



fifthlight
technology

CASE STUDY

AstraZeneca Canada Headquarters

1004 Middlegate Rd,
Mississauga, Ontario

August 2010

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Background

AstraZeneca Canada, a world leader in pharmaceutical research and development, chose to incorporate a Fifth Light Solution in their existing headquarters campus in Mississauga. The lighting controls of the Health & Wellness Centre of this multi-facility campus were retrofitted with Fifth Light controls. As part of AstraZeneca's ongoing commitment to reducing environmental impact, the Fifth Light solution has proven to be effective at reducing energy consumption with an attractive return on investment.

Project Objectives

The Fifth Light Solution was designed to meet several key project objectives, as listed below:

- Provide dimming and on/off control for multiple lighting types at different voltages with a single common open communication network
- Consolidate campus wide energy consumption data and lighting control to a single website
- Integrate with the existing Building Automation system via BACNet®

Solution Overview

To meet these challenges, Fifth Light's Signature Lighting Solution was chosen. This Solution consists of the following components:

- 200 DALI dimmable 32WT8 ballasts (120V)
- 250 DALI dimmable 32WCFL ballasts (120V)
- 140 DALI field relays (4.5A)
- 9 Touchscreen control interfaces
- 44 low voltage occupancy sensors
- 14 low voltage daylight sensors
- 2 Lighting Control Panels
- 1 multi-user web based Lighting Management Software application



Project Highlights

Lighting energy consumption reduced by

54%

A system payback period of

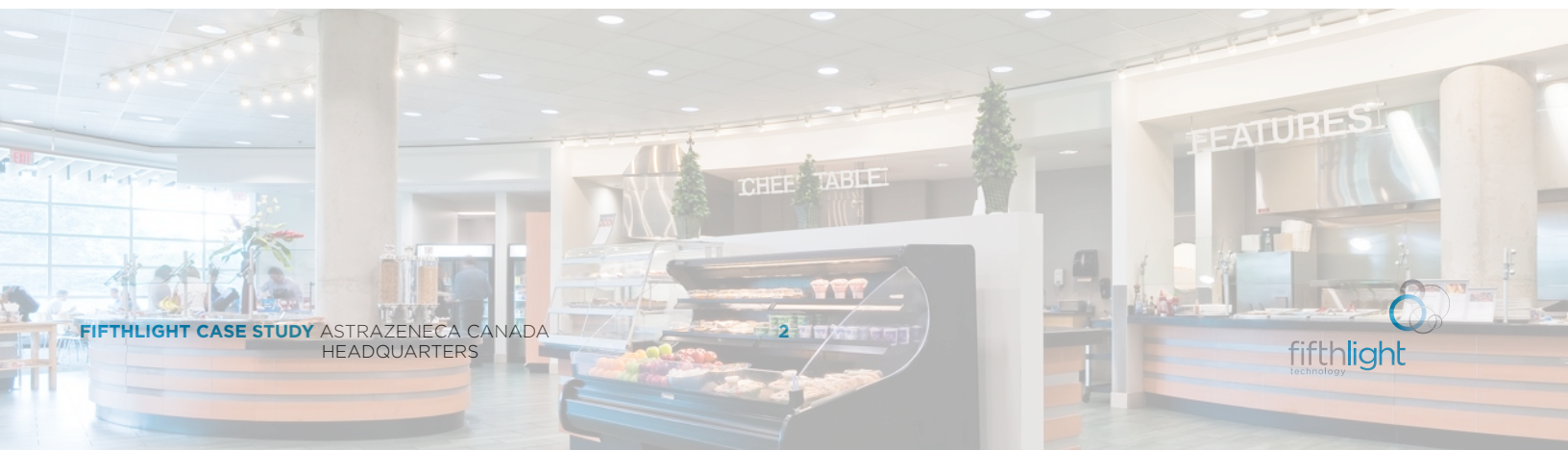
0.9 years

Annual greenhouse gas reduction of

167 tonnes

Shared information for Building Automation System

Integration





The key lighting management features provided in this project include:

- 1 Off-Hour Access.** The Health & Wellness Centre at the facility is used at variable times of the day, including before and after regular working hours. A network of occupancy sensors and touchscreen controllers ensured that lighting would be available when needed, while eliminating waste when the space is not in use.
- 2 Daylight Harvesting with gradient dimming.** A network of daylight sensors adjust lighting levels in response to ambient lighting conditions. Fifth Light Solutions utilize continuous dimming, allowing lights to adjust automatically while maintaining consistent light levels at desk height.
- 3 Incentive Administration.** Fifth Light Technology compiled the necessary data and completed the application process for government funded incentives, dramatically improving the return on investment for AstraZeneca.
- 4 BAS Integration.** The lighting management software exchanges key information with the existing building automation system, including occupancy status, light levels, and demand response activities, providing an intelligent integration strategy.

- 5 Unified Campus Network.** Energy management data and lighting control for the entire campus will be consolidated to a single web site. Users login through a web browser to see how much energy is saved in the entire campus, a specific building or any user defined group. Energy savings reports are emailed regularly to the facility team.

Results

The results of this project have been determined by creating an energy model that compared the Fifth Light Solution to the previously existing lighting system as determined through a thorough lighting audit.

- Floor light level: 40-45 foot candles
- Light power density: 0.7 w/sq ft
- Energy savings: 54%
- 10 year life cycle savings: \$250,000
- Payback period: 0.9 years
- Greenhouse gas reduction: 167 tonnes CO₂ eq/year ¹

This case study is based on data produced upon completion of the installation.

¹ Canadian Energy Research Institute, *Comparative Life Cycle Assessment of Base Load Electricity Generation in Ontario*, October 2008.