

**MONTGOMERY TOWNSHIP SCHOOLS**

**MONTGOMERY HIGH SCHOOL & BOARD OF  
EDUCATION ADMINISTRATION BUILDING**

**1014-1016 ROUTE 601  
SKILLMAN, NJ 08558**

**FACILITY ENERGY REPORT**

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**I. HISTORIC ENERGY CONSUMPTION/COST**

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.

Electric Utility Provider:	Public Service Electric & Gas
Electric Utility Rate Structure:	Large Power & Lighting (LPLP)
Third Party Supplier:	South Jersey Energy Company

Natural Gas Utility Provider:	Public Service Electric & Gas
Utility Rate Structure:	Large Volume Gas (LVG)
Third Party Supplier:	Hess

The electric usage profile represents the actual electrical usage for the facility. 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.

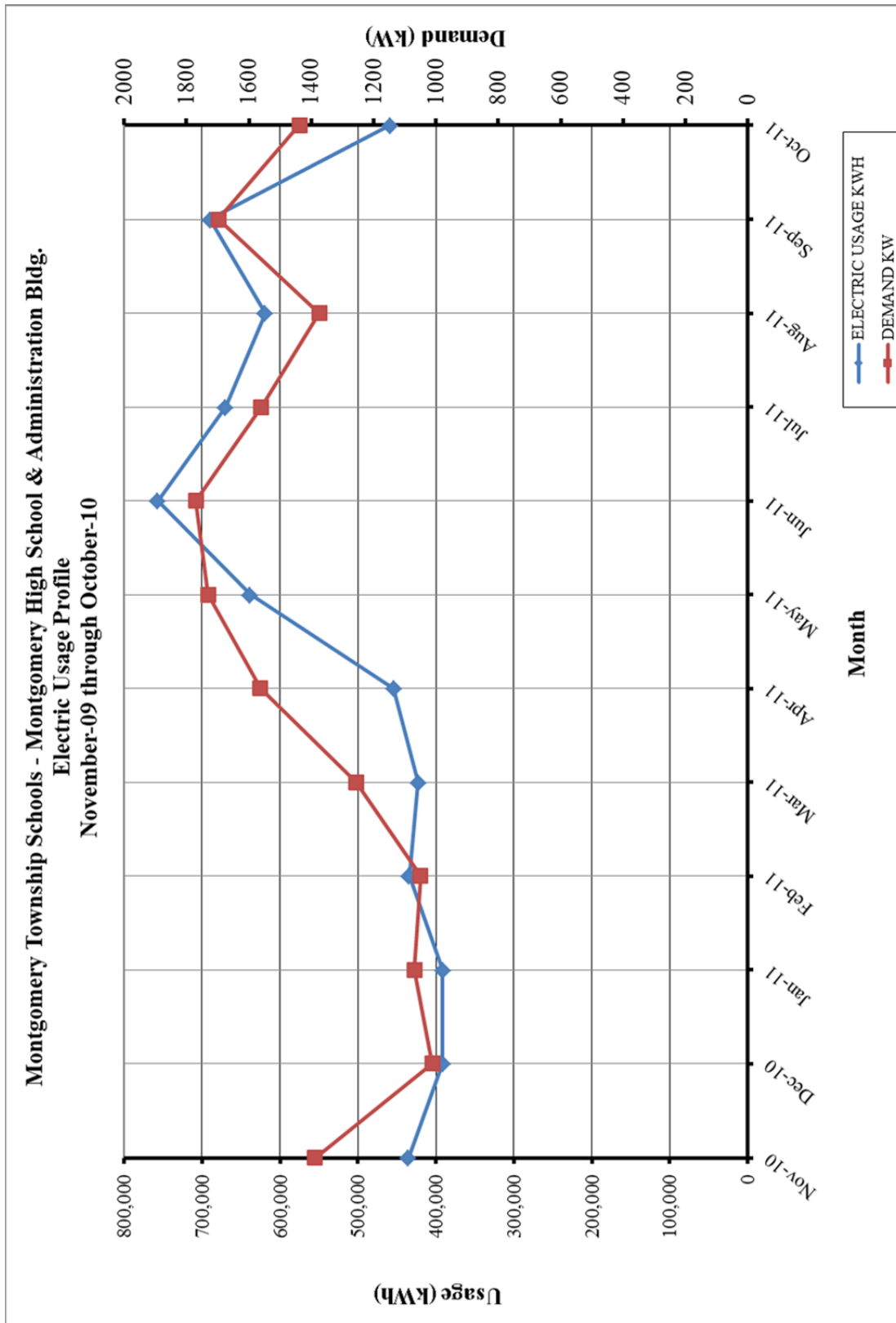
The gas usage profile within each facility report shows the actual natural gas energy usage for the facility. The gas utility measures consumption in cubic feet x 100 (CCF), and converts the quantity into Therms of energy. One Therm is equivalent to 100,000 BTUs of energy.

**Table 1**  
**Electricity Billing Data**

<b>ELECTRIC USAGE SUMMARY</b>			
Utility Provider: PSE&G Rate: LPLP Meter No: 758000411 Account # 42 010 104 06 Third Party Utility Provider: South Jersey Energy Company TPS Meter / Acct No:			
<b>MONTH OF USE</b>	<b>CONSUMPTION KWH</b>	<b>DEMAND KW</b>	<b>TOTAL BILL</b>
Nov-10	435,469	1388.5	\$49,111
Dec-10	391,752	1011.4	\$43,663
Jan-11	391,333	1069.3	\$43,049
Feb-11	434,532	1049.2	\$47,535
Mar-11	422,644	1257.5	\$50,339
Apr-11	454,074	1564.1	\$51,497
May-11	638,524	1731.2	\$87,135
Jun-11	757,365	1769.9	\$100,272
Jul-11	669,832	1560.7	\$88,890
Aug-11	619,581	1374.2	\$81,656
Sep-11	689,718	1698.5	\$70,601
Oct-11	458,802	1438.1	\$46,112
<b>Totals</b>	<b>6,363,626</b>	<b>1769.9 Max</b>	<b>\$759,860</b>
<b>AVERAGE DEMAND      1409.4 KW average</b> <b>AVERAGE RATE      \$0.119 \$/kWh</b>			

**Note:** Solar panel power production for Montgomery High School and Administration Building began on 9/21/2011, therefore monthly billing during September and October 2011 has a blended rate reflecting the electric purchased via the Solar PPA and that from the utility.

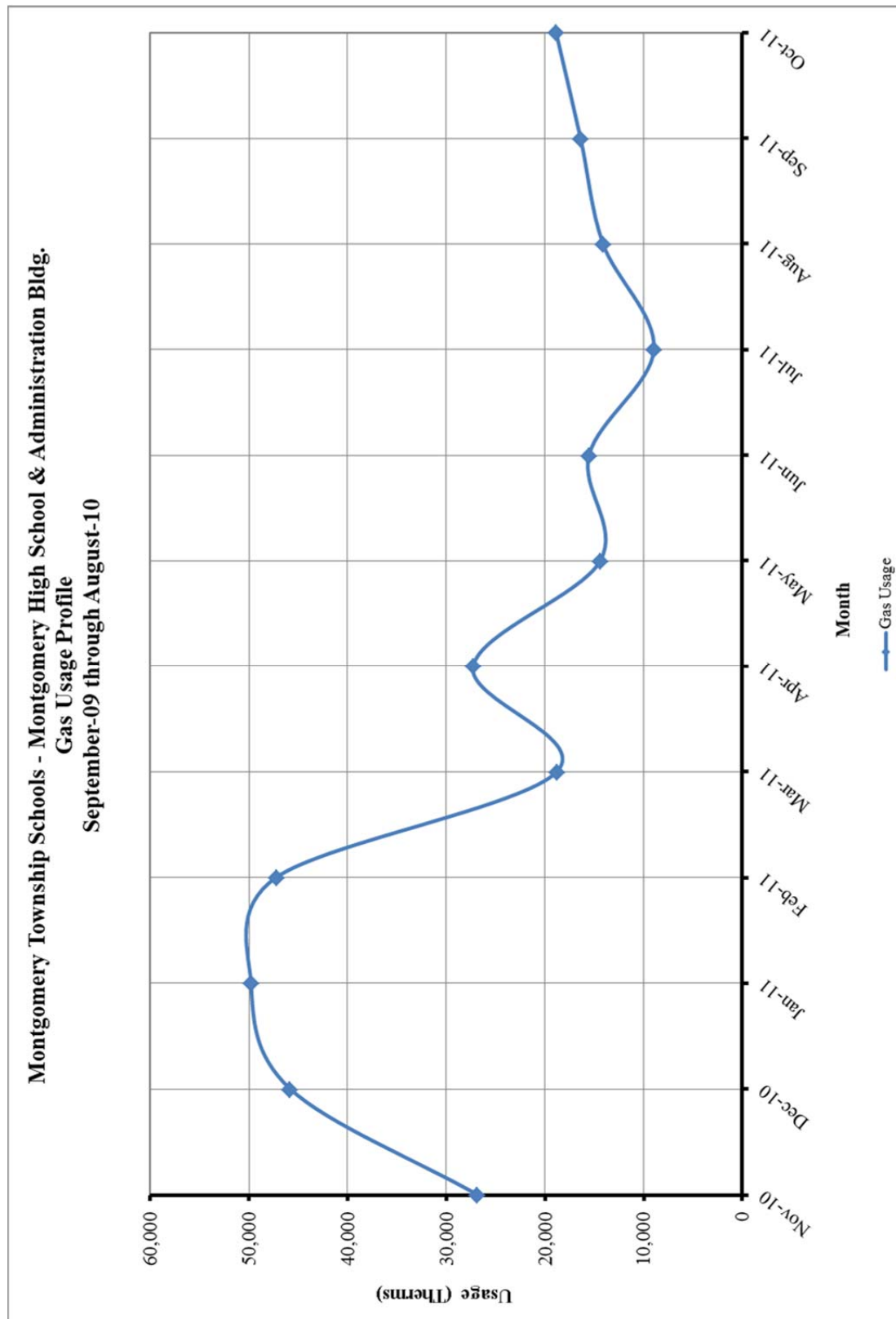
**Figure 1**  
**Electricity Usage Profile**



**Table 4**  
**Natural Gas Billing Data**

<b>NATURAL GAS USAGE SUMMARY</b>		
Utility Provider: PSE&G Rate: LVG Meter No: 3166165 / 2599853 Account Number 4201010406 & 6620956602 Third Party Utility Provider: Hess TPS Meter No: 359646/564705		
<b>MONTH OF USE</b>	<b>CONSUMPTION (THERMS)</b>	<b>TOTAL BILL</b>
Nov-10	26,835.40	\$26,459.25
Dec-10	45,831.69	\$42,685.67
Jan-11	49,799.00	\$46,701.15
Feb-11	47,232.63	\$44,721.63
Mar-11	18,787.51	\$13,987.58
Apr-11	27,305.38	\$19,892.31
May-11	14,404.84	\$10,244.58
Jun-11	15,538.84	\$10,976.87
Jul-11	8,974.00	\$6,494.79
Aug-11	14,141.00	\$9,955.03
Sep-11	16,413.52	\$10,746.77
Oct-11	18,890.00	\$19,344.58
<b>TOTALS</b>	<b>304,153.79</b>	<b>\$262,210.21</b>
<b>AVERAGE RATE:</b>	<b>\$0.86</b>	<b>\$/THERM</b>

**Figure 2**  
**Natural Gas Usage Profile**



## II. FACILITY DESCRIPTION

The Montgomery Township High School & Administration Building is located on 1014 Route 601 in Skillman, New Jersey. The Board of Education Administration building was built in 1966 and later renovated in 2004. In 2005, the High School construction was completed resulting in a 450,000 SF joint facility. The Administration portion of the facility contains mostly offices while the High School building consists of classrooms, laboratories, gymnasiums, an auditorium, cafeteria and pool.

### Occupancy Profile

Typical hours of operation for the Administration building are Monday through Friday from 8:00 am to 5:00 pm.

The typical hours of operation for the High School are Monday through Friday from 7:00 am to 2:30 pm for students but further occupancy occurs from 2:30 pm to 11:00 pm for cleaning. The High School also is occupied for long durations during Saturday and Sunday from approximately 9:00 am to 1:00 pm. The Administration Board Office employs 48 people and the High School employs approximately 190 people, with student enrollment estimated to be around 1,720.

### Building Envelope

Exterior walls for the High School facility are a red brick face with concrete block construction, while exterior walls for the Board Administration Offices are light brick face with concrete block construction. The amount of insulation within the walls is not known, but is assumed to be typical for the time period in which it was built. The windows throughout the School and Board offices are in good condition and appear to be well maintained. Typical windows throughout facility are double pane, 1/4" clear glass with aluminum frames and tinting on the large exposed window areas. Blinds are utilized throughout the office areas of the facility per occupant comfort. The blinds are beneficial because they help to reduce heat loss in the winter and reduce solar heat in the summer. The majority of the roof is a flat, built up rubber roof while some of the Board Administration Office roof contains sloped roof with shingles. The amount of insulation below the roofing is unknown.

### HVAC Systems

The majority of spaces within both the Board Office Administration building and the High School are served by packaged DX rooftop units and VAV boxes equipped with hot water heating coils.

There are two sets of boiler plants which serve the hot water the VAV coils throughout the building. There are two (2) Aerco Benchmark 2.0 boilers in mechanical room F-153B which serve the north end of the High School building and the Administration area. Additionally, there are ten (10) Benchmark 2.0 boilers in mechanical room H-104 which serve the remainder of the High School building. The boilers are gas-fired, hot water boilers, each with inputs of 2,000 MBH and outputs of approximately 1,800 MBH with an estimated efficiency of 88%. These boilers were installed for the buildings in 2005 during the Administration building renovation



and new construction of the High School. All the boilers are within their useful service life as defined by ASHRAE. Hot water is circulated throughout the building's heating hot water loop via four base mounted, end suction pumps. Two 10 HP pumps with variable speed drives are located in mechanical room F-153B. Two 60 HP pumps with variable speed drives are located in mechanical room H-104. All pump motors are high efficiency Baldor motors.

Cooling throughout the School and Administration building is provided by packaged rooftop units with R-22 DX coils manufactured by McQuay and Aeon. These rooftop units are single zone, variable volume rooftops which serve the variable air volume (VAV) system. These units are all in good condition and are well within their useful service life as defined by ASHRAE.

In addition to the air handling units, there are a total of sixteen split system air conditioning units that provide cooling. These units range in cooling capacity from 1 tons to 3 tons and all utilize R-22 refrigerant. These units were all built in 2005 and are within their ASHRAE useful service life.

The High School has a heated pool which is served by a rooftop dehumidification unit and a hot water boiler for pool heating. A Dectron RS-162 unit provides dehumidification to the pool area and is within its ASHRAE service life. A Lochinvar Copper Fin II is utilized for pool heating. Recently deteriorated coils for the boiler and have been replaced. The pool water circulates directly through the Lochinvar boiler, therefore the chemicals which are being used in the pool water are affecting the boiler's condition.

### Exhaust System

Air is exhausted from the toilet rooms through the roof mounted exhaust fans.

The science area, E-wing, contains exhaust hoods connected to Penn Ventilator fans.

### HVAC System Controls

The HVAC systems throughout the facility are controlled via DDC controls as manufactured by Johnson Controls. The building equipment operational status (on/off) and temperature set points are controlled through a central station terminal. Boilers are operated based on outside air temperature reset.

### Domestic Hot Water

Domestic hot water for the original building restrooms and kitchen is provided by five PVI "Power VT" domestic hot water heaters, located in the H-104 mechanical room. The water heaters have a storage capacity of 250 gallons, three water heaters have inputs of 1,000 MBH and two water heaters have inputs of 750 MBH.

### Lighting

Refer to the **Investment Grade Lighting Audit Appendix** for a detailed list of the lighting throughout the facility and estimated operating hours per space.

### III. 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 manufacture's 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.

#### IV. ENERGY CONSERVATION MEASURES

Energy Conservation Measures are developed specifically for this facility. The energy savings and calculations are highly dependent on the information received from the site survey and interviews with operations personnel. The assumptions and calculations should be reviewed by the owner to ensure accurate representation of this facility. The following ECMs were analyzed:

**Table 1**  
**ECM Financial Summary**

<b>ENERGY CONSERVATION MEASURES (ECM's)</b>					
<b>ECM NO.</b>	<b>DESCRIPTION</b>	<b>NET INSTALLATION COST<sup>A</sup></b>	<b>ANNUAL SAVINGS<sup>B</sup></b>	<b>SIMPLE PAYBACK (Yrs)</b>	<b>SIMPLE LIFETIME ROI</b>
ECM #1	Lighting Upgrade	\$1,650	\$338	4.9	207.3%
ECM #2	Gym & Pool Lighting Upgrade	\$22,200	\$7,546	2.9	409.9%
ECM #3	Daylighting Controls	\$1,200	\$316	3.8	295.0%
ECM #4	Electric DHW Replacement	\$10,602	\$2,787	3.8	215.4%
<b>Notes:</b>	A. Cost takes into consideration applicable NJ Smart Start <sup>TM</sup> incentives.				
	B. Savings takes into consideration applicable maintenance savings.				

**Table 2**  
**ECM Energy Summary**

ENERGY CONSERVATION MEASURES (ECM's)				
ECM NO.	DESCRIPTION	ANNUAL UTILITY REDUCTION		
		ELECTRIC DEMAND (KW)	ELECTRIC CONSUMPTION (KWH)	NATURAL GAS (THERMS)
ECM #1	Lighting Upgrade	1.30	2,840	0
ECM #2	Gym & Pool Lighting Upgrade	24.40	63,414	0
ECM #3	Daylighting Controls	1.02	2,658	0
ECM #4	Electric DHW Replacement	0.00	31,094	(1,061)

**Table 3**  
**Facility Project Summary**

<b>ENERGY SAVINGS IMPROVEMENT PROGRAM - POTENTIAL PROJECT</b>					
<b>ENERGY CONSERVATION MEASURES</b>	<b>ANNUAL ENERGY SAVINGS (\$)</b>	<b>PROJECT COST (\$)</b>	<b>SMART START INCENTIVES</b>	<b>CUSTOMER COST</b>	<b>SIMPLE PAYBACK</b>
Lighting Upgrade	\$338	\$1,650	\$0	\$1,650	4.9
Gym & Pool Lighting Upgrade	\$7,546	\$34,400	\$12,200	\$22,200	2.9
Daylighting Controls	\$316	\$1,200	\$0	\$1,200	3.8
Electric DHW Replacement	\$2,787	\$11,000	\$398	\$10,602	3.8
<i>Design / Construction Extras (15%)</i>		\$7,238		\$7,238	
<b>Total Project</b>	<b>\$10,987</b>	<b>\$55,488</b>	<b>\$12,598</b>	<b>\$42,890</b>	<b>3.9</b>

Design / Construction Extras is shown as an additional cost for the facility project summary. This cost is included to estimate the costs associated with construction management fees for a larger combined project.

## **ECM #1: Lighting Upgrade – General**

### **Description:**

The majority of the interior lighting throughout Montgomery High School and Administration Building is provided with fluorescent fixtures with newer generation, 800 series 32W T8 lamps and electronic ballasts. Areas such as the library and kitchen maintain a few incandescent lighting fixtures which should be replaced. CE recommends replacing these incandescent fixtures with LED and CFL technology.

The ECM includes replacement of any incandescent lamps with LED and compact fluorescent lamps. Self-contained LED fixtures with dimmable power supplies provide controllable light with four times less energy use. LED bulbs are available in a variety of temperatures to produce different light colors. In addition to the energy savings, dimmable LED bulbs burn-hours are approximately 24 times longer than incandescent fixtures. In addition, 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.

**Energy Savings Summary:**

<b>ECM #1 - ENERGY SAVINGS SUMMARY</b>	
<b>Installation Cost (\$):</b>	\$1,650
<b>NJ Smart Start Equipment Incentive (\$):</b>	\$0
<b>Net Installation Cost (\$):</b>	\$1,650
<b>Maintenance Savings (\$/Yr):</b>	\$0
<b>Energy Savings (\$/Yr):</b>	\$338
<b>Total Yearly Savings (\$/Yr):</b>	\$338
<b>Estimated ECM Lifetime (Yr):</b>	15
<b>Simple Payback</b>	4.9
<b>Simple Lifetime ROI</b>	207.3%
<b>Simple Lifetime Maintenance Savings</b>	\$0
<b>Simple Lifetime Savings</b>	\$5,070
<b>Internal Rate of Return (IRR)</b>	19%
<b>Net Present Value (NPV)</b>	\$2,385.02

## **ECM #2: Lighting Upgrade – Gymnasium & Pool**

### **Description:**

The main gymnasium, auxiliary gymnasium and pool at High School are currently lit via one hundred twenty two HID, 400W, Metal Halide fixtures.

CE has completed an extensive amount of research to fully optimize the lighting efficiency and usage within these areas. Please refer to the detailed explanations for the below sections in regards to lighting replacements in the gym and pool areas.

### **Pool Area:**

The pool area provided a challenge on a number of fronts. Ideally the lighting system would be kept above the pool deck for maintenance. Glare on the water's surface is a concern and needs to be controlled as best as possible. The luminaires need to survive in a high abuse area where degradation from moisture and chemicals is likely. In addition, the existing lighting in this space is poor. In its current condition it can be improved upon by re-lamping the existing fixtures with new lamps. Metal Halide lamps degrade over time and although they remain lit, it's possible they are producing only 50% of their rated lumens if they are near the end of their life. The lighting in the pool area is set up as indirect. Indirect lighting relies on reflectance from surrounding surfaces to distribute the light throughout the space. Applying a reflective paint or providing a better reflective surface will improve foot candle levels at the water's surface.

We have recommended a T5HO fixture rated for this environment which we believe strikes the right balance in addressing the above mentioned issues. The T5s provide the fastest payback out of all the systems we investigated. You can see the comparisons of this system and the others in the attached Appendix E Comparisons.

### **Main Gymnasium Area:**

In comparing lighting options for this area we looked at various technologies including induction, LED, and T5HO luminaires as seen in the attached Appendix E Comparisons. In order to maintain current foot candle levels we have recommended a one for one replacement of the Metal Halide fixtures with a T5HO hi-bay fixture. Another option that would provide considerable savings but was not recommended is the induction light ECM. Reducing the quantity of fixtures in the gym to 42 from the current total of 70 and utilizing the 250w Induction fixtures would provide an average foot candle level that exceeds current minimum lumen requirements but is less than existing levels. The T5 upgrade matches the Metal Halide output and will produce more than double the output of the induction fixtures when properly maintained.

### **Aux Gymnasium Area:**

The Aux Gym has the same characteristics as the Main Gym. We compared the LED, induction lighting and T5 technologies for this space and recommend the T5HO hi-bay because of the lower costs and improved lumen output of the T5 luminaires.



**Energy Savings Calculations:**

A detailed Investment Grade Lighting Audit can be found in **Investment Grade Lighting Audit Appendix** that outlines the proposed retrofits, costs, savings, and payback periods.

From the **Smart Start Incentive Appendix**, the replacement of a 400 W HID fixture to a T-5 or T-8 fixture warrants the following incentive: \$100 per fixture.

**Energy Savings Summary:**

<b>ECM #2 - ENERGY SAVINGS SUMMARY</b>	
<b>Installation Cost (\$):</b>	\$34,400
<b>NJ Smart Start Equipment Incentive (\$):</b>	\$12,200
<b>Net Installation Cost (\$):</b>	\$22,200
<b>Maintenance Savings (\$/Yr):</b>	\$0
<b>Energy Savings (\$/Yr):</b>	\$7,546
<b>Total Yearly Savings (\$/Yr):</b>	\$7,546
<b>Estimated ECM Lifetime (Yr):</b>	15
<b>Simple Payback</b>	2.9
<b>Simple Lifetime ROI</b>	409.9%
<b>Simple Lifetime Maintenance Savings</b>	\$0
<b>Simple Lifetime Savings</b>	\$113,190
<b>Internal Rate of Return (IRR)</b>	34%
<b>Net Present Value (NPV)</b>	\$67,883.66

## ECM #3: Lighting Controls Upgrade – Daylight Sensors

### Description:

Most of the lights in the High School are controlled via lighting controls, although there are locations, such as the library and commons area, that could benefit from daylight controls.

Lighting controls come in many forms. Sometimes an additional switch is adequate to provide reduced lighting levels when full light output is not needed. Daylight sensors control an area that is subject to a large amount of natural light which, when detected, reduces the use of artificial lighting with electric lamps in building, in order to reduce energy consumption

A report by the EPA (2001) suggests that daylit offices can achieve up to 35%-40% savings, and that other daylit spaces (classrooms, grocery stores, and retail outlets) can achieve 40%-60% savings. Clearly, these savings apply only to perimeter or sky-lit portions of a building's floor space and the percentage of national commercial building floorspace with sufficient levels of daylight to apply automatic daylight dimming is not known.

Savings resulting from the implementation of this ECM for energy management controls are estimated to be 40% of the total light energy controlled by daylight sensors.

This ECM includes installation of ceiling mount sensors for the library and common area. 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:

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

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

### Rebates and Incentives:

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

**Smart Start Incentive**

$$\begin{aligned} &= (\# \text{ Wall mount sensors} \times \$20 \text{ per sensor}) \\ &+ (\# \text{ Ceiling mount sensors} \times \$35 \text{ per sensor}) \end{aligned}$$

**Energy Savings Summary:**

<b>ECM #3 - ENERGY SAVINGS SUMMARY</b>	
<b>Installation Cost (\$):</b>	\$1,200
<b>NJ Smart Start Equipment Incentive (\$):</b>	\$0
<b>Net Installation Cost (\$):</b>	\$1,200
<b>Maintenance Savings (\$/Yr):</b>	\$0
<b>Energy Savings (\$/Yr):</b>	\$316
<b>Total Yearly Savings (\$/Yr):</b>	\$316
<b>Estimated ECM Lifetime (Yr):</b>	15
<b>Simple Payback</b>	3.8
<b>Simple Lifetime ROI</b>	295.0%
<b>Simple Lifetime Maintenance Savings</b>	\$0
<b>Simple Lifetime Savings</b>	\$4,740
<b>Internal Rate of Return (IRR)</b>	25%
<b>Net Present Value (NPV)</b>	\$2,572.39

**ECM #4: High Efficiency Gas Fired Hot Water Heater****Description:**

The Administration Building and part of the High School is served by an existing electric hot water heater which is located in the 153B mechanical room. The heater is nearing its useful life and could be replaced with a much more efficient, gas fired hot water heating systems.

This ECM will replace the electric domestic water heaters with a 98.5% thermal efficient Bradford White eF Series Natural Gas fired 199 MBH and 100 gallons of storage domestic water heater.

**Energy Savings Calculations:**

CONDENSING DOM. HOT WATER HEATER CALCULATIONS			
ECM INPUTS	EXISTING	PROPOSED	SAVINGS
ECM INPUTS	Existing Hot Water Heaters	High Efficiency Heater	
Building Type	Education		
Building Square-foot	20,000	20,000	
Domestic Water Usage, kBtu	104,000.00	104,000.00	
DHW Heating Fuel Type	Electric	Gas	
Heating Efficiency	98%	98%	0%
Total Usage (kBtu)	106,122	106,122	0
Electric Cost (\$/kWh)	\$ 0.119	\$ 0.119	
Nat Gas Cost (\$/Therm)	\$ 0.860	\$ 0.860	
ENERGY SAVINGS CALCULATIONS			
ECM RESULTS	EXISTING	PROPOSED	SAVINGS
Electric Usage (kWh)	31,094	0	31,094
Natural Gas Usage (Therms)	0	1,061	-1,061
Energy Cost (\$)	\$3,700	\$913	\$2,787
COMMENTS:	Savings are based on Energy Information Administration Commercial Building Energy Consumption Survey 2003 Information		

Energy Density for “Education” type building = 5.2 kBtu / SF / year

$$DHW \text{ Heat Usage} = \text{Energy Density} \left( \frac{\text{kBtu yr}}{\text{SF}} \right) \times \text{Building Square Footage (SF)}$$

$$DHW \text{ Total Usage} = \frac{\text{Dom HW Heat Cons. (Btu)}}{\text{Heating Eff. (\%)} \times \text{Fuel Heat Value} \left( \frac{\text{BTU}}{\text{Fuel Unit}} \right)}$$

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

**Energy Savings Summary:**

<b>ECM #4 - ENERGY SAVINGS SUMMARY</b>	
<b>Installation Cost (\$):</b>	\$11,000
<b>NJ Smart Start Equipment Incentive (\$):</b>	\$398
<b>Net Installation Cost (\$):</b>	\$10,602
<b>Maintenance Savings (\$/Yr):</b>	\$0
<b>Energy Savings (\$/Yr):</b>	\$2,787
<b>Total Yearly Savings (\$/Yr):</b>	\$2,787
<b>Estimated ECM Lifetime (Yr):</b>	12
<b>Simple Payback</b>	3.8
<b>Simple Lifetime ROI</b>	215.4%
<b>Simple Lifetime Maintenance Savings</b>	\$0
<b>Simple Lifetime Savings</b>	\$33,444
<b>Internal Rate of Return (IRR)</b>	24%
<b>Net Present Value (NPV)</b>	\$17,139.81

## V. 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. Turn off computers when not in use. Ensure computers are not running in screen saver mode which saves the monitor screen not energy.
- F. Ensure outside air dampers are functioning properly and only open during occupied mode.
- G. Retro – Commissioning (RCx) is recommended to optimize energy usage throughout the High School. Montgomery Township High School is modern facility with sophisticated HVAC and controls systems that interact with minimum human interface. If one or several elements of this interactive chain are out of calibration, energy conservation and comfort are compromised. The RCx process systematically analyzes and fine tunes an existing building's individual systems as well as operation and maintenance procedures. Although RCx cannot fix all deficiencies inherent to the original design, it can often resolve problems that have developed since the building has initially been put into operation.

The process would begin with review of all available documentation including as-built drawings and specs, TAB report, control drawings, points lists, maintenance records and recent repairs. These documents would be used to develop the diagnostic and functional test plans that will be required to verify the installed equipment performance.

Once a plan is in place, “hands on” testing of equipment and systems take place to get an accurate baseline. Problems are identified and specific solutions that make the School operate more efficiently and effectively are recommended.

## **APPENDIX A**



**ECM COST & SAVINGS BREAKDOWN**

CONCORD ENGINEERING GROUP

Montgomery Township BOE - High School & Administration Building

ECM ENERGY AND FINANCIAL COSTS AND SAVINGS SUMMARY															
ECM NO.	DESCRIPTION	INSTALLATION COST				YEARLY SAVINGS			ECM LIFETIME	LIFETIME ENERGY SAVINGS	LIFETIME MAINTENANCE SAVINGS	LIFETIME ROI	SIMPLE PAYBACK	INTERNAL RATE OF RETURN	NET PRESENT VALUE
		MATERIAL	LABOR	REBATES, INCENTIVES	NET INSTALLATION COST	ENERGY	MAINT. / SREC	TOTAL		(Yearly Saving * ECM Lifetime)	(Yearly Maint Saving * 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)	(\$)	(\$)
ECM #1	Lighting Upgrade	\$1,650	\$0	\$0	\$1,650	\$338	\$0	\$338	15	\$5,070	\$0	207.3%	4.9	18.97%	\$2,385.02
ECM #2	Gym & Pool Lighting Upgrade	\$34,400	\$0	\$12,200	\$22,200	\$7,546	\$0	\$7,546	15	\$113,190	\$0	409.9%	2.9	33.55%	\$67,883.66
ECM #3	Daylighting Controls	\$1,200	\$0	\$0	\$1,200	\$316	\$0	\$316	15	\$4,740	\$0	295.0%	3.8	25.46%	\$2,572.39
ECM #4	Electric DHW Replacement	\$5,000	\$6,000	\$398	\$10,602	\$2,787	\$0	\$2,787	12	\$33,444	\$0	215.4%	3.8	24.37%	\$17,139.81

**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*.

## **APPENDIX B**

# 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 15, 2011:

### **Electric Chillers**

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

Energy Efficiency must comply with ASHRAE 90.1-2007

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

Energy Efficiency must comply with ASHRAE 90.1-2007

### **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%

### Ground Source Heat Pumps

Closed Loop	\$450 per ton, EER $\geq$ 16 \$600 per ton, EER $\geq$ 18 \$750 per ton, EER $\geq$ 20
-------------	--

Energy Efficiency must comply with ASHRAE 90.1-2007

### Variable Frequency Drives

Variable Air Volume	\$65 - \$155 per hp
Chilled-Water Pumps	\$60 per VFD rated hp
Compressors	\$5,250 to \$12,500 per drive
Cooling Towers $\geq$ 10 hp	\$60 per VFD rated hp

### Natural Gas Water Heating

Gas Water Heaters $\leq$ 50 gallons, 0.67 energy factor or better	\$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 (1-4 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 Including Parking Lot	\$25 per fixture
T-5 and T-8 High Bay Fixtures	\$16 - \$200 per fixture
HID $\geq$ 100w Retrofit with induction lamp, power coupler and generator (must be 30% less watts/fixture than HID system)	\$50 per fixture
HID $\geq$ 100w Replacement with new HID $\geq$ 100w	\$70 per fixture

### Prescriptive Lighting - LED

LED New Exit Sign Fixture	
Existing Facility < 75 kw	\$20 per fixture
Existing Facility > 75 kw	\$10 per fixture
LED Display Case Lighting	\$30 per display case
LED Shelf-Mtd. Display & Task Lights	\$15 per linear foot
LED Portable Desk Lamp	\$20 per fixture
LED Wall-wash Lights	\$30 per fixture
LED Recessed Down Lights	\$35 per fixture
LED Outdoor Pole/Arm-Mounted Area and Roadway Luminaries	\$175 per fixture
LED Outdoor Pole/Arm-Mounted Decorative Luminaries	\$175 per fixture
LED Outdoor Wall-Mounted Area Luminaries	\$100 per fixture
LED Parking Garage Luminaries	\$100 per fixture
LED Track or Mono-Point Directional Lighting Fixtures	\$50 per fixture
LED High-Bay and Low-Bay Fixtures for Commercial & Industrial Bldgs.	\$150 per fixture
LED High-Bay-Aisle Lighting	\$150 per fixture
LED Bollard Fixtures	\$50 per fixture
LED Linear Panels (2x2 Troffers only)	\$100 per fixture
LED Fuel Pump Canopy	\$100 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- 2007 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%

## **APPENDIX C**



# STATEMENT OF ENERGY PERFORMANCE

## Montgomery High School

Building ID: 1498322

For 12-month Period Ending: December 31, 2011<sup>1</sup>

Date SEP becomes ineligible: N/A

Date SEP Generated: February 16, 2012

**Facility**

Montgomery High School  
1016 Route 601  
Skillman, NJ 08558

**Facility Owner**

Montgomery Township BOE  
1014 Route 601  
Skillman, NJ 08558

**Primary Contact for this Facility**

Thomas Venanzi  
1014 Route 601  
Skillman, NJ 08558

Year Built: 2006

Gross Floor Area (ft<sup>2</sup>): 404,000Energy Performance Rating<sup>2</sup> (1-100) 24**Site Energy Use Summary<sup>3</sup>**

Electricity - Grid Purchase(kBtu)	20,647,637
Natural Gas (kBtu) <sup>4</sup>	29,648,110
Total Energy (kBtu)	50,295,747

**Energy Intensity<sup>4</sup>**

Site (kBtu/ft <sup>2</sup> /yr)	124
Source (kBtu/ft <sup>2</sup> /yr)	248

**Emissions (based on site energy use)**

Greenhouse Gas Emissions (MtCO <sub>2</sub> e/year)	4,501
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**Electric Distribution Utility**

Public Service Electric &amp; Gas Co

**National Median Comparison**

National Median Site EUI	100
National Median Source EUI	199
% Difference from National Median Source EUI	25%
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<sup>5</sup> for Indoor Environmental Conditions:**

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

**Certifying Professional**

John Marchiafava  
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. Values represent energy intensity, annualized to a 12-month period.
5. Based on Meeting ASHRAE Standard 62 for ventilation for acceptable indoor air quality, ASHRAE Standard 55 for thermal comfort, and IESNA Lighting Handbook for lighting quality.



## 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	<input checked="" type="checkbox"/>
<b>Building Name</b>	Montgomery High School	Is this the official building name to be displayed in the ENERGY STAR Registry of Labeled Buildings?		<input type="checkbox"/>
<b>Type</b>	K-12 School	Is this an accurate description of the space in question?		<input type="checkbox"/>
<b>Location</b>	1016 Route 601, Skillman, NJ 08558	Is this address accurate and complete? Correct weather normalization requires an accurate zip code.		<input type="checkbox"/>
<b>Single Structure</b>	Single Facility	Does this SEP represent a single structure? SEPs cannot be submitted for multiple-building campuses (with the exception of a hospital, k-12 school, hotel and senior care facility) nor can they be submitted as representing only a portion of a building.		<input type="checkbox"/>
Montgomery High School (K-12 School)				
CRITERION	VALUE AS ENTERED IN PORTFOLIO MANAGER	VERIFICATION QUESTIONS	NOTES	<input checked="" type="checkbox"/>
<b>Gross Floor Area</b>	404,000 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.		<input type="checkbox"/>
<b>Open Weekends?</b>	Yes	Is this building normally open at all on the weekends? This includes activities beyond the work conducted by maintenance, cleaning, and security personnel. Weekend activity could include any time when the space is used for classes, performances or other school or community activities. If the building is open on the weekend as part of the standard schedule during one or more seasons, the building should select ?yes? for open weekends. The ?yes? response should apply whether the building is open for one or both of the weekend days.		<input type="checkbox"/>
<b>Number of PCs</b>	367	Is this the number of personal computers in the K12 School?		<input type="checkbox"/>
<b>Number of walk-in refrigeration/freezer units</b>	2	Is this the total number of commercial walk-in type freezers and coolers? These units are typically found in storage and receiving areas.		<input type="checkbox"/>
<b>Presence of cooking facilities</b>	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".		<input type="checkbox"/>
<b>Percent Cooled</b>	100 %	Is this the percentage of the total floor space within the facility that is served by mechanical cooling equipment?		<input type="checkbox"/>
<b>Percent Heated</b>	100 %	Is this the percentage of the total floor space within the facility that is served by mechanical heating equipment?		<input type="checkbox"/>
<b>Months</b>	12(Optional)	Is this school in operation for at least 8 months of the year?		<input type="checkbox"/>

<b>High School?</b>	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'.	<input type="checkbox"/>
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(MHS) parking lot (Parking)

CRITERION	VALUE AS ENTERED IN PORTFOLIO MANAGER	VERIFICATION QUESTIONS	NOTES	<input checked="" type="checkbox"/>
<b>Gross Floor Area</b>	572,355 Sq. Ft.	Is this the total square footage of the entire parking area (enclosed + nonenclosed + open floor area)?		<input type="checkbox"/>
<b>Enclosed Floor Area</b>	0 Sq. Ft.	Is this the total square footage of the enclosed garage space? An enclosed garage is defined as having both sides and a roof.		<input type="checkbox"/>
<b>Non-Enclosed Floor Area (w/roof)</b>	0 Sq. Ft.	Is this the total square footage of the nonenclosed garage space? This is typically defined as the portion of the garage above ground (contains no sides but is under a roof).		<input type="checkbox"/>
<b>Open Floor Area (w/o roof)</b>	572,355 Sq. Ft.	Is this the total square footage of the nonenclosed parking area without a roof? This is typically defined as open parking lots or the very top level of an above ground parking garage.		<input type="checkbox"/>
<b>Weekly Hours of Access</b>	168 Hours	Is this the total number of hours per week when it is possible for a vehicle to enter or exit?		<input type="checkbox"/>

(MHS) Swimming pool (Swimming Pool)

CRITERION	VALUE AS ENTERED IN PORTFOLIO MANAGER	VERIFICATION QUESTIONS	NOTES	<input checked="" type="checkbox"/>
<b>Pool Size</b>	Recreational (20 yards x 15 yards)	Is this the correct size of the swimming pool?		<input type="checkbox"/>
<b>Indoor Outdoor</b>	Indoor	Is the pool located inside or outside the building?		<input type="checkbox"/>
<b>Months in Use</b>	12(Optional)	Is this the total months out of the year that the pool is open for use?		<input type="checkbox"/>

# ENERGY STAR® Data Checklist for Commercial Buildings

## Energy Consumption

**Power Generation Plant or Distribution Utility:** Public Service Electric & Gas Co

Fuel Type: Electricity		
<b>Meter: E-62-114-952-50 (kWh (thousand Watt-hours))</b> <b>Space(s):</b> Montgomery High School <b>Generation Method:</b> Grid Purchase		
Start Date	End Date	Energy Use (kWh (thousand Watt-hours))
11/08/2011	12/07/2011	369,313.00
10/08/2011	11/07/2011	364,931.00
09/08/2011	10/07/2011	579,817.00
08/08/2011	09/07/2011	619,581.00
07/08/2011	08/07/2011	669,832.00
06/08/2011	07/07/2011	757,365.00
05/08/2011	06/07/2011	638,524.00
04/08/2011	05/07/2011	438,243.00
03/08/2011	04/07/2011	438,244.00
02/08/2011	03/07/2011	434,532.00
01/08/2011	02/07/2011	391,333.00
<b>E-62-114-952-50 Consumption (kWh (thousand Watt-hours))</b>		<b>5,701,715.00</b>
<b>E-62-114-952-50 Consumption (kBtu (thousand Btu))</b>		<b>19,454,251.58</b>
<b>Total Electricity (Grid Purchase) Consumption (kBtu (thousand Btu))</b>		<b>19,454,251.58</b>
Is this the total Electricity (Grid Purchase) consumption at this building including all Electricity meters?		<input type="checkbox"/>
Fuel Type: Natural Gas		
<b>Meter: G-62-114-952-50 (therms)</b> <b>Space(s):</b> Montgomery High School		
Start Date	End Date	Energy Use (therms)
11/08/2011	12/07/2011	21,420.00
10/08/2011	11/07/2011	16,548.00
09/08/2011	10/07/2011	14,256.00
08/08/2011	09/07/2011	12,297.00
07/08/2011	08/07/2011	7,919.00
06/08/2011	07/07/2011	13,944.00
05/08/2011	06/07/2011	11,468.00
04/08/2011	05/07/2011	18,441.00
03/08/2011	04/07/2011	18,442.00
02/08/2011	03/07/2011	37,899.00
01/08/2011	02/07/2011	43,452.00

<b>G-62-114-952-50 Consumption (therms)</b>		<b>216,086.00</b>
<b>G-62-114-952-50 Consumption (kBtu (thousand Btu))</b>		<b>21,608,600.00</b>
<b>Meter: Board Office G-62-209-566-02 (therms)</b> <b>Space(s): Entire Facility</b>		
<b>Start Date</b>	<b>End Date</b>	<b>Energy Use (therms)</b>
11/06/2011	12/05/2011	4,124.00
10/06/2011	11/05/2011	2,342.00
09/06/2011	10/05/2011	2,158.00
08/06/2011	09/05/2011	1,844.00
07/06/2011	08/05/2011	1,055.00
06/06/2011	07/05/2011	1,595.00
05/06/2011	06/05/2011	2,937.00
04/06/2011	05/05/2011	6,369.00
03/06/2011	04/05/2011	2,841.00
02/06/2011	03/05/2011	9,334.00
01/06/2011	02/05/2011	6,347.00
<b>Board Office G-62-209-566-02 Consumption (therms)</b>		<b>40,946.00</b>
<b>Board Office G-62-209-566-02 Consumption (kBtu (thousand Btu))</b>		<b>4,094,600.00</b>
<b>Total Natural Gas Consumption (kBtu (thousand Btu))</b>		<b>25,703,200.00</b>
<b>Is this the total Natural Gas consumption at this building including all Natural Gas meters?</b>		<input type="checkbox"/>

<b>Additional Fuels</b>	
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.	<input type="checkbox"/>

<b>On-Site Solar and Wind Energy</b>	
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.	<input type="checkbox"/>

## 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

Montgomery High School  
1016 Route 601  
Skillman, NJ 08558

## Facility Owner

Montgomery Township BOE  
1014 Route 601  
Skillman, NJ 08558

## Primary Contact for this Facility

Thomas Venanzi  
1014 Route 601  
Skillman, NJ 08558

## General Information

Montgomery High School	
Gross Floor Area Excluding Parking: (ft <sup>2</sup> )	404,000
Year Built	2006
For 12-month Evaluation Period Ending Date:	December 31, 2011

## Facility Space Use Summary

Montgomery High School		(MHS) Swimming pool	
Space Type	K-12 School	Space Type	Swimming Pool
Gross Floor Area(ft <sup>2</sup> )	404,000		
Open Weekends?	Yes		
Number of PCs	367	Pool Size	Recreational (20 yards x 15 yards)
Number of walk-in refrigeration/freezer units	2	Indoor Outdoor	Indoor
Presence of cooking facilities	Yes	Months in Use°	12
Percent Cooled	100		
Percent Heated	100		
Months°	12		
High School?	Yes		
School District°	N/A		
(MHS) parking lot			
Space Type	Parking		
Gross Floor Area(ft <sup>2</sup> )	572,355		
Enclosed Floor Area	0		
Non-Enclosed Floor Area (w/roof)	0		
Open Floor Area (w/o roof)	572,355		
Weekly Hours of Access	168		

## Energy Performance Comparison

Performance Metrics	Evaluation Periods		Comparisons		
	Current (Ending Date 12/31/2011)	Baseline (Ending Date 09/30/2006)	Rating of 75	Target	National Median
Energy Performance Rating	24	5	75	N/A	50
Energy Intensity					
Site (kBtu/ft <sup>2</sup> )	124	167	80	N/A	100
Source (kBtu/ft <sup>2</sup> )	248	303	159	N/A	199
Energy Cost					
\$/year	N/A	N/A	N/A	N/A	N/A
\$/ft <sup>2</sup> /year	N/A	N/A	N/A	N/A	N/A
Greenhouse Gas Emissions					
MtCO <sub>2</sub> e/year	4,501	5,581	2,891	N/A	3,610
kgCO <sub>2</sub> e/ft <sup>2</sup> /year	11	14	7	N/A	9

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

Notes:

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

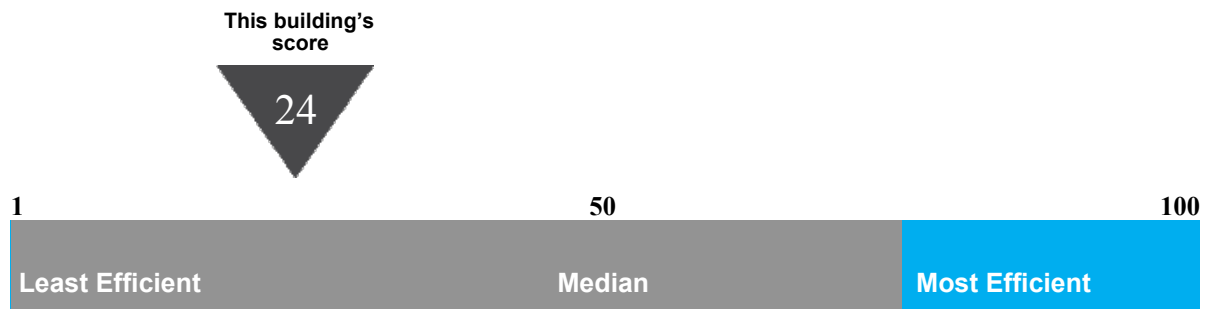
# Statement of Energy Performance

## 2011

Montgomery High School  
1016 Route 601  
Skillman, NJ 08558

Portfolio Manager Building ID: 1498322

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](http://energystar.gov/benchmark).



This building uses 248 kBtu per square foot per year.\*

\*Based on source energy intensity for the 12 month period ending December 2011

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](http://energystar.gov)

Date of certification



## **APPENDIX D**



## **MAJOR EQUIPMENT LIST**

### **Concord Engineering Group**

**Montgomery Township Schools - High School/Admin**

### **AC Units**

<b>Tag</b>	<b>RTU-7</b>	<b>RTU-8,10,11,15</b>	
<b>Unit Type</b>	Rooftop Unit	Rooftop Unit	Refrigeration Units
<b>Qty</b>	1	4	2
<b>Location</b>	Roof	Roof	Roof
<b>Area Served</b>	Home Economics	Various Areas	Kitchen Walk-ins
<b>Manufacturer</b>	AAON	McQuay	
<b>Model #</b>	RK-10-3-E0-750:HACEAA00000M	RPS025CLW	CST030E6CF
<b>Serial #</b>	200303-AKWJ01463	FB0U030200589 00	T04G 02282
<b>Cooling Type</b>	DX, R-22	DX, R-22	DX
<b>Cooling Capacity (Tons)</b>	10 Tons	25 Tons	2.5 Tons
<b>Cooling Efficiency (SEER/EER)</b>	11.2 EER	-	-
<b>Heating Type</b>	Hot Water	Hot Water	N/A
<b>Heating Input (MBH)</b>	-	-	N/A
<b>Efficiency</b>	-	-	N/A
<b>Fuel</b>	Hot Water	Hot Water	N/A
<b>Approx Age</b>	8	8	7
<b>ASHRAE Service Life</b>	15	15	15
<b>Remaining Life</b>	7	7	8
<b>Comments</b>			

**Note:**

"N/A" = Not Applicable.

"-" = Info Not Available

Mor

### AC Units

Tag	ACCU-20,7,17,22,10	RTU-19	ACCU-1,2,3,4
Unit Type	Split System	Rooftop Unit	Split System
Qty	2	1	4
Location	Roof	Roof	Roof
Area Served	-	-	-
Manufacturer	EMI	McQuay	ArcoAire
Model #	SCC09DM0000AA0A	RPS040CLW	HAC036AKA1
Serial #	1-04-J-9264-39	FB0U030200069 02	L001261143
Cooling Type	DX, R-22	DX, R-22	DX, R-22
Cooling Capacity (Tons)	9500 Btuh	30 Tons	3 Tons
Cooling Efficiency (SEER/EER)	9.9 EER / 10.5 SEER	-	-
Heating Type	N/A	N/A	N/A
Heating Input (MBH)	N/A	N/A	N/A
Efficiency	N/A	N/A	N/A
Fuel	N/A	N/A	N/A
Approx Age	7	8	8
ASHRAE Service Life	15	15	15
Remaining Life	8	7	7
Comments			

**Note:**

"N/A" = Not Applicable.

"-" = Info Not Available

Mor

### AC Units

Tag	RTU-2	RTU-9	
Unit Type	Rooftop Unit	Rooftop Unit	dehumidification Unit
Qty	1	1	1
Location	Roof	Roof	Roof of Pool
Area Served	-	-	-
Manufacturer	McQuay	McQuay	Dectron
Model #	RCS045CYY	RPR025CLW	RS-162-43
Serial #	FB0U030200108 01	FB0U030200620 00	A2003040016
Cooling Type	DX, R-22	DX, R-22	DX, R-22
Cooling Capacity (Tons)	45 Tons	25 Tons	-
Cooling Efficiency (SEER/EER)	-	-	-
Heating Type	N/A	N/A	Hot Water
Heating Input (MBH)	N/A	N/A	-
Efficiency	N/A	N/A	-
Fuel	N/A	N/A	-
Approx Age	8	8	8
ASHRAE Service Life	15	15	15
Remaining Life	7	7	7
Comments			

**Note:**

"N/A" = Not Applicable.

"-" = Info Not Available

Mor

### AC Units

Tag	RTU-26	RTU-17,24,25	ACCU-5,6,18
Unit Type	Rooftop Unit	Rooftop Unit	Split System
Qty	1	3	3
Location	Roof	Roof	Admin Roof
Area Served	-	-	-
Manufacturer	McQuay	McQuay	EMI
Model #	RPR015CSW	RPS050CSW	SCC18DF0000AA0A
Serial #	FB0U030701442 00	FB0U030200591 02	1-03-A-1641-03
Cooling Type	DX, R-22	DX, R-22	DX, R-22
Cooling Capacity (Tons)	15 Tons	50 Tons	1.5 Tons
Cooling Efficiency (SEER/EER)	-	-	-
Heating Type	N/A	Hot Water	N/A
Heating Input (MBH)	N/A	-	N/A
Efficiency	N/A	-	N/A
Fuel	N/A	Hot Water	N/A
Approx Age	8	8	8
ASHRAE Service Life	15	15	15
Remaining Life	7	7	7
Comments			

**Note:**

"N/A" = Not Applicable.

"-" = Info Not Available

Mor

### AC Units

Tag	RTU-27	RTU-1,5,28	RTU-3,4,22,23
Unit Type	Rooftop Unit	Rooftop Unit	Rooftop Unit
Qty	1	3	4
Location	Admin Roof	Admin Roof	Science Wing Roof
Area Served	-	-	-
Manufacturer	McQuay	McQuay	McQuay
Model #	RPS036CLW	RPS030CLW	RPS045CSW
Serial #	FB0U030200070 00	FB0U030200073 00	FB0U030200105 02
Cooling Type	DX, R-22	DX, R-22	DX, R-22
Cooling Capacity (Tons)	36 Tons	30 Tons	45 Tons
Cooling Efficiency (SEER/EER)	-	-	-
Heating Type	N/A	Hot Water	N/A
Heating Input (MBH)	N/A	-	N/A
Efficiency	N/A	-	N/A
Fuel	N/A	Hot Water	N/A
Approx Age	8	8	8
ASHRAE Service Life	15	15	15
Remaining Life	7	7	7
Comments			

**Note:**

"N/A" = Not Applicable.

"-" = Info Not Available

Mor

### AC Units

Tag	ACCU-9,19	RTU-12,13,16,18,21	RTU-6
Unit Type	Split System	Rooftop Unit	Rooftop Unit
Qty	2	5	1
Location	Science Wing Roof	Roof	Roof
Area Served	-	-	-
Manufacturer	EMI	McQuay	McQuay
Model #	SCC36DF0000AA0A	RPS060CLW	RPS020CSW
Serial #	1-04-K-0864-39	FB0U030701448 02	FB0U030701461 00
Cooling Type	DX, R-22	DX, R-22	DX, R-22
Cooling Capacity (Tons)	3 Tons	60 Tons	20 Tons
Cooling Efficiency (SEER/EER)	-	-	-
Heating Type	N/A	N/A	Hot Water
Heating Input (MBH)	N/A	N/A	-
Efficiency	N/A	N/A	-
Fuel	N/A	N/A	Hot Water
Approx Age	8	8	8
ASHRAE Service Life	15	15	15
Remaining Life	7	7	7
Comments			

**Note:**

"N/A" = Not Applicable.

"-" = Info Not Available

Mor

### AC Units

<b>Tag</b>			
<b>Unit Type</b>	Rooftop Unit		
<b>Qty</b>	1		
<b>Location</b>	Roof		
<b>Area Served</b>	-		
<b>Manufacturer</b>	AAON		
<b>Model #</b>	RK-08-3-E0-750:HACEAA0000M0		
<b>Serial #</b>	200306-AKWHO1576		
<b>Cooling Type</b>	DX, R-22		
<b>Cooling Capacity (Tons)</b>	8 Tons		
<b>Cooling Efficiency (SEER/EER)</b>	-		
<b>Heating Type</b>	Hot Water		
<b>Heating Input (MBH)</b>	-		
<b>Efficiency</b>	-		
<b>Fuel</b>	Hot Water		
<b>Approx Age</b>	8		
<b>ASHRAE Service Life</b>	15		
<b>Remaining Life</b>	7		
<b>Comments</b>			

**Note:**

"N/A" = Not Applicable.

"-" = Info Not Available

## **MAJOR EQUIPMENT LIST**

### **Concord Engineering Group**

#### **Montgomery Township Schools - High School/Admin**

### **AHUs**

<b>Tag</b>	<b>AHU-1</b>		
<b>Unit Type</b>	Air Handling Unit		
<b>Qty</b>	1		
<b>Location</b>	Roof		
<b>Area Served</b>	Auxiliary Gym		
<b>Manufacturer</b>	McQuay		
<b>Model #</b>	RFS045CSW		
<b>Serial #</b>	FB0U030200102 02		
<b>Cooling Type</b>	DX, R-22		
<b>Cooling Capacity (Tons)</b>	45 Tons		
<b>Cooling Efficiency (SEER/EER)</b>			
<b>Heating Type</b>	HW Coil		
<b>Heating Input (MBH)</b>	-		
<b>Efficiency</b>	-		
<b>Fuel</b>	Hot Water		
<b>Approx Age</b>	8		
<b>ASHRAE Service Life</b>	15		
<b>Remaining Life</b>	7		
<b>Comments</b>			

**Note:**

"N/A" = Not Applicable.

"-" = Info Not Available



# **MAJOR EQUIPMENT LIST**

## **Concord Engineering Group**

### **Montgomery Township Schools - High School/Admin**

#### **Boilers**

<b>Tag</b>			
<b>Unit Type</b>	Condensing Boilers	Condensing Boilers	Pool Heater
<b>Qty</b>	2	10	1
<b>Location</b>	Mechanical Room F-153B	Mechanical Room H-104	Filter Room G106
<b>Area Served</b>	Admin Bldg/North Area High School	Central/South Area High School	Pool
<b>Manufacturer</b>	Aerco	Aerco	Lochinvar Copper Fin 2
<b>Model #</b>	BMK 2.0	BMK 2.0	CPN501
<b>Serial #</b>	-	-	E04H00164772
<b>Input Capacity (Btu/Hr)</b>	2,000 MBH	2,000 MBH	500 MBH
<b>Rated Output Capacity (Btu/Hr)</b>	1,706-1,860 MBH	1,706-1,860 MBH	445 MBH
<b>Approx. Efficiency %</b>	88.0%	88.0%	89.0%
<b>Fuel</b>	Nat Gas	Nat Gas	Nat Gas
<b>Approx Age</b>	8	8	8
<b>ASHRAE Service Life</b>	24	24	25
<b>Remaining Life</b>	16	16	17
<b>Comments</b>			

**Note:**

"N/A" = Not Applicable.

"-" = Info Not Available

# **MAJOR EQUIPMENT LIST**

## **Concord Engineering Group**

### **Montgomery Township Schools - High School/Admin**

#### **Domestic Water Heaters**

<b>Tag</b>			
<b>Unit Type</b>	Electric Domestic Hot Water	Domestic Hot Water	Domestic Hot Water
<b>Qty</b>	1	3	2
<b>Location</b>	Mechanical Room F-153B	Mechanical Room H-104	Mechanical Room H-104
<b>Area Served</b>	Administration	High School	High School
<b>Manufacturer</b>	A.O. Smith	PVI	PVI
<b>Model #</b>	PEC 40 918	1400 N 250A-PV	1060 N 250A-PV
<b>Serial #</b>	MC03-2301983-918	1002108792	1002108796
<b>Size (Gallons)</b>	40 Gallons	250 Gallons	250 Gallons
<b>Input Capacity (MBH/KW)</b>	4500 Watts	1,000 MBH	750 MBH
<b>Recovery (Gal/Hr)</b>	-	1400 GPH	1060 GPH
<b>Efficiency %</b>	100%	-	-
<b>Fuel</b>	Electric	Nat Gas	Nat Gas
<b>Approx Age</b>	8	9	9
<b>ASHRAE Service Life</b>	12	12	12
<b>Remaining Life</b>	4	3	3
<b>Comments</b>			

**Note:**

"N/A" = Not Applicable.

"-" = Info Not Available

# **MAJOR EQUIPMENT LIST**

## **Concord Engineering Group**

### **Montgomery Township Schools - High School/Admin**

#### **Pumps**

<b>Tag</b>	<b>BOE-3,4</b>	<b>MHS-1,2</b>	
<b>Unit Type</b>	End Suction	End Suction	
<b>Qty</b>	2	2	
<b>Location</b>	Mechanical Room F-153B	Mechanical Room H-104	
<b>Area Served</b>	Admin Bldg/North Area High School	Central/South Area High School	
<b>Manufacturer</b>	Taco	Taco	
<b>Model #</b>	FI25	TA2030B2PIB2L0	
<b>Serial #</b>	EC039587	EC04168	
<b>Horse Power</b>	10 HP	60 HP	
<b>Flow</b>	Not Available	Not Available	
<b>Motor Info</b>	Baldor	Baldor	
<b>Electrical Power</b>	230/460/3/60	230/460/3/60	
<b>RPM</b>	1770 RPM	1775 RPM	
<b>Motor Efficiency %</b>	91.7%	95.0%	
<b>Approx Age</b>	9	9	
<b>ASHRAE Service Life</b>	20	20	
<b>Remaining Life</b>	11	16	
<b>Comments</b>	VFD	VFD	

**Note:**

"N/A" = Not Applicable.

"-" = Info Not Available

## **APPENDIX E**

# Investment Grade Lighting Audit

APPENDIX E1 of 28

CEG Job #: 9C11058

Project: Montgomery Twp. Schools LGEA

Montgomery High School and Admin.

KWH COST: **\$0.119**

Bldg. Sq. Ft.

## ECM 1&2: Lighting Upgrade - General & Gym/Pool

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
222.21	B262 Men's Room	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806.0	\$95.91	5	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
221.31	Custodial Closet	1200	2	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	62	0.12	148.8	\$17.71	2	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	2600	6	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.37	967.2	\$115.10	6	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
321.37	Classroom 2210	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
321.37	Classroom 2211	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
321.37	Classroom 2212	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
321.37	Classroom 2214	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
321.37	Classroom 2216	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
321.37	Classroom 2217	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
321.37	Classroom 2218	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
321.37	Classroom 2219	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
321.37	Classroom 2220	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
321.37	Classroom 2221	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
321.37	Classroom 2223	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
321.37	Classroom 2224	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
321.37	Classroom 2225	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
321.37	Classroom 2226	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
321.37	Classroom 2227	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
321.37	Classroom 2228	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
321.37	Classroom 2230	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
321.37	Classroom 2232	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
321.37	Classroom 2236	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
321.37	Classroom 2238	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
221.34	IDF	1200	2	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., No Lens	62	0.12	148.8	\$17.71	2	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
222.21	B 246 Storage	1200	3	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.19	223.2	\$26.56	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

APPENDIX E2 of 28

### ECM 1&2: Lighting Upgrade - General & Gym/Pool

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
222.21	B 226 Storage	1200	3	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.19	223.2	\$26.56	3	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
321.37	B- 22 Office	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
321.37	B- 23 Office	2600	4	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.24	624.0	\$74.26	4	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
321.37	B- 24 Conf. Room	2600	5	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.30	780.0	\$92.82	5	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
321.37	B- 25 Office	2600	3	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.18	468.0	\$55.69	3	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
321.37	B- 26 Office	2600	3	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.18	468.0	\$55.69	3	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
321.37	B- 27 Office	2600	3	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.18	468.0	\$55.69	3	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
321.37	B- 28 Office	2600	5	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.30	780.0	\$92.82	5	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
221.31	B 243A Storage	1200	3	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	62	0.19	223.2	\$26.56	3	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
222.21	Stair B2	3000	10	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.62	1,860.0	\$221.34	10	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
222.21	Stair B1	3000	10	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.62	1,860.0	\$221.34	10	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
222.21	Men's Room	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806.0	\$95.91	5	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
221.31	Custodial Closet	1200	2	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	62	0.12	148.8	\$17.71	2	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	2600	6	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.37	967.2	\$115.10	6	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
321.37	Social Studies Dept.	2600	20	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.20	3,120.0	\$371.28	20	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
222.21	B 212 Storage	1200	3	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.19	223.2	\$26.56	3	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
222.21	B 211 Storage	1200	3	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.19	223.2	\$26.56	3	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
222.21	Corridor B 2000	3000	87	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	5.39	16,182.0	\$1,925.66	87	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
321.37	Classroom B 2213	2600	18	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.08	2,808.0	\$334.15	18	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
221.11	B 203 IDF	1200	3	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Surface Mnt., Prismatic Lens	62	0.19	223.2	\$26.56	3	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
321.37	Classroom C 2209	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
321.37	Classroom C 2207	2600	18	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.08	2,808.0	\$334.15	18	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
221.31	C 210 Storage	1200	3	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	62	0.19	223.2	\$26.56	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

APPENDIX E3 of 28

### ECM 1&2: Lighting Upgrade - General & Gym/Pool

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	
222.21	Men's Room	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806.0	\$95.91	5	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	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806.0	\$95.91	5	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	Projector Room	800	8	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.50	396.8	\$47.22	8	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom 2206	2600	11	2	1x4 2 Lamp, 28w TSHO, Pendant Mnt., Indirect	60	0.66	1,716.0	\$204.20	11	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	Corridor C 2000	3000	19	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	1.18	3,534.0	\$420.55	19	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
563		3000	20	2	Recessed Down Light, (2)26w Quad CFL Lamp	52	1.04	3,120.0	\$371.28	20	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	C 200	2600	21	2	1x4 2 Lamp, 28w TSHO, Pendant Mnt., Indirect	60	1.26	3,276.0	\$389.84	21	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom D 2203	2600	12	2	1x4 2 Lamp, 28w TSHO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	D 21 Office	2600	9	2	1x4 2 Lamp, 28w TSHO, Pendant Mnt., Indirect	60	0.54	1,404.0	\$167.08	9	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	Stair D1	3000	8	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.50	1,488.0	\$177.07	8	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
560	Hall - Upper Commons	3000	96	1	Recessed Down Light, 26w PL Lamp	26	2.50	7,488.0	\$891.07	96	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	Stair E2	3000	8	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.50	1,488.0	\$177.07	8	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	IDF	1200	3	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.19	223.2	\$26.56	3	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	C 2302 Office	2600	4	2	1x4 2 Lamp, 28w TSHO, Pendant Mnt., Indirect	60	0.24	624.0	\$74.26	4	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
221.36	Green House	2600	18	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Acrylic Lens	62	1.12	2,901.6	\$345.29	18	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom E 2303	2600	24	2	1x4 2 Lamp, 28w TSHO, Pendant Mnt., Indirect	60	1.44	3,744.0	\$445.54	24	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom E 2304	2600	32	2	1x4 2 Lamp, 28w TSHO, Pendant Mnt., Indirect	60	1.92	4,992.0	\$594.05	32	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom E 2305	2600	24	2	1x4 2 Lamp, 28w TSHO, Pendant Mnt., Indirect	60	1.44	3,744.0	\$445.54	24	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom E 2306	2600	32	2	1x4 2 Lamp, 28w TSHO, Pendant Mnt., Indirect	60	1.92	4,992.0	\$594.05	32	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom E 2307	2600	24	2	1x4 2 Lamp, 28w TSHO, Pendant Mnt., Indirect	60	1.44	3,744.0	\$445.54	24	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom E 2308	2600	24	2	1x4 2 Lamp, 28w TSHO, Pendant Mnt., Indirect	60	1.44	3,744.0	\$445.54	24	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom E 2309	2600	24	2	1x4 2 Lamp, 28w TSHO, Pendant Mnt., Indirect	60	1.44	3,744.0	\$445.54	24	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom E 2310	2600	24	2	1x4 2 Lamp, 28w TSHO, Pendant Mnt., Indirect	60	1.44	3,744.0	\$445.54	24	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom E 2311	2600	24	2	1x4 2 Lamp, 28w TSHO, Pendant Mnt., Indirect	60	1.44	3,744.0	\$445.54	24	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom E 2312	2600	24	2	1x4 2 Lamp, 28w TSHO, Pendant Mnt., Indirect	60	1.44	3,744.0	\$445.54	24	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom E 2313	2600	24	2	1x4 2 Lamp, 28w TSHO, Pendant Mnt., Indirect	60	1.44	3,744.0	\$445.54	24	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom E 2314	2600	24	2	1x4 2 Lamp, 28w TSHO, Pendant Mnt., Indirect	60	1.44	3,744.0	\$445.54	24	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	

## Investment Grade Lighting Audit

APPENDIX E4 of 28

### ECM 1&2: Lighting Upgrade - General & Gym/Pool

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	
321.37	Classroom E 2315	2600	24	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.44	3,744.0	\$445.54	24	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom E 2316	2600	24	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.44	3,744.0	\$445.54	24	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	Men's Room	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806.0	\$95.91	5	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	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806.0	\$95.91	5	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	IDF	1200	2	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.12	148.8	\$17.71	2	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	Stair E2	3000	6	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.37	1,116.0	\$132.80	6	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	Corridor E 2000	3000	36	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	2.23	6,696.0	\$796.82	36	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	E 234A Elec. Room	1200	3	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.19	223.2	\$26.56	3	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
564	Front Lobby	3000	26	2	Recessed Down Light, (2)40w Quad Long Tube PL Lamp	80	2.08	6,240.0	\$742.56	26	1	No Change	0	0.00	0	40%	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	A 1000 Admin	2600	31	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.86	4,836.0	\$575.48	31	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	A-1 Conf. room	2600	4	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.24	624.0	\$74.26	4	1	No Change	0	0.00	0	40%	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	A-2 Conf. Room	2600	8	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.48	1,248.0	\$148.51	8	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	A-3 Office	2600	6	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.36	936.0	\$111.38	6	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
232.21	Break/Copy Area	2600	15	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	1.29	3,354.0	\$399.13	15	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Guidance	2600	14	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.84	2,184.0	\$259.90	14	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21		2600	8	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.50	1,289.6	\$153.46	8	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	Guidance Restrooms (4)	1200	4	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.25	297.6	\$35.41	4	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	Guidance Hall	2600	19	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	1.18	3,062.8	\$364.47	19	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Side Offices	2600	39	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	2.34	6,084.0	\$724.00	39	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	Men's Room	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806.0	\$95.91	5	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	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806.0	\$95.91	5	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom A 1185	2600	15	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.90	2,340.0	\$278.46	15	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
232.21	Kiln	2600	6	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.52	1,341.6	\$159.65	6	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
232.21	Welding Spray	2600	6	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.52	1,341.6	\$159.65	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

APPENDIX E5 of 28

### ECM 1&2: Lighting Upgrade - General & Gym/Pool

EXISTING LIGHTING										PROPOSED LIGHTING								SAVINGS					
CEG Type	Fixture Location	Yearly Usage	No. Fixts	No. Lamps	Fixture Type	Fixt Watts	Total kW	kWh/Yr Fixtures	Yearly \$ Cost	No. Fixts	No. Lamps	Retro-Unit Description	Watts Used	Total kW	kWh/Yr Fixtures	Yearly \$ Cost	Unit Cost (INSTALLED)	Total Cost	kW Savings	kWh/Yr Savings	Yearly \$ Savings	Yearly Simple Payback	
232.21	Air Spray	2600	4	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.34	894.4	\$106.43	4	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
563	Classroom A 1195	2600	30	2	Recessed Down Light, (2)26w Quad CFL Lamp	52	1.56	4,056.0	\$482.66	30	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37		2600	22	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.32	3,432.0	\$408.41	22	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
221.31	A 192 Storage	1200	6	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	62	0.37	446.4	\$53.12	6	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
221.14	A 110 Display	3000	4	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Surface Mnt., No Lens	62	0.25	744.0	\$88.54	4	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
221.14	A 100C Display	3000	4	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Surface Mnt., No Lens	62	0.25	744.0	\$88.54	4	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	Commons near PAC	3000	42	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	2.60	7,812.0	\$929.63	42	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
563		3000	52	2	Recessed Down Light, (2)26w Quad CFL Lamp	52	2.70	8,112.0	\$965.33	52	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	Men's Room	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806.0	\$95.91	5	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	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806.0	\$95.91	5	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	A 141 Custodial Closet	1200	1	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.06	74.4	\$8.85	1	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Newspaper	2600	6	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.36	936.0	\$111.38	6	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Yearbook	2600	6	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.36	936.0	\$111.38	6	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom A 1135	2600	6	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.36	936.0	\$111.38	6	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom A 1136	2600	6	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.36	936.0	\$111.38	6	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
221.31	A 135 Storage	1200	4	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	62	0.25	297.6	\$35.41	4	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
221.31	A 137 Storage	1200	4	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	62	0.25	297.6	\$35.41	4	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
221.31	IDF	1200	4	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	62	0.25	297.6	\$35.41	4	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom A 1134	2600	28	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.68	4,368.0	\$519.79	28	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom A 1123	2600	28	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.68	4,368.0	\$519.79	28	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	Practice	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806.0	\$95.91	5	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	A 124 Office	2600	3	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.18	468.0	\$55.69	3	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	A 126 Office	2600	3	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.18	468.0	\$55.69	3	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	A 125 Library	2600	6	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.36	936.0	\$111.38	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

APPENDIX E6 of 28

### ECM 1&2: Lighting Upgrade - General & Gym/Pool

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			
222.21	A 133 Storage	1200	3	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.19	223.2	\$26.56	3	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00			
222.21	Hall	2600	6	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.37	967.2	\$115.10	6	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00			
222.21	Corridor A	2600	24	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	1.49	3,868.8	\$460.39	24	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00			
563	Ramps outside PAC	3000	53	2	Recessed Down Light, (2)26w Quad CFL Lamp	52	2.76	8,268.0	\$983.89	53	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00			
786	PAC	2600	25	5	(3) 150w Incand. (2) 70w MH, Recessed Mount	630	15.75	40,950.0	\$4,873.05	25	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00			
211.11		2600	16	1	32w T8 Cove Lighting	30	0.48	1,248.0	\$148.51	16	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00			
211.13		2600	6	1	25w T8 Cove Lighting	25	0.15	390.0	\$46.41	6	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00			
785	PAC Lecture Halls (2)	2600	36	3	(2) 150w Incand. (1) 40w Biax, Recessed Mount	350	12.60	32,760.0	\$3,898.44	36	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00			
211.11		2600	32	1	32w T8 Cove Lighting	30	0.96	2,496.0	\$297.02	32	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00			
211.13		2600	8	1	25w T8 Cove Lighting	25	0.20	520.0	\$61.88	8	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00			
222.21	C 109	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806.0	\$95.91	5	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00			
221.11	Classroom C 1100 Studio	2600	18	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Surface Mnt., Prismatic Lens	62	1.12	2,901.6	\$345.29	18	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00			
321.37	Control Room	2600	4	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.24	624.0	\$74.26	4	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00			
321.37	ITV Room	2600	40	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	2.40	6,240.0	\$742.56	40	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00			
321.37	Classroom B 1101	2600	18	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.08	2,808.0	\$334.15	18	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00			
321.37	Classroom B 1103	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00			
321.37	Classroom B 1104	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00			
321.37	Classroom B 1105	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00			
321.37	Classroom B 1106	2600	21	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.26	3,276.0	\$389.84	21	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00			
321.37	Classroom B 1107	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00			
321.37	Classroom B 1108	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00			
321.37	Resource Room B 1109	2600	10	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.60	1,560.0	\$185.64	10	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00			
321.37	Classroom B 1110	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00			
321.37	Classroom B 1111	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00			
321.37	Classroom B 1112	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00			
321.37	Classroom B 1113	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00			
321.37	Classroom B 1114	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00			
321.37	Classroom B 1115	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00			
321.37	Classroom B 1116	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00			
321.37	Classroom B 1117	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00			
321.37	Classroom B 1118	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	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

APPENDIX E7 of 28

### ECM 1&2: Lighting Upgrade - General & Gym/Pool

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	
321.37	Classroom B 1119	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom B 1121	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom B 1123	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom B 1125	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom B 1127	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1,872.0	\$222.77	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	B 103 Office	2600	4	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.24	624.0	\$74.26	4	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	Passage B 113	2600	3	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.19	483.6	\$57.55	3	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	Passage B 133	2600	3	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.19	483.6	\$57.55	3	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	Passage B 150	2600	3	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.19	483.6	\$57.55	3	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	B 114 Storage	1200	3	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.19	223.2	\$26.56	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 Room	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806.0	\$95.91	5	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	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806.0	\$95.91	5	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	Custodial Closet	1200	1	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.06	74.4	\$8.85	1	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
221.31	IDF	1200	3	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	62	0.19	223.2	\$26.56	3	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
221.31	B 144 Storage	1200	3	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	62	0.19	223.2	\$26.56	3	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	D 130Men's Room	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806.0	\$95.91	5	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	D 132Women's Restroom	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806.0	\$95.91	5	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	D 131 Custodial	1200	1	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.06	74.4	\$8.85	1	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	Elec. Closet	1200	4	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.25	297.6	\$35.41	4	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom C 1118	2600	4	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.24	624.0	\$74.26	4	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom C 1119	2600	18	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.08	2,808.0	\$334.15	18	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Library	2600	58	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	3.48	9,048.0	\$1,076.71	58	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
780		2600	29	1	36w MR16 Track Head	26	0.75	1,960.4	\$233.29	29	1	Philips 6w LED MR16 Lamp	6	0.17	452.4	\$53.84	\$50.00	\$1,450.00	0.58	1508	\$179.45	8.08	
790		2600	18	2	Pendant Mount, (1) 21w PL and (1) 38w PL Lamp	71	1.28	3,322.8	\$395.41	18	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
790		2600	18	2	Pendant Mount, (1) 21w PL and (1) 38w PL Lamp	71	1.28	3,322.8	\$395.41	18	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	

## Investment Grade Lighting Audit

APPENDIX E8 of 28

### ECM 1&2: Lighting Upgrade - General & Gym/Pool

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
563	Periodical Storage	2600	2	2	Recessed Down Light, (2)26w Quad CFL Lamp	52	0.10	270.4	\$32.18	2	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 Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.25	644.8	\$76.73	4	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
222.21	C 105 Work Room	2600	8	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.50	1,289.6	\$153.46	8	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
222.21	C 107	2600	9	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.56	1,450.8	\$172.65	9	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
222.21	C 103 Restroom	1200	1	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.06	74.4	\$8.85	1	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
222.21	C 101 Shop	2600	6	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.37	967.2	\$115.10	6	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
222.21	C 100 Hall	2600	8	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.50	1,289.6	\$153.46	8	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
563	C 134 Commons	2600	214	2	Recessed Down Light, (2)26w Quad CFL Lamp	52	11.13	28,932.8	\$3,443.00	214	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
321.37		2600	27	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.62	4,212.0	\$501.23	27	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
222.21		2600	8	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.50	1,289.6	\$153.46	8	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
790		2600	18	2	Pendant Mount, (1) 21w PL and (1) 38w PL Lamp	71	1.28	3,322.8	\$395.41	18	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
790		2600	18	2	Pendant Mount, (1) 21w PL and (1) 38w PL Lamp	71	1.28	3,322.8	\$395.41	18	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
321.37	Faculty Dining	2600	24	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.44	3,744.0	\$445.54	24	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	Faculty Restrooms	1200	2	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.17	206.4	\$24.56	2	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	D 121 Kitchen Serving	2600	54	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	4.64	12,074.4	\$1,436.85	54	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	D 118 Kitchen Serving	2600	16	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	1.38	3,577.6	\$425.73	16	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
617	Kitchen Hood	1800	10	1	Hood Light w/Globe & Cage, 100w A Lamp	100	1.00	1,800.0	\$214.20	10	1	26w CFL Lamp	26	0.26	468	\$55.69	\$20.00	\$200.00	0.74	1332	\$158.51	1.26
232.21	Receiving	2600	5	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.43	1,118.0	\$133.04	5	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	D 112 Storage	1200	9	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.77	928.8	\$110.53	9	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
227.21	Custodial Closet	1200	1	2	2x2, 2 Lamp, 32w 800 series T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	65	0.07	78.0	\$9.28	1	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
221.31	Custodial Closet	1200	1	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	62	0.06	74.4	\$8.85	1	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
321.37	Classroom D 1129	2600	27	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.62	4,212.0	\$501.23	27	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
222.21	Corridor D 100	3000	36	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	2.23	6,696.0	\$796.82	36	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00

## Investment Grade Lighting Audit

APPENDIX E9 of 28

### ECM 1&2: Lighting Upgrade - General & Gym/Pool

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	
321.37	H 101 Office	2600	6	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.36	936.0	\$111.38	6	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
242.21	E 1110 Nurse	2600	2	4	2x4, 4 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	107	0.21	556.4	\$66.21	2	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37		2600	14	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.84	2,184.0	\$259.90	14	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	Back Corridor - Gym	3000	43	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	62	2.67	7,998.0	\$951.76	43	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
227.21	E 1135 Boy's Locker Room	2600	2	2	2x4, 2 Lamp, 32w 800 series T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	65	0.13	338.0	\$40.22	2	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21		2600	34	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	62	2.11	5,480.8	\$652.22	34	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
227.21	Girl's Locker Room	2600	2	2	2x4, 2 Lamp, 32w 800 series T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	65	0.13	338.0	\$40.22	2	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21		2600	34	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	62	2.11	5,480.8	\$652.22	34	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
221.31	H 104 Boiler Room	3000	46	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	62	2.85	8,556.0	\$1,018.16	46	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
221.31	H 105 Elec. Room	1200	12	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	62	0.74	892.8	\$106.24	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
221.31	Storage	1200	7	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	62	0.43	520.8	\$61.98	7	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
221.31	IDF	1200	1	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	62	0.06	74.4	\$8.85	1	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
769	Main Gym	2600	70	1	400w MH, Dimming Ballast, Clear Lens	465	32.55	84,630.0	\$10,070.97	70	6	2x4 54w T5HO 6 Lamp w/Prismatic Lens	354	24.78	64428	\$7,666.93	\$240.00	\$16,800.00	7.77	20202	\$2,404.04	6.99	
221.31	Chem Storage	1200	6	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	62	0.37	446.4	\$53.12	6	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
221.36	Filter	1200	6	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Acrylic Lens	62	0.37	446.4	\$53.12	6	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
771	G 105 Pool	2600	32	2	(2) 400w MH - Indirect Lighting	930	29.76	77,376.0	\$9,207.74	32	8	LUXNAT-6 2x4 54w T5HO 8 Lamp Luminaire w/Perforated Diffuser	480	15.36	39936	\$4,752.38	\$400.00	\$12,800.00	14.40	37440	\$4,455.36	2.87	
222.21	Locker Room - Men's	2600	15	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	62	0.93	2,418.0	\$287.74	15	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	Locker Room - Women's	2600	15	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	62	0.93	2,418.0	\$287.74	15	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	Pool Lobby/Hall	3000	36	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	62	2.23	6,696.0	\$796.82	36	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	Pool Office	2600	6	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	62	0.37	967.2	\$115.10	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

APPENDIX E10 of 28

### ECM 1&2: Lighting Upgrade - General & Gym/Pool

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	
222.21	Women's Room	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806.0	\$95.91	5	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	Men's Room	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806.0	\$95.91	5	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	Custodial Closet	1200	1	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.06	74.4	\$8.85	1	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	E 144 Team Room	2600	28	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	1.74	4,513.6	\$537.12	28	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	E 1145 Trainer	2600	24	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	1.49	3,868.8	\$460.39	24	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
769	Aux Gym	2600	20	1	400w MH, Dimming Ballast, Clear Lens	465	9.30	24,180.0	\$2,877.42	20	6	2x4 54w T5HO 6 Lamp w/Prismatic Lens	354	7.08	18408	\$2,190.55	\$240.00	\$4,800.00	2.22	5772	\$686.87	6.99	
222.21	F 1106 Team Room	2600	28	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	1.74	4,513.6	\$537.12	28	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	Men's Room	2600	2	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.12	322.4	\$38.37	2	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	Women's Room	2600	2	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.12	322.4	\$38.37	2	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
327.31	Weight Room	2600	32	2	2x2 2 Lamp, 14w T5, Pendant Mnt., Prismatic	31	0.99	2,579.2	\$306.92	32	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	Gym Lobby	2600	42	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	2.60	6,770.4	\$805.68	42	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
327.31	E 107 Student Org.	2600	12	2	2x2 2 Lamp, 14w T5, Pendant Mnt., Prismatic	31	0.37	967.2	\$115.10	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	E 118 Men's Room	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806.0	\$95.91	5	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	E 121 Women's Room	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806.0	\$95.91	5	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	Custodial Closet	1200	1	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.06	74.4	\$8.85	1	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	E 1160 Office	2600	9	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.54	1,404.0	\$167.08	9	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	Aux Gym Lobby	2600	30	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	1.86	4,836.0	\$575.48	30	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
221.31	F 117 Storage	1200	12	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	62	0.74	892.8	\$106.24	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	F 1123	2600	16	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.96	2,496.0	\$297.02	16	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	F 1132	2600	16	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.96	2,496.0	\$297.02	16	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	Men's Room	2600	2	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.12	322.4	\$38.37	2	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	Women's Room	2600	2	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.12	322.4	\$38.37	2	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
772	Areobics	2600	12	8	(8) 42w CFL Lobby	346	4.15	10,795.2	\$1,284.63	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

APPENDIX E11 of 28

### ECM 1&2: Lighting Upgrade - General & Gym/Pool

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
221.31	F 124 Storage	1200	1	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	62	0.06	74.4	\$8.85	1	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
321.37	F 1130 Arts	2600	33	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.98	5,148.0	\$612.61	33	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
221.31	Dark Room	1800	12	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	62	0.74	1,339.2	\$159.36	12	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
232.21	F 1154 Fab. Labs	2600	36	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	3.10	8,049.6	\$957.90	36	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
237.21	F 1142 CAD	2600	48	3	2x2, 3 Lamp, 31w T8 Ulamp, Elect. Ballast, Recessed Mnt., Prismatic Lens	92	4.42	11,481.6	\$1,366.31	48	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
222.21	Men's Room	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806.0	\$95.91	5	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
222.21	Women's Room	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806.0	\$95.91	5	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
221.34	Boiler Room	3000	8	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., No Lens	62	0.50	1,488.0	\$177.07	8	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
321.37	F 164 Tech	2600	11	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.66	1,716.0	\$204.20	11	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
321.37	F 166 Office	2600	3	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.18	468.0	\$55.69	3	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
321.37	Conf. Room	2600	3	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.18	468.0	\$55.69	3	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
221.34	F 165	2600	2	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., No Lens	62	0.12	322.4	\$38.37	2	0	No Change	0	0.00	0	\$0.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00
	Totals		3,771	528				826,034	\$98,298	3,771	24			47.7	123,692	\$14,720		\$36,050	25.7	66,254	\$7,884	4.57

CEG Job #: 9C11058

Project: Montgomery Twp. Schools LG&A

Address: 0

0

Building SF: -

Montgomery High School and Admin.

KWH COST: \$0.119

### ECM 3: Lighting Controls

EXISTING LIGHTING					PROPOSED LIGHTING CONTROLS										SAVINGS								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	
222.21	B262 Men's Room	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806	\$95.91	5	0	Existing To Remain	62	0.31	0%	806	\$95.91	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
221.31	Custodial Closet	1200	2	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	62	0.12	148.8	\$17.71	2	0	Existing To Remain	62	0.12	0%	148.8	\$17.71	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	Women's Restroom	2600	6	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.37	967.2	\$115.10	6	0	Existing To Remain	62	0.37	0%	967.2	\$115.10	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom 2210	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom 2211	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom 2212	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom 2214	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom 2216	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom 2217	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom 2218	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom 2219	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom 2220	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom 2221	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom 2223	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom 2224	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00	



## 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		
321.37	Classroom 2225	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom 2226	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom 2227	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom 2228	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom 2230	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom 2232	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom 2236	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom 2238	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
221.34	IDF	1200	2	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., No Lens	62	0.12	148.8	\$17.71	2	0	Existing To Remain	62	0.12	0%	148.8	\$17.71	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	B 246 Storage	1200	3	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.19	223.2	\$26.56	3	0	Existing To Remain	62	0.19	0%	223.2	\$26.56	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	B 226 Storage	1200	3	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.19	223.2	\$26.56	3	0	Existing To Remain	62	0.19	0%	223.2	\$26.56	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	B- 22 Office	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	B- 23 Office	2600	4	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.24	624	\$74.26	4	0	Existing To Remain	60	0.24	0%	624	\$74.26	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	B- 24 Conf. Room	2600	5	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.30	780	\$92.82	5	0	Existing To Remain	60	0.30	0%	780	\$92.82	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	B- 25 Office	2600	3	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.18	468	\$55.69	3	0	Existing To Remain	60	0.18	0%	468	\$55.69	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	B- 26 Office	2600	3	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.18	468	\$55.69	3	0	Existing To Remain	60	0.18	0%	468	\$55.69	\$0.00	\$0.00	0.00	0	\$0.00	0.00		

**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	
321.37	B- 27 Office	2600	3	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.18	468	\$55.69	3	0	Existing To Remain	60	0.18	0%	468	\$55.69	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	B- 28 Office	2600	5	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.30	780	\$92.82	5	0	Existing To Remain	60	0.30	0%	780	\$92.82	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
221.31	B 243A Storage	1200	3	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	62	0.19	223.2	\$26.56	3	0	Existing To Remain	62	0.19	0%	223.2	\$26.56	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	Stair B2	3000	10	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.62	1860	\$221.34	10	0	Existing To Remain	62	0.62	0%	1860	\$221.34	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	Stair B1	3000	10	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.62	1860	\$221.34	10	0	Existing To Remain	62	0.62	0%	1860	\$221.34	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	Men's Room	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806	\$95.91	5	0	Existing To Remain	62	0.31	0%	806	\$95.91	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
221.31	Custodial Closet	1200	2	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	62	0.12	148.8	\$17.71	2	0	Existing To Remain	62	0.12	0%	148.8	\$17.71	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	Women's Restroom	2600	6	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.37	967.2	\$115.10	6	0	Existing To Remain	62	0.37	0%	967.2	\$115.10	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Social Studies Dept.	2600	20	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.20	3120	\$371.28	20	0	Existing To Remain	60	1.20	0%	3120	\$371.28	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	B 212 Storage	1200	3	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.19	223.2	\$26.56	3	0	Existing To Remain	62	0.19	0%	223.2	\$26.56	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	B 211 Storage	1200	3	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.19	223.2	\$26.56	3	0	Existing To Remain	62	0.19	0%	223.2	\$26.56	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	Corridor B 2000	3000	87	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	5.39	16182	\$1,925.66	87	0	Existing To Remain	62	5.39	0%	16182	\$1,925.66	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom B 2213	2600	18	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.08	2808	\$334.15	18	0	Existing To Remain	60	1.08	0%	2808	\$334.15	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
221.11	B 203 IDF	1200	3	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Surface Mnt., Prismatic Lens	62	0.19	223.2	\$26.56	3	0	Existing To Remain	62	0.19	0%	223.2	\$26.56	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom C 2209	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom C 2207	2600	18	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.08	2808	\$334.15	18	0	Existing To Remain	60	1.08	0%	2808	\$334.15	\$0.00	\$0.00	0.00	0	\$0.00	0.00	

**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		
221.31	C 210 Storage	1200	3	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	62	0.19	223.2	\$26.56	3	0	Existing To Remain	62	0.19	0%	223.2	\$26.56	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	Men's Room	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806	\$95.91	5	0	Existing To Remain	62	0.31	0%	806	\$95.91	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	Women's Restroom	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806	\$95.91	5	0	Existing To Remain	62	0.31	0%	806	\$95.91	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	Projector Room	800	8	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.50	396.8	\$47.22	8	0	Existing To Remain	62	0.50	0%	396.8	\$47.22	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom 2206	2600	11	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.66	1716	\$204.20	11	0	Existing To Remain	60	0.66	0%	1716	\$204.20	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	Corridor C 2000	3000	19	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	1.18	3534	\$420.55	19	0	Existing To Remain	62	1.18	0%	3534	\$420.55	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
563		3000	20	2	Recessed Down Light, (2)26w Quad CFL Lamp	52	1.04	3120	\$371.28	20	0	Existing To Remain	52	1.04	0%	3120	\$371.28	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	C 200	2600	21	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.26	3276	\$389.84	21	0	Existing To Remain	60	1.26	0%	3276	\$389.84	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom D 2203	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	D 21 Office	2600	9	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.54	1404	\$167.08	9	0	Existing To Remain	60	0.54	0%	1404	\$167.08	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	Stair D1	3000	8	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.50	1488	\$177.07	8	0	Existing To Remain	62	0.50	0%	1488	\$177.07	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
560	Hall - Upper Commons	3000	96	1	Recessed Down Light, 26w PL Lamp	26	2.50	7488	\$891.07	96	0	Existing To Remain	26	2.50	0%	7488	\$891.07	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	Stair E2	3000	8	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.50	1488	\$177.07	8	0	Existing To Remain	62	0.50	0%	1488	\$177.07	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	IDF	1200	3	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.19	223.2	\$26.56	3	0	Existing To Remain	62	0.19	0%	223.2	\$26.56	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	C 2302 Office	2600	4	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.24	624	\$74.26	4	0	Existing To Remain	60	0.24	0%	624	\$74.26	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
221.36	Green House	2600	18	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Acrylic Lens	62	1.12	2901.6	\$345.29	18	0	Existing To Remain	62	1.12	0%	2901.6	\$345.29	\$0.00	\$0.00	0.00	0	\$0.00	0.00		

**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		
321.37	Classroom E 2303	2600	24	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.44	3744	\$445.54	24	0	Existing To Remain	60	1.44	0%	3744	\$445.54	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom E 2304	2600	32	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.92	4992	\$594.05	32	0	Existing To Remain	60	1.92	0%	4992	\$594.05	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom E 2305	2600	24	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.44	3744	\$445.54	24	0	Existing To Remain	60	1.44	0%	3744	\$445.54	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom E 2306	2600	32	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.92	4992	\$594.05	32	0	Existing To Remain	60	1.92	0%	4992	\$594.05	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom E 2307	2600	24	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.44	3744	\$445.54	24	0	Existing To Remain	60	1.44	0%	3744	\$445.54	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom E 2308	2600	24	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.44	3744	\$445.54	24	0	Existing To Remain	60	1.44	0%	3744	\$445.54	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom E 2309	2600	24	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.44	3744	\$445.54	24	0	Existing To Remain	60	1.44	0%	3744	\$445.54	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom E 2310	2600	24	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.44	3744	\$445.54	24	0	Existing To Remain	60	1.44	0%	3744	\$445.54	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom E 2311	2600	24	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.44	3744	\$445.54	24	0	Existing To Remain	60	1.44	0%	3744	\$445.54	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom E 2312	2600	24	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.44	3744	\$445.54	24	0	Existing To Remain	60	1.44	0%	3744	\$445.54	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom E 2313	2600	24	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.44	3744	\$445.54	24	0	Existing To Remain	60	1.44	0%	3744	\$445.54	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom E 2314	2600	24	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.44	3744	\$445.54	24	0	Existing To Remain	60	1.44	0%	3744	\$445.54	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom E 2315	2600	24	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.44	3744	\$445.54	24	0	Existing To Remain	60	1.44	0%	3744	\$445.54	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom E 2316	2600	24	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.44	3744	\$445.54	24	0	Existing To Remain	60	1.44	0%	3744	\$445.54	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	Men's Room	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806	\$95.91	5	0	Existing To Remain	62	0.31	0%	806	\$95.91	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	Women's Restroom	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806	\$95.91	5	0	Existing To Remain	62	0.31	0%	806	\$95.91	\$0.00	\$0.00	0.00	0	\$0.00	0.00		

### 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		
222.21	IDF	1200	2	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.12	148.8	\$17.71	2	0	Existing To Remain	62	0.12	0%	148.8	\$17.71	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	Stair E2	3000	6	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.37	1116	\$132.80	6	0	Existing To Remain	62	0.37	0%	1116	\$132.80	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	Corridor E 2000	3000	36	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	2.23	6696	\$796.82	36	0	Existing To Remain	62	2.23	0%	6696	\$796.82	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	E 234A Elec. Room	1200	3	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.19	223.2	\$26.56	3	0	Existing To Remain	62	0.19	0%	223.2	\$26.56	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
564	Front Lobby	3000	26	2	Recessed Down Light, (2)40w Quad Long Tube PL Lamp	80	2.08	6240	\$742.56	26	1	Daylight Sensor (Sensorswitch PP-20 & CM-PC or equal)	80	1.25	40%	3744	\$445.54	\$300.00	\$300.00	0.83	2496	\$297.02	1.01		
321.37	A 1000 Admin	2600	31	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.86	4836	\$575.48	31	0	Existing To Remain	60	1.86	0%	4836	\$575.48	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	A-1 Conf. room	2600	4	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.24	624	\$74.26	4	1	Daylight Sensor (Sensorswitch PP-20 & CM-PC or equal)	60	0.14	40%	374.4	\$44.55	\$300.00	\$300.00	0.10	249.6	\$29.70	10.10		
321.37	A-2 Conf. Room	2600	8	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.48	1248	\$148.51	8	0	Existing To Remain	60	0.48	0%	1248	\$148.51	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	A-3 Office	2600	6	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.36	936	\$111.38	6	0	Existing To Remain	60	0.36	0%	936	\$111.38	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
232.21	Break/Copy Area	2600	15	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	1.29	3354	\$399.13	15	0	Existing To Remain	86	1.29	0%	3354	\$399.13	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Guidance	2600	14	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.84	2184	\$259.90	14	0	Existing To Remain	60	0.84	0%	2184	\$259.90	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21		2600	8	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.50	1289.6	\$153.46	8	0	Existing To Remain	62	0.50	0%	1289.6	\$153.46	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	Guidance Restrooms (4)	1200	4	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.25	297.6	\$35.41	4	0	Existing To Remain	62	0.25	0%	297.6	\$35.41	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	Guidance Hall	2600	19	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	1.18	3062.8	\$364.47	19	0	Existing To Remain	62	1.18	0%	3062.8	\$364.47	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Side Offices	2600	39	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	2.34	6084	\$724.00	39	0	Existing To Remain	60	2.34	0%	6084	\$724.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	Men's Room	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806	\$95.91	5	0	Existing To Remain	62	0.31	0%	806	\$95.91	\$0.00	\$0.00	0.00	0	\$0.00	0.00		

**ECM 3: Lighting Controls**

EXISTING LIGHTING					PROPOSED LIGHTING CONTROLS								SAVINGS								SAVINGS		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	
222.21	Women's Restroom	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806	\$95.91	5	0	Existing To Remain	62	0.31	0%	806	\$95.91	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Classroom A 1185	2600	15	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.90	2340	\$278.46	15	0	Existing To Remain	60	0.90	0%	2340	\$278.46	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
232.21	Kiln	2600	6	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.52	1341.6	\$159.65	6	0	Existing To Remain	86	0.52	0%	1341.6	\$159.65	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
232.21	Welding Spray	2600	6	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.52	1341.6	\$159.65	6	0	Existing To Remain	86	0.52	0%	1341.6	\$159.65	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
232.21	Air Spray	2600	4	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.34	894.4	\$106.43	4	0	Existing To Remain	86	0.34	0%	894.4	\$106.43	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
563	Classroom A 1195	2600	30	2	Recessed Down Light, (2)26w Quad CFL Lamp	52	1.56	4056	\$482.66	30	0	Existing To Remain	52	1.56	0%	4056	\$482.66	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37		2600	22	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.32	3432	\$408.41	22	0	Existing To Remain	60	1.32	0%	3432	\$408.41	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
221.31	A 192 Storage	1200	6	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	62	0.37	446.4	\$53.12	6	0	Existing To Remain	62	0.37	0%	446.4	\$53.12	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
221.14	A 110 Display	3000	4	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Surface Mnt., No Lens	62	0.25	744	\$88.54	4	0	Existing To Remain	62	0.25	0%	744	\$88.54	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
221.14	A 100C Display	3000	4	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Surface Mnt., No Lens	62	0.25	744	\$88.54	4	0	Existing To Remain	62	0.25	0%	744	\$88.54	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	Commons near PAC	3000	42	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	2.60	7812	\$929.63	42	0	Existing To Remain	62	2.60	0%	7812	\$929.63	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
563		3000	52	2	Recessed Down Light, (2)26w Quad CFL Lamp	52	2.70	8112	\$965.33	52	0	Existing To Remain	52	2.70	0%	8112	\$965.33	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	Men's Room	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806	\$95.91	5	0	Existing To Remain	62	0.31	0%	806	\$95.91	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	Women's Restroom	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806	\$95.91	5	0	Existing To Remain	62	0.31	0%	806	\$95.91	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
222.21	A 141 Custodial Closet	1200	1	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.06	74.4	\$8.85	1	0	Existing To Remain	62	0.06	0%	74.4	\$8.85	\$0.00	\$0.00	0.00	0	\$0.00	0.00	
321.37	Newspaper	2600	6	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.36	936	\$111.38	6	0	Existing To Remain	60	0.36	0%	936	\$111.38	\$0.00	\$0.00	0.00	0	\$0.00	0.00	

**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		
321.37	Yearbook	2600	6	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.36	936	\$111.38	6	0	Existing To Remain	60	0.36	0%	936	\$111.38	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom A 1135	2600	6	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.36	936	\$111.38	6	0	Existing To Remain	60	0.36	0%	936	\$111.38	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom A 1136	2600	6	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.36	936	\$111.38	6	0	Existing To Remain	60	0.36	0%	936	\$111.38	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
221.31	A 135 Storage	1200	4	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	62	0.25	297.6	\$35.41	4	0	Existing To Remain	62	0.25	0%	297.6	\$35.41	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
221.31	A 137 Storage	1200	4	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	62	0.25	297.6	\$35.41	4	0	Existing To Remain	62	0.25	0%	297.6	\$35.41	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
221.31	IDF	1200	4	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	62	0.25	297.6	\$35.41	4	0	Existing To Remain	62	0.25	0%	297.6	\$35.41	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom A 1134	2600	28	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.68	4368	\$519.79	28	0	Existing To Remain	60	1.68	0%	4368	\$519.79	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom A 1123	2600	28	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.68	4368	\$519.79	28	0	Existing To Remain	60	1.68	0%	4368	\$519.79	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	Practice	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806	\$95.91	5	0	Existing To Remain	62	0.31	0%	806	\$95.91	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	A 124 Office	2600	3	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.18	468	\$55.69	3	0	Existing To Remain	60	0.18	0%	468	\$55.69	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	A 126 Office	2600	3	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.18	468	\$55.69	3	0	Existing To Remain	60	0.18	0%	468	\$55.69	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	A 125 Library	2600	6	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.36	936	\$111.38	6	0	Existing To Remain	60	0.36	0%	936	\$111.38	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	A 133 Storage	1200	3	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.19	223.2	\$26.56	3	0	Existing To Remain	62	0.19	0%	223.2	\$26.56	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	Hall	2600	6	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.37	967.2	\$115.10	6	0	Existing To Remain	62	0.37	0%	967.2	\$115.10	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	Corridor A	2600	24	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	1.49	3868.8	\$460.39	24	0	Existing To Remain	62	1.49	0%	3868.8	\$460.39	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
563	Ramps outside PAC	3000	53	2	Recessed Down Light, (2)26w Quad CFL Lamp	52	2.76	8268	\$983.89	53	0	Existing To Remain	52	2.76	0%	8268	\$983.89	\$0.00	\$0.00	0.00	0	\$0.00	0.00		

**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							
786	PAC	2600	25	5	(3) 150w Incand. (2) 70w MH , Recessed Mount	630	15.75	40950	\$4,873.05	25	0	Existing To Remain	630	15.75	0%	40950	\$4,873.05	\$0.00	\$0.00	0.00	0	\$0.00	0.00							
211.11		2600	16	1	32w T8 Cove Lighting	30	0.48	1248	\$148.51	16	0	Existing To Remain	30	0.48	0%	1248	\$148.51	\$0.00	\$0.00	0.00	0	\$0.00	0.00							
211.13		2600	6	1	25w T8 Cove Lighting	25	0.15	390	\$46.41	6	0	Existing To Remain	25	0.15	0%	390	\$46.41	\$0.00	\$0.00	0.00	0	\$0.00	0.00							
785	PAC Lecture Halls (2)	2600	36	3	(2) 150w Incand. (1) 40w Biax, Recessed Mount	350	12.60	32760	\$3,898.44	36	0	Existing To Remain	350	12.60	0%	32760	\$3,898.44	\$0.00	\$0.00	0.00	0	\$0.00	0.00							
211.11		2600	32	1	32w T8 Cove Lighting	30	0.96	2496	\$297.02	32	0	Existing To Remain	30	0.96	0%	2496	\$297.02	\$0.00	\$0.00	0.00	0	\$0.00	0.00							
211.13		2600	8	1	25w T8 Cove Lighting	25	0.20	520	\$61.88	8	0	Existing To Remain	25	0.20	0%	520	\$61.88	\$0.00	\$0.00	0.00	0	\$0.00	0.00							
222.21	C 109	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806	\$95.91	5	0	Existing To Remain	62	0.31	0%	806	\$95.91	\$0.00	\$0.00	0.00	0	\$0.00	0.00							
221.11	Classroom C 1100 Studio	2600	18	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Surface Mnt., Prismatic Lens	62	1.12	2901.6	\$345.29	18	0	Existing To Remain	62	1.12	0%	2901.6	\$345.29	\$0.00	\$0.00	0.00	0	\$0.00	0.00							
321.37	Control Room	2600	4	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.24	624	\$74.26	4	0	Existing To Remain	60	0.24	0%	624	\$74.26	\$0.00	\$0.00	0.00	0	\$0.00	0.00							
321.37	ITV Room	2600	40	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	2.40	6240	\$742.56	40	0	Existing To Remain	60	2.40	0%	6240	\$742.56	\$0.00	\$0.00	0.00	0	\$0.00	0.00							
321.37	Classroom B 1101	2600	18	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.08	2808	\$334.15	18	0	Existing To Remain	60	1.08	0%	2808	\$334.15	\$0.00	\$0.00	0.00	0	\$0.00	0.00							
321.37	Classroom B 1103	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00							
321.37	Classroom B 1104	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00							
321.37	Classroom B 1105	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00							
321.37	Classroom B 1106	2600	21	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.26	3276	\$389.84	21	0	Existing To Remain	60	1.26	0%	3276	\$389.84	\$0.00	\$0.00	0.00	0	\$0.00	0.00							
321.37	Classroom B 1107	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00							



**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		
321.37	Classroom B 1108	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Resource Room B 1109	2600	10	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.60	1560	\$185.64	10	0	Existing To Remain	60	0.60	0%	1560	\$185.64	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom B 1110	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom B 1111	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom B 1112	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom B 1113	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom B 1114	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom B 1115	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom B 1116	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom B 1117	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom B 1118	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom B 1119	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom B 1121	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom B 1123	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom B 1125	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom B 1127	2600	12	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.72	1872	\$222.77	12	0	Existing To Remain	60	0.72	0%	1872	\$222.77	\$0.00	\$0.00	0.00	0	\$0.00	0.00		

### 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		
321.37	B 103 Office	2600	4	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.24	624	\$74.26	4	0	Existing To Remain	60	0.24	0%	624	\$74.26	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	Passage B 113	2600	3	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.19	483.6	\$57.55	3	0	Existing To Remain	62	0.19	0%	483.6	\$57.55	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	Passage B 133	2600	3	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.19	483.6	\$57.55	3	0	Existing To Remain	62	0.19	0%	483.6	\$57.55	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	Passage B 150	2600	3	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.19	483.6	\$57.55	3	0	Existing To Remain	62	0.19	0%	483.6	\$57.55	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	B 114 Storage	1200	3	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.19	223.2	\$26.56	3	0	Existing To Remain	62	0.19	0%	223.2	\$26.56	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	Men's Room	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806	\$95.91	5	0	Existing To Remain	62	0.31	0%	806	\$95.91	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	Women's Restroom	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806	\$95.91	5	0	Existing To Remain	62	0.31	0%	806	\$95.91	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	Custodial Closet	1200	1	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.06	74.4	\$8.85	1	0	Existing To Remain	62	0.06	0%	74.4	\$8.85	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
221.31	IDF	1200	3	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	62	0.19	223.2	\$26.56	3	0	Existing To Remain	62	0.19	0%	223.2	\$26.56	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
221.31	B 144 Storage	1200	3	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	62	0.19	223.2	\$26.56	3	0	Existing To Remain	62	0.19	0%	223.2	\$26.56	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	D 130Men's Room	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806	\$95.91	5	0	Existing To Remain	62	0.31	0%	806	\$95.91	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	D 132Women's Restroom	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806	\$95.91	5	0	Existing To Remain	62	0.31	0%	806	\$95.91	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	D 131 Custodial	1200	1	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.06	74.4	\$8.85	1	0	Existing To Remain	62	0.06	0%	74.4	\$8.85	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	Elec. Closet	1200	4	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.25	297.6	\$35.41	4	0	Existing To Remain	62	0.25	0%	297.6	\$35.41	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom C 1118	2600	4	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.24	624	\$74.26	4	0	Existing To Remain	60	0.24	0%	624	\$74.26	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom C 1119	2600	18	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.08	2808	\$334.15	18	0	Existing To Remain	60	1.08	0%	2808	\$334.15	\$0.00	\$0.00	0.00	0	\$0.00	0.00		

**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		
321.37	Library	2600	58	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	3.48	9048	\$1,076.71	58	0	Existing To Remain	60	3.48	0%	9048	\$1,076.71	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
780		2600	29	1	36w MR16 Track Head	26	0.75	1960.4	\$233.29	29	0	Existing To Remain	26	0.75	0%	1960.4	\$233.29	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
790		2600	18	2	Pendant Mount, (1) 21w PL and (1) 38w PL Lamp	71	1.28	3322.8	\$395.41	18	2	Daylight Sensor (Sensorswitch PP-20 & CM-PC or equal)	71	0.77	40%	1993.68	\$237.25	\$300.00	\$600.00	0.51	1329.12	\$158.17	3.79		
790		2600	18	2	Pendant Mount, (1) 21w PL and (1) 38w PL Lamp	71	1.28	3322.8	\$395.41	18	0	Existing To Remain	71	1.28	0%	3322.8	\$395.41	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
563	Periodical Storage	2600	2	2	Recessed Down Light, (2)26w Quad CFL Lamp	52	0.10	270.4	\$32.18	2	0	Existing To Remain	52	0.10	0%	270.4	\$32.18	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21		2600	4	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.25	644.8	\$76.73	4	0	Existing To Remain	62	0.25	0%	644.8	\$76.73	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	C 105 Work Room	2600	8	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.50	1289.6	\$153.46	8	0	Existing To Remain	62	0.50	0%	1289.6	\$153.46	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	C 107	2600	9	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.56	1450.8	\$172.65	9	0	Existing To Remain	62	0.56	0%	1450.8	\$172.65	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	C 103 Restroom	1200	1	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.06	74.4	\$8.85	1	0	Existing To Remain	62	0.06	0%	74.4	\$8.85	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	C 101 Shop	2600	6	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.37	967.2	\$115.10	6	0	Existing To Remain	62	0.37	0%	967.2	\$115.10	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	C 100 Hall	2600	8	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.50	1289.6	\$153.46	8	0	Existing To Remain	62	0.50	0%	1289.6	\$153.46	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
563	C 134 Commons	2600	214	2	Recessed Down Light, (2)26w Quad CFL Lamp	52	11.13	28932.8	\$3,443.00	214	0	Existing To Remain	52	11.13	0%	28932.8	\$3,443.00	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37		2600	27	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.62	4212	\$501.23	27	0	Existing To Remain	60	1.62	0%	4212	\$501.23	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21		2600	8	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.50	1289.6	\$153.46	8	0	Existing To Remain	62	0.50	0%	1289.6	\$153.46	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
790		2600	18	2	Pendant Mount, (1) 21w PL and (1) 38w PL Lamp	71	1.28	3322.8	\$395.41	18	2	Daylight Sensor (Sensorswitch PP-20 & CM-PC or equal)	71	0.77	40%	1993.68	\$237.25	\$300.00	\$600.00	0.51	1329.12	\$158.17	3.79		
790		2600	18	2	Pendant Mount, (1) 21w PL and (1) 38w PL Lamp	71	1.28	3322.8	\$395.41	18	0	Existing To Remain	71	1.28	0%	3322.8	\$395.41	\$0.00	\$0.00	0.00	0	\$0.00	0.00		

**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		
321.37	Faculty Dining	2600	24	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.44	3744	\$445.54	24	0	Existing To Remain	60	1.44	0%	3744	\$445.54	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
232.21	Faculty Restrooms	1200	2	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.17	206.4	\$24.56	2	0	Existing To Remain	86	0.17	0%	206.4	\$24.56	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
232.21	D 121 Kitchen Serving	2600	54	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	4.64	12074.4	\$1,436.85	54	0	Existing To Remain	86	4.64	0%	12074.4	\$1,436.85	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
232.21	D 118 Kitchen Serving	2600	16	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	1.38	3577.6	\$425.73	16	0	Existing To Remain	86	1.38	0%	3577.6	\$425.73	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
617	Kitchen Hood	1800	10	1	Hood Light w/Globe & Cage, 100w A Lamp	100	1.00	1800	\$214.20	10	0	Existing To Remain	100	1.00	0%	1800	\$214.20	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
232.21	Receiving	2600	5	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.43	1118	\$133.04	5	0	Existing To Remain	86	0.43	0%	1118	\$133.04	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
232.21	D 112 Storage	1200	9	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	0.77	928.8	\$110.53	9	0	Existing To Remain	86	0.77	0%	928.8	\$110.53	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
227.21	Custodial Closet	1200	1	2	2x2, 2 Lamp, 32w 800 series T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	65	0.07	78	\$9.28	1	0	Existing To Remain	65	0.07	0%	78	\$9.28	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
221.31	Custodial Closet	1200	1	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	62	0.06	74.4	\$8.85	1	0	Existing To Remain	62	0.06	0%	74.4	\$8.85	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	Classroom D 1129	2600	27	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.62	4212	\$501.23	27	0	Existing To Remain	60	1.62	0%	4212	\$501.23	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	Corridor D 100	3000	36	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	2.23	6696	\$796.82	36	0	Existing To Remain	62	2.23	0%	6696	\$796.82	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	H 101 Office	2600	6	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.36	936	\$111.38	6	0	Existing To Remain	60	0.36	0%	936	\$111.38	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
242.21	E 1110 Nurse	2600	2	4	2x4, 4 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	107	0.21	556.4	\$66.21	2	0	Existing To Remain	107	0.21	0%	556.4	\$66.21	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37		2600	14	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.84	2184	\$259.90	14	0	Existing To Remain	60	0.84	0%	2184	\$259.90	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	Back Corridor - Gym	3000	43	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	2.67	7998	\$951.76	43	0	Existing To Remain	62	2.67	0%	7998	\$951.76	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
227.21	E 1135 Boy's	2600	2	2	2x2, 2 Lamp, 32w 800 series T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	65	0.13	338	\$40.22	2	0	Existing To Remain	65	0.13	0%	338	\$40.22	\$0.00	\$0.00	0.00	0	\$0.00	0.00		

## 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		
222.21	Locker Room	2600	34	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	2.11	5480.8	\$652.22	34	0	Existing To Remain	62	2.11	0%	5480.8	\$652.22	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
227.21	Girl's Locker Room	2600	2	2	2x2, 2 Lamp, 32w 800 series T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	65	0.13	338	\$40.22	2	0	Existing To Remain	65	0.13	0%	338	\$40.22	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21		2600	34	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	2.11	5480.8	\$652.22	34	0	Existing To Remain	62	2.11	0%	5480.8	\$652.22	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
221.31	H 104 Boiler Room	3000	46	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	62	2.85	8556	\$1,018.16	46	0	Existing To Remain	62	2.85	0%	8556	\$1,018.16	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
221.31	H 105 Elec. Room	1200	12	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	62	0.74	892.8	\$106.24	12	0	Existing To Remain	62	0.74	0%	892.8	\$106.24	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
221.31	Storage	1200	7	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	62	0.43	520.8	\$61.98	7	0	Existing To Remain	62	0.43	0%	520.8	\$61.98	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
221.31	IDF	1200	1	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	62	0.06	74.4	\$8.85	1	0	Existing To Remain	62	0.06	0%	74.4	\$8.85	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
769	Main Gym	2600	70	1	400w MH, Dimming Ballast, Clear Lens	465	32.55	84630	\$10,070.97	70	0	Existing To Remain	465	32.55	0%	84630	\$10,070.97	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
221.31	Chem Storage	1200	6	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	62	0.37	446.4	\$53.12	6	0	Existing To Remain	62	0.37	0%	446.4	\$53.12	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
221.36	Filter	1200	6	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Acrylic Lens	62	0.37	446.4	\$53.12	6	0	Existing To Remain	62	0.37	0%	446.4	\$53.12	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
771	G 105 Pool	2600	32	2	(2) 400w MH - Indirect Lighting	930	29.76	77376	\$9,207.74	32	0	Existing To Remain	930	29.76	0%	77376	\$9,207.74	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	Locker Room - Men's	2600	15	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.93	2418	\$287.74	15	0	Existing To Remain	62	0.93	0%	2418	\$287.74	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	Locker Room - Women's	2600	15	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.93	2418	\$287.74	15	0	Existing To Remain	62	0.93	0%	2418	\$287.74	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	Pool Lobby/Hall	3000	36	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	2.23	6696	\$796.82	36	0	Existing To Remain	62	2.23	0%	6696	\$796.82	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	Pool Office	2600	6	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.37	967.2	\$115.10	6	0	Existing To Remain	62	0.37	0%	967.2	\$115.10	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	Women's Room	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806	\$95.91	5	0	Existing To Remain	62	0.31	0%	806	\$95.91	\$0.00	\$0.00	0.00	0	\$0.00	0.00		

### 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				
222.21	Men's Room	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806	\$95.91	5	0	Existing To Remain	62	0.31	0%	806	\$95.91	\$0.00	\$0.00	0.00	0	\$0.00	0.00				
222.21	Custodial Closet	1200	1	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.06	74.4	\$8.85	1	0	Existing To Remain	62	0.06	0%	74.4	\$8.85	\$0.00	\$0.00	0.00	0	\$0.00	0.00				
222.21	E 144 Team Room	2600	28	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	1.74	4513.6	\$537.12	28	0	Existing To Remain	62	1.74	0%	4513.6	\$537.12	\$0.00	\$0.00	0.00	0	\$0.00	0.00				
222.21	E 1145 Trainer	2600	24	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	1.49	3868.8	\$460.39	24	0	Existing To Remain	62	1.49	0%	3868.8	\$460.39	\$0.00	\$0.00	0.00	0	\$0.00	0.00				
769	Aux Gym	2600	20	1	400w MH, Dimming Ballast, Clear Lens	465	9.30	24180	\$2,877.42	20	0	Existing To Remain	465	9.30	0%	24180	\$2,877.42	\$0.00	\$0.00	0.00	0	\$0.00	0.00				
222.21	F 1106 Team Room	2600	28	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	1.74	4513.6	\$537.12	28	0	Existing To Remain	62	1.74	0%	4513.6	\$537.12	\$0.00	\$0.00	0.00	0	\$0.00	0.00				
222.21	Men's Room	2600	2	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.12	322.4	\$38.37	2	0	Existing To Remain	62	0.12	0%	322.4	\$38.37	\$0.00	\$0.00	0.00	0	\$0.00	0.00				
222.21	Women's Room	2600	2	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.12	322.4	\$38.37	2	0	Existing To Remain	62	0.12	0%	322.4	\$38.37	\$0.00	\$0.00	0.00	0	\$0.00	0.00				
327.31	Weight Room	2600	32	2	2x2 2 Lamp, 14w T5, Pendant Mnt., Prismatic	31	0.99	2579.2	\$306.92	32	0	Existing To Remain	31	0.99	0%	2579.2	\$306.92	\$0.00	\$0.00	0.00	0	\$0.00	0.00				
222.21	Gym Lobby	2600	42	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	2.60	6770.4	\$805.68	42	0	Existing To Remain	62	2.60	0%	6770.4	\$805.68	\$0.00	\$0.00	0.00	0	\$0.00	0.00				
327.31	E 107 Student Org.	2600	12	2	2x2 2 Lamp, 14w T5, Pendant Mnt., Prismatic	31	0.37	967.2	\$115.10	12	0	Existing To Remain	31	0.37	0%	967.2	\$115.10	\$0.00	\$0.00	0.00	0	\$0.00	0.00				
222.21	E 118 Men's Room	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806	\$95.91	5	0	Existing To Remain	62	0.31	0%	806	\$95.91	\$0.00	\$0.00	0.00	0	\$0.00	0.00				
222.21	E 121 Women's Room	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806	\$95.91	5	0	Existing To Remain	62	0.31	0%	806	\$95.91	\$0.00	\$0.00	0.00	0	\$0.00	0.00				
222.21	Custodial Closet	1200	1	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.06	74.4	\$8.85	1	0	Existing To Remain	62	0.06	0%	74.4	\$8.85	\$0.00	\$0.00	0.00	0	\$0.00	0.00				
321.37	E 1160 Office	2600	9	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.54	1404	\$167.08	9	0	Existing To Remain	60	0.54	0%	1404	\$167.08	\$0.00	\$0.00	0.00	0	\$0.00	0.00				
222.21	Aux Gym Lobby	2600	30	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	1.86	4836	\$575.48	30	0	Existing To Remain	62	1.86	0%	4836	\$575.48	\$0.00	\$0.00	0.00	0	\$0.00	0.00				

### 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		
221.31	F 117 Storage	1200	12	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	62	0.74	892.8	\$106.24	12	0	Existing To Remain	62	0.74	0%	892.8	\$106.24	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	F 1123	2600	16	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.96	2496	\$297.02	16	0	Existing To Remain	60	0.96	0%	2496	\$297.02	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	F 1132	2600	16	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.96	2496	\$297.02	16	0	Existing To Remain	60	0.96	0%	2496	\$297.02	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	Men's Room	2600	2	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.12	322.4	\$38.37	2	0	Existing To Remain	62	0.12	0%	322.4	\$38.37	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	Women's Room	2600	2	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.12	322.4	\$38.37	2	0	Existing To Remain	62	0.12	0%	322.4	\$38.37	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
772	Aerobics	2600	12	8	(8) 42w CFL Lobay	346	4.15	10795.2	\$1,284.63	12	0	Existing To Remain	346	4.15	0%	10795.2	\$1,284.63	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
221.31	F 124 Storage	1200	1	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	62	0.06	74.4	\$8.85	1	0	Existing To Remain	62	0.06	0%	74.4	\$8.85	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	F 1130 Arts	2600	33	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	1.98	5148	\$612.61	33	0	Existing To Remain	60	1.98	0%	5148	\$612.61	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
221.31	Dark Room	1800	12	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., Prismatic Lens	62	0.74	1339.2	\$159.36	12	0	Existing To Remain	62	0.74	0%	1339.2	\$159.36	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
232.21	F 1154 Fab. Labs	2600	36	3	2x4, 3 Lamp, 32w T8, Elect. Ballast, Recessed Mnt., Prismatic Lens	86	3.10	8049.6	\$957.90	36	0	Existing To Remain	86	3.10	0%	8049.6	\$957.90	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
237.21	F 1142 CAD	2600	48	3	2x2, 3 Lamp, 31w T8 Ulamp, Elect. Ballast, Recessed Mnt., Prismatic Lens	92	4.42	11481.6	\$1,366.31	48	0	Existing To Remain	92	4.42	0%	11481.6	\$1,366.31	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	Men's Room	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806	\$95.91	5	0	Existing To Remain	62	0.31	0%	806	\$95.91	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
222.21	Women's Room	2600	5	2	2x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Recessed Mnt., Prismatic	62	0.31	806	\$95.91	5	0	Existing To Remain	62	0.31	0%	806	\$95.91	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
221.34	Boiler Room	3000	8	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., No Lens	62	0.50	1488	\$177.07	8	0	Existing To Remain	62	0.50	0%	1488	\$177.07	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	F 164 Tech	2600	11	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.66	1716	\$204.20	11	0	Existing To Remain	60	0.66	0%	1716	\$204.20	\$0.00	\$0.00	0.00	0	\$0.00	0.00		
321.37	F 166 Office	2600	3	2	1x4 2 Lamp, 28w T5HO, Pendant Mnt., Indirect	60	0.18	468	\$55.69	3	0	Existing To Remain	60	0.18	0%	468	\$55.69	\$0.00	\$0.00	0.00	0	\$0.00	0.00		

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				
321.37	Conf. Room	2600	3	2	1x4 2 Lamp, 28w TSHO, Pendant Mnt., Indirect	60	0.18	468	\$55.69	3	0	Existing To Remain	60	0.18	0%	468	\$55.69	\$0.00	\$0.00	0.00	0	\$0.00	0.00				
221.34	F 165	2600	2	2	1x4, 2 Lamp, 32w Philips Alto 835 T8, Elect. Ballast, Pendant Mnt., No Lens	62	0.12	322.4	\$38.37	2	0	Existing To Remain	62	0.12	0%	322.4	\$38.37	\$0.00	\$0.00	0.00	0	\$0.00	0.00				
Totals			3,771	528			317.8	826,034.4	\$98,298	3,771	6			315.8		820,630.6	\$97,655.04		\$1,800	1.95	5,404	\$643	2.80				

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Investment Grade Lighting Audit

CEG Job #: 9C11058

Project: Montgomery Twp. Schools LGEA

Montgomery High School and Admin.

KWH COST: \$0.120

Bldg. Sq. Ft.

ECM ##: Lighting Upgrade - Comparison

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	Total Incentive	kW Savings	kWh/Yr Savings	Yearly \$ Savings	Yearly Simple Payback
769	Main Gym	2600	70	1	400w MH, Dimming Ballast, Clear Lens	465	32.55	84,630.0	\$10,155.60	70	6	2x4 54w T5HO 6 Lamp w/Prismatic Lens	354	24.78	64428	\$7,731.36	\$240.00	\$16,800.00	\$7,000.00	7.77	20202	\$2,424.24	4.04
769a	Main Gym	2600	70	1	400w MH, Dimming Ballast, Clear Lens	465	32.55	84,630.0	\$10,155.60	42	1	250w Induction Lamp	262	11.00	28610.4	\$3,433.25	\$550.00	\$23,100.00	\$2,940.00	21.55	56019.6	\$6,722.35	3.00
769b	Main Gym	2600	70	1	400w MH, Dimming Ballast, Clear Lens	465	32.55	84,630.0	\$10,155.60	42	8	42w CFL Sportlite or Equal	337	14.15	36800.4	\$4,416.05	\$910.00	\$38,220.00	\$0.00	18.40	47829.6	\$5,739.55	6.66
769c	Main Gym	2600	70	1	400w MH, Dimming Ballast, Clear Lens	465	32.55	84,630.0	\$10,155.60	35	1	4 POD LED	287	10.05	26117	\$3,134.04	\$1,660.00	\$58,100.00	\$5,250.00	22.51	58513	\$7,021.56	7.53
771	G 105 Pool	2600	32	2	(2) 400w MH - Indirect Lighting	930	29.76	77,376.0	\$9,285.12	32	8	2x4 54w T5HO 8 Lamp, Uplight, No Lens	480	15.36	39936	\$4,792.32	\$400.00	\$12,800.00	\$3,200.00	14.40	37440	\$4,492.80	2.14
771a	G 105 Pool	2600	32	2	(2) 400w MH - Indirect Lighting	930	29.76	77,376.0	\$9,285.12	32	1	250w Induction Lamp w/lifter	262	8.38	21798.4	\$2,615.81	\$1,225.00	\$39,200.00	\$2,240.00	21.38	55577.6	\$6,669.31	5.54
771b	G 105 Pool	2600	32	2	(2) 400w MH - Indirect Lighting	930	29.76	77,376.0	\$9,285.12	32	8	42w CFL Sportlite or Equal w/ lifter	337	10.78	28038.4	\$3,364.61	\$1,535.00	\$49,120.00	\$0.00	18.98	49337.6	\$5,920.51	8.30
771c	G 105 Pool	2600	32	2	(2) 400w MH - Indirect Lighting	930	29.76	77,376.0	\$9,285.12	32	1	4 POD LED w/lifter	287	9.18	23878.4	\$2,865.41	\$2,335.00	\$74,720.00	\$4,800.00	20.58	53497.6	\$6,419.71	10.89
771d	G 105 Pool	2600	32	2	(2) 400w MH - Indirect Lighting	930	29.76	77,376.0	\$9,285.12	32	2	320w Pulse Start Metal Halide	698	22.34	58073.6	\$6,968.83	\$1,260.00	\$40,320.00	\$800.00	7.42	19302.4	\$2,316.29	17.06
769	Aux Gym	2600	20	1	400w MH, Dimming Ballast, Clear Lens	465	9.30	24,180.0	\$2,901.60	20	6	2x4 54w T5HO 6 Lamp w/Prismatic Lens	354	7.08	18408	\$2,208.96	\$240.00	\$4,800.00	\$2,000.00	2.22	5772	\$692.64	4.04
769a	Aux Gym	2600	20	1	400w MH, Dimming Ballast, Clear Lens	465	9.30	24,180.0	\$2,901.60	24	1	250w Induction Lamp	262	6.29	16348.8	\$1,961.86	\$550.00	\$13,200.00	\$1,680.00	3.01	7831.2	\$939.74	12.26
769b	Aux Gym	2600	20	1	400w MH, Dimming Ballast, Clear Lens	465	9.30	24,180.0	\$2,901.60	24	8	42w CFL Sportlite or Equal	337	8.09	21028.8	\$2,523.46	\$910.00	\$21,840.00	\$0.00	1.21	3151.2	\$378.14	57.76
769c	Aux Gym	2600	20	1	400w MH, Dimming Ballast, Clear Lens	465	9.30	24,180.0	\$2,901.60	18	1	4 POD LED	287	5.17	13431.6	\$1,611.79	\$1,660.00	\$29,880.00	\$2,700.00	4.13	10748.4	\$1,289.81	21.07

# Lumen Method Summary

## Project

Title **Montgomery High School**  
Description **Main Gymnasium 250w Induction Lamp**  
Number  
Company  
Designer **Concord Engineering  
L. Hart**

## Room

Length [X] **149 ft**  
Width [Y] **108 ft**  
Height [Z] **35 ft**

RCR **2.20**  
Ceiling **70 %**  
Walls **50 %**  
Floor **20 %**

Workplane Height **2.5 ft**

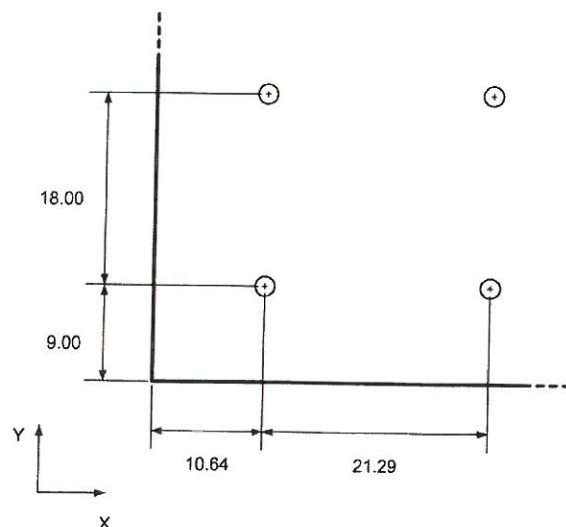
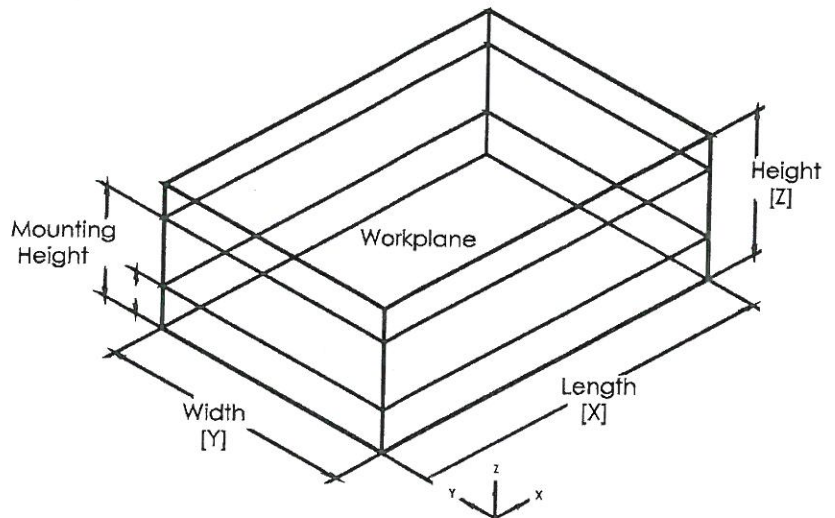
## Luminaire

Mounting Height **30 ft**  
Catalog Number **EHBUS-CC-250W**  
Manufacturer **FULL SPECTRUM**  
IES File Name **Everlast High Bay US-CC-250W.IES**  
Lamp Description **ONE 250 WATT INDUCTION LAMP**  
Number of Lamps **1**  
Lamp Lumens **21000**  
Light Loss Factor **.95**

Coefficient of Utilization **0.75**

## Output

Illuminance **39 fc**  
Number of Luminaires **42**  
Number of Columns [X] **7**  
Number of Rows [Y] **6**  
Column Spacing [X] **21.29 ft**  
Row Spacing [Y] **18.00 ft**  
Column Start [X] **10.64 ft**  
Row Start [Y] **9.00 ft**  
Power Density **0.68 W/ft<sup>2</sup>**




Note: Calculations are based on procedures established by the Illuminating Engineering Society of North America, or standard industry practice. Visual computes output performance based on input data as provided by, and which is the sole responsibility of, the user. Acuity Brands Lighting, Inc. cannot be held responsible for the variations in actual situations which can effect calculated output.

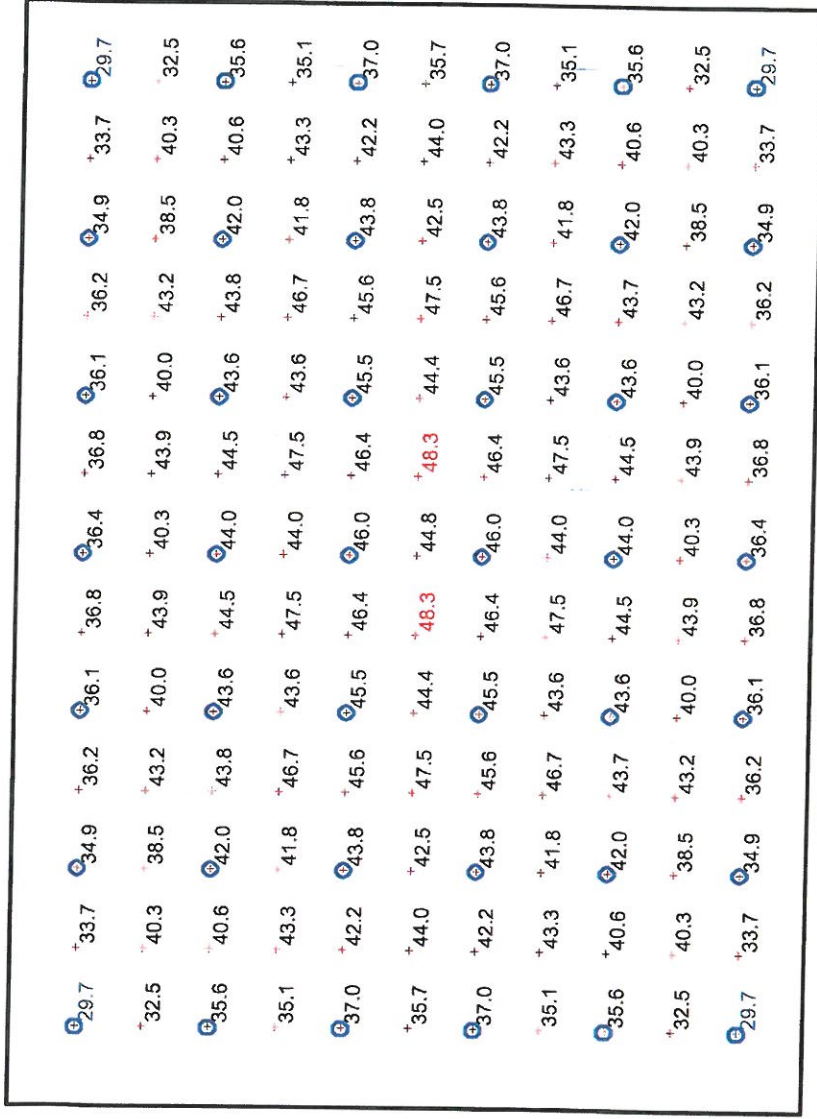


# STATISTICS

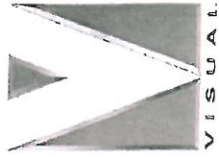
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Workplane	+	40.9 fc	48.3 fc	29.7 fc	1.6:1	1.4:1

## LUMINAIRE SCHEDULE

Symbol	Label	Qty	Catalog Number	Description	Lamp	File	Lumens	LLF	Watts
	LM-1	42	EHBUS-CC-250W	PREMIUM ACRYLIC REFLECTOR WITH CONICAL DROP LENS	ONE 250 WATT INDUCTION LAMP	Everlast High Bay US-CC-250WIES	21000	0.95	262



Plan View  
Scale 1" = 25'



Montgomery High School  
Main Gymnasium 250w Induction Lamp  
Concord Engineering

Designer  
L. Hart

Date  
Feb 20 2012

Scale

Drawing No.

1 of 1

## Lumen Method Summary

### Project

Title **Montgomery High School**  
Description **Auxiliary Gymnasium 250w Induction Lamp**  
Number  
Company **Concord Engineering**  
Designer **L HArt**

### Room

Length [X] **112 ft**  
Width [Y] **75 ft**  
Height [Z] **23 ft**

RCR **1.95**

Ceiling **70 %**  
Walls **50 %**  
Floor **20 %**

Workplane Height **2.5 ft**

### Luminaire

Mounting Height **20 ft**

Catalog Number **EHBUS-CC-250W**  
Manufacturer **FULL SPECTRUM**  
IES File Name **Everlast High Bay US-CC-250W.IES**

Lamp Description **ONE 250 WATT INDUCTION LAMP**  
Number of Lamps **1**  
Lamp Lumens **21000**  
Light Loss Factor **.95**

Coefficient of Utilization **0.78**

### Output

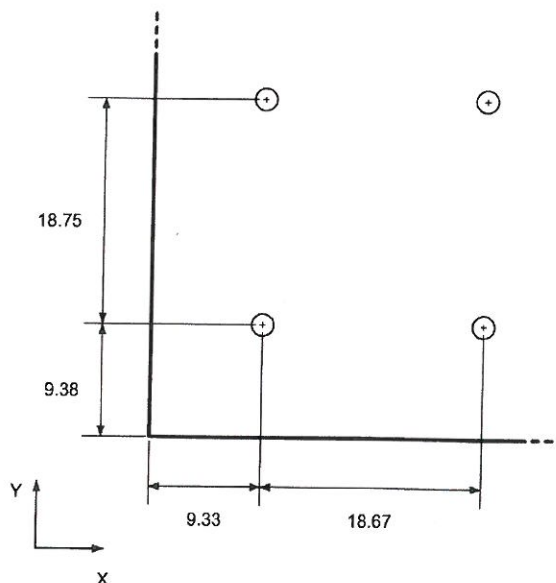
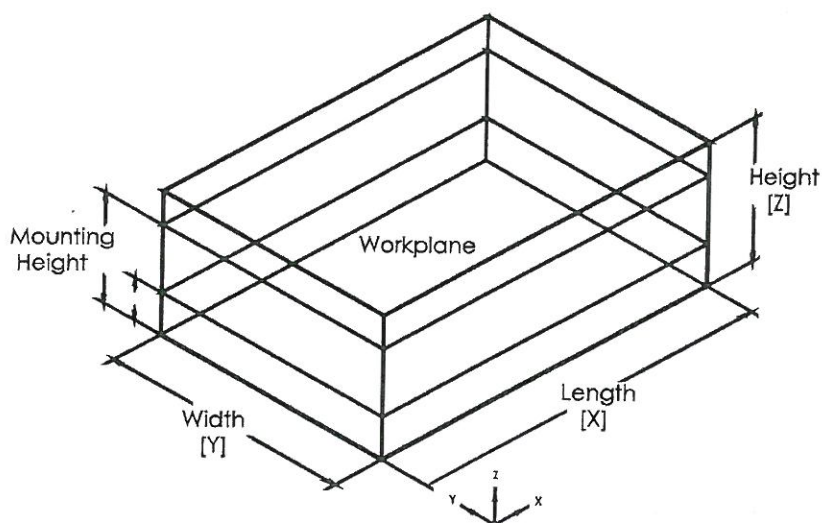
Illuminance **44 fc**  
Number of Luminaires **24**

Number of Columns [X] **6**  
Number of Rows [Y] **4**

Column Spacing [X] **18.67 ft**  
Row Spacing [Y] **18.75 ft**

Column Start [X] **9.33 ft**  
Row Start [Y] **9.38 ft**

Power Density **0.75 W/ft<sup>2</sup>**




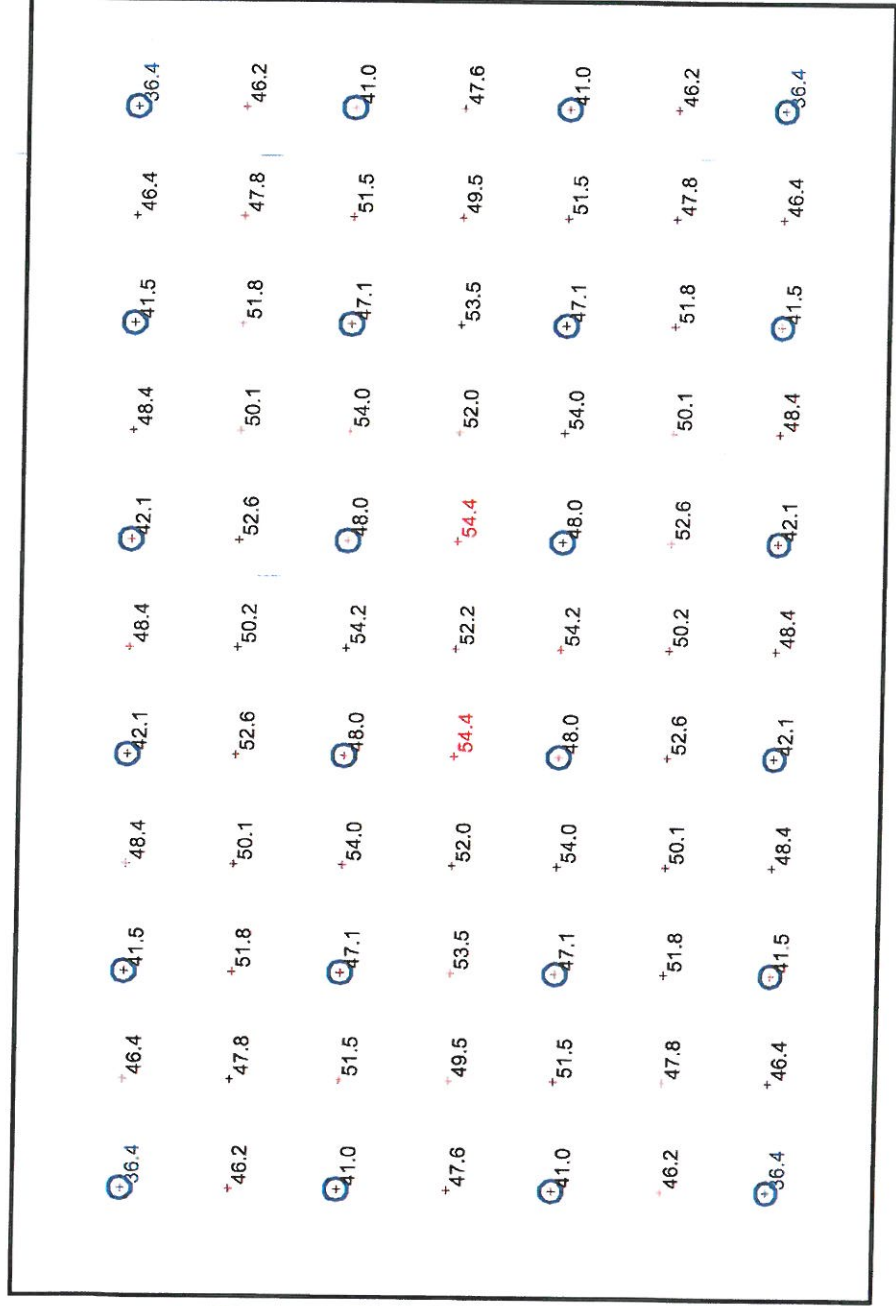
Note: Calculations are based on procedures established by the Illuminating Engineering Society of North America, or standard industry practice. Visual computes output performance based on input data as provided by, and which is the sole responsibility of, the user. Acuity Brands Lighting, Inc. cannot be held responsible for the variations in actual situations which can effect calculated output.

# STATISTICS

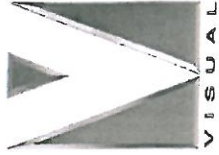
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Workplane	+	47.9 fc	54.4 fc	36.4 fc	1.5:1	1.3:1

## LUMINAIRE SCHEDULE

Symbol	Label	Qty	Catalog Number	Description	Lamp	File	Lumens	LLF	Watts
	LM-1	24	EHBUS-CC-250W	PREMIUM ACRYLIC REFLECTOR WITH CONICAL DROP LENS	ONE 250 WATT INDUCTION LAMP	Everlast High Bay US-CC-250W.HES	21000	0.95	262



Plan View



Montgomery High School  
Auxiliary Gymnasium 250w Induction Lamp  
Concord Engineering

Designer  
L HART

Date  
Feb 16 2012

Scale

Drawing No.

1 of 1





Manufactured in U.S.A.  
Per Buy American Act 41 U.S.C.

\*Patent Pending

## Huron Acrylic High Bay

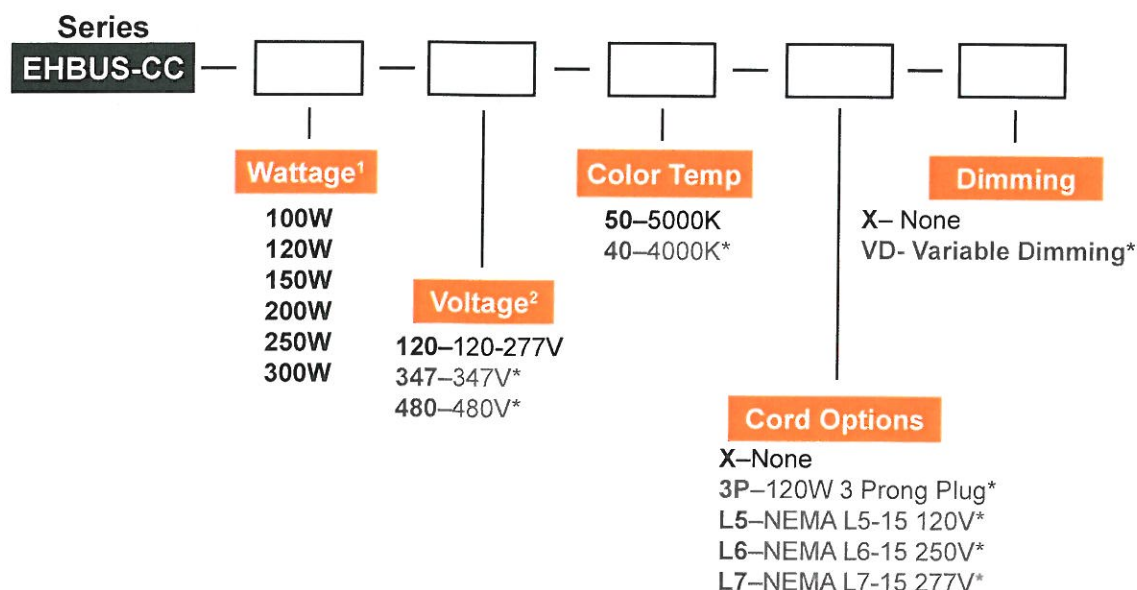
### Description

- Series: EHBUS-CC
- Lamp Life Rating: 100,000 hours
- Lumen Maintenance: 70% over 100,000 hours
- Light Output: 5000K, 82-90 CRI
- IP Rating: IP43
- Applications: Warehouses, factories, retail showrooms, gymnasiums, supermarkets, exhibition halls
- Warranty: 10 Year Limited

### Specifications and Patent Pending Features

- Premium grade acrylic reflector with <2% Haze
- Conical lens lifts main beam and breaks diffuses image
- Stainless steel roll-form clamp band
- US Patented optics improve performance by 20% compared to competing fixtures
- Die cast aluminum ballast casing with corrosion-resistant white powder coat finish
- Electronic ballast with high power factor, flicker free instant re-strike
- Excellent vibration & shock resistance

## Ordering Information



**Bold** = Standard

Grey \* = Upgrade options available upon request

Example: **EHBUS-CC-150-120-50-3P-VD**

\*Legal Notice: Full Spectrum Solutions owns proprietary rights in the EverLast® Series of fixtures in the form of pending patent applications in the US and PCT applications for International protection.

EverLast® Lighting A Product of Full Spectrum Solutions, Inc. 2009, All Rights Reserved

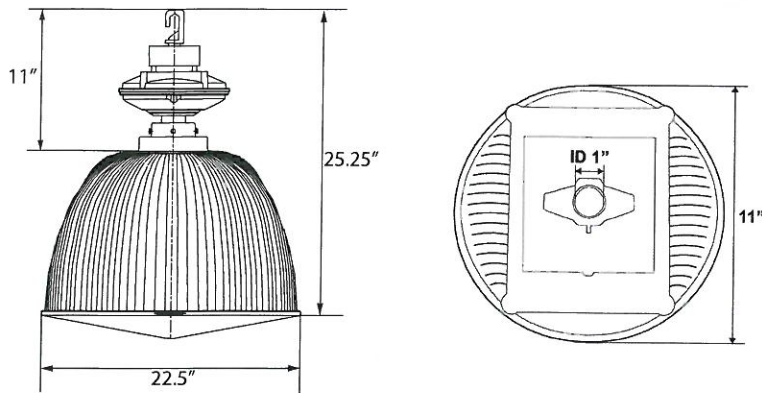
**888-383-7578**

**www.everlastlight.com**

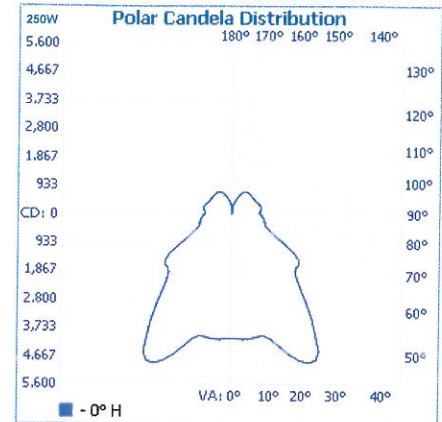
2021 Wellworth Ave. Jackson Michigan, 49203 U.S.A.



### Dimensions



### Photometric Data



### Lamp Specifications

Wattage	Lumens	L/W Ratio	CRI	CCT (KELVIN)	Rated Life
100W	8,400	84	82-85	5000	100,000 hours
120W	10,100	84	82-85	5000	100,000 hours
150W	12,600	84	82-85	5000	100,000 hours
200W	16,800	84	82-85	5000	100,000 hours
250W	21,000	84	86-90	5000	100,000 hours
300W	25,200	84	86-90	5000	100,000 hours

### Ballast Specifications

System Wattage	Input Voltage	Input Current	Input Freq.	Power Factor	Ambient Temp	THD
111W	120-277V/480V*	0.93-0.42A / 0.22A	50/60Hz	>0.95	-20 to 130 F°	<10%
134W	120-277V/480V*	1.05-0.46A / 0.28A	50/60Hz	>0.95	-20 to 130 F°	<10%
165W	120-277V/480V*	1.35-0.61A / 0.35A	50/60Hz	>0.95	-20 to 130 F°	<10%
215W	120-277V/480V*	1.77-0.80A / 0.45A	50/60Hz	>0.95	-20 to 130 F°	<10%
265W	120-277V/480V*	2.21-1.00A / 0.56A	50/60Hz	>0.95	-20 to 130 F°	<10%
320W	120-277V/480V*	2.65-1.20A / 0.62A	50/60Hz	>0.95	-20 to 130 F°	<10%

### Application Image - EHBUS-CC



Southern Felt Co., North Augusta SC

\*Legal Notice: Full Spectrum Solutions owns proprietary rights in the EverLast® Series of fixtures in the form of pending patent applications in the US and PCT applications for International protection.

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**888-383-7578** **www.everlastlight.com**

2021 Wellworth Ave. Jackson Michigan, 49203 U.S.A.

# Lumen Method Summary

## Project

Title **Montgomery High School**  
 Description **Main Gymnasium 8 - 42w CFL**  
 Number  
 Company **Concord Engineering**  
 Designer **L. Hart**

## Room

Length [X] **149 ft**  
 Width [Y] **108 ft**  
 Height [Z] **35 ft**

RCR **2.20**

Ceiling **70 %**  
 Walls **50 %**  
 Floor **20 %**

Workplane Height **2.5 ft**

## Luminaire

Mounting Height **30 ft**

Catalog Number **TDX8-T42-21AL**  
 Manufacturer **DayBrite-Capri-Omega(Genlyte Group)**  
 IES File Name **Sportlite 33.ies**

Lamp Description **CFT42W**  
 Number of Lamps **8**  
 Lamp Lumens **3200**  
 Light Loss Factor **.9**

Coefficient of Utilization **0.64**

## Output

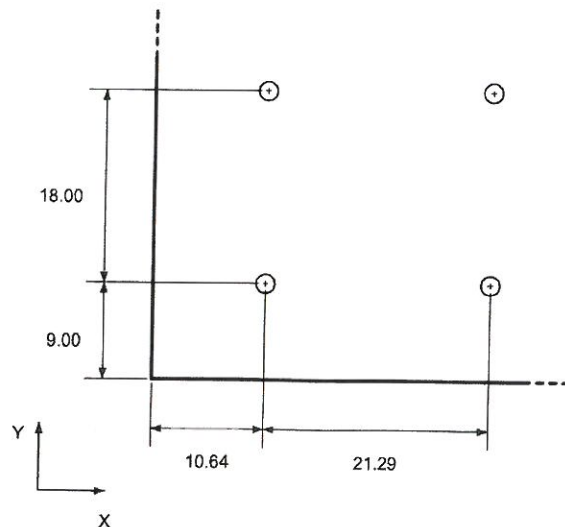
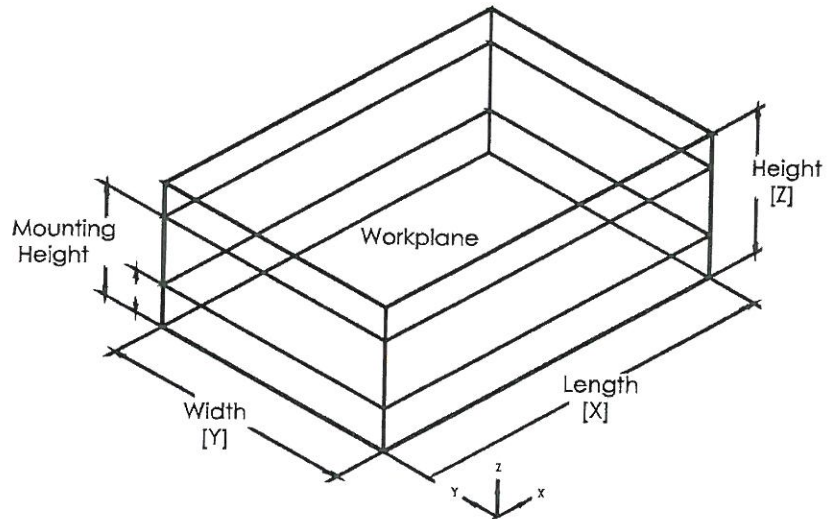
Illuminance **38 fc**  
 Number of Luminaires **42**

Number of Columns [X] **7**  
 Number of Rows [Y] **6**

Column Spacing [X] **21.29 ft**  
 Row Spacing [Y] **18.00 ft**

Column Start [X] **10.64 ft**  
 Row Start [Y] **9.00 ft**


Power Density **0.88 W/ft<sup>2</sup>**




Note: Calculations are based on procedures established by the Illuminating Engineering Society of North America, or standard industry practice. Visual computes output performance based on input data as provided by, and which is the sole responsibility of, the user. Acuity Brands Lighting, Inc. cannot be held responsible for the variations in actual situations which can effect calculated output.

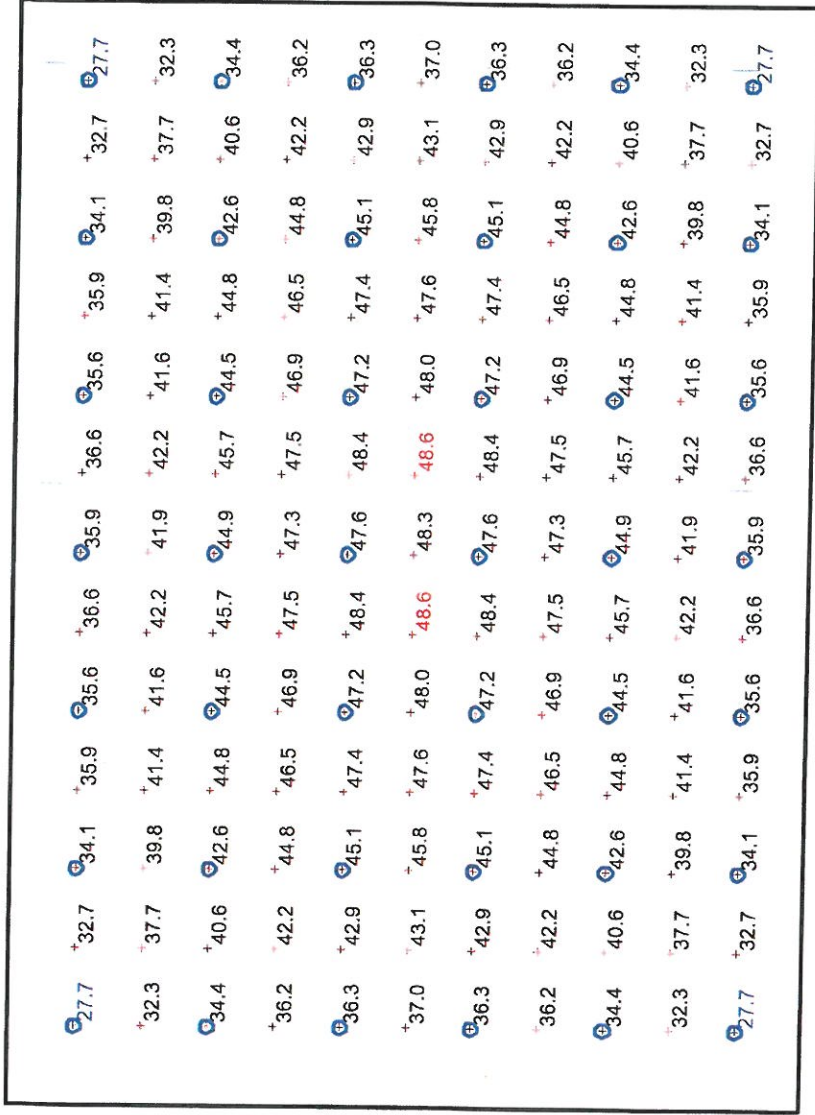


## STATISTICS

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Workplane		41.3 fc	48.6 fc	27.7 fc	1.8:1	1.5:1

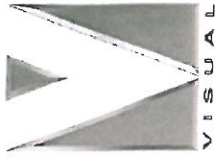
## LUMINAIRE SCHEDULE

Symbol	Label	Qty	Catalog Number	Description	Lamp	File	Lumens	LLF	Watts
	LM-1	42	TDX8-T42-21AL	SPORTLITE TDX COMPACT FLUORESCENT HIGHBAY W/ 21" ALUMINUM REFLECTOR	CFT42W	Sportlite 33.ies	3200	0.90	337



Plan View

Scale 1"=25'



Montgomery High School  
Main Gymnasium 8 - 42w CFL  
Concord Engineering

Designer  
L. Hart

Date  
Feb 20 2012

Scale

Drawing No.

1 of 1

# Lumen Method Summary

## Project

Title **Montgomery High School**  
Description **Auxiliary Gymnasium 8 - 42w CFL**  
Number  
Company **Concord Engineering**  
Designer **L Hart**

## Room

Length [X] **112 ft**  
Width [Y] **72 ft**  
Height [Z] **22 ft**

RCR **2.22**

Ceiling **70 %**  
Walls **42 %**  
Floor **20 %**

Workplane Height **2.5 ft**

## Luminaire

Mounting Height **22 ft**

Catalog Number **TDX8-T42-21AL**  
Manufacturer **DayBrite-Capri-Omega(Genlyte Group)**  
IES File Name **Sportlite 33.ies**

Lamp Description **CFT42W**  
Number of Lamps **8**  
Lamp Lumens **3200**  
Light Loss Factor **.9**

Coefficient of Utilization **0.62**

## Output

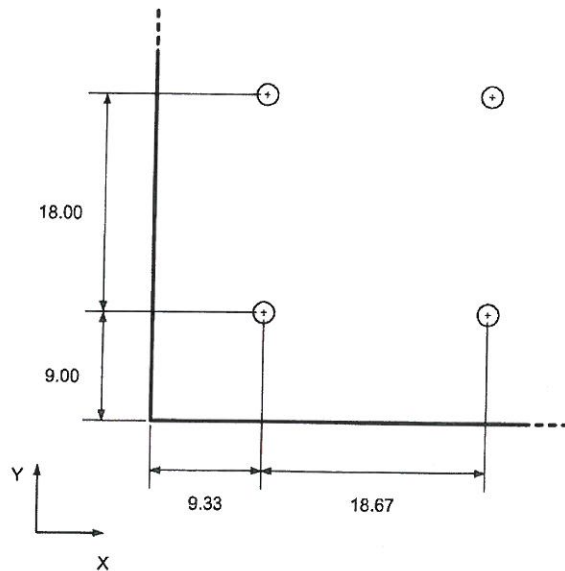
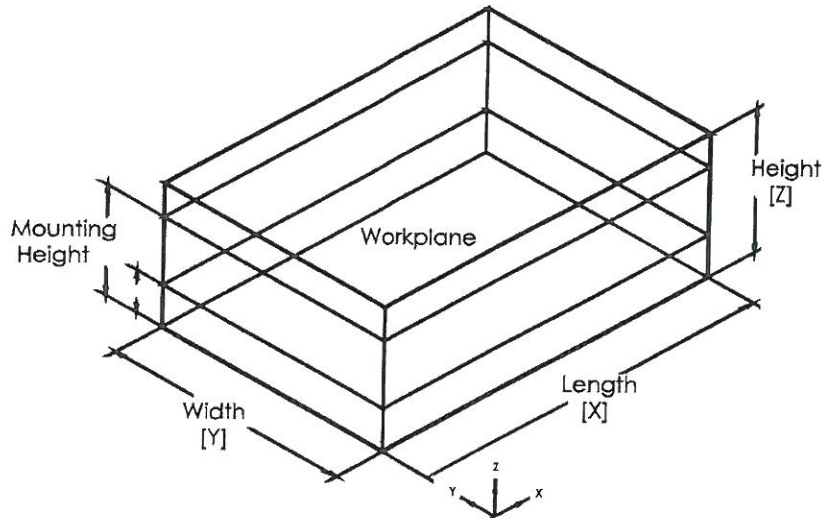
Illuminance **43 fc**  
Number of Luminaires **24**

Number of Columns [X] **6**  
Number of Rows [Y] **4**

Column Spacing [X] **18.67 ft**  
Row Spacing [Y] **18.00 ft**

Column Start [X] **9.33 ft**  
Row Start [Y] **9.00 ft**

Power Density **1.00 W/ft²**




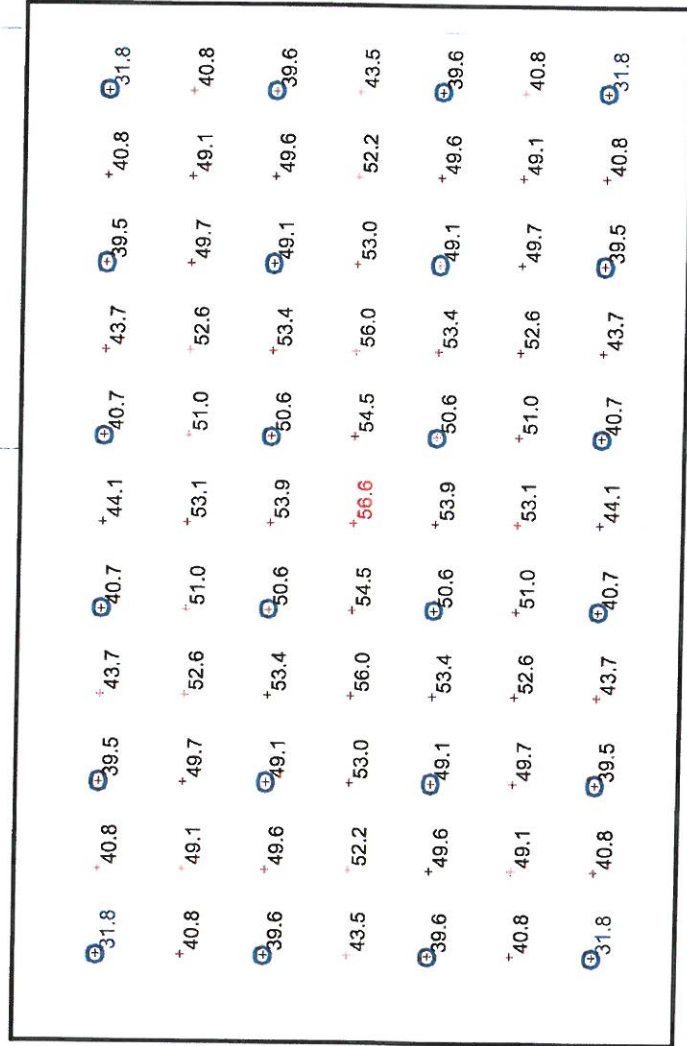
Note: Calculations are based on procedures established by the Illuminating Engineering Society of North America, or standard industry practice. Visual computes output performance based on input data as provided by, and which is the sole responsibility of, the user. Acuity Brands Lighting, Inc. cannot be held responsible for the variations in actual situations which can effect calculated output.

## STATISTICS

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Workplane	+	46.8 fc	56.6 fc	31.8 fc	1.8:1	1.5:1

## LUMINAIRE SCHEDULE

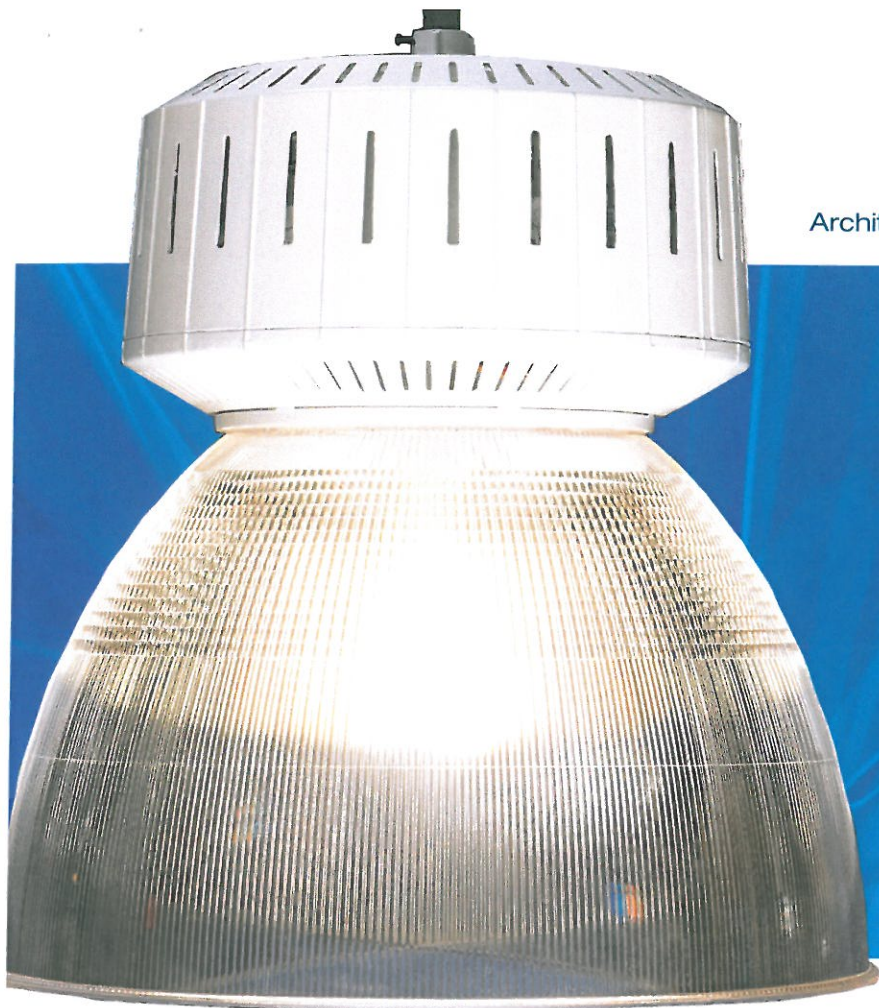
Symbol	Label	Qty	Catalog Number	Description	Lamp	File	Lumens	LLF	Watts
	LM-1	24	TDX8-T42-21AL	SPORTLITE TDX COMPACT FLUORESCENT HIGHBAY W/ 21" ALUMINUM REFLECTOR	CFT42W	Sportlite 33.ies	3200	0.90	337.





## TDX SERIES Starliter Dome

Architectural Grade Compact Fluorescent High Bay



NOW AVAILABLE  
WITH 41,600  
LUMENS



### Industry First

You will hear people in the industry say "you can't run 8 – 70's in a fixture" and they are right, they can't. They will say, "it's too hot". And for them this is true. But for Sportlite's new "Air Flow" design, our new TDX High Bay with 8 – 70 watt lamps operates so cool, it can be used in 40°C environments. At Sportlite we don't say, "it can't be done" because with the right design it can. That's why, at Sportlite, our motto has always been "Putting Technology In a New Lite".

### Philips Sportlite Exclusive

- The Only Manufacturer Able To Give You 8 – 70W Lamps With 41,600 Lumens!
- Approved for 40°C Environments using 8 – 70 Watt Lamps
- Cool Running Ballast – Less than 65°C with 8 – 70W Lamps (Independent Testing @ 25°C)

- For Use With The Following Lamps: 120W, 85W, 70W, 57W, 42W, 32W, 26W (4-85 or 4-120)
- Complete Ballast Chamber Access While Hanging For Easy Maintenance
- Available with: Clear Polycarbonate Dome, Aluminum Dome, Pearlescent Dome and ABS White Dome
- Internal Emergency Available with Lamps Up To 42 Watt
- External Emergency Available with Lamps Up To 70 Watt
- Plug-In Ballast Connectors
- 20,000 Hour Lamp Life
- 3/4" Pendant Mount or Hook, Cord and Plug
- 2, 3, or 4 Level Switching Available
- Dimming Ballast available for some lamp wattages
- Standard Color – White
- Custom RAL Colors Available

P: 623.930.0074 F: 623.930.0045 [www.sportlite.com](http://www.sportlite.com)

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P: 623.930.0074 F: 623.930.0045 [www.sportlite.com](http://www.sportlite.com) R10/10

**PHILIPS**  
**SPORTLITE**

## Lumen Method Summary

### Project

Title **Montgomery High School**  
Description **Main Gymnasium 4 POD LED**  
Number  
Company **Concord Engineering**  
Designer **L. Hart**

### Room

Length [X] **149 ft**  
Width [Y] **108 ft**  
Height [Z] **35 ft**

RCR **2.20**

Ceiling **70 %**  
Walls **50 %**  
Floor **20 %**

Workplane Height **2.5 ft**

### Luminaire

Mounting Height **30 ft**

Catalog Number **PHILIPS LED HIBAY 4-POD**  
Manufacturer **EXCELINE - A PHILIPS COMPANY**  
IES File Name **4 Pod Baylyter LED BL4C4WLx22.IES**

Lamp Description **LEDGINE 4X32 CREE XPG NW 4000K (LED#46/47/48/49). LUMINAIRE OUTPUT = 21796 LM**  
Number of Lamps **1**  
Lamp Lumens **21817.93**  
Light Loss Factor **.95**

Coefficient of Utilization **0.86**

### Output

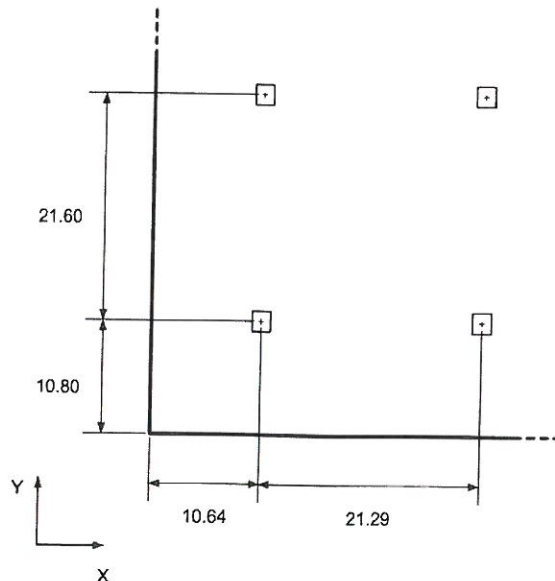
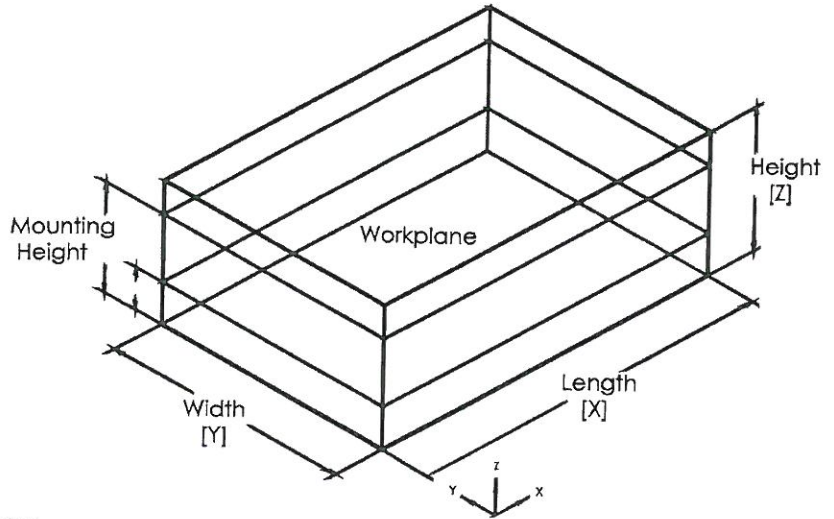
Illuminance **39 fc**  
Number of Luminaires **35**

Number of Columns [X] **7**  
Number of Rows [Y] **5**

Column Spacing [X] **21.29 ft**  
Row Spacing [Y] **21.60 ft**

Column Start [X] **10.64 ft**  
Row Start [Y] **10.80 ft**

Power Density **0.62 W/ft<sup>2</sup>**



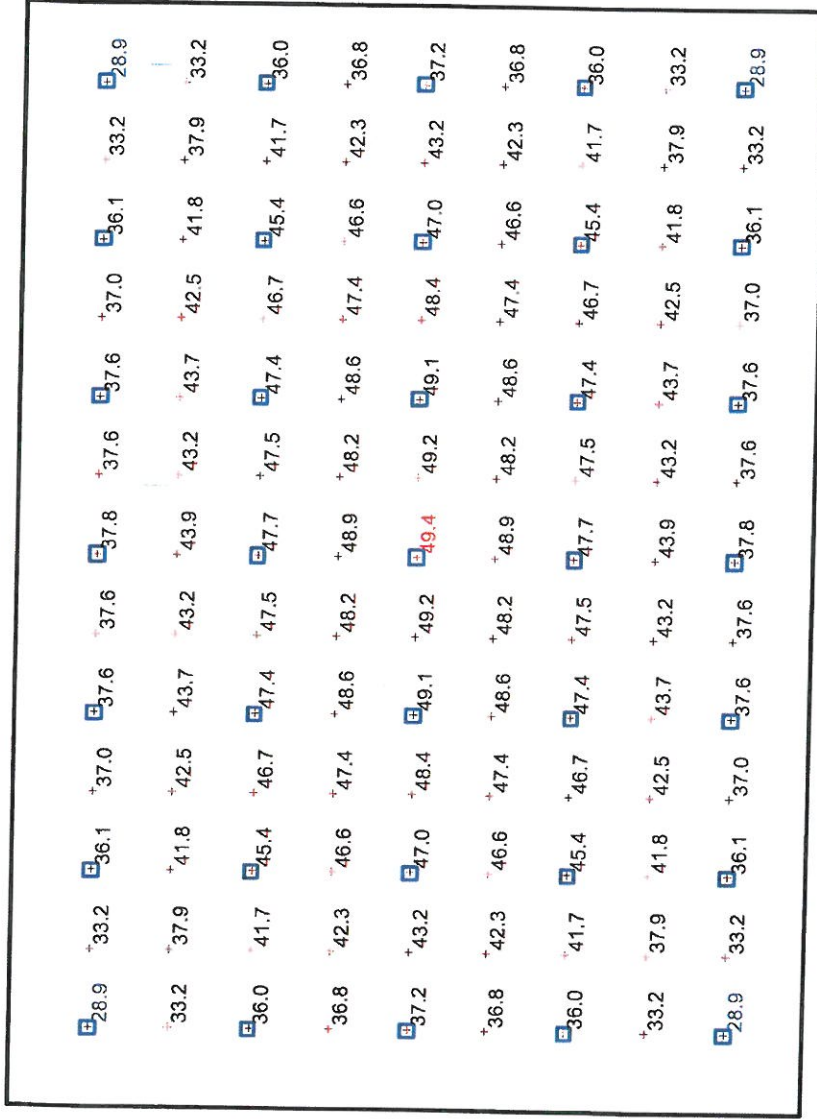
Note: Calculations are based on procedures established by the Illuminating Engineering Society of North America, or standard industry practice. Visual computes output performance based on input data as provided by, and which is the sole responsibility of, the user. Acuity Brands Lighting, Inc. cannot be held responsible for the variations in actual situations which can effect calculated output.

# STATISTICS

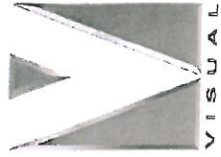
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Workplane	+	41.9 fc	49.4 fc	28.9 fc	1.7:1	1.4:1

## LUMINAIRE SCHEDULE

Symbol	Label	Qty	Catalog Number	Description	Lamp	File	Lumens	LLF	Watts
	LM-1	35	PHILIPS LED HIBAY 4-POD	HIBAY WIDE DISTRIBUTION SOLITE PRISMATIC LENS	LEDGINE 4X32 CREE XPG NW 4000K (LED#46/47/48/49), LUMINAIRE OUTPUT = 21796 LM	4 Pod Baylyfer LED BL4C4WLx22.1 ES	Absolute	0.95	287



Plan View  
Scale 1" = 20"



Montgomery High School  
Main Gymnasium 4 POD LED  
Concord Engineering

Designer  
L. Hart

Date  
Feb 20 2012

Scale

Drawing No.

1 of 1



# Lumen Method Summary

## Project

Title **Montgomery High School**  
 Description **Auxiliary Gymnasium 4 Pod LED**  
 Number  
 Company **Concord Engineering**  
 Designer **L Hart**

## Room

Length [X] **112 ft**  
 Width [Y] **72 ft**  
 Height [Z] **23 ft**

RCR **2.34**

Ceiling **70 %**  
 Walls **50 %**  
 Floor **20 %**

Workplane Height **2.5 ft**

## Luminaire

Mounting Height **23 ft**

Catalog Number **PHILIPS LED HIBAY 4-POD**  
 Manufacturer **EXCELINE - A PHILIPS COMPANY**  
 IES File Name **4 Pod Baylyter LED BL4C4WLx22.IES**

Lamp Description **LEDGINE 4X32 CREE XPG NW 4000K (LED#46/47/48/49). LUMINAIRE OUTPUT = 21796 LM**  
 Number of Lamps **1**  
 Lamp Lumens **21817.93**  
 Light Loss Factor **.95**

Coefficient of Utilization **0.85**

## Output

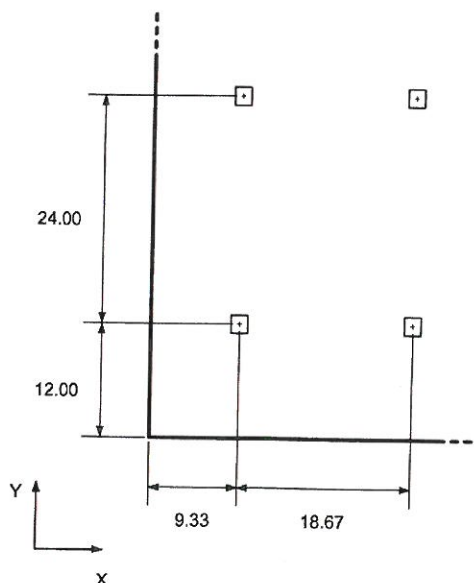
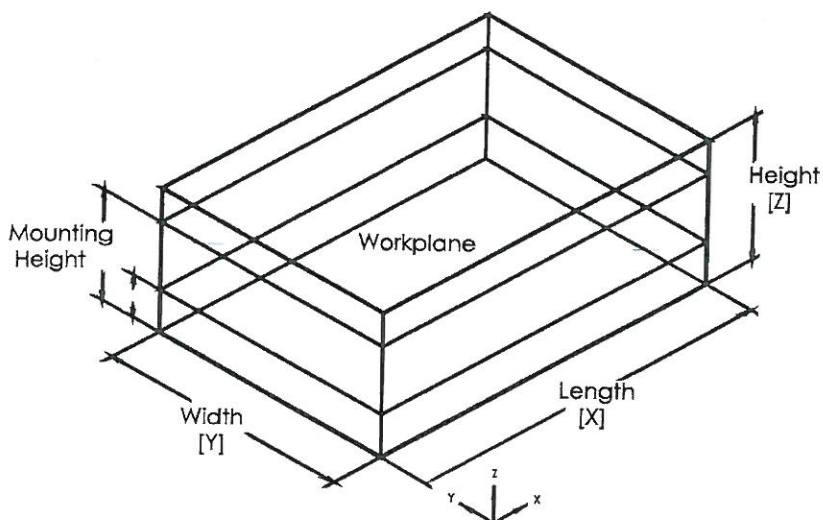
Illuminance **39 fc**  
 Number of Luminaires **18**

Number of Columns [X] **6**  
 Number of Rows [Y] **3**

Column Spacing [X] **18.67 ft**  
 Row Spacing [Y] **24.00 ft**

Column Start [X] **9.33 ft**  
 Row Start [Y] **12.00 ft**

Power Density **0.64 W/ft<sup>2</sup>**




Note: Calculations are based on procedures established by the Illuminating Engineering Society of North America, or standard industry practice. Visual computes output performance based on input data as provided by, and which is the sole responsibility of, the user. Acuity Brands Lighting, Inc. cannot be held responsible for the variations in actual situations which can effect calculated output.

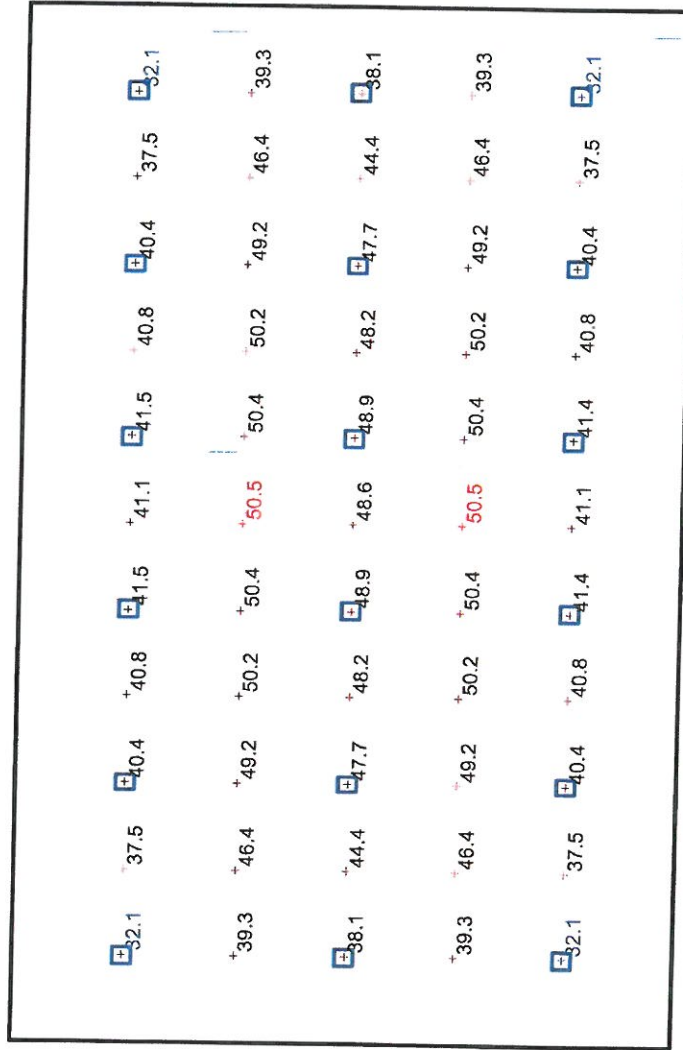


## STATISTICS

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Workplane	+	43.6 fc	50.5 fc	32.1 fc	1.6:1	1.4:1

## LUMINAIRE SCHEDULE

Symbol	Label	Qty	Catalog Number	Description	Lamp	File	Lumens	LLF	Watts
	LM-1	18	PHILIPS LED HIBAY 4-POD	HIBAY WIDE DISTRIBUTION SOLITE PRISMATIC LENS	LEDGINE 4X32 CREE XPG NW 4000K (LED#46/47/48/49), LUMINAIRE OUTPUT = 21796 LM	4 Pod Baylyfer LED BL4C4WLx22.1 ES	Absolute	0.95	287



Plan View  
Scale 1" = 20'



Montgomery High School  
Auxiliary Gymnasium 4 Pod LED  
Concord Engineering

Designer  
L Hart

Date  
Feb 16 2012

Scale

Drawing No.

1 of 1

Type No. \_\_\_\_\_

Catalog No. \_\_\_\_\_

Job. Name \_\_\_\_\_

# BayLyter Series LED

## Four-Pod Industrial High-Bay Luminaire

### APPLICATIONS

- Wide variety of high ceiling applications
- Applications including manufacturing, warehousing, large retail, home centers, cold storage and gymnasiums

### CONSTRUCTION

- Low profile architectural design
- LED pods and driver housings are made from precision die-cast aluminum for strength
- Computer designed heat sinks
- Venturi principle for controlled air flow
- Corrosion resistant polyester powder finish in textured white standard
- Other colors include textured black and titanium gray

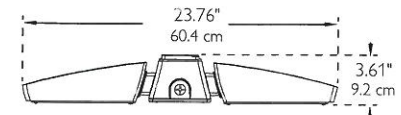
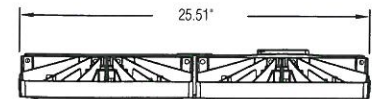
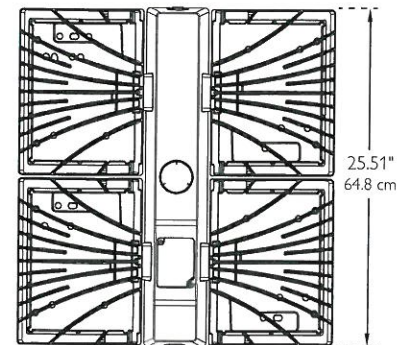


### ELECTRICAL

- High power factor electronic integral LED driver(s) (350mA/530mA and 700mA)
- Available in 120-277V or 480V
- Dimming driver standard (control 0 – 10V DC)
- Components RoHS compliant
- Driver is field-replaceable

### OPTICS

- High output LEDs with 32 or 48 per pod
- LEDs include individual optical lens for precise optical control
- Wide, medium narrow or aisle distributions
- Tempered glass lens with molded silicone gasket seals the optical compartment



### MOUNTING

- Mounting choices include single pendant/stem or aircraft cable hangers (Aircraft cable hangers supplied standard with base product)

### WARRANTY/LISTINGS

- Published 5 year warranty
- ETL approved for damp locations (IP65 rating as option)
- High-bay and low-bay units for commercial and industrial building are DLC Certified; 700mA configurations only.



#### Predicted L70 Lifetime

> 100,000 hours @ 25°C (77°F)

Up to 100,000 hours @ 45°C (113°F)

(based upon LED manufacturer's supplied LM-80 data and in-situ laboratory testing)

Ordering Guide Example: BL4B4MPF1-8T

BL	4	B	4	M	P	F1	8	T

Series	Pod Qty.	Engine Designator	Color Temp.	Optics	Mounting	Options	Voltage	Color
BL -	4	A-146W @ 350mA	4 <sup>1</sup> -Neutral White	A-Aisle	P-3/4" Pendant Stem	See	1-(120v)	W-Textured White
BayLyter Series	4	B-220W @ 530mA		M-Medium	A-Aircraft Cable	Page 2	2-(208v)	B-Textured Black
	4	C-288W @ 700mA		N-Narrow	H-Hook		3-(240v)	T-Titanium Gray
	4	D-210W @ 350mA		W-Wide (Lowbay)			4-(277v)	
							5-(480v)	
							8-(120-277v)	



1611 Clovis R. Barker Road  
San Marcos, TX 78666  
800.545.1326 • 512.392.5821 • Fax: 512.753.1122  
www.exceline.com

Notes:

1. Contact factory for additional color temperature options.

ExcelLine is a Philips group brand

Product information is subject to change without notice

**PHILIPS**



# BayLyter Series LED

## Four-Pod Industrial High-Bay Luminaire

### ENGINE DESIGNATOR DETAILS

Board Size	Current	System Wattage	Lumen Output	Efficacy (L/W)
4 x 48	350mA	210	Contact Factory	
4 x 32	700mA	288	22,500	78
	530mA	220	18,200	83
	350mA	146	12,950	89

\* Lumens mentioned are averaged between aisle through wide distribution and lumen output will vary by color temperature options.

### PHOTOMETRIC DATA

Distribution – Medium CCT: NW CREE XPG LEDs

Candlepower		Light Distribution				Average Luminance			
Angle	Avg. Candela	Degrees	Lumens	% Lamp	% Luminaire	Angle	End	45°	Cross
0	10479	0-30	9070	40.8	40.8	45	27805	19966	20149
5	10405	0-40	15502	69.7	69.7	55	4923	3989	3732
10	10241	0-60	21523	96.8	96.8	65	3483	2675	2552
15	10239	0-90	22234	100.0	100.0	75	2293	1648	1353
20	10596					85	688	224	172
25	11308								
30	10790								
35	9817								
40	8000								
45	4926								
50	1882								
55	769								
60	538								
65	390								
70	264								
75	144								
80	59								
85	10								

Coefficients of Utilization																					
EFFECTIVE FLOOR CAVITY REFLECTANCE 20 PER (pfc=0.20)																					
Ceil		80				70				50				30				10			
Wall	RCR	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
0	0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	102	102	102
1	1	113	109	107	104	110	107	105	102	103	101	99	99	98	96	96	95	93	96	95	93
2	2	106	101	96	92	104	99	95	91	96	92	89	93	90	87	90	88	86	90	88	86
3	3	100	92	87	82	98	91	86	82	88	84	80	86	82	79	84	81	78	84	81	78
4	4	94	85	79	74	92	84	78	74	82	77	73	80	75	72	78	74	71	78	74	71
5	5	88	78	71	67	86	77	71	66	75	70	66	74	69	65	72	68	64	72	68	64
6	6	82	72	65	60	80	71	64	60	69	64	59	68	63	59	66	62	58	66	62	58
7	7	76	65	58	54	75	65	58	53	63	57	53	62	57	53	61	56	52	61	56	52
8	8	71	60	53	48	70	59	52	48	58	52	48	57	51	47	56	51	47	56	51	47
9	9	66	55	47	42	65	54	47	42	53	47	42	52	46	42	51	46	42	51	46	42
10	10	61	50	42	38	60	49	42	38	48	42	38	47	41	37	46	41	37	46	41	37

Distribution – Wide CCT: NW CREE XPG LEDs

Candlepower		Light Distribution				Average Luminance			
Angle	A vg. Candela	Degrees	Lumens	% Lamp	% Luminaire	Angle	End	45°	Cross
0	3277	0-30	3624	16.1	16.1	45	31294	31931	32268
5	3378	0-40	7366	32.8	32.8	55	40895	40678	38128
10	3581	0-60	19747	88.0	88.0	65	9094	5222	4046
15	3841	0-90	22435	100.0	100.0	75	2131	1905	1512
20	4201					85	825	555	600
25	4700								
30	5300								
35	5973								
40	6698								
45	7510								
50	8043								
55	7584								
60	4679								
65	789								
70	298								
75	158								
80	67								
85	18								

### Coefficients of Utilization

EFFECTIVE FLOOR CAVITY REFLECTANCE 20 PER (pfc=0.20)

Cell		80				70				50				30				10			
Wall	RCR	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
0	0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	102	102	102
1	1	110	106	102	99	108	104	100	97	100	97	94	96	94	91	92	90	89	92	90	89
2	2	101	94	88	83	99	92	86	82	88	84	80	85	82	78	82	79	76	82	79	76
3	3	92	82	75	68	90	81	74	68	78	72	67	75	70	66	73	68	64	73	68	64
4	4	84	72	64	57	82	71	63	57	68	62	56	66	60	55	64	59	55	64	59	55
5	5	76	63	54	47	74	62	53	47	60	52	47	58	51	46	56	50	46	56	50	46
6	6	68	55	45	39	66	54	45	38	52	44	38	50	43	38	48	42	37	48	42	37
7	7	61	47	38	31	60	46	37	31	44	36	31	43	36	30	42	35	30	42	35	30
8	8	56	41	32	26	54	40	32	26	39	31	26	38	31	25	36	30	25	36	30	25
9	9	51	36	27	21	49	36	27	21	34	27	21	33	26	21	32	26	21	32	26	21
10	10	46	32	23	18	45	31	23	18	30	23	18	29	22	17	29	22	17	29	22	17

\* Photometric data based on test performed in compliance with LM79.



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### OPTIONS

- Blank-** Glass Lens
- F1<sup>2</sup>-** Single Fuse
- F2<sup>2</sup>-** Double Fuse
- 3C-** 3' Cord, no Plug
- 3CD-** 3' Cord, no Plug, extra cord for dimming
- 6C-** 6' Cord, no Plug
- 6CD-** 6' Cord, no Plug, extra cord for dimming
- 3P<sup>1,2</sup>-** 3' Cord and Twist-Lock Plug
- 3PD<sup>1,2</sup>-** 3' Cord and Twist-Lock Plug for line voltage, extra cord and plug for dimming
- 6P<sup>1,2</sup>-** 6' Cord and Twist-Lock Plug
- 6PD<sup>1,2</sup>-** 6' Cord and Twist-Lock Plug for line voltage, extra cord and plug for dimming
- N<sup>1</sup>-** Indirect Mounting
- P-** Protection - IP65 Rating (with cable mounting only)
- L-** Prismatic Lens
- E<sup>1</sup>-** Emergency Lampholder (lamp by others)
- MC<sup>1,2</sup>-** 360° Motion Sensor with Control 0 – 10V
- MA<sup>1,2</sup>-** 360° Motion Sensor with Adjustable Day Lighting Control
- WL -** Wet Location

### ACCESSORIES

- WG-** Wire Guard

#### Notes:

1. Not available with IP65 Rating or wet location listing.
2. Specify Voltage.