Bright Ideas!

LED LIGHTING FOR STRATAS
## COMMON EXTERIOR FIXTURES

<table>
<thead>
<tr>
<th>High Pressure Sodium</th>
<th>These lamps are often used for street lighting. The lamp works by creating an electric arc through vaporized sodium metal.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metal-halide</td>
<td>A type of high-intensity discharge (HID) gas discharge lamp. Produces light by an electric arc through a gaseous mixture of vaporized mercury and metal halides.</td>
</tr>
<tr>
<td>LED</td>
<td>LED stands for Light Emitting Diode, a semiconductor device that converts electricity into light.</td>
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</tbody>
</table>

Commercial Exterior LED Fixtures are typically All-In-One. No light bulbs to change.
CHOOSING LEDS

Consider:
- Purpose
- Height
- Lumens
- Colour
- Adjustability
- Footprint
- Sensors (PE)
- Samples
**LEDS: PROS**

- Energy savings
- Whiter light
- Less heat
- No mercury
- Instant-on
- Low or no maintenance
- Rebates available

**LEDS: CONS**

- More concentrated centre spot
- Sharper angle
- Possible complaints from residents or neighbours
LED: more concentrated centre spot, “blinding”

HPS: softer wider beam
The range of LED products has expanded.
• Price
• Life (L70)
• Light Output Lumens
• Efficiency (Lumens per Watt)
• Colour temperature (Kelvin) (such as 4,000 K)
• Compatibility of Ballasts if applicable
• Instant-on / Dimmability
• Rebates available
More selection and styles of Downlights / Security Lighting
More selection and styles of Interior and Exterior Sconces
Bulbs for Fully Enclosed Fixtures

12 watt LED replaces 75 watt incandescent

25,000 hr life LED.
Architectural Lighting
Solar LED Luminaires

No trenching, wiring, hydro bills or bulbs to change. Immune to power outages. 8-10 year battery life. Easy to change.

100,000 hr life. 8-12 feet high. Various factory set lighting profiles.
Vapourproof LED Fixtures

42watt LED fixture replaces 2 lamp T8

30-40% energy savings. 100,000 hr life.
Replacement Lamps

What’s New?
HID to LED

The GE LED replacement for HID lamps is the key to improved energy usage and lamp life in industrial, warehouse, retail, commercial and outdoor applications.

- 2.5x longer life
  The GE LED has a 50,000-hour rated life vs. HID (20,000 hours)
- 50% less energy usage
  with similar light output—18,500 vs. 23,500 lumens
Why switch to LED Tubes?

- 66% longer life (50K vs. 30K hrs.)
- Uses 43% less energy (18W and 2200 lumens vs LFL 32W and 2725 lumens)
- Better quality of light (Instant-On)

GE’s Integrated LED Tube (UL Type A)
Easy Plug & Play Performance

- Uses existing ballast
- Quickest installation
- Lowest installation cost
- System compatibility depends on LFL ballast
LED High Lumen Biax Plug-In

17watt LEDs replace 25watt Fluorescents

50,000 hr life LED vs. 20,000 hr life CFL

Colours 3000, 3500, 4000, 5000 Kelvin
Plug-In Replacement Lamps

12 watt LEDs replace 26 watt CFLs

50,000 hr life LED vs. 20,000 hr life CFL
MR16 and GU10 LEDs

3.5-7 watt LEDs replace 35-50 watt Halogens
Spotlights / Downlights / Directional Lamps

LED replaces Halogens
LED Refit Solution for Recessed Downlights

Screws into existing fixture. No wiring or tools.

10-13 watt LED vs. 65-90 watt incandescent. 50,000 hr vs. 2,000 hr life.
Decorative / Vintage and Chandeliers
Dimmable LED bulbs replace Incandescent

3-5 watt LED vs. 25-40 watt.

3.5-7 watt LED vs. 25-60 watt. 15,000 hr life LED vs. 1,000 hr life incandescent.
THINKING GREEN

“It is essential that we re-examine ethically what we have inherited, what we are responsible for, and what we will pass on to coming generations.

We have the capacity, and the responsibility. We must act before it is too late.”

- The Dalai Lama
VIS1052 CASE STUDY

• 94 Units
• Built 1974
• Original lights

EXTERIOR LIGHTING PROJECT
What fixtures did we choose?
- Each fixture uses 75 watts
- Bulb life 24K hours (5 yrs)
- Maintenance costs (over 20 yrs) bulbs + ballast + labour = $268 each

- Each fixture uses 19 watts
- Life 100K hours (20 yrs)
- Fixture cost $197
- No bulbs/maintenance costs
15 High Pressure Sodium

- Each fixture uses 19 watts
- Life 100K hours (20 yrs)
- Fixture cost $269
- No bulbs/maintenance costs

15 LED Floods

- A = 75 watts
- B = 160 watts
- Bulb life 24K hours (5 yrs)
- Maintenance costs (over 20 yrs)
- bulbs + ballast + labour = $268 each

- Each fixture uses 19 watts
- Life 100K hours (20 yrs)
- Fixture cost $269
- No bulbs/maintenance costs
Each fixture uses 13-23 watt bulb
Bulb life 10K hours (2.1 yrs)
Maintenance costs (over 20 yrs) bulbs + labour = $57 each

Each fixture uses 16.5 watts
Life 50K hours (10 yrs)
Fixture cost $196
No bulbs/maintenance costs
<table>
<thead>
<tr>
<th>1974 Fixtures</th>
<th>Watts (bulb + ballasts)</th>
<th>2015 LEDs</th>
<th>Watts</th>
<th>Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 HPS Flood Lights</td>
<td>160 watts</td>
<td>8 LED Flood Lights</td>
<td>19 watts</td>
<td></td>
</tr>
<tr>
<td>7 HPS Wall Luminaires</td>
<td>75 watts</td>
<td>7 LED Flood Lights</td>
<td>19 watts</td>
<td></td>
</tr>
<tr>
<td>Carport: 6 HPS Wall Luminaires</td>
<td>75 watts</td>
<td>6 LED Wall Luminaires</td>
<td>19 watts</td>
<td></td>
</tr>
<tr>
<td>5 Coach Lights</td>
<td>23 watts</td>
<td>5 LED Flush Mounts</td>
<td>16.5 watts</td>
<td></td>
</tr>
<tr>
<td>watts/1000 = kWh</td>
<td>2.37 kW</td>
<td></td>
<td>0.484 kW</td>
<td>79.6%</td>
</tr>
<tr>
<td>Consumption per Year</td>
<td>11,246 kWh</td>
<td></td>
<td>2,297 kWh</td>
<td>8,949 kWh</td>
</tr>
<tr>
<td>Hydro Cost per Year</td>
<td>$1,462</td>
<td></td>
<td>$293</td>
<td>$1,169</td>
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<tr>
<td>Item</td>
<td>Cost</td>
<td></td>
<td></td>
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<tr>
<td>-------------------------------------------</td>
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<td></td>
<td></td>
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<tr>
<td>26 Fixtures</td>
<td>$6,201.51</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Labour &amp; Materials</td>
<td>$1,677.45</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Photo Control installation</td>
<td>$339.00</td>
<td></td>
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<tr>
<td>Electrical Permit</td>
<td>$239.00</td>
<td></td>
<td></td>
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<tr>
<td>Less BC Hydro Rebate</td>
<td>-$800.68</td>
<td></td>
<td></td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>$7,656.28</strong></td>
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<tr>
<td><strong>Return on Investment</strong></td>
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<tr>
<td>Energy Savings per Year</td>
<td>$1,169.</td>
<td></td>
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<tr>
<td>Maintenance Savings per Year ($35,913/20 yrs)</td>
<td>$296.</td>
<td></td>
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<tr>
<td><strong>Total Savings per Year</strong></td>
<td>$1,465.</td>
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<tr>
<td>Project Cost</td>
<td>$7,656.</td>
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<tr>
<td><strong>Return on Investment (ROI)</strong></td>
<td>5.2 Years</td>
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</tbody>
</table>
Lights aver 13 hrs/day
365 days = 4,745 hrs/yr
Hydro cost $0.13/kWh

HPS bulbs $22 each
$10 labour to change
Ballast replaced once
Ballast $70 each
Min 1 hour labour $70

NOTE: Soon parts for High Pressure Sodium Fixtures will no longer be available.
Getting Started
GETTING YOUR STRATA PROJECT STARTED

www.bchydro.com/powersmart/business/programs/expres.html

1.  
2.  
3.  

Energy-Saving Incentives For Businesses

Helping businesses save money and energy

Get help to reduce your operating costs through the implementation of energy efficiency projects. Whether you run a small or a large business, we have incentives that can help cover a portion of the cost of simple one-to-one retrofits.

Already familiar with our incentives for businesses? See the latest program updates.

Available incentives

Incentives are available for a variety of technologies (e.g., LED lighting).

Get help from industry experts

Already have an energy efficiency project in mind? Members of our Alliance of Energy Professionals can help you get started. The Alliance is an independent network of registered contractors and distributors that can help provide you with solutions and implement your project. They are trained to help you with energy-saving projects from start to finish so that your experience is seamless.

For a list of Alliance members that can help with your project, request a referral.

Program resources

- Confirm your eligibility by using the business program eligibility tool
- Read through the FAQ before you get started (PDF, 104 KB)
- Refer to the Catalog to see the eligible technologies and products
Enter your strata’s BC Hydro account number to verify eligibility.
The e.Catalog lists thousands of conversions that are eligible for rebates.

www.bchydro.com/ecatalog/

Contact a commercial lighting supplier for assistance.
LED light bulbs use about 75% less energy than standard incandescent bulbs.
Learn more about **HOUSEHOLD LIGHTBULBS** here:

[www.energystar.gov/products/lighting_fans](http://www.energystar.gov/products/lighting_fans)
Use the **Energy Star Light Bulb Savings Calculator** to calculate savings for Household bulbs
Thank you to Commercial Lighting for research and assistance. (250) 385-8816 comlight.com