

ENERGY STAR Rating System & LEED EB Certification A Comparison of Two Complimentary Programs

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OVERVIEW

The adoption of Leadership in Energy & Environmental Design for New Construction (LEED NC®) or Existing Buildings (LEED EB®) by many local, state, and federal government entities, as well as a significant number of leading private sector businesses, has spawned a market transformation in the construction industry. Many owners want or even mandate “green” environmentally friendly buildings as certified by the U.S. Green Buildings Council (USGBC) through LEED. Green buildings have been mentioned in many sectors—from health care to higher education—as a comprehensive way to address environmental, social, and economic issues in facilities.

Many of these progressive businesses, organizations, and government entities already are members of ENERGY STAR®, a federal government-backed program administered by the U.S. Environmental Protection Agency (EPA) and Department of Energy (DOE) that helps businesses and individuals protect the environment through superior energy efficiency. Or even if they are not members, it is likely they are familiar with the ENERGY STAR brand. Public awareness of ENERGY STAR has jumped to 64 percent of U.S. households, according to a recent nationwide survey. In many major markets where local utilities and other organizations use ENERGY STAR to promote energy efficiency to their customers, public awareness of ENERGY STAR is even higher, averaging 74 percent.

This article discusses the virtues and complimentary aspects of two programs that building owners can use to quantify their existing

buildings' impacts on the indoor and outdoor environment and—often more importantly—their financial status.

ENERGY STAR RATING SYSTEM

According to ENERGY STAR, in 2004 it helped Americans save enough energy to power 24 million homes, avoid greenhouse gas emissions equivalent to those from 20 million cars, and save \$10 billion. Consumers are most familiar with ENERGY STAR labels on electronic equipment, such as computers or washing machines. But thousands of businesses and organizations have their buildings rated through ENERGY STAR and even become working partners.

The ENERGY STAR Rating System ranks a facility based on its energy use index (BTU/SF/YR) for various building types, including multiple uses of office buildings, healthcare, hotels, schools, dormitories, supermarkets, warehouses, garages/parking lots, and more. It is a two-step process for establishing an existing building's relative energy efficiency and indoor environmental quality.

Step One: Determine Energy Rating. The input of the facility's historical utility and operating data are entered into the ENERGY STAR web-based software program to benchmark and compare the energy performance of similar facilities. A score of 75 or greater (on a scale of 100) must be achieved to qualify the building for the next step in the ENERGY STAR label process.

Step Two: Verification. A registered professional engineer provides an audit of the utility and operating data and a physical site survey of the facility to confirm that it meets additional industry standard criterion for indoor environmental quality for lighting, ventilation air, comfort, and indoor pollutants. Buildings that earn the ENERGY STAR have been shown to use about 40 percent less energy than average buildings, without compromising comfort or services.

Some benchmarking participants go on to become ENERGY STAR partners and voluntarily commit their organizations to improving energy efficiency and reporting on progress to ENERGY STAR. Because of its excellent brand recognition, the public may have a better understanding that these ENERGY STAR Partners are committed to energy efficiency.

LEED EB Certification Program

LEED, which was developed in the late 1990s, encompasses more factors than just energy and indoor air. Both LEED-NC and LEED EB include sustainable sites, water efficiency, materials and resources, indoor environmental quality, energy and atmosphere, and innovations in upgrades, operations, and maintenance. These elements have been shown to have a tremendous effect on the economic, environmental, and social impact of buildings, often referred to as sustainability.

By obtaining credit points in the six credit categories, the LEED EB rating system allows building owners to obtain various levels of LEED EB certification as follows:

<u>LEED EB Certification Level</u>	<u>Points Required</u>
Certified	33-39
Silver	40-47
Gold	48-63
Platinum	64 +

The ENERGY STAR score is a prerequisite in the energy and atmosphere category of LEED EB, with a minimum score of 60 needed to be considered for LEED EB certification. If a facility does not fall into one of the ENERGY STAR market segments listed above, the LEED EB program requires compliance with either an industry-recognized benchmarking standard for that facility type or a benchmark can be developed via an analysis using facility historical energy use data.

The ENERGY STAR score (or alternate method) is significant to the overall LEED EB certification process as a building can score up to 10 points of the 23 available in the energy and atmosphere category on energy efficiency alone.

An ENERGY STAR score of 63 achieves one LEED point and increases linearly up to ten LEED points for a score of 99 on the ENERGY STAR scale. The alternative method for non-ENERGY STAR facilities awards points by reducing further below the 10 percent prerequisite calculated baseline goal with one LEED point achieved for a 13 percent reduction and up to ten points for reducing total energy use by 49 percent below the calculated baseline.

LEED EB not only capitalizes on ENERGY STAR's energy and atmosphere and indoor environmental quality benefits but also quantifies

the sustainable impact of the building's site, water and materials, and resources.

Although LEED does not have the name recognition that ENERGY STAR enjoys, as it becomes more widespread in the marketplace, both building occupants and the public may better understand the broader sustainable impact of a LEED-certified building.

CONCLUSION

It is evident that both the ENERGY STAR rating system and the LEED EB certification program are important steps in demonstrating a commitment to energy efficiency and occupant comfort and health. If energy and indoor environment are an organization's primary concerns (and it fits into an ENERGY STAR category), then the ENERGY STAR is a good first step. If quantifying a business or organization's sustainability is the goal, then the LEED rating system is appropriate. In either case, meeting rigorous criteria will increase the performance of the building, and potentially the public acknowledgement of the building's success.

ABOUT THE AUTHOR

Ken Sidebottom is the LEED® project development consultant in the Advanced Solution Development Team for the Controls Group of Johnson Controls Inc., a leading supplier of building and security management systems and controls for quality building environments.

Ken's areas of expertise include alternative new construction delivery methods, performance contracting, Energy Star building programs, LEED green building certification, and sustainable program development. His current responsibilities include developing and deploying sustainable solutions that create superior economic, environmental, and social value for commercial, industrial, governmental, healthcare, and institutional clients.

Specifically, Ken provides support in facility assessment, program development, and implementation planning for all LEED Certified projects developed by Johnson Controls in North America. Ken is responsible for developing internal and external training programs for our project development and delivery teams and customer's personnel

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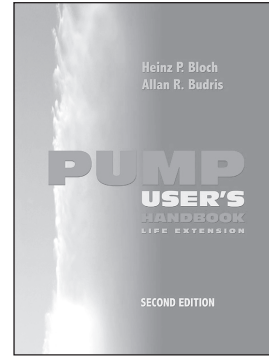
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on LEED projects. Specifically, he has been instrumental in software development and implementation of the JCI LEED[®]*SPEED* tool, which automates the process of new project or existing facility assessment and LEED certification documentation development and management. Prior to and during his four years with Johnson Controls, Ken has been instrumental in developing a number of projects certified or currently registered and in development or under review by the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) programs.

Ken is a board member of the North Texas USGBC chapter and has belonged to several organizations, including the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) and the Association of Energy Engineers (AEE) during his career. As an expert in sustainability and green buildings, he has made presentations at various engagements, including the Sustainable Energy Conference of North Texas in 2005 and the 2005 AEE World Energy Engineering Congress (WEEC). He also has published articles on comparison of the EPAs ENERGY STAR building program and the LEED existing buildings program with the Association of Energy Engineers for the WEEC.

Ken has a B.S. in architectural engineering from the Milwaukee School of Engineering. He is a Certified Energy Manager and a LEED Accredited Professional. He previously served in business development roles with a variety of energy services companies and consulting engineering firms for 16 years prior to joining JCI. Ken's areas of expertise include: sustainability and the triple bottom line, environmental issues, green building design and operations, alternative/renewable energy, energy information systems, performance contracting and energy services; utility, demand management and deregulation; GHG emissions management and reporting, and advanced data collection/metering technologies.

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