

# 1. The New Reality of Green Building

A dramatic shift has been taking place in the green building movement in the last couple of years. As recently as three or four years ago, the feasibility of designing and constructing projects under the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) rating program was in doubt. Except for a cadre of early adopters (representing perhaps 10-15% of architecture, engineering, and construction firms<sup>1</sup>), most AEC professionals were skeptical about three crucial issues:

- 1 Whether green buildings could achieve the energy and environmental goals called for under LEED and other building rating programs.\*
- 2 Whether the building products and materials needed to meet those goals would be available, at what cost, and at what quality and performance levels.
- 3 Whether green buildings would cost more to build than comparable "conventional" buildings, and, if so, how much more.

In recent years, all three of these concerns have largely been put to rest. As to the first, more and more Building Teams have moved up the learning curve and are routinely producing sustainable projects with energy savings in the 20-30% range compared to industry standards. Performance gains for site planning, water conservation, indoor environmental quality, and materials and product selection are also becoming the norm.

Today, most Building Teams with a reasonable degree of experience in sustainable design and construction should be able to achieve a basic rating under LEED, Green Globes, or Energy Star for most routine projects—say, a mid-rise office building, a K-4 school, or a university classroom building.

Turning to the second area of concern, one reason why it's easier to build green is that more "environmentally preferable" products and materials have become available in the last few years. If anything, building product manufacturers have been falling over themselves to come up with green product lines—for paints, finishes, carpet, windows, furniture, roofing, glass, plumbing fixtures, lighting, and cladding.

As a result, Building Teams should easily be able to

specify 90-95% of the basic green products and materials they need for their jobs, usually at prices competitive with conventional products.

That leaves the issue of "first cost."

The launch of LEED for New Construction in 2000 was accompanied by dire predictions in some quarters of the construction industry that LEED buildings could cost 20-25% more than conventional buildings. Federal agencies, state and local governments, and private owners and developers were justifiably horrified that Building Teams would jack up their bids to meet LEED requirements, wreaking havoc on project budgets.

To a great extent, these fears have been calmed by a series of groundbreaking research studies:

■ In late 2003, Greg Kats and others released a study showing that the average construction premium for a sample of 33 LEED buildings across the country was 1.84%. For the eight LEED Certified buildings in the study, the premium was only 0.66%; for 18 LEED Silver buildings, 2.11%; for six LEED Golds, 1.82%; for one LEED Platinum, 6.50%.<sup>2</sup> The "Kats Study" was widely reported in the professional media and went far to allay fears of double-digit cost overruns for green buildings.

■ A year later, Lisa Fay Matthiessen and Peter Morris, of real estate consultant Davis Langdon, used their firm's proprietary database of construction projects to compare the cost of 45 buildings seeking LEED certification against 93 conventional buildings. They concluded that "many projects achieve sustainable design within their initial budget, or with very small supplemental funding." Further, "the costs per square foot for buildings seeking LEED certification fall into the existing range of costs for buildings of similar program type."<sup>3</sup>

■ Later 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 courthouse. The added cost for renovating a government office building would range from 1.4% (for a LEED Certified project with minimal façade work) to 8.2% (for a LEED Gold with minimum façade work). The GSA also cited additional "soft" costs ranging from \$0.41-0.80/sf for LEED-related requirements that went beyond GSA's standard project scope.<sup>4</sup>

Equally calming was a growing body of evidence that

\*Note to readers: Except where noted, the term "green buildings" will be used interchangeably to refer to high-performance buildings in general or specifically to those certified by LEED, Green Globes, or Energy Star.

more-experienced Building Teams, using integrated design and off-the-shelf solutions—such as low-e glazing, “cool” or vegetated roofs, energy-conserving lighting, dual-flush toilets, low-demand landscaping, and gray-water irrigation—could readily bring in even the most sophisticated projects at a cost owners and developers could be happy with.

As a result, showcase green projects for influential corporate owners—blue-ribbon companies like ABN AMRO, Bank of America, Ford Motor Company, General Motors, Honda, PNC Financial Services, Reuters, Starbucks, Swiss Re, Toyota, and Whole Foods—were coming in at, near, and sometimes even below cost projections.

So, with those three obstacles for the most part out of the way, what happened in the last year or two to signal a “new reality” for the green building movement?

What happened is that the financial sector of the real estate industry, heretofore a casual bystander, suddenly woke up to green building—not necessarily because its members had miraculously developed an insatiable urge to save the planet, but because they had begun to see a viable new investment opportunity.

In a market that has been flooded with cash, and amid a growing body of evidence that green buildings might in fact have some quantifiable advantages over “conventional” buildings, developers, property investors, building owners, brokers, appraisers, lenders, banks, property insurers, real estate investment trusts, and pension funds started to open their eyes—and their pocketbooks—to the green building movement.

This shift in theme for the green building movement, from environmental cause to financial opportunity, is the focus of this White Paper.

## Some key questions to be addressed in this White Paper ...

- Are green buildings more profitable—and therefore more valuable—than conventional buildings?
- Do green buildings “lease up” more quickly—or at a higher rate per square foot—than other buildings?
- Do green buildings have reduced liability risk?
- Should green buildings enjoy lower insurance rates?
- Do green buildings create marketing or public relations opportunities for developers and owners?
- Are green buildings a factor in employee recruitment and retention for tenants?
- Are green buildings healthier for occupants than conventional buildings?

## ... and how the ‘New Reality’ applies to specific building types

- **Office buildings:** Do green office buildings maximize profits for their developers? Do they enhance employee job performance? Do green buildings lease up faster?
- **Retail shopping:** Do daylighting and better indoor air quality add to sales per square foot?
- **Hotels:** Are green hotels healthier for guests? Will guests pay more for that benefit?
- **Restaurants:** Do green restaurants enhance diner satisfaction? Do they save energy?
- **Housing:** Do green homes sell faster and at a higher price?
- **Industrial buildings:** Do green factories enhance worker productivity? Reduce sick leave?
- **Healthcare:** Do green hospitals result in better patient outcomes?
- **Universities:** Do green campuses serve as a draw for the best and brightest students?
- **Schools:** Do student test scores go up in green schools? Does improved indoor environmental quality reduce the incidence or effect of asthma or allergies?
- **Government:** Should cities require certification for private-sector projects?

<sup>1</sup>In 2003, only 9% of BD+C White Paper Survey respondents rated their firms “very experienced” in sustainable projects, and only 11% had actually certified a green project. *BD+C White Paper on Sustainability (2003)*, p. 15.

<sup>2</sup>*The Costs and Financial Benefits of Green Buildings: A Report to California’s Sustainable Building Task Force*,” Greg Kats, Leon Alevantis, Adam Berman, Evan Mills, and Jeff Perlman, October 2003. [http://eetd.lbl.gov/emills/PUBS/PDF/Green\\_Buildings.pdf](http://eetd.lbl.gov/emills/PUBS/PDF/Green_Buildings.pdf)

<sup>3</sup>*Costing Green: A Comprehensive Cost Database and Budgeting Methodology*,” Lisa Fay Matthiessen and Peter Morris, Davis Langdon, September 2004. [www.davislangdon-usa.com/pdf/USA/2004CostingGreen.pdf](http://www.davislangdon-usa.com/pdf/USA/2004CostingGreen.pdf)

<sup>4</sup>*GSA LEED Cost Study: Final Report*,” Steven Winter Associates Inc., October 2004. [www.wbdg.org/cdb/GSAMAN/gsaleed.pdf](http://www.wbdg.org/cdb/GSAMAN/gsaleed.pdf)