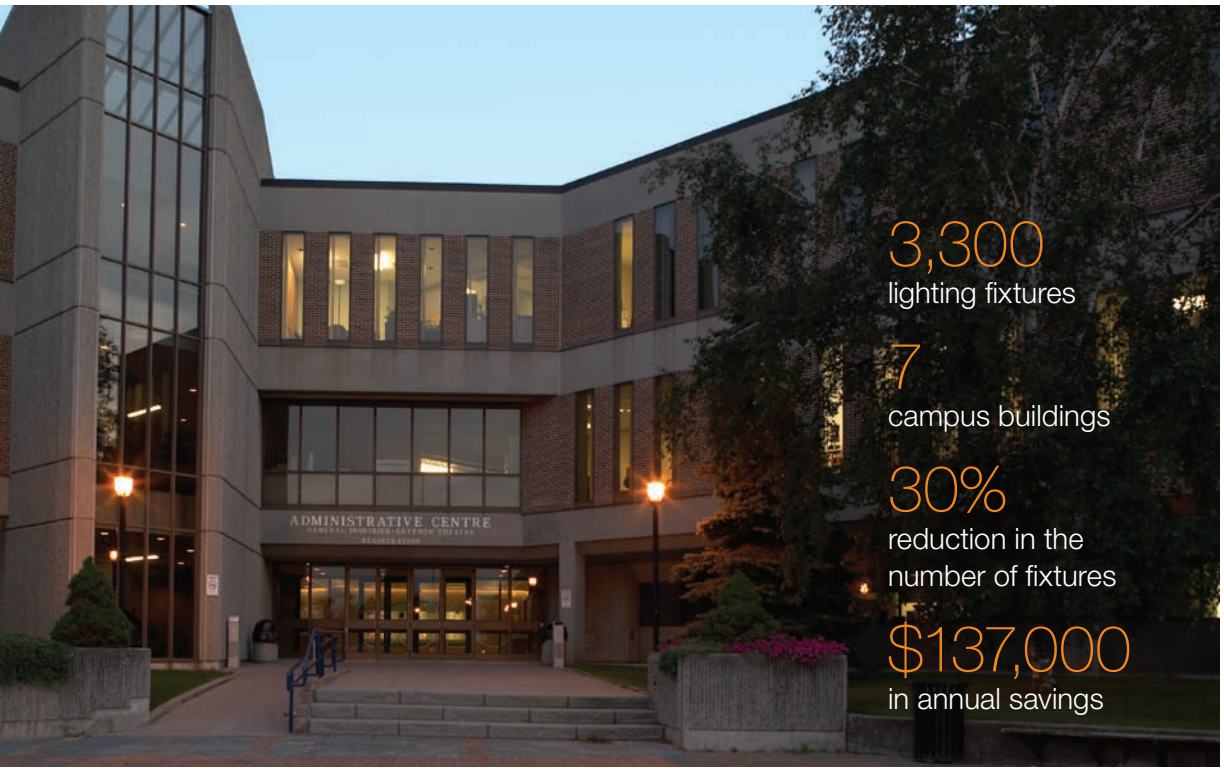
case study | Georgian College

Ontario, Canada



3,300
lighting fixtures

7
campus buildings

30%
reduction in the number of fixtures

$137,000
in annual savings

The Challenge: Use light control to set technology, efficiency and aesthetics in harmony at a college where the environment is always changing.

With EcoSystem from Lutron, Georgian College has been able to achieve a remarkable variety of benefits. It created new ambiences for students and teachers that are much more conducive to learning. It was able to do so with virtually no disruption to its daily activities. The school was able to retain control over its own infrastructure and realize tremendous cost savings—$137,000 a year, and virtually future-proofing its lighting system.

Georgian College in Barrie, Ontario recently proved that a state-of-the-art lighting system is not only good for the students and the environment, but also for the bottom line.

The college serves a diverse student community throughout three campuses. Its lighting system was nearly a quarter century old and represented technology and deployment that was characteristic of its time. Lighting was neither energy-efficient nor locally addressable, and the static implementation meant few options in re-configuring classrooms, offices and other spaces. A re-design was in order, but not at the forefront of the institute's priorities.

Previously, Georgian had been considering a needed renovation of the college's HVAC system. However, the school realized that its desire to

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reduce energy consumption and the attendant costs would have to be seen in a broader context in order to be genuinely representative of potential savings. The institute needed more than a compartmentalized fix for HVAC. It wanted to modernize its entire energy ecosystem.

A new lighting system had to satisfy numerous criteria. Expected energy savings alone would not do; any new system would have to be flexible enough to adapt along with the school's evolving needs, with configurable fixtures and illumination levels throughout each building and room. It would have to be more economical to run than the existing system, but would also have to provide improved lighting, not only for the students and faculty, but for attendant services such as security and custodial staff. Most importantly, the solution had to be financially viable, saving money while allowing the school to pay for the system out of its own operating budget, through realized energy savings.

> "EcoSystem was the only solution that met all the strategic lighting requirements for this project."
>
> **Phil Santia**
> Professional Engineer, Partner of e-Lumen

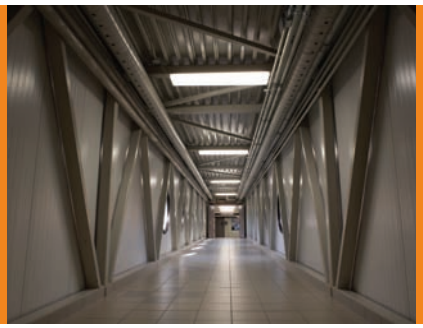
e-Lumen International, Inc., a lighting consultancy, was asked to assess possibilities and plot the new system. The resulting studies showed that lighting control would be just as vital to Georgian's needs as new luminaires. After five weeks of study, the agreed-upon solution was the implementation of a Lutron EcoSystem™ throughout the campuses.

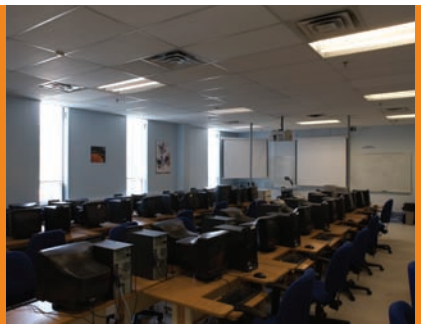
"EcoSystem was the only solution that met all the strategic lighting requirements for this project," said Phil Santia, Professional Engineer, Partner of e-Lumen. The system allows the school to centrally and locally dictate light levels throughout buildings, corridors and rooms, and customize lighting schemes to each environment, even accounting for seasons and time of day, thanks to innovative daylight harvesting capabilities. And because EcoSystem contains only nine components, installation would prove very easy.

Jeff Choma, Manager of Mechanical and Electrical Systems, oversaw the installation. "We really took the time to select the best technology for our campus," he says. "We looked into full-voltage, DALI, and IP addressable ballasts. We chose EcoSystem because it is the most versatile and simplest to use."

The project encompassed approximately 3,300 lighting fixtures throughout seven campus buildings, a number that represented a 30% reduction in the number of the existing fixtures, yet one that still produced more and better illumination. To create the ideal system, the consultants had recommended conversion of the entire lighting infrastructure down to 120 volts from 347. Existing fixtures were removed and a combination of standard lighting and Lithonia RT5 fixtures fitted with Lutron EcoSystem dimmable ballasts were installed. The school hired electrical contractors to retrofit the fixtures and add communication wire where needed. Existing wiring

technical, environmental and budgetary efficiency in harmony





was used whenever possible, with transformers used where this was not feasible. Once the wiring was in place, a system of daylight sensors, occupancy sensors and in-wall controls were installed, all of which could be programmed by the school staff itself.

Several benefits were realized immediately. Daylight sensors installed in windowed areas dimmed fixtures to take advantage of natural light. Uniquely, EcoSystem directed lighting fixtures throughout these rooms to react to commands from the daylight sensor as a group. The school is using combinations of daylight and occupancy sensors in over 500 instances.

As a result, Georgian is saving over 70% in energy costs over the previous lighting system.

Cost reductions aside, the new lighting deployment has opened exciting workplace possibilities for students, teachers and staff at Georgian. The extensive programmability of Lutron's EcoSystem allows professors to manipulate lighting energy based on teaching activity. For instance, during whiteboard presentations, the lighting at board is increased, while farther luminaires are dimmed progressively.

In teaching situations where audio/video materials are the focus, the instructor is able to direct the lighting energy away from the screen and onto student desks, to allow for both a clear presentation and easy note-taking. Classrooms, meeting rooms, offices and auditoriums have all been configured for capabilities such as these, significantly enhancing their effectiveness.

"Low-voltage wiring for controls makes it easy to group fixtures in a circuit in different areas, and to adjust them easily," says Choma. "People love the single-zone lighting control."

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>
> **Jeff Choma**
> Manager of Mechanical and Electrical Systems, Georgian College

Programming for the new lighting system is performed in-house by Georgian staff, which allows the school to re-configure ambience anywhere on campus without the intervention, inconvenience and expense of an outside service. More importantly, the school was also able to control costs as easily as its own lighting.

From its initial stages, the team involved in the lighting redesign was challenged to show an expected reduction in utility bills that would, in effect, make the system pay for itself. The proposed benefits were so demonstrable that the school was able to procure a loan in order to build the system, which is now being repaid each month by the savings in energy costs.

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GEORGIAN
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Winner:
Award of Recognition for energy efficiency and reduction of greenhouse gases, Ontario Power Authority

Bell Canada Business Award "Green Award"

Client:
Georgian College
Barrie, Ontario, Canada

Equipment provider:
Lutron Electronics Co., Inc.
Coopersburg, Pennsylvania, U.S.A.

Electrical engineer:
e-Lumen International, Inc.
Vaughan, Ontario, Canada

Electrical distributor:
Independent Electric Supply Inc.
Toronto, Ontario, Canada

Electrical contractor:
Ampere Limited
Toronto, Ontario, Canada

As a result, Georgian College has been able to achieve a remarkable variety of benefits through its upgrade to the Lutron EcoSystem™. It created new ambiences for students and teachers that are much more conducive to learning. It was able to do so with virtually no disruption to its daily activities; no classes had to be moved or re-scheduled as a result of the changeover. The school was able to retain control over its own infrastructure and reduce energy costs to a degree that would not be possible had it taken other avenues. Georgian was able to do all this while realizing tremendous cost savings—$137,000 a year, according to Choma—and virtually future-proofing its lighting system. Little wonder then that the work has won an award of recognition for energy efficiency and reduction of greenhouse gases from the Ontario Power Authority's Chief Conservation Officer. The school was also nominated for the Bell Canada Business Award "Green Award." Georgian's cost-effective, green-friendly lighting system will be the envy of North American academic institutes, and serves as a vivid demonstration of what's possible in energy conservation.

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P/N 367-1238

Products used in this project
Ecosystem T8 and T5 dimming ballasts
EcoSystem ballast module fixtures
EcoSystem programmer
EcoSystem 1-button wallstations
EcoSystem 4-button wallstations
EcoSystem daylight sensors
Occupancy sensors
EcoSystem bus supplies
GRAFIK Eye® preset lighting control systems