

Turning the Ship - Blog

Environmental Transformation of the U.S. Economy

03/06/07

[Living Buildings and the Competitive Advantage of High Performance](#)

Filed under: [Sust. Infrastructure](#)

Posted by: [Brian Kuehl](#) @ 11:23 am

By Brandon Smith, Chief Operating Officer, [Cascadia Region Green Building Council](#)

When most people think of saving the environment, they think of saving the Amazon from slash and burn farming or preserving habitat for species facing extinction. What they should be thinking about are buildings because buildings are the largest single contributor to environmental degradation and, therefore, the single largest opportunity to reduce our environmental impact. Buildings are the nexus for massive sectors of the global economy including energy, water, transportation, forest products, plastics, minerals and metals.

In the US, buildings account for:

- 48% of total energy use [1] and 70% of electricity use [2]
- 12% of water consumption [3]
- 30% of greenhouse gas emissions [4]
- 30% of raw material use [5]
- 30% of waste output/136 million tons annually [5]

By comparison, in the US, transportation consumes 27% of energy and industry, 25% [1].

Building design significantly dictates the ongoing impact of society's use of energy, water and materials. As Winston Churchill said, "We shape our buildings; thereafter they shape us."

This paper will explore high performance green building in the following ways:

- How it creates competitive advantage
- The leading edge of the industry
- Significant barriers still facing the industry
- How companies can incorporate it into their real estate portfolios and promote a more sustainable built environment

High Performance Green Building as Competitive Advantage

Why go green? Perhaps the most persuasive reason is also green - money. Green building, also known as high performance building, can:

- Reduce operating costs (energy and water) which also reduces exposure to rising energy and water rates
- Increase employee productivity and health
- Reduce liability associated with poor indoor air quality such as Sick Building Syndrome
- Provide increased positive marketing exposure
- Provide faster lease-up rates and higher building values
- Allow companies to credibly and publicly demonstrate corporate social responsibility

Many companies are realizing that they do not have to sacrifice profits to build green. In fact, they are discovering that green building actually increases their profitability and favorably positions them for shifting market preferences, rising energy and water costs, and attracting and retaining the highest quality employees.

The most successful companies building and managing green buildings are integrating green building strategies into their corporate DNA, so it is not ancillary to what they do, but actually guides their decisions and future strategy. More information about the benefits of high performance green buildings can be found at www.usgbc.org.

The Emergence of LEED®

LEED® (Leadership in Energy and Environmental Design) is a voluntary, independent, third-party, environmental rating system for buildings developed by the non-profit, [US Green Building Council](http://www.usgbc.org). LEED® measures a building's performance in the areas of energy, water, materials, indoor environmental quality, and site characteristics. The LEED® rating system has made significant inroads into the construction industry faster than ever thought possible. How did this happen? Why has LEED® been so successful?

The success of LEED® can be attributed to two factors:

1. LEED® created a common national standard that gave the building industry benchmark metrics for what constituted green design, construction and materials.
2. LEED® provided a platform and framework for business and environmental interests to work together toward common goals for mutual benefit.

Businesses finally understood the standards by which the environmental performance of their buildings would be judged and that they could “do well by doing good.”

Moving from Early Adopters to Mainstream

In less than a decade the commercial construction and real estate industry has transformed from one that was indifferent and even hostile to environmental metrics to one that is scrambling to understand them and how to position itself to seize an opportunity whose significance is only beginning to become apparent. Is green building really more than a trend? How successful has LEED been, and what is next? Most importantly, how can forward thinking companies position themselves now to create a

competitive advantage, not despite, but because they are positively impacting the environment?

While at the end of 2006, LEED® represented less than 5% of new commercial construction, consider that LEED® was only launched in 2000, and that the typical commercial construction timeline is 2 – 5 years from design to completion of construction. While the first version of LEED® was developed for the new construction market, versions have now emerged for operations of existing buildings and tenant improvements, making certification available to the largest segments of the built environment. There are currently 735 commercial LEED® certified buildings and 4,927 more seeking certification [6].

All 50 states in the US have buildings participating in the LEED® program. Building types include condominiums, bank branches, hospitals, schools, office buildings, retail outlets, government facilities, mixed use projects and many more. Various LEED® initiatives including legislation, executive orders, resolutions, ordinances, policies, and incentives are found in 53 cities and 17 states in the U.S. [7], and green building continues to be published with greater frequency in mainstream publications like The Wall Street Journal, The New York Times, USA Today and The Washington Post.

Between 2002 – 2006, the amount of LEED® registered space has seen a net increase of 838% over 4 years from the 2002 level of 80 million square feet to the 2006 level of 750 million square feet [8]. Green building is clearly entering the mainstream and doing so quickly. The fact that green building is primarily market driven and not chiefly a result of federal legislation and incentives implies that the recent growth is more than a passing trend. Companies, organizations and governments are realizing that green building is a smart financial decision and the growing momentum is creating economies of scale, which are lowering the costs of green building products and services and enabling green building practices to become more widespread.

The Cutting Edge – Living Buildings

While LEED® has been an extremely effective tool for shifting the design and construction industry toward more sustainable buildings, LEED® certified buildings, even at the highest level, are by no means truly sustainable if sustainability means the balance of human and natural systems. LEED® has been and will continue to be an extremely important and useful tool for shifting the market, but it is not a representation of true sustainability in the built environment. So, what is next?

In November 2006, the [Cascadia Region Green Building Council](#) launched the [Living Building Challenge](#), which “is attempting to raise the bar and define a closer measure of true sustainability in the built environment.” The Living Building Standard requires that a building:

- generate all of its own energy with renewable resources
- capture and treats all of its water on site
- use resources efficiently and for maximum beauty

The standard applies to both new and existing buildings, and greatly simplifies the certification process while demanding significantly higher performance. Achieving this standard is a monumental task in today's real estate and construction industry, but certainly not impossible. Creating a Living Building will require rethinking our assumptions about how we heat and cool our buildings, how we interact with other tenants, how we structure our financing, where we build, the materials we use, in short, the entire development process.

The Living Building Challenge has already unleashed significant creativity and innovation on the part of developers, architects and engineers striving to meet the challenge, and a number of projects around the US are targeting Living Building status. If we are to truly reconcile the existence of the built and natural environments, we must move to the Living Building model and beyond. In so doing, we will also create more valuable buildings both financially and for society at large since a Living Building will not burden society with the externalities of pollution, environmental degradation, and the over-consumption of resources.

Barriers and Opportunities

The most significant barriers to green building are separation of capital and operating budgets for institutional owners, perception of cost/risk, lack of education, and, most importantly, the failure to recognize and account for the increased value of green buildings.

With institutional owners like universities and government agencies, one often finds a strict separation of capital and operating budgets. The capital projects department cannot invest in high performance strategies with higher first costs even if there will be a significant return on investment because this department cannot access any of these operational savings for the construction budget. The most successful models addressing this issue have set up a loan scenario where the capital projects department can invest in high performance features with the loan being repaid through operational savings.

The most crucial driver in the private sector is the value equation for green buildings and the way that the financial community recognizes or fails to recognize the value of these projects. One often hears that green building costs more, which may or may not be true, but the question not being asked is "What value am I receiving for these expenditures?" Developers do not put in granite countertops or marble floors because they are the lowest cost option, but because they add value to a project. Also tied to this question of value is the perceived risk of high performance green technologies and strategies, which do not conform to "business as usual." Increased risk means higher cost of capital and "fear-based" premiums from project teams who are unfamiliar with a certain product or technology. These issues point the lack of education about green building strategies and technologies, many of which have been used for decades in other countries. As the real estate and construction community becomes more familiar with green building, the perceived risk of these strategies will be reduced and their adoption increased.

Related to the question of value is the consideration of who is receiving the value - the developer, the tenant, the lender, the investors, society at large or some combination thereof? To address this issue, it is crucial that building owners consider the structure of leases. Who benefits from productivity gains, energy and water savings and to what extent? If a developer invests in significant energy saving measures, then they need to participate in those savings to recoup that investment. However, the tenant also needs to benefit from the savings or they will have little incentive to conserve energy and water. Triple Net and Gross Net leases do not effectively address this issue.

Perhaps the largest opportunity to make significant change in the sustainability of the built environment lies with the real estate finance community. There is overwhelming anecdotal evidence and an increasing amount of research to support the idea that green buildings have more value than conventional ones due to lower operating costs and healthier indoor environments. To address this issue more formally, a significant effort is underway called the [Green Building Finance Consortium \(GBFC\)](#). GBFC is a group of leading corporations, real estate companies, and trade groups whose mission is to enable the private real estate sector—corporations, investors, lenders, and developers—to appropriately recognize the value and risk of investment in green buildings. The implication of this current gap in market knowledge is significant. Companies that understand the value proposition of green building before the general market can position themselves to be leaders in the field and adjust their portfolios to take advantage of an impending market shift that is already past the tipping point. The soon-to-be quantified recognition of the financial value of green buildings by the market will cause many of the other barriers to fall away and lead to the more widespread adoption of green building strategies. Companies that position themselves to take advantage of this shift now, will be prepared and benefit from the market transition as opposed to being negatively impacted.

The Way Forward

What can companies who own and manage real estate do today to strategically position themselves to take advantage of the green building market, incorporate green building practices into their businesses, and promote widespread adoption of green building?

- Employ project team members (architects, engineers, contractors, facility managers) that understand and support green building;
- Acquire, cultivate and retain in house green building experts where practical;
- Begin integrating green building practices on current projects (new or existing buildings). Start slow to begin to understand how green building can be integrated into your current practices. The goal is that green building become part of the corporate DNA and the new “business as usual.” Green building consultants can be very helpful in this initial stage;
- Sell the value of green features to clients by educating them on the benefits. Clients will not be willing to pay more for green space unless they understand how it benefits them. Be clear about the value add (e.g. lower operating costs, healthier, more productive employees, marketing cache, corporate social responsibility);

- Design lease structures such that both the owner and tenant benefit from green building measures such as energy and water efficiency;
- Promote Integrated Design on projects. Integrated Design, while not discussed here, is the most cost-effective green building strategy because it eliminates many of the inefficiencies normally present in the design/construction process. More information can be found at the [Greater Vancouver Regional District](#) website;
- Lobby for policies that limits sprawl, promotes density and green building, and encourages incentives that help offset higher first costs, especially for energy efficiency and renewable energy technologies.

Footnotes:

1. U.S. Energy Information Administration statistics
2. 2003 U.S. DOE Buildings Energy Databook
3. U.S. Geological Service, 1995 data.
4. U.S. Energy Information Administration statistics
5. [US Green Building Council](#)
6. [US Green Building Council, Green Building by the Numbers](#)
7. [US Green Building Council, LEED Facts](#)
8. [US Green Building Council, Introductory PowerPoint](#)