Kwantlen POLYTECHNIC UNIVERSITY

Sustainability Success Story

Exterior Photocells Control Interior Lighting

The Challenge

Our campuses have many areas with many different purposes, from atriums to parkades (see photos this page). These areas have one thing in common, a lot of natural lighting from nearby windows and open areas. The typical solution is installation of an interior photocell controller to turn off lights in a relatively small area according to natural lighting levels in that area. The problem is that ten different areas need ten controllers, with an associated increase in capital and ongoing maintenance costs. While we had another concept we were able to find no other examples that would validate the idea, nor could we get agreement from outside resources.

Our Solution

In 2005 we committed to experimenting using outside light levels to control interior on/off switching. We installed two slightly unconventional (analogue) photocells, and averaged the readings from the two to our Building Managerment System (BMS) computer. We then set up temporary trend logs for the photocells to record their output and time of day and walked around the building, noting when we felt lighting could be off in various areas. By looking back at the trend log records for those dates and times, we knew the photocell values to use in programming lights off and on.

Project Cost, Annual Savings and Other Benefits

Project Cost	$10,500
Project Savings	$2,350 per year (Electrical costs)
Electricity Savings	47,000 kWh (about ½% of our total consumption)
Simple Payback (years) / Return on Investment (ROI)	3.3 Years with maintenance savings included / Return on Investment of 30% with maintenance savings included
Reduced Maintenance Costs	Annual maintenance costs will be reduced by $880
Environmental Improvement - Greenhouse Gas Reduction	Reduced emissions of 17 Tonnes of GHG
Other Benefits	Demonstrates Leadership, Commitment.