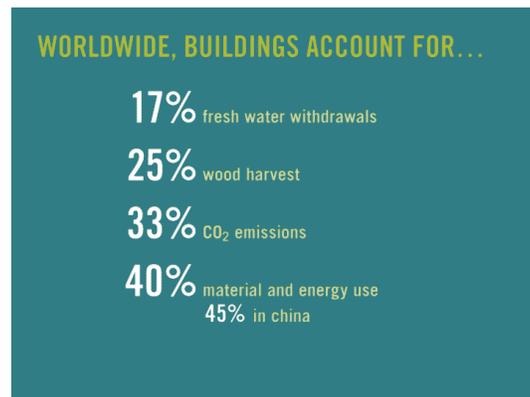


# Are you *LEEDing* with the Right Foot?

By Tom Bauer

Commercial buildings contribute significantly to worldwide energy consumption. They are also contributors to other negative environmental impacts, such as troublesome air emissions and solid waste generation. While certain efforts have been on-going to control and manage individual aspects of the environmental qualities of buildings, a comprehensive approach was lacking until the development of the U.S. Green Building Council in 1993. The USGBC strives to influence the design and operation of buildings to reduce environmental impact and energy consumption.



The USGBC's LEED<sup>®†</sup> program is by far the most successful and fastest growing green building movement to date. However, there is some confusion in the industry regarding how “green” roofing products contribute to a building's LEED certification. Roofing is only one of many building considerations that contribute to LEED status, which is a certification that is given to the building, *not* to the specific products used.

## How Roofs Contribute LEED Points

The roofing features that most frequently contribute to LEED building certification include:

- Reflectivity and emissivity
- Storm water management capabilities
- Restoration of habitat capabilities
- Inclusion of recycled content
- Recyclability of the products themselves

---

\* All illustrations courtesy of USGBC.

† LEED<sup>®</sup> Buildings performance refers to the Leadership in Energy and Environmental Design<sup>®</sup> (LEED) Green Building Rating System<sup>®</sup>, which is a voluntary, consensus-building national standard that was initiated by the U.S. Green Building Council (USGBC) for developing high-performance sustainable buildings. LEED<sup>®</sup>, Leadership in Energy and Environmental Design<sup>®</sup>, and Green Building Rating System<sup>®</sup> are registered trademarks of The U.S. Green Building Council.

But simple inclusion or exclusion of these features is not the criteria used. By way of example, the USGBC looks at recycled content as a percentage by weight of the roofing material, then multiplies that value by the material's cost to determine the number of LEED points contributed by that system. To complicate things further, roof system longevity, which is probably a roof's single most significant contributor to the overall sustainability of a building, is currently not included in the LEED criteria because it is notoriously difficult to measure.



Since the development of LEED, building project teams (which consist of architects, building owners, specifiers, consultants, and contractors) have been inundated with manufacturers promoting “green” products that may or may not contribute to LEED certification. Furthermore, once the team determines that the roofing products under consideration do pass the muster for LEED point contribution, they still need to evaluate those products against others with similar LEED point profiles, to determine which is the best choice for their specific building.

## What Do Eco-Labels Really Mean?

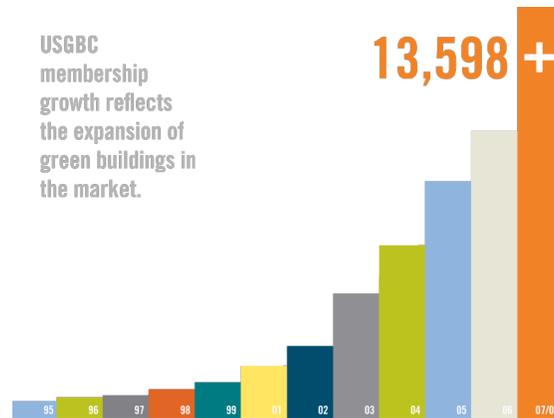
The marketplace has been saturated with eco-labels that promote companies' products when it comes to environmentally friendly attributes or constituents. In fact, many companies have entire product lines devoted to eco-products to help distinguish them from the rest of roofing industry. Is it because they want to be environmentally conscious companies, or is it for the sake of gaining market share?

When it comes to eco-labeling, consider that labels such as “recyclable” or “eco-friendly” are appealing to manufacturers as a marketing tool because they promote the environmental qualities of products without revealing proprietary information. Unfortunately, such claims can be inaccurate or misleading, overwhelming a project team with misinformation that must be carefully analyzed in order to validate each manufacturer's environmental claims.

Third-party verification of environmental claims is one tool for differentiating products that truly have superior environmental performance. Many third-party organizations have responded to the misinformation challenge by assuming responsibility for eco-label certification processes that can ensure the validity of labels.

In addition to USGBC's LEED, the most commonly used third-party verification entities for ecologically responsible roofing are:

- Cool Roof Rating Council (CCRC) — a non-profit educational organization that develops accurate and credible methods for evaluating and labeling the solar reflectance and thermal emittance of roofing products
- ENERGY STAR®‡ program — represents a voluntary partnership between businesses and organizations and the federal government to promote energy efficiency and environmental activities
- California Title 24, Part 6 — the California Code of Regulations standards for the energy efficiency of residential and commercial buildings



Each of these organizations has standardized testing methods and/or requirements for reflectivity in order to qualify the environmental responsibility of products. Many of the “approved” products will have the organization’s logo on datasheets and product labeling. This verification process has significantly improved a project team’s ability to independently evaluate a product’s environmental claims.

When project teams do not have the luxury of third-party verification, a manufacturer’s claims must be evaluated on a case-by-case basis. When trying to verify manufacturers’ claims, look for specific claims regarding environmental performance, rather than broad environmental statements. For example, when it comes to claims regarding recycled content of roofing materials, detailed information regarding the percentage of recycled content incorporated into a given product should be readily available. A quality manufacturer will make it easy for a project team to identify the exact amount of post-consumer and pre-consumer recycled content, by weight, in a particular material, using the company’s datasheets or similar product information.

It is also important to evaluate the manufacturers’ knowledge regarding sustainable design and the company’s overall commitment to environmentally responsible building. Important information to collect about manufacturers includes:

- How long have they been supplying eco-products?
- Do they offer complete systems rather than individual products?

---

‡ENERGY STAR® is a registered trademark of the U.S. government.

- Do they have professionals on their staffs who are accredited participants in the various third-party verification organizations?

A thoughtful investigation of products and manufacturers will help you determine whether a particular manufacturer is truly on board with sustainable design, or just jumping on the eco-friendly bandwagon.

## **The Next Step in Verifying Sustainability**

Once the project team has sifted through all the environmental claims, and verified that a roofing product has the environmental characteristics to contribute to LEED accreditation, the challenge becomes: “Which product is best for this building?”

The ability to endure, to keep on going — is at the heart of sustainable design. Although extended roof life is not yet recognized as a formal LEED point contributor, it is universally acknowledged that the longer a roof can be kept in service, the more it contributes to the overall sustainability of the building. Therefore, prolonging the environmental impact of eventual tear-off is a primary goal of every building project team.

Similarly, products that contain high amounts of “green” technology, yet require high levels of maintenance, may defeat the overall goal of providing the building with superior environmental performance. Project teams need to quantify the total installation and maintenance costs of a roofing solution over its service life in order to properly identify its true environmental impact.

This is where life-cycle costing brings value to the decision-making process. Ascertaining the actual costs of a roofing solution over its working life is the only accurate way to properly evaluate cost vs. performance. By integrating initial capital outlay with life-cycle operating costs, a life-cycle cost analysis can help identify and compare the long-term benefits of specific environmentally responsible products. A life-cycle cost analysis will identify which roofing product or system will provide the best return on an owner’s capital investment.

USGBC is currently working on a formal methodology for measuring life-cycle performance, which will enable the anticipated life cycles of materials and systems to contribute points towards the LEED certification of buildings.

## **Considering the Warranty**

Although a roofing system’s track record in the field is the best way of identifying its true life, a manufacturer’s warranty is the next best thing, and may be the only method available to evaluate the longevity of newer products that have not had the opportunity to stand the test of time. In comparing warranties, here are the critical things to look for:

- Does the manufacturer have the financial stability to honor its warranty commitment?
- What is the manufacturer’s track record for honoring previous warranty claims?
- Do the stipulated labor and materials warranties correlate to the life expectancy of the system, as warranted?

## **Conclusion**

In today's market, the opportunistic marketing of "green" products demands that project teams focus their attention on critically evaluating and verifying manufacturers' eco-performance claims. A thoughtful consideration of all performance factors, including longevity, will help project teams discern whether a manufacturer's commitment to sustainability is based on opportunism, or on a long-term commitment to environmental responsibility. By increasing the transparency of their sustainability commitment, manufacturers can help building teams reduce environmental impact and energy consumption.

*Tom Bauer is a LEED accredited professional and a product manager for The Garland Company, Inc., a Cleveland-based manufacturer of high-performance solutions for the total building envelope. Prior to his work with Garland, he was employed as an environmental and energy consultant in the manufacturing industry. Bauer holds a Bachelor of Science degree in biology with a concentration on environmental science from Mount Union College in Ohio.*