



Metalumen Classroom Case Study

Metalumen Headquarters Education Centre, Ontario, Canada



Summary:

- Metalumen Education Centre, Guelph, Ontario, Canada
- Classroom ambient lighting
- One-to-one retrofit of T8 fluorescent luminaires to LED

Benefits:

- Average \$442 in annual saving for only one room
- Annual energy savings of over 1,880kWh
- Reduced load by over 55%
- Maintenance-free for up to 10 years
- Reduction equivalent to 2,500lb of CO₂ emissions annually.

Project Description:

Metalumen Education Centre hosts many clients and holds few national meetings annually for lighting seminars and continued education credits. The classroom is the most shared space in the building for daily meetings and internal employees as well as external clients who visit Metalumen either for project meetings or showcasing Metalumen to other customers. As part of an initiative to lead by example, Metalumen decided to upgrade its classroom to LED to gain the most out of today's technology.



The upgrade included retrofitting the existing two row continuous runs made of twelve four-foot 2-F32T8 fluorescent fixtures with two rows of Metalumen's six eight-foot continuous runs using Orbit O2DS LED luminaires (35W/four-foot). As a result, our electrical load was reduced by 55% in the Education Centre, resulting in a projected annual energy savings of \$442 (1,880 kWh) with a **0.59-year payback**.

Orbit II O2DS LED series carries a traditional look used in educational facilities as a direct/indirect pendant luminaire. It merges affordability and performance in a unique design that complements almost any décor. With a great 114l/w, it was no brainer this upgrade will save us money.

Here is the analysis report from the upgrade calculations:

Lighting System Energy Analysis **Metalumen**
Ideas brought to light

Input Output

Customer Information	Facility Information
Project Name:	Cost Per kWh \$ 0.120
Contact:	Annual Operating Hrs 3,650

System Information	Existing	Proposed
Luminaire Description	O2D2T8 2X F32T8	Orbit II LED O2DSL35K-4-L2
Input Watts Per Luminaire	78	35
Quantity	12	12
System Watts	936	420
System kW	0.936	0.42
Annual kWh	3,416	1,533
Annual Energy Costs	\$ 410	\$ 184
Monthly Costs	\$ 34	\$ 15
Annual Energy Savings (\$)		\$ 226
Annual Energy Savings (%)		55%
Cost of Waiting (Monthly)		\$ 19

Annual Energy Costs per Lighting Systems

Note: These are estimated savings only. These annual and monthly savings are based on a number of variables and assumptions that could change over time. The actual savings derived by your firm may be higher or lower.

Annual Maintenance Cost Estimator: **Metalumen**
Ideas brought to light

Input Output

Annual Operating Hours 3,650

System Information	Existing System	Proposed System
Description of System	O2D2T8	Orbit II LED
Quantity	2X F32T8	O2DSL35K-4-L2
Type of Lamp	Fluorescent, T8	LED
Lamp Life (Hrs)	20000	60000
Cost of Lamp	\$ 6.00	\$ -
Number of Lamps Per Fixture	2	8
Labor Cost to Spot Relamp per Lamp	\$ 10.00	\$ -
Annual Lamp Maintenance Cost	\$ 112.00	\$ -
Quantity of Lamps Replaced Annually	7	0
Ballast Type	High Reactance	High Reactance
Ballast Life (Hrs)	60000	100000
Cost of Ballast	\$ 45.00	\$ 30.00
Number of Ballasts Per Fixture	1	1
Labor Cost Change a Ballast	\$ 10.00	\$ 10.00
Annual Ballast Maintenance Cost	\$ 330.00	\$ -
Quantity of Ballasts Replaced Annually	6	-
Annual Maintenance Cost of System at Maturity	\$ 442.00	\$ -
Summarized 5 Year Cost	\$ 2,210.00	\$ -
5 Year Savings Summary		\$ 2,210.00
5 Year Average Annual Savings		\$ 442.00

5 Year Maintenance Cost

Annual Maintenance Savings of 100%

	LED	Traditional
Total Initial Fixture/Installation Cost	\$3,259	\$3,000
Total System kW	0.42	0.94
Annual kWh	1,533	3,416
Cost of Energy per kWh	\$0.120	\$0.120
kWh Inflation Rate (%/yr)	0.00%	0.00%
Average Annual Energy Cost	\$184	\$410
Average Annual Maintenance Cost	\$0	\$216
Average Annual Energy + Maintenance Costs	\$184	\$626
Average Annual Energy & Maintenance Savings	\$442	

	Savings		Cost/Year	
	Annual	Cumulative	LED	Traditional
1st Year	\$226	\$226	\$184	\$410
5th Year	\$370	\$1,590	\$184	\$554
10th Year	\$442	\$4,157	\$184	\$626

10 Year Total	Savings		Cost	
	LED	Traditional	LED	Traditional
	\$4,416		\$1,840	\$6,256

LED Payback (Years)

Payback = 0.59 Years

System Energy & Maintenance Cost Summary

+65% Savings including Energy & maintenance over 5 years

PAYBACK ANALYSIS

AVERAGE ANNUALIZED SAVINGS PER YEAR	
Annual Energy Savings	\$ 226
Annual Lamp Maintenance Savings	\$ 216
Annual Combined Savings	\$ 442
Cost of Waiting (Monthly)	\$ 37
Simple Payback (years)	0.59
IRR (%)	170%
10 Year Cash Flow (Energy & Lamp Main.)	\$ 4,157

Annual Operating Cost: Energy & Lamp Maintenance

[Click here](#) for more details on the orbit II LED product.



About Metalumen:

METALUMEN is a lighting fixture manufacturer which supplies a wide array of indirect, direct and indirect/direct FL & LED lighting systems. Our uniquely engineered products, primarily manufactured from extruded and perforated aluminum, offer distinguished product designs, outstanding photometric performance and ease of installation which complement today's architecture, interior design styles and construction schedules.

METALUMEN has trained sales representatives throughout the United States, Canada and Internationally who are capable of helping specifiers meet their design challenges. Whether you are working on a school, office facility, media lab, library, corridor, research lab or transportation station, Metalumen's product variety will help you meet the desired design parameters. Metalumen's head office, warehouse and manufacturing is based in Guelph, Ontario, Canada. Our Canadian made products are assembled with quality, care and precision to meet the expectations of your most demanding projects. With fast access to a wide range of products, there's an option for almost every application.

With all the capabilities of a leading manufacturer, Metalumen works closely with local Universities' research centers to utilize the latest technology in lighting controls and LED engine performance. With this rooted connection, we utilize the most innovative approach to lighting and are able to jump up to the front end of technology and innovation wave. Technologies like Tunable drivers and Tunable white is utilized on special projects we are currently involved in. Exploring other control technologies such as wireless controls and utilize in our high quality products is made possible with Metalumen. We also support our customers with many needed services such as Energy toolkits tailored to specific projects, Application layout, Access to all files on SEEK Autodesk database (BIM strategy), facilitation of LU/CEU/LEU accredited education courses and much more...

Visit www.metalumen.com today for more product offerings.



Orbit II O2DS Series

Metalumen Manufacturing Inc.
570 Southgate Drive
Guelph, Ontario, Canada
N1G 4P6

Toll Free: 1.800.621.6785
Tel: 1.519.822.4381
Fax: 1.519.822.4589

Mailing Address:
PO Box 1779
Guelph, Ontario, Canada
N1H 6Z9

www.metalumen.com

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