



## An Overview: Going Green & LEED Certification in Construction

***“Consumers overwhelmingly want greener homes...”***

--Michelle Moore, Sr. VP, U.S. Green Building Council (3/14/2008 ASID press release)

Going “green” with more human and earth friendly approaches is a hot topic, especially with today’s soaring energy and raw material costs, debates about the effects of global warming, pressures from the EPA and more.

The construction industry is not immune to this hot topic. In fact, while 2007 saw a considerable downturn in building, it also saw green building construction starts exceeding \$12 billion, with more than 3.2 billion square feet of commercial building space registered or certified as green. This increase could be the result of findings by the U.S. Green Building Council (USGBC), which reports that U.S. commercial and residential buildings represent almost 40% of primary energy use, 70% of electricity consumption, over 12% of potable water, 30% of greenhouse emissions, and 40% of total raw materials consumed.

It appears that the trend to build green will continue and gather momentum. The California Public Utilities Commission has approved a plan that calls for all new housing to be zero-net-energy by 2020. The same applies to commercial developments by 2030. This is also expected to impact jobs, with one-in-four of U.S. workers predicted to be employed in a renewable energy or energy-efficient industry by 2030, according to the American Solar Energy Society.

### **The LEED Green Building Rating System**

A result of this trend is the emergence and growth of the Leadership in Energy and Environmental Design (LEED) Green Building Rating System™. Created in 1998 by the USGBC, a non-profit organization committed to expanding sustainable building practices, LEED has become the nationally accepted, pre-eminent benchmark for the design, construction and operation of green buildings.

LEED provides the tools and criteria that building owners and operators need to positively impact and measure the performance their buildings have on human and environmental health in five key categories:

- 1) Sustainable site development
- 2) Water savings
- 3) Energy efficiency
- 4) Materials selection
- 5) Indoor environmental quality

Different LEED Rating Systems have been developed for the various segments of the construction industry, including New Construction, Existing Building Operations & Maintenance, Commercial Interiors, Homes and Neighborhood Development. Each system is typically based on points awarded for performance, with the point total determining the level of certification. For example, the LEED for New Construction has four levels of certification, beginning with Certified and proceeding up to Silver, Gold and Platinum. It takes 26 points to earn Certified status.

Currently, the USGBC counts 13,500-plus members, all organizations in the building industry committed to advancing structures that are environmentally responsible, profitable and healthy places to live and work. Members include building owners and end-users, real estate developers, facility managers, architects, designers, engineers, general contractors, subcontractors, product and building system manufacturers, government agencies and nonprofits.

The USGBC’s stated goal is to have 100,000 certified commercial projects by 2010. In comparison, there were nearly 1,100 construction projects that were LEED certified in 2007.



## Executive Summary: LEED in Construction

Going green in construction is on the rise and environmentally friendly building standards known as Leadership in Energy and Environmental Design (LEED) are helping to pave the way. Developed by the U.S. Green Building Council (USGBC), the LEED rating system designates a building as Certified, Silver, Gold or Platinum according to how many green features are incorporated in five categories:

- 1) Sustainable site development
- 2) Water savings
- 3) Energy efficiency
- 4) Materials selection
- 5) Indoor environmental quality

In addition to benefiting the dwellers of green buildings, implementing a LEED program benefits contractors in three ways:

- **Improved working conditions for contractor's employees.** Primarily due to enforcing green friendly processes, i.e., using cleaning-burning diesel and electric vehicles to lower harmful engine exhaust, properly storing drywall and insulation to prevent issues with mold, etc.
- **Positive publicity for the contractor.** Journals are running more articles about going green and are receptive to informing their readers about those who are making positive contributions in this area.
- **Opportunity for more business.** States and municipalities are increasingly implementing and enforcing green regulations to the point of only awarding specific contracts to green contractors.

**IMPORTANT: LEED certification only applies to green building projects and not to the products used, services rendered or involved companies. However, using green products and materials may contribute to a building's LEED Certification.**

Additional key points about LEED:

- Green buildings cost on average of 1% to 2% more in up front costs to design and construct than conventional buildings, and can yield a payback ten times the initial investment over the lifecycle of the building.
- LEED is not required to implement green building designs as anyone can follow the guidelines. However, having LEED Accredited Professionals on staff adds points to a project seeking LEED certification.
- Fees for LEED certification range on average from \$500 to \$2,000 per home.

More details are provided in the attached overview, "Going Green & LEED Certification In Construction" and by contacting LEED at 202-828-7422, [leedinfo@usgbc.org](mailto:leedinfo@usgbc.org) or visiting [www.usgbc.org](http://www.usgbc.org).

## **Benefits to Contractors**

In addition to being a good steward of the environment and community, there are three primary benefits to contractors who implement LEED:

**1) Improved working conditions for contractor's employees**

Building green buildings also means having better, more green working conditions. For example, building entrance mats minimize airborne dust, cleaning-burning diesel and electric vehicles lower harmful engine exhaust, proper storage of drywall and insulation can prevent issues with mold, and re-capping ductwork when it goes up and into the ceiling helps keep dirt, dust and drywall from entering the system during construction.

**2) Positive publicity for the contractor**

Going green is a hot topic in books, trade journals, magazines, newspapers, news channels, etc. and participating companies, suppliers, contractors and more have the opportunity to promote their contribution in this area. California-based DPR Construction, for example, won the California Governor's Environmental and Economic Leadership Award for Sustainable Facilities for building the DPR office in Sacramento and gained substantial press coverage as a result.

**3) Opportunity for more business**

In addition to states and municipalities increasingly going green, they are also beginning to enforce green regulations and only award certain contracts to contractors that know and understand how to build green. In what could be a preview of things to come throughout the country, Washington D.C. began to mandate LEED certification on certain buildings two years ago and has adopted legislation that requires all private projects of 50,000-plus square feet to meet LEED requirements—starting in 2012.

## **FAQs—Frequently Asked Questions**

- 1. What makes a green building?** A building is considered green when efficiencies are gained in energy, water and material usage, and advances are made in how the building positively impacts human health and the environment. Effective green building can lead to 1) *reduced operating costs* by increasing productivity and using less energy and water, 2) *improved public and occupant health* due to improved indoor air quality, and 3) *reduced environmental impacts* by, for example, lessening storm water runoff and the heat island effect. Practitioners of green building often seek to achieve not only ecological but aesthetic harmony between a structure and its surrounding natural and built environment.
- 2. Does going green impact cost?** Essentially, green buildings cost on average of 1% to 2% more in up front costs to design and construct Platinum and Gold level projects than conventional buildings. Generally, these costs are minimized by the economic gains of constructing a LEED certified green building including increased productivity, decreased lifecycle operating costs and such. Studies suggest that the initial up front investment of 2% will yield over ten times the initial investment over the life cycle of the building. According to LEED spokesperson Ashley Katz, "If you're building a LEED Gold or Platinum building, you will see some up-front cost premiums. But if you're building a LEED Silver or Certified building, you don't have to pay a penny more than you would for a conventional building."
- 3. Is LEED accreditation required?** LEED is not required to implement sustainable living building designs as anyone can follow the guidelines and checklists. However, having LEED Accredited Professionals on staff can add points to a project requesting certification as it demonstrates an intimate understanding and knowledge of the LEED program.

4. **What is a LEED Accredited Professional?** A LEED Accredited Professional (AP) is an experienced building industry practitioner with proven knowledge of integrated design and the capacity to facilitate the LEED certification process. To become a LEED AP, one must pass an exam covering green building practices and principles, as well as LEED requirements, resources and processes. USGBC offers LEED training workshops to assist with exam preparation. Individuals are permitted to use the LEED AP acronym after their name when they pass the exam.
5. **What does LEED certification cost?** Fees for the initial LEED verification tasks range on average from \$500 to \$2,000 per home and are established by each local LEED for Homes provider. The size of the fee depends on the size of the home, the LEED performance tier (i.e., Certified, Silver, Gold, Platinum), travel time required by the rater, the number of homes being built, and the builder's experience with green home building techniques. Also, USGBC members get lower rates than non-members. Certain areas may have cost incentives provided through utilities, state energy organizations or corporate sponsors.
6. **Who are the primary users of LEED?** Architects, real estate professionals, facility managers, engineers, interior designers, landscape architects, construction managers, lenders and government officials all use LEED to help transform the built environment to sustainability. State and local governments across the country are adopting LEED for public-owned and public-funded buildings; there are LEED initiatives in federal agencies, including the Departments of Defense, Agriculture, Energy, and State; and LEED projects are in progress in 41 different countries, including Canada, Brazil, Mexico and India.
7. **Can products be LEED certified?** The USGBC does not certify, endorse or promote products, services or companies, nor does it track, list or report data related to products and their environmental qualities. ***The program only applies to green building projects.*** However, using green products and materials may contribute to a building's LEED Certification by earning points as a result of specific, desirable attributes such as energy-efficiency, recycled content, low chemical content and more. Products should be identified and chosen to maximize credits in particular categories. Some LEED criteria do require specific product data as part of the documentation and submittal process.

## **Alternate Green Rating Systems and Resources**

In addition to LEED for Homes, there are over 70 other national and regional programs designed to certify homes as green. Some of these programs are offered through utility companies that provide rebates and incentives. For a comprehensive list, visit [www.usgbc.org/leed/homes](http://www.usgbc.org/leed/homes). Following is only a sampling:

### **Green Globes ([www.greenglobes.com](http://www.greenglobes.com))**

The Green Building Initiative

2104 SE Morrison, Portland, Oregon 97214, Ph. 877.GBI.GBI1, Email: [info@thegbi.org](mailto:info@thegbi.org)

*Administered by the Green Building Initiative, Green Globes provides an online assessment protocol, rating system and guidance for green building design, operation and management.*

### **Federal Sustainable Buildings Principles ([www.ofee.gov](http://www.ofee.gov))**

*The Office of the Federal Environmental Executive is committed to "Promoting sustainable environmental stewardship throughout the federal government." Provides section on Sustainable Buildings.*

**ENERGY STAR Qualified New Homes ([www.energystar.gov](http://www.energystar.gov))**

US EPA--ENERGY STAR, 1200 Pennsylvania Ave NW, Washington, DC 20460, Ph. 888-782-7937

*A joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy that a proven energy management strategy and rating system that helps in measuring current energy performance, setting goals, tracking savings, and rewarding improvements.*

**California**

**California Green Builder ([www.cagreenbuilder.org](http://www.cagreenbuilder.org))**

1215 K Street, Suite 1200, Sacramento, CA 95814, Ph. 866-340-8912

**Arizona**

**Scottsdale Green Building Program ([www.scottsdaleaz.gov/greenbuilding](http://www.scottsdaleaz.gov/greenbuilding))**

City of Scottsdale/Green Building Program

7447 E Indian School Rd, Suite 125, Scottsdale, AZ 85251, Ph. 480-312-7080

**TEP Guarantee Home ([www.tucsonelectric.com/home/GuaranteeHome](http://www.tucsonelectric.com/home/GuaranteeHome))**

Tucson Electric Power Company

P.O. Box 711, Tucson, AZ 85702-0711, Ph. 520-884-3616, 7 am-4 pm., M- F

**References**

- U.S. Green Building Council, <http://www.usgbc.org/>
- Leadership in Energy and Environmental Design, Wikipedia, [http://en.wikipedia.org/wiki/Leadership\\_in\\_Energy\\_and\\_Environmental\\_Design](http://en.wikipedia.org/wiki/Leadership_in_Energy_and_Environmental_Design)
- LEED, follow or get out of the way. Paul Markgraff, Construction Purchasing, Q2 2008 issue
- Green Building and LEED Certification. Allison Mason, Contractor News and Views, 1/08 issue
- GreenDepot, <http://greendepot.com/leed>
- Earth Week Symposium—LEED, Elly Bunzendahl, 3/27/2006
- PATH—A Public-Private Partnership for Advancing Housing Technology, <http://www.pathnet.org/sp.asp?id=20978>

**Contact LEED**

For more information about LEED, LEED for Homes Rating Systems, LEED for Homes Project Checklist, local LEED providers and chapters and more, contact:

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