



## Costs and Benefits of Green Building

- The definitive study on costs and financial benefits of green building, which analyzed 40 individual LEED-registered buildings (32 offices and 8 schools) found the average development cost premium to be slightly less than 2 percent of total development cost. The report found that the financial benefits associated with lower energy, waste, water, environmental, operations and maintenance costs, plus increased productivity, and health were 10 times the additional cost.

“For example, an initial upfront investment of up to \$100,000 to incorporate green building features into a \$5 million project would result in a savings of at least \$1 million over the life of the building, assumed conservatively to be 20 years.” (Kats, et. al., *The Costs and Financial Benefits of Green Buildings*, October 2003).
- A recent survey by Turner Construction found that 84 percent of executives involved with green building believe that green construction yields higher property values. Furthermore, 75 percent of those executives said their green properties earned a higher return on investment than non-green buildings. (Turner Construction, *Green Buildings: Building the Future*, 2004.)
- Clean and healthy buildings can reduce legal claims and liabilities for building owners regarding such issues as mold. Some experts believe insurance companies soon will link lower premiums to high-performance buildings. (Kozlowski, “Can Green Be Gold?” *Building Operating Management*, September 2001.)
- The U.K.-based Royal Institution of Chartered Surveyors (RICS) which represents and promotes the work of 110,000 property professionals in 120 countries, released a study of greener buildings that reveals a clear link between the market value of real estate and its environmental friendliness. RICS’ study found that green buildings can earn higher rents and prices; attract tenants and buyers more quickly; cut tenant turnover; cost less to operate and maintain; and benefit occupiers. The study also found that green buildings can attract grants, subsidies and other inducements to do with environmental stewardship, increasing energy efficiency and lessening greenhouse gas emissions; improve business productivity for occupants, affecting churn, renewals, inducements and fitting out costs amongst others resulting from business productivity benefits; and benefit occupants more than the underlying asset cost or value. (RICS, *Green Value: Growing Buildings Growing Assets*, 2005).
- Other recent research suggest that modestly more compact development patterns have the potential to reduce state and local governments’ capital facilities costs (especially for roads and water/sewer lines), reduce the costs of delivering services and improve regional economic performance. (Muro and Puentes, *Investing in a Better Future: The Fiscal Advantages of Smarter Growth Development Patterns*, March 2004.)



**In terms of affordable housing:**

The best analysis to date looked at 16 green affordable developments around the country. Total development costs were 18 percent below to 9 above the costs for comparable conventional affordable housing. The average "green premium" was 2.4 percent. These incremental costs are largely due to increased construction, as opposed to design, costs.

**The report found that:**

From a life-cycle net present value perspective, the case studies show that the benefits of green affordable housing are real and, in some cases, substantial. In virtually all the cases, energy and water utility costs are lower than their conventional counterparts. In many cases, decreased operating expenditures alone more than pay for the incremental initial investment in greening the project in present value terms. The use of more durable materials and equipment in several of the case study projects result in reduced replacement costs and provide additional life-cycle financial benefits. Moreover, the value of improved comfort and health for residents, as well as reduced environmental impacts, is substantial, although not captured quantitatively in our analyses.

**The report noted that:**

While the case studies presented in this report demonstrate that life-cycle green building benefits exceed costs in almost all cases, those economic impacts are not the same for all parties. Developers, owners and residents experience different life-cycle costs and benefits of green affordable housing. In five of the 16 case studies, developers received net benefits from greening, in two cases greening the project had no net financial effect on the developers, while in nine cases the developers experienced net losses relative to investing in comparable conventional projects.

For residents of affordable housing units, the life-cycle financial outcome is almost always positive, ranging from a NPV of -\$140 to \$59,861 per unit. In 14 of the 16 cases owners/residents receive a net benefit from greening; in one case, there is no impact on the financial condition of residents, since they are not responsible for any of the utility costs; and in one case residents experience higher net costs from greening, though the project developer attributes this to anomalies in project design and resident demographics. (Bradshaw et. al, *The Costs and Benefits of Green Affordable Housing*, 2005.)



- As of August 2005, Enterprise's Green Communities initiative had provided \$168 million in grants, loans and equity to fund 61 developments with a total of 3,500 homes. It will be another year or two before Enterprise has definitive data from completed projects that compares the development costs of Green Communities and conventional affordable housing projects. Enterprise's initial assessment indicates that, on average, total development costs rise about 2 percent to 3 percent for developers who meet the Green Communities Criteria. That amounts to about \$2,000 to \$5,000 per unit for multifamily developments. Single-family projects have incurred slightly higher incremental costs.

While most of these developments will not be built and occupied for at least a year, Enterprise tentatively projects benefits they will generate. Low-income families and apartment managers will save up to \$1.2 million in energy bills (about \$350 per unit). More than 4 tons of greenhouse gas emissions will be avoided. Reduced water use will save 25 million gallons, enough to provide water for an entire year for nearly 1,000 households.

- State and local housing agencies are increasingly providing incentives for affordable housing developers to incorporate sustainable practices. For example, Enterprise's survey of every state's 2005 allocation plan for Low Income Housing Tax Credits found that many states encourage developers to meet some standard of energy and/or water efficiency, utilize sustainable, durable materials, and ensure proximity to services and amenities. A smaller number of states are taking a more holistic approach that emphasizes strong conservation, healthy homes and smart site location approaches. A number of states adopted stronger green building policies in their 2006 tax credit allocation plans.