



What is a High Performance Green Building? High performance green buildings use key resources like energy, water, materials and land more efficiently than buildings that are just built to code. With more natural light and better air quality, high performance green buildings also contribute to improved occupant health, comfort and productivity.

Leadership in Energy and Environmental Design (LEED) is the nationally accepted benchmark¹ for the design, construction and operation of high performance green buildings. LEED is a series of rating systems developed by the United States Green Building Council (USGBC) to standardize sustainable development tools, practices and performance criteria.

LEED rating systems are available for²:

- Existing Buildings
- New Construction
- Core & Shell
- Commercial Interiors
- Schools
- Multiple Buildings/Campuses
- Healthcare
- Homes

LEED is a whole building approach that sets goals and recognizes performance in 5 areas:

- Site Development
- Water Savings
- Energy Efficiency
- Materials Selection
- Indoor Environmental Quality

To receive LEED certification, a project team applies to the USGBC and documents the building's compliance with LEED goals. All projects must meet a set of prerequisites, to which, depending on the nature and use of the building, numerous credits (in each of the above areas) are added. Innovation credits are awarded for strategies utilized that surpass LEED goals and criteria.

A building can qualify for LEED certification at one of four levels:

- | | |
|-------------|--|
| • Certified | Project earns 40-50% of possible credits |
| • Silver | Project earns 50-60% of possible credits |
| • Gold | Project earns 60-80% of possible credits |
| • Platinum | Project earns over 80% of possible credits |

¹ There are other green building rating systems including the EPA's Energy Star for Buildings & Plants, The Green Globes System and Southface Institute's residential green building program, EarthCraft House

² LEED for Retail, Portfolios, Laboratories and Neighborhood Development are currently in pilot phase

Who is Building High Performance Green Buildings?³

Adobe Systems
BP
CB Richard Ellis
CH2M HILL
Citigroup Inc.
Cushman & Wakefield
Delta Airlines
Frito Lay, Inc.
Ford Motor Company
Gap, Inc.
General Motors
Home Depot
Honda Motor Company
HSBC Bank
IBM
JP Morgan
Lockheed Martin Space System
Lowe's Companies, Inc.
McDonald's
Microsoft Corporation
Nike, Inc.
PNC Financial Services
Qualcomm
Radio Shack Corporation
REI
Sony
Sprint
Starbucks Coffee Company
Target Corporation
Toyota Motor Corporation
U.S. Steel Corporation
Wachovia
Wal-Mart

Of the 300 REITs in the U.S., 41% are actively pursuing energy efficiency and green building upgrades with another 27% planning to do so. Early adopters include ProLogis and AMB in the industrial sector, Thomas Properties in office, Regency and Simon Property Group in retail and American Communities in Student Housing⁴.

³ This is just a sample of major corporations that have built one or more LEED certified buildings. Numerous governments, schools and non-profits have also built LEED certified buildings. As of February 2008, there were 1,276 LEED certified buildings and 5,000+ buildings registered for LEED certification. The entire list is available at <http://www.usgbc.org/LEED/Project/CertifiedProjectList.aspx>

⁴ Drummer, Randy. REITs Buying Into Green Premium. CoStar Group, October 17, 2007. Available at <http://www.costar.com/News/Article.aspx?id=6E37F3E92F40A2AF38F72D9659791FCE>

Why Build a High Performance Green Building?

"In no more than five years –and maybe in as little as 24 to 36 months- you will face a competitive disadvantage if your building is not green and operating efficiently." –Brenna S. Walraven, Director, BOMA International⁵

LOWER OPERATIONAL COSTS

Savings in energy costs of 20-50% are common through integrated design & planning, site orientation, energy-saving technologies, light reflective materials, on-site renewable energy production, natural daylight and ventilation

Genzyme's 12-story, 350,000 SF LEED-platinum corporate headquarters in Cambridge, MA uses 42% less energy and 34% less water than a comparable conventional building

Warner Bros. LEED certified building in Burbank, CA reduced electricity, gas and water costs by 38%

Herman Miller's LEED certified 'Marketplace' provides \$6 million in savings over what the company would have paid in a conventional 100,000 sq. ft. leased space –including: 33% reduction in building costs, 41% reduction in operating costs and a 66% reduction in chum-related costs over their seven-year lease

INCREASED PRODUCTIVITY

The Environmental Protection Agency estimates the nationwide value of improved office worker productivity from indoor environmental improvements (such as high quality indoor air, access to views and natural light) to be \$20 to \$160 billion

Lockheed Martin's 600,000 sq. ft. high performance facility in Sunnyvale, CA reported a 15% drop in employee absenteeism –a savings that paid for the incremental costs of the new facility in the first year alone

After Toyota's customer services unit moved into a LEED-Gold building, absenteeism fell by 14%

BETTER INVESTMENTS

According to the McGraw-Hill 2006 Green Building SmartMarket Report, green buildings deliver: 3.5% Higher Occupancy Rates, 3% Higher Rental Rates, a 7.5% Average Increase in Building Values and a 6.6% higher ROI

Upon its completion in mid-2006, the 40-story, \$200 million, LEED-Silver, One South Dearborn Street building was already 93% leased, while the rest of the downtown Chicago market faced a 14.3% Class A office vacancy rate. Later in the year, developer Hines sold the office tower to the Olen Properties Group for \$344 million, a \$144 profit

One Crescent Drive, a four-story LEED-Platinum office building in the Philadelphia Navy Yard Corporate Center, has rental rates that are 25 to 50 percent above the market average

LESS RESOURCE USE, LESS WASTE, LESS GHG EMISSIONS

In the United States, Conventional Buildings are responsible for . . .

- 39% Energy Consumption
- 71% Electricity Consumption
- 12% Potable Water Consumption
- 30% Raw Materials Use
- 30% Waste Output
- 39% CO2 Emissions

High performance green buildings use less, waste less and produce less green house gas emissions, addressing concerns over rising energy costs, drought and global climate change

⁵Lockwood, Charles Q&A with Brenna S. Walraven. November/December 2007 issue of Urban Land. Available from <http://www.boma.org/NR/rdonlyres/D3CAAE23-DFC0-426B-B42A-E6CA1C84E484/0/BrennaWalravenGO111207.pdf>

How Much Does a High Performance Green Building Cost?

In 2003, Gregory Kats, of Capital E energy consultants, released a study showing that the average construction premium for a sample of 33 LEED buildings across the country was 1.84%⁶

In 2004, the U.S. General Services Administration (the agency that builds or leases millions of square feet for federal offices, courthouses and special facilities) reported that the anticipated construction premium for new federal courthouses would range from a *negative* 0.4% for a “low-cost” LEED-Certified facility, to a high of 8.1% for a “high cost” LEED-Gold facility.⁷

In 2005, Turner Construction’s Market Barometer study found that the average estimated cost premium for sustainable building is only 0.8% for a basic LEED certification.⁸

In 2006, real estate consultant Davis Langdon compared the cost of 83 buildings seeking LEED certification against 138 conventional buildings. Their analysis concluded that “the cost per square foot for buildings seeking LEED certification falls into the existing range of costs for buildings of similar program type.”⁹

In 2007, PNC Financial Group began a major green bank branch construction program. Their LEED-Certified branches cost PNC \$100,000 less to build and take 45 days less to construct than comparable conventional bank branches.¹⁰

Basic Risk & Reward Categories

RISKS	REWARDS
New Market	Return on Equity
Diversifies Concentration	Return on Assets
Knowledge in Market	Tax Incentives
Existing HR Knowledge	Area Catalyst
Size of Total Project	Positive PR
Exposure to Total Loss	New Alliances
Guarantees	Educational Opportunity
Project Cost Volatility	Stormwater Management
Partner Risk	Utilization of New Technologies
	Project Certification
	Corporate Social Responsibility

⁶ Kats, Gregory H. 2003. Green Building Costs and Financial Benefits. Available from <http://www.cap-e.com/ewebeditpro/items/O59F3259.pdf>

⁷ Steven Winter Associates, Inc. 2004. GSA LEED Cost Study Final Report. Available from <http://www.wbdg.org/ccb/GSAMAN/gsaleed.pdf>

⁸ Turner Construction Company. 2005. Market Barometer: 2005 Survey of Green Building. Available from <http://www.turnerconstruction.com/greensurvey05.pdf>

⁹ Morris, Peter and Lisa Fay Matthiessen. 2007. The Cost of Green Revisited: Reexamining the Feasibility and Cost Impact of Sustainable Design in the Light of Increased Market Adoption. Available from <http://www.davislangdon.com/USA/Research/ResearchFinder/2007-The-Cost-of-Green-Revisited/>

¹⁰ Brubaker, Harold. Green Are its Branches. Philadelphia Inquirer, August 15, 2007. Available from <http://www.usgbc.org/News/USGBCInTheNewsDetails.aspx?ID=3321>