

LEED, A Better Approach for Building Construction

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Should the building construction industry embrace LEED ratings?

Sustainability, in the form of conservation and reining in pollution, is more than an admirable goal, it may be imperative for our survival. Sustainability also turns out to be an opportunity for those who embrace it. The United States Green Build Council (USGBC) has developed techniques and certification called Leadership in Energy and Environmental Design (LEED), which measures sustainability in the building space. This paper will examine the benefits of LEED, and why the building construction industry should embrace LEED.

What is a Green Building?

The building construction industry is all about buildings, but some buildings are better for civilization than others. According to many, those better buildings are called green buildings. A green building is defined as a building that both increases the efficiency of its energy, water, and materials use while it reduces its impacts on human health and the environment, through proper site selection, design, construction, operation, maintenance, and eventual destruction, that is, its life cycle. Further, in addition to being environmentally responsible, a green building must be healthy to live by and work within. This is not an easy goal to achieve.

A great deal of effort must be applied to reach the lofty objectives of a green building, and the approach to do so is bifurcated, applying passive elements and active technology to create an end product that functions well in its environment. Measuring the resulting "greenness" of a building would be a benefit to all stakeholders; the building construction industry, various trade associations, architects, designers, the community at large, the customers, the accountants that need to report on the activities and products, and the government that is sponsoring initiatives to promote green building. The USGBC rose to that challenge.

What is LEED?

The USGBC, a recognized leader and educator pertaining to green buildings, developed the LEED certification program to provide tools, techniques, and ratings for green building efforts. LEED is a program in which points are awarded to various design components within a green building, monitoring energy and material input, as well as waste and cost reduction measures. The resulting points scores are reflected in the level of certification. Because the USGBC consists of various trade associations, architects, designers, and individuals concerned with the greening of the construction industry, LEED certification was quickly accepted as the de facto standard nationally, with 47 states represented. Alabama, North Dakota, and West Virginia have yet to garner a LEED rated building. LEED certification is already growing worldwide.

By design, LEED certification is an indicator of building sustainability, and classifies buildings as one of four rankings: Certified, Silver, Gold, or Platinum. The classification is based on the number of points acquired within 6 characteristic areas. These characteristics speak to how well the building is integrated into the environment, thus its footprint. First the site must offer access to public transport, a reduction in pollution, proper storm-water runoff management, the reuse of an existing urban site, and a minimum density of 60,000 square feet per acre. The building water management must make use of water-efficient or low-flow equipment, appliances, and irrigation, use captured rain or site-recycled water, and use innovative wastewater technologies. The building should use renewable resources for on-site electricity generation, such as biogas, wind, or solar panels, and should eliminate the use of chlorofluorocarbons. The materials and resources used in the construction of the building should have a high recycled content and be locally available. The HVAC system should use a fresh air exchange and the building should reduce indoor air contaminants such as "volatile organic compounds" but maximize day lighting and view opportunities. Areas used for chemical operations including such as copying and printing should be isolated from the work and living areas. And finally, the innovation and design process should make use of salvaged or refurbished materials and have a wise waste management plan. As one might expect, technological advances play a critical role in the application of LEED principals, but innovation is probably the most important part of the system. LEED may be considered "sustainability innovation" because it combines the protection of natural systems with innovation in order to deliver vital goods that promote the goals of human health, equity, and "environmental justice," and vibrant communities.

I offer that there should be one more component to LEED: Survivability. While considering the environment, if there is a higher than average probability that the building will encounter a natural disaster, means should be in place in the design of the building to avert or mitigate that disaster, be it an earthquake, a flood, a tornado, or a hurricane. Volcanoes, however, may be more of a challenge than may be addressed by LEED.

Sustainability, in the business sense, means designing strategies for value creation. This is accomplished through innovation, and across many disciplinarians. LEED provides the methodologies, tools, and techniques to drive this creation and innovation by defining the strategy and directing its implementation. In short, LEED embraces sustainability and looks at the building holistically, attempting to minimize the building's impact on the individual, the community, and the world, while maximizing its benefits. By accounting for the assigned characteristics, LEED sets up the framework to measure building performance.

What are the key benefits of LEED?

With LEED, we are now able measure the performance of a building. But as we shall see below, the results of LEED yield more than a number. LEED ratings indicate a high quality building,

which is not only a desired characteristic but a good marketing tool in itself. Informed customers seek the LEED rating status. Let us examine a few possible reasons why.

LEED rated buildings:

- are in demand and have become the definitive symbol of quality, driving the value of buildings skyward. LEED Certified buildings are performing up to 30 percent better than non-LEED rated buildings, and LEED Gold and Platinum buildings show savings approaching 50 percent.
- dramatically reduce both illness-related absences and absences due to low morale.
- help to attract and retain talent by demonstration of sustainable values, and improve morale.
- help to improve worker productivity. Productivity is driven by a sense of pride and shared vision. However, physical changes such as controllability of temperature and natural lighting have increased task efficiency.
- command higher rent than standard office spaces, and because of demand, LEED buildings possess inherent recession resistance.
- reduce churn. The like-mindedness of firms that seek out sustainable spaces tends to produce loyal tenants.
- have added real property value due to the demonstrated track record of low operating and maintenance costs. Energy efficiency measures have shown a 10 to 1 payback.
- demonstrate concern for environmental health and ecological system degradation, issues which will only increase with economic growth. Public opinion may be a good marketing differentiator.
- are ahead of coming regulation, avoiding future costs.
- demonstrate energy savings of 30% compared to non-LEED rated buildings. Buildings represent 39% of U.S. primary energy use.
- demonstrate carbon savings of 35% compared to non-LEED rated buildings. Buildings are one of the heaviest consumers of natural resources and account for a significant portion of the greenhouse gas emissions that affect climate change. Buildings account for 39% of all CO₂ emissions.
- demonstrate water use savings of 30-50% compared to non-LEED rated buildings. Buildings use 12.2% of all potable water, or 15 trillion gallons per year.
- demonstrate waste cost use savings of 50-90% compared to non-LEED rated buildings.
- as hospitals, have a 2.5 day earlier discharge rates than non-LEED rated hospitals.
- as schools, boast 20% better test performance than non-LEED rated schools.
- as retail outlets, enjoy increased sales per square foot over non-LEED rated retail outlets.
- as factories, show increased production than non-LEED rated factories.
- as office buildings, yield a 2-16% productivity increase than non-LEED rated office buildings.

Considering these reasons alone, there should be no uncertainty as to why LEED ratings are important to building owners, occupants and community members. From an environmental, business, and community standpoint, LEED ratings translate to higher efficiencies and a higher quality and sustainability of life.

Conclusion

LEED certification provides us the ability to measure the sustainability of a building, gauged as performance. As such, the sustainability of a building is represented in terms that are useful to accounting. The cost of a building is paid back through overall savings and benefits, within the life of the building, and in a predictable fashion. The disposal cost is calculable. The operating parameters are known and predictable into the future, and are a fraction of that of the non-LEED counterpart.

So, even for businesses and customers who are not concerned about the environment, global warming, or personal well-being, there is opportunity for profit due to cost savings alone. But when the other aspects are considered, such as morale, differentiation, benefits of efficiencies, use-operating-performance improvements, and preemptive regulatory compliance, non-LEED construction does not make fiduciary sense.

Green is the new black. Members of the building construction industry, for the reasons outlined above, should quickly embrace and seek LEED ratings.

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