

CASE STUDY: CENTENNIAL COLLEGE

BETTER BUILDINGS PARTNERSHIP



Project Addresses

Centre for Creative Communications
951 Carlaw Avenue
Toronto, ON

Astonbee Campus
75 Astonbee Rd.
Toronto, ON

Progress Campus
941 Progress Avenue
Toronto, ON

HP Science and Technology Centre
755 Morningside Avenue
Toronto, ON

Key contacts

Property Manager: Tyrone Gangoo,
Manager, Plant Services, Facilities
& Services, Centennial College

Project Snapshot

Project cost: \$748,594

Annual electricity savings:
1,433,608 kWh

Annual natural gas savings:
19,598 m³

Annual cost savings: \$196,055

Annual CO₂ savings:
1,420 tonnes

Incentives received: BBP
(\$129,201); Enbridge (\$11,951)

Payback: 3.1 years

Project Background

Toronto's Centennial College encompasses four campuses and five satellite locations, representing approximately 1.08 million square feet. Home to some 12,500 full-time and 25,000 part-time students, the college operates 14 hours a day, 6 days per week, for most of the year.

With the majority of its facilities built in the 1970's and 1980's, Centennial College was well positioned to reduce their energy costs and carbon footprint through energy efficient retrofits.

Following an energy audit conducted in 2004 by Toronto Hydro Energy Services Inc, several opportunities for improvement were presented that would result in substantial cost savings, including power factor correction and an energy efficient lighting retrofit.

Challenge

As a publicly funded institution, Centennial College must manage its resources carefully to ensure that facilities are operating as efficiently and as environmentally responsible as possible. With energy prices trending higher and the possibility of significant increases at any time, there is an increased pressure on institutions to reduce the

risk of unanticipated future costs. With these issues in mind, and a need to not disrupt classes in the process, Centennial College sought to reduce the carbon footprint of its sites and minimize energy operating costs through energy efficiency upgrades.



Solution and Results

Centennial College evaluated several energy efficiency projects on four campuses, including the costs involved and the time it would take to achieve payback on investment. Toronto's Better Buildings Partnership was consulted to potentially access the energy savings incentives that the program offers, enabling the college to do more with its budget. The projects implemented include:

- Retrofitted existing T-12 lighting to more energy efficient T-8 technology without sacrificing lighting levels, replaced 4,278 fixtures (mostly HID and incandescent) with higher efficiency alternative fixtures in three campuses and one residence.
- Introduced ultrasonic occupancy sensors at three sites.
- At 941 Progress Avenue Campus, converted the fan system to variable frequency drives to better match fan operation to air quality and comfort needs, and replaced the electric hot water heater with a high-efficiency natural gas boiler.
- Fine-tuned existing Building Automation Systems to optimize efficiency of new measures.
- Installed capacitor banks to improve power factor at all buildings.

As Tyrone Gangoo, Manager, Plant Services, Facilities & Services, Centennial College points out, "We have an annual energy budget of approximately \$2 million and we expect to see savings of about 10% annually from all the implemented improvements – lowering the payback period to just 3.1 years. In addition, we've reduced our environmental footprint by 1,420 tonnes of CO₂ annually – that's the equivalent of taking 284 cars off the road."

The energy efficient upgrades to Centennial College's facilities resulted in 1,433,608 kWh of annual electricity savings, 19,598 m³ of annual natural gas savings, and an annual greenhouse gas savings of 1,420 tonnes of CO₂. These reductions translate into an annual cost savings of \$196,055. The payback period of 3.1 years was accomplished with the assistance of a \$129,201 incentive received from the Better Buildings Partnership and a \$11,951 incentive from Enbridge.

All measures were accomplished without any disruption in classes, mainly by taking advantage of summer break. Already the retrofit to newer, more efficient T-8 technology and the introduction of occupancy sensors to better manage lighting use are delivering cost savings as promised.

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Tyrone Gangoo
Manager, Plant Services, Facilities & Services, Centennial College

About the City of Toronto

Toronto is Canada's largest city and sixth largest government, and home to a diverse population of about 2.6 million people. It is the economic engine of Canada and one of the greenest and most creative cities in North America. Toronto has won numerous awards for quality, innovation and efficiency in delivering public services. Toronto's government is dedicated to prosperity, opportunity and liveability for all its residents.



For more information
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