fifthlight technology

CASE STUDY

Sault Area Hospital

969 Queen St. E,
Sault Ste Marie, Ontario

March 2010

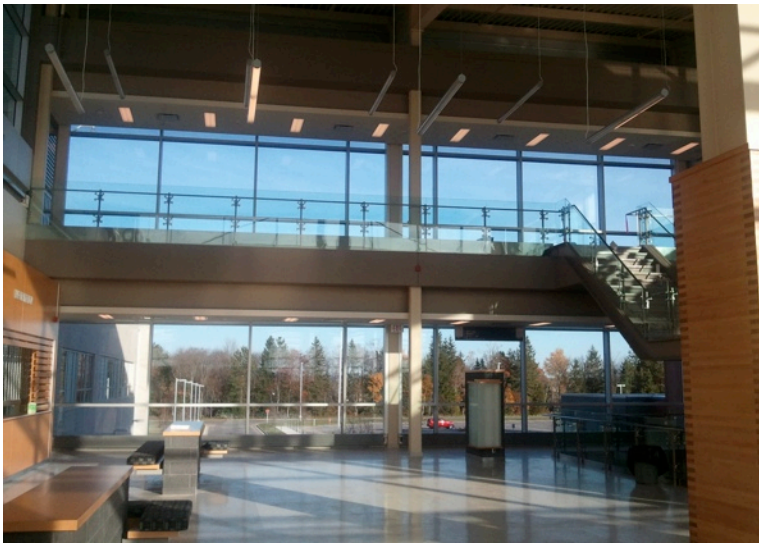
COOPER Controls

CASE STUDY

Sault Area Hospital

Background

The consortium of Ellis Don, Carillion and Honeywell chose Fifth Light to provide the lighting system for the Sault Area Hospital (SAH). The energy management and operational benefits of Fifth Light's Enterprise Lighting Solution proved to be cost effective for the 3 storey, 500,000 sq. ft. of facility. Fifth Light pioneered the automatic tube fault detection and dispatch feature for this project.



Project Objectives

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

- Constant 40-45 foot candle of light at desk height
- Open communication protocol for all devices
- Operate on a converged Cisco network with other IP devices including computers, VOIP phones and cameras

Solution Overview

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

- 6,139 DALI dimmable 2 lamp 32WT8 ballasts (120V)
- 868 low voltage momentary switches
- 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

45%

A centrally controlled DALI network of

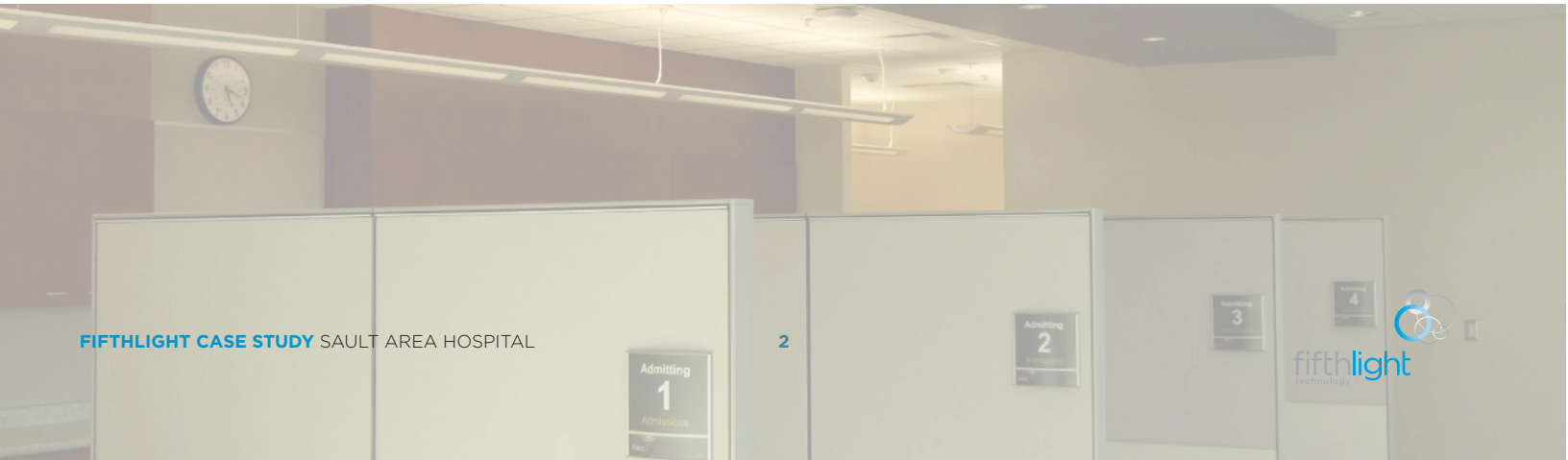
7,165 Devices

25 year life cycle cost savings of

$4.3 Million

Automatic detection and email dispatch of

Lamp & Ballast Status



The key lighting management features provided in this project include:

1 Advanced Time Scheduling. The schedule of each light fixture is synchronized with the functional program of the hospital. The ability to assign a unique schedule to each fixture allows for the overall operating time of the light system to be optimized. Lights are only on when needed and are automatically shut off when not in use.

2 Wall Mount Control with device specific profiles. Each momentary switch is assigned a set of fixtures and a response pattern through software. Virtual lighting zones allow for the set of fixtures controlled by a given momentary switch to be modified at anytime without rewiring. Dynamic time limits, virtual minimum and maximum levels allow the facility manager to customize the behavior of each momentary switch. In patient rooms, each momentary switch replaced 2 high voltage wall switches.

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 Unified Communication Network. Lighting data is transmitted on the same network as computers, VOIP telephones and other IP devices. The converged network avoided the cost of a dedicated lighting network.

Results

The results of this project have been determined by creating an energy model that compared the Fifth Light Solution to a non-dimmable lighting system. This energy model was created Carilion and Fifth Light. The key results are listed below:

- Floor light level: 40-45 foot candles
- Lighting power density: 0.7 W/sq ft
- Energy savings: 45%
- 25 year life cycle savings: $4.3 million
- Payback period: 5.7 years
- Greenhouse gas reduction: 1,005 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.