



PROMOTING SUSTAINABLE FM: THE TOOLS YOU NEED

By Maureen Roskoski, REPA, LEED AP

The U.S. Green Building Council has done an admirable job over the past several years in promoting the virtues of green design. Their primary tool for green design is the LEED building rating system. LEED for new construction (NC) has been in place since the year 2000, and continues to grow at a rapid rate. LEED for existing buildings (EB) and LEED for commercial interiors (CI) are relative newcomers, but will have an even greater impact as they are implemented over a wide range of buildings in the U.S. To date, the largest impact of these green building rating

Maureen Roskoski is a project manager at Facility Engineering Associates, PC, Glen Allen, Virginia. She can be reached at maureen.roskoski@feapc.com. This is her first feature for *Facilities Manager*.

systems is on design and construction community. Unfortunately, the facility management community has lagged behind in the adoption of green practices and green building rating systems. This is not unexpected, in that it is a lot easier to create green buildings from the start, than it is to modify existing systems and recreate them into energy-efficient, eco-friendly workplaces.

That's where sustainable facility management (SFM) makes an impact. Sustainability means much more than designing and building green buildings—that's just the beginning. True sustainable facility management requires an integrated approach to the entire life cycle of a facility, and an emphasis on *sustainable operations*. Design and construction processes and outcomes are an important first step toward sustainable facilities, but they are only the preliminary steps. Proper facility planning prior to building construction, with input from the facility manager, is required for long-term *sustainable practices*. Day-to-day operations and maintenance procedures, repair processes, and capital renewal practices can have just as large an effect on long-term sustainable practices as the design and construction phase of green buildings.

Throughout the life cycle of a facility, the asset is under the care and management of the facility manager for a far greater proportion of time than it is under the care and direction of those that design and build it. Although green building design practices are intended to have a significant effect on the long-term performance of a building, operations and maintenance methodologies also have a

significant influence over a building's ability to stay green. Therefore, the facility manager can have much more influence over a facility's effect on the environment. The cost savings of sustainable facility management can be significant, and the facility manager is in the best position to monitor, maintain, improve, and perpetuate green building operations.

Policies and Strategies

An effective approach to sustainability in existing facilities involves policy development, transformation of that policy into an action plan that includes green operational practices, and a methodology for constant measurement and improvement of those practices. There are many tools that a facility manager can use to advocate sustainable facility management in their facilities, including; the LEED-EB rating system, utilizing life-cycle assessments, life-cycle costing, and total cost of ownership approaches, and measuring the policy effectiveness using a balanced scorecard approach.

The USGBC laid the groundwork for the public and private building community to adopt green design strategies. The federal and state governments are becoming the leading pro-

motors of green design. In 2003, the U.S. General Services Administration required that all new construction projects meet a minimum LEED Certified level.

Nearly 20 state governments and more than 40 municipalities require some level of LEED certification to be met for public projects. Arizona and Washington were the first two states to adopt mandatory green building standards for public buildings. The City of Seattle embraced green design and requires a minimum of LEED Silver certification on all public projects over 5,000 square feet.

In addition, many universities have adopted green building initiatives that require a minimum green building standard for new construction. Existing buildings constructed with green intent or older buildings planning major mechanical upgrades are in a great position to take advantage of the benefits of implementing sustainable practices.

The intent of green building design and the USGBC LEED rating systems are to create buildings that are environmentally responsible and to minimize the negative impacts of development on the environment. In addition, green building design focuses on enhancing occupant comfort and health by providing a healthy and productive place to live and work. Specific elements of green design target to occupant comfort include the use of natural lighting, improved indoor air quality, and thermal comfort control.

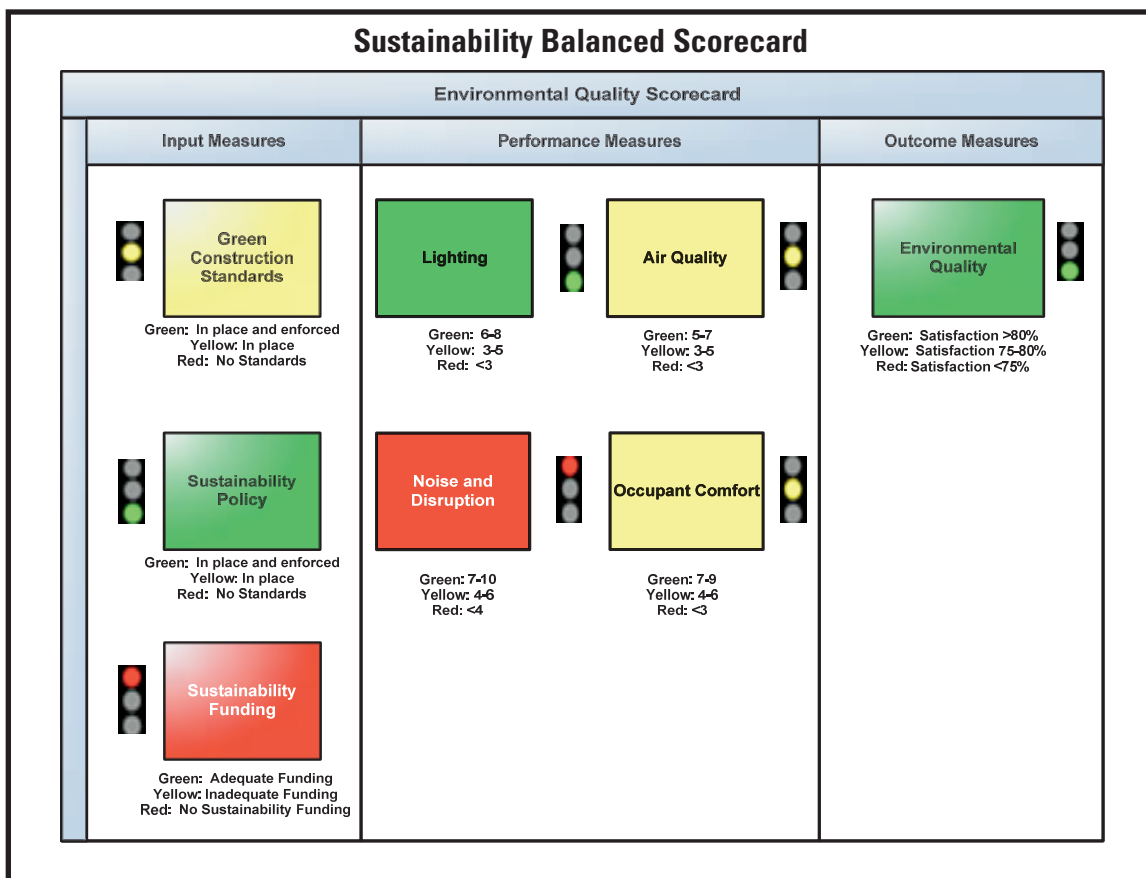
The Rocky Mountain Institute, a leading promoter of green and sustainable building practices, documented productivity

gains as high as 16 percent in eight separate cases, by implementing green design practices. Typically, 92 percent of the total operating cost to an organization is the cost of the workforce, 6 percent is the operations and maintenance of the facility, and 2 percent is the initial design and construction cost of the facility. Therefore, green strategies that result in even a small increase in productivity could have a dramatic effect on the total operating cost to an organization.

Energy Savings and Health Benefits

A significant benefit of green design is the reduction in energy consumption and subsequent reduction in the use of fossil fuel to produce that energy. Reductions in water consumption, operations and maintenance costs, building-related illnesses, waste and pollution, and increases in comfort and productivity of occupants are also significant benefits of sustainable and green building practices. Studies show that energy and water requirements can be cut to less than half of a traditional building when well-integrated green design concepts are utilized. This can result in a large reduction in operating costs. In addition, energy efficient buildings can result in a reduction in size requirements for mechanical equipment, reducing initial construction costs.

The LEED-EB rating system allows facility managers to evaluate their existing buildings and provides a tool to promote sustainable practices within the organization. LEED-EB outlines a series of credits a building can obtain to achieve



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certification. The credits come from five main categories: Sustainable Sites, Water Efficiency, Energy & Atmosphere, Materials & Resources, and Indoor Environmental Quality. The credits identify steps that can be taken to upgrade an existing building to increase water and energy efficiency, improve indoor environmental quality, and decrease the building's impact on the environment.

Many of the credits are simple to achieve and others require little capital investment. Usually, the desire to be certified under the LEED-EB system is not quite enough to get the ball rolling. If you have an existing building that is more than ten years old, it is likely that it would take a significant amount of renovation to make LEED certification probable. That's the one major drawback to LEED-EB. However, the facility manager can use the LEED-EB rating system as a guideline to help implement key sustainable practices.

Implementing a sound sustainability policy is the first step toward an effective approach to sustainability in existing facilities. To achieve cost savings relating to energy and water efficiency, the sustainability policy must have sustainable operating practices as a core component. Simple steps such as lighting retrofits, utilizing Energy Star equipment, and identifying potential energy saving opportunities are examples of practices that can result in energy savings. Implementing a life-cycle cost (LCC) assessment technique to sustainable operating practices and looking at the total cost of ownership (TCO) is important to a successful sustainability policy. A report of green building design developed for the California Sustainable Building Task Force, prepared in October 2003, showed that minimal increases in upfront costs of approximately 2 percent to support green design would, on average, result in life-cycle cost savings of 20 percent of total construction costs.

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Many components of green design lead to decreased life cycle costs. Savvy designers are using life cycle cost analysis to entice building owners and developers to develop green buildings. However, the longevity of green building systems versus traditional systems is typically not recognized. The danger in this approach is in assuming that green products and systems have equivalent service lives to those of their traditional counterparts. If the designer does not choose carefully, this may lead to the design and construction of green building systems with a significantly shorter service life than that of a comparable traditional system.



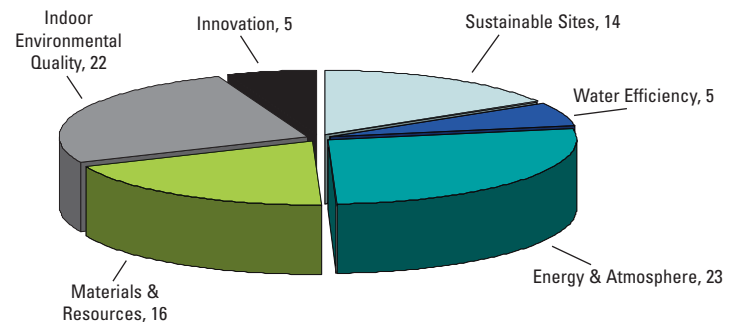
It is important that the design team *and the end-user*—the facility manager—look at LCC and TCO as a means of justifying sustainable practices. TCO involves looking at the costs of buildings or systems over their entire life cycle—through planning, design, and construction, through operations and maintenance, and through replacement and recapitalization—until the life cycle of the asset is repeated again. A key factor in accounting for TCO is looking at the service life of a building or system and including the projected service life of the system in the assessment.

Publicize Your Sustainability Policy

In addition to creating sustainable operating practices, a key component of an effective sustainability policy is to publicize the efforts of the facility to create awareness and inspire staff to participate in the process. If a policy is not endorsed by the management and staff, it will not be effective. After the policy is implemented, it is critical to measure the effectiveness of the policy.

The balanced scorecard approach can be easily adapted sustainability and green building practices. The balanced scorecard approach is a methodology for defining key performance indicators (KPIs) for sustainability and presenting

LEED-EB Point Distribution



them in an easy-to-understand format that allows for continuous measurement and monitoring of the effectiveness of the policy. The facility manager can then use that approach to validate new sustainable practice expenditures, show cost savings through energy and waste reduction plans, and increase the value of their assets. Using the categories of the LEED-EB rating system to identify your KPIs can help the facility manager identify the critical areas you want to measure.

For example, you might wish to focus on energy issues and measure your utility consumption and alternative energy use. Or you might wish to focus on indoor environmental quality and use lighting as your KPI and include items such as use of daylighting, use of occupancy sensors, and use of low mercury bulbs as inputs in the balanced scorecard. Measuring the inputs, processes, and outcomes of key performance indicators will give the facility manager an overall view of the effectiveness of the sustainability policy and allow the facility manager to identify specific areas that need improvement.

The Tools for Success

Using tools such as the LEED-EB rating system and a balanced scorecard approach combined with proper planning, measurement of key performance indicators, and monitoring of successes will provide facility managers with new tools for budgeting, program justification, and demonstrating the value of their profession.

Identifying key performance indicators and implementing a balanced scorecard approach will allow the sustainable facility manager to set higher standards for sustainable practices in existing buildings and encourage higher levels of building performance. Successful integration of sustainable operational practices and reviewing the policy using a balanced scorecard approach can create a winning economic scenario for sustainability and green buildings. 🏡