



# The Business Case for Green Building

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## FOR COMMERCIAL BUILDING OWNERS

### Overall Trends

- The top two reasons for building green: client demand (35%) and market demand (33%).<sup>1</sup>
- Between 2008 and 2012, there was dramatic growth in the percentage of firms that built green to achieve lower operating costs (increased to 30% from 17%) and to gain a branding/public relations advantage (increased to 30% from 22%).<sup>2</sup>

### Competitive Differentiator

- LEED-certified buildings with lower operating costs and better indoor environmental quality are more attractive to a growing group of corporate, public and individual buyers. High performing building features will increasingly enter into tenants' decisions about leasing space and into buyers' decisions about purchasing properties and homes.
- 61% of corporate leaders believe that sustainability leads to market differentiation and improved financial performance<sup>3</sup>
- A study showed that employees working in the LEED-certified branches of a financial institution were found to be "more productive and engaged in their work<sup>4</sup>."

### Mitigate Risk

- LEED certification can provide some measure of protection against future lawsuits through third-party verification of measures installed to protect indoor air quality, beyond just meeting code-required minimums.
- Faster permitting or special permit assistance can also be considered a type of risk mitigation.

### Attract Tenants

- Today's tenants understand and are looking for the benefits that LEEDcertified spaces have to offer. The new Class A office space is green; leaseup rates for green buildings typically range from average to 20 percent above average<sup>5</sup>.

### Cost Effective

- The cost per square foot for buildings seeking LEED certification falls into the existing range

of costs for buildings not seeking LEED certification, according to a 2007 report<sup>6</sup>.

- An upfront investment of 2% in green building design, on average, results in life cycle savings of 20% of the total construction costs – more than ten times the initial investment<sup>7</sup>. As recently as 2010, it has been shown that this cost pattern continues in New York City<sup>8</sup>.
- Owners of green projects reported<sup>9</sup>:
  - ROI improved by 19.2% on average for existing building green projects and 9.9% on average for new projects;
  - Operating costs decreased by 13.6% for new construction and 8.5% for existing building projects;
  - Building value increased by 10.9% for new construction and 6.8% for existing building projects;
  - Companies are finding that they can achieve revenue or job growth while maintaining a high environmental and social impact<sup>10</sup>.
- Increased asset valuation:
  - New green building projects - 5%
  - Green building retrofits - 4%<sup>11</sup>.
- Number of years until payback is expected:
  - New green building projects - eight years
  - Green building retrofits - seven years<sup>12</sup>.
- A study of a financial institution found that:
  - Annual utilities cost per employee in green facilities was \$675.26 lower than in non-green facilities.
  - Using LEED-certified buildings increases revenue generated by bank branches even when they offer the same products and services<sup>13</sup>.
  - A recent study found that companies that voluntarily follow international environmental standards are associated with higher labor productivity—an average of 16% higher—than non-green firms<sup>14</sup>.

## **Increase Rental Rates**

- Green building owners reported an increase in occupancy by 6.4% for new construction and 2.5% for existing building projects<sup>15</sup>.
- A recent study of the San Diego market showed that the overall vacancy rate for green buildings was 4 percent lower than for non-green properties—11.7 percent, compared to 15.7 percent—and that LEED-certified buildings continued to command the highest rents<sup>16</sup>.

## **FOR COMMERCIAL BUILDING TENANTS**

### **Happier Employees & Occupants**

- Green building owners reported an increase in occupancy by 6.4% for new construction and 2.5% for existing building projects<sup>17</sup>.
- People in the U.S. spend about 90% of their time indoors<sup>18</sup>. EPA studies indicate indoor levels of pollutants may be up to ten times higher than outdoor levels<sup>19</sup>. LEED-certified buildings are designed to have healthier, cleaner indoor environmental quality, which means health benefits for occupants.
- An experiment identifies a link between improved lighting design and a 27% reduction in the incidence of headaches, which accounts for 0.7% of the overall cost of employee health insurance<sup>20</sup>. This equals approximately \$70 per employee annually<sup>21</sup>.
- Significant associations exist between low ventilation levels and higher carbon dioxide concentrations – a common symptom in facilities with sick building syndrome<sup>22</sup>.
- In terms of health care costs, building retrofits which improved the indoor environment of a building resulted in reductions of: communicable respiratory diseases of 9-20%; allergies and asthma of 18-25%; and non-specific health and discomfort effects of 20-50%<sup>23</sup>.

- LEED-certified buildings are also demonstrating increased recruitment and retention rates and increased productivity benefits for employers. 2.5 million employees are currently experiencing better indoor environmental quality in LEED buildings. This group of employees is expected to exceed 21 million by 2030, resulting in an economic value of \$90 billion from increased productivity<sup>24</sup>.
- LEED-certified buildings are found to enhance worker productivity and reduce absenteeism<sup>25</sup>.
- Office workers with the best possible view, as opposed to no view, performed 10% to 25% better on tests of mental function and memory recall<sup>26</sup>.

## **Public Relations & Community Benefits**

- Being a good neighbor is appropriate not just for building users, but for the larger community. LEED-certified buildings fit right in with this message. Adobe Systems, Inc., a major software maker, announced in 2006 that it had received three LEED Platinum awards for its headquarters towers; not only did it reap great publicity, but the firm showed that it had garnered a net present value return of almost 20 to one on its initial investment.
- 75% of firms view sustainability as consistent with their profit missions. • 73% of corporate leaders expect to attract and retain customers as a direct result of their sustainability efforts<sup>27</sup>.

## **Lower Operating Costs**

- LEED-certified buildings cost less to operate and maintain. There are also tax benefits and incentives available for green buildings and green building strategies available.

## **Immediate & Measurable Results**

- LEED-certified buildings provide immediate and measurable results for building managers and occupants.
- Benchmarking energy and water use is a critical tactic that is saving companies millions of dollars, year over year, simply by reducing costs through saved energy, water and other resources.

## **Saves Energy**

- Reducing energy consumption has gone from being a "good idea" to a business necessity. It's not just that energy conservation has a positive lifecycle cost impact, but also that it offers a direct reduction in an organization's "carbon footprint." A number of studies have shown that energy conservation not only also offers a positive "life-cycle-cost" investment, but that it's the most cost-effective way to lower society's carbon dioxide output.

<sup>1</sup>McGraw Hill Construction (2012). World Green Buildings Study. Accessed Nov. 29, 2012 via <http://analyticsstore.construction.com/index.php/2012-world-green-building-trends-key-facts.html>

<sup>2</sup>McGraw Hill Construction (2012). World Green Buildings Study. Accessed Nov. 29, 2012 via <http://analyticsstore.construction.com/index.php/2012-world-green-building-trends-key-facts.html>

<sup>3</sup>McGraw Hill Construction (2010). Green Outlook 2011: Green Trends Driving Growth.

<sup>4</sup>Conlon, E. and Glavas, A. (2012). The Relationship Between Corporate Sustainability and Firm Financial Performance. Accessed March 27, 2012 via [business.nd.edu/uploadedFiles/Conlon%20and%20Glavas%202012.pdf](http://business.nd.edu/uploadedFiles/Conlon%20and%20Glavas%202012.pdf)

<sup>5</sup>Miller, N. (2010). Does Green Still Pay Off? [www.costar.com/josre/pdfs/DoesGreenStillPayOff.pdf](http://www.costar.com/josre/pdfs/DoesGreenStillPayOff.pdf)

<sup>6</sup>Kats, G. (2003). The Costs and Financial Benefits of Green Buildings: A Report to California's Sustainable Building Task Force.

<sup>7</sup>Davis Langdon (2007). Cost of Green Revisited: Reexamining the Feasibility and Cost Impact of Sustainable Design in the Light of Increased Market Adoption.

<sup>8</sup>Davis Langdon (2007). Cost of Green in New York City. Accessed Nov. 7, 2011

via [www.davislangdon.com/USA/Research/ResearchFinder/Cost-of-Green-in-New-York-City/](http://www.davislangdon.com/USA/Research/ResearchFinder/Cost-of-Green-in-New-York-City/).

<sup>9</sup>McGraw Hill Construction (2010). Green Outlook 2011: Green Trends Driving Growth.

<sup>10</sup>Conlon, E. and Glavas, A. (2012). The Relationship Between Corporate Sustainability and Firm Financial Performance. Accessed March 27, 2012 via [business.nd.edu/uploadedFiles/Conlon%20and%20Glavas%202012.pdf](http://business.nd.edu/uploadedFiles/Conlon%20and%20Glavas%202012.pdf)

<sup>11</sup>McGraw Hill Construction (2012). World Green Buildings Study. Accessed Nov. 29, 2012 via <http://analyticsstore.construction.com/index.php/2012-world-green-building-trends-key-facts.html>

<sup>12</sup>McGraw Hill Construction (2012). World Green Buildings Study. Accessed Nov. 29, 2012 via <http://analyticsstore.construction.com/index.php/2012-world-green-building-trends-key-facts.html>

<sup>13</sup>Conlon, E. and Glavas, A. (2012). The Relationship Between Corporate Sustainability and Firm Financial Performance. Accessed March 27, 2012 via [business.nd.edu/uploadedFiles/Conlon%20and%20Glavas%202012.pdf](http://business.nd.edu/uploadedFiles/Conlon%20and%20Glavas%202012.pdf)

<sup>14</sup>Delmas, Magali A. and Pekovic, Sanja (2012). Environmental standards and labor productivity: Understanding the mechanisms that sustain sustainability. Accessed Sept. 26, 2012 via <http://onlinelibrary.wiley.com/doi/10.1002/job.1827/pdf>

<sup>15</sup>McGraw Hill Construction (2010). Green Outlook 2011: Green Trends Driving Growth.

<sup>16</sup>CBRE Global Research and Consulting (2012). Global Market View - Q2 2012. Accessed Sept. 25, 2012 via <http://www.cbre.com/AssetLibrary/Global-MV-2Q12.pdf>

<sup>17</sup>McGraw Hill Construction (2010). Green Outlook 2011: Green Trends Driving Growth.

<sup>18</sup>Environmental Protection Agency (1987). The Total Exposure Assessment Methodology (TEAM) Study.

<sup>19</sup>Environmental Protection Agency (2008). An Introduction to Indoor Air Quality. Accessed via: [www.epa.gov/iaq/voc.html](http://www.epa.gov/iaq/voc.html).

<sup>20</sup>Aaras, A. et al. (1998). Applied Ergonomics. Musculoskeletal, Visual and Psychosocial Stress in VDU Operators Before and After Multidisciplinary Ergonomic Interventions, p. 335-354.

<sup>21</sup>Business Insurance (2011). Group health care costs rise 6.1%. Accessed Nov. 30, 2011 via [www.businessinsurance.com/article/20111116/NEWS03/111119928](http://www.businessinsurance.com/article/20111116/NEWS03/111119928).

<sup>22</sup>Lawrence Berkeley National Laboratory (2002). Indoor Carbon Dioxide Concentrations and Sick Building Syndrome Symptoms in the Base Study Revisited: Analyses of the 100 Building Dataset.

<sup>23</sup>Fisk, William J. (2000). Health and Productivity Gains from Better Indoor Environments and their Implications for the U.S. Department of Energy. Accessed Sept. 24, 2012 via <http://energy.lbl.gov/ie/viaq/pubs/lbnl-47458.pdf>

<sup>24</sup>Watson, Rob. Green Building and Market Impact Report – 2011. Accessed Nov. 15, 2011 via [www.greenbiz.comhttp://www.usgbc.org/sites/all/themes/greenbiz/doc/GBMIR\\_201](http://www.greenbiz.comhttp://www.usgbc.org/sites/all/themes/greenbiz/doc/GBMIR_201)

<sup>25</sup>Singh, Syal, Grady, Korkmaz (July 15, 2010). Michigan State University. American Journal of Public Health.

<sup>26</sup>Heschong Mahone Group, Inc. (2003). Windows and Offices: A Study of Office Worker Performance and the Indoor Environment –CEC Pier 2003. Accessed Nov. 22, 2011 via h-m-

g.com/projects/daylighting/summaries%20on%20daylighting.htm.

<sup>27</sup>McGraw Hill Construction (2010). Green Outlook 2011: Green Trends Driving Growth.

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**Lawrence Weber**

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