


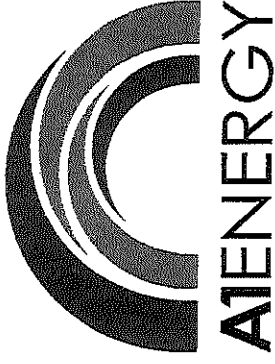


St. John Regional Catholic School

LED Option

LIGHTING RETROFIT ENERGY REDUCTION AND LIGHTING IMPROVEMENT 08/16/2012

- Reduction in electric bill \$8,452/year
- Best total cost of ownership
Estimated 5 year savings \$46,704/5 years
- Total kWh reduced 64,149/year
- Greenhouse gases reduced  112,965lbs./year
- Complete turn-key project
- Painless installation – experienced in large and small projects
- 2008 Federal Corporate Accelerated Tax Deduction may apply
- ACT 129 Rebates apply



Project Contact: Jim Ulmer
 Project Name: Lighting Retrofit
 Project Address: 8414 Opossumtown Pike
 Project Location: Frederick, MD
 Project Zip Code: 21702
 Project Details: Energy Reduction and Lighting Upgrade
 Cost Per Kwh: \$0.1220
 System Voltage: 277
 Sales Tax Rate: 6%
 Square Footage: 7,500

Existing

	Current Type	Current Wattage Per Lamp	Current Rated Life in Hours	Number of Lamps/Fixture	Total System Wattage	Number Of Fixtures	Total Watts	Annual Hours	Total Kwh	Total Lamps
Gym	8 lamp CFL high-bay	42	20,000	8	376	60	22,560	4,246	95,790	480
							60	22,560	95,790	480

Recommended Retrofit

	Fixture Type	Retrofit Wattage Per Lamp	Retrofit Rated Life in Hours	Number of Lamps/Fixture	Total System Wattage	Number Of Fixtures	Total Watts	Annual Hours	Total Kwh	Total Lamps	
Gym	IBL 18L WD LP740 DLC	207	50,000	1	207	36	7,452	4,246	31,641	36	
							QTY				
							QTY				
							4ft 54W T5HO 841 lamps				
Totals							36	7,452		31,641	36



Existing kWh	95,790
kWh Rate	\$0.122
	\$11,686.35

Proposed kWh	31,641
kWh Rate	\$0.122
	\$3,860.23

Existing Annual Energy Costs	\$11,686.35
Proposed Annual Energy Costs	\$3,860.23
Annual Energy Savings	\$7,826.13

Total Lighting Savings	66.97%
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Existing System Watts	22,560
Proposed System Watts	7,452
Watts Saved	15,108

Existing kWh	95,790
Proposed kWh	31,641
kWh Saved	64,149

Annual Energy Savings	\$7,826.13
Annual HVAC Savings	\$0.00
Annual Maintenance Savings	\$626.09
Total Annual Savings	\$8,452.22

Total Annual Savings	\$8,452.22
Net Project Cost	\$23,567.79
Project Payback in Months	33.5

Existing kW (watts x .001)	23
Proposed kW (watts x .001)	7
Annual kW Demand Savings	15

Amp Savings = Total System Watts / System Volts

Existing System Amps	81
Proposed System Amps	27
Amps Saved	55

Energy Savings



Company Name: St. John Regional Catholic School
 Project Location: Frederick, MD
 Project Contact: Jim Ulmer
 Project Name: Lighting Retrofit

Project Cost Analysis		
Fixtures Cost**	QTY = 36	\$22,300
Labor Cost for Installation		\$3,240
Disposal Costs**		\$936
Estimated Sales Tax**		\$1,338
Estimated Potomac Edison Utility Incentive **		-\$3,207
Estimated EPAct tax deduction (assumes 33% tax rate)**		-\$1,485
Shipping		\$446
Net Project Cost		\$23,568

Savings Analysis	
Annual Electrical Savings (Lighting ONLY)	\$7,826
Annual Electrical Savings (HVAC) - if airconditioned	
Annual Maintenance Savings**	\$626
Annual Operating Savings	\$8,452

Gross Project Cost	\$28,260
Net Project Cost	\$23,568
Annual Operating Savings	\$8,452
Payback in Months (With Installation)	33.5

	Annual Rate Increase**	
Annual Savings at 2012 Power Rates		\$8,452
Annual Savings at 2013 Power Rates	5%	\$8,875
Annual Savings at 2014 Power Rates	5%	\$9,319
Annual Savings at 2015 Power Rates	5%	\$9,784
Annual Savings at 2016 Power Rates	5%	\$10,274
5 year Savings Total		\$46,704

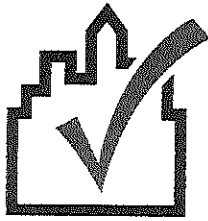
Annual Internal Rate of Return**	27.02%
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**** Notes:**

Fixture counts are estimates, based on the initial site survey, and need double-checking before new fixtures are ordered
 Disposal In most areas, fixture bodies can be scrapped (unless the ballasts contain PCB's), but bulbs MUST be disposed of properly
 State Sales Taxes may not apply to manufacturing entities
 Incentives are estimates and need verifying with utility
 Value of tax deduction depends on customer's effective Federal Corporate Income Tax rate
 Maintenance Savings based on 5 year ballast warranty and 35,000 hour bulb life
 Annual electricity rate increases are estimated based on typical increases in States where deregulation has already occurred
 Annual IRR is based on annual electrical savings relative to Net Project Cost (i.e. the customer's net investment in lighting)

Valid for 30 days

8/16/2012



COMcheck Software Version 3.9.1

Interior Lighting Compliance Certificate

2012 IECC

Section 1: Project Information

Project Type: **Alteration**

Project Title : St John Regional Catholic Gym Lighting Project

Construction Site:
8414 Opossumtown Pike
Frederick, MD 21702

Owner/Agent:
Jim Ulmer
St. John Regional Catholic School
8414 Opossumtown Pike
Frederick, MD 21702
301-662-6722
julmer@sjrcs.org

Designer/Contractor:
Mike Porreca
A1 Energy
2730 Shenck Rd
Manheim, PA 17545
717-898-8021
mike@a1energy.net

Section 2: Interior Lighting and Power Calculation

A Area Category	B Floor Area (ft2)	C Allowed Watts / ft2	D Allowed Watts (B x C)
K-8 Gymnasium (Gymnasium/fitness center:Playing area)	7500	1.4	10500
Total Allowed Watts =			10500

Section 3: Interior Lighting Fixture Schedule

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
K-8 Gymnasium (Gymnasium/fitness center:Playing area 7500 sq.ft.) LED: IBL 18L WD LP740 DLC: I-Beam LED 18000 Lumen / Other	1	36	207	7452
Total Proposed Watts =			7452	

Section 4: Requirements Checklist

Lighting Wattage:

1. Total proposed watts must be less than or equal to total allowed watts.
Allowed Wattage: 10500 Proposed Wattage: 7452
Complies: YES

Mandatory Requirements:

2. Dwelling units (complete independent living facilities) within commercial buildings are not required to comply with interior lighting requirements of this code provided that >=75 percent of the permanently installed fixtures other than low voltage lighting contain only high efficacy lamps.
3. Manual Controls: Each enclosed space has manual lighting control. Remotely located manual controls are labelled for area of service and indicate on/off status.
Exception(s):
- Security/emergency areas with 24-hour operation.
 - Stairways/corridors that are means of egress.
4. Light Reduction Controls: Each space required to have a manual control also allows for reducing the connected lighting load by at least 50 percent by either controlling all luminaires, dual switching of alternate rows of luminaires, alternate luminaires, or alternate lamps, switching the middle lamp luminaires independently of other lamps, or switching each luminaire or each lamp.
Exception(s):
- Only one luminaire (lamp < 100 W) in space.

- An occupant-sensing device controls the area.
- The area is a corridor, equipment/store rooms, restrooms, public lobby, elec./mech. room, or sleeping unit.
- Areas that use < 0.6 Watts/sq.ft.
- Daylight spaces having automatic daylighting controls.
- 5. Automatic time switching controls are installed and have an override switching device. The override switching device allows for <= 2 hour operation cycle within spaces <= 5000 sq.ft., manual operation, and is readily accessible and located where the operation of the connected lights are visible or communicated to the switch.
Exception(s):
 - Sleeping units, patient care areas; and spaces where automatic shutoff would endanger safety or security or where lighting is intended for 24-hour operation.
 - Emergency egress lighting.
 - Spaces where lighting is controlled with occupancy sensors.
 - Malls, arcades, auditoriums, single tenant retail spaces, industrial facilities and arenas that are <= 20,000 sq.ft. are permitted exceed the 2-hour operation cycle limit when a captive key device override switch is installed.
- 6. Occupant sensors are installed in the following spaces and automatically turn lighting off within 30 minutes of all occupants leaving the space: Classrooms, conference/meeting/training rooms, employee lunch and break rooms, private offices, storage/janitorial rooms, restrooms, and other spaces <= 300 sq.ft. Automatic-on sensors set power on <50 percent power.
Exception(s):
 - Full power automatic-on controls are permitted where manual-on operation would endanger the safety or security of the room or building occupants.
- 7. Daylight zones have either individual lighting controls independent from that of the general area lighting that are either manual or automatic and serve zones <= 2,500 sq.ft. Zones under skylights more than 15 feet from the perimeter have lighting controls separate from daylight zones adjacent to vertical fenestration.
Exception(s):
 - Contiguous daylight zones spanning no more than two orientations are allowed to be controlled by a single controlling device.
 - Daylight spaces enclosed by walls or ceiling height partitions and containing two or fewer light fixtures are not required to have a separate switch for general area lighting.
- 8. Automatic daylight zone controls are capable of reducing power to < 35 percent using continuous dimming ballasts and daylight-sensing controls OR, are capable of automatic power reduction using step-dimming multi-level switching and daylight-sensing controls having at least two control channels per zone and at least one control step in the 50 - 70 percent range and another <= 35 percent of design power.
- 9. Medical task lighting or art/history display lighting claimed to be exempt from compliance has a control device independent of the control of the nonexempt lighting.
- 10. Separate control device for display/accent lighting, case lighting, task lighting, nonvisual lighting, under-shelf/cabinet lighting, lighting for sale, and demonstration lighting.
- 11. Hotel/motel sleeping units and guest suites have control device(s) at the entry door that control all permanent luminaires and switched receptacles.
- 12. Exit signs 5 Watts or less per sign.
- 13. Tandem wired one-lamp and three-lamp ballasted luminaires (No single-lamp ballasts).
Exception(s):
 - Electronic high-frequency ballasts.
 - Luminaires not on same switch.
 - Recessed luminaires 10 ft. apart or surface/pendant not continuous.
 - Luminaires on emergency circuits.

Interior Lighting PASSES

Section 5: Compliance Statement

Compliance Statement: The proposed lighting alteration project represented in this document is consistent with the building plans, specifications and other calculations submitted with this permit application. The proposed lighting alteration project has been designed to meet the 2012 IECC, Chapter 8, requirements in COMcheck Version 3.9.1 and to comply with the mandatory requirements in the Requirements Checklist.

Name - Title

Signature

Date