LOCAL GOVERNMENT ENERGY AUDIT PROGRAM: ENERGY AUDIT REPORT

PREPARED FOR: **MT. OLIVE TWP. SCHOOL DISTRICT**
MOUNT OLIVE HIGH SCHOOL

18 CORY ROAD,
FLANDERS 07836

ATTN: MR. THOMAS SCERBO
SUPERVISOR OF BUILDINGS & GROUNDS

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: **ERSIN GERCEK, PE, CEM**
LEAD MECHANICAL ENGINEER
EMAIL: EGERCEK@CEG-INC.NET

REPORT ISSUANCE: **FINAL, NOVEMBER 29TH, 2010**

PROJECT NO: **9C10050**

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:

Mount Olive Township School District
Mount Olive High School
18 Cory Road,
Flanders 07836

Municipal Contact Person: Mr. Thomas Scerbo
Facility Contact Person: Mr. Thomas Scerbo

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	$432,935
Natural Gas	$232,940
Total	$665,875

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

Table 1
Financial Summary Table

ENERGY CONSERVATION MEASURES (ECM's)					
ECM NO.	**DESCRIPTION**	**NET INSTALLATION COST[A]**	**ANNUAL SAVINGS[B]**	**SIMPLE PAYBACK (Yrs)**	**SIMPLE LIFETIME ROI**
ECM #1	Lighting Upgrade - Interior Spaces	$21,520	$10,767	2.0	650.5%
ECM #2	Lighting Upgrade - Gymnasium	$9,800	$7,489	1.3	1046.3%
ECM #3	Lighting Occupancy and Daylight Sensors	$17,785	$3,740	4.8	215.4%
ECM #4	Replace CRT Monitors	$5,600	$927	6.0	148.3%
ECM #5	Boiler Plant Upgrade	$488,000	$24,699	19.8	-24.1%
ECM #6	Window Replacement	$405,000	$8,173	49.6	-69.7%
ECM #7	Kitchen Exhaust Hood Controls	$30,639	$1,751	17.5	-14.3%
ECM #8	Premium Efficiency Motors	$18,916	$688	27.5	-45.5%
ECM #9	RTU Unit Upgrades	$83,368	$2,960	28.2	-46.7%
ECM #10	Solar Thermal System	$175,000	$14,318	12.2	22.7%
ECM #11	Demand Controlled Ventilation	$130,000	$13,953	9.3	61.0%
RENEWABLE ENERGY MEASURES (REM's)					
ECM NO.	**DESCRIPTION**	**NET INSTALLATION COST**	**ANNUAL SAVINGS**	**SIMPLE PAYBACK (Yrs)**	**SIMPLE LIFETIME ROI**
REM #1	Solar PV System	$3,249,900	$222,556	14.6	2.7%

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

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

Table 2
Estimated Energy Savings Summary Table

ENERGY CONSERVATION MEASURES (ECM's)				
ECM NO.	**DESCRIPTION**	**ANNUAL UTILITY REDUCTION**		
		ELECTRIC DEMAND (KW)	**ELECTRIC CONSUMPTION (KWH)**	**NATURAL GAS (THERMS)**
ECM #1	Lighting Upgrade - Interior Spaces	6.6	22,159	0
ECM #2	Lighting Upgrade - Gymnasium	16.0	51,296	0
ECM #3	Lighting Occupancy and Daylight Sensors	9.1	25,617	0
ECM #4	Replace CRT Monitors	0	6,350	0
ECM #5	Boiler Plant Upgrade	0	0	15,592
ECM #6	Window Replacement	3.1	8,579	4,553
ECM #7	Kitchen Exhaust Hood Controls	0	7,724	410
ECM #8	Premium Efficiency Motors	1.2	3,864	0
ECM #9	RTU Unit Upgrades	13.9	20,931	(63)
ECM #10	Solar Thermal System	0	0	9,420
ECM #11	Demand Controlled Ventilation	0.0	45,350	4,823
RENEWABLE ENERGY MEASURES (REM's)				
ECM NO.	**DESCRIPTION**	**ANNUAL UTILITY REDUCTION**		
		ELECTRIC DEMAND (KW)	**ELECTRIC CONSUMPTION (KWH)**	**NATURAL GAS (THERMS)**
REM #1	Solar PV Panels	288.9	448,702	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 Upgrade - Interior Spaces
- **ECM #2** Lighting Upgrade - Gymnasium
- **ECM #3** Lighting Occupancy and Daylight Sensors
- **ECM #4** Replace CRT Monitors
- **ECM #11** Demand Controlled Ventilation

ECM #1 Lighting Upgrade - Interior Spaces

Some of the classrooms, corridors, cafeteria, kitchen, storage spaces, utility closets and bathrooms in the buildings still have a variety of older fixtures with T12 lamps with magnetic ballasts or incandescent lamps. It is recommended to replace all of the T12 fixtures and the incandescent lights in these areas with higher efficiency fluorescent T8 fixtures with electronic ballasts or compact fluorescent lamps. This ECM has a simple payback of 2 years.

ECM #2 Lighting Upgrade - Gymnasium

The main gymnasium utilizes older style, probe start metal halide fixtures. These fixtures have direct replacements that save considerable energy. The lighting retrofit includes new high bay T-5 high output fluorescent fixtures to replace the metal halide fixtures. Advantages include extended life, instant lamp start and superior light quality, making this ECM financially and aesthetically beneficial. This ECM has a simple payback of 1.3 years making it highly recommended for the facility.

ECM #3 Lighting Occupancy and Daylight Sensors

Lighting controls provide a simple and effective solution to the problem of lights being unnecessarily left on. Occupancy sensors alone provide fast payback since there is no retrofit needed for the existing lighting. Daylight Sensors were included in this ECM to show the relative effect of daylight harvesting in addition to occupancy sensors. The combination of both options still pays back in 4.8 years and therefore is recommended.

ECM #4 CRT Monitor Replacements

Some of the computers in the building utilize CRT computer monitors. This type of monitors are outdated and have several disadvantages such as; significantly increased higher energy consumption, large amount of desk space usage, poor picture quality, distortions and flickering image, secular glare problems, and high weight, and electromagnetic emissions. Many of the drawbacks are difficult to quantify except for the energy use. CRT monitors use considerably more energy than an alternative flat panel LCD monitor. Replacement of the existing CRT monitors with LCD monitors saves considerable energy as well as provides other ergonomic

benefits as well. This ECM has a simple payback in 6 years and it is recommended for the building.

ECM #11 Demand Controlled Ventilation

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. 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. A total of eight (8) units are suitable candidates for DCV in this building. This ECM has a combined 9.3 years payback and saves approximately $13,950 per year.

Renewable Energy Analysis

Renewable Energy Measures (REMs) were also reviewed for implementation at the Mount Olive High School. CEG utilized a parking lot canopy mounted solar array to house a substantial PV system. The recommended 361 kW PV system will produce approximately 448,700 kWh of electricity annually and will reduce the schools electrical consumption from the grid by 15%. The system's calculated simple payback of 14.6 years is past the standard 10 year simple payback threshold; however, with alternative funding this payback could be lessened. CEG recommends the Owner review all funding options before deciding to not implement this renewable energy measure.

Operation and Maintenance Considerations

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

1. Chemically clean the condenser and evaporator coils periodically to optimize efficiency. Poorly maintained heat transfer surfaces can reduce efficiency 5-10%.
2. Maintain all weather stripping on entrance doors.
3. Clean all light fixtures to maximize light output.
4. Provide more frequent air filter changes to decrease overall system power usage and maintain better IAQ.
5. Maintain insulation on the hot and chilled water pipes.
6. Check and confirm occupied and unoccupied temperature settings for each air conditioning unit and remove any overrides.
7. Confirm that outside air economizers on the rooftop air handling units are functioning properly to take advantage of free cooling and avoid excess outside air during occupied periods.

Retro-commissioning

In addition to the above recommendations, based on the review of the facility's energy bills and discussions with the School District, the energy audit team recommends Retro-Commissioning of this facility to meet the following objectives:

- Bring existing HVAC equipment to its proper operational state including air and water distribution systems
- Reduce energy use and energy costs
- Improve indoor air quality
- Verify the installation and performance of identified system upgrades
- Address overall building energy use and demand and identify areas of highest energy use and demand
- Identify the location of the most comfort problems or trouble spots in the building
- Review current O&M practices

Through the implementation of a Retro-Commissioning Plan, the School District will be able to continue with their vision of reducing energy usage and operating efficient facilities.

Other Recommendations

To provide assistance to small public entities in the effort to implement valuable ECMs, the NJ Clean Energy program in combination with the BPU has initiated the "Direct Install Program". This program provides extremely large incentives to facilities such as the Chester M. Stephens Elementary School building, to jump start energy projects. The direct install program offers incentives up to 60% of the installation costs through the services of pre-approved contractors. The program is directed towards one for one replacement projects that save energy and provide valuable upgrades for the facility for only 40% of the installation cost. Moreover, the program currently has a 200 kW maximum demand limit for applicability. This demand limit is capable of being waived if the School District is able to receive a portion of their respective Township Local Government's American Recovery and Reinvestment Act (ARRA) funding towards energy efficiency improvements. Therefore, for facilities over the 200 kW maximum demand limit, such as Mountain View Elementary School, the School District will need to coordinate Direct Install efforts with the Township's Local Government.

Conclusion

Based on its Energy Star Rating, the Mount Olive High School appears to be operating at an average efficiency level compared to other schools in the region. With the implementation of the above recommended measures the Mount Olive BOE will realize significant energy savings at the Mount Olive High School.

II. INTRODUCTION

The comprehensive energy audit covers the 335,000 square feet High School, which includes: classrooms, laboratories, offices, computer rooms, gymnasium, auditorium, cafeteria, kitchen, maintenance areas and storage areas.

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

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

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

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

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

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

III. METHOD OF ANALYSIS

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

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

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

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

ECM Calculation Equations:

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

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

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

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

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

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

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

IV. HISTORIC ENERGY CONSUMPTION/COST

A. Energy Usage / Tariffs

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

The electric usage profile represents the actual electrical usage for the facility. Jersey Central Power and Light (JCP&L) provides electricity to the facility under their General Service Secondary Three-Phase 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 gas usage profile shows the actual natural gas energy usage for the facility. New Jersey Natural Gas (NJNG) provides natural gas to the facility under the General Service Large (GSL) transport service 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 provider Pepco was responsible for providing the supply of gas to the building. The facility switched to a HESS as the new commodity provider starting from July 2010. Commodity (Supply) 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 for the campus is as follows:

Description	Average
Electricity	14.6¢ / kWh
Natural Gas	$1.52 / Therm

Table 3
Electricity Billing Data

ELECTRIC USAGE SUMMARY

Utility Provider: Jersey Central Light and Power
Rate: General Service Secondary - 3 Phase
Meter No: L36055866, G28659637
Customer ID No: 100000689370, 100000689438
Third Party Utility Provider: None
TPS Meter / Acct No: -

MONTH OF USE	CONSUMPTION	DEMAND	TOTAL BILL
Aug-09	200,263	661.3	$31,955
Sep-09	305,887	870.4	$47,340
Oct-09	309,035	690.4	$23,191
Nov-09	257,246	593.2	$38,923
Dec-09	304,597	613.0	$45,514
Jan-10	270,920	600.7	$40,861
Feb-10	249,823	600.7	$37,985
Mar-10	218,425	590.8	$33,642
Apr-10	215,406	698.2	$33,925
May-10	230,906	779.2	$36,932
Jun-10	225,683	766.0	$36,129
Jul-10	168,781	501.7	$26,539
Totals	**2,956,972**	**870.4 Max**	**$432,935**

AVERAGE DEMAND **663.8 KW average**
AVERAGE RATE **$0.146** **$/kWh**

Figure 1
Electricity Usage Profile
Mount Olive High School
August-08 through July-09

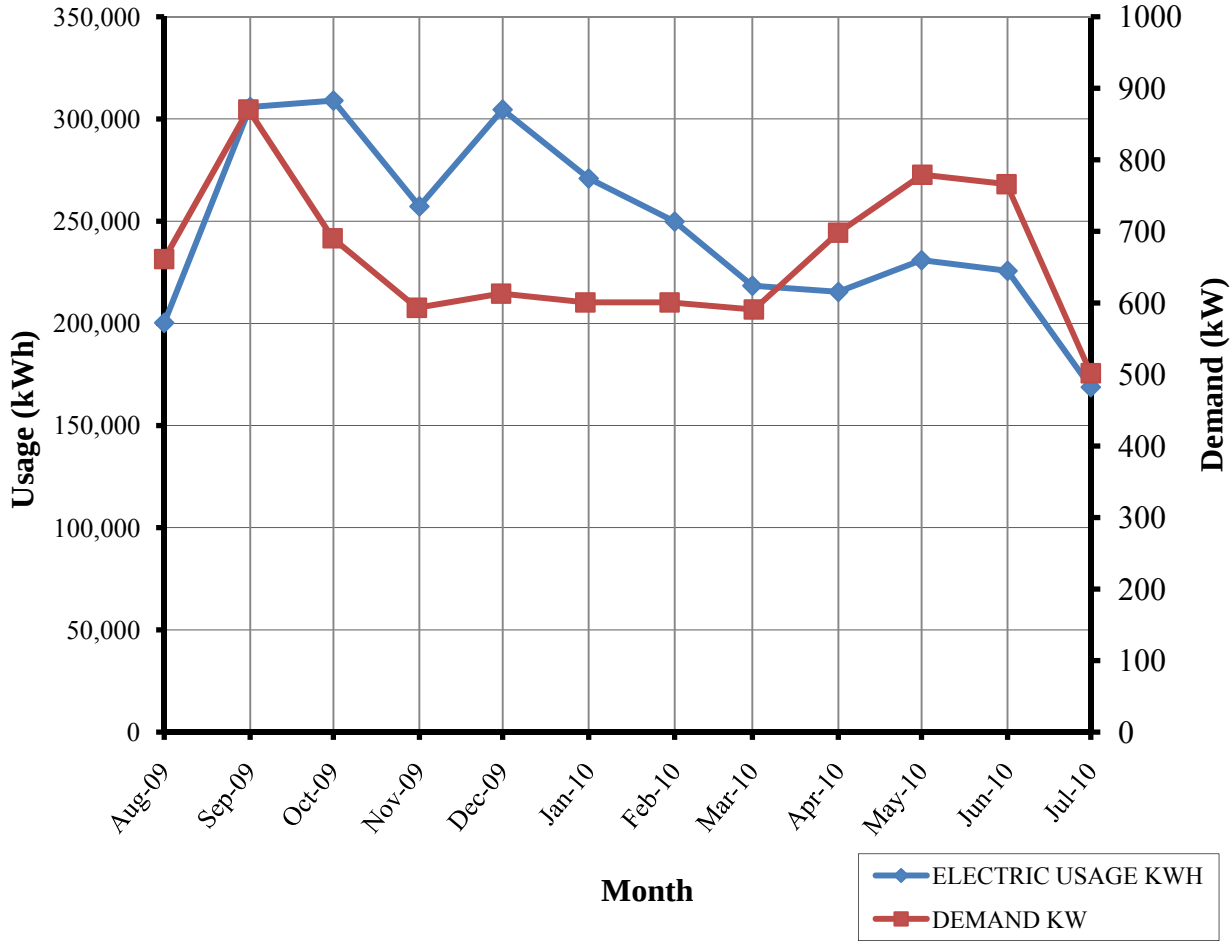
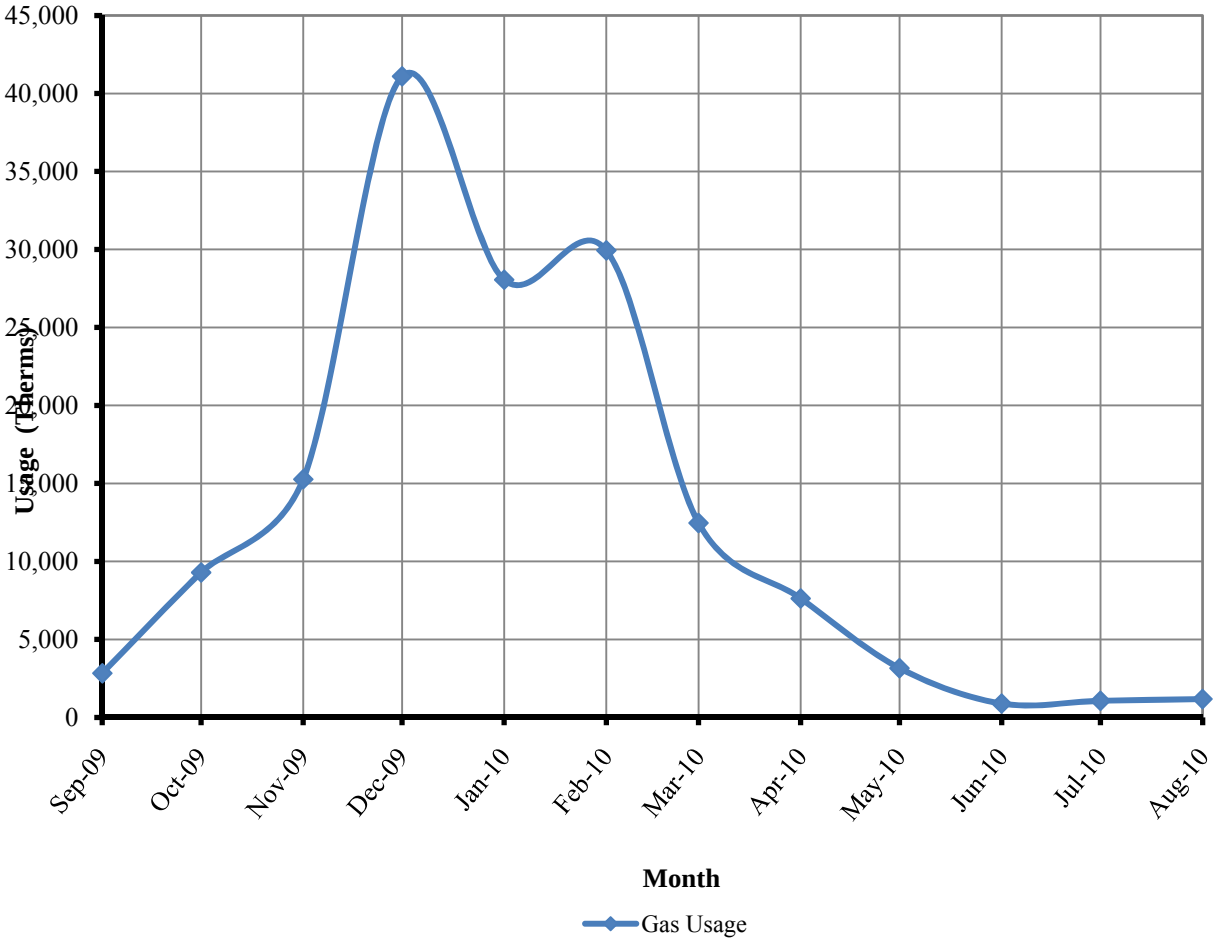


Table 4
Natural Gas Billing Data

NATURAL GAS USAGE SUMMARY		
Utility Provider: New Jersey Natural Gas		
Rate: GSL		
Meter No: 00558420		
Account Number: 22-0004-2388-17		
Third Party Utility Provider: Pepco, Hess		
TPS Meter Acnt #: 220004238817, 446646/447324		
MONTH OF USE	**CONSUMPTION (THERMS)**	**TOTAL BILL**
Sep-09	2,831.79	$6,814.68
Oct-09	9,288.99	$16,763.93
Nov-09	15,267.58	$24,935.01
Dec-09	41,098.75	$56,387.64
Jan-10	28,057.85	$39,259.00
Feb-10	29,938.22	$41,728.78
Mar-10	12,465.56	$18,628.61
Apr-10	7,625.98	$12,284.55
May-10	3,156.74	$6,427.78
Jun-10	888.90	$3,430.48
Jul-10	1,065.64	$2,830.82
Aug-10	1,181.15	$3,448.80
TOTALS	**152,867.15**	**$232,940.08**
AVERAGE RATE:	**$1.52**	**$/THERM**

Figure 2
Natural Gas Usage Profile
Mount Olive High School
September-08 through August-09



Energy Use Index (EUI)

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

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

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

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

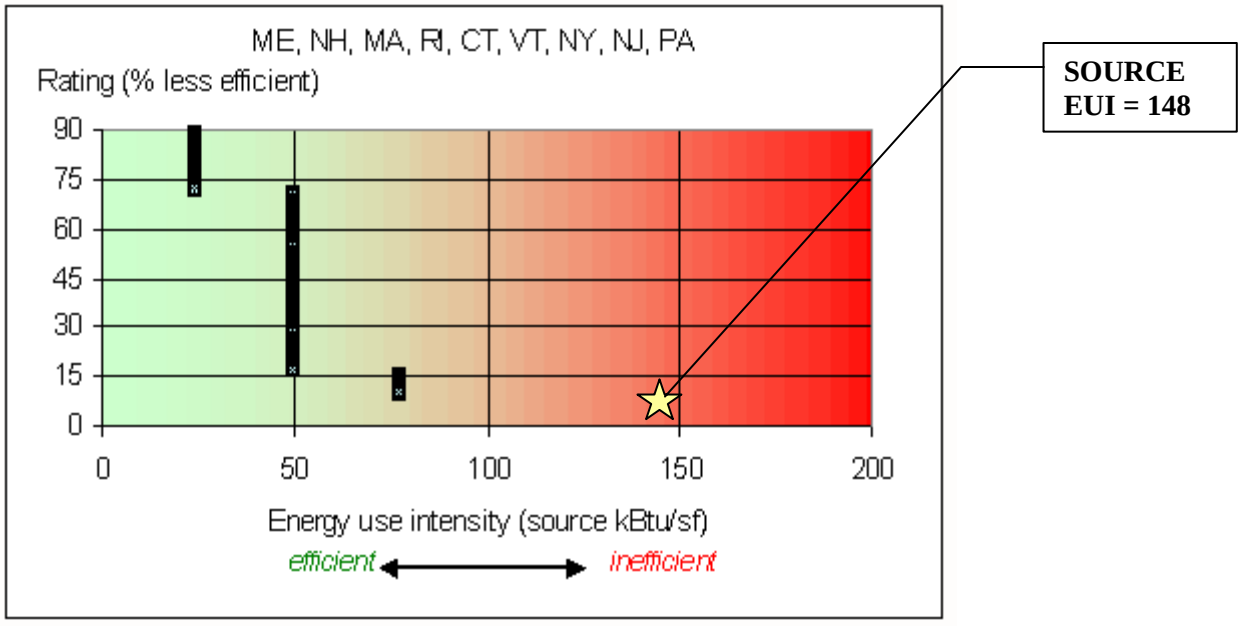
$$Building\ \ Source\ EUI = \frac{(Electric\ Usage\ in\ kBtu\ \ X\ \ SS\ \ Ratio + Gas\ Usage\ in\ kBtu\ \ X\ \ SS\ \ Ratio)}{Building\ \ Square\ \ Footage}$$

Table 5
Facility Energy Use Index (EUI) Calculation

ENERGY USE INTENSITY CALCULATION						
ENERGY TYPE	**BUILDING USE**			**SITE ENERGY**	**SITE-SOURCE RATIO**	**SOURCE ENERGY**
	kWh	**Therms**	**Gallons**	**kBtu**		**kBtu**
ELECTRIC	2,956,972			10,095,102	3.340	33,717,642
NATURAL GAS		152,867		15,286,715	1.047	16,005,191
TOTAL				25,381,817		49,722,833
*Site - Source Ratio data is provided by the Energy Star Performance Rating Methodology for Incorporating Source Energy Use document issued Dec 2007.						
BUILDING AREA		335,000	SQUARE FEET			
BUILDING SITE EUI		*75.77*	kBtu/SF/YR			
BUILDING SOURCE EUI		*148.43*	kBtu/SF/YR			

Figure 3 below depicts a national EUI grading for the source use of High School Buildings:

Figure 3
Source Energy Use Intensity Distributions: High School Buildings



B. 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: mtoliveschools
Password: lgeaceg2010

Security Question: What city were you born in?
Security Answer: Mount Olive

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**
Mt. Olive High School	47	50

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

V. FACILITY DESCRIPTION

The 335,000 SF High School Building is a 2-3 story facility comprised of classrooms, offices, computer rooms, gymnasium, auditorium, cafeteria, kitchen, maintenance areas and storage areas. The building was built in 1972 with additions to the original construction in 2006. The school hours of operation are typical for a school; between 7:00AM and 2:30 PM during the weekdays. The gymnasium and auditorium are used after hours and on weekends for sports and other events. The school is used in the summer for various classes and events. The school student enrollment is approximately 1500 students and 100 teachers.

Building Envelope

The facility is comprised of the original construction and the 2006 add-on. The original building is 8" block construction with decorative façade. Insulation is minimal in the old section walls. The new add-on structures are block construction with brick façade. It was reported that there is R19 insulation panels within the new construction walls. The roof is built up flat with estimated 2" rigid foam insulation below the membrane. Majority of the HVAC equipment is installed on the roof. The windows throughout the facility are a combination of fixed pane windows and small operable windows for ventilation. The windows are double pane with slightly tinted glass. Overall the envelope for the building is in good condition.

The school houses a commercial kitchen. The kitchen includes gas cooking range, oven, commercial dishwasher, a walk-in refrigerator and a freezer. The walk-in units appear to be in good condition. There are eight (8) vending machines in the building. Four (4) of the machines are refrigerated soda machines, which operate year round.

HVAC Systems

The central heating system for the original construction consists of three (3) older hot water boilers. The boilers have approximately 8,000 MBH input capacity each. One of the three boilers is a cast iron boiler made by Weil McLain. The remaining two boilers are fire tube boilers made by Cleaver Brooks. The boilers are over 30 years old and past their useful life based on ASHRAE. The boilers are in poor condition with maintenance issues. The heating hot water generated by the boilers are circulated to the air handling units, VAV reheat coils and unit ventilators with three (3) hot water pumps. The pumps are driven by 35 HP, 25 HP and 15 HP standard efficiency motors. The new auditorium building and the D-wings built during the 2006 addition are heated with two (2) 2,000 MBH boilers made by Raypak. The hot water is circulated with separate 3 HP pumps to the air handling units serving the corresponding spaces.

The central cooling system consists of packaged rooftop air conditioning units and indoor air handling units made by Aaon, York, Mammoth and Trane. The Aaon rooftop units are high efficiency packaged systems with built-in energy recovery wheels, airside economizer functionality, premium efficiency motors and high efficiency compressors with R410a refrigerant. The rooftop units vary in size between 10 to 50 tons and provide heating and air conditioning to various spaces in the old and new sections of the facility.

The classrooms are heated and cooled with a total of approximately 68 unit ventilators. Approximately 11 of the units ventilators are ceiling mounted units while the remaining are base mounted units. The unit ventilators are equipped with hot water coils for space heating and DX coils for cooling and dehumidification in the classrooms. The units are equipped with outside air dampers for minimum fresh air requirements. The dampers are shut during the unoccupied periods. Each unit ventilator is coupled with a 2.5 Ton DX condensing unit made by Trane. The unit ventilators and the DX condensing units are approximately 5 years old.

The make-up air for the kitchen is provided with two (2) make up air units made by Mammoth and Greenheck. The make-up air units are equipped with heating coils only. The Mammoth unit is original to the building. Similarly, gymnasium heating and ventilation is provided with two (2) older heating and ventilation units made by Mammoth and Trane. Both of these units are over 30 years old and in poor condition. Heating and air conditioning for the photo laboratory is provided with an older 5-ton rooftop heat pump made by York. The unit is in fair condition.

In addition to the rooptop units and the unit ventilators, there are approximately 12 ductless split air conditioners providing supplemental cooling to the various spaces including computer tech rooms, server closets, phone closets and other similar spaces with spot cooling requirements. Majority of these units run 24/7.

Exhaust System

Air is exhausted from the toilet rooms, corridors, classrooms, meeting and dining areas through the roof exhausters. Some of the exhaust fans are interlocked with the economizer fans and dampers of the rooftop air conditioners. The exhaust fans operate based on the facility occupancy schedule. The kitchen includes a total of four (2) large commercial exhaust hoods, which provides exhaust for cooking equipment and the dishwasher. The hoods are 4ft x 16ft and 4ft x 11ft. The kitchen exhaust hoods are manually controlled with wall switches. The dishwasher hood operates when the dishwasher unit is in operation.

HVAC System Controls

The HVAC system includes a central control system made by Metasys Building Automation System made by Johnson Controls. The system integrates into majority of the equipment including boilers, pumps, air handling units, rooftop units, the unit ventilators and the exhaust fans. The system includes electronic controls for actuators and control valves. The front end controller has the capability to monitor and control all schedules, thermostat temperatures and set points. The control system also automates the on / off control and temperature setbacks based on occupancy schedules.

Domestic Hot Water

Domestic hot water for the restrooms, showers, laboratories and the offices are provided by a series of hot water heaters. Hot water for the spaces in the original construction as well as some of the new spaces are provided by a 1,200 MBH domestic hot water boiler made by LAARs. The LAARS unit is coupled with two (2) 200 Gallon hot water storage tanks for continued supply of domestic hot water. The hot water for the added spaces are provided with a tank type gas-fired

hot water heater made by AO Smith and another 1,600 MBH LAARS hot water boiler with an additional 200 gallon storage tank. The domestic hot water is circulated throughout the building by hot water re-circ pumps with fractional horsepower motors. The circulation pump is controlled by an aqua stat. The domestic hot water piping insulation appeared to be in good condition.

Lighting

The lighting throughout building is retrofitted to fluorescent tube lay-in fixtures with modern T-8 lamps and electronic ballasts. Storage rooms and closets lit with a mixture of incandescent lamps, compact fluorescent lamps and T12 fluorescent lamps. The gymnasium lighting is provided with 400W metal halide fixtures.

VI. MAJOR EQUIPMENT LIST

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

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

VII. ENERGY CONSERVATION MEASURES

ECM #1: Lighting Upgrade – Interior Spaces

Description:

The majority of the lighting throughout the Mount Olive High School building is provided with modern fixtures with T8 lamps and electronic ballasts. However, some of the classrooms, corridors, cafeteria, kitchen, storage spaces, utility closets and bathrooms in the buildings still have a variety of older fixtures with T12 lamps with magnetic ballasts, incandescent lamps and compact fluorescent lamps. It is recommended to replace all of the T12 fixtures and the incandescent lights in these areas with higher efficiency fluorescent T8 fixtures with electronic ballasts or compact fluorescent lamps.

This ECM includes retrofit of all T12 fixtures with T8 fixtures with electronic ballasts in the building. The new, energy efficient T8 fixtures will provide adequate lighting and will save on electrical costs due to better performance of the lamp and ballasts. This ECM also includes maintenance savings through the reduced number of lamps replaced per year. The expected lamp life of a T8 lamp is approximately 30,000 burn-hours, in comparison to the existing T12 lamps which is approximately 20,000 burn-hours. The facility will need approximately 33% less lamps replaced per year for each one for one fixture replaced.

The ECM also includes replacement of any incandescent lamps with compact fluorescent lamps. Compact fluorescent lamps (CFL's) were designed 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 60-Watt incandescent lamp, an 18-Watt CFL for a 75-Watt incandescent lamp, and a 26-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. Where the existing fixture is controlled by a dimmer switch, the CFL bulb must be compatible with a dimmer switch. In some locations the bulb replacement will need to be tested to make sure the larger base of the CFL will fit into the existing fixture. The energy usage of an incandescent compared to a compact fluorescent approximately 3 to 4 times greater. In addition to the energy savings, compact fluorescent fixtures burn-hours are 8 to 15 times longer than incandescent fixtures ranging from 6,000 to 15,000 burn-hours compared to incandescent fixtures ranging from 750 to 1000 burn-hours. However, the maintenance savings due to reduced lamp replacement is offset by the higher cost of the CFL's compared to the incandescent lamps.

Energy Savings Calculations:

The **Investment Grade Lighting Audit Appendix** outlines the hours of operation, proposed retrofits, costs, savings, and payback periods for each set of fixtures in the each building.

Rebates and Incentives:

There are incentives available from NJ Smart Start® Program for the retrofits in this ECM. Incentives are calculated as follows:

From the Smart Start Incentive appendix, the retrofit 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.

$$\text{SmartStart® Incentive} = (\#\text{ of } 1-4 \text{ lamp fixtures} \times \$10) = 34 \times \$10 = \$340$$

Replacement and Maintenance Savings are calculated as follows:

$$\text{Savings} = (\text{reduction in lamps replaced per year}) \times (\text{repacment \$ per lamp} + \text{Labor \$ per lamp})$$

$$\text{Savings} = 6.16 \times (\$2 \text{ per lamp} + \$5 \text{ per lamp}) = \$43$$

Energy Savings Summary:

ECM #1 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$21,860
NJ Smart Start Equipment Incentive ($):	$340
Net Installation Cost ($):	$21,520
Maintenance Savings ($/Yr):	$43
Energy Savings ($/Yr):	$10,724
Total Yearly Savings ($/Yr):	$10,767
Estimated ECM Lifetime (Yr):	15
Simple Payback	2.0
Simple Lifetime ROI	650.5%
Simple Lifetime Maintenance Savings	$645
Simple Lifetime Savings	$161,505
Internal Rate of Return (IRR)	50%
Net Present Value (NPV)	$107,015.75

ECM #2: Lighting Upgrade - Gymnasium

Description:

The gymnasium at the High School utilizes 400W metal halide fixtures for its lighting. Metal halide bulbs provide a reasonably efficient option for bay lighting however a few draw-backs that are common. Metal halide fixtures often have poor overall efficacy which limits the amount of light actually leaving the fixture. Also metal halide bulbs require a significant warm-up period and even longer cool down period eliminating the potential for occupancy sensors frequent switching. This symptom encourages the gymnasium lighting to be left on continuously during the day. Another drawback is the reduced lumen output (Lumen Maintenance) of the metal halide bulb over its life time. Average bulb output or "mean lumens," is approximately 25% less than the bulb's initial lumens for typical metal halide lamps. In addition the most rapid rate of light output decline is during the beginning of its life, approximately 15-20% light loss within the first 20% of its rated life. It is important to note that the light loss has no savings in energy used; therefore the overall light efficiency is continuously decreasing with age. The final drawback is the light quality or Color Rendering Index (CRI). Typical values for metal halide bulbs is 65, which is a measure of how close the light is to true "full spectrum" light produced by sunlight or incandescent lighting. Metal halide bulbs also show noticeable color shifting when the bulb is reaching the end of its life.

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

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

Hours of Operation

Gymnasium: 3,200 Hours/Yr

Energy Savings Calculations:

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

NJ Smart Start® Program Incentives are calculated as follows:

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

For replacement of HID (250-399W) with new T-5 or T-8 fixtures = $100/Fixture

Smart Start ® Incentive = (# of 400W Metal Halide Fixture Replaced X 100)

Smart Start ® Incentive = (70 X $100) = $7,000

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

Energy Savings Summary:

ECM #2 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$16,800
NJ Smart Start Equipment Incentive ($):	$7,000
Net Installation Cost ($):	$9,800
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$7,489
Total Yearly Savings ($/Yr):	$7,489
Estimated ECM Lifetime (Yr):	15
Simple Payback	1.3
Simple Lifetime ROI	1046.3%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$112,338
Internal Rate of Return (IRR)	76%
Net Present Value (NPV)	$79,605.82

ECM #3: Lighting Controls Upgrade

Description:

Some of the lights in the school building 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 20% - 28% energy savings.

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

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

Energy Savings Calculations:

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

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

Cost and Incentives:

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

Dual Technology Occupancy Sensor & Day Light Sensor	$360 per installation
Daylight Sensor	$160 per installation
2 Pole Power Pack w/Dual Tech. Occupancy Sensor	$225 per installation
Dual Technology Occupancy Sensor - Remote Mount	$160 per installation
Dual Technology Occupancy Sensor - Switch Mount	$75 per installation
Dual Technology Occupancy Sensor - Fixture Mount	$100 per installation

Cost includes material and labor.

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

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

$$\text{Smart Start® Incentive} = (\#\text{ of wall mount} \times \$\,20) + (\#\text{ of ceiling mount} \times \$35)$$
$$\text{Smart Start® Incentive} = (35\text{ wall mount} \times \$\,20) + (36\text{ ceiling mount} \times \$35) = \$1{,}960$$

Energy Savings Summary:

ECM #3 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$19,745
NJ Smart Start Equipment Incentive ($):	$1,960
Net Installation Cost ($):	$17,785
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$3,740
Total Yearly Savings ($/Yr):	$3,740
Estimated ECM Lifetime (Yr):	15
Simple Payback	4.8
Simple Lifetime ROI	215.4%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$56,100
Internal Rate of Return (IRR)	20%
Net Present Value (NPV)	$26,862.88

ECM #4: Computer Monitor Replacement

Description:

There are a total 56 computers in the classrooms and offices with CRT desktop monitors. These computer monitors are outdated and have several disadvantages such as; significantly increased higher energy consumption, uses large amount of desk space, poor picture quality, distortions and flickering image, secular glare problems, and high weight, and electromagnetic emissions. Many of the drawbacks are difficult to quantify except for the energy use. CRT monitors use considerably more energy than an alternative flat panel LCD monitor. Replacement of the existing CRT monitors with LCD monitors saves considerable energy as well as provides other ergonomic benefits as well.

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

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

Energy Savings Calculations:

# of Computers:	56
Run Time %:	90%
Weeks per Yr:	42
Hrs per Week:	60

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

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

COMPUTER MONITOR CALCULATIONS			
ECM INPUTS	**EXISTING**	**PROPOSED**	**SAVINGS**
ECM INPUTS	CRT Monitors	LCD Monitor	-
# of Computers	56	56	-
Monitor Power Cons. (W)	75	25	-
Run Time %	90%	90%	-
Operating Hrs per Week	60	60	-
Operating Weeks per Yr	42	42	-
Elec Cost ($/kWh)	0.146	0.146	-
ENERGY SAVINGS CALCULATIONS			
ECM RESULTS	**EXISTING**	**PROPOSED**	**SAVINGS**
Electric Usage (kWh)	9,526	3,175	6,350
Energy Cost ($)	$1,391	$464	$927
COMMENTS:			

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

COST & SAVINGS SUMMARY			
ECM INPUT	**# OF UNITS**	**UNIT COST**	**TOTAL COST**
CRT MONITORS	56	$100	$5,600
Total	56		$5,600

Energy Savings Summary:

ECM #4 - 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):	$927
Total Yearly Savings ($/Yr):	$927
Estimated ECM Lifetime (Yr):	15
Simple Payback	6.0
Simple Lifetime ROI	148.3%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$13,907
Internal Rate of Return (IRR)	14%
Net Present Value (NPV)	$5,468.36

ECM #5: Condensing Boiler Installation

Description:

Space heating for the perimeter offices and classrooms in the high school is provided with unit ventilators with hot water coils. In addition, there are rooftop heating and ventilation units with hot water coils feeding various spaces in the original structures of the high school building. The major source of hot water for these equipments is three (3) hot water boilers located in the main boiler room. Two (2) of the boilers are 8.4 MMBTU steel fire tube boilers made by Cleaver Brooks while the third (3rd) boiler is a 8 MMBTU cast iron boiler made Weil McLain. All three boilers are nearly 40 years old, which is beyond their expected useful life defined by ASHRAE.

It is reported that two (2) of the boilers can satisfy the load at the peak of the heating season. This means boilers often run at partial load conditions. Typically, standard (non-condensing) boilers provide lower nominal efficiency compared to condensing boilers. Standard boilers suffer further efficiency losses at part load operating conditions mainly due to limitations in the reduction of the flue gas temperature. Current average combustion efficiency of each boiler is estimated to be 70% due to limited turn down ratio, cycling losses, age of the equipment, rusting and sediment build-up on the heat transfer surfaces and outdated design and controls. A new condensing boiler could substantially improve the operating efficiency of the heating system of the building. Condensing boiler's peak efficiency tops out at 99% depending on return water temperature.

CEG recommends replacing two (2) of the three (3) boilers with a set of four (4) 3.0 MMBTU condensing hot water boilers to provide building with heating throughout the year. The annual average operating efficiency of the proposed boiler set is expected to be 90%, which gives the heating system a 20% increase in efficiency. This ECM is based on variable supply water temperature adjusted based on outdoor temperature.

This ECM includes installation of four (4) new condensing gas fired boilers to replace two of the existing hot water boilers. The basis for this ECM is Aerco Benchmark 3.0. New boilers shall be setup and programmed to be the primary source of heating for the building during entire year. The remaining boiler shall be kept as a spare system. The owner is recommended to retain a professional engineer to confirm equipment sizing and finalize design.

Energy Savings Calculations:

Currently there are multiple boilers and gas fired rooftop units on the building gas meter. The main boiler plant usage is not separately metered. Therefore, annual energy consumption of main boiler plant has to be estimated. In this calculation, it is assumed that the energy consumption of the boilers will be in proportion with the ratio of the area it is affecting in the total facility area.

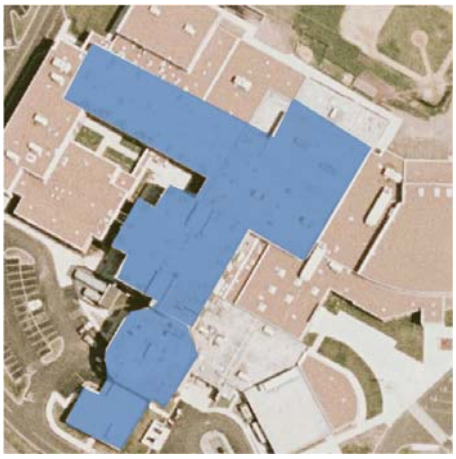
First, domestic hot water usage is estimated and subtracted from the total usage in order to estimate the net natural gas usage for space heating.
Current total hot water usage can be found in the table below:

ANNUAL GAS USAGE				
MONTH	TOTAL USAGE	DOMESTIC HW USAGE	HEATING ONLY	COST
Sep-09	2,832	1,045	1,787	$6,815
Oct-09	9,289	1,045	8,244	$16,764
Nov-09	15,268	1,045	14,222	$24,935
Dec-09	41,099	1,045	40,054	$56,388
Jan-10	28,058	1,045	27,013	$39,259
Feb-10	29,938	1,045	28,893	$41,729
Mar-10	12,466	1,045	11,420	$18,629
Apr-10	7,626	1,045	6,581	$12,285
May-10	3,157	1,045	2,112	$6,428
Jun-10	889	1,045	0	$3,430
Jul-10	1,066	1,045	0	$2,831
Aug-10	1,181	1,045	0	$3,449
TOTAL	**152,867**	**12,543**	**140,324**	**$232,940**

Baseline Domestic Hot Water Gas Use = 1045 Therms (Average from June-August Gas Use)

Existing Natural Gas Use for Heating = 152,867 Therms – (1045 Therms x 12 Months)
= 140,324 Therms

Total building area:	335,000 SF
Area fed by the main boiler plant:	165,000 SF
Percent area:	50%
Estimated natural gas usage	50% of Total
Estimated natural gas usage	70,162 Therms



Area heated by the main boiler plant

$$\text{Bldg Heat Required} = \text{Heating Nat. Gas (Therm)} \times \text{Heating Eff (\%)} \times \text{Fuel Heat Value } \left(\frac{\text{BTU}}{\text{Therm}}\right)$$

$$\text{Proposed Heating Gas Usage} = \frac{\text{Bldg. Heat Required (BTU)}}{\text{New Heating Eff (\%)} \times \text{Fuel Heat Value } \left(\frac{\text{BTU}}{\text{Therm}}\right)}$$

$$\text{Energy Cost} = \text{Heating Gas Usage (Therms)} \times \text{Ave Fuel Cost } (\frac{\$}{\text{Therm}})$$

Energy savings calculations are summarized in the table below:

CONDENSING BOILER CALCULATIONS			
ECM INPUTS	**EXISTING**	**PROPOSED**	**SAVINGS**
ECM INPUTS	Existing Hot Water Boilers	New Condensing Boilers	-
Existing Nat Gas (Therms)	70,162	-	-
Boiler Efficiency (%)	70%	90%	20%
Nat Gas Heat Value (BTU/Therm)	100,000	100,000	-
Equivalent Building Heat Usage (MMBTUs)	4,911	4,911	-
Gas Cost ($/Therm)	1.52	1.52	-
ENERGY SAVINGS CALCULATIONS			
ECM RESULTS	**EXISTING**	**PROPOSED**	**SAVINGS**
Natural Gas Usage (Therms)	70,162	54,571	15,592
Energy Cost ($)	$106,647	$82,947	$23,699
COMMENTS:			

Project Cost, Incentives and Maintenance Savings

Estimated cost for removing two of the existing boilers and installing four (3) 3.0 MMBH condensing hot water boilers with advanced controls is $500,000.

From the **New Jersey Smart Start® Program Incentives Appendix**, installation of a high efficiency hot water boiler falls under the category "Gas Heating" and warrants an incentive based on efficiency at or above 84% for this type of equipment. The program incentives are calculated as follows:

GAS FIRED BOILER REBATE SUMMARY					
UNIT DESCRIPTION	**UNIT EFFICIENCY**	**REBATE $/MBH**	**PROPOSED CAPACITY, MBH**	**NUMBER OF UNITS**	**TOTAL REBATE, $**
>1500 - ≤ 4000 MBH	84% AFUE for Hot Water boilers	$1	3,000	4	$12,000
TOTAL					**$12,000**

Estimated maintenance savings associated with this ECM: $1,000

Energy Savings Summary:

ECM #5 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$500,000
NJ Smart Start Equipment Incentive ($):	$12,000
Net Installation Cost ($):	$488,000
Maintenance Savings ($/Yr):	$1,000
Energy Savings ($/Yr):	$23,699
Total Yearly Savings ($/Yr):	$24,699
Estimated ECM Lifetime (Yr):	15
Simple Payback	19.8
Simple Lifetime ROI	-24.1%
Simple Lifetime Maintenance Savings	$15,000
Simple Lifetime Savings	$370,488
Internal Rate of Return (IRR)	-3%
Net Present Value (NPV)	($193,142.19)

ECM #6: Window Replacement

Description:

The envelope of the high school original building consists of single pane windows with metal frames. The single pane windows are original to the building. These windows and frames are in very poor condition with large cracks and openings. The windows account for significant energy use through leakage heat loss and conductive heat loss. In addition, the single pane construction allows higher thermal (conductive) energy loss. These factors lead to increased energy use in the heating season. The heating loss due to single pane glass is combined with heat loss due to poor seals at each operable window.

New double pane windows with low E glazing offer a substantial improvement in thermal performance in the summer months. The Elementary School is closed during the peak cooling season. As a result, the energy savings due to the improved cooling performance is minimal. Although the energy savings is minimal the occupant comfort will be enhanced.

This ECM includes the replacement of all existing windows in the original high school building with double pane windows and low emissivity glass. The proposed windows include reduced outside air leakage. In addition the double pane structure will significantly increase the insulation value compared to the existing single pane window structure. The basis for this ECM is Anderson Windows at $75 per SF of window installed.

Older windows in the facility

Energy Savings Calculations:

$$\text{Infiltration}\left(\frac{\text{Ft}^3}{\text{Min.}}\right)=\frac{\text{Area}\left(\text{Ft}^2\right)\times\text{Ave Height}\left(\text{Ft}\right)\times\text{AirChanges Per Hour}\left(\frac{1}{\text{Hr.}}\right)}{60\left(\frac{\text{Min}}{\text{Hr.}}\right)}$$

$$\text{Heat Load}\left(\frac{\text{Btu}}{\text{Hr.}}\right)=1.1\times\text{Infiltration}\left(\frac{\text{Ft}^3}{\text{Min}}\right)\times\text{Design Temperature Difference}\left(^\circ\text{F}\right)$$

$$\text{Cooling Load}\left(\text{Ton}\right)=\text{Infiltration}\left(\frac{\text{Ft}^3}{\text{Min}}\right)\times\frac{1\,\text{Ton Cooling}}{400\left(\frac{\text{Ft}^3}{\text{Min}}\right)}$$

$$\text{Heating Leakage Energy}\left(\text{Therms}\right)=\frac{\text{Heat Load}\left(\frac{\text{Btu}}{\text{Hr.}}\right)\times\text{HDD}\left(\text{Day }^\circ\text{F}\right)\times 24\left(\frac{\text{Hr.}}{\text{Day}}\right)\times\left(0.60\right)}{65\left(^\circ\text{F}\right)\times\text{Fuel Heat Value}\left(\frac{\text{Btu}}{\text{Therms}}\right)\times\text{Heating Efficiency}\left(\%\right)}$$

$$\text{Cooling Leakage Energy}\left(\text{kWh}\right)=\frac{\text{Cooling Load}\left(\text{Ton}\right)\times\left(\frac{12{,}000\,\text{Btu}}{\text{Ton Hr.}}\right)\times\text{Full Load Cooling Hours}}{\frac{1000\,\text{W.h}}{\text{kWh}}\times\text{Cooling Efficiency}\left(\text{EER}\right)}$$

$$\text{Conductive Energy}\left(\text{Therms}\right)=\frac{\text{U}-\text{Value}\times\text{Area}\left(\text{Ft}^2\right)\times\text{HDD}\left(\text{Day }^\circ\text{F}\right)\times 24\left(\frac{\text{Hr.}}{\text{Day}}\right)\times\left(0.60\right)}{65\left(^\circ\text{F}\right)\times\text{Fuel Heat Value}\left(\frac{\text{Btu}}{\text{Therms}}\right)\times\text{Heating Efficiency}\left(\%\right)}$$

$$\text{Heating Energy Cost} = \text{Total Heating Energy}\left(\text{Therms}\right)\times\text{Ave Fuel Cost}\left(\frac{\$}{\text{Therms}}\right)$$

$$\text{Cooling Energy Cost} = \text{Total Cooling Energy}\left(\text{kWh}\right)\times\text{Ave Fuel Cost}\left(\frac{\$}{\text{kWh}}\right)$$

Energy calculations are summarized in the table below.

WINDOW REPLACEMENT CALCULATIONS			
ECM INPUTS	**EXISTING**	**PROPOSED**	**SAVINGS**
Description:	Existing Windows (Single and double)	Double Pane Low-E Windows	-
Affected Bldg Area (SF)	90,560	90,560	-
Average Ceiling Height (Ft)	9	9	-
Window (SF)	5,400	5,400	-
U-Value (BTU/HR/SF*°F)	0.8	0.45	0.35
Average Leakage Rate (Air	0.75	0.5	0.3
Infiltration, CFM	10188	6792	-
Heating System Efficiency (%)	80%	80%	-
Heating Degree Days (HDD)	4,496	4,496	-
Design Day Temp Diff (°F)	65	65	-
Heating Hrs Per Day (Hrs)	24	24	-
Full Load Cooling Hours	800	800	-
Average Cooling Efficiency, EER	9.5	9.5	-
Gas Cost ($/Therm)	1.52	1.52	-
Electric Cost ($/kWh)	0.146	0.146	-
Gas Heat Value (BTU/Therm)	100,000	100,000	-
ENERGY SAVINGS CALCULATIONS			
ECM RESULTS	**EXISTING**	**PROPOSED**	**SAVINGS**
Heat Load (BTU/Hr)	728,440	485,627	242,813
Leakage Energy (Therms)	9,069	6,046	3,023
Conductive Energy (Therms)	3,496	1,967	1,530
Total Heating Energy (Therms)	12,566	8,013	4,553
Cooling Load (Ton)	25	17	8
Cooling Demand (kW)	9.2	6.1	3.1
Total Cooling Energy (kWh)	25,738	17,159	8,579
Gas Energy Cost ($)	$19,100	$12,180	$6,920
Electric Energy Cost ($)	$3,758	$2,505	$1,253
Comments:	1. Proposed window U-value Based on ASHRAE 90.1 - 2007		

Estimated cost for replacing all the windows at the High School building is $405,000.

Energy Savings Summary:

ECM #6 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$405,000
NJ Smart Start Equipment Incentive ($):	$0
Net Installation Cost ($):	$405,000
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$8,173
Total Yearly Savings ($/Yr):	$8,173
Estimated ECM Lifetime (Yr):	15
Simple Payback	49.6
Simple Lifetime ROI	-69.7%
Simple Lifetime Maintenance Savings	0
Simple Lifetime Savings	$122,590
Internal Rate of Return (IRR)	-12%
Net Present Value (NPV)	($307,435.35)

ECM #7: Commercial Kitchen Exhaust Hood Controls

Description:

The kitchen in this facility is equipped with two (2) large commercial kitchen exhaust hoods providing exhaust for the cooking equipment. The total kitchen exhaust from the hoods is approximately 9,500 CFM powered by a total 10 HP of exhaust fans. The make-up air unit (approximately 10,000 CFM) provides conditioned air to replace all the air exhausted through the exhaust hoods. This system operates based on manual switches located in the kitchen. Currently the facility provides 1 meal per day. The installation of kitchen exhaust controls would significantly reduce the total kitchen exhaust and make-up air quantity. The conditioned make up air and exhausted air savings are achieved by monitoring the exhaust hoods and exhaust based on the actual use of the kitchen equipment. Temperature sensors and optical lasers monitor the heat and smoke production at each exhaust hood to reduce the exhaust and make-up airflow based on the need of the kitchen equipment.

This ECM includes installation of kitchen exhaust controls for the kitchen exhaust hoods and VFD's for the constant volume exhaust fans. The hoods would be retrofitted with temperature and laser sensors to monitor the activity of each of all equipment installed below the hoods. The work involves installing a Melink Kitchen Hood Variable Air Volume Controller; variable frequency drive on 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 heavy 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, saving exhaust fan energy and make up air conditioning energy.

Energy Calculations Summary:

Detailed calculations for the proposed kitchen hood control system can be found in the **Kitchen Exhaust Calculations Appendix.** It is pertinent to note that the calculation assumes the exhaust fans and make-up air unit are manually turned off for approximately 8 hours per day.

Installed cost of the kitchen hood control system is $32,189. The calculated energy savings equals approximately $1,751 per year.

From the Smart Start Incentive appendix, the retrofit of fan motors with VFDs warrants the following incentive:

5 to <10HP = $155 per HP
10 to <20HP = $120 per HP

$$\text{Smart Start® Incentive} = (\text{Total HP} \times \$155/\text{HP}) + (\text{Total HP} \times \$120/\text{HP}) + (\text{Total HP} \times \$65/\text{HP})$$

$$\text{Smart Start® Incentive} = (2 \times 5\text{HP} \times \$155/\text{HP})$$

$$\text{Smart Start® Incentive} = \underline{\$1{,}550}$$

A summary of energy savings can be seen in the table below:

KITCHEN EXHAUST CONTROLS CALCULATION			
ECM INPUTS	**EXISTING**	**PROPOSED**	**SAVINGS**
ECM INPUTS	Manually Controlled Kitchen Exhaust	MELINK Kitchen Exhaust Controls	
Fan Power Usage (kWh)	9,191	3,454	5,737
Gas Usage (Therms)	1,282	872	410
Cooling Energy (kWh)	6,210	4,223	1,987
Average Gas Cost ($/Therm)	1.52	1.52	
Electric Cost ($/KWH)	0.146	0.146	
SAVINGS CALCULATIONS			
ECM RESULTS	**EXISTING**	**PROPOSED**	**SAVINGS**
Gas Energy Cost ($)	$1,949	$1,325	$624
Electric Energy Cost ($)	$2,249	$1,121	$1,128
Total Energy Cost ($)	$4,198	$2,446	$1,751
COMMENTS:	*ECM is based on calculations using spreadsheets privded by MELINK Intelli-hood controls manufacturer.		

Energy Savings Summary:

ECM #7 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$32,189
NJ Smart Start Equipment Incentive ($):	$1,550
Net Installation Cost ($):	$30,639
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$1,751
Total Yearly Savings ($/Yr):	$1,751
Estimated ECM Lifetime (Yr):	15
Simple Payback	17.5
Simple Lifetime ROI	-14.3%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$26,272
Internal Rate of Return (IRR)	-2%
Net Present Value (NPV)	($9,729.71)

ECM #8: Install NEMA Premium® Efficiency Motors

Description:

The improved efficiency of the NEMA Premium® efficient motors is primarily due to better designs with use of better materials to reduce losses. Surprisingly, the electricity used to power a motor represents 95 % of its total lifetime operating cost. Because many motors operate continuously 24 hours a day, even small increases in efficiency can yield substantial energy and dollar savings.

Some of the existing electric motors driving the primary hot water pumps and the supply air fans in some of the air handling units are candidates for replacing with premium efficiency motors. These standard efficiency motors run considerable amount of time over a year.

This energy conservation measure replaces existing electric motors over 5 HP or more with NEMA Premium® efficiency motors. NEMA Premium® is the most efficient motor designation in the marketplace today.

IMPLEMENTATION SUMMARY					
EQMT ID	**FUNCTION**	**MOTOR HP**	**HOURS OF OPERATION**	**EXISTING EFFICIENCY**	**NEMA PREMIUM EFFICIENCY**
RTU 27	Supply Fan	5	3,000	87.5%	90.2%
MUA	Kitchen Makeup Air	5	3,000	87.5%	90.2%
HV	Gym H&V	5	2,880	87.5%	90.2%
HV	Gym H&V	5	2,880	87.5%	90.2%
HWP -1	HW Pump	35	3,600	92.4%	94.1%
HWP -2	HW Pump	25	3,600	92.4%	93.6%

Energy Savings Calculations:

$$\text{Electric usage, kWh} = \frac{\text{HP} \times \text{LF} \times 0.746 \times \text{Hours of Operation}}{\text{Motor Efficiency}}$$

where, HP = Motor Nameplate Horsepower Rating

LF = Load Factor

Motor Efficiency = Motor Nameplate Efficiency

$$\text{Electric Usage Savings, kWh} = \text{Electric Usage}_{\text{Existing}} - \text{Electric Usage}_{\text{Proposed}}$$

$$\text{Electric Usage Savings, kWh} = \text{Electric Usage}_{\text{Existing}} - \text{Electric Usage}_{\text{Proposed}}$$

$$\text{Electric cost savings} = \text{Electric Usage Savings} \times \text{Electric Rate} \left(\frac{\$}{\text{kWh}}\right)$$

The calculations were carried out and the results are tabulated in the table below:

PREMIUM EFFICIENCY MOTOR CALCULATIONS							
EQMT ID	**MOTOR HP**	**LOAD FACTOR**	**EXISTING EFFICIENCY**	**NEMA PREMIUM EFFICIENCY**	**POWER SAVINGS kW**	**ENERGY SAVINGS kWH**	**COST SAVINGS**
RTU 27	5	90%	87.5%	90.2%	0.11	346	$62
MUA	5	90%	87.5%	90.2%	0.11	346	$62
HV	5	90%	87.5%	90.2%	0.11	333	$59
HV	5	90%	87.5%	90.2%	0.11	333	$59
HWP -1	35	90%	92.4%	94.1%	0.46	1,663	$296
HWP -2	25	90%	92.4%	93.6%	0.23	843	$150
TOTAL					**1.2**	**3,864**	**$688**

Equipment Cost and Incentives

Below is a summary of SmartStart Building® incentives for premium efficiency motors:

INCENTIVES	
HORSE POWER	**NJ SMART START INCENTIVES**
5	$60
7.5	$90
10	$100
15	$115
20	$125
25	$130
30	$150
40	$180

The following table outlines the summary of motor replacement costs and incentives:

MOTOR REPLACEMENT SUMMARY						
EQMT ID	MOTOR POWER HP	INSTALLED COST	SMART START INCENTIVE	NET COST	TOTAL SAVINGS	SIMPLE PAYBACK
RTU 27	5	$1,543	$60	$1,483	$62	24.0
MUA	5	$1,543	$60	$1,483	$62	24.0
HV	5	$1,543	$60	$1,483	$59	25.1
HV	5	$1,543	$60	$1,483	$59	25.1
HWP -1	35	$7,217	$150	$7,067	$296	23.9
HWP -2	25	$6,049	$130	$5,919	$150	39.4
TOTAL	**Totals:**	**$19,436**	**$520**	**$18,916**	**$688**	**27.5**

Energy Savings Summary:

ECM #8 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$19,436
NJ Smart Start Equipment Incentive ($):	$520
Net Installation Cost ($):	$18,916
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$688
Total Yearly Savings ($/Yr):	$688
Estimated ECM Lifetime (Yr):	15
Simple Payback	27.5
Simple Lifetime ROI	-45.5%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$10,316
Internal Rate of Return (IRR)	-7%
Net Present Value (NPV)	($10,706.34)

ECM #9: Replace Rooftop HVAC Units

Majority of the rooftop air conditioners in this facility are high efficiency units with premium motors, high efficiency compressors and energy recovery wheels. However, there are still a number of older and inefficient rooftop air conditioners, which are listed below.

Photo laboratory room is heated and cooled with an older 5-ton rooftop heat pump unit made by York. In addition, the old auditorium is heated and cooled with an old and outdated 27.5 Ton rooftop air conditioner made by Mammoth. Both units are over years old and in poor condition. Due to age, outdated parts and controls, the unit is inefficient compared to today's high efficiency standards.

This ECM includes installation of new gas fired rooftop units to replace the existing units. New high efficiency unit to replace the existing units are based on current Energy Star compliant rooftop air conditioning units made by Aaon or similar. Each unit shall be equipped with an energy recovery wheel, air side economizer, premium efficiency motors, high efficiency scroll compressors with R410a refrigerant and multiple stage gas burners with multiple turn down ratio. Owner should retain a professional engineer to confirm heating and cooling loads prior to pursuing with this ECM.

Energy Savings Calculations:

$$\text{EnergyUsage} = \frac{\text{Cooling(Tons)} \times 12{,}000\left(\frac{\text{Btu}}{\text{Ton hr}}\right) \times \text{Full Load Cooling Hrs.}}{1000\left(\frac{\text{Wh}}{\text{kWh}}\right) \times \text{EER}\left(\frac{\text{Btu}}{\text{Wh}}\right)}$$

$$\text{Demand} = \frac{\text{Cooling Capacity (Tons)} \times \left(\frac{12{,}000\ \text{BTU/Hr}}{1\ \text{Ton}}\right)}{\text{Cooling Efficiency (EER)} \times \left(\frac{1{,}000\ \text{Wh}}{\text{kWh}}\right)}$$

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

Gas Fired Units:

$$\text{Heating Energy (Therms)} = \frac{\text{Heating Capacity}\left(\frac{\text{Btu}}{\text{Hr.}}\right) \times \text{HDD(Day °F)} \times 24\left(\frac{\text{Hr.}}{\text{Day}}\right) \times (0.60)}{65(°\text{F}) \times \text{Fuel Heat Value}\left(\frac{\text{Btu}}{\text{Therms}}\right) \times \text{Heating Efficiency (\%)}}$$

Heat Pump Units :

$$\text{Heating Energy}\,(\text{kWh}) = \frac{\text{Heating Capacity}\left(\frac{\text{Btu}}{\text{Hr.}}\right)\times \text{HDD}(\text{Day }^{\circ}\text{F})\times 24\left(\frac{\text{Hr.}}{\text{Day}}\right)\times(0.60)}{65(^{\circ}\text{F})\times \text{Fuel Heat Value}\left(\frac{\text{Btu}}{\text{kWh}}\right)\times \text{Heating COP}}$$

$$\text{Heating Cost} = \text{Heating Energy}(\text{Therms})\times \text{Ave Fuel Cost}\left(\frac{\$}{\text{Therms}}\right)$$

RTU-26 Calculations

RTU-26: ROOFTOP UNIT REPLACEMENT CALCULATIONS			
ECM INPUTS	**EXISTING**	**PROPOSED**	**SAVINGS**
ECM INPUTS	Existing Mammoth Rooftop HVAC Unit	New Rooftop HVAC Unit	
Number of Units	1	1	
Total Cooling Capacity, Tons	27.5	27.5	
Efficiency (EER)	8.5	12.7	
Annual Full Load Cooling Hours	800	800	
Total Heating Capacity, BTU/Hr	686	686	
Heating Efficiency (Gas)	75%	81.0%	
Heating Degree Days (65°F)	4,496	4,496	
Elec Cost ($/kWh)	$0.146	$0.146	
Natural Gas Cost ($/Therm)	$1.52	$1.52	
ENERGY SAVINGS CALCULATIONS			
ECM RESULTS	**EXISTING**	**PROPOSED**	**SAVINGS**
Cooling Energy Cnsmption, kWh	31,059	20,787	10,271
Cooling Demand, kW	39	26.0	12.8
Heating Energy (Therms)	9,110	8,436	675
Electric Energy Cost ($)	$4,535	$3,035	$1,500
Total Gas Cost ($)	$13,848	$12,822	$1,026
Total Cost ($)	$18,382	$15,857	$2,525
COMMENTS:	HDD estimated based on Newark,NJ.		

Estimated installed cost for the new unit is $66,000.

From the NJ Smart Start® Program appendix, the packaged unit's replacement falls under the category "Unitary HVAC Systems" and warrants an incentive based on efficiency (EER) at or above 10.5 for units with capacity between 20 Ton and 30 Tons. The incentives are as follows:

$$\text{Smart Start® Incentive} = (\text{AC Unit Tonnage} \times \$\,79/\text{Ton}) = (27.5 \times \$79) = \$2{,}173$$

York Heat Pump RTU Calculations

ROOFTOP UNIT REPLACEMENT CALCULATIONS			
ECM INPUTS	**EXISTING**	**PROPOSED**	**SAVINGS**
ECM INPUTS	Existing Heat Pump RTU Unit	High Efficiency Gas Fired RTU Unit with ERV*	
Cooling Capacity, Tons	5	5	
Efficiency, SEER	9	14	
Heating Capacity, MBTU/Hr	60	60	
Heating Efficiency (Gas)	-	81%	
Avg. Heat Pump Efficiency (COP)*	2.0	-	
Avg. Heat Pump Efficiency HSPF			
Cooling Degree Days (65°F)	1,806	1,806	
Heating Degree Days (65°F)	4,496	4,496	
Annual Cooling Hours	800	800	
Elec Cost ($/kWh)	$0.165	$0.165	
Natural Gas Cost ($/Therm)	$1.470	$1.470	
ENERGY SAVINGS CALCULATIONS			
ECM RESULTS	**EXISTING**	**PROPOSED**	**SAVINGS**
Cooling Energy Cnsmption, kWh	5,333	3,429	1,905
Cooling Demand, kW	3.0	1.9	1.1
Heating Energy Cnsmption, Therms	0	738	(738)
Heating Energy Cnsmption, kWh	8,755	0	8,755
Total Electric Energy (kWh)	14,088	3,429	10,660
Total Electric Demand (KW)	3	2	1.1
Total Natural Gas, Therms	0	738	(738)
Electric Energy Cost ($)	$2,325	$566	$1,759
Total Gas Cost ($)	$0	$1,085	($1,085)
COMMENTS:	HDDs estimated based on Newark,NJ. COP value includes electric heating during peak weather conditions. ERV = Energy Recovery Wheel		

Estimated installed cost for the new unit with gas piping is $20,000.

From the NJ Smart Start® Program appendix, the packaged unit's replacement falls under the category "Unitary HVAC Systems" and warrants an incentive based on efficiency (SEER) at or above 14 for units with capacity below 5.4 Tons. The incentives are as follows:

$$\text{Smart Start® Incentive} = (\text{AC Unit Tonnage} \times \$92/\text{Ton}) = (5 \times \$92) = \$460$$

SUMMARY OF COST AND SAVINGS						
EQPT ID	**EXISTING**	**PROPOSED**	**TOTAL COST**	**INCENTIVES**	**NET COST**	**SAVINGS**
RTU-26	Mammoth Unit	High efficiency RTU with ERV	$66,000	$2,173	$63,828	$2,525
HP RTU	York Heat Pump Unit	High efficiency RTU with ERV	$20,000	$460	$19,540	$435
TOTAL			**$86,000**	**$2,633**	**$83,368**	**$2,960**

Energy Savings Summary:

ECM #9 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$86,000
NJ Smart Start Equipment Incentive ($):	$2,633
Net Installation Cost ($):	$83,368
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$2,960
Total Yearly Savings ($/Yr):	$2,960
Estimated ECM Lifetime (Yr):	15
Simple Payback	28.2
Simple Lifetime ROI	-46.7%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$44,404
Internal Rate of Return (IRR)	-7%
Net Present Value (NPV)	($48,028.02)

ECM #10: Solar Domestic Hot Water System

Description:

Mt. Olive High School operates with a nearly year round demand for hot water production. The hot water is supplied mainly by gas fired domestic hot water heaters. The efficiency of the existing hot water heating system is based on the efficiency of the existing hot water heaters.

This ECM includes the installation of a solar thermal system to produce domestic hot water. The system includes thermal panels mounted over the roof of the existing boiler plant, piping distribution to the domestic hot water tanks, a pre-heat hot water heat exchanger, solar PV panels and pumps for glycol distribution, and controls. The system features a pre-heat tank with the existing tanks still in place as a back-up means for hot water production to ensure no loss of hot water production. The calculations are based on Viesmann Flat Plat collectors model VITOSOL 200F or equivalent.

Energy Savings Calculations:

$$\text{DHW Load} = \left(\text{Summer Energy Usage}\left(\frac{\text{Therms}}{\text{Month}}\right) \times 12(\text{Months}) \times \text{Eff}(\%) \times \text{Heating Value}\left(\frac{\text{Btu}}{\text{Therms}}\right) \right)$$

$$\text{Solar Sys Heat}\,\% = \frac{\text{Solar Heat}(\text{kBtu})}{\text{DHW Load}(\text{kBtu})}$$

$$\text{Gas Usage Reduction} = \text{Summer Gas Usage}\left(\frac{\text{Therms}}{\text{Month}}\right) \times 12(\text{Months}) \times \text{Domestic HW Heater Efficiency},\%$$

$$\text{Savings} = \text{Gas Usage Reduction} \times \text{Ave Cost}\left(\frac{\$}{\text{Therms}}\right)$$

Below is the average domestic hot water usage calculation table with the solar domestic hot water heating calculation tables.

Existing Domestic Hot Water Parameters:

Ave Gas Cost = $1.52/Therm
Estimated Domestic Water Heating Efficiency = 80%
Estimated monthly non-space heating gas usage (Dom HW) = 1492 Therms*
(*Averaged from Jun - Aug gas usage)

Solar Thermal System Parameters:

See the **Solar Domestic Hot Water Heater Appendix** for detailed calculations.

Solar Thermal System Production: 753,594 kBtu/Yr

ANNUAL GAS USAGE		
MONTH	TOTAL USAGE	DOMESTIC HW USAGE
Sep-09	2,832	1,492
Oct-09	9,289	1,492
Nov-09	15,268	1,492
Dec-09	41,099	1,492
Jan-10	28,058	1,492
Feb-10	29,938	1,492
Mar-10	12,466	1,492
Apr-10	7,626	1,492
May-10	3,157	1,492
Jun-10	889	1,492
Jul-10	1,066	1,492
Aug-10	1,181	1,492
TOTAL	**152,867**	**17,902**

SOLAR THERMAL CALCULATIONS			
ECM INPUTS	**EXISTING**	**PROPOSED**	**SAVINGS**
ECM INPUTS	HW Heaters	Solar Thermal Sys w/ HW Heaters	-
Ave Monthly Gas Usage for DHW (Therms)	1,492	-	-
Hot Water Heater Efficiency (%)	80%	80%	-
Gas Heat Value (BTU/Therm)	100,000	100,000	-
DHW Load (MMBTUs)	1,432	1,432	-
Solar Thermal Sys. Production (MMBTUs)	0.0	754	754
Solar Thermal Sys. Heat % of Baseline (MMBTUs)	0.0	52.6%	1
Gas Cost ($/Therm)	1.52	1.52	-
ENERGY SAVINGS CALCULATIONS			
ECM RESULTS	**EXISTING**	**PROPOSED**	**SAVINGS**
Natural Gas Usage (Therms)	17,902	8,483	9,420
Energy Cost ($)	$27,212	$12,893	$14,318
COMMENTS:	This ECM is based on solar thermal hot water production from the solar thermal hot water calucation appendix.		

Installed cost of the solar thermal system including panels, piping, equipment, heat exchanger, pumps, and controls is estimated to be $175,000.

Energy Savings Summary:

ECM #10 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$175,000
NJ Smart Start Equipment Incentive ($):	$0
Net Installation Cost ($):	$175,000
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$14,318
Total Yearly Savings ($/Yr):	$14,318
Estimated ECM Lifetime (Yr):	15
Simple Payback	12.2
Simple Lifetime ROI	22.7%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$214,770
Internal Rate of Return (IRR)	3%
Net Present Value (NPV)	($4,072.65)

ECM #11: Demand Controlled 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 CO2 levels and the algorithm automatically adjusts the outdoor and return air dampers to provide the quantity of outdoor air to maintain the required CO2 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 steam and chilled water plants.

Packaged air handling units RTU-7, RTU-8, RTU-11, RTU-12, RTU-13, RTU-14, RTU-16 and RTU-21 are energy recovery HVAC units conditioning various spaces summarized below. Majority of these units are 100% outside air units with minimum exhaust recirculation to each space. When these units are on unoccupied mode, the outside air dampers shut. 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.

This ECM includes the installation of CO_2 sensors integrated into a demand control ventilation system, for the units mentioned above. This system allows the air handling unit to respond to changes in occupancy and therefore reduce the amount of outside air that has to be conditioned. Outside air accounts for a large portion of the energy consumption in the HVAC system, especially in high occupancy spaces. 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:

- Demand Control Ventilation - 10% - 15%.

Energy savings achieved through "Demand Control Ventilation" average 10%-15%. Savings resulting from the implementation of this ECM for energy management controls are estimated to

be 15% of the total HVAC energy cost for this system. It must be noted that even though these units are equipped with built-in energy recovery systems, they are 100% outside air units. Therefore, significant energy savings are expected at each unit.

The components included to install for a demand control ventilation system include damper actuators (if not exist), Variable Frequency Drives (if not exist), CO2 sensors, wiring, Energy Management System equipment expansion and programming. Each occupied zone would require minimum one CO_2 sensor installed to monitor occupancy levels.

IMPLEMENTATION SUMMARY					
INPUTS	**Service**	**Min # of CO2 SENSORS**	**HVAC Unit**	**Cooling Capaity, Tons**	**Heating Capacity, MBH**
DCV-1	Music Room	1	RTU-7	6	73
DCV-2	Faculty Dining	2	RTU-8	13	146
DCV-3	Cafeteria	2	RTU-11	51	517
DCV-4	Auditorium	1	RTU-12	51	611
DCV-5	Auditorium	1	RTU-13	16	219
DCV-6	Auditorium	1	RTU-14	16	219
DCV-7	Lobby Area	2	RTU-16	69	611
DCV-8	Gym Area	2	RTU-21	156	219
Total				**378**	**2,615**

Energy Savings Calculations:

$$\text{Cooling EnergyUsage} = \frac{\text{Cooling(Tons)} \times 12{,}000 \left(\frac{\text{Btu}}{\text{Ton hr}}\right) \times \text{Annual Full Load Cooling Hrs.}}{1000 \left(\frac{\text{Wh}}{\text{kWh}}\right) \times \text{EER}\left(\frac{\text{Btu}}{\text{Wh}}\right)}$$

$$\text{EnergySavings} = \text{CoolingEnergy(kwh)} \times 15\%$$

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

$$\text{Heating Energy (Therms)} = \frac{\text{Heating Capacity}\left(\frac{\text{Btu}}{\text{Hr.}}\right) \times \text{HDD(Day °F)} \times 24\left(\frac{\text{Hr.}}{\text{Day}}\right) \times (0.60)}{65(°\text{F}) \times \text{Fuel Heat Value}\left(\frac{\text{Btu}}{\text{Therms}}\right) \times \text{Heating Efficiency (\%)}}$$

$$\text{Heating Cost} = \text{Heating Energy}(\text{Therms}) \times \text{Ave Fuel Cost}\left(\frac{\$}{\text{Therms}}\right)$$

$$\text{EnergySavings} = \text{HeatingEnergy}(\text{Therms}) \times 15\%$$

Cost and Incentives:

Estimated installed cost for demand controlled ventilation for the Music Room, Faculty Dining, Cafeteria, Auditorium, Auditorium, Lobby Area and Gym Lobby Areas is $130,000. Estimated cost includes CO2 sensors, control wiring, electrical wiring, control system equipment expansion and programming. Majority of the units are already equipped with Variable Frequency Drives.

There are currently no Smart Start ® incentives available for a Demand Control Ventilation System.

Energy Savings Summary:

ECM #11 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$130,000
NJ Smart Start Equipment Incentive ($):	$0
Net Installation Cost ($):	$130,000
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$13,953
Total Yearly Savings ($/Yr):	$13,953
Estimated ECM Lifetime (Yr):	15
Simple Payback	9.3
Simple Lifetime ROI	61.0%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$209,290
Internal Rate of Return (IRR)	7%
Net Present Value (NPV)	$27,610.38

VIII. RENEWABLE/DISTRIBUTED ENERGY MEASURES

Globally, renewable energy has become a priority affecting international and domestic energy policy. The State of New Jersey has taken a proactive approach, and has recently adopted in its Energy Master Plan a goal of 30% renewable energy by 2020. To help reach this goal New Jersey created the Office of Clean Energy under the direction of the Board of Public Utilities and instituted a Renewable Energy Incentive Program to provide additional funding to private and public entities for installing qualified renewable technologies. A renewable energy source can greatly reduce a building's operating expenses while producing clean environmentally friendly energy. CEG has assessed the feasibility of installing renewable energy measures (REM) for the municipality utilizing renewable technologies and concluded that there is potential for solar energy generation. The solar photovoltaic system calculation summary will be concluded as **REM#1** within this report.

Solar energy produces clean energy and reduces a building's carbon footprint. This is accomplished via photovoltaic panels which will be mounted on all south and southwestern facades of the building. Flat roof, as well as sloped areas can be utilized; flat areas will have the panels turned to an optimum solar absorbing angle. (A structural survey of the roof would be necessary before the installation of PV panels is considered). The state of NJ has instituted a program in which one Solar Renewable Energy Certificate (SREC) is given to the Owner for every 1000 kWh of generation. SREC's can be sold anytime on the market at their current market value. The value of the credit varies upon the current need of the power companies. The average value per credit is around $350, this value was used in our financial calculations. This equates to $0.35 per kWh generated.

CEG has reviewed the existing roof and the parking lot area of the building being audited for the purposes of determining a potential for a photovoltaic system. Since majority of the existing HVAC systems are on the roof limiting the space for a roof mounted PV system, a parking lot area of 25,650 S.F. can be utilized for a parking lot canopy mounted PV system. A depiction of the area utilized is shown in **Renewable / Distributed Energy Measures Calculation Appendix**. Using this square footage it was determined that a system size of 361 kilowatts could be installed. A system of this size has an estimated kilowatt hour production of 448,702 KWh annually, reducing the overall utility bill by approximately 15% percent. A detailed financial analysis can be found in the **Renewable / Distributed Energy Measures Calculation Appendix**. This analysis illustrates the payback of the system over a 25 year period. The eventual degradation of the solar panels and the price of accumulated SREC's are factored into the payback.

The proposed photovoltaic array layout is designed based on the specifications for the Sun Power SPR-230 panel. This panel has a "DC" rated full load output of 230 watts, and has a total panel conversion efficiency of 18%. Although panels rated at higher wattages are available through Sun Power and other various manufacturers, in general most manufacturers who produce commercially available solar panels produce a similar panel in the 200 to 250 watt range. This provides more manufacturer options to the public entity if they wish to pursue the proposed solar recommendation without losing significant system capacity.

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

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

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

Table 7
Financial Summary – Photovoltaic System

FINANCIAL SUMMARY - PHOTOVOLTAIC SYSTEM		
PAYMENT TYPE	**SIMPLE PAYBACK**	**INTERNAL RATE OF RETURN**
Direct Purchase	14.60 Years	5.2%

*The solar energy measure is shown for reference in the executive summary Renewable Energy Measure (REM) table

Given the large amount of capital required by the Owner to invest in a solar system through a Direct Purchase CEG does not recommend the Owner pursue this route. It would be more

advantageous for the Owner to solicit Power Purchase Agreement (PPA) Providers who will own, operate, and maintain the system for a period of 15 years. During this time the PPA Provider would sell all of the electric generated by Solar Arrays to the Owner at a reduced rate compared to their existing electric rate.

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

IX. ENERGY PURCHASING AND PROCUREMENT STRATEGY

Load Profile:

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

Electricity:

The electricity usage profile demonstrates a 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 monthly usage of 246,414 kWh and an average monthly demand of 664kW. Largest consumption months were November - February.

The historical usage profile is beneficial and will allow for more competitive energy prices when shopping for alternative suppliers mainly due to the relatively flat load profile and reduction of summer load. 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 JCP&L's BGS-FP default rate are recommended.

Natural Gas:

The Natural Gas Usage Profile demonstrates a very typical natural gas (heat load) profile. The summer months June - August have very little consumption. The average winter (Nov-Mar) consumption is 25,365 therms and the average summer (Apr-Oct) consumption is 3,720 therms. The largest consumption month was December at 41,098 therms.

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

Tariff Analysis:

Electricity:

This facility receives electrical service through Jersey Central Power & Light (JCP&L) on a GS-Sec (General Service Secondary) rate. Service classification GS-Sec is available for general service purposes on secondary voltages not included under Service Classifications RS, RT, RGT or GST. This facility's rate is a single or three phase service at secondary voltages. This facility has not contracted a Third Party Supplier (TPS) to provide electric commodity service. For electric supply (generation) service, the client has a choice to either use JCP&L'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 facility's current BGS-FP average price to compare for GS-Sec rate is $0.1180/kWh.

The utility, JCP&L will continue to be responsible for maintaining the existing network of wires, pipes and poles that make up the delivery system, which will serve all consumers, regardless of whom they choose to purchase their electricity or natural gas from.

JCP&L's Delivery Service rate includes the following charges: Customer Charge, Supplemental Customer Charge, Distribution Charge (kW Demand), kWh Charge, Non-utility Generation Charge, TEFA, SBC, SCC, Standby Fee and RGGI.

Natural Gas:

This facility currently receives natural gas distribution service through New Jersey Natural Gas (NJNG) on rate schedule GSL (General Service - Large) and has contracted a Third Party Supplier (TPS) to provide natural gas commodity service.

NJNG provides basic gas supply service (BGSS) to customers who choose not to shop from a Third Party Supplier (TPS) for natural gas commodity. The option is essential to protect the reliability of service to consumers as well as protecting consumers if a third party supplier

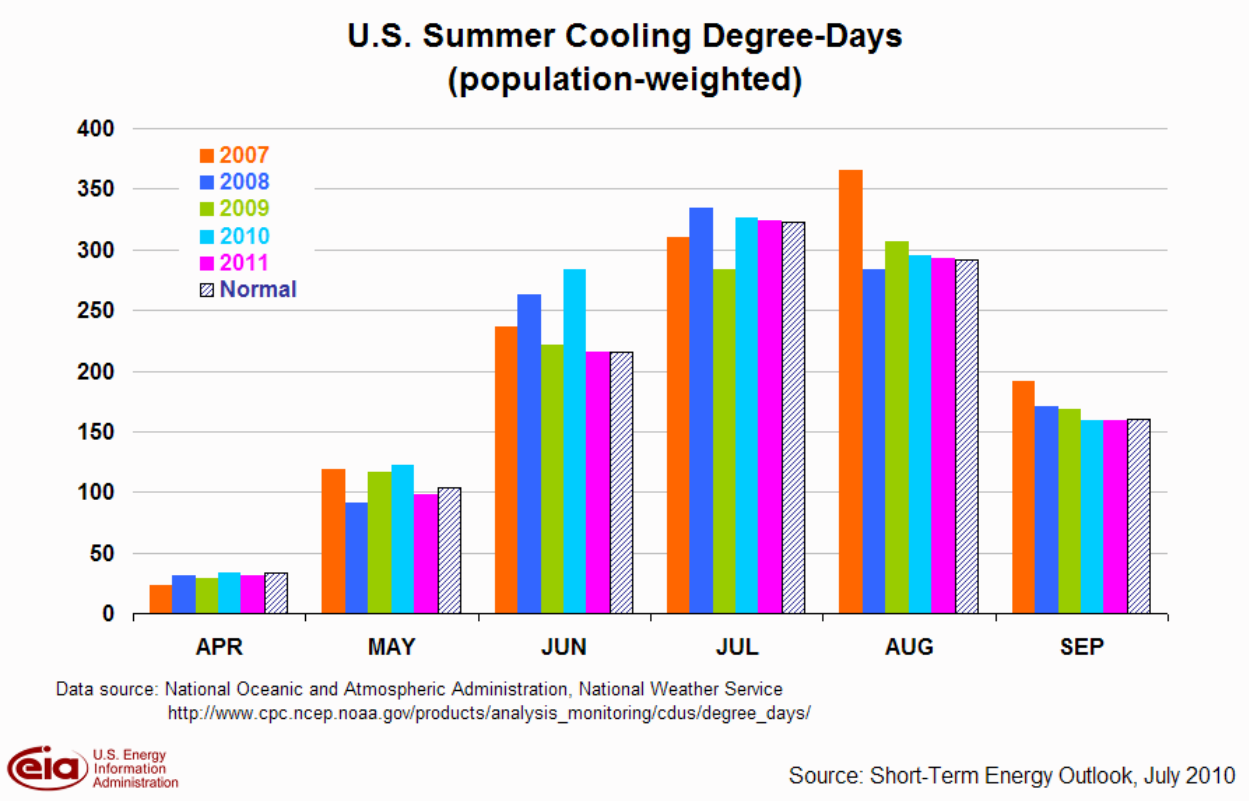
defaults or fails to provide commodity service. Please refer to the link below for a recap of natural gas BGSS charges from New Jersey Natural Gas for rate schedule GSL. http://www.njng.com/pdf/Oct2010LargeCommercialPriceTable.pdf

The utility, NJNG is responsible for maintaining the existing network of pipes that make up the delivery system, which will serve all consumers, regardless of whom they choose to purchase their electricity or natural gas from. New Jersey Natural Gas delivery service rate includes the following charges: Customer Service Charge, Demand Charge and Delivery Charge.

Electric and Natural Gas Commodities Market Overview:

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

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



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

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

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

U.S. Electricity Retail Prices. *Although the average U.S. residential retail price of electricity fell by nearly 1 percent during the first half of 2010 compared with the same period last year, prices are expected to increase by 1.5 percent year-over-year during the second half of 2010. Higher generation*

fuel costs this year are expected to be passed through to retail consumers during 2011, pushing up residential prices by 1.4 percent next year

Recommendations:

CEG recommends an aggregated approach for 3rd party commodity supply procurement strategies for electric supply service. Aggregating all school facilities for electricity supply service would allow this facility to achieve a reduction in electric supply costs. Energy commodities are among the most volatile of all commodities, however at this point and time, energy is extremely competitive. This facility could realize up to a 20% reduction in electricity supply costs, if it were to aggregate usage with the other school facilities and take advantage of these current market prices quickly, before energy increases.

Overall, after review of the utility consumption, billing, and current commodity pricing outlook, CEG recommends that the facility in conjunction with the other school facilities utilize the advisement of 3rd party unbiased Energy Consulting Firm experienced in the aggregation of facilities and procurement of retail 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

X. INSTALLATION FUNDING OPTIONS

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

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

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

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

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

Total incentive is capped at 50% of the project cost. The program savings is broken down into three benchmarks; Energy Reduction Plan, Project Implementation, and Measurement and Verification. Each step provides additional incentives as the energy reduction project continues. The benchmark incentives are as follows:

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

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

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

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

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

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

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

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

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

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

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

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

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

XI. ADDITIONAL RECOMMENDATIONS

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

A. Chemically clean the condenser and evaporator coils periodically to optimize efficiency. Poorly maintained heat transfer surfaces can reduce efficiency 5-10%.

B. Maintain all weather stripping on windows and doors.

C. Clean all light fixtures to maximize light output.

D. Provide more frequent air filter changes to decrease overall system power usage and maintain better IAQ.

E. Maintain insulation on the hot and chilled water pipes.

F. Check and confirm occupied and unoccupied temperature settings for each air conditioning unit and remove any overrides.

G. Confirm that outside air economizers on the rooftop units are functioning properly to take advantage of free cooling and avoid excess outside air during occupied periods.

In addition to the recommendations above, implementing Retro-Commissioning would be beneficial for this facility. Retro-Commissioning is a means to verify your current equipment is operating at its designed efficiency, capacity, airflow, and overall performance. Retro-Commissioning provides valuable insight into systems or components not performing correctly or efficiently. The commissioning process defines the original system design parameters and recommends revisions to the current system operating characteristics.

ECM COST & SAVINGS BREAKDOWN

CONCORD ENGINEERING GROUP

Mount Olive High School

ECM NO.	DESCRIPTION	INSTALLATION COST				YEARLY SAVINGS			ECM LIFETIME	LIFETIME ENERGY SAVINGS	LIFETIME MAINTENANCE SAVINGS	LIFETIME ROI	SIMPLE PAYBACK	INTERNAL RATE OF RETURN (IRR)	NET PRESENT VALUE (NPV)
		MATERIAL	LABOR	REBATES, INCENTIVES	NET INSTALLATION COST	ENERGY	MAINT. / SREC	TOTAL		(Yearly Saving * ECM Lifetime)	(Yearly Maint Svaing * ECM Lifetime)	(Lifetime Savings - Net Cost) / (Net Cost)	(Net cost / Yearly Savings)	$\sum_{n=0}^{N} \frac{C_n}{(1+IRR)^n}$	$\sum_{n=0}^{N} \frac{C_n}{(1+DR)^n}$
		($)	($)	($)	($)	($/Yr)	($/Yr)	($/Yr)	(Yr)	($)	($)	(%)	(Yr)	($)	($)
ECM #1	Lighting Upgrade - Interior Spaces	$17,488	$4,372	$340	$21,520	$10,724	$43	$10,767	15	$161,505	$645	650.5%	2.0	49.92%	$107,015.75
ECM #2	Lighting Upgrade - Gymnasium	$13,440	$3,360	$7,000	$9,800	$7,489	$0	$7,489	15	$112,338	$0	1046.3%	1.3	76.41%	$79,605.82
ECM #3	Lighting Occupancy and Daylight Sensors	$15,796	$3,949	$1,960	$17,785	$3,740	$0	$3,740	15	$56,100	$0	215.4%	4.8	19.59%	$26,862.88
ECM #4	Replace CRT Monitors	$5,600	$0	$0	$5,600	$927	$0	$927	15	$13,907	$0	148.3%	6.0	14.34%	$5,468.36
ECM #5	Boiler Plant Upgrade	$500,000	$0	$12,000	$488,000	$23,699	$1,000	$24,699	15	$370,488	$15,000	-24.1%	19.8	-3.26%	($193,142.19)
ECM #6	Window Replacement	$405,000	$0	$0	$405,000	$8,173	$0	$8,173	15	$122,590	$0	-69.7%	49.6	-12.21%	($307,435.35)
ECM #7	Kitchen Exhaust Hood Controls	$32,189	$0	$1,550	$30,639	$1,751	$0	$1,751	15	$26,272	$0	-14.3%	17.5	-1.86%	($9,729.71)
ECM #8	Premium Efficiency Motors	$19,436	$0	$520	$18,916	$688	$0	$688	15	$10,316	$0	-45.5%	27.5	-6.77%	($10,706.34)
ECM #9	RTU Unit Upgrades	$86,000	$0	$2,633	$83,368	$2,960	$0	$2,960	15	$44,404	$0	-46.7%	28.2	-7.01%	($48,028.02)
ECM #10	Solar Thermal System	$175,000	$0	$0	$175,000	$14,318	$0	$14,318	15	$214,770	$0	22.7%	12.2	2.68%	($4,072.65)
ECM #11	Demand Controlled Ventilation	$130,000	$0	$0	$130,000	$13,953	$0	$13,953	15	$209,290	$0	61.0%	9.3	6.64%	$27,610.38
REM RENEWABLE ENERGY AND FINANCIAL COSTS AND SAVINGS SUMMARY															
REM #1	Solar PV System	$3,249,900	$0	$0	$3,249,900	$65,510	$157,046	$222,556	15	$3,338,343	$2,355,686	2.7%	14.6	0.34%	($593,038.63)

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
High School

Building ID: 2404044
For 12-month Period Ending: July 31, 2010[1]
Date SEP becomes ineligible: N/A
Date SEP Generated: October 05, 2010

Facility
High School
18 Corey Rd.
Flanders, NJ 07836

Facility Owner
Public Schools of Mt. Olive
89 Route 46
Budd Lake, NH 07828

Primary Contact for this Facility
Thomas Scerbo
89 Route 46
Budd Lake, NJ 07828

Year Built: 1972
Gross Floor Area (ft²): 335,000

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

Site Energy Use Summary[3]

Electricity - Grid Purchase(kBtu)	10,044,954
Natural Gas (kBtu)[4]	15,185,674
Total Energy (kBtu)	25,230,628

Energy Intensity[5]

Site (kBtu/ft²/yr)	75
Source (kBtu/ft²/yr)	148

Emissions (based on site energy use)

Greenhouse Gas Emissions ($MtCO_2e$/year)	2,338

Electric Distribution Utility
FirstEnergy - Jersey Central Power & Lt Co

National Average Comparison

National Average Site EUI	73
National Average Source EUI	144
% Difference from National Average Source EUI	3%
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 S. Burnt Mill Rd.
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	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	18 Corey Rd., Flanders, NJ 07836	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		☐
High School Building (K-12 School)				
CRITERION	**VALUE AS ENTERED IN PORTFOLIO MANAGER**	**VERIFICATION QUESTIONS**	**NOTES**	☑
Gross Floor Area	335,000 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	331	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	9(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: FirstEnergy - Jersey Central Power & Lt Co

Fuel Type: Electricity

Meter: Electric Meter - G28659637 (kWh (thousand Watt-hours))
Space(s): Entire Facility
Generation Method: Grid Purchase

Start Date	End Date	Energy Use (kWh (thousand Watt-hours))
06/16/2010	07/15/2010	224,400.00
05/16/2010	06/15/2010	229,800.00
04/16/2010	05/15/2010	213,300.00
03/16/2010	04/15/2010	216,000.00
02/16/2010	03/15/2010	246,300.00
01/16/2010	02/15/2010	266,400.00
12/16/2009	01/15/2010	300,000.00
11/16/2009	12/15/2009	254,100.00
10/16/2009	11/15/2009	305,700.00
09/16/2009	10/15/2009	305,700.00
08/16/2009	09/15/2009	199,200.00
Electric Meter - G28659637 Consumption (kWh (thousand Watt-hours))		**2,760,900.00**
Electric Meter - G28659637 Consumption (kBtu (thousand Btu))		**9,420,190.80**

Meter: Electric Meter - L36055866 (kWh (thousand Watt-hours))
Space(s): Entire Facility
Generation Method: Grid Purchase

Start Date	End Date	Energy Use (kWh (thousand Watt-hours))
06/16/2010	07/15/2010	1,283.00
05/16/2010	06/15/2010	1,106.00
04/16/2010	05/15/2010	2,106.00
03/16/2010	04/15/2010	2,425.00
02/16/2010	03/15/2010	3,523.00
01/16/2010	02/15/2010	4,520.00
12/16/2009	01/15/2010	4,597.00
11/16/2009	12/15/2009	3,146.00
10/16/2009	11/15/2009	3,335.00
09/16/2009	10/15/2009	187.00
08/16/2009	09/15/2009	1,063.00
Electric Meter - L36055866 Consumption (kWh (thousand Watt-hours))		**27,291.00**
Electric Meter - L36055866 Consumption (kBtu (thousand Btu))		**93,116.89**
Total Electricity (Grid Purchase) Consumption (kBtu (thousand Btu))		**9,513,307.69**

Is this the total Electricity (Grid Purchase) consumption at this building including all Electricity meters?	☐

Fuel Type: Natural Gas

Meter: Gas Meter - 00558420 (therms)
Space(s): Entire Facility

Start Date	End Date	Energy Use (therms)
06/06/2010	07/05/2010	888.90
05/06/2010	06/05/2010	3,156.74
04/06/2010	05/05/2010	7,625.98
03/06/2010	04/05/2010	12,465.56
02/06/2010	03/05/2010	29,938.22
01/06/2010	02/05/2010	28,057.85
12/06/2009	01/05/2010	41,098.75
10/30/2009	12/05/2009	15,267.58
10/02/2009	10/29/2009	9,288.99
08/31/2009	10/01/2009	2,831.79
07/31/2009	08/30/2009	354.04
Gas Meter - 00558420 Consumption (therms)		**150,974.40**
Gas Meter - 00558420 Consumption (kBtu (thousand Btu))		**15,097,440.00**
Total Natural Gas Consumption (kBtu (thousand Btu))		**15,097,440.00**
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
High School
18 Corey Rd.
Flanders, NJ 07836

Facility Owner
Public Schools of Mt. Olive
89 Route 46
Budd Lake, NH 07828

Primary Contact for this Facility
Thomas Scerbo
89 Route 46
Budd Lake, NJ 07828

General Information

High School	
Gross Floor Area Excluding Parking: (ft^2)	335,000
Year Built	1972
For 12-month Evaluation Period Ending Date:	July 31, 2010

Facility Space Use Summary

High School Building	
Space Type	K-12 School
Gross Floor Area(ft^2)	335,000
Open Weekends?	No
Number of PCs	331
Number of walk-in refrigeration/freezer units	2
Presence of cooking facilities	Yes
Percent Cooled	100
Percent Heated	100
Months[o]	9
High School?	Yes
School District[o]	Mt. Olive

Energy Performance Comparison

	Evaluation Periods		Comparisons		
Performance Metrics	**Current** (Ending Date 07/31/2010)	**Baseline** (Ending Date 07/31/2010)	**Rating of 75**	**Target**	**National Average**
Energy Performance Rating	47	47	75	N/A	50
Energy Intensity					
Site (kBtu/ft^2)	75	75	57	N/A	73
Source (kBtu/ft^2)	148	148	113	N/A	144
Energy Cost					
$/year	N/A	N/A	N/A	N/A	N/A
$/$ft^2$/year	N/A	N/A	N/A	N/A	N/A
Greenhouse Gas Emissions					
$MtCO_2e$/year	2,338	2,338	1,783	N/A	2,281
$kgCO_2e/ft^2$/year	7	7	5	N/A	7

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

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

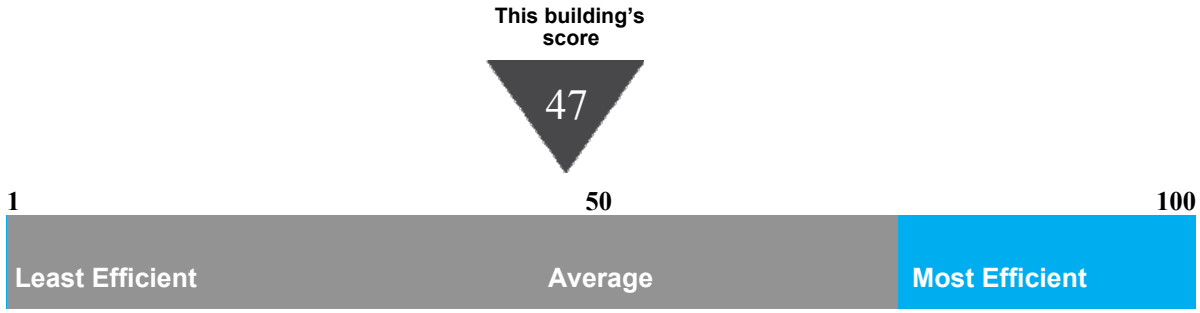
Statement of Energy Performance

2010

High School
18 Corey Rd.
Flanders, NJ 07836

Portfolio Manager Building ID: 2404044

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 148 kBtu per square foot per year.*

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

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

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

Date of certification

EPA United States Environmental Protection Agency

Date Generated: 10/05/2010

MAJOR EQUIPMENT LIST

Concord Engineering Group

Mount Olive High School

Packaged Air Handling Units

Tag	RTU - 1	RTU - 2	RTU - 3
Unit Type	Energy Recovery Ventilation	Energy Recovery Ventilation	Energy Recovery Ventilation
Qty	1	1	1
Location	Roof	Roof	Roof
Area Served	Ground Floor Areas-S (Science Wing)	D Wing	1st Floor Areas-S (Science Wing)
Manufacturer	AAON	AAON	AAON
Model #	RM-030	RM-030	RM-030
Serial #	200605-AMGT24706	200605-AMGT24707	200605-AMGT24708
Cooling Type	DX	DX	DX
Heating Type	Natural Gas	Natural Gas	Natural Gas
Total Flow, CFM	8810	7561	9019
Total Heating Capacity, MBH	316	316	384
Total Cooling Capacity, MBH	525	524	526
Minimum Outdoor Air Flow, CFM	7093	7561	7101
Supply Fan HP	10	7.5	15
Supply Fan Motor Eff	Premium	Premium	Premium
Return Fan HP	7.5	7.5	7.5
Return Fan Motor Eff	Premium	Premium	Premium
Voltage / Phase	460 / 3-Phase	460 / 3-Phase	460 / 3-Phase
Approx Age	5	5	5
Ashrae Service Life	15	15	15
Remaining Life	10	10	10
Comments			

MAJOR EQUIPMENT LIST

Concord Engineering Group

Mount Olive High School

Packaged Air Handling Units

Tag	RTU - 4	RTU - 5	RTU - 6
Unit Type	Energy Recovery Ventilation	Energy Recovery Ventilation	Energy Recovery Ventilation
Qty	1	1	1
Location	Roof	Roof	Roof
Area Served	2nd Floor D-Wing	1st Floor D-Wing	First Floor Area G
Manufacturer	AAON	AAON	AAON
Model #	RM-030	RN-031	RN-031
Serial #	200605-AMGT24709	200604-BNGU01866	200604-BNGU01867
Cooling Type	DX	DX	DX
Heating Type	Natural Gas	Natural Gas	Natural Gas
Total Flow, CFM	7500	9194	9423
Total Heating Capacity, MBH	316	296	437
Total Cooling Capacity, MBH	523	661	668
Minimum Outdoor Air Flow, CFM	7500	9194	9423
Supply Fan HP	8	10.0	10
Supply Fan Motor Eff	Premium	Premium	Premium
Return Fan HP	5	2	2.0
Return Fan Motor Eff	Premium	Premium	Premium
Voltage / Phase	460 / 3-Phase	460 / 3-Phase	460 / 3-Phase
Approx Age	5	5	5
Ashrae Service Life	15	15	15
Remaining Life	10	10	10
Comments			

MAJOR EQUIPMENT LIST

Concord Engineering Group

Mount Olive High School

Packaged Air Handling Units

Tag	RTU - 7	RTU - 8	RTU - 9
Unit Type	Energy Recovery Ventilation	Energy Recovery Ventilation	Energy Recovery Ventilation
Qty	1	1	1
Location	Roof	Roof	Roof
Area Served	Lobby	-	-
Manufacturer	AAON	AAON	AAON
Model #	RM-006	RM-013	RM-008
Serial #	200606-AMGF25639	200606-AMGK25683	200606-AMGH25562
Cooling Type	DX	DX	DX
Heating Type	Natural Gas	Natural Gas	Natural Gas
Total Flow, CFM	-	-	-
Total Heating Capacity, MBH	73	146	146
Total Cooling Capacity, MBH	72	156	96
Minimum Outdoor Air Flow, CFM	-	-	-
Supply Fan HP	2	5.0	3
Supply Fan Motor Eff	Premium	Premium	Premium
Return Fan HP	1	2	1.0
Return Fan Motor Eff	Premium	Premium	Premium
Voltage / Phase	460 / 3-Phase	460 / 3-Phase	460 / 3-Phase
Approx Age	5	5	5
Ashrae Service Life	15	15	15
Remaining Life	10	10	10
Comments			

MAJOR EQUIPMENT LIST

Concord Engineering Group

Mount Olive High School

Packaged Air Handling Units

Tag	RTU - 10	RTU - 11	RTU - 12
Unit Type	Energy Recovery Ventilation	Energy Recovery Ventilation	Energy Recovery Ventilation
Qty	1	1	1
Location	Roof	Roof	Roof
Area Served	Cafeteria	Cafeteria	Auditorium
Manufacturer	AAON	AAON	AAON
Model #	RM-030-3-0-BB02-369	RL - 060	RL - 075
Serial #	200606-AMGT25666	200606-BLGF00399	200609-BLGH00418
Cooling Type	DX	DX	DX
Heating Type	Natural Gas	Natural Gas	Natural Gas
Total Flow, CFM	-	-	
Total Heating Capacity, MBH	316	517	611
Total Cooling Capacity, MBH	30 Ton (est)	51 Tons	69 Tons
Minimum Outdoor Air Flow, CFM	-	-	-
Supply Fan HP	7.5	15.0	20
Supply Fan Motor Eff	91.7%	Premium	Premium
Return Fan HP	7.5	15	7.5
Return Fan Motor Eff	91.7%	Premium	Premium
Voltage / Phase	460 / 3-Phase	460 / 3-Phase	460 / 3-Phase
Approx Age	5	5	5
Ashrae Service Life	15	15	15
Remaining Life	10	10	10
Comments	Energy Recovery Wheel Variable Frequency Drives		

MAJOR EQUIPMENT LIST

Concord Engineering Group

Mount Olive High School

Packaged Air Handling Units

Tag	RTU - 13	RTU - 14	RTU - 15
Unit Type	Energy Recovery Ventilation	Energy Recovery Ventilation	Energy Recovery Ventilation
Qty	1	1	1
Location	Roof	Roof	Roof
Area Served	Auditorium	Auditorium	Music and TV production
Manufacturer	AAON	AAON	AAON
Model #	RL - 016	RL - 016	RL - 050
Serial #	200606-AMGM27382	200609-AMGM27383	200609-BNGW02166
Cooling Type	DX	DX	DX
Heating Type	Natural Gas	Natural Gas	Natural Gas
Total Flow, CFM	-	-	-
Total Heating Capacity, MBH	219	219	632
Total Cooling Capacity, MBH	192	192	600
Minimum Outdoor Air Flow, CFM	-	-	-
Supply Fan HP	5	5.0	10
Supply Fan Motor Eff	Premium	Premium	Premium
Return Fan HP	2	2	3.0
Return Fan Motor Eff	Premium	Premium	Premium
Voltage / Phase	460 / 3-Phase	460 / 3-Phase	460 / 3-Phase
Approx Age	5	5	5
Ashrae Service Life	15	15	15
Remaining Life	10	10	10
Comments			

MAJOR EQUIPMENT LIST

Concord Engineering Group

Mount Olive High School

Packaged Air Handling Units

Tag	RTU - 16	RTU - 21	RTU - 22
Unit Type	Energy Recovery Ventilation	Energy Recovery Ventilation	Energy Recovery Ventilation
Qty	1	1	1
Location	Roof	Roof	Roof
Area Served	Lobby HVAC	Boys Locker Room	Aux Gym
Manufacturer	AAON	AAON	AAON
Model #	RL - 075	RM - 013	RM - 10
Serial #	200606-BLGH00468	200606-AMGK25563	200605-AMGJ24685
Cooling Type	DX	DX	DX
Heating Type	Natural Gas	Natural Gas	Natural Gas
Total Flow, CFM	-	-	2486
Total Heating Capacity, MBH	611	219	146
Total Cooling Capacity, MBH	69 Tons	156	120
Minimum Outdoor Air Flow, CFM	-	-	2410
Supply Fan HP	20	5.0	3
Supply Fan Motor Eff	Premium	Premium	Premium
Return Fan HP	7.5	2	2.0
Return Fan Motor Eff	Premium	Premium	Premium
Voltage / Phase	460 / 3-Phase	460 / 3-Phase	460 / 3-Phase
Approx Age	5	5	5
Ashrae Service Life	15	15	15
Remaining Life	10	10	10
Comments			

MAJOR EQUIPMENT LIST

Concord Engineering Group

Mount Olive High School

Packaged Air Handling Units

Tag	RTU - 23	RTU - 26	RTU - 27
Unit Type	Energy Recovery Ventilation	4 pipe Rooftop Unit	-
Qty	1	1	1
Location	Roof	Roof	Roof
Area Served	Aux Gym	Old Auditorium (Pit) HVAC	Old Music Room
Manufacturer	AAON	Mammoth	Mammoth
Model #	RM -10	RMZONE08262102	-
Serial #	200605-AMGJ24686	82621-02-01	-
Cooling Type	DX	DX	-
Heating Type	Natural Gas	Hot Water	-
Total Flow, CFM	2486	11000	6800
Total Heating Capacity, MBH	146	686	-
Total Cooling Capacity, MBH	120	27.5 (Est)	-
Minimum Outdoor Air Flow, CFM	2486	5000	2720
Supply Fan HP	3	15.0	5 (est)
Supply Fan Motor Eff	Premium	93.0%	-
Return Fan HP	2	15	-
Return Fan Motor Eff	Premium	93.0%	-
Voltage / Phase	460 / 3-Phase	208 / 3-phase	-
Approx Age	5	30	30
Ashrae Service Life	15	15	15
Remaining Life	10	(15)	(15)
Comments			

MAJOR EQUIPMENT LIST

Concord Engineering Group

Mount Olive High School

Packaged Air Handling Units

Tag	MAU	HVAC - 4	MUA - 1
Unit Type	2 - Pipe AHU Heating Only	2 - Pipe AHU Heating Only	2 - Pipe AHU Heating Only
Qty	1	1	1
Location	Roof	MER	Roof
Area Served	Kitchen	Corridors	Kitchen
Manufacturer	Mammoth	Trane	Greenheck
Model #	AZH-20-W210-MZ-10	BCVC054G1A---	DGX-112-22-D36
Serial #	14277-03-01	T06E28366	10437633
Cooling Type	None	None	None
Heating Type	Hot Water	Hot Water	Hot Water
Total Flow, CFM	-	-	-
Total Heating Capacity, MBH	210	-	183
Total Cooling Capacity, MBH	None	None	None
Minimum Outdoor Air Flow, CFM	-	-	-
Supply Fan HP	5 (Est)	3 (Est)	2
Supply Fan Motor Eff	-	-	-
Return Fan HP	-	None	1.5
Return Fan Motor Eff	-	-	-
Voltage / Phase	208 / 3- Phase	460 / 3- Phase	460 / 3- Phase
Approx Age	30	5	5
Ashrae Service Life	15	15	15
Remaining Life	(15)	10	10
Comments		Mixing air damper for minimum outside air	

MAJOR EQUIPMENT LIST

Concord Engineering Group

Mount Olive High School

Packaged Air Handling Units

Tag	HV	HV	HP RTU
Unit Type	2 - Pipe AHU Heating Only	2 - Pipe AHU Heating Only	Heat Pump RTU
Qty	1	1	1
Location	3rd Floor Roof	3rd Floor Roof	3rd Floor Roof
Area Served	Gym	Gym	Photo Lab
Manufacturer	Mammoth	Trane	York
Model #	AZH-20-W535-MZ-10	HLHA C006LB10A25DC0J	B3CH060A25A
Serial #	14277-01-01 14277-02-01	B80L03316 B80L03317	NDBM022698
Cooling Type	None	None	DX
Heating Type	Hot Water	Hot Water	Heat Pump
Total Flow, CFM	-	-	-
Total Heating Capacity, MBH	535	535	59
Total Cooling Capacity, MBH	None	None	59
Minimum Outdoor Air Flow, CFM	-	-	-
Supply Fan HP	5 (Est)	5.0	1
Supply Fan Motor Eff	-	87.5%	-
Return Fan HP	-	-	-
Return Fan Motor Eff	-	-	-
Voltage / Phase	208 / 3- Phase	208 / 3- Phase	208 / 3- Phase
Approx Age	30	30	17
Ashrae Service Life	15	15	15
Remaining Life	(15)	(15)	(2)
Comments			SEER 10 Heating COP 3

MAJOR EQUIPMENT LIST

Concord Engineering Group

Mount Olive High School

Packaged Air Handling Units

Tag	HVAC - 1	HVAC - 2,3,4	HVAC 5,6,8
Unit Type	2 - Pipe AHU	2 - Pipe AHU	2 - Pipe AHU
Qty	1	3	3
Location	MER	MER	MER
Area Served	Corridors	Ground Floor Corridor, Bathroom, Maint Rm.	Media Areas Area B 2nd Floor
Manufacturer	Trane	Trane	Trane
Model #	BCVC054G1A---	-	-
Serial #	T06E28366	-	-
Cooling Type	-	-	-
Heating Type	Hot Water	Hot Water	Hot Water
Total Flow, CFM	1040	1025-1250	625, 1245, 1180
Total Heating Capacity, MBH	52	52,68,98	31, 68, 82
Total Cooling Capacity, MBH	-	-	-
Minimum Outdoor Air Flow, CFM	-	-	-
Supply Fan HP	3 (Est)	3 (Est)	3 (Est)
Supply Fan Motor Eff	-	-	-
Return Fan HP	None	None	None
Return Fan Motor Eff	-	-	-
Voltage / Phase	460 / 3- Phase	460 / 3- Phase	460 / 3- Phase
Approx Age	5	5	5
Ashrae Service Life	15	15	15
Remaining Life	10	10	10
Comments	Mixing air damper for minimum outside air		

MAJOR EQUIPMENT LIST

Concord Engineering Group

Mount Olive High School

Boilers

Tag	Main Boiler - 1	Main Boiler - 2 & 3
Unit Type	Hot Water - Cast Iron	Hot Water / Steel Fire Tube
Qty	1	2
Location	Main Boiler Room	Main Boiler Room
Area Served	Hot water loop	Hot water loop
Manufacturer	Weil McLain	Cleaver Brooks
Model #	-	CB810 - 200
Serial #	-	L-52914, L-52915
Input Capacity (MBH)	3,000 to 7,938 (Burner info)	8,369
Rated Output Capacity (MBH)	-	-
Approx. Efficiency %	80%	80%
Fuel	Natural Gas	Natural Gas
Approx Age	39	39
Ashrae Service Life	30	30
Remaining Life	(9)	(9)
Burner	PowerFlame	CB Burner
Type	Modulating Gas Burner	-
Firing Rate (MBH)	3000 to 7938 MBH (Modulating)	-
Comments		-

MAJOR EQUIPMENT LIST

Concord Engineering Group

Mount Olive High School

Boilers

Tag	Boiler - #2	Boiler - #1
Unit Type	Hot Water Boiler	Hot Water Boiler
Qty	1	1
Location	New A-wing boiler room	D Wing
Area Served	Auditorium, A-Wing	D Wing
Manufacturer	Raypak	Raypak
Model #	H9-2002A	H9-2002A
Serial #	0605251335	0605251336
Input Capacity (MBH)	1,999	1,999
Rated Output Capacity (MBH)	1,679	1679
Approx. Efficiency %	84%	84%
Fuel	Natural Gas	Natural Gas
Approx Age	5	5
Ashrae Service Life	30	30
Remaining Life	25	25
Burner	Built-in	Built-in
Type	Modulating burner with digital controls	Modulating burner with digital controls
Firing Rate (MBH)	810 - 1,999 MBH	810 - 1,999 MBH
Comments	-	-

MAJOR EQUIPMENT LIST

Concord Engineering Group

Mount Olive High School

Domestic Hot Water Heaters

Tag	HW Heater	HW Storage Tanks	HW Heater
Unit Type	Instant Hot Water Heater	Storage Tank Only	Tank type Hot Water Heater
Qty	1	2	1
Location	Boiler Room	Boiler Room	A wing boiler room
Area Served	Bathrooms, Faucets, Showers	Bathrooms, Faucets, Showers	A wing
Manufacturer	LAARS	LAARS	AO Smith
Model #	RHCV1200NACF2EXN	A2086000	DSE40
Serial #	A06170199	CE7699914	SF061126753
Size (Gallons)	None	200	85 (Est)
Input Capacity (MBH/KW)	1,200 MBH	0	12 kW 41 MBH
Recovery (Gal/Hr)	1,237 GPH	0	-
Efficiency %	85%	0	-
Fuel	Natural Gas	-	Electric
Approx Age	5	10	5
Ashrae Service Life	30	15	12
Remaining Life	25	10	7
Comments			

MAJOR EQUIPMENT LIST

Concord Engineering Group

Mount Olive High School

Domestic Hot Water Heaters

Tag	HW Heater	HW Storage Tank	-
Unit Type	Instant Hot Water Heater	Storage Tank Only	-
Qty	1	1	-
Location	D Wing	D Wing	-
Area Served	D Wing	D Wing	-
Manufacturer	LAARS	LAARS	-
Model #	RHCV1600NACF2EXN	A2086000	-
Serial #	A06167846	BL 6954255	-
Size (Gallons)	None	200	-
Input Capacity (MBH/KW)	1,600 MBH	0	-
Recovery (Gal/Hr)	1,648 GPH	0	-
Efficiency %	85%	0	-
Fuel	Natural Gas	-	-
Approx Age	5	10	-
Ashrae Service Life	30	15	-
Remaining Life	25	10	-
Comments			-

MAJOR EQUIPMENT LIST

Concord Engineering Group

Mount Olive High School

Unitary A/C Units

Tag	UVC	UVC	UVC
Unit Type	DX Condensing Unit	DX Condensing Unit	DX Condensing Unit
Qty	56	1	1
Location	Roof	Roof	Roof
Area Served	Unit Ventilators	Unit Ventilators	Unit Ventilators
Manufacturer	Trane	York	Trane
Model #	2TTA3030A4000AA	HABA F024SE	-
Serial #		WFNM079532	-
Cooling Capacity (Tons)	2.5	2	5
Efficiency (SEER)	-	-	
Indoor Unit	Unit Ventilators	Unit Ventilators	Unit Ventilators
Voltage / Phase	208 - single	208 - single	208 - single
Approx Age	5	7	-
Ashrae Service Life	15	15	15
Remaining Life	-	8	-
Comments	-	-	-

MAJOR EQUIPMENT LIST

Concord Engineering Group

Mount Olive High School

Unitary A/C Units

Tag	UVC	UVC	RMC
Unit Type	DX Condensing Unit	DX Condensing Unit	Ductless Mini Split
Qty	1	10	17
Location	Roof	Roof	Roof
Area Served	Unit Ventilators	Unit Ventilators	Wall Mounted AC Units
Manufacturer	Cumberland	Trane	Mitsubishi
Model #	RACA 0201AAB2	-	MU09TW
Serial #	K335XNHAF	-	-
Cooling Capacity (Tons)	2	3.5	0.75
Efficiency (SEER)	10	-	18
Indoor Unit	Unit Ventilators	Unit Ventilators	Wall Mount Indoor Units
Voltage / Phase	208 - single	208 - single	208 - single
Approx Age	15	15	5
Ashrae Service Life	15	15	15
Remaining Life	0	0	10
Comments	-	-	-

MAJOR EQUIPMENT LIST

Concord Engineering Group

Mount Olive High School

Pumps

Tag	HW Pump 1	HW Pump 2	HW Pump 3
Unit Type	Base Mounted - End Suction	Base Mounted - End Suction	Base Mounted - End Suction
Qty	1	1	1
Location	Boiler Room	Boiler Room	Pump Room
Area Served	Unit Ventilators, Fan Coil Units, Air Handling Units	Unit Ventilators, Fan Coil Units, Air Handling Units	Unit Ventilators, Fan Coil Units, Air Handling Units
Manufacturer	Armstrong	Armstrong	Armstrong
Horse Power	35	25	15
Flow, GPM	1,080	1,080	-
Pump Head, FT	175 psi	175 psi	-
Motor Info	US Motors	Marathon Electric	Lincoln Electric
Electrical Power	460 / 3-Phase	460 / 3-Phase	460 / 3-Phase
Frame	984T	284T	254T
RPM	1770	1770	1750
Motor Efficiency %	-	92.4%	N/A
Approx Age	10	10	15
Ashrae Service Life	20	20	20
Remaining Life	10	10	5
Comments			Motor not functional

MAJOR EQUIPMENT LIST

Concord Engineering Group

Mount Olive High School

Pumps

Tag	DHW Circulator	HW P-22	Circulator
Unit Type	Pipe Mounted Circulator	Pipe mounted - vertical	Pipe mounted
Qty	1	1	2
Location	Boiler Room	A wing boiler room	D wing boiler room
Area Served	Laars Domestic HW Heater and Tanks	A Wing Hot Water Loop	Boiler #1
Manufacturer	-	B & G	Emerson, Taco
Horse Power	~ 1 HP	3	3/4 HP
Flow, GPM	-	170	-
Pump Head, FT	175 psi	40	-
Motor Info	US Motors	US Motors	-
Electrical Power	460 / 3-Phase	460 / 3-Phase	-
Frame	-	182JM	-
RPM	-	1760	-
Motor Efficiency %	-	89.5%	-
Approx Age	10	5	5
Ashrae Service Life	15	20	20
Remaining Life	5	15	15
Comments			

MAJOR EQUIPMENT LIST

Concord Engineering Group

Mount Olive High School

Pumps

Tag	Circulator	HW Pump	-
Unit Type	Pipe mounted	Pipe mounted - vertical	-
Qty	1	1	-
Location	D wing hot water circulator	D wing	-
Area Served	LAARS Hot Water Heater	D wing	-
Manufacturer	BG Gold	B & G	-
Horse Power	1/2 HP	3	-
Flow, GPM	-	100	-
Pump Head, FT	-	60	-
Motor Info	-	US Motors	-
Electrical Power	-	460 / 3-Phase	-
Frame	-	182JM	-
RPM	-	1760	-
Motor Efficiency %	-	89.5%	-
Approx Age	5	5	-
Ashrae Service Life	20	20	-
Remaining Life	15	15	-
Comments			-

MAJOR EQUIPMENT LIST

Concord Engineering Group

Mount Olive High School

Unit Ventilators

Tag	UV	UV
Unit Type	Floor Type Heating and Cooling	Celing type UV Heating and Cooling
Qty	57	11
Location	Classrooms, hallways, perimeter offices	Classrooms, hallways, perimeter offices
Manufacturer	Trane	Trane
Model #	VUVE10000B0N - - -	B6M196BC - -
Serial #	-	W06F34903
Flow Capacity	2 GPM	2 GPM
Cooling Type	DX	DX
Cooling Capacity (MBH)	20 - 50 MBH	20 - 50 MBH
Estimated Cooling Efficiency (EER)	-	-
Heating Type	Hot Water Coil	Hot Water Coil
Heating Input (MBH)	10 to 20 MBH	10 to 20 MBH
Approx Age	5	5
Ashrae Service Life	15	15
Remaining Life	10	10
Comments	Majority of UV's replaced in 2005 Renovation	

Investment Grade Lighting Audit

CEG Job #: 9C10050
Project: Mount Olive HS
Address: 18 Corey Rd. Flanders, NJ, 07836
Bldg. Sq. Ft. 335,000

Mount Olive HS

KWH COST: $0.146

ECM #1 & 2: 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
211.11	3rd Floor D- Wing Corridor	4400	8	1	1x4, 1 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	30	0.24	1,056.0	$154.18	8	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
211.34		4400	2	1	1x4, 1 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Acrylic Lens	30	0.06	264.0	$38.54	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	302 Classroom	2600	9	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.52	1,357.2	$198.15	9	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	303 Classroom	2600	9	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.52	1,357.2	$198.15	9	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	306 Classroom	2600	9	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.52	1,357.2	$198.15	9	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	308 Classroom	2600	9	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.52	1,357.2	$198.15	9	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
30		2600	2	2	Recessed Down Light, (2) 26w PL Lamp	54	0.11	280.8	$41.00	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	310 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.70	1,809.6	$264.20	12	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
31		2600	3	1	Recessed Down Light, 90w R40 Lamp	90	0.27	702.0	$102.49	3	1	26w CFL Lamp	26	0.08	202.8	$29.61	$20.00	$60.00	0.19	499.2	$72.88	0.82
222.21	311 Classroom	2600	6	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.35	904.8	$132.10	6	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	315 Classroom	2600	9	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.52	1,357.2	$198.15	9	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
30		2600	2	2	Recessed Down Light, (2) 26w PL Lamp	54	0.11	280.8	$41.00	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	316 Classroom	2600	9	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.52	1,357.2	$198.15	9	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
31		2600	2	1	Recessed Down Light, 90w R40 Lamp	90	0.18	468.0	$68.33	2	1	26w CFL Lamp	26	0.05	135.2	$19.74	$20.00	$40.00	0.13	332.8	$48.59	0.82
222.21	317 Classroom	2600	9	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.52	1,357.2	$198.15	9	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
31		2600	2	1	Recessed Down Light, 90w R40 Lamp	90	0.18	468.0	$68.33	2	1	26w CFL Lamp	26	0.05	135.2	$19.74	$20.00	$40.00	0.13	332.8	$48.59	0.82
222.21	320 Classroom	2600	9	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.52	1,357.2	$198.15	9	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00

Investment Grade Lighting Audit

31	320 Classroom	2600	2	1	Recessed Down Light, 90w R40 Lamp	90	0.18	468.0	$68.33	2	1	26w CFL Lamp	26	0.05	135.2	$19.74	$20.00	$40.00	0.13	332.8	$48.59	0.82
222.21	323 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.70	1,809.6	$264.20	12	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
31		2600	2	1	Recessed Down Light, 90w R40 Lamp	90	0.18	468.0	$68.33	2	1	26w CFL Lamp	26	0.05	135.2	$19.74	$20.00	$40.00	0.13	332.8	$48.59	0.82
222.21	324 Classroom	2600	9	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.52	1,357.2	$198.15	9	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
31		2600	2	1	Recessed Down Light, 90w R40 Lamp	90	0.18	468.0	$68.33	2	1	26w CFL Lamp	26	0.05	135.2	$19.74	$20.00	$40.00	0.13	332.8	$48.59	0.82
222.21	325 Classroom	2600	9	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.52	1,357.2	$198.15	9	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
31		2600	2	1	Recessed Down Light, 90w R40 Lamp	90	0.18	468.0	$68.33	2	1	26w CFL Lamp	26	0.05	135.2	$19.74	$20.00	$40.00	0.13	332.8	$48.59	0.82
222.21	326 Storage	1200	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.12	139.2	$20.32	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.41	Mech. Closet	1200	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.06	69.6	$10.16	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.41	Girl's Restroom	3200	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.12	371.2	$54.20	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
31		3200	2	1	Recessed Down Light, 90w R40 Lamp	90	0.18	576.0	$84.10	2	1	26w CFL Lamp	26	0.05	166.4	$24.29	$20.00	$40.00	0.13	409.6	$59.80	0.67
242.23	304 Office	2600	2	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.21	540.8	$78.96	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
242.11	305 Office	2600	2	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	104	0.21	540.8	$78.96	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
242.11	307 Office	2600	2	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	104	0.21	540.8	$78.96	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
242.23	309 Office	2600	2	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.21	540.8	$78.96	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.41	Boy's Restroom	3200	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.12	371.2	$54.20	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
31		3200	4	1	Recessed Down Light, 90w R40 Lamp	90	0.36	1,152.0	$168.19	4	1	26w CFL Lamp	26	0.10	332.8	$48.59	$20.00	$80.00	0.26	819.2	$119.60	0.67
242.11	314 Office	2600	2	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	104	0.21	540.8	$78.96	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
242.23	318 Office	2600	2	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.21	540.8	$78.96	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	317 Copy Room	2600	3	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.31	811.2	$118.44	3	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
242.11	321 Office	2600	2	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	104	0.21	540.8	$78.96	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

242.23	322 Office	2600	2	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.21	540.8	$78.96	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	3rd Floor Corridor	4400	21	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.22	5,359.2	$782.44	21	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Stairwell A	4400	5	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.29	1,276.0	$186.30	5	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
227.21		4400	6	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.35	1,531.2	$223.56	6	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
211.11		4400	23	1	1x4, 1 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	30	0.69	3,036.0	$443.26	23	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
227.21	Old Auditorium - Upper Storage/ Walkway	4400	14	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.81	3,572.8	$521.63	14	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
211.11	Auditorium Stairway	4400	4	1	1x4, 1 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	30	0.12	528.0	$77.09	4	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
121.11	Holiday Storage (old lighting booth)	4400	3	2	1x4, 2-Lamp, 34w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	78	0.23	1,029.6	$150.32	3	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.17	765.6	$111.78	$100.00	$300.00	0.06	264	$38.54	7.78
121.11	Storage	8760	3	2	1x4, 2-Lamp, 34w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	78	0.23	2,049.8	$299.28	3	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.17	1524.24	$222.54	$100.00	$300.00	0.06	525.6	$76.74	3.91
232.21	202 Conference Room	2600	4	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.34	894.4	$130.58	4	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
242.11		2600	2	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	104	0.21	540.8	$78.96	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	203 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.70	1,809.6	$264.20	12	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	204 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.70	1,809.6	$264.20	12	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	205 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.70	1,809.6	$264.20	12	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	206 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.70	1,809.6	$264.20	12	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	207 Classroom	2600	16	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.93	2,412.8	$352.27	16	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
200	212 Women's Restroom	3200	1	2	1x2, 1 Lamp, 17w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	34	0.03	108.8	$15.88	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
200	211 Men's Restroom	3200	1	2	1x2, 1 Lamp, 17w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	34	0.03	108.8	$15.88	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.41	209 Boy's Restroom	3200	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.12	371.2	$54.20	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
31		3200	4	1	Recessed Down Light, 90w R40 Lamp	90	0.36	1,152.0	$168.19	4	1	26w CFL Lamp	26	0.10	332.8	$48.59	$20.00	$80.00	0.26	819.2	$119.60	0.67
232.11	208 Office	2600	2	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	0.17	447.2	$65.29	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	224 Elec. Room	1200	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.06	69.6	$10.16	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	225 Classroom	2600	15	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.87	2,262.0	$330.25	15	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
30		2600	3	2	Recessed Down Light, (2) 26w PL Lamp	54	0.16	421.2	$61.50	3	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
242.23	223 SGI	2600	3	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.31	811.2	$118.44	3	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	221 Classroom	2600	15	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.87	2,262.0	$330.25	15	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
31		2600	4	1	Recessed Down Light, 90w R40 Lamp	90	0.36	936.0	$136.66	4	1	26w CFL Lamp	26	0.10	270.4	$39.48	$20.00	$80.00	0.26	665.6	$97.18	0.82
222.21	217 Classroom	2600	18	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.04	2,714.4	$396.30	18	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
30		2600	4	2	Recessed Down Light, (2) 26w PL Lamp	54	0.22	561.6	$81.99	4	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Server Room	1200	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.06	69.6	$10.16	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
211.11	Storage	1200	6	1	1x4, 1 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	30	0.18	216.0	$31.54	6	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.44	Mech. Room	1200	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.06	69.6	$10.16	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.41	Girl's Restroom	3200	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.12	371.2	$54.20	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
31		3200	2	1	Recessed Down Light, 90w R40 Lamp	90	0.18	576.0	$84.10	2	1	26w CFL Lamp	26	0.05	166.4	$24.29	$20.00	$40.00	0.13	409.6	$59.80	0.67
242.21	214 Office	2600	2	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.21	540.8	$78.96	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	213 Storage	1200	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.17	208.8	$30.48	3	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	2nd Floor Corridor	4400	26	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.51	6,635.2	$968.74	26	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	226 Classroom	2600	15	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.87	2,262.0	$330.25	15	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
142.21	226 Storage	1200	2	4	2x4, 4 Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	156	0.31	374.4	$54.66	2	3	3 Lamp , 32w T8, Elect. Ballast, Specular Reflector; retrofit	86	0.17	206.4	$30.13	$100.00	$200.00	0.14	168	$24.53	8.15
222.21	230 Classroom	2600	21	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.22	3,166.8	$462.35	21	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	230 Kiln Room	2600	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.12	301.6	$44.03	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	230 Storage	1200	6	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.35	417.6	$60.97	6	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	230 Office	2600	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.12	301.6	$44.03	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	232 Classroom	2600	21	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.22	3,166.8	$462.35	21	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
33		2600	4	1	Recessed Down Light, 60w A19 Lamp	60	0.24	624.0	$91.10	4	1	Energy Star Rated, Dimmable 13w CFL Lamp	13	0.05	135.2	$19.74	$20.00	$80.00	0.19	488.8	$71.36	1.12
222.21	232 Darkroom	2600	4	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.23	603.2	$88.07	4	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	$66.05	3	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
122.21		2600	4	2	2x4, 2-Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	0.31	811.2	$118.44	4	2	2 Lamp, 32w T8, Elect. Ballast; retrofit	58	0.23	603.2	$88.07	$100.00	$400.00	0.08	208	$30.37	13.17
2		2600	5	2	2x2 2 Lamp 40w Biax Lamp	88	0.44	1,144.0	$167.02	5	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	235 Faculty Lounge	3200	7	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.41	1,299.2	$189.68	7	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	236 Classroom	2600	16	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.93	2,412.8	$352.27	16	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	3200	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.23	742.4	$108.39	4	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Elec. Room	1200	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.06	69.6	$10.16	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Girl's Restroom	3200	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.23	742.4	$108.39	4	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	240 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.70	1,809.6	$264.20	12	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	241 Classroom	2600	14	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.81	2,111.2	$308.24	14	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	242 Classroom	2600	14	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.81	2,111.2	$308.24	14	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	243 Classroom	2600	14	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.81	2,111.2	$308.24	14	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	244 Classroom	2600	14	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.81	2,111.2	$308.24	14	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	245 Classroom	2600	14	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.81	2,111.2	$308.24	14	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	246 Classroom	2600	14	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.81	2,111.2	$308.24	14	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	247 Classroom	2600	14	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.81	2,111.2	$308.24	14	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	248 Classroom	2600	14	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.81	2,111.2	$308.24	14	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	249 Classroom	2600	14	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.81	2,111.2	$308.24	14	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
227.21	250 Offices	2600	1	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.06	150.8	$22.02	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21		2600	5	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.29	754.0	$110.08	5	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	2nd Floor Corridor	4400	14	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.81	3,572.8	$521.63	14	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
142.11	Stairway (access restricted - unused)	4400	7	4	2x4, 4 Lamp, 34w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	156	1.09	4,804.8	$701.50	7	3	3 Lamp , 32w T8, Elect. Ballast, Specular Reflector; retrofit	86	0.60	2648.8	$386.72	$100.00	$700.00	0.49	2156	$314.78	2.22
222.21	Storage	1200	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.06	69.6	$10.16	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Stairway D	4400	6	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.35	1,531.2	$223.56	6	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21		4400	6	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.35	1,531.2	$223.56	6	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Stairway C	4400	6	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.35	1,531.2	$223.56	6	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21		4400	6	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.35	1,531.2	$223.56	6	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	210 Classroom	2600	11	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	0.95	2,459.6	$359.10	11	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	211 Classroom	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.03	2,683.2	$391.75	12	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	212 Classroom	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.03	2,683.2	$391.75	12	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	213 Classroom	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.03	2,683.2	$391.75	12	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	214 Classroom	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.03	2,683.2	$391.75	12	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	215 Classroom	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.03	2,683.2	$391.75	12	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	216 Classroom	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.03	2,683.2	$391.75	12	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
242.23	201 Office	2600	4	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.42	1,081.6	$157.91	4	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
242.23	112 SAC	2600	8	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.83	2,163.2	$315.83	8	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.34	203 Custodial Closet	1200	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.06	69.6	$10.16	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	204 Storage	1200	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.17	208.8	$30.48	3	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	Girl's Restroom	3200	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.12	371.2	$54.20	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
2	Staff Restroom	1200	2	2	2x2 2 Lamp 40w Biax Lamp	88	0.18	211.2	$30.84	2	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	3200	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.12	371.2	$54.20	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	2nd Floor Corridor	4400	16	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.93	4,083.2	$596.15	16	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	110 Classroom	2600	14	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.20	3,130.4	$457.04	14	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	111 Classroom	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.03	2,683.2	$391.75	12	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	112 Classroom	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.03	2,683.2	$391.75	12	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	113 Classroom	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.03	2,683.2	$391.75	12	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	114 Classroom	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.03	2,683.2	$391.75	12	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	115 Classroom	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.03	2,683.2	$391.75	12	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	116 Classroom	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.03	2,683.2	$391.75	12	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	3200	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.12	371.2	$54.20	2	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	3200	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.12	371.2	$54.20	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
2	Staff Restroom	1200	2	2	2x2 2 Lamp 40w Biax Lamp	88	0.18	211.2	$30.84	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Storage	1200	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.17	208.8	$30.48	3	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.34	103 Custodial Closet	1200	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.06	69.6	$10.16	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	1st Floor Corridor	4400	16	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.93	4,083.2	$596.15	16	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
242.23	102 Office	2600	4	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.42	1,081.6	$157.91	4	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
242.23	101 Office	2600	4	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.42	1,081.6	$157.91	4	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	107 Classroom	2600	18	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.55	4,024.8	$587.62	18	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
242.23		2600	3	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.31	811.2	$118.44	3	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00

Investment Grade Lighting Audit

232.21	Prep Room	2600	7	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.60	1,565.2	$228.52	7	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	105 Classroom	2600	18	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.55	4,024.8	$587.62	18	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
242.23		2600	3	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.31	811.2	$118.44	3	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	108 Classroom	2600	18	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.55	4,024.8	$587.62	18	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
242.23		2600	3	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.31	811.2	$118.44	3	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
232.21	Prep Room	2600	5	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.43	1,118.0	$163.23	5	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	112 Classroom	2600	18	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.55	4,024.8	$587.62	18	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
242.23		2600	3	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.31	811.2	$118.44	3	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.34	Elec. Room	1200	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.06	69.6	$10.16	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	104 Classroom	2600	18	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.55	4,024.8	$587.62	18	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
242.23		2600	3	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.31	811.2	$118.44	3	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.34	Computer Storage	2600	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.12	301.6	$44.03	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.21	1st Floor Corridor	4400	14	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Acrylic Lens	58	0.81	3,572.8	$521.63	14	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
242.23	113 Office	2600	2	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.21	540.8	$78.96	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.11	117 Office	2600	8	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Indirect	58	0.46	1,206.4	$176.13	8	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.41	Boy's Restroom	3200	3	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.17	556.8	$81.29	3	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	102 School Store	4400	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.12	510.4	$74.52	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	115 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.70	1,809.6	$264.20	12	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
30		2600	3	2	Recessed Down Light, (2) 26w PL Lamp	54	0.16	421.2	$61.50	3	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Storage	1200	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.17	208.8	$30.48	3	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	114 Copy Room	2600	11	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.64	1,658.8	$242.18	11	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00

Investment Grade Lighting Audit

31	114 Copy Room	2600	2	1	Recessed Down Light, 90w R40 Lamp	90	0.18	468.0	$68.33	2	1	26w CFL Lamp	26	0.05	135.2	$19.74	$20.00	$40.00	0.13	332.8	$48.59	0.82
222.21	109 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.70	1,809.6	$264.20	12	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
30		2600	3	2	Recessed Down Light, (2) 26w PL Lamp	54	0.16	421.2	$61.50	3	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	5	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.29	754.0	$110.08	5	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	107 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.70	1,809.6	$264.20	12	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
30		2600	3	2	Recessed Down Light, (2) 26w PL Lamp	54	0.16	421.2	$61.50	3	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
242.23	108 Storage	1200	2	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.21	249.6	$36.44	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	106 Office	2600	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.23	603.2	$88.07	4	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.44	Mech. Room	1200	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.06	69.6	$10.16	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.41	Girl's Restroom	3200	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.12	371.2	$54.20	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	104 Office	2600	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.12	301.6	$44.03	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.34	Elec. Room	1200	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.06	69.6	$10.16	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
242.23	VP Office	2600	4	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.42	1,081.6	$157.91	4	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	103 Security Office	2600	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.23	603.2	$88.07	4	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Principal's Office	2600	10	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.58	1,508.0	$220.17	10	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
242.23	Conference Room	2600	6	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.62	1,622.4	$236.87	6	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Restroom	1200	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.06	69.6	$10.16	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
242.33	Reception Area	3200	5	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/Indirect	104	0.52	1,664.0	$242.94	5	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
242.33	Nurse	2600	2	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/Indirect	104	0.21	540.8	$78.96	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
242.33		2600	14	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/Indirect	104	1.46	3,785.6	$552.70	14	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.34	Storage	1200	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.06	69.6	$10.16	1	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	Restroom	1200	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.06	69.6	$10.16	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
31	Closet	1200	1	1	Recessed Down Light, 90w R40 Lamp	90	0.09	108.0	$15.77	1	1	26w CFL Lamp	26	0.03	31.2	$4.56	$20.00	$20.00	0.06	76.8	$11.21	1.78
211.11	120 Storage	1200	6	1	1x4, 1 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	30	0.18	216.0	$31.54	6	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.44	Mech. Room	1200	3	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.17	208.8	$30.48	3	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	127 Classroom	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.03	2,683.2	$391.75	12	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	121 Classroom	2600	14	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.81	2,111.2	$308.24	14	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
211.11		2600	4	1	1x4, 1 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	30	0.12	312.0	$45.55	4	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	122 Custodial Closet	1200	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.06	69.6	$10.16	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	123 Media Center	2600	104	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	6.03	15,683.2	$2,289.75	104	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	123 Office	2600	11	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.64	1,658.8	$242.18	11	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	A/V Room	2600	5	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.29	754.0	$110.08	5	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	SGI	2600	6	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.35	904.8	$132.10	6	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Library Room 3	2600	4	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.23	603.2	$88.07	4	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Library Room 2	2600	8	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.46	1,206.4	$176.13	8	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.34	140 Boiler Room	4400	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.23	1,020.8	$149.04	4	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.34	139 Storage	1200	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.06	69.6	$10.16	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.34	138 Elec. Room	1200	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.06	69.6	$10.16	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.34	137 IDF	2600	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.12	301.6	$44.03	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.31	128 Storage	1200	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	0.12	139.2	$20.32	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	125 Trainor's Storage	1200	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.12	139.2	$20.32	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	126 Training Room	2600	16	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.93	2,412.8	$352.27	16	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	Training Office	2600	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.06	150.8	$22.02	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	125 Weight Room	2600	20	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.16	3,016.0	$440.34	20	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
242.23	Coach's Office	2600	3	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.31	811.2	$118.44	3	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
242.23	Coach's Office	2600	4	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.42	1,081.6	$157.91	4	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	3200	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.17	556.8	$81.29	3	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	3200	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.17	556.8	$81.29	3	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.34	Gym Storage	2600	6	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.35	904.8	$132.10	6	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
2	G130 Adaptive PE	2600	9	2	2x2 2 Lamp 40w Biax Lamp	88	0.79	2,059.2	$300.64	9	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	123 Boy's Locker Room	2600	11	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.64	1,658.8	$242.18	11	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Gym Corridor	4400	22	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.28	5,614.4	$819.70	22	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	122 Girl's Locker Room	2600	11	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.64	1,658.8	$242.18	11	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
232.21	AD Office	2600	8	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.69	1,788.8	$261.16	8	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	119 Girl's Locker/ Team Room	2600	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.23	603.2	$88.07	4	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21		2600	4	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.23	603.2	$88.07	4	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
232.21	Locker Room Hall	2600	1	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.09	223.6	$32.65	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
232.21	Girl's Main Locker Room	2600	16	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	1.38	3,577.6	$522.33	16	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Girl's Storage	1200	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.06	69.6	$10.16	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Girl's Shower	2600	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.12	301.6	$44.03	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
200	Restroom	2600	1	2	1x2, 1 Lamp, 17w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	34	0.03	88.4	$12.91	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
211.11	PE Supervisor	2600	3	1	1x4, 1 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	30	0.09	234.0	$34.16	3	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
211.11	PE Hall	2600	9	1	1x4, 1 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	30	0.27	702.0	$102.49	9	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00

Investment Grade Lighting Audit

142.11	Gym Storage	1200	1	4	2x4, 4 Lamp, 34w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	156	0.16	187.2	$27.33	1	3	3 Lamp , 32w T8, Elect. Ballast, Specular Reflector; retrofit	86	0.09	103.2	$15.07	$100.00	$100.00	0.07	84	$12.26	8.15
766	Main Gym	3200	70	1	400w MH, Prismatic Lens	465	32.55	104,160.0	$15,207.36	70	4	2x4 54w T5HO 4 Lamp w/Reflective Lens, Wire Cage	236	16.52	52864	$7,718.14	$240.00	$16,800.00	16.03	51296	$7,489.22	2.24
221.11	Gym Storage	1200	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.23	278.4	$40.65	4	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Boy's Locker Room	2600	10	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.58	1,508.0	$220.17	10	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	PE Office	2600	5	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.29	754.0	$110.08	5	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
211.11	Boy's Restroom	2600	3	1	1x4, 1 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	30	0.09	234.0	$34.16	3	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Shower Area	2600	10	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.58	1,508.0	$220.17	10	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	110 Team Room	2600	8	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.46	1,206.4	$176.13	8	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Team Room Locker Room	2600	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.23	603.2	$88.07	4	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	105 Office	2600	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.12	301.6	$44.03	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Ticket Window	800	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.12	92.8	$13.55	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Gym Lobby	4400	6	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.35	1,531.2	$223.56	6	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
211.11	Women's Restroom	1200	2	1	1x4, 1 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	30	0.06	72.0	$10.51	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
211.11	Men's Restroom	1200	2	1	1x4, 1 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	30	0.06	72.0	$10.51	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
111.14	Hall Display Case	4400	4	1	1x4, 1-Lamp, 34w T12, Mag. Ballast, Surface Mnt., No Lens	48	0.19	844.8	$123.34	4	1	1 Lamp, 32w T8, Elect. Ballast; retrofit	30	0.12	528	$77.09	$80.00	$320.00	0.07	316.8	$46.25	6.92
222.21	Corridor	4400	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.70	3,062.4	$447.11	12	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	116 Practice Room	2600	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.12	301.6	$44.03	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	118 Practice Room	2600	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.12	301.6	$44.03	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	113 Office	2600	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.12	301.6	$44.03	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
232.33	120 Choral Room	2600	27	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	2.32	6,037.2	$881.43	27	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Band Corridor	2600	8	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.46	1,206.4	$176.13	8	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00

Investment Grade Lighting Audit

242.23	113 Band Room	2600	24	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	2.50	6,489.6	$947.48	24	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Band Storage	1200	4	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.23	278.4	$40.65	4	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	Practice Room	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.03	2,683.2	$391.75	12	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.34	Stage	2600	20	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	1.16	3,016.0	$440.34	20	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
4	Auditorium Lobby	4400	12	4	4x4, 8 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., White Diffuser	208	2.50	10,982.4	$1,603.43	12	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
34	Auditorium Vestibule	4400	4	1	Recessed Down Light, 26w Quad Lamp	26	0.10	457.6	$66.81	4	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
34	Lobby	4400	20	1	Recessed Down Light, 26w Quad Lamp	26	0.52	2,288.0	$334.05	20	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
247.211	Lobby Corridor	4400	8	4	2x2, 4 Lamp, 17w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	68	0.54	2,393.6	$349.47	8	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	A104 Projection Room	2600	8	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.46	1,206.4	$176.13	8	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.34	105 Storage	1200	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.06	69.6	$10.16	1	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	1200	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.17	208.8	$30.48	3	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	1200	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.17	208.8	$30.48	3	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Ticket Office	800	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.06	46.4	$6.77	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
247.23	Common Area	4400	45	4	2x2, 4 Lamp, 17w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	68	3.06	13,464.0	$1,965.74	45	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.34	Elec. Room	1200	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.06	69.6	$10.16	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.34	Storage	1200	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.06	69.6	$10.16	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
242.23	Assistant Principal's Office	2600	6	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.62	1,622.4	$236.87	6	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
242.23	Guidance	2600	11	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	1.14	2,974.4	$434.26	11	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
34	Main Entrance - Vestibule	4400	6	1	Recessed Down Light, 26w Quad Lamp	26	0.16	686.4	$100.21	6	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
242.23	Guidance - Small Offices	2600	39	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	4.06	10,545.6	$1,539.66	39	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Restroom	1200	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.06	69.6	$10.16	1	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	Closet	1200	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.06	69.6	$10.16	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	102 Communications	2600	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.12	301.6	$44.03	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Stairwell B	4400	5	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.29	1,276.0	$186.30	5	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
227.21		4400	6	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.35	1,531.2	$223.56	6	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
211.11		4400	23	1	1x4, 1 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	30	0.69	3,036.0	$443.26	23	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
242.23	Conference Room	2600	6	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.62	1,622.4	$236.87	6	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Café' - Women's Restroom	1200	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.12	139.2	$20.32	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Café - Men's Restroom	1200	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.12	139.2	$20.32	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
242.23	106 Faculty Dining	3200	7	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.73	2,329.6	$340.12	7	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Café Corridor	4400	13	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.75	3,317.6	$484.37	13	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
232.21	Cafeteria	3200	65	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	5.59	17,888.0	$2,611.65	65	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
232.21		3200	18	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	1.55	4,953.6	$723.23	18	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
232.21	Storage	1200	3	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.26	309.6	$45.20	3	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
232.21	100 Snack Bar	2600	2	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.17	447.2	$65.29	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Serving Area	2600	15	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.87	2,262.0	$330.25	15	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Kitchen Storage	2600	5	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.29	754.0	$110.08	5	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Kitchen Wash Area	2600	4	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.23	603.2	$88.07	4	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
617	Kitchen Hood	2600	4	1	Hood Light w/Globe & Cage, 100w A19 Lamp	100	0.40	1,040.0	$151.84	4	1	(1) 26w CFL Lamp	26	0.10	270.4	$39.48	$20.00	$80.00	0.30	769.6	$112.36	0.71
222.21	Washer/ Dryer	2600	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.12	301.6	$44.03	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Kitchen Entrance	2600	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.12	301.6	$44.03	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Kitchen	2600	8	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.46	1,206.4	$176.13	8	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00

Investment Grade Lighting Audit

142.11	Kitchen Office	2600	2	4	2x4, 4 Lamp, 34w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	156	0.31	811.2	$118.44	2	3	3 Lamp , 32w T8, Elect. Ballast, Specular Reflector; retrofit	86	0.17	447.2	$65.29	$100.00	$200.00	0.14	364	$53.14	3.76
222.11	101 Staff Room	2600	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Indirect	58	0.12	301.6	$44.03	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	102 Phone Room	1200	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.06	69.6	$10.16	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
551	1st Floor, Old Auditorium - Access Corridor	4400	26	1	Recessed Down Light, 100w A Lamp	100	2.60	11,440.0	$1,670.24	26	1	26w CFL Lamp	26	0.68	2974.4	$434.26	$20.00	$520.00	1.92	8465.6	$1,235.98	0.42
221.16	Old Aud. Classroom	2600	10	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Acrylic Lens	58	0.58	1,508.0	$220.17	10	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.16	Old Aud. Classroom	2600	10	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Acrylic Lens	58	0.58	1,508.0	$220.17	10	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.16	Old Aud. Classroom	2600	10	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Acrylic Lens	58	0.58	1,508.0	$220.17	10	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.16	Old Aud. Classroom	2600	10	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Acrylic Lens	58	0.58	1,508.0	$220.17	10	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.16	Old Aud. Classroom	2600	10	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Acrylic Lens	58	0.58	1,508.0	$220.17	10	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
232.21	Old Band Room	2600	17	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	1.46	3,801.2	$554.98	17	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
232.21	Supply Room	1200	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	1.03	1,238.4	$180.81	12	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Custodian Break Room	4400	7	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.41	1,786.4	$260.81	7	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.14	Custodian Restroom	4400	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., No Lens	58	0.06	255.2	$37.26	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
227.21	Old Aud. - Lower Corridor	2600	26	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.51	3,920.8	$572.44	26	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
111.14	Old Aud. - Storage	1200	12	1	1x4, 1-Lamp, 34w T12, Mag. Ballast, Surface Mnt., No Lens	48	0.58	691.2	$100.92	12	1	1 Lamp, 32w T8, Elect. Ballast; retrofit	30	0.36	432	$63.07	$80.00	$960.00	0.22	259.2	$37.84	25.37
221.14	Mech. Room	4400	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., No Lens	58	0.06	255.2	$37.26	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
231.34	Wrestling Pit	4400	16	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.38	6,054.4	$883.94	16	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.14	B02 Elec. Room	4400	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., No Lens	58	0.12	510.4	$74.52	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
211.14	03 Boiler Room	4400	23	1	1x4, 1 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	30	0.69	3,036.0	$443.26	23	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
211.14	21 Custodian	4400	12	1	1x4, 1 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	30	0.36	1,584.0	$231.26	12	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	19 Office	2600	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.06	150.8	$22.02	1	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00

Investment Grade Lighting Audit

31	15 Office	2600	1	1	Recessed Down Light, 90w R40 Lamp	90	0.09	234.0	$34.16	1	1	26w CFL Lamp	26	0.03	67.6	$9.87	$20.00	$20.00	0.06	166.4	$24.29	0.82
222.14	07 Robotics	2600	30	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Indirect	58	1.74	4,524.0	$660.50	30	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.14	09 Metal Shop	2600	48	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Indirect	58	2.78	7,238.4	$1,056.81	48	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.41	05 Girl's Restroom	3200	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.12	371.2	$54.20	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
31		3200	2	1	Recessed Down Light, 90w R40 Lamp	90	0.18	576.0	$84.10	2	1	26w CFL Lamp	26	0.05	166.4	$24.29	$20.00	$40.00	0.13	409.6	$59.80	0.67
221.41	Boy's Restroom	3200	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.12	371.2	$54.20	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
31		3200	4	1	Recessed Down Light, 90w R40 Lamp	90	0.36	1,152.0	$168.19	4	1	26w CFL Lamp	26	0.10	332.8	$48.59	$20.00	$80.00	0.26	819.2	$119.60	0.67
222.21	Classroom	2600	20	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.16	3,016.0	$440.34	20	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
31		2600	4	1	Recessed Down Light, 90w R40 Lamp	90	0.36	936.0	$136.66	4	1	26w CFL Lamp	26	0.10	270.4	$39.48	$20.00	$80.00	0.26	665.6	$97.18	0.82
221.14	11 Classroom	2600	22	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., No Lens	58	1.28	3,317.6	$484.37	22	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.14	13 Classroom	2600	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., No Lens	58	0.12	301.6	$44.03	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.14	13 Office	2600	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., No Lens	58	0.12	301.6	$44.03	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	29 Classroom	2600	27	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	2.32	6,037.2	$881.43	27	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	34 Classroom	2600	18	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.04	2,714.4	$396.30	18	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	36 Classroom	2600	22	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.28	3,317.6	$484.37	22	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Basement Corridor	4400	18	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.04	4,593.6	$670.67	18	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	32 Utility Room	1200	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.17	208.8	$30.48	3	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Boy's Restroom	3200	6	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.35	1,113.6	$162.59	6	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	10 Classroom	2600	14	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.20	3,130.4	$457.04	14	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	11 Classroom	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.03	2,683.2	$391.75	12	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	12 Classroom	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.03	2,683.2	$391.75	12	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00

Investment Grade Lighting Audit

231.33	13 Classroom	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.03	2,683.2	$391.75	12	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	14 Classroom	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.03	2,683.2	$391.75	12	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	15 Classroom	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.03	2,683.2	$391.75	12	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	16 Classroom	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.03	2,683.2	$391.75	12	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	3200	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.12	371.2	$54.20	2	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	3200	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.12	371.2	$54.20	2	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
284.25	Auditorium Lobby	4400	12	8	4x4, 8 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., White Diffuser	208	2.50	10,982.4	$1,603.43	12	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
714		4400	5	1	100w MH Pulse Start, Uplight	118	0.59	2,596.0	$379.02	5	0	No Change	0	0.00	0	$0.00	$0.00	$0.00	0.00	0	$0.00	0.00
	Totals		2,784	773			219.89	649,255	$94,791	2,784	45			20.6	66,789	$9,751		$21,860	22.6	73,455	$10,724	2.04

CEG Job #: 9C10050
Project: Mount Olive HS
Address: 18 Corey Rd. Flanders, NJ, 07836
Building SF: 335000

Mount Olive HS

KWH COST: $0.146

ECM #3: Lighting Controls

EXISTING LIGHTING										PROPOSED LIGHTING CONTROLS										SAVINGS			
CEG Type	Fixture Location	Yearly Usage	No. Fixts	No. Lamps	Fixture Type	Fixt Watts	Total kW	kWh/Yr Fixtures	Yearly $ Cost	No. Fixts	No. Cont.	Controls Description	Watts Used	Total kW	Reduction (%)	kWh/Yr Fixtures	Yearly $ Cost	Unit Cost (INSTALLED)	Total Cost	kW Savings	kWh/Yr Savings	Yearly $ Savings	Yearly Simple Payback
211.11	3rd Floor D- Wing Corridor	4400	8	1	1x4, 1 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	30	0.24	1056	$154.18	8	0	No Change	30	0.24	0%	1056	$154.18	$0.00	$0.00	0.00	0	$0.00	0.00
211.34		4400	2	1	1x4, 1 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Acrylic Lens	30	0.06	264	$38.54	2	0	No Change	30	0.06	0%	264	$38.54	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	302 Classroom	2600	9	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.522	1357.2	$198.15	9	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	58	0.47	10%	1221.48	$178.34	$160.00	$160.00	0.05	135.72	$19.82	8.07
222.21	303 Classroom	2600	9	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.522	1357.2	$198.15	9	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	58	0.47	10%	1221.48	$178.34	$160.00	$160.00	0.05	135.72	$19.82	8.07
222.21	306 Classroom	2600	9	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.522	1357.2	$198.15	9	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	58	0.47	10%	1221.48	$178.34	$160.00	$160.00	0.05	135.72	$19.82	8.07
222.21	308 Classroom	2600	9	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.522	1357.2	$198.15	9	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	58	0.47	10%	1221.48	$178.34	$160.00	$160.00	0.05	135.72	$19.82	8.07
30		2600	2	2	Recessed Down Light, (2) 26w PL Lamp	54	0.108	280.8	$41.00	2	0	No Change	54	0.11	0%	280.8	$41.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	310 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.696	1809.6	$264.20	12	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	58	0.63	10%	1628.64	$237.78	$160.00	$160.00	0.07	180.96	$26.42	6.06
31		2600	3	1	Recessed Down Light, 90w R40 Lamp	90	0.27	702	$102.49	3	0	No Change	90	0.27	0%	702	$102.49	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	311 Classroom	2600	6	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.348	904.8	$132.10	6	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	58	0.31	10%	814.32	$118.89	$160.00	$160.00	0.03	90.48	$13.21	12.11
222.21	315 Classroom	2600	9	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.522	1357.2	$198.15	9	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	58	0.47	10%	1221.48	$178.34	$160.00	$160.00	0.05	135.72	$19.82	8.07
30		2600	2	2	Recessed Down Light, (2) 26w PL Lamp	54	0.108	280.8	$41.00	2	0	No Change	54	0.11	0%	280.8	$41.00	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	316 Classroom	2600	9	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.522	1357.2	$198.15	9	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	58	0.47	10%	1221.48	$178.34	$160.00	$160.00	0.05	135.72	$19.82	8.07
31		2600	2	1	Recessed Down Light, 90w R40 Lamp	90	0.18	468	$68.33	2	0	No Change	90	0.18	0%	468	$68.33	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	317 Classroom	2600	9	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.522	1357.2	$198.15	9	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	58	0.47	10%	1221.48	$178.34	$160.00	$160.00	0.05	135.72	$19.82	8.07
31		2600	2	1	Recessed Down Light, 90w R40 Lamp	90	0.18	468	$68.33	2	0	No Change	90	0.18	0%	468	$68.33	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	320 Classroom	2600	9	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.522	1357.2	$198.15	9	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	58	0.47	10%	1221.48	$178.34	$160.00	$160.00	0.05	135.72	$19.82	8.07
31		2600	2	1	Recessed Down Light, 90w R40 Lamp	90	0.18	468	$68.33	2	0	No Change	90	0.18	0%	468	$68.33	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	323 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.696	1809.6	$264.20	12	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	58	0.63	10%	1628.64	$237.78	$160.00	$160.00	0.07	180.96	$26.42	6.06
31		2600	2	1	Recessed Down Light, 90w R40 Lamp	90	0.18	468	$68.33	2	0	No Change	90	0.18	0%	468	$68.33	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	324 Classroom	2600	9	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.522	1357.2	$198.15	9	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	58	0.47	10%	1221.48	$178.34	$160.00	$160.00	0.05	135.72	$19.82	8.07
31		2600	2	1	Recessed Down Light, 90w R40 Lamp	90	0.18	468	$68.33	2	0	No Change	90	0.18	0%	468	$68.33	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	325 Classroom	2600	9	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.522	1357.2	$198.15	9	1	Dual Technology Occupancy Sensor (Sensorswitch or equal)	58	0.47	10%	1221.48	$178.34	$160.00	$160.00	0.05	135.72	$19.82	8.07
31		2600	2	1	Recessed Down Light, 90w R40 Lamp	90	0.18	468	$68.33	2	0	No Change	90	0.18	0%	468	$68.33	$0.00	$0.00	0.00	0	$0.00	0.00

222.21	326 Storage	1200	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.116	139.2	$20.32	2	0	No Change	58	0.12	0%	139.2	$20.32	$0.00	$0.00	0.00	0	$0.00	0.00
221.41	Mech. Closet	1200	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.058	69.6	$10.16	1	0	No Change	58	0.06	0%	69.6	$10.16	$0.00	$0.00	0.00	0	$0.00	0.00
221.41	Girl's Restroom	3200	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.116	371.2	$54.20	2	0	No Change	58	0.12	0%	371.2	$54.20	$0.00	$0.00	0.00	0	$0.00	0.00
31		3200	2	1	Recessed Down Light, 90w R40 Lamp	90	0.18	576	$84.10	2	0	No Change	90	0.18	0%	576	$84.10	$0.00	$0.00	0.00	0	$0.00	0.00
242.23	304 Office	2600	2	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.208	540.8	$78.96	2	0	No Change	104	0.21	0%	540.8	$78.96	$0.00	$0.00	0.00	0	$0.00	0.00
242.11	305 Office	2600	2	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	104	0.208	540.8	$78.96	2	0	No Change	104	0.21	0%	540.8	$78.96	$0.00	$0.00	0.00	0	$0.00	0.00
242.11	307 Office	2600	2	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	104	0.208	540.8	$78.96	2	0	No Change	104	0.21	0%	540.8	$78.96	$0.00	$0.00	0.00	0	$0.00	0.00
242.23	309 Office	2600	2	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.208	540.8	$78.96	2	0	No Change	104	0.21	0%	540.8	$78.96	$0.00	$0.00	0.00	0	$0.00	0.00
221.41	Boy's Restroom	3200	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.116	371.2	$54.20	2	0	No Change	58	0.12	0%	371.2	$54.20	$0.00	$0.00	0.00	0	$0.00	0.00
31		3200	4	1	Recessed Down Light, 90w R40 Lamp	90	0.36	1152	$168.19	4	0	No Change	90	0.36	0%	1152	$168.19	$0.00	$0.00	0.00	0	$0.00	0.00
242.11	314 Office	2600	2	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	104	0.208	540.8	$78.96	2	0	No Change	104	0.21	0%	540.8	$78.96	$0.00	$0.00	0.00	0	$0.00	0.00
242.23	318 Office	2600	2	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.208	540.8	$78.96	2	0	No Change	104	0.21	0%	540.8	$78.96	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	317 Copy Room	2600	3	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.312	811.2	$118.44	3	0	No Change	104	0.31	0%	811.2	$118.44	$0.00	$0.00	0.00	0	$0.00	0.00
242.11	321 Office	2600	2	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	104	0.208	540.8	$78.96	2	0	No Change	104	0.21	0%	540.8	$78.96	$0.00	$0.00	0.00	0	$0.00	0.00
242.23	322 Office	2600	2	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.208	540.8	$78.96	2	0	No Change	104	0.21	0%	540.8	$78.96	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	3rd Floor Corridor	4400	21	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.218	5359.2	$782.44	21	0	No Change	58	1.22	0%	5359.2	$782.44	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Stairwell A	4400	5	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.29	1276	$186.30	5	0	No Change	58	0.29	0%	1276	$186.30	$0.00	$0.00	0.00	0	$0.00	0.00
227.21		4400	6	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.348	1531.2	$223.56	6	1	Daylight Sensor (Sensorswitch PP-20 & CM-PC or equal)	58	0.26	25%	1148.4	$167.67	$160.00	$160.00	0.09	382.8	$55.89	2.86
211.11		4400	23	1	1x4, 1 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	30	0.69	3036	$443.26	23	0	No Change	30	0.69	0%	3036	$443.26	$0.00	$0.00	0.00	0	$0.00	0.00
227.21	Old Auditorium - Upper Storage/ Walkway	4400	14	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.812	3572.8	$521.63	14	0	No Change	58	0.81	0%	3572.8	$521.63	$0.00	$0.00	0.00	0	$0.00	0.00
211.11	Auditorium Stairway	4400	4	1	1x4, 1 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	30	0.12	528	$77.09	4	1	Daylight Sensor (Sensorswitch PP-20 & CM-PC or equal)	30	0.09	25%	396	$57.82	$160.00	$160.00	0.03	132	$19.27	8.30
121.11	Holiday Storage (old lighting booth)	4400	3	2	1x4, 2-Lamp, 34w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	78	0.234	1029.6	$150.32	3	1	Dual Technology Occupancy Sensor - Switch Mnt.	78	0.21	10%	926.64	$135.29	$75.00	$75.00	0.02	102.96	$15.03	4.99
121.11	Storage	8760	3	2	1x4, 2-Lamp, 34w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	78	0.234	2049.84	$299.28	3	1	Dual Technology Occupancy Sensor - Switch Mnt.	78	0.21	10%	1844.856	$269.35	$75.00	$75.00	0.02	204.984	$29.93	2.51
232.21	202 Conference Room	2600	4	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.344	894.4	$130.58	4	0	No Change	86	0.34	0%	894.4	$130.58	$0.00	$0.00	0.00	0	$0.00	0.00
242.11		2600	2	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	104	0.208	540.8	$78.96	2	1	Dual Technology Occupancy Sensor - Switch Mnt.	104	0.19	10%	486.72	$71.06	$75.00	$75.00	0.02	54.08	$7.90	9.50

222.21	203 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.696	1809.6	$264.20	12	1	Dual Technology Occupancy Sensor - Remote Mnt.	58	0.63	10%	1628.64	$237.78	$160.00	$160.00	0.07	180.96	$26.42	6.06
222.21	204 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.696	1809.6	$264.20	12	1	Dual Technology Occupancy Sensor - Remote Mnt.	58	0.63	10%	1628.64	$237.78	$160.00	$160.00	0.07	180.96	$26.42	6.06
222.21	205 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.696	1809.6	$264.20	12	1	Dual Technology Occupancy Sensor - Remote Mnt.	58	0.63	10%	1628.64	$237.78	$160.00	$160.00	0.07	180.96	$26.42	6.06
222.21	206 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.696	1809.6	$264.20	12	1	Dual Technology Occupancy Sensor - Remote Mnt.	58	0.63	10%	1628.64	$237.78	$160.00	$160.00	0.07	180.96	$26.42	6.06
222.21	207 Classroom	2600	16	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.928	2412.8	$352.27	16	1	Dual Technology Occupancy Sensor - Remote Mnt.	58	0.84	10%	2171.52	$317.04	$160.00	$160.00	0.09	241.28	$35.23	4.54
200	212 Women's Restroom	3200	1	2	1x2, 1 Lamp, 17w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	34	0.034	108.8	$15.88	1	0	No Change	34	0.03	0%	108.8	$15.88	$0.00	$0.00	0.00	0	$0.00	0.00
200	211 Men's Restroom	3200	1	2	1x2, 1 Lamp, 17w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	34	0.034	108.8	$15.88	1	0	No Change	34	0.03	0%	108.8	$15.88	$0.00	$0.00	0.00	0	$0.00	0.00
221.41	209 Boy's Restroom	3200	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.116	371.2	$54.20	2	0	No Change	58	0.12	0%	371.2	$54.20	$0.00	$0.00	0.00	0	$0.00	0.00
31		3200	4	1	Recessed Down Light, 90w R40 Lamp	90	0.36	1152	$168.19	4	0	No Change	90	0.36	0%	1152	$168.19	$0.00	$0.00	0.00	0	$0.00	0.00
232.11	208 Office	2600	2	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	0.172	447.2	$65.29	2	0	No Change	86	0.17	0%	447.2	$65.29	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	224 Elec. Room	1200	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.058	69.6	$10.16	1	0	No Change	58	0.06	0%	69.6	$10.16	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	225 Classroom	2600	15	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.87	2262	$330.25	15	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	0.78	10%	2035.8	$297.23	$225.00	$225.00	0.09	226.2	$33.03	6.81
30		2600	3	2	Recessed Down Light, (2) 26w PL Lamp	54	0.162	421.2	$61.50	3	0	No Change	54	0.16	0%	421.2	$61.50	$0.00	$0.00	0.00	0	$0.00	0.00
242.23	223 SGI	2600	3	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.312	811.2	$118.44	3	0	No Change	104	0.31	0%	811.2	$118.44	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	221 Classroom	2600	15	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.87	2262	$330.25	15	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	0.78	10%	2035.8	$297.23	$225.00	$225.00	0.09	226.2	$33.03	6.81
31		2600	4	1	Recessed Down Light, 90w R40 Lamp	90	0.36	936	$136.66	4	0	No Change	90	0.36	0%	936	$136.66	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	217 Classroom	2600	18	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.044	2714.4	$396.30	18	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	0.94	10%	2442.96	$356.67	$225.00	$225.00	0.10	271.44	$39.63	5.68
30		2600	4	2	Recessed Down Light, (2) 26w PL Lamp	54	0.216	561.6	$81.99	4	0	No Change	54	0.22	0%	561.6	$81.99	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Server Room	1200	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.058	69.6	$10.16	1	0	No Change	58	0.06	0%	69.6	$10.16	$0.00	$0.00	0.00	0	$0.00	0.00
211.11	Storage	1200	6	1	1x4, 1 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	30	0.18	216	$31.54	6	0	No Change	30	0.18	0%	216	$31.54	$0.00	$0.00	0.00	0	$0.00	0.00
221.44	Mech. Room	1200	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.058	69.6	$10.16	1	0	No Change	58	0.06	0%	69.6	$10.16	$0.00	$0.00	0.00	0	$0.00	0.00
221.41	Girl's Restroom	3200	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.116	371.2	$54.20	2	0	No Change	58	0.12	0%	371.2	$54.20	$0.00	$0.00	0.00	0	$0.00	0.00
31		3200	2	1	Recessed Down Light, 90w R40 Lamp	90	0.18	576	$84.10	2	0	No Change	90	0.18	0%	576	$84.10	$0.00	$0.00	0.00	0	$0.00	0.00
242.21	214 Office	2600	2	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	104	0.208	540.8	$78.96	2	0	No Change	104	0.21	0%	540.8	$78.96	$0.00	$0.00	0.00	0	$0.00	0.00

222.21	213 Storage	1200	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.174	208.8	$30.48	3	0	No Change	58	0.17	0%	208.8	$30.48	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	2nd Floor Corridor	4400	26	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.508	6635.2	$968.74	26	0	No Change	58	1.51	0%	6635.2	$968.74	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	226 Classroom	2600	15	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.87	2262	$330.25	15	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	0.78	10%	2035.8	$297.23	$225.00	$225.00	0.09	226.2	$33.03	6.81
142.21	226 Storage	1200	2	4	2x4, 4 Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	156	0.312	374.4	$54.66	2	0	No Change	156	0.31	0%	374.4	$54.66	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	230 Classroom	2600	21	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.218	3166.8	$462.35	21	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	1.10	10%	2850.12	$416.12	$225.00	$225.00	0.12	316.68	$46.24	4.87
222.21	230 Kiln Room	2600	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.116	301.6	$44.03	2	0	No Change	58	0.12	0%	301.6	$44.03	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	230 Storage	1200	6	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.348	417.6	$60.97	6	0	No Change	58	0.35	0%	417.6	$60.97	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	230 Office	2600	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.116	301.6	$44.03	2	0	No Change	58	0.12	0%	301.6	$44.03	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	232 Classroom	2600	21	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.218	3166.8	$462.35	21	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	1.10	10%	2850.12	$416.12	$225.00	$225.00	0.12	316.68	$46.24	4.87
33		2600	4	1	Recessed Down Light, 60w A19 Lamp	60	0.24	624	$91.10	4	0	No Change	60	0.24	0%	624	$91.10	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	232 Darkroom	2600	4	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.232	603.2	$88.07	4	0	No Change	58	0.23	0%	603.2	$88.07	$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	0.174	452.4	$66.05	3	0	No Change	58	0.17	0%	452.4	$66.05	$0.00	$0.00	0.00	0	$0.00	0.00
122.21		2600	4	2	2x4, 2-Lamp, 34w T12, Mag. Ballast, Recessed Mnt., Prismatic Lens	78	0.312	811.2	$118.44	4	0	No Change	78	0.31	0%	811.2	$118.44	$0.00	$0.00	0.00	0	$0.00	0.00
2		2600	5	2	2x2 2 Lamp 40w Biax Lamp	88	0.44	1144	$167.02	5	0	No Change	88	0.44	0%	1144	$167.02	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	235 Faculty Lounge	3200	7	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.406	1299.2	$189.68	7	1	Dual Technology Occupancy Sensor - Switch Mnt.	58	0.37	10%	1169.28	$170.71	$75.00	$75.00	0.04	129.92	$18.97	3.95
222.21	236 Classroom	2600	16	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.928	2412.8	$352.27	16	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	0.84	10%	2171.52	$317.04	$225.00	$225.00	0.09	241.28	$35.23	6.39
221.11	Men's Restroom	3200	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.232	742.4	$108.39	4	0	No Change	58	0.23	0%	742.4	$108.39	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Elec. Room	1200	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.058	69.6	$10.16	1	0	No Change	58	0.06	0%	69.6	$10.16	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Girl's Restroom	3200	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.232	742.4	$108.39	4	0	No Change	58	0.23	0%	742.4	$108.39	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	240 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.696	1809.6	$264.20	12	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	0.63	10%	1628.64	$237.78	$225.00	$225.00	0.07	180.96	$26.42	8.52
222.21	241 Classroom	2600	14	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.812	2111.2	$308.24	14	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	0.73	10%	1900.08	$277.41	$225.00	$225.00	0.08	211.12	$30.82	7.30

222.21	242 Classroom	2600	14	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.812	2111.2	$308.24	14	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	0.73	10%	1900.08	$277.41	$225.00	$225.00	0.08	211.12	$30.82	7.30
222.21	243 Classroom	2600	14	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.812	2111.2	$308.24	14	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	0.73	10%	1900.08	$277.41	$225.00	$225.00	0.08	211.12	$30.82	7.30
222.21	244 Classroom	2600	14	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.812	2111.2	$308.24	14	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	0.73	10%	1900.08	$277.41	$225.00	$225.00	0.08	211.12	$30.82	7.30
222.21	245 Classroom	2600	14	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.812	2111.2	$308.24	14	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	0.73	10%	1900.08	$277.41	$225.00	$225.00	0.08	211.12	$30.82	7.30
222.21	246 Classroom	2600	14	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.812	2111.2	$308.24	14	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	0.73	10%	1900.08	$277.41	$225.00	$225.00	0.08	211.12	$30.82	7.30
222.21	247 Classroom	2600	14	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.812	2111.2	$308.24	14	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	0.73	10%	1900.08	$277.41	$225.00	$225.00	0.08	211.12	$30.82	7.30
222.21	248 Classroom	2600	14	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.812	2111.2	$308.24	14	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	0.73	10%	1900.08	$277.41	$225.00	$225.00	0.08	211.12	$30.82	7.30
222.21	249 Classroom	2600	14	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.812	2111.2	$308.24	14	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	0.73	10%	1900.08	$277.41	$225.00	$225.00	0.08	211.12	$30.82	7.30
227.21	250 Offices	2600	1	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.058	150.8	$22.02	1	0	No Change	58	0.06	0%	150.8	$22.02	$0.00	$0.00	0.00	0	$0.00	0.00
222.21		2600	5	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.29	754	$110.08	5	1	Dual Technology Occupancy Sensor - Switch Mnt.	58	0.26	10%	678.6	$99.08	$75.00	$75.00	0.03	75.4	$11.01	6.81
222.21	2nd Floor Corridor	4400	14	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.812	3572.8	$521.63	14	0	No Change	58	0.81	0%	3572.8	$521.63	$0.00	$0.00	0.00	0	$0.00	0.00
142.11	Stairway (access restricted - unused)	4400	7	4	2x4, 4 Lamp, 34w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	156	1.092	4804.8	$701.50	7	3	Dual Technology Occupancy Sensor - Fixture Mnt.	156	0.98	10%	4324.32	$631.35	$100.00	$300.00	0.11	480.48	$70.15	4.28
222.21	Storage	1200	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.058	69.6	$10.16	1	0	No Change	58	0.06	0%	69.6	$10.16	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Stairway D	4400	6	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.348	1531.2	$223.56	6	0	No Change	58	0.35	0%	1531.2	$223.56	$0.00	$0.00	0.00	0	$0.00	0.00
222.21		4400	6	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.348	1531.2	$223.56	6	1	Daylight Sensor (Sensorswitch PP-20 & CM-PC or equal)	58	0.26	25%	1148.4	$167.67	$160.00	$160.00	0.09	382.8	$55.89	2.86
222.21	Stairway C	4400	6	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.348	1531.2	$223.56	6	0	No Change	58	0.35	0%	1531.2	$223.56	$0.00	$0.00	0.00	0	$0.00	0.00
222.21		4400	6	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.348	1531.2	$223.56	6	1	Daylight Sensor (Sensorswitch PP-20 & CM-PC or equal)	58	0.26	25%	1148.4	$167.67	$160.00	$160.00	0.09	382.8	$55.89	2.86
231.33	210 Classroom	2600	11	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	0.946	2459.6	$359.10	11	0	No Change	86	0.95	0%	2459.6	$359.10	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	211 Classroom	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.032	2683.2	$391.75	12	0	No Change	86	1.03	0%	2683.2	$391.75	$0.00	$0.00	0.00	0	$0.00	0.00

231.33	212 Classroom	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.032	2683.2	$391.75	12	0	No Change	86	1.03	0%	2683.2	$391.75	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	213 Classroom	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.032	2683.2	$391.75	12	0	No Change	86	1.03	0%	2683.2	$391.75	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	214 Classroom	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.032	2683.2	$391.75	12	0	No Change	86	1.03	0%	2683.2	$391.75	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	215 Classroom	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.032	2683.2	$391.75	12	0	No Change	86	1.03	0%	2683.2	$391.75	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	216 Classroom	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.032	2683.2	$391.75	12	0	No Change	86	1.03	0%	2683.2	$391.75	$0.00	$0.00	0.00	0	$0.00	0.00
242.23	201 Office	2600	4	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.416	1081.6	$157.91	4	0	No Change	104	0.42	0%	1081.6	$157.91	$0.00	$0.00	0.00	0	$0.00	0.00
242.23	112 SAC	2600	8	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.832	2163.2	$315.83	8	0	No Change	104	0.83	0%	2163.2	$315.83	$0.00	$0.00	0.00	0	$0.00	0.00
221.34	203 Custodial Closet	1200	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.058	69.6	$10.16	1	0	No Change	58	0.06	0%	69.6	$10.16	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	204 Storage	1200	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.174	208.8	$30.48	3	0	No Change	58	0.17	0%	208.8	$30.48	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Girl's Restroom	3200	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.116	371.2	$54.20	2	0	No Change	58	0.12	0%	371.2	$54.20	$0.00	$0.00	0.00	0	$0.00	0.00
2	Staff Restroom	1200	2	2	2x2 2 Lamp 40w Biax Lamp	88	0.176	211.2	$30.84	2	0	No Change	88	0.18	0%	211.2	$30.84	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Boy's Restroom	3200	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.116	371.2	$54.20	2	0	No Change	58	0.12	0%	371.2	$54.20	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	2nd Floor Corridor	4400	16	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.928	4083.2	$596.15	16	0	No Change	58	0.93	0%	4083.2	$596.15	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	110 Classroom	2600	14	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.204	3130.4	$457.04	14	0	No Change	86	1.20	0%	3130.4	$457.04	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	111 Classroom	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.032	2683.2	$391.75	12	0	No Change	86	1.03	0%	2683.2	$391.75	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	112 Classroom	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.032	2683.2	$391.75	12	0	No Change	86	1.03	0%	2683.2	$391.75	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	113 Classroom	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.032	2683.2	$391.75	12	0	No Change	86	1.03	0%	2683.2	$391.75	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	114 Classroom	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.032	2683.2	$391.75	12	0	No Change	86	1.03	0%	2683.2	$391.75	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	115 Classroom	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.032	2683.2	$391.75	12	0	No Change	86	1.03	0%	2683.2	$391.75	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	116 Classroom	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.032	2683.2	$391.75	12	0	No Change	86	1.03	0%	2683.2	$391.75	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Boy's Restroom	3200	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.116	371.2	$54.20	2	0	No Change	58	0.12	0%	371.2	$54.20	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Girl's Restroom	3200	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.116	371.2	$54.20	2	0	No Change	58	0.12	0%	371.2	$54.20	$0.00	$0.00	0.00	0	$0.00	0.00
2	Staff Restroom	1200	2	2	2x2 2 Lamp 40w Biax Lamp	88	0.176	211.2	$30.84	2	0	No Change	88	0.18	0%	211.2	$30.84	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Storage	1200	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.174	208.8	$30.48	3	0	No Change	58	0.17	0%	208.8	$30.48	$0.00	$0.00	0.00	0	$0.00	0.00
221.34	103 Custodial Closet	1200	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.058	69.6	$10.16	1	0	No Change	58	0.06	0%	69.6	$10.16	$0.00	$0.00	0.00	0	$0.00	0.00

222.21	1st Floor Corridor	4400	16	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.928	4083.2	$596.15	16	0	No Change	58	0.93	0%	4083.2	$596.15	$0.00	$0.00	0.00	0	$0.00	0.00
242.23	102 Office	2600	4	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.416	1081.6	$157.91	4	0	No Change	104	0.42	0%	1081.6	$157.91	$0.00	$0.00	0.00	0	$0.00	0.00
242.23	101 Office	2600	4	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.416	1081.6	$157.91	4	0	No Change	104	0.42	0%	1081.6	$157.91	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	107 Classroom	2600	18	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.548	4024.8	$587.62	18	0	No Change	86	1.55	0%	4024.8	$587.62	$0.00	$0.00	0.00	0	$0.00	0.00
242.23		2600	3	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.312	811.2	$118.44	3	0	No Change	104	0.31	0%	811.2	$118.44	$0.00	$0.00	0.00	0	$0.00	0.00
232.21	Prep Room	2600	7	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.602	1565.2	$228.52	7	0	No Change	86	0.60	0%	1565.2	$228.52	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	105 Classroom	2600	18	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.548	4024.8	$587.62	18	0	No Change	86	1.55	0%	4024.8	$587.62	$0.00	$0.00	0.00	0	$0.00	0.00
242.23		2600	3	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.312	811.2	$118.44	3	0	No Change	104	0.31	0%	811.2	$118.44	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	108 Classroom	2600	18	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.548	4024.8	$587.62	18	0	No Change	86	1.55	0%	4024.8	$587.62	$0.00	$0.00	0.00	0	$0.00	0.00
242.23		2600	3	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.312	811.2	$118.44	3	0	No Change	104	0.31	0%	811.2	$118.44	$0.00	$0.00	0.00	0	$0.00	0.00
232.21	Prep Room	2600	5	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.43	1118	$163.23	5	0	No Change	86	0.43	0%	1118	$163.23	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	112 Classroom	2600	18	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.548	4024.8	$587.62	18	0	No Change	86	1.55	0%	4024.8	$587.62	$0.00	$0.00	0.00	0	$0.00	0.00
242.23		2600	3	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.312	811.2	$118.44	3	0	No Change	104	0.31	0%	811.2	$118.44	$0.00	$0.00	0.00	0	$0.00	0.00
221.34	Elec. Room	1200	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.058	69.6	$10.16	1	0	No Change	58	0.06	0%	69.6	$10.16	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	104 Classroom	2600	18	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.548	4024.8	$587.62	18	0	No Change	86	1.55	0%	4024.8	$587.62	$0.00	$0.00	0.00	0	$0.00	0.00
242.23		2600	3	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.312	811.2	$118.44	3	0	No Change	104	0.31	0%	811.2	$118.44	$0.00	$0.00	0.00	0	$0.00	0.00
221.34	Computer Storage	2600	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.116	301.6	$44.03	2	0	No Change	58	0.12	0%	301.6	$44.03	$0.00	$0.00	0.00	0	$0.00	0.00
221.21	1st Floor Corridor	4400	14	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Acrylic Lens	58	0.812	3572.8	$521.63	14	0	No Change	58	0.81	0%	3572.8	$521.63	$0.00	$0.00	0.00	0	$0.00	0.00
242.23	113 Office	2600	2	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.208	540.8	$78.96	2	0	No Change	104	0.21	0%	540.8	$78.96	$0.00	$0.00	0.00	0	$0.00	0.00
222.11	117 Office	2600	8	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Indirect	58	0.464	1206.4	$176.13	8	0	No Change	58	0.46	0%	1206.4	$176.13	$0.00	$0.00	0.00	0	$0.00	0.00
221.41	Boy's Restroom	3200	3	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.174	556.8	$81.29	3	0	No Change	58	0.17	0%	556.8	$81.29	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	102 School Store	4400	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.116	510.4	$74.52	2	0	No Change	58	0.12	0%	510.4	$74.52	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	115 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.696	1809.6	$264.20	12	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	0.63	10%	1628.64	$237.78	$225.00	$225.00	0.07	180.96	$26.42	8.52
30		2600	3	2	Recessed Down Light, (2) 26w PL Lamp	54	0.162	421.2	$61.50	3	0	No Change	54	0.16	0%	421.2	$61.50	$0.00	$0.00	0.00	0	$0.00	0.00

222.21	Storage	1200	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.174	208.8	$30.48	3	0	No Change	58	0.17	0%	208.8	$30.48	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	114 Copy Room	2600	11	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.638	1658.8	$242.18	11	1	Dual Technology Occupancy Sensor - Remote Mnt.	58	0.57	10%	1492.92	$217.97	$0.00	$0.00	0.06	165.88	$24.22	0.00
31		2600	2	1	Recessed Down Light, 90w R40 Lamp	90	0.18	468	$68.33	2	0	No Change	90	0.18	0%	468	$68.33	$160.00	$0.00	0.00	0	$0.00	0.00
222.21	109 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.696	1809.6	$264.20	12	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	0.63	10%	1628.64	$237.78	$225.00	$225.00	0.07	180.96	$26.42	8.52
30		2600	3	2	Recessed Down Light, (2) 26w PL Lamp	54	0.162	421.2	$61.50	3	0	No Change	54	0.16	0%	421.2	$61.50	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Prep Room	2600	5	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.29	754	$110.08	5	0	No Change	58	0.29	0%	754	$110.08	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	107 Classroom	2600	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.696	1809.6	$264.20	12	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	0.63	10%	1628.64	$237.78	$225.00	$225.00	0.07	180.96	$26.42	8.52
30		2600	3	2	Recessed Down Light, (2) 26w PL Lamp	54	0.162	421.2	$61.50	3	0	No Change	54	0.16	0%	421.2	$61.50	$0.00	$0.00	0.00	0	$0.00	0.00
242.23	108 Storage	1200	2	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.208	249.6	$36.44	2	0	No Change	104	0.21	0%	249.6	$36.44	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	106 Office	2600	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.232	603.2	$88.07	4	1	Dual Technology Occupancy Sensor - Switch Mnt.	58	0.21	10%	542.88	$79.26	$75.00	$75.00	0.02	60.32	$8.81	8.52
221.44	Mech. Room	1200	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.058	69.6	$10.16	1	0	No Change	58	0.06	0%	69.6	$10.16	$0.00	$0.00	0.00	0	$0.00	0.00
221.41	Girl's Restroom	3200	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.116	371.2	$54.20	2	0	No Change	58	0.12	0%	371.2	$54.20	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	104 Office	2600	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.116	301.6	$44.03	2	1	Dual Technology Occupancy Sensor - Switch Mnt.	58	0.10	10%	271.44	$39.63	$75.00	$75.00	0.01	30.16	$4.40	17.03
221.34	Elec. Room	1200	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.058	69.6	$10.16	1	0	No Change	58	0.06	0%	69.6	$10.16	$0.00	$0.00	0.00	0	$0.00	0.00
242.23	VP Office	2600	4	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.416	1081.6	$157.91	4	1	Dual Technology Occupancy Sensor - Switch Mnt.	104	0.37	10%	973.44	$142.12	$75.00	$75.00	0.04	108.16	$15.79	4.75
221.11	103 Security Office	2600	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.232	603.2	$88.07	4	1	Dual Technology Occupancy Sensor - Switch Mnt.	58	0.21	10%	542.88	$79.26	$75.00	$75.00	0.02	60.32	$8.81	8.52
221.11	Principal's Office	2600	10	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.58	1508	$220.17	10	1	Dual Technology Occupancy Sensor - Switch Mnt.	58	0.52	10%	1357.2	$198.15	$75.00	$75.00	0.06	150.8	$22.02	3.41
242.23	Conference Room	2600	6	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.624	1622.4	$236.87	6	1	Dual Technology Occupancy Sensor - Switch Mnt.	104	0.56	10%	1460.16	$213.18	$75.00	$75.00	0.06	162.24	$23.69	3.17
222.21	Restroom	1200	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.058	69.6	$10.16	1	0	No Change	58	0.06	0%	69.6	$10.16	$0.00	$0.00	0.00	0	$0.00	0.00
242.33	Reception Area	3200	5	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/Indirect	104	0.52	1664	$242.94	5	0	No Change	104	0.52	0%	1664	$242.94	$0.00	$0.00	0.00	0	$0.00	0.00
242.33	Nurse	2600	2	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/Indirect	104	0.208	540.8	$78.96	2	0	No Change	104	0.21	0%	540.8	$78.96	$0.00	$0.00	0.00	0	$0.00	0.00
242.33		2600	14	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/Indirect	104	1.456	3785.6	$552.70	14	0	No Change	104	1.46	0%	3785.6	$552.70	$0.00	$0.00	0.00	0	$0.00	0.00
221.34	Storage	1200	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.058	69.6	$10.16	1	0	No Change	58	0.06	0%	69.6	$10.16	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Restroom	1200	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.058	69.6	$10.16	1	0	No Change	58	0.06	0%	69.6	$10.16	$0.00	$0.00	0.00	0	$0.00	0.00

31	Closet	1200	1	1	Recessed Down Light, 90w R40 Lamp	90	0.09	108	$15.77	1	0	No Change	90	0.09	0%	108	$15.77	$0.00	$0.00	0.00	0	$0.00	0.00
211.11	120 Storage	1200	6	1	1x4, 1 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	30	0.18	216	$31.54	6	0	No Change	30	0.18	0%	216	$31.54	$0.00	$0.00	0.00	0	$0.00	0.00
221.44	Mech. Room	1200	3	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.174	208.8	$30.48	3	0	No Change	58	0.17	0%	208.8	$30.48	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	127 Classroom	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.032	2683.2	$391.75	12	0	No Change	86	1.03	0%	2683.2	$391.75	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	121 Classroom	2600	14	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.812	2111.2	$308.24	14	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	0.73	10%	1900.08	$277.41	$225.00	$225.00	0.08	211.12	$30.82	7.30
211.11		2600	4	1	1x4, 1 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	30	0.12	312	$45.55	4	0	No Change	30	0.12	0%	312	$45.55	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	122 Custodial Closet	1200	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.058	69.6	$10.16	1	0	No Change	58	0.06	0%	69.6	$10.16	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	123 Media Center	2600	104	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	6.032	15683.2	$2,289.75	104	3	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	5.43	10%	14114.88	$2,060.77	$225.00	$675.00	0.60	1568.32	$228.97	2.95
222.21	123 Office	2600	11	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.638	1658.8	$242.18	11	1	Dual Technology Occupancy Sensor - Remote Mnt.	58	0.57	10%	1492.92	$217.97	$160.00	$160.00	0.06	165.88	$24.22	6.61
221.11	A/V Room	2600	5	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.29	754	$110.08	5	1	Dual Technology Occupancy Sensor - Switch Mnt.	58	0.26	10%	678.6	$99.08	$75.00	$75.00	0.03	75.4	$11.01	6.81
221.11	SGI	2600	6	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.348	904.8	$132.10	6	1	Dual Technology Occupancy Sensor - Switch Mnt.	58	0.31	10%	814.32	$118.89	$75.00	$75.00	0.03	90.48	$13.21	5.68
222.21	Library Room 3	2600	4	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.232	603.2	$88.07	4	1	Dual Technology Occupancy Sensor - Switch Mnt.	58	0.21	10%	542.88	$79.26	$75.00	$75.00	0.02	60.32	$8.81	8.52
222.21	Library Room 2	2600	8	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.464	1206.4	$176.13	8	1	Dual Technology Occupancy Sensor - Switch Mnt.	58	0.42	10%	1085.76	$158.52	$75.00	$75.00	0.05	120.64	$17.61	4.26
221.34	140 Boiler Room	4400	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.232	1020.8	$149.04	4	0	No Change	58	0.23	0%	1020.8	$149.04	$0.00	$0.00	0.00	0	$0.00	0.00
221.34	139 Storage	1200	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.058	69.6	$10.16	1	0	No Change	58	0.06	0%	69.6	$10.16	$0.00	$0.00	0.00	0	$0.00	0.00
221.34	138 Elec. Room	1200	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.058	69.6	$10.16	1	0	No Change	58	0.06	0%	69.6	$10.16	$0.00	$0.00	0.00	0	$0.00	0.00
221.34	137 IDF	2600	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.116	301.6	$44.03	2	0	No Change	58	0.12	0%	301.6	$44.03	$0.00	$0.00	0.00	0	$0.00	0.00
221.31	128 Storage	1200	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	58	0.116	139.2	$20.32	2	0	No Change	58	0.12	0%	139.2	$20.32	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	125 Trainor's Storage	1200	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.116	139.2	$20.32	2	0	No Change	58	0.12	0%	139.2	$20.32	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	126 Training Room	2600	16	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.928	2412.8	$352.27	16	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	0.84	10%	2171.52	$317.04	$225.00	$225.00	0.09	241.28	$35.23	6.39
222.21	Training Office	2600	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.058	150.8	$22.02	1	0	No Change	58	0.06	0%	150.8	$22.02	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	125 Weight Room	2600	20	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.16	3016	$440.34	20	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	1.04	10%	2714.4	$396.30	$225.00	$225.00	0.12	301.6	$44.03	5.11

242.23	Coach's Office	2600	3	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.312	811.2	$118.44	3	1	Dual Technology Occupancy Sensor - Switch Mnt.	104	0.28	10%	730.08	$106.59	$75.00	$75.00	0.03	81.12	$11.84	6.33
242.23	Coach's Office	2600	4	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.416	1081.6	$157.91	4	1	Dual Technology Occupancy Sensor - Switch Mnt.	104	0.37	10%	973.44	$142.12	$75.00	$75.00	0.04	108.16	$15.79	4.75
222.21	Boy's Restroom	3200	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.174	556.8	$81.29	3	1	Dual Technology Occupancy Sensor - Switch Mnt.	58	0.16	10%	501.12	$73.16	$75.00	$75.00	0.02	55.68	$8.13	9.23
222.21	Girl's Restroom	3200	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.174	556.8	$81.29	3	1	Dual Technology Occupancy Sensor - Switch Mnt.	58	0.16	10%	501.12	$73.16	$75.00	$75.00	0.02	55.68	$8.13	9.23
221.34	Gym Storage	2600	6	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt. No Lens	58	0.348	904.8	$132.10	6	1	Dual Technology Occupancy Sensor - Switch Mnt.	58	0.31	10%	814.32	$118.89	$75.00	$75.00	0.03	90.48	$13.21	5.68
2	G130 Adaptive PE	2600	9	2	2x2 2 Lamp 40w Biax Lamp	88	0.792	2059.2	$300.64	9	1	Dual Technology Occupancy Sensor - Remote Mnt.	88	0.71	10%	1853.28	$270.58	$160.00	$160.00	0.08	205.92	$30.06	5.32
222.21	123 Boy's Locker Room	2600	11	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.638	1658.8	$242.18	11	1	Dual Technology Occupancy Sensor - Remote Mnt.	58	0.57	10%	1492.92	$217.97	$160.00	$160.00	0.06	165.88	$24.22	6.61
222.21	Gym Corridor	4400	22	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.276	5614.4	$819.70	22	0	No Change	58	1.28	0%	5614.4	$819.70	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	122 Girl's Locker Room	2600	11	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.638	1658.8	$242.18	11	1	Dual Technology Occupancy Sensor - Remote Mnt.	58	0.57	10%	1492.92	$217.97	$160.00	$160.00	0.06	165.88	$24.22	6.61
232.21	AD Office	2600	8	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.688	1788.8	$261.16	8	1	Dual Technology Occupancy Sensor - Remote Mnt.	86	0.62	10%	1609.92	$235.05	$160.00	$160.00	0.07	178.88	$26.12	6.13
221.11	119 Girl's Locker/ Team Room	2600	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.232	603.2	$88.07	4	1	Daylight Sensor (Sensorswitch PP-20 & CM-PC or equal)	58	0.21	10%	542.88	$79.26	$160.00	$160.00	0.02	60.32	$8.81	18.17
222.21		2600	4	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.232	603.2	$88.07	4	0	No Change	58	0.23	0%	603.2	$88.07	$0.00	$0.00	0.00	0	$0.00	0.00
232.21	Locker Room Hall	2600	1	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.086	223.6	$32.65	1	0	No Change	86	0.09	0%	223.6	$32.65	$0.00	$0.00	0.00	0	$0.00	0.00
232.21	Girl's Main Locker Room	2600	16	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	1.376	3577.6	$522.33	16	1	Dual Technology Occupancy Sensor - Remote Mnt.	86	1.24	10%	3219.84	$470.10	$160.00	$160.00	0.14	357.76	$52.23	3.06
221.11	Girl's Storage	1200	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.058	69.6	$10.16	1	0	No Change	58	0.06	0%	69.6	$10.16	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Girl's Shower	2600	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.116	301.6	$44.03	2	0	No Change	58	0.12	0%	301.6	$44.03	$0.00	$0.00	0.00	0	$0.00	0.00
200	Restroom	2600	1	2	1x2, 1 Lamp, 17w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	34	0.034	88.4	$12.91	1	0	No Change	34	0.03	0%	88.4	$12.91	$0.00	$0.00	0.00	0	$0.00	0.00
211.11	PE Supervisor	2600	3	1	1x4, 1 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	30	0.09	234	$34.16	3	1	Dual Technology Occupancy Sensor - Switch Mnt.	30	0.08	10%	210.6	$30.75	$75.00	$75.00	0.01	23.4	$3.42	21.95
211.11	PE Hall	2600	9	1	1x4, 1 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	30	0.27	702	$102.49	9	0	No Change	30	0.27	0%	702	$102.49	$0.00	$0.00	0.00	0	$0.00	0.00
142.11	Gym Storage	1200	1	4	2x4, 4 Lamp, 34w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	156	0.156	187.2	$27.33	1	0	No Change	156	0.16	0%	187.2	$27.33	$0.00	$0.00	0.00	0	$0.00	0.00
766	Main Gym	3200	70	1	400w MH, Prismatic Lens	465	32.55	104160	$15,207.36	70	0	No Change	465	32.55	0%	104160	$15,207.36	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	Gym Storage	1200	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.232	278.4	$40.65	4	0	No Change	58	0.23	0%	278.4	$40.65	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Boy's Locker Room	2600	10	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.58	1508	$220.17	10	1	Dual Technology Occupancy Sensor - Remote Mnt.	58	0.52	10%	1357.2	$198.15	$160.00	$160.00	0.06	150.8	$22.02	7.27
222.21	PE Office	2600	5	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.29	754	$110.08	5	1	Dual Technology Occupancy Sensor - Switch Mnt.	58	0.26	10%	678.6	$99.08	$75.00	$75.00	0.03	75.4	$11.01	6.81
211.11	Boy's Restroom	2600	3	1	1x4, 1 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	30	0.09	234	$34.16	3	1	Dual Technology Occupancy Sensor - Switch Mnt.	30	0.08	10%	210.6	$30.75	$75.00	$75.00	0.01	23.4	$3.42	21.95

221.11	Shower Area	2600	10	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.58	1508	$220.17	10	0	No Change	58	0.58	0%	1508	$220.17	$0.00	$0.00	0.00	0	$0.00	0.00
221.11	110 Team Room	2600	8	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.464	1206.4	$176.13	8	1	Dual Technology Occupancy Sensor - Switch Mnt.	58	0.42	10%	1085.76	$158.52	$75.00	$75.00	0.05	120.64	$17.61	4.26
221.11	Team Room Locker Room	2600	4	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.232	603.2	$88.07	4	1	Daylight Sensor (Sensorswitch PP-20 & CM-PC or equal)	58	0.21	10%	542.88	$79.26	$160.00	$160.00	0.02	60.32	$8.81	18.17
221.11	105 Office	2600	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.116	301.6	$44.03	2	1	Dual Technology Occupancy Sensor - Switch Mnt.	58	0.10	10%	271.44	$39.63	$75.00	$75.00	0.01	30.16	$4.40	17.03
221.11	Ticket Window	800	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.116	92.8	$13.55	2	0	No Change	58	0.12	0%	92.8	$13.55	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Gym Lobby	4400	6	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.348	1531.2	$223.56	6	1	Daylight Sensor (Sensorswitch PP-20 & CM-PC or equal)	58	0.31	10%	1378.08	$201.20	$160.00	$160.00	0.03	153.12	$22.36	7.16
211.11	Women's Restroom	1200	2	1	1x4, 1 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	30	0.06	72	$10.51	2	0	No Change	30	0.06	0%	72	$10.51	$0.00	$0.00	0.00	0	$0.00	0.00
211.11	Men's Restroom	1200	2	1	1x4, 1 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	30	0.06	72	$10.51	2	0	No Change	30	0.06	0%	72	$10.51	$0.00	$0.00	0.00	0	$0.00	0.00
111.14	Hall Display Case	4400	4	1	1x4, 1-Lamp, 34w T12, Mag. Ballast, Surface Mnt., No Lens	48	0.192	844.8	$123.34	4	0	No Change	48	0.19	0%	844.8	$123.34	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Corridor	4400	12	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.696	3062.4	$447.11	12	0	No Change	58	0.70	0%	3062.4	$447.11	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	116 Practice Room	2600	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.116	301.6	$44.03	2	1	Dual Technology Occupancy Sensor - Switch Mnt.	58	0.10	10%	271.44	$39.63	$75.00	$75.00	0.01	30.16	$4.40	17.03
222.21	118 Practice Room	2600	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.116	301.6	$44.03	2	1	Dual Technology Occupancy Sensor - Switch Mnt.	58	0.10	10%	271.44	$39.63	$75.00	$75.00	0.01	30.16	$4.40	17.03
222.21	113 Office	2600	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.116	301.6	$44.03	2	1	Dual Technology Occupancy Sensor - Switch Mnt.	58	0.10	10%	271.44	$39.63	$75.00	$75.00	0.01	30.16	$4.40	17.03
232.33	120 Choral Room	2600	27	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Parabolic Lens	86	2.322	6037.2	$881.43	27	0	No Change	86	2.32	0%	6037.2	$881.43	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Band Corridor	2600	8	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.464	1206.4	$176.13	8	0	No Change	58	0.46	0%	1206.4	$176.13	$0.00	$0.00	0.00	0	$0.00	0.00
242.23	113 Band Room	2600	24	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	2.496	6489.6	$947.48	24	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	104	2.25	10%	5840.64	$852.73	$225.00	$225.00	0.25	648.96	$94.75	2.37
222.21	Band Storage	1200	4	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.232	278.4	$40.65	4	1	Dual Technology Occupancy Sensor - Switch Mnt.	58	0.21	10%	250.56	$36.58	$75.00	$75.00	0.02	27.84	$4.06	18.45
231.33	Practice Room	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.032	2683.2	$391.75	12	0	No Change	86	1.03	0%	2683.2	$391.75	$0.00	$0.00	0.00	0	$0.00	0.00
221.34	Stage	2600	20	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	1.16	3016	$440.34	20	0	No Change	58	1.16	0%	3016	$440.34	$0.00	$0.00	0.00	0	$0.00	0.00
4	Auditorium Lobby	4400	12	4	4x4, 8 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., White Diffuser	208	2.496	10982.4	$1,603.43	12	0	No Change	208	2.50	0%	10982.4	$1,603.43	$0.00	$0.00	0.00	0	$0.00	0.00
34	Auditorium Vestibule	4400	4	1	Recessed Down Light, 26w Quad Lamp	26	0.104	457.6	$66.81	4	0	No Change	26	0.10	0%	457.6	$66.81	$0.00	$0.00	0.00	0	$0.00	0.00
34	Lobby	4400	20	1	Recessed Down Light, 26w Quad Lamp	26	0.52	2288	$334.05	20	0	No Change	26	0.52	0%	2288	$334.05	$0.00	$0.00	0.00	0	$0.00	0.00
247.211	Lobby Corridor	4400	8	4	2x2, 4 Lamp, 17w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	68	0.544	2393.6	$349.47	8	1	Daylight Sensor (Sensorswitch PP-20 & CM-PC or equal)	68	0.49	10%	2154.24	$314.52	$160.00	$160.00	0.05	239.36	$34.95	4.58
221.11	A104 Projection Room	2600	8	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.464	1206.4	$176.13	8	1	Dual Technology Occupancy Sensor - Switch Mnt.	58	0.42	10%	1085.76	$158.52	$75.00	$75.00	0.05	120.64	$17.61	4.26
221.34	105 Storage	1200	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.058	69.6	$10.16	1	0	No Change	58	0.06	0%	69.6	$10.16	$0.00	$0.00	0.00	0	$0.00	0.00

222.21	Women's Restroom	1200	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.174	208.8	$30.48	3	0	No Change	58	0.17	0%	208.8	$30.48	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Men's Restroom	1200	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.174	208.8	$30.48	3	0	No Change	58	0.17	0%	208.8	$30.48	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Ticket Office	800	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.058	46.4	$6.77	1	0	No Change	58	0.06	0%	46.4	$6.77	$0.00	$0.00	0.00	0	$0.00	0.00
247.23	Common Area	4400	45	4	2x2, 4 Lamp, 17w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	68	3.06	13464	$1,965.74	45	0	No Change	68	3.06	0%	13464	$1,965.74	$0.00	$0.00	0.00	0	$0.00	0.00
221.34	Elec. Room	1200	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.058	69.6	$10.16	1	0	No Change	58	0.06	0%	69.6	$10.16	$0.00	$0.00	0.00	0	$0.00	0.00
221.34	Storage	1200	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., No Lens	58	0.058	69.6	$10.16	1	0	No Change	58	0.06	0%	69.6	$10.16	$0.00	$0.00	0.00	0	$0.00	0.00
242.23	Assistant Principal's Office	2600	6	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.624	1622.4	$236.87	6	1	Dual Technology Occupancy Sensor - Switch Mnt.	104	0.56	10%	1460.16	$213.18	$75.00	$75.00	0.06	162.24	$23.69	3.17
242.23	Guidance	2600	11	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	1.144	2974.4	$434.26	11	0	No Change	104	1.14	0%	2974.4	$434.26	$0.00	$0.00	0.00	0	$0.00	0.00
34	Main Entrance - Vestibule	4400	6	1	Recessed Down Light, 26w Quad Lamp	26	0.156	686.4	$100.21	6	1	Daylight Sensor (Sensorswitch PP-20 & CM-PC or equal)	26	0.14	10%	617.76	$90.19	$160.00	$160.00	0.02	68.64	$10.02	15.97
242.23	Guidance - Small Offices	2600	39	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	4.056	10545.6	$1,539.66	39	0	No Change	104	4.06	0%	10545.6	$1,539.66	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Restroom	1200	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.058	69.6	$10.16	1	0	No Change	58	0.06	0%	69.6	$10.16	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Closet	1200	1	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.058	69.6	$10.16	1	0	No Change	58	0.06	0%	69.6	$10.16	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	102 Communications	2600	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.116	301.6	$44.03	2	1	Dual Technology Occupancy Sensor - Switch Mnt.	58	0.10	10%	271.44	$39.63	$75.00	$75.00	0.01	30.16	$4.40	17.03
222.21	Stairwell B	4400	5	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.29	1276	$186.30	5	0	No Change	58	0.29	0%	1276	$186.30	$0.00	$0.00	0.00	0	$0.00	0.00
227.21		4400	6	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.348	1531.2	$223.56	6	1	Daylight Sensor (Sensorswitch PP-20 & CM-PC or equal)	58	0.31	10%	1378.08	$201.20	$160.00	$160.00	0.03	153.12	$22.36	7.16
211.11		4400	23	1	1x4, 1 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	30	0.69	3036	$443.26	23	0	No Change	30	0.69	0%	3036	$443.26	$0.00	$0.00	0.00	0	$0.00	0.00
242.23	Conference Room	2600	6	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.624	1622.4	$236.87	6	1	Dual Technology Occupancy Sensor - Switch Mnt.	104	0.56	10%	1460.16	$213.18	$75.00	$75.00	0.06	162.24	$23.69	3.17
222.21	Café' - Women's Restroom	1200	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.116	139.2	$20.32	2	0	No Change	58	0.12	0%	139.2	$20.32	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Café - Men's Restroom	1200	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.116	139.2	$20.32	2	0	No Change	58	0.12	0%	139.2	$20.32	$0.00	$0.00	0.00	0	$0.00	0.00
242.23	106 Faculty Dining	3200	7	4	2x4, 4 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Direct/Indirect	104	0.728	2329.6	$340.12	7	1	Dual Technology Occupancy Sensor - Switch Mnt.	104	0.66	10%	2096.64	$306.11	$75.00	$75.00	0.07	232.96	$34.01	2.21
222.21	Café Corridor	4400	13	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.754	3317.6	$484.37	13	0	No Change	58	0.75	0%	3317.6	$484.37	$0.00	$0.00	0.00	0	$0.00	0.00
232.21	Cafeteria	3200	65	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	5.59	17888	$2,611.65	65	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	86	5.03	10%	16099.2	$2,350.48	$225.00	$225.00	0.56	1788.8	$261.16	0.86
232.21		3200	18	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	1.548	4953.6	$723.23	18	1	Daylight Sensor (Sensorswitch PP-20 & CM-PC or equal)	86	1.39	10%	4458.24	$650.90	$160.00	$160.00	0.15	495.36	$72.32	2.21
232.21	Storage	1200	3	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.258	309.6	$45.20	3	1	Dual Technology Occupancy Sensor - Switch Mnt.	86	0.23	10%	278.64	$40.68	$75.00	$75.00	0.03	30.96	$4.52	16.59

232.21	100 Snack Bar	2600	2	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.172	447.2	$65.29	2	0	No Change	86	0.17	0%	447.2	$65.29	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Serving Area	2600	15	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.87	2262	$330.25	15	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	0.78	10%	2035.8	$297.23	$225.00	$225.00	0.09	226.2	$33.03	6.81
222.21	Kitchen Storage	2600	5	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.29	754	$110.08	5	1	Dual Technology Occupancy Sensor - Switch Mnt.	58	0.26	10%	678.6	$99.08	$75.00	$75.00	0.03	75.4	$11.01	6.81
222.21	Kitchen Wash Area	2600	4	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.232	603.2	$88.07	4	1	Dual Technology Occupancy Sensor - Switch Mnt.	58	0.21	10%	542.88	$79.26	$75.00	$75.00	0.02	60.32	$8.81	8.52
617	Kitchen Hood	2600	4	1	Hood Light w/Globe & Cage, 100w A19 Lamp	100	0.4	1040	$151.84	4	0	No Change	100	0.40	0%	1040	$151.84	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Washer/ Dryer	2600	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.116	301.6	$44.03	2	0	No Change	58	0.12	0%	301.6	$44.03	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Kitchen Entrance	2600	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.116	301.6	$44.03	2	0	No Change	58	0.12	0%	301.6	$44.03	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Kitchen	2600	8	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.464	1206.4	$176.13	8	1	Dual Technology Occupancy Sensor - Remote Mnt.	58	0.42	10%	1085.76	$158.52	$160.00	$160.00	0.05	120.64	$17.61	9.08
142.11	Kitchen Office	2600	2	4	2x4, 4 Lamp, 34w T12, Mag. Ballast, Surface Mnt., Prismatic Lens	156	0.312	811.2	$118.44	2	1	Dual Technology Occupancy Sensor - Switch Mnt.	156	0.28	10%	730.08	$106.59	$75.00	$75.00	0.03	81.12	$11.84	6.33
222.11	101 Staff Room	2600	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Indirect	58	0.116	301.6	$44.03	2	1	Dual Technology Occupancy Sensor - Switch Mnt.	58	0.10	10%	271.44	$39.63	$75.00	$75.00	0.01	30.16	$4.40	17.03
221.11	102 Phone Room	1200	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.058	69.6	$10.16	1	0	No Change	58	0.06	0%	69.6	$10.16	$0.00	$0.00	0.00	0	$0.00	0.00
551	1st Floor, Old Auditorium - Access Corridor	4400	26	1	Recessed Down Light, 100w A Lamp	100	2.6	11440	$1,670.24	26	0	No Change	100	2.60	0%	11440	$1,670.24	$0.00	$0.00	0.00	0	$0.00	0.00
221.16	Old Aud. Classroom	2600	10	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Acrylic Lens	58	0.58	1508	$220.17	10	1	Dual Technology Occupancy Sensor - Remote Mnt.	58	0.52	10%	1357.2	$198.15	$160.00	$160.00	0.06	150.8	$22.02	7.27
221.16	Old Aud. Classroom	2600	10	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Acrylic Lens	58	0.58	1508	$220.17	10	1	Dual Technology Occupancy Sensor - Remote Mnt.	58	0.52	10%	1357.2	$198.15	$160.00	$160.00	0.06	150.8	$22.02	7.27
221.16	Old Aud. Classroom	2600	10	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Acrylic Lens	58	0.58	1508	$220.17	10	1	Dual Technology Occupancy Sensor - Remote Mnt.	58	0.52	10%	1357.2	$198.15	$160.00	$160.00	0.06	150.8	$22.02	7.27
221.16	Old Aud. Classroom	2600	10	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Acrylic Lens	58	0.58	1508	$220.17	10	1	Dual Technology Occupancy Sensor - Remote Mnt.	58	0.52	10%	1357.2	$198.15	$160.00	$160.00	0.06	150.8	$22.02	7.27
221.16	Old Aud. Classroom	2600	10	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Acrylic Lens	58	0.58	1508	$220.17	10	1	Dual Technology Occupancy Sensor - Remote Mnt.	58	0.52	10%	1357.2	$198.15	$160.00	$160.00	0.06	150.8	$22.02	7.27
232.21	Old Band Room	2600	17	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	1.462	3801.2	$554.98	17	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	86	1.32	10%	3421.08	$499.48	$225.00	$225.00	0.15	380.12	$55.50	4.05
232.21	Supply Room	1200	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	1.032	1238.4	$180.81	12	1	Dual Technology Occupancy Sensor - Remote Mnt.	86	0.93	10%	1114.56	$162.73	$160.00	$160.00	0.10	123.84	$18.08	8.85
222.21	Custodian Break Room	4400	7	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.406	1786.4	$260.81	7	1	Dual Technology Occupancy Sensor - Remote Mnt.	58	0.37	10%	1607.76	$234.73	$160.00	$160.00	0.04	178.64	$26.08	6.13
221.14	Custodian Restroom	4400	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., No Lens	58	0.058	255.2	$37.26	1	0	No Change	58	0.06	0%	255.2	$37.26	$0.00	$0.00	0.00	0	$0.00	0.00
227.21	Old Aud. - Lower Corridor	2600	26	2	2x2, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.508	3920.8	$572.44	26	0	No Change	58	1.51	0%	3920.8	$572.44	$0.00	$0.00	0.00	0	$0.00	0.00
111.14	Old Aud. - Storage	1200	12	1	1x4, 1-Lamp, 34w T12, Mag. Ballast, Surface Mnt., No Lens	48	0.576	691.2	$100.92	12	0	No Change	48	0.58	0%	691.2	$100.92	$0.00	$0.00	0.00	0	$0.00	0.00

221.14	Mech. Room	4400	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., No Lens	58	0.058	255.2	$37.26	1	0	No Change	58	0.06	0%	255.2	$37.26	$0.00	$0.00	0.00	0	$0.00	0.00
231.34	Wrestling Pit	4400	16	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.376	6054.4	$883.94	16	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	86	1.24	10%	5448.96	$795.55	$225.00	$225.00	0.14	605.44	$88.39	2.55
221.14	B02 Elec. Room	4400	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., No Lens	58	0.116	510.4	$74.52	2	0	No Change	58	0.12	0%	510.4	$74.52	$0.00	$0.00	0.00	0	$0.00	0.00
211.14	03 Boiler Room	4400	23	1	1x4, 1 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	30	0.69	3036	$443.26	23	0	No Change	30	0.69	0%	3036	$443.26	$0.00	$0.00	0.00	0	$0.00	0.00
211.14	21 Custodian	4400	12	1	1x4, 1 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	30	0.36	1584	$231.26	12	1	Dual Technology Occupancy Sensor - Remote Mnt.	30	0.32	10%	1425.6	$208.14	$160.00	$160.00	0.04	158.4	$23.13	6.92
221.11	19 Office	2600	1	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.058	150.8	$22.02	1	0	No Change	58	0.06	0%	150.8	$22.02	$0.00	$0.00	0.00	0	$0.00	0.00
31		2600	1	1	Recessed Down Light, 90w R40 Lamp	90	0.09	234	$34.16	1	0	No Change	90	0.09	0%	234	$34.16	$0.00	$0.00	0.00	0	$0.00	0.00
222.14	07 Robotics	2600	30	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Indirect	58	1.74	4524	$660.50	30	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	1.57	10%	4071.6	$594.45	$225.00	$225.00	0.17	452.4	$66.05	3.41
222.14	09 Metal Shop	2600	48	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Indirect	58	2.784	7238.4	$1,056.81	48	2	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	2.51	10%	6514.56	$951.13	$225.00	$450.00	0.28	723.84	$105.68	4.26
221.41	05 Girl's Restroom	3200	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.116	371.2	$54.20	2	1	Dual Technology Occupancy Sensor - Remote Mnt.	58	0.10	10%	334.08	$48.78	$160.00	$160.00	0.01	37.12	$5.42	29.52
31		3200	2	1	Recessed Down Light, 90w R40 Lamp	90	0.18	576	$84.10	2	0	No Change	90	0.18	0%	576	$84.10	$0.00	$0.00	0.00	0	$0.00	0.00
221.41	Boy's Restroom	3200	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Wall Mnt., Prismatic	58	0.116	371.2	$54.20	2	0	Dual Technology Occupancy Sensor - Remote Mnt.	58	0.10	10%	334.08	$48.78	$160.00	$0.00	0.01	37.12	$5.42	0.00
31		3200	4	1	Recessed Down Light, 90w R40 Lamp	90	0.36	1152	$168.19	4	0	No Change	90	0.36	0%	1152	$168.19	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Classroom	2600	20	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.16	3016	$440.34	20	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	1.04	10%	2714.4	$396.30	$225.00	$225.00	0.12	301.6	$44.03	5.11
31		2600	4	1	Recessed Down Light, 90w R40 Lamp	90	0.36	936	$136.66	4	0	No Change	90	0.36	0%	936	$136.66	$0.00	$0.00	0.00	0	$0.00	0.00
221.14	11 Classroom	2600	22	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., No Lens	58	1.276	3317.6	$484.37	22	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	1.15	10%	2985.84	$435.93	$225.00	$225.00	0.13	331.76	$48.44	4.65
221.14	13 Classroom	2600	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., No Lens	58	0.116	301.6	$44.03	2	1	Dual Technology Occupancy Sensor - Switch Mnt.	58	0.10	10%	271.44	$39.63	$75.00	$75.00	0.01	30.16	$4.40	17.03
221.14	13 Office	2600	2	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., No Lens	58	0.116	301.6	$44.03	2	1	Dual Technology Occupancy Sensor - Switch Mnt.	58	0.10	10%	271.44	$39.63	$75.00	$75.00	0.01	30.16	$4.40	17.03
231.33	29 Classroom	2600	27	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	2.322	6037.2	$881.43	27	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	86	2.09	10%	5433.48	$793.29	$225.00	$225.00	0.23	603.72	$88.14	2.55
222.21	34 Classroom	2600	18	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.044	2714.4	$396.30	18	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	0.94	10%	2442.96	$356.67	$225.00	$225.00	0.10	271.44	$39.63	5.68

222.21	36 Classroom	2600	22	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.276	3317.6	$484.37	22	1	2 Pole Power Pack w/Dual Tech. Occupancy Sensor (Sensorswitch or equal)	58	1.15	10%	2985.84	$435.93	$225.00	$225.00	0.13	331.76	$48.44	4.65
222.21	Basement Corridor	4400	18	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	1.044	4593.6	$670.67	18	0	No Change	58	1.04	0%	4593.6	$670.67	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	32 Utility Room	1200	3	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.174	208.8	$30.48	3	1	Dual Technology Occupancy Sensor - Switch Mnt.	58	0.16	10%	187.92	$27.44	$75.00	$75.00	0.02	20.88	$3.05	24.60
221.11	Boy's Restroom	3200	6	2	1x4, 2 Lamp, 32w T8, Elect. Ballast, Surface Mnt., Prismatic Lens	58	0.348	1113.6	$162.59	6	1	Dual Technology Occupancy Sensor - Remote Mnt.	58	0.31	10%	1002.24	$146.33	$160.00	$160.00	0.03	111.36	$16.26	9.84
231.33	10 Classroom	2600	14	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.204	3130.4	$457.04	14	0	No Change	86	1.20	0%	3130.4	$457.04	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	11 Classroom	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.032	2683.2	$391.75	12	0	No Change	86	1.03	0%	2683.2	$391.75	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	12 Classroom	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.032	2683.2	$391.75	12	0	No Change	86	1.03	0%	2683.2	$391.75	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	13 Classroom	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.032	2683.2	$391.75	12	0	No Change	86	1.03	0%	2683.2	$391.75	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	14 Classroom	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.032	2683.2	$391.75	12	0	No Change	86	1.03	0%	2683.2	$391.75	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	15 Classroom	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.032	2683.2	$391.75	12	0	No Change	86	1.03	0%	2683.2	$391.75	$0.00	$0.00	0.00	0	$0.00	0.00
231.33	16 Classroom	2600	12	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Pendant Mnt., Direct/ Indirect	86	1.032	2683.2	$391.75	12	0	No Change	86	1.03	0%	2683.2	$391.75	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Boy's Restroom	3200	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.116	371.2	$54.20	2	0	No Change	58	0.12	0%	371.2	$54.20	$0.00	$0.00	0.00	0	$0.00	0.00
222.21	Girl's Restroom	3200	2	2	2x4, 2 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	58	0.116	371.2	$54.20	2	0	No Change	58	0.12	0%	371.2	$54.20	$0.00	$0.00	0.00	0	$0.00	0.00
284.25	Auditorium Lobby	4400	12	8	4x4, 8 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., White Diffuser	208	2.496	10982.4	$1,603.43	12	0	No Change	208	2.50	0%	10982.4	$1,603.43	$0.00	$0.00	0.00	0	$0.00	0.00
714		4400	5	1	100w MH Pulse Start, Uplight	118	0.59	2596	$379.02	5	0	No Change	118	0.59	0%	2596	$379.02	$0.00	$0.00	0.00	0	$0.00	0.00
	Totals		2,784	773			219.9	649,254.6	$94,791	2,784	132			210.8		623,637.8	$91,051.12		$19,745	9.14	25,617	$3,740	5.28

Project Name: LGEA Solar PV Project -Mt Olive High School
Location: Flanders, NJ
Description: Photovoltaic System - Direct Purchase

Simple Payback Analysis

	Photovoltaic System - Direct Purchase
Total Construction Cost	$3,249,900
Annual kWh Production	448,702
Annual Energy Cost Reduction	$65,510
Annual SREC Revenue	$157,046
First Cost Premium	**$3,249,900**
Simple Payback:	**14.60** **Years**

Life Cycle Cost Analysis

Analysis Period (years):	25	Financing %:	0%
Financing Term (mths):	0	Maintenance Escalation Rate:	3.0%
Average Energy Cost ($/kWh)	**$0.146**	Energy Cost Escalation Rate:	3.0%
Financing Rate:	0.00%	SREC Value ($/kWh)	$0.350

Period	Additional Cash Outlay	Energy kWh Production	Energy Cost Savings	Additional Maint Costs	SREC Revenue	Net Cash Flow	Cumulative Cash Flow
0	$3,249,900	0	0	0	$0	(3,249,900)	0
1	$0	448,702	$65,510	$0	$157,046	$222,556	($3,027,344)
2	$0	446,458	$67,476	$0	$156,260	$223,736	($2,803,608)
3	$0	444,226	$69,500	$0	$155,479	$224,979	($2,578,628)
4	$0	442,005	$71,585	$0	$154,702	$226,287	($2,352,341)
5	$0	439,795	$73,733	$4,530	$153,928	$223,131	($2,129,210)
6	$0	437,596	$75,945	$4,507	$153,159	$224,596	($1,904,614)
7	$0	435,408	$78,223	$4,485	$152,393	$226,131	($1,678,483)
8	$0	433,231	$80,570	$4,462	$151,631	$227,738	($1,450,745)
9	$0	431,065	$82,987	$4,440	$150,873	$229,419	($1,221,326)
10	$0	428,910	$85,476	$4,418	$150,118	$231,177	($990,149)
11	$0	426,765	$88,041	$4,396	$149,368	$233,013	($757,136)
12	$0	424,631	$90,682	$4,374	$148,621	$234,929	($522,207)
13	$0	422,508	$93,402	$4,352	$147,878	$236,928	($285,279)
14	$0	420,395	$96,204	$4,330	$147,138	$239,013	($46,266)
15	$0	418,294	$99,090	$4,308	$146,403	$241,185	$194,919
16	$0	416,202	$102,063	$4,287	$145,671	$243,447	$438,366
17	$0	414,121	$105,125	$4,265	$144,942	$245,802	$684,168
18	$0	412,050	$108,279	$4,244	$144,218	$248,252	$932,420
19	$0	409,990	$111,527	$4,223	$143,497	$250,801	$1,183,221
20	$0	407,940	$114,873	$4,202	$142,779	$253,450	$1,436,672
21	$1	405,901	$118,319	$4,181	$142,065	$256,204	$1,692,875
22	$2	403,871	$121,869	$4,160	$141,355	$259,064	$1,951,939
23	$3	401,852	$125,525	$4,139	$140,648	$262,034	$2,213,973
24	$4	399,842	$129,291	$4,118	$139,945	$265,117	$2,479,090
25	$5	397,843	$133,169	$4,098	$139,245	$268,317	$2,747,407
	Totals:	10,569,603	$2,388,464	$90,519	$3,699,361	$5,997,307	($5,792,287)
				Net Present Value (NPV)		**$2,747,432**	
				Internal Rate of Return (IRR)		**5.2%**	

Building	Roof Area (sq ft)	Panel	Qty	Panel Sq Ft	Panel Total Sq Ft	Total KW_{DC}	Total Annual kWh	Panel Weight (33 lbs)	W/SQFT
Mount Olive High School	25650	Sunpower SPR230	1570	14.7	23,085	361.10	448,702	51,810	15.64

PVWatts

AC Energy & Cost Savings

Cautions for Interpreting the Results

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

Station Identification	
City:	Atlantic_City
State:	New_Jersey
Latitude:	39.45° N
Longitude:	74.57° W
Elevation:	20 m
PV System Specifications	
DC Rating:	361.1 kW
DC to AC Derate Factor:	0.800
AC Rating:	288.9 kW
Array Type:	Fixed Tilt
Array Tilt:	15.0°
Array Azimuth:	180.0°
Energy Specifications	
Cost of Electricity:	0.1 ¢/kWh

Results			
Month	Solar Radiation (kWh/m²/day)	AC Energy (kWh)	Energy Value ($)
1	2.80	25466	36.93
2	3.53	29157	42.28
3	4.46	39481	57.25
4	5.28	44119	63.97
5	5.86	49722	72.10
6	6.10	48102	69.75
7	6.05	48781	70.73
8	5.60	45291	65.67
9	4.99	39706	57.57
10	3.97	33349	48.36
11	2.86	24102	34.95
12	2.43	21426	31.07
Year	4.50	448702	650.62

.= Proposed PV Layout

Notes:

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

Solar Thermal Calculations

Concord Engineering Group

Mt. Olive High School

SOLAR THERMAL SYSTEM CALCULATIONS (FLAT PLATE COLLECTORS)

Solar Thermal Panel SF:	2,544
Solar Panel Qty:	53
Panel Direction:	180° (South)
Tilt Angle (degree from horizontal):	40.7°
Ave Solar Thermal Operating Temperature:	90
Panel Area (SF per panel):	48

*Solar Panel Efficiencies are based on Viesmann Flat Plate collector model VITOSOL 200F

Month	AMB T	AVE ΔT	SOLAR RADIATION			DHW PRODUCTION		
	(°F)	(°F)	KWH/M^2/Day	KWH/SF/Day	Panel Eff.	Net KWH/SF/Day	Net KWH	Net kBtu
1	30	60	3.36	0.312	41.0%	0.128	9,910	33,833
2	30	60	4.05	0.376	41.0%	0.154	11,945	40,781
3	40	50	4.58	0.425	46.7%	0.199	15,376	52,492
4	50	40	4.84	0.450	52.3%	0.235	18,221	62,208
5	60	30	5.3	0.492	58.0%	0.286	22,114	75,496
6	70	20	5.33	0.495	63.7%	0.315	24,412	83,341
7	80	10	5.27	0.490	69.3%	0.339	26,285	89,737
8	85	5	5.25	0.488	72.2%	0.352	27,255	93,050
9	75	15	5.06	0.470	66.5%	0.313	24,206	82,640
10	65	25	4.46	0.414	60.8%	0.252	19,518	66,634
11	50	40	3.15	0.293	52.3%	0.153	11,859	40,487
12	40	50	2.87	0.267	46.7%	0.124	9,635	32,894
TOTALS							**220,736**	**753,594**
AVERAGE			**4.46**	**0.414**		**0.238**	**18,395**	**62,800**

Notes: Solar radiation values obtained from National Renewable Energy Laboratory PVWatts Version 1 Calculator Program

Solar Thermal System Panel Layout

Building	Roof Area (sq ft)	Panel	Qty	Panel Sq Ft	Panel Total Sq Ft	Average kWh (heat)	Total Annual kWh (heat)	Average kBtu (heat)	Total Annual kBtu (heat)
Mt. Olive Middle School	2,544	Viesmann Flat Plate (VITOSOL 200F)	53	48.0	2,544	18,395	220,736	62,800	753,594

.= Proposed Solar Thermal Layout

Notes:
1. Estimated production based on the National Renewable Energy Laboratory PVWatts Version 1 Calculator Program.