



Green Downtown Office Markets: A Future Reality

Summer 2007

CBRE
CB RICHARD ELLIS



Green Building Reality: Industry Perception vs. Acceptance

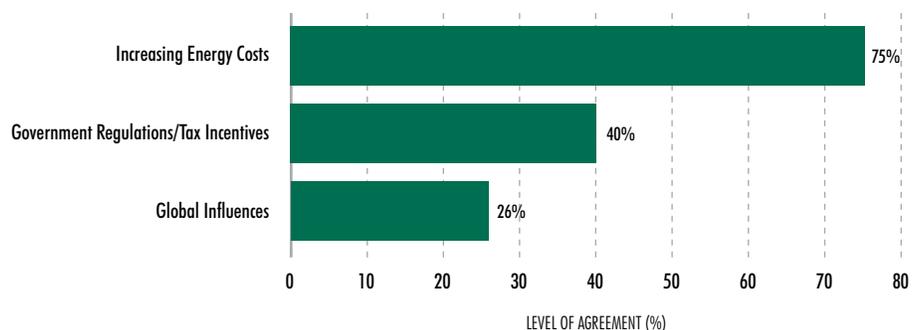
The need for environmental change in U.S. production practices is no longer disputable. From automobiles to commercial construction, it has become clear that environmentally friendly—or green—design, materials and production methods are here to stay. It has become a prevalent issue in many businesses, yet the commercial real estate industry has been slow to accept and adopt green construction practices.

One of the leading hurdles is the unfamiliar: definable short-term office construction costs compared to long-term benefits and advantages. Research on green building presently constitutes an estimated 0.2% of all federally funded research, an average of \$193 million per year. This is roughly equivalent to only 0.02% of the estimated \$1 trillion value of annual U.S. building construction, despite the fact that the building construction industry represents 9% of the U.S. GDP. At the same time, the construction industry reinvests only 0.6% of sales back into research—significantly less than the average for other U.S. industries and private sector construction research investments in other countries.¹

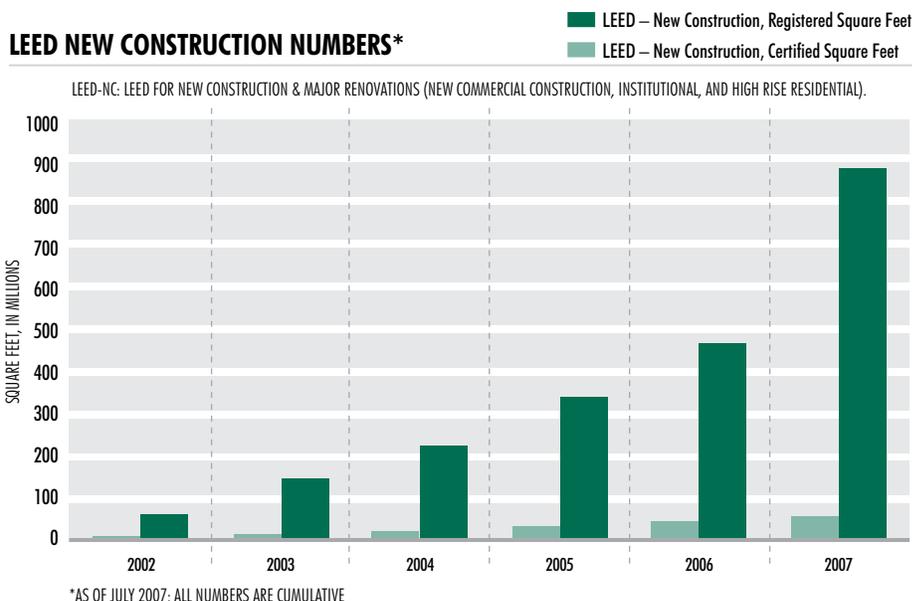
The U.S. Green Building Council (USGBC) suggests that without significant increases and improvements in green building practices, the negative impact of the built environment on human and environmental health is likely to increase dramatically in future decades. Building operation accounts for 38% of U.S. carbon dioxide emissions, 71% of electricity use and 40% of total energy use.¹ This number increases to an estimated 48% when the energy required to make building materials and construct buildings is included.² Buildings consume 12% of the country's water³ and rapidly increasing quantities of land.⁴ Waste from demolition, construction and remodeling amounts to 136 million tons of landfill additions annually, making up more than 35% of all non-industrial waste (1996).⁵ Construction and remodeling of buildings account for 3 billion tons, or 40%, of raw material use globally each year.⁶ They also cause negative impacts on human health; up to 30% of new and remodeled buildings may experience acute indoor air quality problems.⁷

DRIVERS OF GREEN BUILDING

Source: McGraw-Hill Construction Research & Analytics, 2006



Despite these realities, the U.S. commercial real estate industry has witnessed only a small amount of completed green office construction, primarily in institutional and corporate headquarters buildings. As of 2007, there are more than 6,000 LEED registered or certified buildings throughout the country. Currently, there are three LEED-certified towers in Manhattan: 7 World Trade Center, One Bryant Park and Eleven Times Square. As of July 2007, the USGBC had over 896 million square feet of new commercial construction registered with its LEED (Leadership in Energy and Environmental Design) Green Building Rating System™. Although this represents a small percentage of the overall U.S. building stock, it is a massive increase from just three years ago.



A lack of clear data on development, construction costs and the time needed to recoup costs are the most obvious obstacles in the industry’s slow acceptance of green construction, making education the most important tool in promoting the green construction initiative. Understanding the LEED rating system used to evaluate a green building is critical to increasing acceptance for the implementation of green construction. With office developers like Hines and Silverstein currently constructing and leasing LEED-rated towers, a greater industry awareness of the overall cost and benefits is expected to increase.

¹ Department of Energy. 2006 DOE Buildings Energy Data Book.
² Mazria, Ed. Architecture 2030 Challenge. www.architecture2030.org/building_sector/index.html 18 December 2006.
³ Estimated Water Use in the United States in 1995. U.S. Geological Survey. water.usgs.gov/watuse/pdf1995/html/ 18 December 2006.
⁴ Estimated Water Use in the United States in 1995. U.S. Geological Survey. water.usgs.gov/watuse/pdf1995/html/ 18 December 2006.
⁵ Municipal Solid Waste in the United States: 2001 Facts and Figures. Office of Solid Waste, U.S. Environmental Protection Agency. October 2003. www.epa.gov/garbage/pubs/msw2001.pdf 18 December 2006.
⁶ Lensen and Roodman, 1995, “Worldwatch Paper 124: A Building Revolution: How Ecology and Health Concerns are Transforming Construction,” Worldwatch Institute.
⁷ Indoor Air Facts No. 4 (revised): Sick Building Syndrome (SBS). U.S. Environmental Protection Agency.

The LEED Rating System

The Leadership in Energy and Environmental Design (LEED) Green Building Rating System™ is the nationally accepted benchmark for the design, construction and operation of high-performance green buildings. LEED promotes a whole-building approach to sustainability by recognizing performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality.

The LEED Rating System provides the building industry with consistent and credible benchmarking on what constitutes a green building. The rating system is developed and continuously refined via an open, member consensus-based process that has made LEED the green building standard-of-choice for federal agencies and state and local governments nationwide. LEED rating systems are available for all building types including new construction, core and shell development, existing building operation and maintenance, commercial interiors, homes and even residential development. The LEED for commercial interiors rating system is designed to guide and distinguish high-performance interiors for commercial and institutional projects.

LEED certification provides independent, third-party verification that a building project meets the highest performance standards. LEED-certified buildings have lower operating costs and may qualify for tax rebates, zoning allowances and other incentives.

If a LEED-certified building costs less to operate and thus has increased long-term value, why aren't all new buildings constructed under LEED guidelines? The answer may lie in perceived additional building costs.

Source: U.S. Green Building Council

Green Benefits vs. Costs: Marble Floors or Air Quality?

The benefits of developing and owning a green building are undeniable. Currently, more than 65 local governments have made a commitment to LEED standards in building construction, with some reducing the entitlement process by as much as one year and offering advantageous tax credits. Annual energy costs—a major office building expense—are reduced by as much as 30%, perhaps more with forthcoming technology.

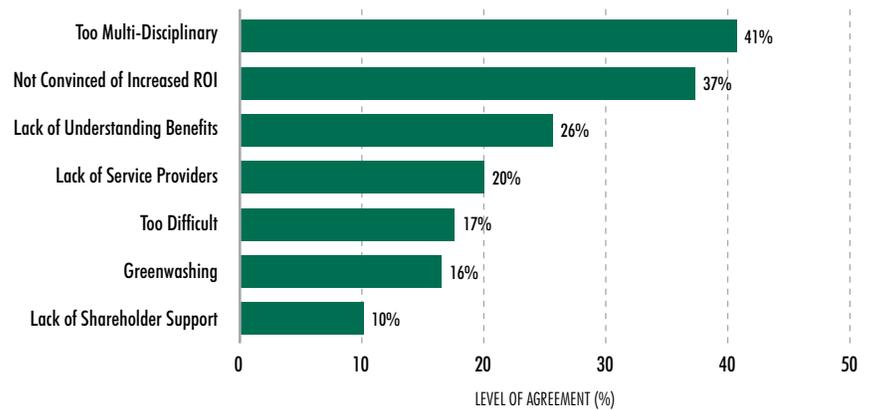
Green building tenant attraction and retention continues to grow stronger, as major tenants increasingly favor healthier air quality over luxury amenities in premium properties, making a green building a better long-term value than an "SUV property."

“Tenants are no longer looking at base-line rental costs. Instead, they are considering how their real estate impacts their business. Tenants will pay higher rents if the building’s performance reduces absenteeism and turnover, and increases productivity, as these benefits are far greater to a business than lower-priced rents. Committing to occupy a green building is a smart business decision,” said Sally Wilson, CB Richard Ellis’ Global Director of Environmental Strategy. Given these tenant advantages, all developers should consider developing green office buildings.

Why is there a delay in accepting a better performing, more efficient product?

OBSTACLES TO GREEN BUILDING

Source: McGraw-Hill Construction Research & Analytics, 2006



Many developers build to sell, meaning they construct or revamp an office building, lease space to tenants, and anticipate selling the asset within a three- to five-year time frame to repay their debt and secure a profit. The cost to achieve that goal directly relates to time. How quickly the process is completed often affects the profit generated upon sale of the building. The perceived increased cost of green construction spurs fears for developers who are already concerned about the cost of short-term debt and conventional building materials.

However, studies have shown that LEED-certified buildings constructed at the Certified or Silver level have been built without an increase in preliminary costs. Gold-and Platinum-level projects are seeing an increase of 1-5%. Two percent is the average increased additional first cost. But, during the life cycle of the building, the costs are typically offset within one to two years by operational savings resulting from decreased energy and water use. A 2003 report completed for the California Sustainable Building Task Force surveyed 33 LEED buildings and concluded that eight Certified buildings had an average cost premium of

less than 1%. Eighteen Silver-level buildings averaged a 2.1% cost premium. The six Gold-level buildings had an average premium of 1.8%, and the one Platinum-level building recorded 6.5%. The average reported cost premium for all 33 buildings was less than 2%. While the size of the data is fairly small, analysis provides meaningful insight into the cost premium for green buildings.⁸

Peter Morris, a principal with Davis Langdon, an international construction cost analysis firm, says the team approach is critical for green development. “All parties have to be involved in the process—from the financing, to the architect and contractor—for a green building to perform from inception to a fully operating building. When that happens and success is realized, green office buildings will become commonplace.”

⁸Greg Kats, *The Cost and Financial Benefits of Green Buildings*

Government Legislation: Green Building Codes and Incentives

Perhaps a harbinger for the future is a change in both the state and local governments’ approach to newly constructed buildings. On the federal level, effective legislation has been slow to address the green building issue. The Energy Policy Act of 2005 provides an Energy Efficient Commercial Building Tax Deduction, which serves as an important incentive for commercial developers to construct energy-efficient buildings. Recently, Congress has been considering a possible increase of this deduction, as well as an important extension.

While the federal government is encouraging the private sector to follow its lead, and further legislative proposals are forthcoming, perhaps the most significant movement has been the creation of new building codes and incentives on the state and local levels. Code changes and building standards are nothing new for the commercial real estate industry. Indeed, in the early 1990s, the Americans with Disabilities Act passed into law and owners were forced to adhere to new building codes in every newly constructed building. Existing buildings had to be retrofitted for improved access, as new buildings codes were strictly enforced.

California and New York building codes are among the national leaders in sustainable development. Governor Schwarzenegger signed Executive Order #S-20-04 on December 14, 2004, requiring the design, construction and operation of all new and renovated state-owned facilities to be LEED Silver-certified. The state is pursuing LEED Silver-certification for new construction projects, and LEED certification for existing buildings and facilities.

Governor Pataki issued Executive Order #111 in June 2001, encouraging but not requiring state projects to incorporate LEED criteria and seek LEED

certification where possible. New York State Energy Research and Development Authority (NYSERDA) offers incentives and technical assistance to help state agencies achieve the Executive Order objective. NYSERDA also offers incentives to owners and design teams of privately owned and operated buildings in the state. They are awarded incentives for energy efficiency measures and buildings that achieve a LEED rating with at least two points in Energy and Atmosphere Credit 1, Optimizing Energy Performance. The NYSERDA program funds up to \$800,000 per building in Upstate New York and up to \$1.5 million per project in New York City. NYSERDA will also buy down the interest rate on loans (4% below market rate) for energy efficiency measures and measures that assist in attaining a LEED credit. A low-interest loan may cover up to \$1.5 million in energy and green measures.

With the state governments of major U.S. population centers leading the way on green building codes, other first- and second-tier cities are following suit. Pennsylvania, Massachusetts, Washington and Oregon have the most extensive, documented experience with green building and LEED certification per capita than other states. Therefore, despite the general deficiency of published data on the cost of green office construction, there is substantial recent evidence from these and other entities to indicate that building green is less expensive than perceived by the commercial real estate industry.

Summary

Despite an overall hesitance to readily adopt green building practices by the commercial real estate industry, it is clear that change is not only needed but may soon be mandatory. According to a Brookings Institute study, by 2030, 50% of U.S. building stock will have been built after the year 2000. New building stock will represent 127 billion additional square feet, with the majority of growth in the West and South. While the financial aspects of green development will undoubtedly remain a debatable concern in the short term, it is indisputable that the methods we use to construct our future facilities will be critical to the sustainability and long-term endurance of our resources.

Sources: U.S. Green Building Council, McGraw Hill Construction, Brookings Institute, Davis Langdon, Greg Kats.

Sally R. Wilson, AIA, LEED AP

Global Director of Environmental Strategy
T 202.585.5771
sally.wilson@cbre.com

Steven Dunn

Chief of Global Research, Publications
CBRE Research
T 949.725.8604
steven.dunn@cbre.com

www.cbre.com/environment

CBRE
CB RICHARD ELLIS

toward  a greener
tomorrow

© 2007, CB Richard Ellis, Inc. We obtained the information above from sources we believe to be reliable. However, we have not verified its accuracy and make no guarantee, warranty or representation about it. It is submitted subject to the possibility of errors, omissions, change of price, rental or other conditions, prior sale, lease or financing, or withdrawal without notice. We include projections, opinions, assumptions or estimates for example only, and they may not represent current or future performance of the property. You and your tax and legal advisors should conduct your own investigation of the property and transaction.