



GREEN BUILDING FACTS

The overall green building market (both non-residential and residential) is likely to more than double from today's \$36-49 billion to \$96-140 billion by 2013¹

The value of green building construction is projected to increase to \$60 billion by 2010²

The construction market accounts for 13.4% of the \$13.2 trillion U.S. GDP³

Market Impact

- The green market was 2% of non-residential construction starts in 2005; 10-12% in 2008; and will grow to 20-25% by 2013⁴.
- Comprises 13.4% of the \$13.2 trillion U.S. GDP. This includes all commercial, residential, industrial and infrastructure construction. New commercial and residential building construction constitutes 6.1% of the GDP⁵.

Energy

- Buildings represent 38.9% of U.S. primary energy use (includes fuel input for production)⁶.
- Buildings are one of the heaviest consumers of natural resources and account for a significant portion of the greenhouse gas emissions that affect climate change. In the U.S., buildings account for 38% of all CO2 emissions⁷.
- Buildings represent 72% of U.S electricity consumption⁸.

Water

- Buildings use 13.6% of all potable water, or 15 trillion gallons per year⁹.

Materials

- Buildings use 40% of raw materials globally (3 billion tons annually)¹⁰.
- The EPA estimates that 170 Million tons of building-related construction and demolition (C&D) debris was generated in the U.S. in 2003, with 61% coming from nonresidential and 39% from residential sources¹¹.
- The EPA estimates that 209.7 million tons of municipal solid waste was generated in the U.S. in a single year¹².

Sectors Expected to Have Green Building Growth¹³

- Education
- Government
- Industrial
- Office
- Healthcare
- Hospitality
- Retail

What's Driving Green Building?

These factors are expediting the growth of green building¹⁴:

1. Unprecedented level of government initiatives
2. Heightened residential demand for green construction

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3. Improvements in sustainable materials.

Why Build Green? *Building green saves money*

- The cost per square foot for buildings seeking LEED Certification falls into the existing range of costs for buildings not seeking LEED Certification¹⁵.
- 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 investment¹⁶.
- Building sale prices for energy efficient buildings are as much as 10% higher per square foot than conventional buildings¹⁷.
- Estimated Value of green construction starts¹⁸:
 - 2000: \$792 million
 - 2001: \$3.24 billion
 - 2002: \$3.81 billion
 - 2003: \$5.76 billion
 - 2004: \$4.51 billion
 - 2010 (projected): \$60 billion (10% construction starts)
- Real estate and construction professionals overestimate the costs of green building by 300%¹⁹.
- Perceived cost benefits of green building²⁰:
 - Operating costs decrease 8-9%
 - Building value increases 7.5%
 - Return on investment improves 6.6%
 - Occupancy ration increases 3.5%
 - Rent ratio increases 3%
- Building green stimulates the economy by creating a demand for green jobs and workers that can contribute directly to creating a sustainable future. If the proposed green economic recovery program is instated, the US economy could generate 2 million green jobs in as short a stretch as two years²¹.

Why Build Green? *Green buildings consume less energy and fewer resources*

- In comparison to the average commercial building²²:
 - Green buildings consume 26% less energy
 - Green buildings have 13% lower maintenance costs
 - Green buildings have 27% higher occupant satisfaction
 - Green buildings have 33% less greenhouse gas emissions

Why Build Green? *Green building occupants are more productive*

- An experiment identifies a link between improved lighting design and a 27% reduction in the incidence of headaches, which accounts for 0.7% of overall employee health insurance cost at approximately \$35 per employee annually²³.
- Sales in stores with skylights were up to 40% higher compared to similar stores without skylights²⁴.
- Students with the most daylighting in their classrooms progressed 20% faster on math tests and 26% faster on reading tests in one year than those with less daylighting²⁵.

- Corporate perception of whether green fosters innovation: 57% agree; 28% neutral and 15% disagree²⁶.
- Improvements in indoor environments are estimated to save \$17-48 billion in total health gains and \$20-160 billion in worker performance²⁷.

Why Build Green? *Green building occupants are healthier*

- People in the U.S. spend about 90% of their time indoors²⁸.
- EPA studies indicate indoor levels of pollutants may be up to ten times higher than outdoor levels²⁹.
- Significant associations exist between low ventilation levels and higher carbon dioxide concentrations – a common symptom in facilities with sick building syndrome³⁰.

¹ McGraw Hill Construction (2009). Green Outlook 2009: Trends Driving Change.

² McGraw-Hill Construction (2008). Key Trends in the European and U.S. Construction Marketplace: SmartMarket Report.

³ Department of Commerce (2008). Annual Value of Construction Put in Place.

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⁵ Department of Construction (2008). Annual Value of Construction Put in Place.

⁶ Environmental Information Administration (2008). EIA Annual Energy Outlook.

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⁹ U.S. Geological Survey (2000). 2000 data.

¹⁰ Lenssen and Roodman (1995). Worldwatch Paper 124: A Building Revolution: How Ecology and Health Concerns are Transforming Construction. Worldwatch Institute.

¹¹ U.S. Environmental Protection Agency (2009). Estimating 2003 Building-Related Construction and Demolition Materials Amounts.

¹² U.S. Environmental Protection Agency (1997). Characterization of Municipal Solid Waste in the United States. Report No. EPA 530/R-98-007.

¹³ McGraw Hill Construction (2008). Global Green Building Trends SmartMarket Report.

¹⁴ FMI (2008). U.S. Construction Overview.

¹⁵ Davis Langdon (2007). Cost of Green Revisited: Reexamining the Feasibility and Cost Impact of Sustainable Design in the Light of Increased Market Adoption.

¹⁶ Kats, G. (2003). The Costs and Financial Benefits of Green Buildings: A Report to California's Sustainable Building Task Force.

¹⁷ Miller, N., Spivey, J. & Florance, A. (2007). Does Green Pay Off?

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- ¹⁸ World Business Council for Sustainable Development (2008). Energy Efficiency in Buildings.
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- ²¹ Political Economy Research Institute & Center for American Progress (2008). Green Recovery: A Program to Create Good Jobs and Start Building a Low-Carbon Economy.
- ²² GSA Public Buildings Service (2008). Assessing Green Building Performance: A Post Occupancy Evaluation of 12 GSA Buildings.
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- ²⁴ Heschong Mahone Group (1999). Skylighting and Retail Sales: An Investigation into the Relationship Between Daylighting and Human Performance.
- ²⁵ Heschong Mahone Group (1999). Daylighting in Schools: An Investigation into the Relationship Between Daylighting and Human Performance.
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- ³⁰ 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.