

CASE STUDY

LIUNA Centre

1315 North Service Rd E, Oakville, Ontario

August 2010



LIUNA Centre

Background

Fifth Light Technology played a vital role in the construction of Oakville's first LEED® silver certified office building. The recently completed LIUNA Centre in Oakville is a seven storey (150,000 sq ft) commercial facility that will house a variety of tenants. The low-rise tower is adjacent to the main highway artery through the city and a popular green space, with public visibility being a key concern. As a result, an advanced Fifth Light Solution was chosen for the lighting controls of the entire facility.

Project Objectives

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

- Provide full building control and energy consumption data through a single point of access
- Utilize daylight harvesting to take full advantage of ample natural light conditions
- Reduce overall lighting energy consumption while ensuring required light levels are met

Solution Overview

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

- 1,285 DALI dimmable 2 lamp 32WT8 ballasts (347V)
- 48 DALI field relays for HID lighting control
- 42 low voltage occupancy sensors
- 42 low voltage daylight sensors
- 8 Lighting Control Panels
- 1 multi-user web based Lighting Management Software application



Project Highlights

Lighting energy consumption reduced by

64%

Individually addressable fixtures with input voltage of

347 V

System payback period of

3.2 years

Ease of upgrades and tenant customization by utilizing

DALI open protocol





The key lighting management features provided in this project include:

1 Daylight Harvesting with continuous gradient dimming. A network of daylight sensors automatically adjust lighting levels of individual fixtures in response to ambient lighting conditions. A gradient dimming algorithm allows lights closest to the windows to dim more than those further away, taking full advantage of natural light.

2 Dynamic scheduling. Lights in each zone are controlled by a unique schedule, specific the usage of that area. Each tenant can set or change a schedule that best fits their needs. Schedules are flexible, and off-hour access is simplified through web accessed software and the network of occupancy sensors.

3 Automatic Tube Fault Detection and Dispatch. The operational status of each DALI ballast and lamp is automatically checked every 2 minutes. An electronic notification that illustrates the location of the fixture to be serviced is emailed to the facility management team.

4 Web based control. The facility team is given password protected access through an internet browser. Additional

users are given limited access to the pre-defined areas under their control.

5 Open Protocol Scalability. By utilizing the non-proprietary DALI protocol, future changes and tenant customization is simple. Additional devices from a variety of vendors can be integrated easily into the system and system settings can be changed through the software without requiring re-wiring.

Results

The results of this project have been determined by creating an energy model that compared the Fifth Light Solution to a typical non-dimmable, efficient lighting system.

- Floor light level: 40-45 foot candles
- Energy savings: 64%
- 10 year life cycle savings: \$300,000
- Payback period: 3.2 years
- Greenhouse gas reduction: 350 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.

