



# Green Building Facts

Published on 17 Oct 2014

Posted in [Media](#)



## MARKET IMPACT

By 2015, an estimated 40-48% of new nonresidential construction by value will be green, equating to a \$120-145 billion opportunity<sup>1</sup>

U.S. respondents to a 2012 international survey projected that 58% of their building activities in 2015 would be green<sup>2</sup>

More than 3.3 billion square feet of building space are LEED-certified (*as of October 17, 2014*)

41% of all nonresidential building starts in 2012 were green, as compared to 2% of all nonresidential building starts in 2005.<sup>3</sup>

The construction market accounts for 5.5% of the \$14.7 trillion U.S. GDP.<sup>4</sup> This includes all commercial, residential, industrial and infrastructure construction

With energy efficiency financing having the potential to soar from \$20 to \$150 billion annually, over one million jobs could be created<sup>5</sup>

Areas with the greatest proportion of green office buildings relative to the total stock of buildings in the market<sup>6</sup>:

- District of Columbia
- Oregon
- Vermont
- Washington
- Colorado
- Massachusetts
- Maine
- New Hampshire
- Illinois
- California

LEED is referenced in project specifications for 71% of projects valued at \$50 million and over<sup>7</sup>

The number of LEED certified federal building projects in the U.S. increased by more than 50 percent from 2011 to 2012.

Achieving LEED certification is a top sustainable goal for both private and public organizations, with LEED Gold certification being set as the goal for a majority of the organizations<sup>8</sup>

## INTERNATIONAL

LEED is becoming increasingly international<sup>9</sup>

As of October 2014, approximately 44% of all square footage pursuing LEED certification existed outside the U.S.

Project expectations in four countries in 2015<sup>10</sup>:

- Brazil - 83% of firms planning new green commercial projects
- Singapore - 69% of firms planning green renovation projects
- United Arab Emirates - 73% of firms planning green institutional projects
- United Kingdom - 65% of firms planning green renovation projects

## ENERGY

*By sector*<sup>11</sup>:

- Buildings: 41%
- Industrial: 30%
- Transportation: 29%

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 CO<sub>2</sub> emissions<sup>12</sup>
- 73% of electricity consumption<sup>13</sup>
- Green buildings consume less energy. Compared to the average commercial building, the LEED Gold buildings in the General Services Administration's portfolio generally<sup>14</sup>:
  - Consume 25% less energy and 11% less water
  - Have 19% lower maintenance costs
  - 27% higher occupant satisfaction
  - 34% lower greenhouse gas emissions

LEED buildings avoided 0.35% of total U.S. CO<sub>2</sub> emissions in 2011. The percentage of CO<sub>2</sub> avoidance attributed to LEED buildings is estimated to be 4.92% in 2030<sup>15</sup>.

## **WATER**

Buildings use 13.6% of all potable water, or 15 trillion gallons per year<sup>16</sup>.

The industry expects that water-efficiency efforts will<sup>17</sup>:

- Decrease energy use by 10-11%
- Save 11-12% of operating costs
- Reduce water use by 15%

Retrofitting 1 out of 100 American homes with water-efficient fixtures could avoid approximately 80,000 tons of greenhouse gas emissions, the equivalent of removing 15,000 cars from the road for one year<sup>18</sup>

## **MATERIALS**

Buildings use 40% of raw materials globally (3 billion tons annually)<sup>19</sup>

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 sources<sup>20</sup>. They also estimate that 250 million tons of municipal solid waste was generated in the U.S. in a single year<sup>21</sup>.

Green buildings consume less energy and fewer resources:

- LEED projects are responsible for diverting over 80 million tons of waste from landfills, which is expected to grow to 540 million tons of waste diversion by 2030<sup>22</sup>.

## **EXISTING BUILDING MARKET**

Square footage of LEED-certified existing buildings surpassed LEED-certified new construction by 15 million square feet on a cumulative basis.

Approximately 61% of all construction projects are retrofit projects<sup>23</sup>.

The market share of green retrofit projects have been projected to rise to 20-30% in 2014<sup>24</sup>.

By 2015, the green share of the largest nonresidential retrofit and renovation activity will more than triple, growing to 25-33% of the activity by value—a \$14-18 billion opportunity in major construction projects alone<sup>25</sup>.

39% of building owners are planning to pursue green certifications for existing buildings by 2013<sup>26</sup>.

Firms that completed green building retrofit projects report<sup>27</sup>:

- Decrease in operating costs: over one year, 9%; over five years, 13%
- Expected increase in asset valuation according to building owners: 4%
- Number of years until payback is expected: 7

88% of Building Information Modeling (BIM) users surveyed who are not currently using Green BIM expect that within two years their firms will use BIM on a green retrofit project<sup>28</sup>.

One billion square feet of buildings are demolished and replaced with new construction each year<sup>29</sup>.

## **BUILDING PERFORMANCE**

A review of data from 195 LEED projects found:

- The buildings are in the top 11th percentile in the U.S. in terms of energy usage
- Have an average ENERGY STAR score of 89 points (out of 100)
- Have a 57% lower Source Energy Use Intensity than the national average (as reported through EPA Portfolio Manager)

*The majority of the buildings were office or retail, avg. 254,000 sf, certified under the LEED for Existing Buildings: Operations & Maintenance rating system*

An analysis of LEED projects in the San Francisco Bay area found:

- More than half achieved LEED Gold (52% of the projects)

- Projects certified under LEED for New Construction exceed ASHRAE standard 90.1 (1999, 2004, or 2007) by 25%.
- Projects certified under the LEED for Existing Buildings: Operations & Maintenance have ENERGY STAR score of 88 points (out of 100).

An analysis of 7,100 projects certified under LEED for New Construction found<sup>30</sup>:

- 92.2% are improving energy performance by 10.5%
- 89% are improving energy performance by 14%

### Industry Sectors with the Highest Penetration of Green Building<sup>31</sup>

1. Education
2. Health care
3. Office

### What's Driving Green Building?

These factors are driving dramatic green building market growth<sup>32</sup>.

1. The economy
2. The largest nonresidential projects by size are more frequently green
3. Mandates and policies

### TOP 10 LEED LOCALES

**Top 10 States in the U.S.A. for LEED:** Registered & Certified (*as of October 17, 2014*)

1. Illinois
2. Maryland
3. Virginia
4. Massachusetts
5. (tie) New York
6. (tie) California
7. Oregon
8. North Carolina
9. Colorado
0. Hawaii
1. Minnesota

**Top 10 Countries** Registered & Certified (*as of October 17, 2014*)

1. Canada
2. China
3. India
4. South Korea
5. Taiwan
6. Germany
7. Brazil
8. Singapore
9. United Arab Emirates
0. Finland

### RESOURCES

1. McGraw Hill Construction (2010). Green Outlook 2011: Green Trends Driving Growth.
2. McGraw-Hill Construction (2012). [World Green Buildings Study](#). Accessed Nov. 29, 2012.
3. McGraw Hill Construction (2012). Green Building Market Sizing, drawn from Dodge Project Starts and Construction Market Forecasting Services, as of March 2012.
4. Department of Commerce (2011). [Annual Value of Construction Put in Place – 2002-2010](#). Accessed October 21, 2011. Bureau of Economic Analysis (2011). [BEA News Release: Gross Domestic Product](#). Accessed Oct. 24, 2011
5. Pollin, R., Heintz, J., Garrett-Peltier, H. – Department of Economics and Political Economy Research Institute (PERI) and Hendricks, B., Ettlinger, M. – Center for American Progress (2009). The Economic Benefits of Investing in Clean Energy.
6. Miller, N. (2010). [Does Green Still Pay Off?](#)
7. McGraw Hill Construction (2010). Green Outlook 2011: Green Trends Driving Growth.
8. McGraw Hill Construction (2012). Smart Market Executive Brief. Determining the Value of Green Building Investments: A perspective from industry leaders on triple bottom line decision making.
9. Watson, Rob. [Green Building and Market Impact Report – 2011](#). Accessed Nov. 15, 2011.
0. McGraw-Hill Construction (2012). [World Green Buildings Study](#). Accessed Nov. 29, 2012.
1. National Trust for Historic Preservation (2011). [The Greenest Building: Quantifying the Environmental Value of Building Reuse](#). Accessed Jan. 26, 2012.
2. Energy Information Administration (2008). Assumptions to the Annual Energy Outlook.
3. Department of Energy (2011). Buildings Energy Data Book. [Buildings Share of Electricity Consumption/Sales](#). Accessed October 26, 2011.
4. U.S. Department of Energy (2011). Re-Assessing Green Building Performance: A Post Occupancy Evaluation of 22 Buildings.
5. Watson, Rob. [Green Building and Market Impact Report – 2011](#). Accessed Nov. 15, 2011.
6. U.S. Geological Survey (2000). 2000 data.
7. McGraw Hill Construction (2010). Green Outlook 2011: Green Trends Driving Growth.
8. U.S. Environmental Protection Agency. [Green Building, Green Homes, Conserving Water. Water Use and Energy](#). Accessed December 14, 2011.
9. Lenssen and Roodman (1995). Worldwatch Paper 124: A Building Revolution: How Ecology and Health Concerns are Transforming Construction. Worldwatch Institute.
0. U.S. Environmental Protection Agency (2009). Estimating 2003 Building-Related Construction and Demolition Materials Amounts.
1. U.S. Environmental Protection Agency (2008). [Municipal Solid Waste Generation, Recycling, and Disposal in the United States: Facts and Figures for 2008](#). Accessed Nov. 7, 2011.
2. Watson, Rob. [Green Building and Market Impact Report – 2011](#). Accessed Nov. 15, 2011.
3. McGraw Hill Construction (2010). Smart Market Reports. Green BIM – How Building Information Modeling is Contributing to Green Design and Construction.
4. McGraw Hill Construction (2009). Green Building Retrofit & Renovation SmartMarket Report.
5. McGraw Hill Construction (2010). Green Outlook 2011: Green Trends Driving Growth.

6. CoStar Group. [Current Trends in Green Real Estate, Summer 2011 Update](#). Accessed Nov. 22, 2011.
7. McGraw-Hill Construction (2012). [World Green Buildings Study](#). Accessed Nov. 29, 2012.
8. McGraw Hill Construction (2010). Smart Market Reports. Green BIM - How Building Information Modeling is Contributing to Green Design and Construction.
9. National Trust for Historic Preservation (2011). [The Greenest Building: Quantifying the Environmental Value of Building Reuse](#). Accessed Jan. 26, 2012.
0. U.S. Green Building Council (2012). [New Analysis: LEED Buildings are in Top 11th Percentile for Energy Performance in the Nation](#). Accessed December 14, 2012.
1. McGraw Hill Construction (2010). Green Outlook 2011: Green Trends Driving Growth.
2. McGraw Hill Construction (2010). Green Outlook 2011: Green Trends Driving Growth.

0 comments

[Leave a comment](#)

Leave a comment Don't have an account? [Create one](#)

---

You must be signed in to leave a comment.

**Email**

**Password**

---

[SIGN IN](#)