The Cost of Building Green

Data & Analysis

The following reports analyze the costs of green building. Although not every report contains a solid number, all authors agree that there is little or no cost to green building. The absence of a concrete cost number in many is due to the diversity of choices one can make in the design of green buildings.

"The Cost and Financial Benefits of Green Building"

Greg Kats, Capital-E, October 2003

http://www.calrecycle.ca.gov/greenbuilding/Design/CostBenefit/Report.pdf

This report confirms that minimal increases in upfront costs of about 2% to support green design would, on average, result in life cycle savings of 20% of total construction costs -- more than ten times the initial investment.

"Costing Green: A Comprehensive Database and Budgeting Methodology"

Lisa Matthiessen, Peter Morris, Davis Langdon, 2004

http://www.davislangdon.us/upload/images/publications/USA/2004%20Costing%20Green%20Comprehensive%20Cost%20Database.pdf

From this analysis we conclude that many projects achieve sustainable design within their initial budget, or with very small supplemental funding. This suggests that owners are finding ways to incorporate project goals and values, regardless of budget, by making choices.

"What Does Green Really Cost?"

Peter Morris, Davis Langdon, 2007

http://www.davislangdon.com/upload/images/publications/USA/Morris%20Article.pdf

Most of the studies that use this methodology report average green premiums in the range of 1% to 2% to achieve a moderate level of sustainable design, generally equivalent to a LEED Silver rating. Higher levels of sustainability are usually linked to higher green premiums, although the small population of such buildings available for analysis takes statistical calculations impractical. It should also be noted that though the studies show average premiums of 1% to 2%, closer analysis of the data shows that a significant number of projects—often in excess of 50% of the population—report no increase in cost over the budget to incorporate sustainable features.

"The Cost of Green Revisited: Reexamining the Feasibility and Cost Impact of Sustainable Design in the Light of Increased Market Adoption"

Lisa Matthiessen, Peter Morris, Davis Langdon, 2007

http://www.davislangdon.com/upload/images/publications/USA/The%20Cost%20of%20Green%20Revisited.pdf

There is no significant difference in average costs for green buildings as compared to non-green buildings. Many project teams are building green buildings with little or no added cost, and with budgets well within the cost range of non-green buildings with similar programs.

"The Cost and Benefit of Achieving Green Buildings"
Davis Langdon, 2007
http://www.davislangdon.us/upload/StaticFiles/AUSNZ%20Publications/Info%20Data/InfoData_Green_Buildings.pdf

Our research indicates that at present, the initial impact on construction costs (above comparable non Green projects) is likely to be in the order of 3 – 5% for a 5 Star solution, with an impact of a further 5% plus for a 6 Star non iconic design solution.

"LEED Cost Study"
Prepared for the U.S. General Services Administration, 2004
http://www.wbdg.org/newsevents/news_040105.php

The study concludes that cost premiums for federal courthouses and office buildings could range from about 1% to 8%, depending on the level of LEED achieved.

"Sustainability Offices"
Simon Rawlinson, Davis Langdon, 2007
http://www.davislangdon.com/EME/Research/ResearchFinder/SustainabilityPublications/SustainabilityOffices_Jan07

Additional cost found in a case study was equivalent to about 6% of the total cost of the development, including fit-out.

"A Business Case for Green Buildings in Canada"
Prepared for Industry Canada, 2005
http://www.cagbc.org/uploads/A%20Business%20Case%20for%20Green%20Bldgs%20in%20Canada.pdf

Agree with the general consensus of these studies is that green buildings cost around 2% more to design and construct. The report also concludes that the net present values for pursuing green buildings instead of conventional buildings range from 50 to 400 $/ ft^2 (540 to 4300 $/m2) dependent on the length of time analyzed (20 to 60 years) and the degree to which the buildings employ green strategies.

"Greening America's Schools, Cost and Benefits"
Gregory Kats, October 2006
http://www.chartwell.org/UserFiles/File/Greening_America_s_Schools.pdf

This national review of 30 green schools demonstrates that green schools cost less than 2% more than conventional schools - or about $3 per square foot ($3/ft2) but also provide savings of about $70 per ft2, 20 times as high as the cost of going green.

"Benefits Guide: A Design Professionals Guide to High Performance Office Building Benefits"
Cathy Higgins, Mark Jewell, Jeffery A. Johnson, Jerry Yudelson, Advanced Buildings, 2004
http://www.advancedbuildings.net/documents/ABbenefitsguide.pdf

An Extensive construction cost survey of over 100 buildings found that the majority of projects achieved "sustainable" building goals within their initial budget, or with very little additional funding. The report also cites an estimate made by the Hines Development Corp that buildings cost $0.45-$1.30/ft2 above conventional costs as well as Kats' and Matthiessen's report estimating an increase in costs by 0-2%. The report also states that buildings may achieve savings of 40% more than traditional building design.

"Green City Buildings: Applying the LEED Rating System"
Prepared by XENERGY and SERA Architects
http://www.serapdx.com/resource/publ/Green%20City%20Buildings.pdf

This report targets three Portland buildings and concludes that the initial costs to redesign existing buildings would range from 0.3-1.3% and achieve lifecycle savings of about 15% of original building costs.

"Energy Efficiency in Buildings"
World Business Council for Sustainable Development
http://www.wbcsd.org/DocRoot/qUjY7w54vY1KncL32OVQ/EEB-Facts-and-trends.pdf

Respondents to a 1400 person global survey estimated the additional cost of building green at 17 percent above conventional construction, more than triple the true cost difference of about 5 percent with a 50% reduction in energy demand. The costs can reach almost 10% above conventional construction at the highest LEED certification level.

"Added Cost of Greening a New Home"
NAHB Research Center
http://www.toolbase.org/PDF/CaseStudies/LCCTC_Added_Cost_Greening_New_Home.pdf

Investigates the efficiency and costs of a new home in Lancaster County designed to achieve the Silver Level through the National Green Building Standards. Additional costs of 17% ($17/ft^2) of the construction costs were incurred in the construction process. Estimate that cost could have been cut in half and still achieved a silver level rating

"Green Building Costs and Financial Benefits"
Gregory Kats, 2003
http://sustainability.unc.edu/Portals/0/Documents/GB%20Costs%20and%20Financial%20Benefits%20-%20Kats.pdf

The cost of green building has dropped and is now on average just under 2% ($3-4/ ft^2) more than traditional construction. The percentage can range from 0.66% to 6.5% more.

"White Paper on Green Building"
North American Insulation Manufacturers Association Wood Promotion Network
http://www.leedbuilding.org/Docs/Resources/BDCWhitePaperR2.pdf

Green buildings cost about 2.5%-7% more to construct than traditional designs.

"Costs and Benefits Fact Sheet"
Prepared by the U.S. Green Buildings Council
http://cascadiagbc.org/resources/green-facts-sheet/

There is a premium, studies are showing that they are in the range of 0.7 – 7% (an average of $4/sq ft) and that the Return On Investment for these measures is often between $50 – $65/sq ft.