Sensing the Future

An advanced sensor network captures energy savings along with occupancy patterns and other data.

the facts

By embracing the "internet of things," advanced lighting control systems can harness real-time data on occupancy, temperature, and daylight to control lighting levels and communicate with other systems, like energy management, vertical transportation, and room scheduling. A properly programmed system allows the system manager to set zones and even fixtures individually. An intuitive interface allows settings to be adjusted to maximize energy savings and the occupant experience.

how it works

Advanced sensors collect data on occupancy, ambient light, temperature, and energy consumption. The lighting control system's energy manager uses these inputs to adjust settings, and to monitor and analyze energy savings and other collected data. The lighting control system can be integrated with HVAC, security, demand response, and other space management applications.

benefits

- A facilities manager can use collected data to quantify savings, ensure occupant comfort, and establish baselines for space planning.
- Settings and zones can be manipulated remotely through web-based system software.
- Occupancy and daylight sensors can account for roughly half of the savings from the installation of an advanced lighting controls system.

wall switch
occupancy sensor
daylight sensor
fixture
thermostat
server

living lab link: data

Enlighted controls & Philips fixtures

Advanced sensors enable detailed data collection while ensuring lighting control system efficiency. In this case study, installing a control system with advanced sensors and LED fixtures reduced lighting energy use by 75%.

products/systems

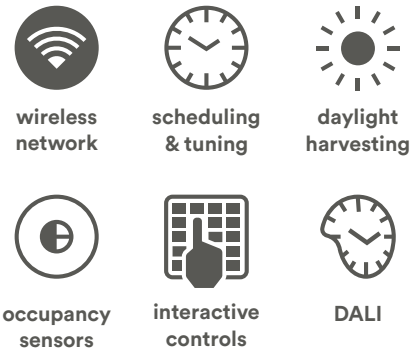
control system

The Enlighted system was installed and tested as part of BE-Ex's *Living Lab* project. The project partners were interested in using system data to better understand their lighting, HVAC, and space utilization needs. The Enlighted system includes advanced sensors embedded within light fixtures. These sensors communicate real-time data to building managers and to software that drives the lighting system. Each fixture is pre-installed with a single sensor unit for occupancy, daylight, and temperature. This reduces hardware costs, accelerates installation time, and enables granular data collection.

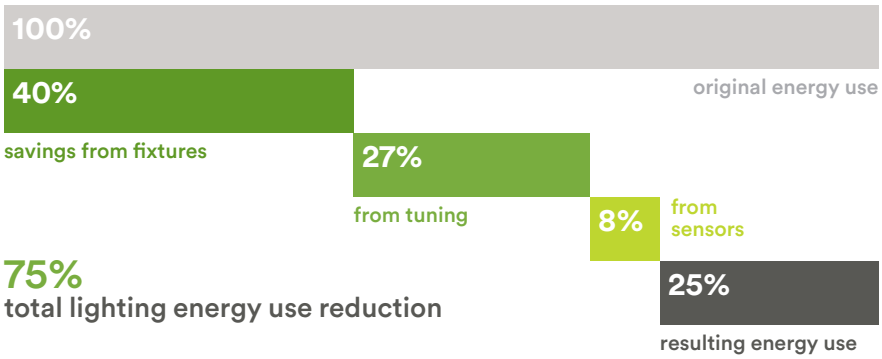
lighting fixture

The Enlighted system was paired with Philips MicroSquare fixtures. These high-performance, architectural-grade LED fixtures offer a combination of brightness and lighting control to maintain gradients of light throughout the space and create a balanced luminous environment.

The Enlighted system included the following features:



primary energy figures



75%
total lighting energy use reduction

The Phillips MicroSquare fixtures reduced lighting energy use in the *Living Lab* space by 40%. The Enlighted system saved an additional 27% through tuning and 8% through use of occupancy and daylight sensors. The total reduction in lighting energy use was 75%.

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The Building Energy Exchange (BE-Ex) is a resource hub connecting the New York real estate community to energy efficiency solutions through exhibits, education, research, and reports.

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The *Living Lab* demonstration project was a collaboration between BE-Ex and Lawrence Berkeley National Lab. The project installed and tested multiple lighting technologies at Goldman Sachs' flagship Manhattan office, 200 West Street.

Learn more at:
be-exchange.org/resources/project/46