.04	4,384.8	$613.87	18	0	No Change	58	1.04	0%	4384.8	$613.87	$0.00	$0.00	0.00	0	$0.00	0.00
232.2	Faculty Lounge	2600	3	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.26	670.8	$93.91	3	0	No Change	86	0.26	0%	670.8	$93.91	$0.00	$0.00	0.00	0	$0.00	0.00
221.3	Small Engine/Marine	2600	24	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	1.39	3,619.2	$506.69	24	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	1.39	10%	3257.28	$456.02	$225.00	$225.00	0.00	361.92	$50.67	4.44
237.2	Small Engine/Marine Restroom	1300	1	3	2x2, 3 Lamp, 17w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	48	0.05	62.4	$8.74	1	0	No Change	48	0.05	0%	62.4	$8.74	$0.00	$0.00	0.00	0	$0.00	0.00
221.3	Small Engine/Marine Storage	800	3	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	0.17	139.2	$19.49	3	0	No Change	58	0.17	0%	139.2	$19.49	$0.00	$0.00	0.00	0	$0.00	0.00

232.2	Classroom 164	2600	9	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.77	2,012.4	$281.74	9	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	86	0.77	10%	1811.16	$253.56	$160.00	$160.00	0.00	201.24	$28.17	5.68
232.2	Conf. Room	2600	6	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.52	1,341.6	$187.82	6	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	86	0.52	10%	1207.44	$169.04	$160.00	$160.00	0.00	134.16	$18.78	8.52
221.3	Classroom 160	2600	36	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	2.09	5,428.8	$760.03	36	2	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	2.09	10%	4885.92	$684.03	$225.00	$450.00	0.00	542.88	$76.00	5.92
221.3	Classroom & Prep Room 165	2600	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	0.12	301.6	$42.22	2	0	No Change	58	0.12	0%	301.6	$42.22	$0.00	$0.00	0.00	0	$0.00	0.00
221.3	Office 163	2600	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	0.12	301.6	$42.22	2	0	No Change	58	0.12	0%	301.6	$42.22	$0.00	$0.00	0.00	0	$0.00	0.00
221.3	Office 161	2600	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	0.12	301.6	$42.22	2	0	No Change	58	0.12	0%	301.6	$42.22	$0.00	$0.00	0.00	0	$0.00	0.00
221.3	Office 159	2600	14	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	0.81	2,111.2	$295.57	14	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	0.81	10%	1900.08	$266.01	$225.00	$225.00	0.00	211.12	$29.56	7.61
221.3	Classroom & Prep Room 158	2600	15	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	0.87	2,262.0	$316.68	15	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	0.87	10%	2035.8	$285.01	$225.00	$225.00	0.00	226.2	$31.67	7.10
221.3	Classroom & Prep Room 156	2600	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	0.23	603.2	$84.45	4	0	No Change	58	0.23	0%	603.2	$84.45	$0.00	$0.00	0.00	0	$0.00	0.00
221.3	Classroom 154	2600	9	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	0.52	1,357.2	$190.01	9	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	58	0.52	10%	1221.48	$171.01	$160.00	$160.00	0.00	135.72	$19.00	8.42
221.3	Classroom 152	2600	9	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	0.52	1,357.2	$190.01	9	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	58	0.52	10%	1221.48	$171.01	$160.00	$160.00	0.00	135.72	$19.00	8.42
221.3	Classroom 150	2600	9	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	0.52	1,357.2	$190.01	9	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	58	0.52	10%	1221.48	$171.01	$160.00	$160.00	0.00	135.72	$19.00	8.42
221.3	Classroom 151	2600	9	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	0.52	1,357.2	$190.01	9	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	58	0.52	10%	1221.48	$171.01	$160.00	$160.00	0.00	135.72	$19.00	8.42

221.3	Classroom 153	2600	9	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	0.52	1,357.2	$190.01	9	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	58	0.52	10%	1221.48	$171.01	$160.00	$160.00	0.00	135.72	$19.00	8.42
221.3	Classroom & Prep Room 155	2600	15	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	0.87	2,262.0	$316.68	15	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	0.87	10%	2035.8	$285.01	$225.00	$225.00	0.00	226.2	$31.67	7.10
221.3	Classroom & Prep Room 157	2600	14	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	0.81	2,111.2	$295.57	14	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	0.81	10%	1900.08	$266.01	$225.00	$225.00	0.00	211.12	$29.56	7.61
222.2	Corridor	3600	32	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.86	6,681.6	$935.42	32	0	No Change	58	1.86	0%	6681.6	$935.42	$0.00	$0.00	0.00	0	$0.00	0.00
222.2	Women's Restroom	1300	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.06	75.4	$10.56	1	0	No Change	58	0.06	0%	75.4	$10.56	$0.00	$0.00	0.00	0	$0.00	0.00
222.2	Girl's Restroom	2600	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.12	301.6	$42.22	2	0	No Change	58	0.12	0%	301.6	$42.22	$0.00	$0.00	0.00	0	$0.00	0.00
222.2	Men's Restroom	1300	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.06	75.4	$10.56	1	0	No Change	58	0.06	0%	75.4	$10.56	$0.00	$0.00	0.00	0	$0.00	0.00
222.2	Boy's Restroom	2600	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.12	301.6	$42.22	2	0	No Change	58	0.12	0%	301.6	$42.22	$0.00	$0.00	0.00	0	$0.00	0.00
232.2	Classroom 176	2600	9	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.77	2,012.4	$281.74	9	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	86	0.77	10%	1811.16	$253.56	$160.00	$160.00	0.00	201.24	$28.17	5.68
232.2	Classroom 178	2600	9	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.77	2,012.4	$281.74	9	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	86	0.77	10%	1811.16	$253.56	$160.00	$160.00	0.00	201.24	$28.17	5.68
222.2	Corridor	3600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.70	2,505.6	$350.78	12	0	No Change	58	0.70	0%	2505.6	$350.78	$0.00	$0.00	0.00	0	$0.00	0.00
221.1	Restroom	2600	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.06	150.8	$21.11	1	0	No Change	58	0.06	0%	150.8	$21.11	$0.00	$0.00	0.00	0	$0.00	0.00
221.3	Classroom 109	2600	72	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	4.18	10,857.6	$1,520.06	72	3	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	4.18	10%	9771.84	$1,368.06	$225.00	$675.00	0.00	1085.76	$152.01	4.44

221.3	Auto Shop	2600	72	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	4.18	10,857.6	$1,520.06	72	3	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	4.18	10%	9771.84	$1,368.06	$225.00	$675.00	0.00	1085.76	$152.01	4.44
227.2	Corridor	3600	26	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.51	5,428.8	$760.03	26	0	No Change	58	1.51	0%	5428.8	$760.03	$0.00	$0.00	0.00	0	$0.00	0.00
222.2	Corridor	3600	4	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.23	835.2	$116.93	4	0	No Change	58	0.23	0%	835.2	$116.93	$0.00	$0.00	0.00	0	$0.00	0.00
221.3	Classroom 107	2600	56	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	3.25	8,444.8	$1,182.27	56	2	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	3.25	10%	7600.32	$1,064.04	$225.00	$450.00	0.00	844.48	$118.23	3.81
221.3	Classroom 111	2600	86	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	4.99	12,968.8	$1,815.63	86	3	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	4.99	10%	11671.92	$1,634.07	$225.00	$675.00	0.00	1296.88	$181.56	3.72
221.1	Cust. Closet	800	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.06	46.4	$6.50	1	0	No Change	58	0.06	0%	46.4	$6.50	$0.00	$0.00	0.00	0	$0.00	0.00
221.3	Elec. Closet	800	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.06	46.4	$6.50	1	0	No Change	58	0.06	0%	46.4	$6.50	$0.00	$0.00	0.00	0	$0.00	0.00
221.3	Classroom 106	2600	56	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	3.25	8,444.8	$1,182.27	56	3	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	3.25	10%	7600.32	$1,064.04	$225.00	$675.00	0.00	844.48	$118.23	5.71
221.3	Classroom 112	2600	56	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	3.25	8,444.8	$1,182.27	56	3	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	3.25	10%	7600.32	$1,064.04	$225.00	$675.00	0.00	844.48	$118.23	5.71
222.2	Office 113	2600	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.17	452.4	$63.34	3	0	No Change	58	0.17	0%	452.4	$63.34	$0.00	$0.00	0.00	0	$0.00	0.00
221.3	Vestibule	3600	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.06	208.8	$29.23	1	0	No Change	58	0.06	0%	208.8	$29.23	$0.00	$0.00	0.00	0	$0.00	0.00
222.2	SRO	2600	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.17	452.4	$63.34	3	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	58	0.17	10%	407.16	$57.00	$160.00	$160.00	0.00	45.24	$6.33	25.26
221.1	Boiler Room	4200	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., No Lens	58	0.23	974.4	$136.42	4	0	No Change	58	0.23	0%	974.4	$136.42	$0.00	$0.00	0.00	0	$0.00	0.00

612	0	4200	4	1	Pendant Mnt., 200w A19 Lamp	200	0.80	3,360.0	$470.40	4	0	No Change	200	0.80	0%	3360	$470.40	$0.00	$0.00	0.00	0	$0.00	0.00
651	0	4200	3	1	Pendant Mnt., 26w CFL Lamp	26	0.08	327.6	$45.86	3	0	No Change	26	0.08	0%	327.6	$45.86	$0.00	$0.00	0.00	0	$0.00	0.00
221.3	Classroom 116	2600	44	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	2.55	6,635.2	$928.93	44	2	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	2.55	10%	5971.68	$836.04	$225.00	$450.00	0.00	663.52	$92.89	4.84
221.1	Restroom	2600	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.12	301.6	$42.22	2	0	No Change	58	0.12	0%	301.6	$42.22	$0.00	$0.00	0.00	0	$0.00	0.00
221.1	Elec. Room	800	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.06	46.4	$6.50	1	0	No Change	58	0.06	0%	46.4	$6.50	$0.00	$0.00	0.00	0	$0.00	0.00
242.2	Classroom 117	2600	12	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.25	3,244.8	$454.27	12	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	104	1.25	10%	2920.32	$408.84	$225.00	$225.00	0.00	324.48	$45.43	4.95
242.2	Classroom 118	2600	12	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	1.25	3,244.8	$454.27	12	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	104	1.25	10%	2920.32	$408.84	$225.00	$225.00	0.00	324.48	$45.43	4.95
232.2	Classroom 119	2600	17	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	1.46	3,801.2	$532.17	17	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	86	1.46	10%	3421.08	$478.95	$225.00	$225.00	0.00	380.12	$53.22	4.23
222.2	Classroom 120	2600	26	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.51	3,920.8	$548.91	26	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	1.51	10%	3528.72	$494.02	$225.00	$225.00	0.00	392.08	$54.89	4.10
221.1	Women's Restroom	1300	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.12	150.8	$21.11	2	0	No Change	58	0.12	0%	150.8	$21.11	$0.00	$0.00	0.00	0	$0.00	0.00
221.1	Cust. Closet	800	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.06	46.4	$6.50	1	0	No Change	58	0.06	0%	46.4	$6.50	$0.00	$0.00	0.00	0	$0.00	0.00
221.1	Men's Restroom	1300	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.12	150.8	$21.11	2	0	No Change	58	0.12	0%	150.8	$21.11	$0.00	$0.00	0.00	0	$0.00	0.00
221.1	Classroom 122	2600	16	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.93	2,412.8	$337.79	16	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	0.93	10%	2171.52	$304.01	$225.00	$225.00	0.00	241.28	$33.78	6.66

222.3	Bakery Serving Area	2600	4	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., White Diffuser	58	0.23	603.2	$84.45	4	0	No Change	58	0.23	0%	603.2	$84.45	$0.00	$0.00	0.00	0	$0.00	0.00
222.2	Bakery	2600	14	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.81	2,111.2	$295.57	14	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	0.81	10%	1900.08	$266.01	$225.00	$225.00	0.00	211.12	$29.56	7.61
221.1	Bakery Restroom	1300	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.06	75.4	$10.56	1	0	No Change	58	0.06	0%	75.4	$10.56	$0.00	$0.00	0.00	0	$0.00	0.00
227.2	Corridor	3600	14	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.81	2,923.2	$409.25	14	0	No Change	58	0.81	0%	2923.2	$409.25	$0.00	$0.00	0.00	0	$0.00	0.00
222.2	Kitchen	2600	34	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.97	5,127.2	$717.81	34	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	1.97	10%	4614.48	$646.03	$225.00	$225.00	0.00	512.72	$71.78	3.13
221.1	Kitchen Office	2600	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.23	603.2	$84.45	4	0	No Change	58	0.23	0%	603.2	$84.45	$0.00	$0.00	0.00	0	$0.00	0.00
221.3	Faculty Dining	2600	17	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	0.99	2,563.6	$358.90	17	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	58	0.99	10%	2307.24	$323.01	$160.00	$160.00	0.00	256.36	$35.89	4.46
221.1	Kit. Storage	2600	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.12	301.6	$42.22	2	0	No Change	58	0.12	0%	301.6	$42.22	$0.00	$0.00	0.00	0	$0.00	0.00
221.1	Staff Restroom	1300	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.12	150.8	$21.11	2	0	No Change	58	0.12	0%	150.8	$21.11	$0.00	$0.00	0.00	0	$0.00	0.00
227.2	Corridor	3600	25	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.45	5,220.0	$730.80	25	0	No Change	58	1.45	0%	5220	$730.80	$0.00	$0.00	0.00	0	$0.00	0.00
242.2	Cafeteria	2600	27	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	2.81	7,300.8	$1,022.11	27	0	No Change	104	2.81	0%	7300.8	$1,022.11	$0.00	$0.00	0.00	0	$0.00	0.00
227.2	Classroom 105	2600	41	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	2.38	6,182.8	$865.59	41	2	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	2.38	10%	5564.52	$779.03	$225.00	$450.00	0.00	618.28	$86.56	5.20
222.3	Asst. Sup. Offices	2600	6	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., White Diffuser	58	0.35	904.8	$126.67	6	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	58	0.35	10%	814.32	$114.00	$160.00	$160.00	0.00	90.48	$12.67	12.63

222.2	Office	2600	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.12	301.6	$42.22	2	0	No Change	58	0.12	0%	301.6	$42.22	$0.00	$0.00	0.00	0	$0.00	0.00
221.3	Conf. Room	2600	12	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	0.70	1,809.6	$253.34	12	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	0.70	10%	1628.64	$228.01	$225.00	$225.00	0.00	180.96	$25.33	8.88
221.1	Main Office Hall	2600	6	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.35	904.8	$126.67	6	0	No Change	58	0.35	0%	904.8	$126.67	$0.00	$0.00	0.00	0	$0.00	0.00
222.3	Office 101E	2600	4	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., White Diffuser	58	0.23	603.2	$84.45	4	0	No Change	58	0.23	0%	603.2	$84.45	$0.00	$0.00	0.00	0	$0.00	0.00
222.3	Guidance Office	2600	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., White Diffuser	58	0.12	301.6	$42.22	2	0	No Change	58	0.12	0%	301.6	$42.22	$0.00	$0.00	0.00	0	$0.00	0.00
222.3	Guidance Office	2600	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., White Diffuser	58	0.12	301.6	$42.22	2	0	No Change	58	0.12	0%	301.6	$42.22	$0.00	$0.00	0.00	0	$0.00	0.00
222.2	Office 101	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.70	1,809.6	$253.34	12	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	0.70	10%	1628.64	$228.01	$225.00	$225.00	0.00	180.96	$25.33	8.88
221.1	Office	2600	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.06	150.8	$21.11	1	0	No Change	58	0.06	0%	150.8	$21.11	$0.00	$0.00	0.00	0	$0.00	0.00
222.3	Copy Room	2600	0	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., White Diffuser	58	0.00	0.0	$0.00	0	0	No Change	58	0.00	0%	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.3	Adult H.S. Offices	2600	24	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	1.39	3,619.2	$506.69	24	2	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	1.39	10%	3257.28	$456.02	$225.00	$450.00	0.00	361.92	$50.67	8.88
221.1	Summer School Office	2600	24	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	1.39	3,619.2	$506.69	24	2	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	1.39	10%	3257.28	$456.02	$225.00	$450.00	0.00	361.92	$50.67	8.88
221.1	Classroom 143	2600	24	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	1.39	3,619.2	$506.69	24	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	1.39	10%	3257.28	$456.02	$225.00	$225.00	0.00	361.92	$50.67	4.44
227.2	Corridor	3600	7	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.41	1,461.6	$204.62	7	0	No Change	58	0.41	0%	1461.6	$204.62	$0.00	$0.00	0.00	0	$0.00	0.00

8	Lobby	3600	6	8	4x4, 8 Lamp 32w T8, Recessed Mnt., White Diffuser	208	1.25	4,492.8	$628.99	6	0	No Change	208	1.25	0%	4492.8	$628.99	$0.00	$0.00	0.00	0	$0.00	0.00
221.1	Men's Restroom	1300	3	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.17	226.2	$31.67	3	0	No Change	58	0.17	0%	226.2	$31.67	$0.00	$0.00	0.00	0	$0.00	0.00
221.4	0	1300	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic Lens	58	0.12	150.8	$21.11	2	0	No Change	58	0.12	0%	150.8	$21.11	$0.00	$0.00	0.00	0	$0.00	0.00
221.1	Women's Restroom	1300	3	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.17	226.2	$31.67	3	0	No Change	58	0.17	0%	226.2	$31.67	$0.00	$0.00	0.00	0	$0.00	0.00
221.4	0	1300	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic Lens	58	0.12	150.8	$21.11	2	0	No Change	58	0.12	0%	150.8	$21.11	$0.00	$0.00	0.00	0	$0.00	0.00
242.3	Classroom 139	2600	88	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., White Diffuser	104	9.15	23,795.2	$3,331.33	88	4	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	104	9.15	10%	21415.68	$2,998.20	$225.00	$900.00	0.00	2379.52	$333.13	2.70
232.2	Classroom 138	2600	48	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	4.13	10,732.8	$1,502.59	48	2	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	86	4.13	10%	9659.52	$1,352.33	$225.00	$450.00	0.00	1073.28	$150.26	2.99
221.1	Cust. Closet	800	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.06	46.4	$6.50	1	0	No Change	58	0.06	0%	46.4	$6.50	$0.00	$0.00	0.00	0	$0.00	0.00
232.2	Classroom 137	2600	39	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	3.35	8,720.4	$1,220.86	39	2	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	86	3.35	10%	7848.36	$1,098.77	$225.00	$450.00	0.00	872.04	$122.09	3.69
221.1	Prep Room	2600	8	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.46	1,206.4	$168.90	8	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	58	0.46	10%	1085.76	$152.01	$160.00	$160.00	0.00	120.64	$16.89	9.47
221.1	Classroom 135	2600	44	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	2.55	6,635.2	$928.93	44	2	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	2.55	10%	5971.68	$836.04	$225.00	$450.00	0.00	663.52	$92.89	4.84
222.3	0	2600	5	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., White Diffuser	58	0.29	754.0	$105.56	5	0	No Change	58	0.29	0%	754	$105.56	$0.00	$0.00	0.00	0	$0.00	0.00
221.1	Classroom 135 Restroom	2600	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.12	301.6	$42.22	2	0	No Change	58	0.12	0%	301.6	$42.22	$0.00	$0.00	0.00	0	$0.00	0.00

221.1	Classroom 135 Storage	2600	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.12	301.6	$42.22	2	0	No Change	58	0.12	0%	301.6	$42.22	$0.00	$0.00	0.00	0	$0.00	0.00
222.2	Classroom 134	2600	11	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.64	1,658.8	$232.23	11	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	0.64	10%	1492.92	$209.01	$225.00	$225.00	0.00	165.88	$23.22	9.69
221.1	Classroom 134 Restroom	2600	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.12	301.6	$42.22	2	0	No Change	58	0.12	0%	301.6	$42.22	$0.00	$0.00	0.00	0	$0.00	0.00
222.2	Classroom 134 Storage	2600	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.17	452.4	$63.34	3	0	No Change	58	0.17	0%	452.4	$63.34	$0.00	$0.00	0.00	0	$0.00	0.00
222.2	Classroom 132	2600	14	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.81	2,111.2	$295.57	14	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	0.81	10%	1900.08	$266.01	$225.00	$225.00	0.00	211.12	$29.56	7.61
222.2	Classroom 133	2600	11	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.64	1,658.8	$232.23	11	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	0.64	10%	1492.92	$209.01	$225.00	$225.00	0.00	165.88	$23.22	9.69
227.2	Corridor	3600	15	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.87	3,132.0	$438.48	15	0	No Change	58	0.87	0%	3132	$438.48	$0.00	$0.00	0.00	0	$0.00	0.00
221.1	Elec. Closet	800	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.12	92.8	$12.99	2	0	No Change	58	0.12	0%	92.8	$12.99	$0.00	$0.00	0.00	0	$0.00	0.00
232.2	Classroom 131	2600	48	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	4.13	10,732.8	$1,502.59	48	2	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	86	4.13	10%	9659.52	$1,352.33	$225.00	$450.00	0.00	1073.28	$150.26	2.99
221.1	Classroom 131 Restroom	2600	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.12	301.6	$42.22	2	0	No Change	58	0.12	0%	301.6	$42.22	$0.00	$0.00	0.00	0	$0.00	0.00
222.2	Admissions Office	2600	6	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.35	904.8	$126.67	6	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	58	0.35	10%	814.32	$114.00	$160.00	$160.00	0.00	90.48	$12.67	12.63
221.1	Storage	800	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.06	46.4	$6.50	1	0	No Change	58	0.06	0%	46.4	$6.50	$0.00	$0.00	0.00	0	$0.00	0.00
221.2	Teen Center	2600	16	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.93	2,412.8	$337.79	16	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	0.93	10%	2171.52	$304.01	$225.00	$225.00	0.00	241.28	$33.78	6.66

127.2	Corridor	3600	19	2	2x2, 2 Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	1.48	5,335.2	$746.93	19	0	No Change	78	1.48	0%	5335.2	$746.93	$0.00	$0.00	0.00	0	$0.00	0.00
127.2	0	3600	56	2	2x2, 2 Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	4.37	15,724.8	$2,201.47	56	2	Daylight Sensor (Sensorswitch PP 20 & CM-PC or equal)	78	4.37	20%	12579.84	$1,761.18	$280.00	$560.00	0.00	3144.96	$440.29	1.27
601	0	2600	6	2	(2) 7w CFL Exit Sign	16	0.10	249.6	$34.94	6	0	No Change	16	0.10	0%	249.6	$34.94	$0.00	$0.00	0.00	0	$0.00	0.00
127.2	Vestibule	3600	4	2	2x2, 2 Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	0.31	1,123.2	$157.25	4	1	Daylight Sensor (Sensorswitch PP 20 & CM-PC or equal)	78	0.31	20%	898.56	$125.80	$280.00	$280.00	0.00	224.64	$31.45	8.90
122.2	Nurse	2600	13	2	2x4, 2-Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	1.01	2,636.4	$369.10	13	0	No Change	78	1.01	0%	2636.4	$369.10	$0.00	$0.00	0.00	0	$0.00	0.00
127.2	0	2600	3	2	2x2, 2 Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	0.23	608.4	$85.18	3	0	No Change	78	0.23	0%	608.4	$85.18	$0.00	$0.00	0.00	0	$0.00	0.00
601	0	2600	2	2	(2) 7w CFL Exit Sign	16	0.03	83.2	$11.65	2	0	No Change	16	0.03	0%	83.2	$11.65	$0.00	$0.00	0.00	0	$0.00	0.00
121.5	Nurse Restroom	1300	2	2	1x4, 2-Lamp, 34w T12, Mag. Ballast, Wall Mnt., White Diffuser	78	0.16	202.8	$28.39	2	0	No Change	78	0.16	0%	202.8	$28.39	$0.00	$0.00	0.00	0	$0.00	0.00
127.2	Buildings & Grounds Hall	4200	8	2	2x2, 2 Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	0.62	2,620.8	$366.91	8	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	78	0.62	10%	2358.72	$330.22	$160.00	$160.00	0.00	262.08	$36.69	4.36
601	0	8760	2	2	(2) 7w CFL Exit Sign	16	0.03	280.3	$39.24	2	0	No Change	16	0.03	0%	280.32	$39.24	$0.00	$0.00	0.00	0	$0.00	0.00
127.2	Men's Locker	2600	5	2	2x2, 2 Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	0.39	1,014.0	$141.96	5	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	78	0.39	10%	912.6	$127.76	$160.00	$160.00	0.00	101.4	$14.20	11.27
121.5	0	2600	2	2	1x4, 2-Lamp, 34w T12, Mag. Ballast, Wall Mnt., White Diffuser	78	0.16	405.6	$56.78	2	0	No Change	78	0.16	0%	405.6	$56.78	$0.00	$0.00	0.00	0	$0.00	0.00
122.2	Women's Restroom	1300	3	2	2x4, 2-Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	0.23	304.2	$42.59	3	0	No Change	78	0.23	0%	304.2	$42.59	$0.00	$0.00	0.00	0	$0.00	0.00

122.2	B & G Offices	2600	8	2	2x4, 2-Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	0.62	1,622.4	$227.14	8	0	No Change	78	0.62	0%	1622.4	$227.14	$0.00	$0.00	0.00	0	$0.00	0.00
121.4	Maintenance Shop	2600	22	2	1x4, 2-Lamp, 34w T12, Mag. Ballast, Pendant Mnt., Clear Acrylic Lens	78	1.72	4,461.6	$624.62	22	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	78	1.72	10%	4015.44	$562.16	$225.00	$225.00	0.00	446.16	$62.46	3.60
127.2	Gym	2600	28	2	2x2, 2 Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	2.18	5,678.4	$794.98	28	2	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	78	2.18	10%	5110.56	$715.48	$225.00	$450.00	0.00	567.84	$79.50	5.66
601		8760	6	2	(2) 7w CFL Exit Sign	16	0.10	841.0	$117.73	6	0	No Change	16	0.10	0%	840.96	$117.73	$0.00	$0.00	0.00	0	$0.00	0.00
770		4700	50	1	400w MH, Prismatic Lens	465	23.25	109,275.0	$15,298.50	50	3	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	465	23.25	10%	98347.5	$13,768.65	$225.00	$675.00	0.00	10927.5	$1,529.85	0.44
745	Gym Storage	2600	9	1	250w MH Down Light w/Prismatic Lens	295	2.66	6,903.0	$966.42	9	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	295	2.66	10%	6212.7	$869.78	$160.00	$160.00	0.00	690.3	$96.64	1.66
121.3		2600	6	2	1x4, 2-Lamp, 34w T12, Mag. Ballast, Pendant Mnt., Prismatic Lens	78	0.47	1,216.8	$170.35	6	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	78	0.47	10%	1095.12	$153.32	$160.00	$160.00	0.00	121.68	$17.04	9.39
121.3	Generator Room	2600	6	2	1x4, 2-Lamp, 34w T12, Mag. Ballast, Pendant Mnt., Prismatic Lens	78	0.47	1,216.8	$170.35	6	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	78	0.47	10%	1095.12	$153.32	$160.00	$160.00	0.00	121.68	$17.04	9.39
121.3	Boiler Room	4200	6	2	1x4, 2-Lamp, 34w T12, Mag. Ballast, Pendant Mnt., Prismatic Lens	78	0.47	1,965.6	$275.18	6	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	78	0.47	10%	1769.04	$247.67	$160.00	$160.00	0.00	196.56	$27.52	5.81
122.2	Boy's Locker Room	2600	12	2	2x4, 2-Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	0.94	2,433.6	$340.70	12	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	78	0.94	10%	2190.24	$306.63	$225.00	$225.00	0.00	243.36	$34.07	6.60
127.2	0	2600	4	2	2x2, 2 Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	0.31	811.2	$113.57	4	0	No Change	78	0.31	0%	811.2	$113.57	$0.00	$0.00	0.00	0	$0.00	0.00
122.2	Boy's Locker Room Offices	2600	3	2	2x4, 2-Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	0.23	608.4	$85.18	3	0	No Change	78	0.23	0%	608.4	$85.18	$0.00	$0.00	0.00	0	$0.00	0.00
122.2	Girl's Locker Room	2600	12	2	2x4, 2-Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	0.94	2,433.6	$340.70	12	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	78	0.94	10%	2190.24	$306.63	$225.00	$225.00	0.00	243.36	$34.07	6.60

127.2	0	2600	4	2	2x2, 2 Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	0.31	811.2	$113.57	4	0	No Change	78	0.31	0%	811.2	$113.57	$0.00	$0.00	0.00	0	$0.00	0.00
122.2	Girl's Locker Room Offices	2600	3	2	2x4, 2-Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	0.23	608.4	$85.18	3	0	No Change	78	0.23	0%	608.4	$85.18	$0.00	$0.00	0.00	0	$0.00	0.00
122.2	P.T. Room	2600	4	2	2x4, 2-Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	0.31	811.2	$113.57	4	0	No Change	78	0.31	0%	811.2	$113.57	$0.00	$0.00	0.00	0	$0.00	0.00
127.2	0	2600	1	2	2x2, 2 Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	0.08	202.8	$28.39	1	0	No Change	78	0.08	0%	202.8	$28.39	$0.00	$0.00	0.00	0	$0.00	0.00
127.2	Ticket Window	800	3	2	2x2, 2 Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	0.23	187.2	$26.21	3	0	No Change	78	0.23	0%	187.2	$26.21	$0.00	$0.00	0.00	0	$0.00	0.00
122.2	Men's Restroom	1300	3	2	2x4, 2-Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	0.23	304.2	$42.59	3	0	No Change	78	0.23	0%	304.2	$42.59	$0.00	$0.00	0.00	0	$0.00	0.00
121.4	0	1300	2	2	1x4, 2-Lamp, 34w T12, Mag. Ballast, Wall Mnt., Prismatic Lens	78	0.16	202.8	$28.39	2	0	No Change	78	0.16	0%	202.8	$28.39	$0.00	$0.00	0.00	0	$0.00	0.00
122.2	Women's Restroom	1300	3	2	2x4, 2-Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	0.23	304.2	$42.59	3	0	No Change	78	0.23	0%	304.2	$42.59	$0.00	$0.00	0.00	0	$0.00	0.00
121.4	0	1300	2	2	1x4, 2-Lamp, 34w T12, Mag. Ballast, Wall Mnt., Prismatic Lens	78	0.16	202.8	$28.39	2	0	No Change	78	0.16	0%	202.8	$28.39	$0.00	$0.00	0.00	0	$0.00	0.00
127.2	0	1300	1	2	2x2, 2 Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	0.08	101.4	$14.20	1	0	No Change	78	0.08	0%	101.4	$14.20	$0.00	$0.00	0.00	0	$0.00	0.00
121.3	Cust. Closet	800	2	2	1x4, 2-Lamp, 34w T12, Mag. Ballast, Pendant Mnt., No Lens	78	0.16	124.8	$17.47	2	0	No Change	78	0.16	0%	124.8	$17.47	$0.00	$0.00	0.00	0	$0.00	0.00
132.2	Classroom 204	2600	12	3	2x4, 3-Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	127	1.52	3,962.4	$554.74	12	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	127	1.52	10%	3566.16	$499.26	$225.00	$225.00	0.00	396.24	$55.47	4.06
132.2	Classroom 203	2600	12	3	2x4, 3-Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	127	1.52	3,962.4	$554.74	12	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	127	1.52	10%	3566.16	$499.26	$225.00	$225.00	0.00	396.24	$55.47	4.06

110.1	Hall Display Cases	4200	12	1	2' Channel, 1-Lamp, 20w T12, Mag. Ballast, Surface Mnt., No Lens	22	0.26	1,108.8	$155.23	12	0	No Change	22	0.26	0%	1108.8	$155.23	$0.00	$0.00	0.00	0	$0.00	0.00
127.2	Lobby	3600	11	2	2x2, 2 Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	0.86	3,088.8	$432.43	11	0	No Change	78	0.86	0%	3088.8	$432.43	$0.00	$0.00	0.00	0	$0.00	0.00
232.2	Aux Gym Lobby	3600	7	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.60	2,167.2	$303.41	7	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	86	0.60	10%	1950.48	$273.07	$160.00	$160.00	0.00	216.72	$30.34	5.27
770	Aux Gym	4700	12	1	400w MH, Prismatic Lens	465	5.58	26,226.0	$3,671.64	12	0	No Change	465	5.58	0%	26226	$3,671.64	$0.00	$0.00	0.00	0	$0.00	0.00
232.2	Women's Locker Room	2600	5	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.43	1,118.0	$156.52	5	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	86	0.43	10%	1006.2	$140.87	$160.00	$160.00	0.00	111.8	$15.65	10.22
232.2	Men's Locker Room	2600	5	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.43	1,118.0	$156.52	5	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	86	0.43	10%	1006.2	$140.87	$160.00	$160.00	0.00	111.8	$15.65	10.22
227.2	Locker Room Hall	2600	3	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.17	452.4	$63.34	3	0	No Change	58	0.17	0%	452.4	$63.34	$0.00	$0.00	0.00	0	$0.00	0.00
232.2	Weight Room	2600	10	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.86	2,236.0	$313.04	10	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	86	0.86	10%	2012.4	$281.74	$225.00	$225.00	0.00	223.6	$31.30	7.19
221.3	Gym Storage	2600	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	0.23	603.2	$84.45	4	0	No Change	58	0.23	0%	603.2	$84.45	$0.00	$0.00	0.00	0	$0.00	0.00
217.2	Corridor	3600	30	1	2x2, 1 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	30	0.90	3,240.0	$453.60	30	0	No Change	30	0.90	0%	3240	$453.60	$0.00	$0.00	0.00	0	$0.00	0.00
227.2	Office Reception Area	2600	15	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.87	2,262.0	$316.68	15	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	58	0.87	10%	2035.8	$285.01	$160.00	$160.00	0.00	226.2	$31.67	5.05
221.4	Restroom	2600	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic Lens	58	0.12	301.6	$42.22	2	0	No Change	58	0.12	0%	301.6	$42.22	$0.00	$0.00	0.00	0	$0.00	0.00
227.2	Copy Room	2600	4	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.23	603.2	$84.45	4	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	58	0.23	10%	542.88	$76.00	$160.00	$160.00	0.00	60.32	$8.44	18.95

227.2	Conf. Room	2600	6	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.35	904.8	$126.67	6	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	58	0.35	10%	814.32	$114.00	$160.00	$160.00	0.00	90.48	$12.67	12.63
227.2	Principal's Office	2600	10	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.58	1,508.0	$211.12	10	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	58	0.58	10%	1357.2	$190.01	$160.00	$160.00	0.00	150.8	$21.11	7.58
217.2	Office Hall	2600	5	1	2x2, 1 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	30	0.15	390.0	$54.60	5	0	No Change	30	0.15	0%	390	$54.60	$0.00	$0.00	0.00	0	$0.00	0.00
227.2	Side Office 1	2600	4	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.23	603.2	$84.45	4	0	No Change	58	0.23	0%	603.2	$84.45	$0.00	$0.00	0.00	0	$0.00	0.00
227.2	Side Office 2	2600	4	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.23	603.2	$84.45	4	0	No Change	58	0.23	0%	603.2	$84.45	$0.00	$0.00	0.00	0	$0.00	0.00
227.2	Side Office 3	2600	4	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.23	603.2	$84.45	4	0	No Change	58	0.23	0%	603.2	$84.45	$0.00	$0.00	0.00	0	$0.00	0.00
221.1	Classroom 303	2600	10	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.58	1,508.0	$211.12	10	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	58	0.58	10%	1357.2	$190.01	$160.00	$160.00	0.00	150.8	$21.11	7.58
612	Elec. Room	800	2	1	Pendant Mnt., 200w A19 Lamp	200	0.40	320.0	$44.80	2	0	No Change	200	0.40	0%	320	$44.80	$0.00	$0.00	0.00	0	$0.00	0.00
651	0	800	2	1	Pendant Mnt., 26w CFL Lamp	26	0.05	41.6	$5.82	2	0	No Change	26	0.05	0%	41.6	$5.82	$0.00	$0.00	0.00	0	$0.00	0.00
222.2	Offices	2600	11	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.64	1,658.8	$232.23	11	0	No Change	58	0.64	0%	1658.8	$232.23	$0.00	$0.00	0.00	0	$0.00	0.00
222.2	Classroom 307	2600	10	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.58	1,508.0	$211.12	10	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	58	0.58	10%	1357.2	$190.01	$160.00	$160.00	0.00	150.8	$21.11	7.58
222.2	Prep Room	2600	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.17	452.4	$63.34	3	0	No Change	58	0.17	0%	452.4	$63.34	$0.00	$0.00	0.00	0	$0.00	0.00
222.2	Classroom 308	2600	30	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.74	4,524.0	$633.36	30	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	1.74	10%	4071.6	$570.02	$225.00	$225.00	0.00	452.4	$63.34	3.55

221.3	Classroom 309	2600	20	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	1.16	3,016.0	$422.24	20	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	1.16	10%	2714.4	$380.02	$225.00	$225.00	0.00	301.6	$42.22	5.33
221.3	Classroom 310	2600	20	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	1.16	3,016.0	$422.24	20	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	1.16	10%	2714.4	$380.02	$225.00	$225.00	0.00	301.6	$42.22	5.33
221.3	Classroom 311	2600	20	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	1.16	3,016.0	$422.24	20	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	1.16	10%	2714.4	$380.02	$225.00	$225.00	0.00	301.6	$42.22	5.33
221.3	Classroom 312	2600	20	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	1.16	3,016.0	$422.24	20	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	1.16	10%	2714.4	$380.02	$225.00	$225.00	0.00	301.6	$42.22	5.33
221.3	Classroom 313	2600	16	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	0.93	2,412.8	$337.79	16	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	0.93	10%	2171.52	$304.01	$225.00	$225.00	0.00	241.28	$33.78	6.66
221.3	Classroom 314	2600	20	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	1.16	3,016.0	$422.24	20	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	1.16	10%	2714.4	$380.02	$225.00	$225.00	0.00	301.6	$42.22	5.33
221.3	Classroom 315	2600	20	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	1.16	3,016.0	$422.24	20	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	1.16	10%	2714.4	$380.02	$225.00	$225.00	0.00	301.6	$42.22	5.33
221.3	Classroom 316	2600	20	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	1.16	3,016.0	$422.24	20	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	1.16	10%	2714.4	$380.02	$225.00	$225.00	0.00	301.6	$42.22	5.33
222.1	Book Room	2600	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Indirect	58	0.23	603.2	$84.45	4	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	58	0.23	10%	542.88	$76.00	$160.00	$160.00	0.00	60.32	$8.44	18.95
613	Cust. Closet	800	2	1	"Keyless" Socket, 100w A19 Lamp	100	0.20	160.0	$22.40	2	0	No Change	100	0.20	0%	160	$22.40	$0.00	$0.00	0.00	0	$0.00	0.00
217.2	Corridor	2600	30	1	2x2, 1 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	30	0.90	2,340.0	$327.60	30	0	No Change	30	0.90	0%	2340	$327.60	$0.00	$0.00	0.00	0	$0.00	0.00
121.1	Display Case 1	4200	1	2	1x4, 2-Lamp, 34w T12, Mag. Ballast, Surface Mnt., No Lens	78	0.08	327.6	$45.86	1	0	No Change	78	0.08	0%	327.6	$45.86	$0.00	$0.00	0.00	0	$0.00	0.00
232.2	Classroom 318	2600	8	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.69	1,788.8	$250.43	8	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	86	0.69	10%	1609.92	$225.39	$160.00	$160.00	0.00	178.88	$25.04	6.39

232.2	Classroom 319	2600	8	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.69	1,788.8	$250.43	8	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	86	0.69	10%	1609.92	$225.39	$160.00	$160.00	0.00	178.88	$25.04	6.39
232.2	Classroom 320	2600	8	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.69	1,788.8	$250.43	8	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	86	0.69	10%	1609.92	$225.39	$160.00	$160.00	0.00	178.88	$25.04	6.39
232.2	Classroom 321	2600	8	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.69	1,788.8	$250.43	8	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	86	0.69	10%	1609.92	$225.39	$160.00	$160.00	0.00	178.88	$25.04	6.39
222.2	Faculty Lounge	2600	7	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.41	1,055.6	$147.78	7	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	58	0.41	10%	950.04	$133.01	$160.00	$160.00	0.00	105.56	$14.78	10.83
232.2	Classroom 323	2600	15	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	1.29	3,354.0	$469.56	15	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	86	1.29	10%	3018.6	$422.60	$225.00	$225.00	0.00	335.4	$46.96	4.79
217.2	Office & Restrooms	2600	6	1	2x2, 1 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	30	0.18	468.0	$65.52	6	0	No Change	30	0.18	0%	468	$65.52	$0.00	$0.00	0.00	0	$0.00	0.00
221.1	0	2600	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.12	301.6	$42.22	2	0	No Change	58	0.12	0%	301.6	$42.22	$0.00	$0.00	0.00	0	$0.00	0.00
221.3	Classroom 324	2600	18	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	1.04	2,714.4	$380.02	18	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	1.04	10%	2442.96	$342.01	$225.00	$225.00	0.00	271.44	$38.00	5.92
232.2	Classroom 325	2600	42	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	3.61	9,391.2	$1,314.77	42	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	86	3.61	10%	8452.08	$1,183.29	$225.00	$225.00	0.00	939.12	$131.48	1.71
221.1	Classroom 326	2600	38	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	2.20	5,730.4	$802.26	38	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	2.20	10%	5157.36	$722.03	$225.00	$225.00	0.00	573.04	$80.23	2.80
612	Garage Bay/Storage	1300	5	1	Pendant Mnt., 200w A19 Lamp	200	1.00	1,300.0	$182.00	5	0	No Change	200	1.00	0%	1300	$182.00	$0.00	$0.00	0.00	0	$0.00	0.00
612	Elec. Room/Storage	1300	6	1	Pendant Mnt., 200w A19 Lamp	200	1.20	1,560.0	$218.40	6	0	No Change	200	1.20	0%	1560	$218.40	$0.00	$0.00	0.00	0	$0.00	0.00
612	Boiler Room	4200	8	1	Pendant Mnt., 200w A19 Lamp	200	1.60	6,720.0	$940.80	8	0	No Change	200	1.60	0%	6720	$940.80	$0.00	$0.00	0.00	0	$0.00	0.00

222.2	Classroom 329	2600	24	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.39	3,619.2	$506.69	24	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	1.39	10%	3257.28	$456.02	$225.00	$225.00	0.00	361.92	$50.67	4.44
222.2	Control Room	2600	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.17	452.4	$63.34	3	0	No Change	58	0.17	0%	452.4	$63.34	$0.00	$0.00	0.00	0	$0.00	0.00
222.2	0	2600	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.06	150.8	$21.11	1	0	No Change	58	0.06	0%	150.8	$21.11	$0.00	$0.00	0.00	0	$0.00	0.00
612	A/V Storage	800	4	1	Pendant Mnt., 200w A19 Lamp	200	0.80	640.0	$89.60	4	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	200	0.80	10%	576	$80.64	$225.00	$225.00	0.00	64	$8.96	25.11
222.3	Classroom 330	2600	38	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	2.20	5,730.4	$802.26	38	2	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	2.20	10%	5157.36	$722.03	$225.00	$450.00	0.00	573.04	$80.23	5.61
612	Storage/Supplies	800	4	1	Pendant Mnt., 200w A19 Lamp	200	0.80	640.0	$89.60	4	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	200	0.80	10%	576	$80.64	$160.00	$160.00	0.00	64	$8.96	17.86
232.2	Classroom 331	2600	6	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.52	1,341.6	$187.82	6	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	86	0.52	10%	1207.44	$169.04	$160.00	$160.00	0.00	134.16	$18.78	8.52
221.1	0	2600	38	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., No Lens	58	2.20	5,730.4	$802.26	38	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	2.20	10%	5157.36	$722.03	$225.00	$225.00	0.00	573.04	$80.23	2.80
221.1	Classroom 348	2600	11	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.64	1,658.8	$232.23	11	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	0.64	10%	1492.92	$209.01	$225.00	$225.00	0.00	165.88	$23.22	9.69
227.2	0	2600	3	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.17	452.4	$63.34	3	0	No Change	58	0.17	0%	452.4	$63.34	$0.00	$0.00	0.00	0	$0.00	0.00
232.2	Classroom 351	2600	6	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.52	1,341.6	$187.82	6	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	86	0.52	10%	1207.44	$169.04	$160.00	$160.00	0.00	134.16	$18.78	8.52
221.3	Classroom 332	2600	44	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	2.55	6,635.2	$928.93	44	2	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	2.55	10%	5971.68	$836.04	$225.00	$450.00	0.00	663.52	$92.89	4.84
612	Storage	800	2	1	Pendant Mnt., 200w A19 Lamp	200	0.40	320.0	$44.80	2	0	No Change	200	0.40	0%	320	$44.80	$0.00	$0.00	0.00	0	$0.00	0.00

227.2	Conf. Room	2600	48	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	2.78	7,238.4	$1,013.38	48	2	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	2.78	10%	6514.56	$912.04	$225.00	$450.00	0.00	723.84	$101.34	4.44
221.1	Storage	800	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.12	92.8	$12.99	2	0	No Change	58	0.12	0%	92.8	$12.99	$0.00	$0.00	0.00	0	$0.00	0.00
612	0	800	2	1	Pendant Mnt., 200w A19 Lamp	200	0.40	320.0	$44.80	2	0	No Change	200	0.40	0%	320	$44.80	$0.00	$0.00	0.00	0	$0.00	0.00
227.2	Media Center	2600	56	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	3.25	8,444.8	$1,182.27	56	3	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	3.25	10%	7600.32	$1,064.04	$225.00	$675.00	0.00	844.48	$118.23	5.71
232.2	Library Offices	2600	6	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	0.52	1,341.6	$187.82	6	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	86	0.52	10%	1207.44	$169.04	$160.00	$160.00	0.00	134.16	$18.78	8.52
221.2	Media Center	2600	18	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.04	2,714.4	$380.02	18	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	1.04	10%	2442.96	$342.01	$225.00	$225.00	0.00	271.44	$38.00	5.92
227.2	Classroom 338	2600	13	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.75	1,960.4	$274.46	13	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	0.75	10%	1764.36	$247.01	$225.00	$225.00	0.00	196.04	$27.45	8.20
227.2	Classroom 338B	2600	20	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.16	3,016.0	$422.24	20	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	1.16	10%	2714.4	$380.02	$225.00	$225.00	0.00	301.6	$42.22	5.33
221.1	Kitchen	2600	53	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	3.07	7,992.4	$1,118.94	53	2	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	3.07	10%	7193.16	$1,007.04	$225.00	$450.00	0.00	799.24	$111.89	4.02
221.1	Motel	2600	12	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.70	1,809.6	$253.34	12	0	No Change	58	0.70	0%	1809.6	$253.34	$0.00	$0.00	0.00	0	$0.00	0.00
221.1	Laundry Room	2600	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.23	603.2	$84.45	4	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	58	0.23	10%	542.88	$76.00	$160.00	$160.00	0.00	60.32	$8.44	18.95
222.2	Classroom 343	2600	10	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.58	1,508.0	$211.12	10	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	58	0.58	10%	1357.2	$190.01	$160.00	$160.00	0.00	150.8	$21.11	7.58
222.1	Men's Restroom	1300	3	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Indirect	58	0.17	226.2	$31.67	3	0	No Change	58	0.17	0%	226.2	$31.67	$0.00	$0.00	0.00	0	$0.00	0.00

222.2	Women's Restroom	1300	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.17	226.2	$31.67	3	0	No Change	58	0.17	0%	226.2	$31.67	$0.00	$0.00	0.00	0	$0.00	0.00
	Totals		2992	488			226.68	663,318.3	$92,864.56	2992	145			226.679	11.4	609,626	$85,348		$30,125	0.0	53,693	$7,517	4.01

MELINK CORPORATION

INTELLI-HOOD VARIABLE EXHAUST CONTROLLER

ENERGY SAVINGS REPORT

COMPANY: Cape May Tech High

RETROFIT

ADDRESS: 4 Moore Road

Cape May Court House, NJ, 08210 Aug-25-10

APPLICATION: Main Kitchen

- MOTOR OPERATING SAVINGS:	$428	/YEAR
- HEATING SAVINGS:	$549	/YEAR
- COOLING SAVINGS:	$44	/YEAR
- TOTAL SAVINGS:	$1,021	/YEAR
- INSTALLED COST:	$22,563	
- PAYBACK PERIOD:	22.1	YEARS
- RATE OF RETURN - 5 YEARS:	-10.1	%
10 YEARS:	-10.1	%

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

I. MOTOR OPERATING SAVINGS

INPUT DATA:

A Operating Hours Per Day	6	HRS/DAY
B Operating Days Per Week	5	DAYS/WK
C Operating Weeks Per Year	42	WKS/YR
D Horsepower of Fan Motor(s)	7	HP
E Load Factor of Fan Motor(s)	0.75	
F Cost Per Kilowatt Hour	0.14	$/KWHR

CONSTANT EXHAUST VOLUME ANALYSIS:

G Total Time (A x B x C)	1260	HRS/YR
H Total KWHR/HP/YR (0.746/0.9 x G)	1044.4	KWHR/HP/YR

VARIABLE EXHAUST VOLUME ANALYSIS:

% Rated RPM H	% Run Time I	Time HRS/YR J=FxI	Output KW/HP K	System Effic. L	Input KW/HP M=K/L	KWHR/ HP/YR N=JxM
100	33.3333333	420	0.746	0.9	0.829	348.1
90	0	0	0.544	0.9	0.604	0.0
80	0	0	0.382	0.9	0.424	0.0
70	16.6666667	210	0.256	0.9	0.284	59.7
60	0	0	0.161	0.9	0.179	0.0
50	33.3333333	420	0.093	0.9	0.103	43.4
40	16.6666667	210	0.048	0.9	0.053	11.2
30	0	0	0.020	0.9	0.022	0.0
20	0	0	0.015	0.9	0.017	0.0
10	0	0	0.010	0.90	0.011	0.0
O Total KWH/HP/YR (Total of Column N)						462.5

CALCULATION:

SAVINGS = (H - O) x D x E x F = $428 /YEAR
==========

II. CONDITIONED MAKE-UP AIR - HEATING

INPUT DATA:

A Previous Net Exhaust Volume	6500	CFM
B New Net Exhaust Volume (1)	4442	CFM
C Winter Building Temperature	70	F
D Previous Net Heat Load (2)	150227	kBTU
E New Net Heat Load (2)	102655	kBTU
F Operating Hours Per Day	6	HRS/DAY
G Operating Days Per Week	5	DAYS/WK
- Heating Fuel Type	Nat Gas	
H Cost Per Fuel Unit (3)	1.48	$/UNIT
J BTU Per Fuel Unit (4)	100	kBTU/UNIT
K System Efficiency (4)	0.77	

CALCULATION:

SAVINGS = (D - E) x 0.6 x H / (J x K)

= $549 /YEAR
==========

NOTES:

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

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

(3) Using local energy costs.

(4) Using typical system efficiency.

TABLE 1

% Rated RPM (F)	% Run Time (I)	F x I
100	33	33
90	0	0
80	0	0
70	17	12
60	0	0
50	33	17
40	17	7
30	0	0
20	0	0
10	0	0
AVG % RPM =		68%

III. CONDITIONED MAKE-UP AIR SAVINGS - COOLING

INPUT DATA:

A Previous Net Exhaust Volume	6500	CFM
B New Net Exhaust Volume (1)	4442	CFM
C Previous Net Cooling Load (2)	17119.904	kBTU
D New Net Cooling Load (2)	11699	kBTU
E AC Correction Factor (3)	1	
F Cost Per Fuel Unit (5)	0.14	$/kWH
G COP (6)	3	

CALCULATION:

SAVINGS = (C - D) x 0.6 x E x F / (3.413 x G)

= $44 /YEAR

==========

NOTES:

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

(2) Obtained from Outdoor Airload Calculator

(3) Using design weather data.

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

(5) Using local energy costs.

(6) Using typical system efficiency.

AFTER-TAX CASH FLOW ANALYSIS

INPUT DATA:

FIRST YEAR SAVINGS	$1,021 /YEAR
INITIAL COST PLUS INSTALLATION	$22,563
MARGINAL TAX RATE	0%
ESTIMATED ANNUAL INCREASE IN ENERGY COSTS	3%

YEAR	SAVINGS	COST	DEPREC. %	DEPREC. $	NET AFTER-TAX CASH FLOW
0		-22,563			-22,563
1	1021	-	29	6543	1021
2	1051	-	20	4513	1051
3	1083	-	13	2933	1083
4	1115	-	10	2256	1115
5	1149	-	9	2031	1149
6	1183	-	9	2031	1183
7	1219	-	9	2031	1219
8	1255	-			1255
9	1293	-			1293
10	1332	-			1332

CALCULATIONS:

NET PRESENT VALUE = 5 YEARS @ 15%	-$16,486 ;	INTERNAL RATE OF RETURN (IRR) =	-10.1 %
NET PRESENT VALUE = 10 YEARS @ 15%	-$14,680 ;	INTERNAL RATE OF RETURN (IRR) =	-10.1 %

NOTE:

Net After-tax Cash Flow is calculated as follows:
NATCF = SAVINGS - COSTS - TAX RATE(SAVINGS - COSTS - DEPRECIATION)

Net Present Value is calculated as follows:
NPV = C(0) + C(1)/(1 + r) + C(2)/(1 + r)^2 + ... + C(n)/(1 + r)^n
(where C(n) is the net cash flow for the nth year
and r is the opportunity cost of capital)

IRR is calculated by trial and error using the formula:
NPV = C(0) + C(1)/(1 + IRR) + C(2)/(1 + IRR)^2 + ... + C(n)/(1 + IRR)^n

energy control equipment, inc
(800) 522-6924

Frigitek® Single-Phase Savings Summary

Summary Sheet 1

Rev Date	Date -	August 20, 2010
02/21/06	Customer -	Cape May Co Technical High School
	Address -	188 Crest Haven Rd
	City, St, ZIP -	Cape May Court House, NJ 08210
Sales Rep -	Contact -	James R. Owens
	Phone -	

*** Overall Summary ***

Summary Sheets - 1

Total Cost -	$1,861.30		**ROI -**	24.74	Mo
Total Dollar Savings -	$75.23	/Mo	$902.78	/Yr	
Total kWh Savings -	537.4	kWh/Mo	6,448.4	kWh/Yr	

*** Analysis Sheet Summaries ***

Analysis Sheets - 1

Sheet 1 - ID -	Main Kitchen Walk In Refrigerators/Freezers				
Frigitek Description -	120V - 3.5A		Quantity -	4	
Total Cost -	$1,861.30	ROI -	24.74	Months	
Dollar Savings -	$75.23	/Mo	$902.78	/Yr	
Energy Savings -	537.4	kWh/Mo	6,448.4	kWh/Yr	
Sheet 2 - ID -					
Frigitek Description -					
Total Cost -	$0.00	ROI -	0.00	Months	
Dollar Savings -	$0.00	/Mo	$0.00	/Yr	
Energy Savings -	0.0	kWh/Mo	0.0	kWh/Yr	
Sheet 3 - ID -					
Frigitek Description -					
Total Cost -	$0.00	ROI -	0.00	Months	
Dollar Savings -	$0.00	/Mo	$0.00	/Yr	
Energy Savings -	0.0	kWh/Mo	0.0	kWh/Yr	
Sheet 4 - ID -					
Frigitek Description -					
Total Cost -	$0.00	ROI -	0.00	Months	
Dollar Savings -	$0.00	/Mo	$0.00	/Yr	
Energy Savings -	0.0	kWh/Mo	0.0	kWh/Yr	
Sheet 5 - ID -					
Frigitek Description -					
Total Cost -	$0.00	ROI -	0.00	Months	
Dollar Savings -	$0.00	/Mo	$0.00	/Yr	
Energy Savings -	0.0	kWh/Mo	0.0	kWh/Yr	
Sheet 6 - ID -					
Frigitek Description -					
Total Cost -	$0.00	ROI -	0.00	Months	
Dollar Savings -	$0.00	/Mo	$0.00	/Yr	
Energy Savings -	0.0	kWh/Mo	0.0	kWh/Yr	

Frigitek® Single-Phase Savings Analysis				Analysis Sheet # 1 of	1	
Date -	August 20, 2010					
Customer -	Cape May Co Technical High School					
Room and Evap. Description -	Main Kitchen Walk In Refrigerators/Freezers					
Contact -	James R. Owens					
Phone -	0					
Number of Evaporators on this sheet -	4		Enter one of these -			
Fan motors per Evaporator -	3		Amps/Motor -	1.10		
Fan Voltage -	110		or Total Motor Amps -	0.00		
Motor Type (S, C or E) (1) -	S		Compressor Type (2)			
Motor Power Factor (1) -	0.58		(S)ingle or (T)hree Phase -	S		
Electricity Cost per KwH (3) -	14.0	Cents	Normal Duty Cycle (4) -	40.00	%	
Operation time factor (5) -	100	%	Frigitek Duty Cycle (6) -	32.00	%	
Fan Motors KwH/Mo -	614.8	Avg	Total Fan Motor Watts (7) -	842.2	W	
Frigitek Cost, Quan., Model -	$1,860.00	4	Model	120V - 3.5A		
Tax Rate (%) -	0.07	Tax -	$1.30			
Install, Shipping, other costs -	$0.00					
Total Cost -	$1,861.30					
Total Frigitek KwH Savings (8) -	537.37	/Mo Avg		6,448.43	/Yr	
Total Frigitek Dollar Savings (8) -	$75.23	/Mo Avg		$902.78	/Yr	
Payback Time (ROI) (9) -	24.74	Months				
Analysis Details ----------						
Before Frigitek						
Full-time High Speed Fan Cost (10) -	$86.07	/Mo Avg		$1,032.80	/Yr	
With Frigitek						
Frigitek Power Reduction Factor (11) -	80	%				
Full-Time Low Speed Cost -	$17.21	/Mo		$206.56	/Yr	
Fans KwH Saved -	334.43	/Mo Avg		4,013.17	/Yr	
Fan High Speed Cost (12) -	$27.54	/Mo Avg		$330.50	/Yr	
Fan Low Speed Cost (13) -	$11.71	/Mo Avg		$140.46	/Yr	
Total Fan Cost with Frigitek -	$39.25	/Mo Avg		$470.96	/Yr	
Fan Dollar Savings (14) -	$46.82	/Mo Avg		$561.84	/Yr	
Compressor Cost Reduction						
Fan Power Reduction (15) -	458.14	Watts	Heat Transfer Factor (16) -	9500		
Fan Heat Reduction (17) -	1563.20	BTU/Hr	Comp. Kw/Hp (18) -	1.55		
Compressor Hp use Reduction (19) -	0.1645476	Hp/Hr				
Compressor Power use Reduction (20) -	0.25504884	Kw/Hr	Cond. fan Savings (21) -	$2.35	/Mo	
Compressor Power use Reduction (20) -	186.18	KwH/Mo				
Compressor Cost reduction (22) -	$28.41	/Mo Avg		$340.94	/Yr	
Note - Numbers in parentheses refer to Explanation Sheet.						
				Sheet version -	02/21/06	