

Green Building Materials and Construction, 3rd Edition

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Abstracts

“Green” construction has a crucial role to play in the transition toward low carbon economy.

Presently, the global building sector uses almost one third of the global energy and is the main single contributor to greenhouse gas emissions (GHG).

In the United States, commercial and residential buildings account for 39% of GHG emissions. This is more than any other sector of economy. To address this issue, the U.S. government has set an ambitious target to make all new buildings carbon neutral (or zero emissions) by 2030 and to improve existing building stock efficiency by 25%.

The situation is not much different in the European Union, where residential and non-residential buildings are responsible for nearly 40% of final energy consumption and 36% of greenhouse gas emissions. Here, buildings provide the second largest untapped cost-effective potential for energy savings at the time when the Union is struggling to meet its carbon emissions and energy efficiency targets.

Taking these facts under consideration, it is anticipated that the role of buildings in the energy efficiency policy is expected to grow in the next years, both at national level and globally.

In addition to addressing environmental concerns, the development of “green” construction market has also important socio-economic implications. It was estimated that investments in improved energy efficiency of buildings can generate an additional 2 to 3.5 million green jobs in Europe and the United States alone. This factor should not be underestimated in the present situation, when several economies are recovering

from the global financial crisis 2008-2009.

Regulatory instruments, governmental initiatives and financial support mechanisms together with growing customer's awareness and expectations all puts a pressure on construction market participants to adopt "green" practices. "Green" construction is moving from a niche to the mainstream, but is this movement fast enough to make a meaningful environmental or economic change?

The interest in joining "green" construction market is growing. Leadership in Energy and Environmental Design (LEED), the most recognized program for rating and certifying "green" buildings worldwide, records a growing number of projects registrations year by year. However, the number and total footage area of buildings positively verified and awarded LEED certification has been experiencing only a modest growth since 2010.

In 2011, the total value of "green" (LEED certified) construction worldwide was estimated at nearly \$70 billion. By 2016, the market is anticipated to reach almost \$150 billion and by 2021 – \$294 billion. Non-residential buildings have the major share in the market: \$51 billion in 2011. Green homes is the fastest growing segment of "green" construction - the market value of LEED certified homes has jumped from \$39 million in 2007 to \$17.15 billion in 2011.

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