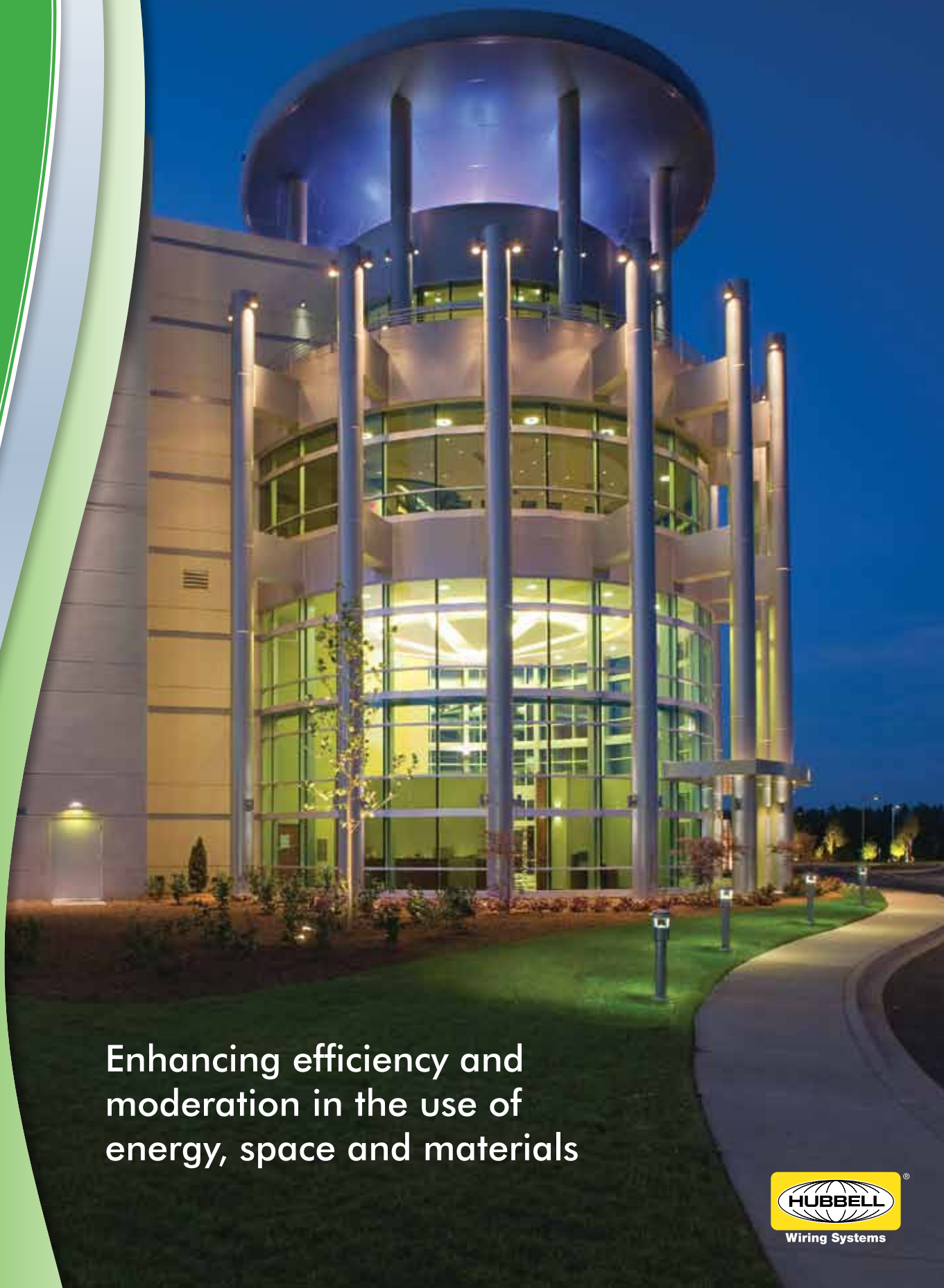
GREENWISE

# Sustainable Building Design with GreenWise™ Solutions



Enhancing efficiency and moderation in the use of energy, space and materials

HUBBELL
Wiring Systems

# Our Changing World

All around the globe, there is a powerful shift towards "green" thinking. Now increased interest in energy efficiency and waste reduction has put sustainable building design at the very forefront of the industrial, commercial and residential construction industries.

## LEEDing the Way

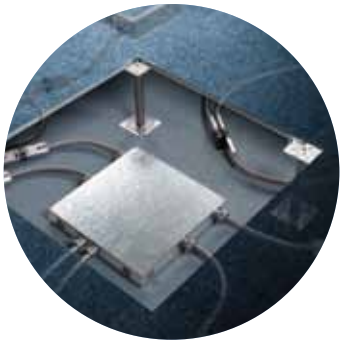
Many enterprises are striving for certification through the U.S. Green Building Council's (USGBC) LEED® (Leadership in Energy and Environmental Design) program, which is now considered the standard for green building. Since 2003, USGBC membership has more than quadrupled in size, and project registrations for LEED certification have grown by 75%. Added to LEED® are several other environmental programs and regulations:

- AHSRAE/IESNA energy efficiency code
- International Energy Conservation Code (IECC)
- Environmental Protection Agency's (EPA) ENERGY STAR®
- California Energy Commission's (CEC) Title 24
- Home Energy Rating System (HERS) index
- NFPA 900 Building Energy Code
- Restriction of Hazardous Substances (RoHS)

Additional initiatives and regulations on the horizon will undoubtedly drive companies to further examine innovative products that optimize sustainable building design.

## GreenWise™ Sustainability Initiative

As a leader in the industry, Hubbell Wiring Systems recognizes its role and responsibility in safeguarding the environment. Through its GreenWise™ Sustainability Initiative, Hubbell designs and develops innovative products that optimize sustainable building design by saving energy, supporting space efficiency and reducing waste.



# Sustainable Building Design

Sustainability seeks to minimize the negative environmental impact of buildings by enhancing efficiency and moderation in the use of energy, space and materials.

- **Energy Savings** – Optimizing energy savings is significant to achieving sustainable building design, and it is a key category under the LEED® certification program.
- **Space Efficiency** – Maximizing interior daylighting and space efficiency in LEED®-certified buildings requires an open floor plan and supporting products and systems.
- **Reducing Waste** – Products that are reusable, reconfigurable and match the lifecycle of a building require less material, avoid frequent replacement and reduce demand for virgin materials.

## Going Green – Not So Expensive

Building for sustainability was once considered expensive, but recent technological advancements and increased demand have decreased initial construction costs. Today, the cost to build a sustainable LEED®-certified building is only 1% higher at the low end and 11.5% at the high end. This slight increase is inconsequential because a sustainable building typically reaches a positive return on investment in two years and offers significantly reduced operating and retrofit costs, which account for 75% of a building's lifecycle costs.

## Benefits Abound

Sustainable building design improves worker productivity and job satisfaction due to healthier working environments. Brighter office conditions can increase performance by more than 10%, and studies show that LEED®-certified buildings have a significantly reduced number of missed work days among employees. Sustainable buildings also generate higher rental rates, lower vacancy rates and higher market values compared to conventional buildings.

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# Energy Savings from Hubbell

## Hubbell Occupancy Sensors

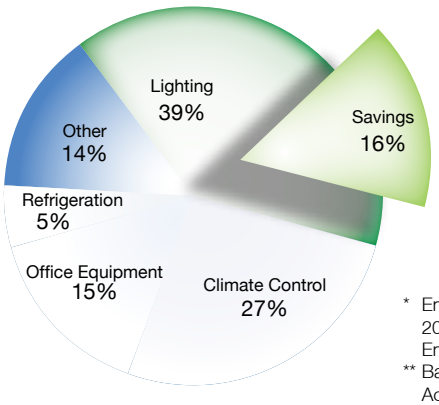
According to the D.O.E (Department of Energy), lighting consumes 22% of electricity and represents $40 billion a year in energy costs. Hubbell's H-MOSS® Occupancy Sensors significantly cut energy consumption by automatically turning lights on when a room is occupied and off when a room is vacant. Hubbell's Daylight Harvesting Controls detect natural light and maintain lighting levels accordingly. Manual and automatic dimmers also allow users to reduce lighting requirements based on specific tasks.

Hubbell Wiring Systems offers many models of lighting controls that meet the latest codes and standards and provide LEED points under categories like Indoor Environmental Quality and Energy and Atmosphere.

- In the commercial environment, H-MOSS® occupancy sensors significantly reduce energy consumption when deployed in areas of intermittent use like restrooms, conference rooms, laboratories and closets.
- In industrial environments, Hubbell's H-MOSS® occupancy sensors with passive infrared technology turn lights off when they're not needed in large warehouse aisles and high-bay applications.
- Daylighting controls for spaces like offices, classrooms and atriums with natural light turn lights off or continuously adjust light output based on daylight conditions.
- In the home, Hubbell's California Title 24-compliant residential vacancy sensors turn off lights when motion ceases

## Typical Office Electricity Usage and Savings*

**Lighting Uses 39% of Total Electricity**




**Potential electricity bill savings****

* Energy Information Administration: 2003 Commercial Buildings Energy Consumption Survey

** Based on 40% lighting savings from sensors. Actual results may vary.

# Wiring Systems

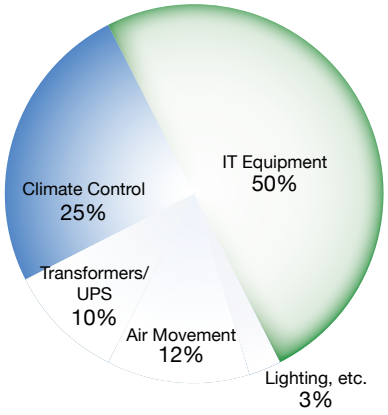
## Data Center Solutions

According to the EPA, energy used by U.S. data centers is estimated at over 61 billion kilowatt-hours (kWh), which is more than 1.5% of total U.S. consumption. Much of that consumption is directly related to the amount of heat generated by networking equipment and the cooling and air movement required to keep equipment functioning properly.

Data center solutions that eliminate airflow obstruction can help reduce dependence on cooling systems and potentially contribute to LEED® certification.

- Hubbell offers a variety of optical fiber and copper cable and connectivity solutions with a smaller footprint to save valuable space for improved airflow around equipment.
- Hubbell's iFrame® vertical patch panels allow short connecting cables and eliminate cables that would otherwise restrict airflow.
- Hubbell's iFrame® network cabinets, open column systems and cable management remove barriers to forced and convective airflow by creating designated vertical cable pathways away from equipment.
- Hubbell power distribution systems like Twist-Lock® power devices, IEC pin-and-sleeve high power connections and iFrame® three-phase power delivery help reduce cable bulk for improved airflow.

## Typical Datacenter Energy Consumption*




* Sources of Data Center Energy Consumption.
Source: EYP Mission Critical Facilities, Inc.

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# Space Efficiency from Hubbell Wiring Systems

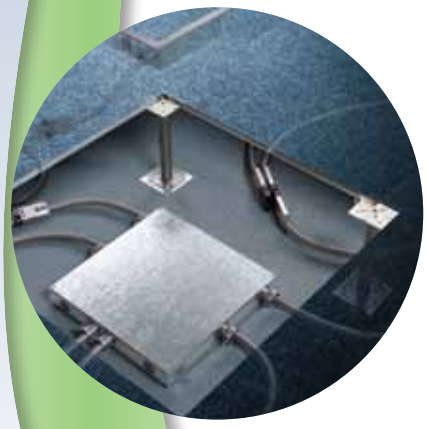
## Delivery Systems

The use of open space to maximize interior daylighting in LEED®-certified facilities depends on the ability to provide power and communications in these environments. Unlike conventional fixed power and communications systems that require walls and create barriers, Hubbell Wiring Systems offers a full line of through-floor and in-floor solutions for delivering power, voice, data and audio/video requirements to work stations in open spaces.

- Hubbell SystemOne floor boxes and fire-rated poke-throughs offer a functional and unobtrusive alternative to wall-mounted receptacles and jacks. They can be customized to meet virtually every power and communications application, including multiple low-voltage and active multimedia applications.
- Open-office modular furniture solutions, power poles, and metallic and nonmetallic surface raceway deliver power and communications in open spaces.
- In residential applications, Hubbell's floor boxes provide ample power and communications connections in the floor, allocating more exterior wall space for natural lighting.

## Raised-Floor Solutions

The use of a raised floor in sustainable building design facilitates the use of underfloor systems that can offer improved HVAC efficiency and control, facilitate easy access to power and communications, and reduce the need for large overhead air plenum space that may ultimately result in overall higher building height.



- Hubbell's raised-access offering includes a variety of deep and shallow access floor-boxes that are ideal for delivering multiple services in raised-floor applications.
- Hubbell's UL-listed CONNEXION zone distribution system is a modular wiring system that delivers power to workstations in raised-floor applications. Available furniture feed boxes transition the CONNEXION zone distribution system with powered partitioned furniture or wall outlets.

# Reducing Waste with Hubbell Wiring Systems

## Reusable and Reconfigurable

Whenever systems and components are reusable, reconfigurable and relocatable, they reduce waste by eliminating the need to install completely new systems when needs change.

- All of Hubbell commercial and residential delivery systems are modular, allowing various connections to be easily replaced to accommodate future needs.
- Hubbell's CONNEXION zone distribution, raceway and industrial LINKOSITY® modular power systems can be easily reconfigured or removed and reused in another location.

## Matched to Building Lifecycle

Hubbell manufactures products to more closely align with a building's lifecycle so there's less chance of replacements and waste ending up in a landfill.

- Hubbell receptacles are designed for greater corrosion, heat and impact resistance and reduced contact separation.
- Hubbell industrial connectivity and control devices maintain a long life in harsh environments with water and dust seals, vibration integrity and corrosion resistant housing.
- All Hubbell faceplates, delivery systems and residential products are designed to withstand everyday use to avoid replacements.

## Waste and Material Reduction

Hubbell offers a variety of products that help minimize unnecessary waste from landfills.

- Hubbell's pre-wired raceway systems are assembled to specifications, reducing packaging and waste on the job site. Hubbell also bulk packages many devices to eliminate unnecessary waste.
- Hubbell's iFRAME® column system saves 10% or more floor space in data centers, and wall-mount cabinets reduce the need for floor space to accommodate equipment.

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# Hubbell Supports the Green Initiative

Hubbell Wiring Systems is committed to maintaining environmental stewardship in our own manufacturing and corporate facilities through restricting the use of hazardous materials, implementing comprehensive recycling programs and improving energy efficiency.

## Website Support

The Hubbell Wiring Systems website features a landing page dedicated to the GreenWise™ Initiative. Here you can find quick links to Hubbell Green products, Green Resources and Councils, Financial Incentives per state and support literature.

## Technical Support

- Local Specification Professional
- Comprehensive Design Assistance
- Specification Recommendation
- Training

## Literature Support

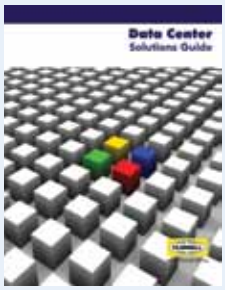
Hubbell offers an extensive literature library for product support. Downloadable PDFs are available on line.

H-MOSS® Application Guide

Hubbell Delivery Guide

H-MOSS® Product Brochure

Hubbell SystemOne Floor Box Brochure




Data Center Solutions Guide

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