WHY GREEN?
**SUSTAINABILITY: GOOD FOR ALL**

When buildings are designed, built and operated with the intention of minimizing environmental impact, everybody wins. This approach is great for the environment, the people who work in these high performance buildings, the overall community, our future and the building owner.

Watts multiplied by hours used, equals energy consumed and money spent. More light for fewer watts saves energy, which means fewer natural resources required for energy generation. Power plants discharge less waste into the environment and less money is spent on electric bills.

Using energy efficient design and technologies in constructing new office buildings can cut energy costs by 50 percent or more. Energy smart office buildings incorporate efficient lighting and daylighting systems, as well as advanced windows, roofing, insulation and mechanical and ventilation systems.

Commercial buildings account for more than 60% of the nation’s electricity consumption. According to government estimates, commercial buildings generate 30% of all greenhouse gas emissions.¹ Offices consume more energy than any other commercial space. Lighting accounts for 30% of the energy used in office buildings, so evaluating lighting efficiency is a great way to begin improving the sustainability of a new or existing building.

**HIGH PERFORMANCE IN EVERY WAY**

Besides cutting operating costs, energy efficient office buildings enhance the comfort and performance of workers and boost productivity. Daylighting improves performance and provides health benefits. With the high cost of labor, return on investment for energy features increases when savings from reduced absenteeism is combined with energy cost savings. Energy efficient building features also help building owners attract and retain tenants.

Many green initiatives in the marketplace offer incentives through certification. Among these are the United States Green Building Council (USGBC) Leadership in Energy and Environmental Design (LEED®) rating systems and ENERGY STAR® programs. Hubbell Lighting’s sustainable lighting solutions will help you leverage these incentives and tax deductions from the Energy Policy Act of 2005 (EPAct).

**ENERGY USE FOR OFFICE BUILDINGS**

- **Lighting**: 30%
- **Space Heating**: 25%
- **Office Equipment**: 16%
- **Water Heating**: 9%
- **Space Cooling**: 9%
- **Other**: 11%

*Source: www.eere.energy.gov/buildings/info/office/index.html*
WHY ARE WE CONCERNED WITH SUSTAINABILITY?

IT IS SIMPLE...

• Wasting electricity carries global and personal health consequences.

• Burning fossil fuels, like coal, emits soot and other pollutants into our atmosphere.

• Carbon dioxide (CO₂) is a greenhouse gas believed to be the primary reason for our global climate change and is emitted by many methods of generating electricity.

• An average of 1.34 pounds of CO₂ is released into the atmosphere for every kilowatt hour (kWh) of electricity generated.

THE CASE FOR SUSTAINABLE LIGHTING SOLUTIONS

Everybody is talking about being green these days, but that is not enough. Climate changes continue and greenhouse gas is a real, escalating problem. Buildings account for 39% of all CO₂ emissions in the U.S., according to the USGBC. CO₂ emissions are projected to grow fastest in the building sector over the next 25 years. Because power generation accounts for about one quarter of total emissions of CO₂ per year, it is a significant factor in global warming.

Hubbell Lighting is not waiting for someone else to find a cure. We are changing the way we think about everything we do to ensure the next generation’s opportunity to live well. We are committed to lessening our carbon footprint by changing our corporate procedures and manufacturing processes. It is our mission to empower our customers and their communities with leading edge, sustainable lighting solutions.
HOW IS HUBBELL LIGHTING DOING THIS?

We are the only lighting manufacturer with a LEED Silver certified headquarters. Our Architectural Area Lighting (AAL) branded products are manufactured in the industry’s first carbon neutral facility. Plus, we offer more LED lighting fixtures than any other fixture manufacturer. Additionally, we are implementing the following eco-friendly measures:

• Reducing job site dunnage by using job packs and engineered packaging solutions

• Converting to biodegradable packaging materials

• Implementing recycling programs for defective returns and scrap

And, of course, we are a proud member of the U.S. Green Building Council.
EXAMINING SUSTAINABLE LIGHTING TECHNOLOGY:
LIGHT SOURCES

Whether you are constructing a new office building or renovating an existing one, the building components you choose will have a direct impact on your bottom line. Choosing energy-saving building components is an opportunity to realize substantial returns, not only in new construction or renovation projects, but also in maintenance of existing buildings.

Today, there are many choices in lighting technologies including fluorescent, metal halide (HID), high-pressure sodium (HID), induction and light emitting diode (LED). Effective green lighting finds a sustainable balance between energy efficiency, quality of light, long life and cost. Light source selection critically affects building space appearance, visual performance and comfort.

INTEGRATION WITH DAYLIGHT

It is a well-documented fact that properly controlled daylight promotes comfort and performance. To achieve energy savings, electric lights must be turned off or dimmed (either manually or automatically) when sufficient daylight is available. Automatic systems tend to result in greater energy savings over the long run versus manual control.
<table>
<thead>
<tr>
<th>LAMP TYPE</th>
<th>PROS</th>
<th>CONS</th>
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<tbody>
<tr>
<td>INCANDESCENT</td>
<td>Low initial cost</td>
<td>Inefficient</td>
</tr>
<tr>
<td></td>
<td>Small size</td>
<td>Excessive heat output</td>
</tr>
<tr>
<td></td>
<td>Excellent color rendering index</td>
<td>Short service life</td>
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<tr>
<td></td>
<td>Variety of shapes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Simple circuitry</td>
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<tr>
<td></td>
<td>Dimmable</td>
<td></td>
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<tr>
<td>FLUORESCENT OR COMPACT</td>
<td>Highly efficient</td>
<td>Temperature sensitive</td>
</tr>
<tr>
<td>FLUORESCENT (CFL)</td>
<td>Long service life</td>
<td>Limited optical control</td>
</tr>
<tr>
<td></td>
<td>Choice of color temperatures</td>
<td>Requires ballast</td>
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<tr>
<td></td>
<td>Low operating costs</td>
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<tr>
<td></td>
<td>Low heat output</td>
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<tr>
<td></td>
<td>Diffuse light source</td>
<td></td>
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<tr>
<td></td>
<td>Dimmable, bi-level, switchable</td>
<td></td>
</tr>
<tr>
<td>METAL HALIDE (HID)</td>
<td>Highly efficient</td>
<td>Long start-up/restrike period</td>
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<tr>
<td></td>
<td>Long lamp life</td>
<td>Requires ballast</td>
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<tr>
<td></td>
<td>Reasonable optical control</td>
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<tr>
<td></td>
<td>Low operating costs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Good color rendering index (CRI)</td>
<td></td>
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<tr>
<td>HIGH PRESSURE SODIUM (HID)</td>
<td>Exceptionally efficient</td>
<td>Long start-up/restrike period</td>
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<td></td>
<td>Long lamp life</td>
<td>Requires ballast</td>
</tr>
<tr>
<td></td>
<td>Reasonable optical control</td>
<td>Poor color rendering index</td>
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<tr>
<td></td>
<td>Very low operating costs</td>
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<tr>
<td></td>
<td>High lumen maintenance</td>
<td></td>
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<tr>
<td>INDUCTION LAMP</td>
<td>Long lamp life</td>
<td>High initial costs</td>
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<tr>
<td></td>
<td>Good color rendering index</td>
<td></td>
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<tr>
<td></td>
<td>Maintenance-free operation</td>
<td></td>
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<tr>
<td></td>
<td>Instant-on for security</td>
<td></td>
</tr>
<tr>
<td>LIGHT EMITTING DIODES (LED)</td>
<td>Efficient</td>
<td>High initial costs</td>
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<tr>
<td></td>
<td>Long lamp life</td>
<td>Output lessens over time</td>
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<tr>
<td></td>
<td>Color mixing control</td>
<td></td>
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</tbody>
</table>
SUSTAINABLE LIGHTING APPLICATIONS
Hubbell's sustainable lighting solutions minimize negative environmental impact and lower utility bills. Energy efficient lighting solutions can help cut lighting costs by 50% or more without sacrificing light levels; adding lighting control systems offers even more savings. On average, according to the U.S. Environmental Protection Agency (EPA), potential energy savings with occupancy sensors can be 32% in private offices, 60% in restrooms, 44% in conference rooms, 55% in corridors and 63% in storage rooms.

**ENTRANCE**

**HIGH MOUNTING HEIGHT**
PRESCOLITE – CFT 57/70 DOWNLIGHT
- High efficiency symmetrical beam with excellent glare control
- Long life – 12,000 hours
- Stable over wide temperature range

**LOW MOUNTING HEIGHT**
PRESCOLITE – D6 LED2-35K DOWNLIGHT
- High fixture efficiency
- Long life - 50,000 hours at 70% lumen maintenance
- Excellent glare control
- No mercury
- Cold environment friendly
SUSTAINABLE LIGHTING APPLICATIONS

LOBBY

HIGH CEILING

PRESCOLITE – RHD6 T6 DOWNLIGHT
• Long life – 12,000 hours
• Symmetrical beam appearance
• Excellent glare control
• Minimal color shift
• High color rendering index (CRI)
• Efficient maintenance

LOW CEILING

PRESCOLITE – CFT 632 EB DOWNLIGHT
• VirtualSource® Optical technology
• 26, 32 and 42 watt options
• Long life – 12,000 hours
• Universal voltage improves fixture flexibility

COLUMBIA ZERO PLENUM™ TROFFER HIGH EFFICIENCY LUMINAIRE
• High performance, full distribution troffer saves energy
• Two-lamp lensed troffer
• Equivalent light output to a conventional three-lamp lensed troffer, but uses one-third less energy
• One and one half inch high, uses zero plenum space in crowded plenum
• Modern, contemporary design
• Lensed or basketed version
CONFERENCE ROOM

PRESCOLITE LITEFRAME CFL
- Highest fixture efficiency in the industry
- Broad efficient coverage means fewer fixtures
- Ideal for design/build and value-engineered applications

COLUMBIA ENERGYMAX™ TWO-LAMP PARABOLIC
- The light levels of three-lamp parabolics with energy savings up to 34%
- Contains one-third less mercury
- Step dimming integrates with energy-management building controls, saves energy
- Tuned system – fixture, ballast and lamps are “tuned” for optimum performance
- 89% fixture efficiency when compared with conventional 70% fixture efficiency

ALER A CURV LOUVER CVL
- Suspended direct/indirect
- High efficiency - 87% average
- Excellent conference room features:
  - 60% uplight for soft room light during presentations
  - 40% downlight for direct task illumination
  - Mimics natural light
- Standard white; available in corporate colors
PRIVATE OFFICE

COLUMBIA ENERGYMAX™ INTERSECT™ FULL DISTRIBUTION LUMINAIRE
- Two-lamp, energy efficient, louvered luminaire designed to provide full distribution, energy savings and softer light
- Tuned system – fixture, ballast and lamps are “tuned” for optimum performance
- Same light levels as conventional three-lamp parabolics
- Uses up to 35% less energy than standard parabolics
- Contains one-third less mercury
- Step dimming integrates with energy-management building controls
- Recessed architectural styling, crisp new look

ALERA PLANK™
- Suspended direct/indirect
- High efficiency – up to 97%
  - Excellent optical performance
  - More efficient than recessed
- Fully controls compatible; occupancy sensors, photo cells, dimming, step dimming and switching available
- Decorative aesthetic options

EMERGENCY

DUAL-LITE CENTRAL LIGHTING INVERTERS
- 98% efficiency; highest efficiency in the industry
- Provides lighting without auxiliary equipment

DUAL-LITE LED EDGE-LIT EXITS—LE SERIES
- Long life LED
- Lower maintenance
- High efficiency

DUAL-LITE EXTERIOR EMERGENCY EGRESS LIGHTING—PG SERIES
- One footcandle minimum on egress pathway
- Multiple paths with no heads to aim
- Better pattern LED
- Reliable long life LED
OPEN OFFICE

CUBICLE AREAS

ALER.A CURVISTA
- Indirect/Direct
- High efficiency – 93% average
  More efficient than recessed
  Two, three or four lamp models
  T8, T5 or T5HO options
- Fully compatible with controls
  Occupancy sensors, photocells, dimming, step dimming and switching available
  Control uplight and downlight separately
- Aesthetic choices; elegant appearance and matching wall mounts

ALER.A CURV CV
- Suspended indirect
- High efficiency - 96% average
  More efficient than recessed
- Fully compatible with controls
- Aesthetic choices
- Computer friendly uplighting enhances visual comfort

COLUMBIA ENERGYMAX™ TWO-LAMP PARABOLIC
- The light levels of three-lamp parabolics with energy savings up to 34%
- Contains one-third less mercury
- Step dimming integrates with energy-management building controls
- Tuned system – fixture, ballast and lamps are “tuned” for optimum performance
- 89% fixture efficiency when compared with conventional 70% fixture efficiency

ACCENT LIGHTING

PRESCOLITE – A4/A6 MH RECESSED DOWNLIGHTS
- VirtualSource® Optical technology
- RP1 compliant for no glare
- High fixture efficiency
  Translating center beam optics
  Electronic metal halide ballast
  Superior color and lumen maintenance
  Cooler operation
SUSTAINABLE LIGHTING APPLICATIONS
OFFICE EXTERIOR FACADE & PERIMETER

HUBBELL OUTDOOR™ – NRG 1100 WALL MOUNT
- 42 watt CFL replaces 100 watt or 175 watt metal halide
- Saves energy

KIM™ WALL COMMANDER™ / WALL DIRECTOR®
- Efficient area uplight and architectural accent lighting
- Pulse start metal halide or induction technology
- Full cut-off fixture
- High 95% fixture reflectivity

OFFICE GROUNDS, LANDSCAPE & SIGNAGE

KIM SCARAB™ SIX WATT LED SPOT
- Extremely long life LED
- Virtually maintenance-free
- Perfect for accent landscape lighting

KIM MICROFLOOD® EL 217 15 WATT LED
- Extremely long life LED
- Long 15 year fixture life reduces maintenance

OFFICE PARKING LOT

AAL™ FLEX™
- Wide aperture, high performance, full cut-off reflector systems
- Reflector available in distribution types two, three, four and five
- Cut off unwanted light with house-side shield option

KIM ARCHETYPE® / STRUCTURAL™
- Efficient pulse start metal halide or induction technology
- Full cut-off efficiency
- Efficient, effective downward control of light
- Easy-access, tool-less latches for lower maintenance
Adequate levels of the right kind of light can save energy and enhance working conditions. Adding remote sensors, individual controls and task lighting can greatly reduce electricity costs. Lighting controls save energy costs by dimming or turning electric lighting off when it is not needed. Control strategies are based on occupancy, daylight, schedule or a combination of these. Lighting control strategies are most successful when people can easily understand how they work. Regularly scheduled maintenance of control equipment will improve the long-term success of the system. Maximum energy savings can be achieved when both daylighting controls and occupancy sensors control the lighting system. This section provides a brief overview of lighting control hardware available for office applications.

**OCCUPANCY SENSORS**

*Industry Leading Technology – Proven Quality*

**LIGHTOWL™ | OMNI™ | LIGHTHAWK™**

- IntelliDAPT™ Technology with continuous self adapting sensor
- Optional SuperSaver mode
- Dual operating modes – automatic and manual
- California Title 24 compliant operation
  - Manual ON / Automatic OFF
- Multi-technology – both passive infrared (PIR) and ultrasonic sensors
DAYLIGHTING CONTROLS

The ideal solution for indoor, outdoor or skylight control of lighting circuits based on natural daylight. Daylighting control systems consist of two basic types: dimmed and switched. Dimming control system varies the light output over a wide range to provide the desired light level. Switching control system turns individual lamps off or on as required.

LUXSTAT
- Open loop ON/OFF and continuous dimming daylight harvesting control
- Automated setup
- LCD display provides real-time light level readings
- Integration with occupancy sensors and manual override controls
- UL & cUL® listed
- California Title 24 compliant operation  
  Manual ON / Automatic OFF
- Five year warranty

DLC7
- The ideal sensor for harnessing available natural light

LX NETWORKED LIGHTING CONTROLS

The ultimate harmony of technology and simplicity

LX SERIES
- Unique handheld touch screen graphical user interface (GUI)
- Robust and reliable 20 amp. mechanically latching relays
- Multiple size enclosures available (4, 8, 16, 32 and 48 relays)
- Topology free, polarity insensitive, two wire communication
- LonWorks® "open system" architecture
- LonMark® certified
- Feature rich scheduling functions
- 365-day time clock
- Automatic Daylight Saving Time and leap year compensation
- Built-in astronomical time clock for sunrise/sunset programming
- UL listed
- California Title 24 compliant operation
- Two year warranty
ITALICAL IT JUST MAKES SENSE

Lighting is often overlooked within an office infrastructure and can consume 30%-50% of the electricity in a typical commercial facility. Hubbell Lighting offers a wide variety of high performance, energy efficient, sustainable lighting solutions that can reduce lighting costs 30%-50% or more.

With financial incentives like utility rebates, energy grants and loans and federal tax deductions up to $0.60/sq. ft. through EPAct 2005, there has never been a better time for offices to reduce energy and maintenance costs. Improved worker productivity and reduced absenteeism are the real benefits of sustainable lighting solutions.

With four to five million commercial buildings in the U.S. that still contain outdated lighting systems, the potential energy and cost savings is staggering. Choosing to build green and utilize sustainable lighting solutions demonstrates environmental leadership and boasts a commitment to the overall reduction of waste and depletion of resources, while improving air and water quality and reinforcing the creation of sustainable communities. Hubbell Lighting is privileged to provide GreenWise™ lighting solutions to improve business performance and preserve our environment for future generations.

For more information on green building and sustainability in lighting, visit these information resources:

- **Hubbell Lighting GreenWise™**
  www.hubbelllighting.com/greenwise

- **U.S. Green Building Council**
  www.usgbc.org

- **Illuminating Engineering Society of North America**
  www.iesna.org

- **Lighting Research Center**
  www.lrc.rpi.edu

- **International Dark Sky Association**
  www.darksky.org

- **U.S. Department of Energy**
  www.doe.gov

- **Buildings Magazine**
  www.buildings.com

- **Enlighten America**
  www.nema.org
“Getting warmer” is not a good thing anymore. Help prevent global warming with sustainable lighting solutions from Hubbell Lighting. Installing new or renovating existing sustainable lighting solutions can save 50% or more on energy costs and prevent tons of carbon emissions. Preserve today’s resources for a brighter tomorrow. Get GreenWise with Hubbell Lighting. Visit www.hubbelllighting.com/greenwise to learn more.