

Sustainable Design and Development: How Do You Pay For It?

Todd Carpenter, Partner; Anthony Ollman, Director, Baker Tilly Virchow Krause, LLP

Debunking the Myths

Preserving the environment, an issue once considered an afterthought in the interrelated worlds of business, politics and popular culture, is now dominating the public consciousness. A key point in this historic change in perception is sustainable design and development—also known as green building. In our previous two articles in this series, we looked at this concept from a broad perspective and from a purely design-related approach. Now it's time to look at the bottom line.

What is the bottom line on sustainable design and development? Money. No matter how many salient rhetorical points are made supporting green building, at the end of the day, those developing, selling, financing, buying and operating new structures need to know that an environmentally friendly building will not only validate their immediate investment of time and money, but also bring future professional and financial success.

The question at the top of most developers' minds is, "How will I pay for it?" To answer that question, we must confront—and debunk—the common myths surrounding the economics and cost management of green building. The most obvious one is that it is too expensive. In fact, an August 2007 study by *Building Design+Construction* magazine found that 78 percent of the 10,000 subscribers surveyed believed that sustainable design and development contributed "significantly" to first costs. (Respondents came from "...the broader U.S. architecture, engineering, contractor and building owner/developer community.")¹

Yet wherein lies the truth? For the answer, one might look back to some of the first projects to adhere to the highly venerated Leadership in Energy and Environmental Design (LEED®) standards created by the U.S. Green Building Council (USGBC) in the mid- to late 1990s. Three such Portland-based jobs, certified under the Silver LEED® classification, were completed with cost premiums of 2, 1, and 0 percent, respectively.² These numbers can hardly be considered "massive" cost premiums and, as mentioned, these jobs were completed about ten years ago. Substantial efficiency and cost reduction approaches have been refined since. And as developers, architects, engineers and contractors have worked on more sustainable projects, they've become more knowledgeable about the planning, practices and materials involved. In turn, previous mistakes are being avoided and costs are being cut. Call it the learning curve effect.

Moreover, when total cost of ownership is considered, the relatively minimal first costs become all the more palatable. In fact, total cost of ownership analysis has proven that sustainable development is cost effective. The Department of Energy, for instance, has noted, "Sustainable building features can offer owners economic benefits from lower risks, longer building lifetimes, improved ability to attract new employees, reduced expenses for dealing with complaints, less time and lower costs for project permitting resulting from community acceptance and support for sustainable projects, and increased asset value."³ And, in a 2007 white paper, technology consultants Constructive Technologies Group,

Sustainable Design and Development: How Do You Pay For It, by Todd Carpenter and Anthony Ollman, *Construction Accounting and Taxation*, Vol. 18, No. 5 September/October 2008, Copyright © 2008 TTA

Inc., confirms this idea, stating, “Green buildings can deliver higher occupancy rates, lower tenant turnover, higher rents, greater occupant comfort and productivity, and lower total cost of ownership.”⁴

Six ownership advantages of sustainable design and development

For property owners, sustainable design and development brings a variety of advantages that more than justify a change to this approach. Six to consider include:

1. Higher capitalization rates. A property’s capitalization rate expresses its owner’s rate of return based on factors such as comparable property, local economic conditions and net operating income. In short, it’s a critical component in evaluating income-producing property. Because of green building’s capacity to reduce maintenance and operating expenses, sustainable properties often enjoy substantially higher capitalization rates. A July 2004 article in *C/RE* magazine, a publication of the Certified Commercial Investment Member Institute, states, “As appraisers begin to incorporate green office buildings’ value into appraisals, better capitalization rates may result, thus providing significantly higher returns.”⁵
2. Faster lease up times. As the public’s consciousness of environmental practices grows, property owners are noticing a change in lessee preferences. Commercial renters are seeking out green buildings because working out of such properties is cost effective and reflects well on their businesses. Many residential renters are prioritizing sustainable buildings in their housing choices, too. In fact, a study released this year by CoStar Group, a commercial property research firm, found that “... sustainable ‘green’ buildings [often] outperform their non-green peer assets in key areas such as occupancy, sale price and rental rates, sometimes by wide margins.”⁶
3. Greater employee productivity. Sustainable buildings are designed to have, among other things, better air quality, improved lighting and more consistent climate control. Naturally, employees tend to thrive in these settings. Moreover, worker morale may improve with the knowledge that they are working in a facility that is helping to improve the environment rather than hurt it. In 2005, USGBC President Richard Fredrizzi went on record as saying that employee productivity in green buildings goes up, on average, 2 to 16 percent. “I believe the smoking gun of green buildings and the reason you’re going to see more of them ... is productivity,” said Fredrizzi.⁷
4. Reduced size of carbon footprints. A company’s carbon footprint is the amount of carbon dioxide and other greenhouse gases it emits on a regular basis as a result of its operations. More and more businesses are making concerted efforts to diminish their footprints. For instance, Fortune 1000 companies (such as Wal-Mart, SC Johnson, 3M, DuPont, Dow and NCR) are working to reduce not only their own carbon footprints, but the contributing effects of their supply chain vendors as well. In its Safety, Health and Environment Policy, SC Johnson lists one of fourteen principles as: “[To] evaluate our operations regularly to reduce Safety, Health and Environment impacts.”⁸
5. Stronger likelihood of attracting investors. In some cases, Wall Street is giving favor to public companies that go green. In a few instances, latitude on stock price has even been granted when the business in question reinvested in environmentally friendly designs or production systems. A June 2008 *Wall Street Journal* article reports, “Sustainability as an investment strategy received a boost from a Style Research study, [which] found oil and utility stocks that reduce their carbon footprints have started to outperform those that don’t.”⁹

6. Increased sales of environmentally friendly products. More than ever, consumer purchasing data indicates that the general public is beginning to buy — or at least consider — more products made by environmentally friendly companies than those made by companies who have not clearly gone green. In a study conducted by enterprise market researchers IRI Inc. and released earlier this year, about half of the U.S. consumers surveyed consider at least one sustainability factor in selecting consumer packaged goods and choosing where to shop. Said IRI Chief Marketing Officer Andrew Salzman, “Sustainability has evolved from a niche segment concern to a major factor influencing purchasing and shopping behavior across a sizable consumer base.”¹⁰

A second myth of sustainable design and development is that it takes too much time. In truth, approaching projects from a green perspective can accelerate job schedules because project stakeholders (such as owners, developers, architects, engineers and contractors) can create a design based on environmentally friendly techniques and components from the beginning rather than trying to work them in later when work is actually in progress. In doing so, they prevent many of the time-consuming conflicts that tend to delay or stall projects.

This notion is supported by Daniel Becker, AIA LEED®, Senior Project Manager with Plunkett Raysich Architects, LLP in Milwaukee. He comments, “By bringing the team together from the beginning, all stakeholders ... you get a more holistic approach to the design process with input from a broad range of people. The traditional process is much more linear than circular. [The] value to the owner is it’s easier to change things and make decisions earlier in the design process than later.”¹¹ In other words, leveraging an integrated approach with the developer, architect and even contractor will yield not only a shorter time to completion and occupancy, but also an overall lower construction cost.

A third myth regarding green building is that the designs and technologies involved are brand new and, thus, untested and expensive. This also is not true. The roots of the current sustainable design and development movement go back further than 1998, when the USGBC established its LEED® standards. It was during the 1987 UN World Commission on Environment and Development when the first definition of the term “sustainable development” was coined as that which “meets the needs of the present without compromising the ability of future generations to meet their own needs.”¹²

In any case, the sustainable features that go into today’s environmentally friendly buildings are hardly unproven “gadgets” but rather improvements and refinements of long-established systems. Examples include downsized, energy-efficient HVAC systems; concrete with slag content or fly ash; carpet with recycled content; low-emitting paint and recycled paint; and certified wood products.¹³

These are cost-saving items, not high-end luxuries. When integrated with a sustainable design, these features not only lower a project’s initial construction costs, but also decrease the building’s long-term operating costs. Additionally, the cost of sustainable building products is coming down. A July 2008 press release on Business Wire noted that “improvements and better pricing for environmentally sustainable materials have many building owners, architects, and facility managers considering significant updates to save cash.”¹⁴ This isn’t entirely unexpected: Go back to June 2006 and you’ll find the Harvard Business Review predicting that green construction will go mainstream within five to ten

years “as a growing market helps to drive down the cost of green building products.”¹⁵

Getting the Project to Market

Those in the construction and real estate industries know all too well that building projects are highly complex endeavors. The process often begins with a developer and an idea. He or she options the land in question to lock it up and then engages an architect to help conceptualize the idea. They then must sell the idea to the local building commission, at which point a myriad of complexities come into play.

What does that have to do with sustainable design and development? Quite simply, as the public's consciousness about the environment grows, along with concern to decrease energy and resource consumption, its political and social portent is driving more communities to give higher priority to green projects and to quickly move them through the development process. Ultimately, this can be good news to real estate developers and other stakeholders who adopt sustainable practices because, in this business, speed to market is critical.

For example, when the Kansas town of Greensburg was devastated by a tornado in May 2007, the community and its local government decided to pass a resolution requiring LEED® Platinum certification for all city buildings larger than 4,000 square feet. In addition, these structures needed to use 42 percent less energy than buildings operating under the current building code. According to an article in the June 2008 *Construction Executive* magazine, “BNIM Architects, Kansas City, Mo., is working with the city to implement a master plan to rebuild Greensburg with economic, social and environmental sustainability principles in mind.”¹⁶

When local governments get behind the planning and development (P&D) process, the advantages for developers and other project stakeholders can be profound. Fewer P&D changes are likely to occur and the job will be less apt to encounter the community group pushbacks that hinder many projects. Moreover, community leaders have an additional incentive to support the job because sustainable projects make them look good to the voting public. Evidence of this enthusiasm is already apparent at the state level. In a January 2008 article posted on its Web site, *Building Design+Construction* magazine reported, “In the first five months of 2007, over one-hundred green building bills were introduced at the state level. ... [In addition,] homeowners are increasing their investment in sustainable housing due to improved economic paybacks resulting from high energy prices and their growing sensitivity to environmental concerns.”¹⁷

Even communities that have been traditionally difficult to develop are getting attention as they create building codes around sustainability while concurrently streamlining the approval process for developers that are program participants. Perhaps the most high-profile example of community involvement is San Francisco, which (as of this writing) is trying to implement a variety of green building codes. One regulation under consideration would require LEED® compliance for new residential high-rises taller than 75 feet, new commercial buildings larger than 5,000 square feet and renovations on buildings larger than 25,000 square feet. According to a March 2008 article in the *San*

Francisco Chronicle, "City officials estimate that by 2012, the new green building codes could reduce carbon dioxide emissions by 60,000 tons and save 220,000 megawatt hours of power and 100 million gallons of drinking water."¹⁸ As of July 2008, the city's Board of Supervisors had not yet approved the codes. Nonetheless, it is more than likely that other hard-to-develop areas will follow suit in one way or another.

For further evidence, one need look no further than Chicago. Its city government recently established the "Chicago Green Homes" program for builders and developers constructing new residential units or renovating existing units within city limits. The program assigns points for every sustainable development and design technique and material used in a given homebuilding project. Following a rigorous review and approval process by the Chicago Department of Environment, the job will receive a Chicago Green Homes Certificate with a one-, two- or three-star rating based on the number of points attained. According to a city press release, "The Chicago Green Homes program is required of all builders and developers who use City financing or land and is voluntary for others."¹⁹

Chicago is also making headlines related to green buildings in its heated, ongoing efforts to bring the 2016 Olympic Games to the city. The Olympic bid committee has gone on record that it is looking for corporate help to build urban "green" centers around the planned sporting venues.²⁰

Assessing the Financial Impact

So what is the relevance of green building's rise to prominence in both small and large communities around the country? Simply this: The practice of sustainable design and development is clearly undergoing a transition from the exception to the rule. And, as it becomes the rule, the true competitors will pass by those who fall behind. Adopting and adapting to green building practices — on the part of everyone from developers to architects to contractors to building owners — will soon no longer be a bold move; it will be a competitive necessity.

To support this assertion, one need look only at the financial impact of sustainable design and development. For starters, green building, by definition, lowers operating costs. After all, the ultimate objective of a sustainable building is to reduce consumption of energy and its related adverse effects on the environment. And as energy costs continue to rise, reducing energy consumption will continue to pay a growing dividend in lower utility bills. Many financial studies and surveys bear this point out, including a recent CNNMoney.com piece reporting, "Lighting, cooling and maintenance make up as much as 85 percent of a building's fifty-year life-cycle cost, and the lion's share of those costs are locked in during the design phase, before any construction begins. So, thinking through costs, benefits, and trade-offs early on has a high leverage factor."²¹

In addition, sustainable building components (such as wall, floor and window coverings) often last longer in an improved environment. This, in turn, lowers maintenance and repair costs. For example, lighter roof colors can prolong roof life and lower HVAC costs, and sustainable landscape designs that curtail fertilizer use can diminish ground "burnout" and lessen the costly need for irrigation.²² There is also the issue of adaptability: How often is a building used for a single purpose throughout its lifetime? According

to the U.S. Department of Energy, “Many of the principles of sustainable design lead to longer building lifetimes and better adaptability of the building for future uses that cannot always be foreseen.”²³

Another way to lessen the financial impact of a sustainable design and development project — and, indeed, increase its profitability or at least mitigate its effect on cash flow — is to look for energy-related tax breaks. The extended provisions of the Energy Tax Incentives Act of 2005, for instance, allow eligible taxpayers to take an immediate deduction for energy-saving improvements to commercial buildings, rather than depreciating the cost. To qualify, the building must be placed in service after Dec. 31, 2005, and before Jan. 1, 2009.

Sustainable design and development: By the numbers

In October 2006, Capital E, a national clean energy technology and green building firm, released a report entitled “Greening America’s Schools: Costs and Benefits.”²⁴ Based on previous years’ studies, the report examined a national review of thirty school construction projects — some sustainable (LEED®-certified) jobs, some not. Among the key data points unearthed by the report:

Average cost premium for all 30 projects:	1.65%
Highest cost premium for a sustainable project:	6.27%
Highest cost premium for a nonsustainable project:	3.99%
Lowest cost premium for a sustainable project:	0.00%
Lowest cost premium for a nonsustainable project:	0.00%

Total estimated cost for “greening”:	\$3*
Total financial benefits of green schools:	\$74**

Net financial benefits of green schools: \$71

**Total estimated cost based on dollars per square foot. **Financial benefits included improvements (in dollars per square foot) in the areas of energy (\$9), emissions (\$1), water and wastewater (\$1), increased earnings (\$49), asthma reduction (\$3), cold and flu reduction (\$5), teacher retention (\$4) and employment impact (\$2).*

On the residential side, contractors are eligible for a \$2,000-per-home tax credit for homes they build that reduce the energy used for heating and cooling by 50 percent over that used in comparable homes. Builders who build manufactured homes can qualify for a \$1,000-per-home tax credit for houses that save 30 percent on heating and cooling costs. The 30-percent savings is not available to builders of site-built houses. Homes must be substantially completed after August 8, 2005, — and sold after December 31, 2005, and before January 1, 2009 — to qualify.

In addition, many communities are considering or have even established special purpose tax increment financing (TIF) for sustainable design and development projects and districts. For example, as of this writing, a proposal to award TIF funds to build city facilities or private buildings that attain the LEED®’s Silver ranking is under review by Pittsburgh’s City Planning Commission.²⁵ Moreover, the Illinois community of Homewood has already established TIF districts as part of its “Go Green Reward” program. The purpose of the program is to “encourage and help business owners located in ... [TIF] Districts to upgrade and implement green initiatives that will benefit the environment.”²⁶

There are other ways to reap immediate financial rewards from a sustainable project. Some municipalities may grant utility abatements for sustainable designs that minimize the impact on community infrastructure, such as waste and storm water treatment. And then there is the practice of carbon credit trading. Here, if a business reduces its carbon emission by one ton, it earns a credit that it can then sell to a heavy manufacturer. Thus, if the manufacturer has an emissions quota of ten tons, but predicts that it will produce eleven tons, it can buy the credit to avoid penalty. In this manner, carbon credits can serve as an annuity to bring in extra revenue.²⁷

Lending is an additional, and often overlooked, aspect of the economic impact of sustainable design and development. How are lenders reacting to the green building phenomenon? Like the rest of the business and financial world, banks are catching on to sustainable projects quickly. In the USGBC's June 2008 "In the News Details," the organization's Manager of Corporate Investment Real Estate, Marc Heisterkamp, said, "There's absolutely an interest nationwide in green-building oriented lending. About a year ago, the investment community really started to embrace green building, both new and existing operations. With that came increased demand on insurance, finance and appraisers to understand the unique nature of these projects and to see if they do have a financial benefit."²⁸

Like many sectors, the lending profession is coming to view sustainable design and development as not so much the future, but the present. As the economic and efficiency benefits of these projects become more pronounced, lenders are giving many green building projects a higher probability of financing, as well as granting those approved faster loan committee approvals and favorable financing terms. In a June 2008 article posted on GlobeSt.com, a commercial real estate news and property resource, one writer reports, "It's not whether or when green buildings will receive more favorable financing. Rather, as many are beginning to suspect, the question is when lenders will begin to judge buildings that are not green as being functionality [sic] obsolete and thus riskier."²⁹

Conclusion

The notion that sustainable design and development is more expensive than traditional building approaches is, if not completely untrue, largely inaccurate. Even in cases where a project might incur a premium to build under the sustainable approach, the long-term benefits in operational and maintenance savings typically far outweigh that initial investment. What's more, as the popularity of environmentally friendly products and practices grows, sustainable design and development will likely become the norm, leaving those who do not keep up with its progress at a significant competitive disadvantage.

About the Authors

Todd A. Carpenter, CPA, is Partner-in-charge of the Construction and Real Estate Services Group at Baker Tilly Virchow Krause, LLP in Madison, Wisconsin. He specializes in providing strategic planning services and tax consulting specific to developers, contractors, investors, and other entities within the real estate and construction industries.

Anthony Ollmann is a Director in the Construction and Real Estate Group at Baker Tilly Virchow Krause, LLP. He has experience in architectural/engineering, construction, real estate, utility and energy sectors with proficiency in strategic planning, construction auditing, needs analysis, package system evaluation, telecommunications, and lean construction techniques.

Footnotes

1. "AEC Industry Continues to Embrace Green Building, But Is It Still Only a Niche?" Building Design+Construction magazine, October 2007, <http://www.bdcnetwork.com/contents/pdfs/07Chapter1.pdf> (accessed July 18, 2008).
2. Gregory H. Kats, "Green Building Costs and Financial Benefits," 2003, <http://www.cap-e.com/ewebeditpro/items/059F3481.pdf> (accessed July 10, 2008).
3. U.S. Department of Energy, "The Economic Benefits of Sustainable Design," http://www1.eere.energy.gov/femp/pdfs/buscase_section2.pdf (accessed July 10, 2008).
4. Constructive Technologies Group Inc., "Green Building and Risk Management for the Built Environment," 2007, http://www.ctg-net.com/content/upload/publications/3/CTG_Risk_Management.pdf (accessed July 10, 2008).
5. Ken Pientka, "Investing in Sustainable Design," Commercial Investment Real Estate, May/June 2004, http://www.ciremagazine.com/article.php?article_id=80 (accessed July 10, 2008).
6. Andrew C. Burr, CoStar Group, "CoStar Study Finds Energy Star, LEED Bldgs. Outperform Peers," March 26, 2008, <http://www.costar.com/News/Article.aspx?id=D968F1E0DCF73712B03A099E099C679> (accessed July 10, 2008).
7. Martin LaMonica, "Selling green buildings with people power," October 28, 2005, http://news.cnet.com/2102-1008_3-5918004.html?hhTest (accessed July 10, 2008).
8. SC Johnson, "SC Johnson North American Product Supply Safety, Health and Environment Policy," March 8, 2005, http://scjohnson.com/products/pdf/Safety_Health_Environment_Policy.pdf (accessed July 10, 2008).
9. Mike Foster and Toby Lewis, "Green funds gain interest," Wall Street Journal, June 12, 2008.
10. IRI Information Resources Inc., "IRI Study Finds Sustainability an Emerging Key to Product and Store Selection," January 8, 2008, http://us.infores.com/page/news/pr/pr_archive?mode=single&prid=246 (accessed July 10, 2008).
11. Dan Becker, interview by Julie A. Peroutka, May 12, 2008.
12. Building Design+Construction, "White Paper on Sustainability," November 2003, U.S. Green Building Council Web site: <http://www.usgbc.org/Docs/Resources/BDCWhitePaperR2.pdf> (accessed July 10, 2008).
13. U.S. Department of Energy, "The Economic Benefits of Sustainable Design."
14. Business Wire, "Free Cash For Your Green Building, According To SourceCorp," July 16, 2008, <http://biz.yahoo.com/bw/080716/20080716005038.html?.v=1> (accessed July 18, 2008).
15. BCC Research, "The U.S. Market for 'Green' Building Materials," Sept. 1, 2006, <http://www.marke-research.com/product/display.asp?productid=1354472&g=1> (accessed July 18, 2008).

16. Joanna Masterson, "Metropolitan Makeovers: Comprehensive Urban Construction Projects Aim To Boost Prosperity, Invigorate Neighborhoods," Construction Executive magazine, June 2008, 20-28.
17. Building Design+Construction, "Construction Industry Viewpoint: Green Building Is 'Good,'" January 28, 2008, <http://www.bdcnetwork.com/index.asp?layout=articlePrint&articleID=CA6526199> (accessed July 10, 2008).
18. Cecilia M. Vega, "S.F. moves to greenest building codes in U.S.," San Francisco Chronicle, March 20, 2008.
19. City of Chicago, "Mayor Daley Kicks Off Green Building Month," October 23, 2007, http://www.cityofchicago.org/city/webportal/portalContentItemAction.do?contentTypeName=COC_EDITORIAL_topChannelName=HomePage&contentOID=536962516 (accessed July 10, 2008).
20. Kathy Bergen, "Chicago's Olympic bid goes for green," Chicago Tribune, June 26, 2008
21. Joel Makower, "The confounding complexities of building green," August 31, 2007, http://money.cnn.com/2007/08/31/technology/makower_buildinggreen/index.htm (accessed July 10, 2008).
22. U.S. Department of Energy, "The Economic Benefits of Sustainable Design."
23. U.S. Department of Energy, "The Economic Benefits of Sustainable Design."
24. Gregory Kats, "Greening America's Schools: Costs and Benefits," October 2006, <http://www.cap-e.com/ewebeditpro/items/O59F11233.pdf> (accessed July 18, 2008).
25. Rich Lord, "City to reward those who are going green," Pittsburgh Post-Gazette, November 20, 2007.
26. Village of Homewood, Illinois, "Go Green Reward Program," http://village.homewood.il.us/pdfs/Go_Green_Reward.pdf (accessed July 10, 2008).
27. Investopedia definition of "Carbon Credit," http://www.investopedia.com/terms/c/carbon_credit.asp (accessed July 10, 2008).
28. Matt Hudgins, "Banks Cultivate Green Loans," National Real Estate Investor, June 2, 2008, U.S. Green Building Council Web site: "USGBC In the News Details," <http://www.usgbc.org/News/USGBCInTheNewsDetails.aspx?ID=3719> (accessed July 10, 2008).
29. Erika Morphy, "Green Buildings Expected to Receive Lower Financing," June 22, 2008, http://www.globest.com/news/1179_1179/insider/171766-1.html?type=pf (accessed July 10, 2008).