

PERFORMANCE IMPROVEMENTS FOR EXISTING BUILDINGS

By Rachel Yoka, LEED AP BD+C, CPSM

According to the U.S. Department of Energy (DoE), new buildings represent just more than 1 percent of the total building stock in a given year. The estimated life of the average commercial building in the U.S. is 40 years. A recent white paper authored by Paul von Paumgarten and the Alliance for Sustainable Built Environments asserts that regulation and green specifications will not transform existing commercial buildings into high performing, more sustainable assets until at least 2048.

High performing and Leadership in Energy and Environmental Design (LEED) and Green Globes-certified buildings garner most of the publicity and headlines, showcasing integrated and holistic approaches to sustainability. But in a given year, 99 percent of the existing building stock will not be rebuilt.

Energy efficient retrofits are beginning to get rave reviews as well, along with a shift to codes that mandate better building performance and tools for owners to achieve it.

Research is starting to push the industry ahead. The Energy Efficient Buildings (EEB) Hub at the Philadelphia Naval Yard has a mission to improve energy efficiency in buildings and create an industry for retrofitting existing buildings. The goal is ambitious: to reduce energy use in U.S. commercial buildings by 20 percent by 2020.

This is already happening in the parking industry. Parking garages are ripe for retrofits with energy-efficient lighting and solar panels that cut operational costs and optimize opportunities for existing facilities. Energy management has gone mainstream and is becoming a key function of asset management. In IPI's *2012 Emerging Trends in Parking*, 60 percent of parking professionals surveyed said energy-efficient lighting had the greatest potential to improve operations and sustainability.

Taking a page from an industry leader, we can look at the case of IBM.

IBM saved approximately \$400 million in electricity costs between 1990 and 2010. The company was able to save an additional \$43 million in 2011 alone, promoting more than 2,300 conservation efforts at some 360 assets around the globe. Critical to those efforts were efficiency measures, renewable energy investments, and retrofits. The company's efforts created best practices for building management systems, lighting controls, HVAC, and other systems.

The parking industry can target and achieve similar goals, and a series of frameworks and tools exists that we can use to get started.

LEED is most famous for new construction standards,

but there is growing recognition of the LEED Existing Buildings Rating System (LEED - EBOM). This system monitors building performance through consistent measurements, improvements, and maintenance. It is not applicable to existing parking structures, but best practices taken from it can be applied to benchmark building performance.

33 PERCENT of the world's greenhouse gas emissions are from the built environment.

80 PERCENT of greenhouse gas emissions take place during the operational phase of buildings.

30 PERCENT Overall energy savings that can be achieved through proper building commissioning.

Source: ULI Greenprint Center for Building Performance

Under the Energy Star program, the U.S. Environmental Protection Agency (EPA) offers a free interactive energy management tool for building owners to track and assess energy and water use for a single building or across an entire portfolio. At this time, there is no category for parking structures, but the tool monitors both commercial and industrial uses. A full update is promised for mid-2013.

Proper building commissioning can result in energy savings of up to 30 percent. Commissioning for existing buildings (sometimes referred to as retro-commissioning) can be applied to parking and mixed-use structures to ensure that building systems are operating as intended and designed and identify opportunities to improve performance.

The Green Parking Council will release the beta version of a new certification standard for comment this year. The Green Garage Certification program will provide an industry and parking specific-standard that can be applied to both new and existing parking garages.

The next step is the real-world application and implementation at your parking operation. Don't forget to share your experience and results with us! **P**



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