CASE STUDY

CIBC Bank Branch

7125 Woodbine Ave, Markham, Ontario

October 2009

CIBC Bank Branch

Background

With a network of hundreds of branches throughout Canada, CIBC selected Fifth Light to install a lighting system within a branch in Markham. In the pursuit of sustainability, the system was designed to meet strict requirements, as highlighted below. The installed solution has significantly reduced lighting energy consumption and presents a useful example of the value of Fifth Light solutions in buildings of any size.

Project Objectives

The Fifth Light Solution was designed to meet several key project objectives, as listed below:
- Synchronize the lighting schedule in each office with the working hours of each occupant
- Provide personalized unique lighting levels in each office
- Meet total installed payback period of 2 years
- Add branch into the Fifth Light portfolio network of which the corporate office is a member

Solution Overview

To meet these challenges, Fifth Light's Signature Lighting Solution was chosen. This Solution consists of the following components:
- 76 DALI dimmable 2 lamp 32WT8 ballasts (120V)
- 4 DALI relays (120V/4.5A)
- 1 low voltage momentary switch
- 18 low voltage occupancy sensors
- 2 low voltage daylight sensors
- 1 Lighting Control Panel
- 1 multi-user web based Lighting Management Software application

Project Highlights

Lighting energy consumption reduced by
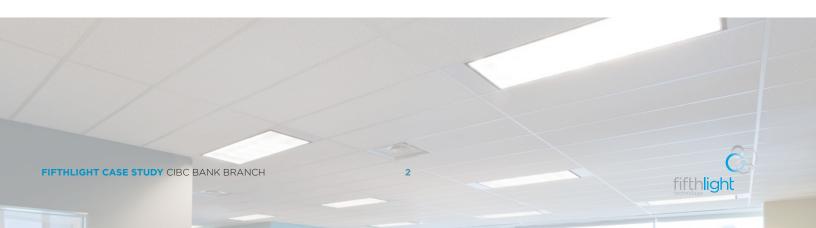## 76%

A payback period of
2.0 years

Annual greenhouse gas savings of
77 tonnes

User based scheduling and control allows for
Personalized Light Levels

fifthlight

The key lighting management features provided in this project include:

1 Daylight Harvesting with gradient dimming. A network of daylight sensors adjust lighting levels in response to ambient lighting conditions. A gradient dimming algorithm allows for a single daylight sensor to dim the first row of light fixtures closest to the window more than the second row, which is dimmed more than the third row.

2 User Based Time Scheduling. The schedule of each office is synchronized with the working hours of the occupant. The ability to assign a unique schedule to each fixture allows for the overall operating time of the light system to be optimized. User preferences are stored in the database so that schedule light levels are personalized for each occupant.

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.

5 Occupancy Detection with flexible groups. Lights are dimmed down to a minimum level in areas where illumination is required during vacancy. Other lights that are controlled by the same sensor can be shut off during vacancy.

Results

The results of this project have been determined by metering the lighting system before and after installation of the Fifth Light system.

- Floor light level: 40-45 foot candles
- Lighting power density: 0.7 w/sq ft
- 35 - 45 Watts maximum power consumption per fixture, optimized based on user preference
- Energy savings: 76%
- Payback period: 2.0 years
- Greenhouse gas reduction: 77 tonnes CO_2 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.