4 WAYS SMART BUILDING TECHNOLOGY CREATES SUSTAINABLE ENVIRONMENTS

Discover how selecting smart building technology partners and sustainable communications products can help you reach your green building goals.

Our world is rapidly changing. Gone are the days of traditional building operations and practices. The building space is evolving quickly to provide better solutions for energy efficiency and occupant wellness. With this trend toward holistic sustainability, building managers are searching for ways to keep operations running smoothly while also contributing to green building goals.

One way building operations are changing is by using smart building technology. Using Power-over-Ethernet (PoE) and the Internet of Things (IoT) to connect building systems, companies are becoming more energy efficient and sustainable. These types of smart building systems can contribute to positive outcomes for building occupants and owners, as well as deliver sustainable environments through innovative, future-proof technologies.

DATA DRIVEN EFFICIENCY

Data is necessary for understanding a building's energy consumption. Luckily, this is easy to gather with IoT-enabled smart building platforms that use connected devices and systems to provide usage insights and easy automation to improve energy efficiency. With data from intelligent building platforms, building operators can make informed decisions on how to create better energy outcomes for their spaces based on how lighting, shading, HVAC, and other systems and devices contribute. An IoT platform provides the necessary energy-consumption analytics on use and overuse, as well as the indicators of where adjustments are needed to save energy.

Energy can also be saved through products that are part of a smart building system. Selecting hardware, such as cabling and connectivity, that is compliant with the latest code requirements from IEC and IEEE helps organizations reach their energy goals. This also ensures products are optimized for PoE applications.

PoE applications for smart buildings can lead to significant energy cost savings for organizations. With the ability to track energy consumption and analyze data, building operators can make smarter decisions that benefit both their building occupants and their finances. Companies around the world are using PoE and other smart building technologies to save energy and decrease costs to provide better outcomes for their business, occupants, and the environment.

In industries ranging from healthcare, education, retail and, hospitality, PoE smart building technology is making a difference in energy consumption. According to the American Council for an Energy Efficient Economy (ACEEE), commercial buildings could save up to $60 billion if investments in energy efficiency were increased by just one to four percent. Smart building technology can be the investment building owners make in energy efficiency to save billions globally.

EXAMPLE CASE STUDY:

THE SINCLAIR
FORT WORTH, TX

A prime example of the cost savings of PoE is the Sinclair Hotel in Fort Worth, Texas. This renovation project has now become the world's first all-digital hotel, courtesy of PoE technology run by an IoT-enabled, smart building platform. The Sinclair Hotel was able to reduce its energy usage by over 40% simply by transitioning to PoE power. This decrease in energy use was so dramatic that the Sinclair Hotel went below its minimum usage threshold with the power company and needed to renegotiate its contract.

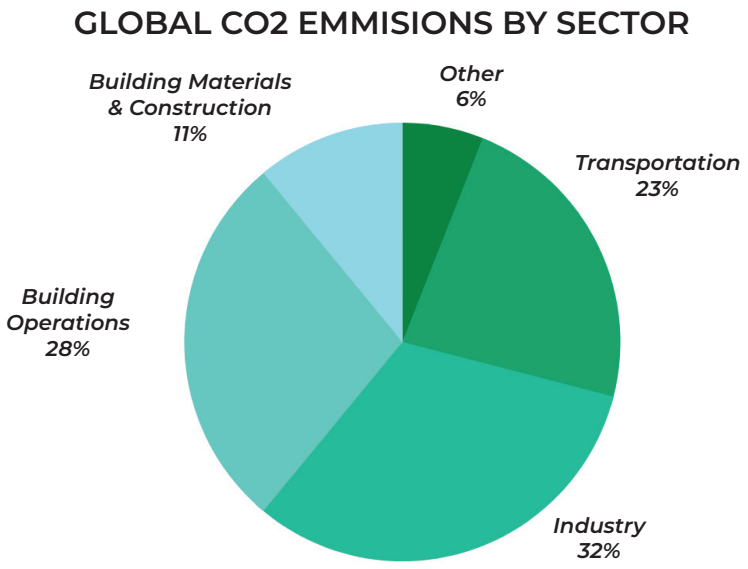
The benefits of integrating smart building technology go beyond energy reductions and cost savings, though. With many building certifications available for building projects, smart building technology gives businesses the opportunity to become leaders in the building space. Green building rating systems such as the Living Building Challenge and Leadership in Energy and Environmental Design (LEED) allow for building projects to earn points towards certification through the use of POE smart building technology. For example, using PoE to provide DC power as a means for increasing energy efficiency.

For the Living Building Challenge's Net Positive Energy Imperative and LEED's Energy and Atmosphere credits, smart building technology solutions can be highly configured to greatly reduce interior and exterior lighting energy usage which, in turn, reduces the amount of on-site energy required for the building. With smart building solutions that positively impact building operations, businesses can easily meet their energy goals while showcasing sustainability leadership through building certifications.

CARBON REDUCTION AND ELIMINATION

As many companies look towards the future, reducing carbon will play a large role in reaching their goals. With pressure from the public and institutions to go carbon neutral, companies must find ways to decrease carbon emissions with the ultimate goal of net-zero-carbon emissions.

Buildings are one of the largest producers of carbon emissions in the world throughout their construction and operations operations, and it can be difficult to find ways to reduce and even eliminate the use of carbon in buildings. Carbon emitted during the operation of a building for heating, cooling, and lighting (or simply "operational carbon") poses an environmental risk, contributing 28% of global green house gas emissions. This can be improved using smart building technology.



Source:
Global Alliance for Buildings and Construction.
2018 GLOBAL STATUS REPORT

Smart building technology can help buildings reduce carbon emissions and even achieve zero- carbon certifications through energy consumption tracking and analysis. By analyzing how to optimize energy use throughout a building, owners can determine the best course of action to reduce emissions and lower carbon use. This enables businesses to create sustainable environments through, data-driven decisions.

Throughout the lifecycle of a building, many factors produce carbon that can be eliminated with the use of smart building solutions. In a 2018 study, the building and construction industry made up 39% of the world's energy and process-related carbon dioxide emissions, with 11% coming from the manufacturing of building materials. The processes required to create these materials are a large culprit of carbon emissions (also known as embodied carbon). However, many smart building solutions, including cabling providers, are turning to carbon-neutral practices to become more sustainable with their own operations, as well as to support their clients'. Selecting carbon-conscious partners for smart building implementation can contribute to lower carbon emissions (both operational and embodied) and can help organizations reach carbon neutrality goals.

Not only is it good for the environment to achieve reduced or zero carbon emission standards, but it can also benefit businesses. There are many programs available, including rebates, which apply to companies working to reduce their carbon use, become carbon neutral, or even carbon negative. Initiatives such as the Zero Carbon Program from Superior Essex, incentivize businesses to reduce carbon emissions while simultaneously saving these organizations money.

By implementing smart building technology to reduce carbon emissions, companies can reap the benefits of contributing to a healthier environment while creating more sustainable and profitable business operations. Selecting smart building partners whose own building and manufacturing practices are sustainable and carbon reducing, can help companies achieve their own carbon-neutral goals.

HEALTHY MATERIALS INITIATIVE AND TRANSPARENCY

The healthy materials initiative serves to improve human and environmental health by advocating for product transparency and reduced “chemicals of concern” inside building materials. And having product transparency documentation and optimized products is essential to meeting healthy material initiatives. When specifying products for a building project, it is important to consider the health impacts of the materials used in the products hidden behind the walls of the building—not just those products you can see and feel, —such as cabling and connectivity.

Many building materials in the market contain high levels of harmful chemicals, and there is currently limited participation by manufacturers with this initiative, particularly within the electrical and digital infrastructure space. The most common concerns include PVC-free or Red List Free cabling. Researching and selecting smart building partners that comply with these credits will help companies achieve their project goals for healthy materials. Platforms such as mindful MATERIALS exist to provide a repository of aggregated information on human health and environmental impacts for products from leading manufacturers. The data is vetted by experts to make the finding and selecting of healthy materials easier.

Green building standards including LEED, WELL, and the Living Building Challenge have a keen focus on healthy materials. Selecting products with healthy materials contributes to earning points towards these certifications for building projects. Specifically, products that have a Health Product Declaration (HPD) or Environmental Product Declaration (EPD) supports transparency and disclosure goals. Products with a Life Cycle Assessment (LCA) certificate, which indicates reduced environmental impacts compared to a similar product, further support optimization goals.

Healthy buildings require healthy materials, so finding smart building partners whose values align with a company's goals—and who can provide sustainable products—will help meet a project's goals.

In summary, the table below illustrates the main green building rating systems that reference healthy materials and product transparency documentation as part of the project certification process. Namely, LEED, WELL, and the Living Building Challenge.

RATING SYSTEM	*CREDITS/FEATURES/ IMPERATIVES*	*APPLICABLE DOCUMENTATION*
LEED v4 and v4.1	MR: Material Ingridient Reporting (Option 1)	HPD Living Product Challenge Declare Label
	MR: EPD (Option 1)	EPD
WELL v2	X08: Hazardous Materials Reduction X13: Enchanced Materials Precaution	Living Product Challenge Declare - Red List Free
	X14: Materials Transparency	HPD Living Product Challenge Declare - Red List Free
Living Building Challenge 4.0	Imperative 12: Responsible Materials Imperative 13: Red List Imperative 14: Responsible Sourcing Imperative 15: Living Economy Sourcing Imperative 16: Net Postive Waste	Living Product Challenge Declare - Red List Free

HEALTH AND WELLNESS FOR BUILDING OCUPANTS

Building occupants desire more than just an office space. They want to work in an environment that supports their health and well-being. Smart building technology helps to create healthy and sustainable environments for occupants while also improving employee wellness.

Healthy spaces boost productivity and provide a purpose beyond their functionality. By using a smart building IoT platform to bring together multiple building systems, occupants can customize their work space to create an environment that best fits their needs and optimizes their productivity.

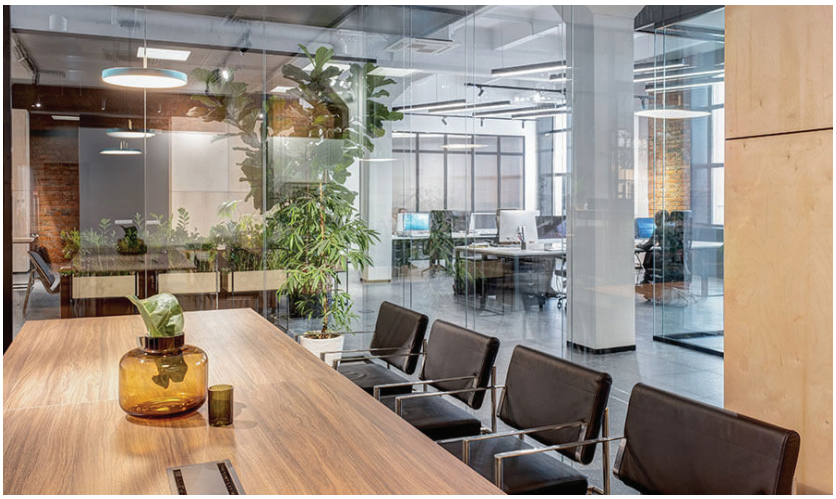
With solutions such as circadian rhythm and bio-centric lighting, occupants have numerous lighting options that contribute to their productivity and provide a comfortable, personalized space. Circadian rhythm lighting mimics the lighting patterns of the outdoors, creating the appearance of natural light. Tunable white lighting can be integrated with smart building platforms to automatically adjust the color temperature of lighting during the day, replicating the effects of natural light. This solution can also make use of daylight- harvesting features to accurately balance the artificial lighting levels with the amount of natural light entering the rooms. These lighting outcomes provide a natural lighting solution for improving wellbeing of building occupants, which also helps buildings meet Living Building Challenge and WELL standards.

An IoT platform brings together other systems, such as HVAC and building sensors, on one network. With a variety of sensors having the ability to connect under one IoT platform, building management can easily track levels of air quality and CO2 among other sensors. CO2 sensors have been found to help improve occupancy productivity by closely monitoring air quality and allowing building air quality to be altered as a result of higher CO2 levels. With improved air quality and less CO2 present in the air, building occupants can work at a better capacity and contribute effectively to operations.

Safety is a concern of many building occupants, which has left owners searching for a solution to keep spaces clean and provide peace of mind for employees. UVC light disinfection solves this problem for building owners with innovation and accuracy.

During flu season or pandemics, intelligent disinfection is an effective solution that uses UVC lighting to disinfect spaces and remove pathogens on surfaces and in the air. The system has safety measures in place to ensure spaces are unoccupied before the disinfection cycle begins, including sensors and occupancy scans. Once a space is determined to be empty, the cycle begins, doors lock, and purple light illuminates to alert that the UVC lights are in use. Once the process is complete, the doors will unlock, and the space will be clean.

Studies have shown how UVC lighting is extremely effective in killing pathogens and making spaces safer for occupants. By providing a clean and comfortable environment through smart building technology for building occupants, they can focus on the tasks at hand and be confident in the security and safety of their space.



THE RIGHT COMBINATION - IGOR, SUPERIOR ESSEX AND LEGRAND

There are numerous opportunities available to create sustainable environments with PoE and IoT smart building technologies, selecting the right partners to achieve green- building goals is essential. Using Igor as an IoT provider, Superior Essex cabling, and Legrand connectivity, companies can achieve their goals with reputable partners.

Igor, Superior Essex, and Legrand are committed to sustainable practices within their own company operations, and they have created product lines which support a future that minimizes impacts to the environment, and provide positive outcomes for building occupants.

In fact, Legrand and Superior Essex have channeled over a century of their combined expertise into fashioning an all-in-one solution of cabling, jacks, racks, and physical support known as nCompass systems. These solutions provide the latest and greatest in integrated, innovative, sustainable communications design to handle everything a building's network needs.

These trusted partners can be the right combination to support a building project pursuing green building standards including LEED, WELL and the Living Building Challenge, as well as those projects simply seeking to provide a superior building experience for occupants.

// ABOUT IGOR

Since 2014, Igor has been an innovation leader in IoT smart building technology. Igor's flagship product, Nexos, is a PoE-based IoT smart building platform that incorporates hardware, software and cloud analytics to enable smart and secure buildings. Combined with an open API and real-time data, Nexos is a forward-looking technology that seamlessly integrates advanced lighting controls with building systems, low-voltage devices, business applications and more. Now installed in more than 30 countries, Nexos delivers on the global market's readiness to enter the IoT world. - **www.igor-tech.com**

// ABOUT SUPERIOR ESSEX

Superior Essex Communications is the leading manufacturer and supplier of communications cable in North America. It is on the forefront of innovation through Power- over- Ethernet(PoE), Intelligent Buildings and Cities, 5G Fiber infrastructure (including Hybrid and Composite solutions) and the technological advancements made at its Product Development Center. Superior Essex Communications is also setting the pace on sustainability by being the first company with a Zero Waste to Landfill Certification at its Hoisington (KS) plant; the first wire and cable producer to contribute points to LEED, WELL and Living Building Challenge green- building certifications, and the first to offer third-party verified sustainable cables in over 55 product families. Superior Essex Communications is Everywhere You Live and Work® and believes that technology that interrconnects the world, should also respect it.
www.superioressexcommunications.com.

// ABOUT LEGRAND

Legrand is a global specialist in electrical and digital building infrastructures. Its comprehensive offering of solutions for use in commercial, industrial, and residential markets makes it a benchmark for customers worldwide. Legrand has a strong presence in North and Central America, with a portfolio of well-known market brands and product lines that includes C2G, Cablofil, Chief, Da-Lite, Finelite, Luxul, Middle Atlantic Products, Milestone AV, Nuvo, OCL, On-Q, Ortronics, Pass & Seymour, Pinnacle, Projecta, QMotion, Raritan, Sanus, Server Technology, Solarfective, Starline, Vaddio, Vantage, Wattstopper, and Wiremold. At Legrand, we build sustainability into everything we do. Our innovative products and systems enable spaces and buildings to reach exceptional levels of performance. - **www.legrand.us**.