



WORLD GREEN BUILDING COUNCIL

## **Green Building Facts and Figures**

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### **Building Sector**

At \$4.7 trillion, the construction industry constitutes 8-10% of global GDP.<sup>1</sup>

The building sector directly employs 5-10% of the workforce in most countries.<sup>2</sup>

It is estimated that buildings consume between 30 and 40% of global energy, and in some countries such as the United Kingdom buildings represent approximately 50% of energy use.<sup>3</sup>

The building sector consumes 3 billion tonnes of raw materials annually, roughly 40-50% of total world resource consumption.<sup>4</sup>

The built environment is responsible for about 20% of global water consumption.<sup>5</sup>

One quarter of the wood harvested globally is used by the construction industry.<sup>6</sup>

### **Climate Change**

According to the IPCC, buildings account for 8.6 gigatonnes of carbon dioxide (or equivalent) emissions, or almost one quarter of total world emissions.<sup>7</sup>

Overall buildings have a higher CO<sub>2</sub> mitigation potential than any other sector. At a modest carbon price of less than \$20 per tonne of CO<sub>2</sub> equivalent, buildings could cut emissions by more than 5 Gigatonnes of CO<sub>2</sub> equivalent per year, a reduction 3 times greater than any other sector.<sup>8</sup>

The IPCC forecasts at the very least a 1.8°C increase in global temperatures by the end of the century; a 4.0°C increase is entirely possible.<sup>9</sup>

Due to climate change, a sea level rise of 20-60 cm is expected by the end of the 21<sup>st</sup> century.<sup>10</sup>

Climate change is likely to increase the frequency and severity of droughts leading to food shortages and increased risk of wildfires as well as food and waterborne diseases.<sup>11</sup>

Climate change is likely to increase the frequency and severity of intense tropical cyclones leading to an increased risk of injury, death, crop damage, and food and waterborne diseases.<sup>12</sup>

## **Green Buildings**

In 2003 only 24% of construction firms worldwide were significantly involved with green building. In 2013 94% of firms are expected to be significantly involved with green building; more than half of firms will be largely or exclusively dedicated to green building.<sup>13</sup>

Over the full lifecycle of a building, 84% of the energy is used to operate the building, 12% is consumed in the manufacturing and transportation of building materials and construction of the building, and 4% is due to maintenance and renovations.<sup>14</sup>

Green buildings typically cost only 3-5% more than standard buildings to construct.<sup>15</sup> In the US for example, basic LEED certification is associated with a 0-3% cost premium, while the highest certification level, platinum, is associated with a cost premium of less than 10%.<sup>16</sup>

With current technology, green buildings can reduce energy use by 30-50%, CO<sub>2</sub> emissions by 35%, waste output by 70%, and water usage by 40%.<sup>17</sup>

In a global survey of building industry firms, 56% anticipate rapid growth in green building. A further 30% anticipate slow but steady growth in green building.<sup>18</sup>

- <sup>1</sup> Flanagan, Roger and Carol Jewell, University of Reading, 2008. Data: Asia Construct, Euro Construct, and National Statistics, 2007 with data from David Crosthwaite and John Connaughton, World Construction 2007-2008, Davis Langdon and Seah International, 2008.
- <sup>2</sup> United Nations Environment Program. (2007). *Buildings and climate change: Status, challenges and opportunities*. p. 1. Available: <http://www.unep.org/sbci/pdfs/BuildingsandClimateChange.pdf>
- <sup>3</sup> United Nations Environment Program. (2007). *Buildings and climate change: Status, challenges and opportunities*. p. 4-7. Available: <http://www.unep.org/sbci/pdfs/BuildingsandClimateChange.pdf>
- <sup>4</sup> United Nations Environment Program. (2007). *Buildings and climate change: Status, challenges and opportunities*. p. 17. Available: <http://www.unep.org/sbci/pdfs/BuildingsandClimateChange.pdf>
- <sup>5</sup> McGraw Hill Construction. (2009). *Water use in buildings: Achieving business performance benefits through efficiency*. p. 5
- <sup>6</sup> Roodman, D. M. (1995). A Building Revolution: How Ecology and Health Concerns Are Transforming Construction. *WorldWatch Paper #124*.
- <sup>7</sup> Working Group III: Mitigation of Climate Change. (2007). *IPCC Fourth Assessment Report*. p. 391. Available: <http://www.ipcc.ch/pdf/assessment-report/ar4/wg3/ar4-wg3-chapter6.pdf>
- <sup>8</sup> IPCC. (2007). Climate change 2007: Synthesis Report. p. 59. Available: [http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4\\_syr.pdf](http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr.pdf)
- <sup>9</sup> IPCC. (2007). Summary for Policymakers. In: Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.
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- <sup>11</sup> IPCC. (2007). Climate change 2007: Synthesis Report. p. 53. Available: [http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4\\_syr.pdf](http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr.pdf)
- <sup>12</sup> IPCC. (2007). Climate change 2007: Synthesis Report. p. 53. Available: [http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4\\_syr.pdf](http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr.pdf)
- <sup>13</sup> McGraw Hill Construction. (2008). *Global green building trends: Market growth and perspectives from around the world*. p. 16.
- <sup>14</sup> World Business Council for Sustainable Development. (2007). Summary report: Energy efficiency in buildings: Business realities and opportunities. p. 11.
- <sup>15</sup> United Nations Environment Program. (2007). *Buildings and climate change: Status, challenges and opportunities*. p. 7. Available: <http://www.unep.org/sbci/pdfs/BuildingsandClimateChange.pdf>
- <sup>16</sup> World Business Council for Sustainable Development. (2007). Summary report: Energy efficiency in buildings: Business realities and opportunities. p. 31.
- <sup>17</sup> McGraw Hill Construction. (2008). *Global green building trends: Market growth and perspectives from around the world*. p. 7.
- <sup>18</sup> McGraw Hill Construction. (2008). *Global green building trends: Market growth and perspectives from around the world*. p. 3.