

# BC has some bright ideas

By Rob Harris



**When John Percival**, the Senior Energy and Project Manager with the Provincial Health Services Authority, was looking for ways to reduce the carbon footprint and maintenance costs of his facility, he turned to Light Power of North Vancouver, BC to help him adopt the cutting edge in Light Emitting Diode (LED) technology for BC Children's Hospital and BC Women's Hospital & Health Centre (C&W) in Vancouver, BC.

BC Children's is the largest full service child health facility in Canada and BC Women's is one of the country's busiest maternity centres. With 1.5 million square feet of buildings and parking lots spread out over a 46 acre site, energy and maintenance was a major consideration in managing the facility's lighting.

## ENERGY CHAMPION

With a mandate from the Provincial Health Services Authority (PHSA) and with the support of provincial utility BC Hydro, C&W set out to make an impact and set an example for other healthcare facilities and large commercial or institutional energy consumers. In the past several years, healthcare has reduced energy consumption provincially by 12 gigawatts of which nearly half has been achieved by the PHSA.

## SO HOW DID THEY DO IT?

A major contributor to energy and maintenance costs at the hospital is outdoor site and area lighting; they have plenty of it covering the many parking lots, roadways and buildings that make up the facility.

PHSA teamed with Light Power to help them harness the advantages of LED technology. LEDs have been around for years as indicator lights in electronics, traffic signals and vehicle tail lights. More recently red, green and blue LEDs have been mixed to create dynamic colour changing effects for building highlighting or entertainment applications. As the efficiency of the technology continues to improve, LEDs are now a viable solution for white light illumination applications such as walkways, parking lots and general outdoor area lighting as well as high bay warehouses, loading docks and cold storage. In cold storage applications, additional energy savings can be had through significantly reduced heat load cooling.

The compact nature of the LED device gives precise control over where the light is directed resulting in very little lost or wasted light that would commonly be found in conventional incandescent or HID fixtures. The inherent efficiency of an LED

to convert energy to light without losing much to heat also contributes to the dramatic reduction in energy that can be achieved with the technology.

Light Power and PHSA have undertaken a multi-phase installation at several facilities in Vancouver including C&W, the BC Cancer Agency (BCCA) and Sunny Hill Health Centre for Children that will see virtually all of the conventional HID walkway, parking lot and site lighting replaced with LED products. When complete, more than 600 new and retro-fitted luminaires will be installed at all three sites. To date almost 200 fixtures have been replaced in the parking lot, ring road, walkways and covered multi level parking garage at the C&W and the BCCA.

In the parking lots and around the ring road at the hospital, 250 watt metal halide fixtures that consume a total of 305 watts when the ballast is included were replaced with only 90 watt LED luminaires for energy savings of over 70 per cent. The use of LEDs virtually eliminates maintenance and replacement lamp and ballast costs for 70 thousand hours, which is the rated useful life of the LED system. This translates to almost 16 years when the lights are operated 12 hours per day.

A single 400W metal halide lamp burning for one year produces 1.69 tonnes of CO<sub>2</sub>. That is the equivalent to driving a car for more than 14 thousand kilometres or one year of average use. At the hospital, this translates to removing almost 100 cars from the road by exchanging their parking lot and roadway lighting alone.

In addition to reducing energy consumption and maintenance costs, the LEDs have dramatically improved the quality of light. The crisp white light and improved uniformity of the lights has increased the feelings of safety and security of both the staff and patients. An unexpected benefit was the improved visibility for the security cameras due to the higher quality of light.

### TOTAL COST OF OWNERSHIP

The initial capital cost is higher for the LED luminaire but when compared against the total cost of ownership of an HID fixture with its increased energy consumption and need to replace lamps every one to two years and ballasts every five to ten years, the savings can be substantial.

BC Hydro worked with PHSA to develop incentives to help with the adoption of the technology. When money from the utility or any provincial energy reduction funds is included, the payback to the facility can be almost instantaneous. ■

Light Power designs, manufactures and sells a diverse portfolio of LED-based lighting products for both indoor and outdoor applications. The company has been at the leading edge of development to leverage the continuous improvements and create innovative solutions for markets and customers. For more information contact Rob Harris at [rob.harris@lightpowerinc.com](mailto:rob.harris@lightpowerinc.com) or visit [www.lightpowercanada.com](http://www.lightpowercanada.com).

