Making The Business Case For High Performance Green Buildings

In April 2000, the Environment and Public Works Committee of the U.S. Senate convened a round-table of public officials, real estate practitioners, academicians and other members of the U.S. Green Building Council to educate members of Congress on building design trends. The round-table, the first of its kind in Congress, generated a rich dialogue on the environmental impacts of the building sector, the economic and health benefits of green building, the barriers and opportunities it faces, and the role of the federal sector. The committee also invited participants to articulate the most important business reasons for designing and building high performance green buildings.

"As investment builders, we have always explored and incorporated new technologies and practices to provide a better product and experience for our tenants and more value for our investors. We will continue to challenge ourselves and our clients to lead the thought process in adopting high performance standards that are both ecologically responsible and favorable to the bottom line. That's why the Senate's challenge to make this business case was both timely and compelling."

Kenneth W. Hubbard
Executive Vice President
Hines

"We hope these concepts stimulate new thinking and spark some constructive discussions. The best sustainable designs are not just environmentally responsible. They also produce buildings where employees can thrive and productivity can soar. We call those high performance green buildings. As you can see in the next few pages, that theory is now being translated into on-the-ground and documented practice."

Christine Ervin
President and Chief Executive Officer
U.S. Green Building Council

Ten years ago, the theory of high performance "green" buildings was hard to define and the practice even more obscure. All that is rapidly changing. In just three years, 3% of all new construction projects in the United States have registered for certification under the LEED™ (Leadership in Energy and Environmental Design) Green Building Rating System[1] from the U.S. Green Building Council (USGBC). From reflective roofs and super-efficient windows to flexible access floors and personal comfort controls, a wealth of new technologies is adding function, value and high performance to today's commercial buildings. Integrated design processes allow project teams to take full advantage of these technologies and at the lowest net cost. Thanks to LEED and other programs, such as ENERGY STAR®,[2] common benchmarks, support tools and opportunities are emerging to offer market differentiation for buildings that create higher private and public value.

"It is good business to fully explore ways in which to limit environmental impact and conserve energy in the design, construction and operations phase of a building project. Our new facility in Jersey City will be state of the art."

Timur Galen
Vice President
Goldman Sachs

S.C. Johnson's *Worldwide Headquarters in Racine, WI, incorporates green features such as personal environmental systems, a restored natural site and extensive daylighting, at a cost 10 to 15%* below *the U.S. average for comparable office and laboratory space. Even for projects fully loaded with high-value features, higher first costs are often recovered within the first three to five years through lower operating expenses and utility rebates for energy-saving equipment.*

Left: an ***S.C. Johnson*** *LEED registered project with intent to certify.*

Recover Higher First Costs—If Any

Asking if a high performance green building costs more than a conventional alternative is a little like asking which is more expensive, an efficient car or an inefficient one? The answer, of course, is that it depends on factors such as the make and model, features and driving preferences. Many green buildings cost no more to build—or even less than the alternatives—because resource-efficient strategies often allow downsizing of more costly mechanical, electrical and structural systems.

The key is integrated design. For instance, the cost of building Johnson Controls' LEED Certified Brengel Technology Center in Milwaukee was on par with prevailing construction rates, despite numerous high-tech features like personal comfort control systems, multimedia and information tracking systems.

Design for Cost-Effectiveness

A high performance green building is an efficient building. Savings in energy costs of 20 to 50% are common through integrated planning, site orientation, energy-saving technologies, on-site renewable energy-producing technologies, light-reflective materials, natural daylight and ventilation, and downsized HVAC and other equipment.

Building owners realize significant savings during the life of a building through other measures, such as natural landscaping, water-saving equipment, low-maintenance materials, salvaged construction debris and smart building controls. With the help of these kinds of efficiencies, green buildings can save money throughout their life cycle.

According to a 2002 EPA report, ENERGY STAR–labeled office buildings generate utility bills 40% less than the average office building. For international developer and investor ***Hines,*** *efficiencies gained from its ENERGY STAR buildings are generating $13 million in annual savings, based on a 2000 evaluation.*

Right: Almost an acre of energy-generating photovoltaic panels are in operation on the roof of ***Arden Realty's*** *110,000-square-foot City Centre Office Building in Fountain Valley, CA. Arden Realty has a portfolio of 130 properties in seven major markets comprising 18 million square feet.*

"We consider good energy conservation to be a sound business platform, and many of our constituencies, from Wall Street to our tenants, take note of that commitment. We own and manage almost a third of the buildings in California that are designated Energy Star *by the EPA and we believe in the full deployment of on-site energy generation technologies whenever and wherever possible. It is simply good business."*

Richard S. Ziman
Chairman and Chief Executive Officer
Arden Realty, Inc.

On average, annualized costs for personnel amount to $200 per square foot—compared to $20 for bricks and mortar costs and $2 for energy costs.[3]

"In the design of our new headquarters, we chose to be accountable to our employees and the environment. We are also pushing for conservation of natural resources and energy in our extensive real estate investment portfolios."

Diana Proctor
Project Manager
CalPERS

***Lockheed Martin's** trail-blazing 600,000-square-foot facility in Sunnyvale, CA, housing 2,500 employees is another case in point. Lockheed managers reported a 15% drop in employee absenteeism—a savings that paid for the incremental costs of the company's new high performance facility in the very first year alone.*[4]

Nationwide, the value of improved productivity of office workers from indoor environmental improvements is estimated to be $20 to $160 billion.[5]

Left: The Whitehead Research Building at Emory University in Atlanta, GA, earned a LEED Silver Version 2.0 rating in September 2002.

"Using green building strategies can result in increases in occupant performance measures by 6 to 26 percent."

William D. Browning
Founder of Green Development Services and Senior Associate
Rocky Mountain Institute

Boost Employee Productivity

Few investments generate greater returns than those designed to boost labor productivity. It is easy to see why, based on a comparison of relative operating costs for commercial business. A modest investment in soft features, such as access to pleasant views, increased daylight, fresh air and personal environment controls, can quickly translate into significant bottom-line savings for an employer.

Does available research identify the cause and effect for many of these specialized design features? Not yet. But emerging data are compelling, prompting new lines of research across the country. We can already conclude that owners and occupants alike are finding that high performance green buildings provide higher-quality work environments.

Enhance Health and Well-Being

High performance green buildings typically offer healthier and more satisfying work environments for tenants. A new survey of laboratory and field research suggests rich opportunities ahead for owners and occupants alike to better understand and take advantage of various green building features to enhance worker well-being and performance.[6] No wonder businesses are beginning to use high performance buildings as a potent tool for recruiting and retaining the best employees.

*Above: The **Steelcase** wood furniture manufacturing plant in Caledonia, MI, earned a LEED Silver Version 1.0 rating in September 2001.*

A recent Lawrence Berkeley National Laboratory study reported that feasible and commonly recommended improvements to indoor environments could reduce health care cost and work losses from communicable respiratory diseases by 9 to 20%; from reduced allergies and asthma by 18 to 25%; and from other nonspecific health and discomfort effects by 20 to 50%. The researchers also found that this would generate estimated savings of from $17 to $48 billion annually in lost work and health care costs.[7]

"One of our goals is to provide all of our employees with a healthy and safe work environment—whether it be in an office or manufacturing setting. This goal is exemplified in our wood manufacturing facility, the first LEED Certified manufacturing plant in the world. All paints, sealants, primers and coatings used within the plant have low VOC emissions. All paints applied throughout the building—over 24,000 gallons—are water-based. In addition, intake fans circulate fresh air throughout the building. The plant is also a tobacco-free campus."

Jim Hackett
Chief Executive Officer
Steelcase, Inc.

"GSA is committed to incorporating principles of sustainable design and energy efficiency into all of its building projects. Sustainability in building design, construction and operation is fundamental to and indivisible from our core agency mission of providing a world-class workplace for the federal workers and superior value for the American taxpayer."

F. Joseph Moravec
Commissioner, Public Buildings Service
***General Services Administration** (GSA)*

EPA studies indicate that indoor levels of pollutants may be two to five times higher—and occasionally more than 100 times higher—than outdoor levels. These levels of pollution are particularly notable since people tend to spend about 90% of their lives indoors.

Left: ***American Honda Motor Company's*** *Northwest Regional Facility in Gresham, OR, earned a LEED Gold Version 2.0 rating in August 2002.*

Reduce Liability

Clean and healthy buildings can also reduce legal claims and liabilities for the owner. *BusinessWeek's* June 5, 2000, cover story reported that "sick building" cases, often filed against building owner/operators, are becoming more and more common.

With the recent explosion in mold-related claims, insurance companies have begun to take defensive action with mold exclusion clauses and rate hikes.[8] Some industry experts are even predicting that insurance companies will start linking lower premiums to high performance buildings.[9]

Create Value for Tenants

High performance features translate into high value for tenants. For example, the annual rate of employee relocation within a building, or churn, averages 25% for most commercial spaces. At an average cost of $2,500, this quickly becomes costly and disruptive. Flexible design features common to integrated green buildings can cut churn costs by 90%.

Features designed to cut energy and water bills help attract tenants to the property and increase the likelihood of continued occupancy.

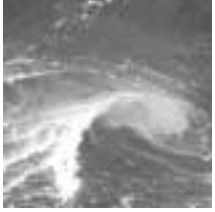
According to the EPA, a tenant can save approximately $0.50 per square foot per year through no-cost management and operations strategies that cut energy use by 30 percent. The tenant's accumulated savings can represent $50,000 or more in a five-year lease of 20,000 square feet of office space. Savings can be even higher when incorporating a variety of high performance and flexible building design components.

Pennsylvania government officials projected potential savings of $843,750 over the life of their new LEED Gold Certified Cambria office building through flexible design technology, such as underfloor air distribution and cabling systems that cut average relocation costs by 90%.

Above, right: ***Herman Miller's*** *new MarketPlace provides $6 million in savings over what the company would have paid in a conventional 100,000-square-foot leased space. Estimated savings over the seven-year lease include a 33% reduction in building costs, a 41% cut in operating costs, and a 66% reduction in churn-related costs, resulting in total estimated operating cost savings of $1.58 per square foot.*

"We are deeply committed to sustainable architecture. Our experience has proven that these investments can also deliver significant financial returns."

Mike Volkema
Chairman, President and Chief Executive Officer
Herman Miller



Increase Property Value

An asset that maintains its value through higher occupancy and easier maintenance is easier to sell and may command a higher market valuation. There is growing confidence in the industry that a high performance green building can either capture lease premiums or present a more competitive property in an otherwise tough market. Reduced operating costs also generate increased cash flow, which helps free capital for other investments. As green buildings are increasingly recognized by LEED and ENERGY STAR programs, the marketplace is expected to follow with a system of preferential pricing.

"Communities benefit when corporations commit to economic, social and environmental responsibility. Our successful construction of green facilities has produced benefits for our customers, employees, shareholders and the community. We have lowered costs, increased efficiency and productivity, as well as created healthier environments in which people live and work."

James E. Rohr
Chairman and Chief Executive Officer
The PNC Financial Services Group

Above: ***PNC Financial Services Group*** *Firstside Center in Pittsburgh, PA, earned a LEED Silver Version 2.0 rating in October 2000. The 650,000-square-foot facility has received numerous awards at the local, state and national level for its role in rejuvenating a downtown section of Pittsburgh and encouraging employee use of public transportation.*

Recently, ***USAA Realty Company's*** *La Paz Office Plaza in Orange County, CA, experienced an $0.80-per-square-foot increase in market value—a $1.5 million increase stemming from its investments in energy efficiency measures and lower-priced power procurements.*

"High performance and ecologically-intelligent building designs have proven that they can deliver tremendously profitable top line and bottom line performances."

William McDonough, FAIA
Principal
McDonough + Partners

Take Advantage of Incentive Programs

With the increase in private and public benefits stemming from high performance green buildings, developers are eligible for even greater financial and regulatory incentives. New York, Maryland, Massachusetts and Oregon are on the leading edge of states offering tax credits for LEED Certified buildings. Portland (OR) and Seattle (WA) offer grants for energy modeling, commissioning and related costs. The private Green Building Loan Fund in Pittsburgh does much the same on a loan basis. Arlington County (VA) links preferred zoning considerations for LEED projects. Santa Barbara (CA) and Scottsdale (AZ) are some of the first jurisdictions to offer expedited permit reviews for buildings with certain high performance features. Meanwhile the Kresge Foundation, provider of $120 million in challenge grants for capital projects in 2000, is launching in its portfolio an initiative to support design, planning and educational assistance for LEED Certified buildings.

RTJ Partnership's *Viridian Building in Portland, OR, was awarded a LEED Certified Version 2.0 rating on December 11, 2001.*

Certainly few buildings have garnered the scale of publicity of ***Conde Naste's*** *47-story Four Times Square building in Manhattan—not only for its creative array of high performance features and educational outreach efforts about the benefits of building green, but also for its record of building on time and on budget.*

Above: The North American headquarters of ***Ford Motor Company's*** *Premier Automotive Group in Irvine, CA, earned LEED Certification Version 2.0 in November 2001.*

"The impact of building green and the LEED Gold level certification has created local and national press in newspapers, trade magazines and TV that has truly distinguished us in the marketplace and provided us with free advertising and marketing exposure that we could not have afforded. This awareness has impacted our marketing and community relations well beyond our expectations."

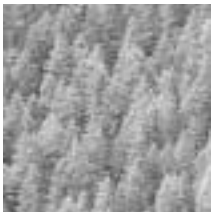
Joe Van Belleghem
President and Chief Executive Officer
JVB Development Inc.

Benefit Your Community

One of the proven advantages of building green is market differentiation—for buildings, services and products. Many companies also want to demonstrate their commitment to initiatives that simultaneously benefit the environment, community and bottom line. A high performance green building is one of the most tangible expressions of that commitment and an extremely effective tool for educating tenants, employees and shareholders about corporate values and sustainability.

Properties that take advantage of brownfield and other infill redevelopment, while offering proximity to mass transit, walking, biking and shopping/daycare services, have an automatic advantage in the race to attract top talent. They offer value to communities by reducing congestion and pollution from automobiles, by providing financial support to local transit systems and by fostering stronger neighborhoods through the creation of public spaces for civic events. In fact, many high performance buildings and their companies are welcomed as good neighbors for just these reasons.

10



Achieve More Predictable Results

Some of life's surprises may be pleasant—but not necessarily those encountered during the design and construction process. Green building design and construction emphasizes "best of class" practices that reduce project uncertainty and risk, and enhance the final product for the customer. Green building emphasizes proven design and decision-making processes such as an interactive design, life cycle and value analysis, and energy modeling. These tools focus on the needs of the specific buildings and site.

Use of green building design and construction techniques improves the certainty of project teams, minimizing surprises that can lead to costly errors and ensuring delivery of buildings that perform as promised.

During the construction process, extra attention to site logistics, stormwater and waste management, use of sustainable materials, material handling and protection, and indoor air quality reduces construction impact, makes people better neighbors and leaves a building cleaner. The emphasis on commissioning in LEED Certified buildings means project teams validate that their high-performance buildings will operate as designed.

"More and more of our clients and industry partners recognize the benefits of green buildings. From our first green building, the Southern California Gas Energy Resource Center, to more than 20 projects currently LEED registered, we have seen green building move from cutting edge to mainstream."

Thomas C. Leppert
Chairman and Chief Executive Officer
The Turner Corporation

"Many corporations are looking for economic returns, environmental benefits and social good from their real estate. It is more possible than ever to achieve that mix."

M. Arthur Gensler, Jr. FAIA
Chairman
Gensler

"While it may be true that Wall Street looks at the returns of each quarter, in these days of diminished public confidence in corporate governance, it is becoming increasingly important that a company "gets it" in the longer term. Such a focus would consider future costs, employee well-being and our planet in general. A green building is a good way to make a long-term statement."

James M. Seif
Executive Vice President
PPL

In Summary:

1. *In the event up-front costs are higher for high performance green buildings, they can be recovered.*
2. *Integrated design lowers ongoing operating costs.*
3. *Better buildings equate to better employee productivity.*
4. *New technologies enhance health and well being.*
5. *Healthier buildings can reduce liability.*
6. *Tenants' costs can be significantly reduced.*
7. *Property value will increase.*
8. *Many financial incentive programs are available.*
9. *Communities will notice your efforts.*
10. *Using best practices yields more predictable results.*

[1] The USGBC's LEED (Leadership in Energy and Environmental Design) Green Building Rating System™ is a voluntary, consensus-based national standard to support and validate successful green building design, construction and operations. LEED offers third-party certification of qualifying buildings, high performance design guidelines, and professional training and accreditation services.

[2] The federal ENERGY STAR program is a voluntary partnership among business, government and others to help organizations recognize and promote the financial value of top-performing energy-efficient products and buildings.

[3] *Indoor Quality Update*, October 1996, Vol. 9, No. 10.

[4] These and many other case studies can be found in Green Developments, a federally funded project of the Rocky Mountain Institute, 2001.

[5] W.J. Fisk, "Health and Productivity Gains from Better Indoor Environments and Their Relationship to Building Energy Efficiency," *Annual Review of Energy and the Environment*, 25: 537-566, 2000.

[6] Judith Heerwagen, "Sustainable Design Can Be an Asset to the Bottom Line," *Environmental Design and Construction*, July-August 2002.

[7] U.S. EPA, "Energy Cost and IAQ Performance of Ventilation Systems and Controls," January 2000.

[8] Del Williams, "Insurers Look to Wipe Clean Toxic Mold Claims," *Insurance Journal*, August 7, 2002.

[9] David Kozlowski, "Can Green Be Gold?" *Building Operating Management*, September 2001.

Design and production: Laura Lamar / MAX Design Studio • Printed by Artisan Printing • Printed on 10% post consumer recycled paper with soy/vegetable inks

These messages are brought to you in partnership with

The Real Estate Roundtable

Urban Land Institute

U.S. Green Building Council

1015 18th Street, NW, Suite 805
Washington, DC 20036

t. 202.828.7422
f. 202.828.7722

e. **info@usgbc.org**
w. **www.usgbc.org**