



Safety and savings achieved with Broadway campus exterior lighting upgrades

Dark, rainy nights in Vancouver mean a well-lit parking lot is essential. But, lighting these large spaces can be expensive. This winter, students, staff, and faculty are enjoying a brighter, safer and more energy efficient campus. A major lighting upgrade was completed in March, 2015 at VCC's Broadway Campus and the savings are already rolling in. The exterior lighting overhaul translates into 68,000 kWh in annual savings or roughly the amount needed to power all 2,000 computers on campus for 56 days.



Before: Lamps and floodlights created uneven distribution of light



After: New LED luminaires offer better optical performance and light distribution

Safety

In the Broadway Campus parking lot, increased light levels and lighting consistency were provided ensuring greater safety for staff and students walking to and from vehicles and crossing the parking lot to the VCC-Clark Skytrain Station. The parking lot was poorly served by the old system, which used a mixture of high pressure sodium (HPS) lamps and metal halide (MH) lamps. Using both HPS lamps, which give off a warmer "yellow" light, and MH lamps, which give off a cooler "white" light, in the same area resulted in a lack of uniformity and visual appearance. Additionally the older MH lamps floodlights were failing often, resulting in large dark patches spotting the parking lot.

Most of the exterior building lights were suffering from the same issue. Dark patches around the exterior of the building were concerning for campus safety. Increasing light levels enhanced safety and security for students, staff, and faculty moving between buildings during the dark winter months.

Efficiency

Both the Broadway Campus parking lot lights and the building mounted exterior lights were upgraded to new LED luminaires which offer better optical performance and distribution of light. The new LEDs are also rated to last up to 100,000 hours – or approximately 23 years – with little to no maintenance.

Not only do the newly installed LEDs provide more and better light with less maintenance, the new parking lot lights are equipped with special sensory technology. In addition to the standard dusk-to-dawn controls that keep lights turned off during the daytime, each LED luminaire has an integral passive infrared motion detector that automatically dims the luminaire to 50% when no motion is detected. As soon as motion is detected, the luminaire returns to full brightness. This is anticipated to result in significant additional savings as there can be long periods over the course of the night where no one is using the parking lots.

BEFORE

Missing opportunity to save money on electricity costs and reduce VCC's environmental footprint

Mixing warmer and cooler lights in the Broadway Campus parking lot was creating poor visual appearance

70W and 250W Metal Halide, 70W HPS, and 32W trip CF were replaced

There were 72 luminaires requiring frequent maintenance in the Broadway Campus parking lot

Lights were on and consuming energy even when no one was occupying the space

Overuse of artificial light was contributing to light pollution and urban sky glow

Dark patches around the exterior of the building were concerning to campus safety

AFTER

Broadway Campus saves 68,000 kWh annually

New LED luminaires distribute light more evenly throughout the parking lot

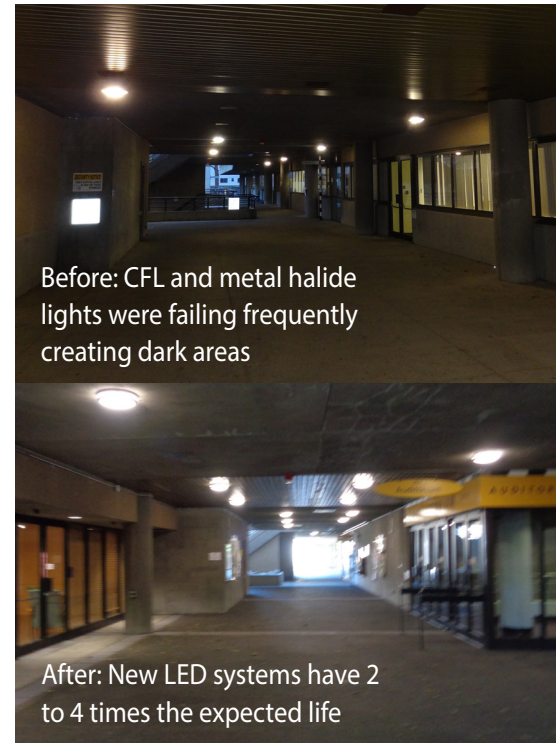
With 35 W LED, LED 'shoebox', 25W LED DL, and 15W LED DL

Only 46 luminaires do the job of lighting the Broadway Campus parking lot and can last up to 23 years with little to no maintenance

Lights are equipped with sensors to dim when space is vacant and return to full brightness when motion is detected reducing demand by 50% during unoccupied periods

New LEDs are full cut-off which means they emit no light above the horizontal level

All campus users can enjoy safer, and well lit areas around and in between buildings



Before: CFL and metal halide lights were failing frequently creating dark areas

After: New LED systems have 2 to 4 times the expected life

Improvements

Good lighting design is crucial to creating a safe and effective learning and teaching environment. With these improvements, VCC's Broadway Campus is equipped to light the way for students for years to come.

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Savings calculations & case study prepared by



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