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**NEW TECHNOLOGIES OF GREEN CONSTRUCTION:
SUSTAINABILITY OR GREENWASHING?
НОВІ ТЕХНОЛОГІЇ ЗЕЛЕНОГО БУДІВНИЦТВА:
СТІЙКИЙ РОЗВИТОК ЧИ ЕКОЛОГІЧНЕ ПРОМИВАННЯ?**

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Abstract. *The article considers issues of green construction technologies and materials application from the standpoint of sustainability and benefits for society and economy. Overall trends in green construction market are outlined. Special attention is paid to latent challenges connected with certification of objects and materials in green construction. It is shown that although the standards of green certification in construction are designed to expand the consciousness of the professional community, to support more modern and rational sustainable solutions, they do not actually require buildings to prove that they are sustainable - applicants can receive LEED status only by presenting computer models that project the building. Moreover, BREEAM and LEED focus overwhelmingly on operational emissions rather than emissions from the construction supply chain. These gaps create 'favorable' ground for greenwashing phenomenon in green construction industry throughout the whole value chain. Conclusion is made that although green construction projects in overall contribute to the implementation of sustainable development goals, in green construction it is necessary to implement a value-oriented approach that focuses on identifying groups of stakeholders of an investment and construction project and substantiating their values.*

Key words: *green construction; sustainability; greenwashing; certification.*

The state of the environment, which sharply limits the possibilities for further economic growth, requires the formation of a new “green” course for the economy. Therefore, in various international documents, the terms “green” industry, “green” markets, “green” innovations are more often used, implying new technologies with minimal environmental impact (biofuels, alternative energy, etc.). In modern society, green technologies are commonly understood as non-waste production, non-aggressive to the environment and, accordingly, to humans. In particular, recently, there has been a relative increase in “green” buildings in the world. By the end of the 20th century, the need to improve the state of the environment began to grow sharply. This was the reason for the popularization of “green” technologies in construction.

Green technologies are widely used in construction, proving high efficiency compared to conventional technologies. “Green” building is based on the construction and subsequent operation of buildings with a minimum level of energy and material consumption throughout the entire life cycle of the building (from design to disposal). The constant expansion of the existing diversity of the world's “green” construction proves the prospects for the introduction of “green” technologies in this industry. The growth of green building rates is clearly shown in Fig. 1 and 2 below. According to Green Building Market Research Report 2030, “the

Green Buildings market industry is projected to grow from USD 634.78 billion in 2022 to USD 1312.12 billion by 2030, exhibiting a compound annual growth rate (CAGR) of 9.50% during the forecast period” (Green Building Market Research Report 2030).

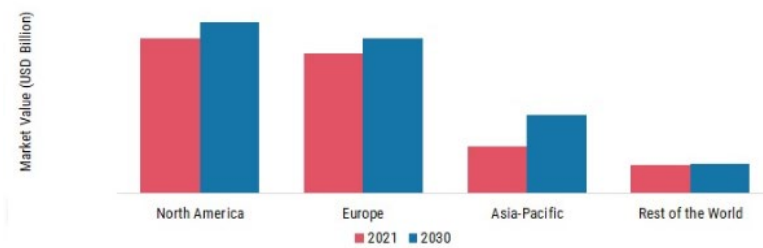


Fig. 1. Green building market size share growth (with forecast).

Source: Green building market research report 2030.

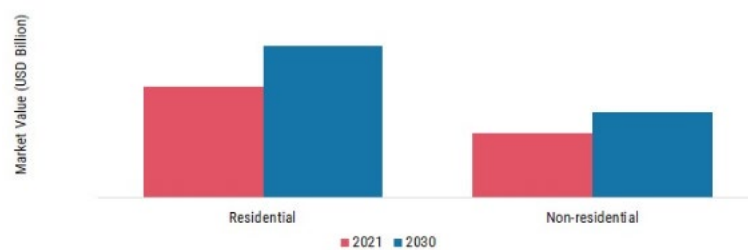


Fig. 2. Green building market size share growth in residential and non-residential sectors (with forecast).

Source: Green building market research report 2030

It is widely known that green buildings have less potential for negative environmental impact than standard buildings. This is achieved through a more efficient and rational use of resources, the use of alternative resources for the conservation of nature, waste recycling. Thus, the widespread practice of applying green construction principles in the world can be one of the effective tools for the sustainable development of society. Green buildings are designed primarily to reduce energy and water consumption. It is possible to reduce the consumption of these resources by an average of 25-30% and 30-50%, respectively (De Paula, Jyo, & Melhado, 2022; Kibert, 2022).

Success in achieving the goals of Green Building depends on many underlying factors in public life, the policies of states and the world community, professional knowledge in various fields of activity, the general interest and consistency of all sectors of society and specialists of various professions who are capable and striving for joint activities. Solving the problems of “Green Building” requires appropriate intellectual background and practical experience in the following areas: engineering communications, energy, building structures, materials science, ecology, architecture, urban planning, innovation, economics, law, organization, medicine, etc.

At the moment, green building in the world is developing rapidly. In many countries of the world, information about the economic, environmental, and social benefits of green building is in demand and is of interest to specialists and the public. Environmental benefits include: decrease of greenhouse gas emissions, reduction of waste generation, reduction of polluted water discharges into the natural

environment, conservation of natural resources. Economic benefits include: significant savings due to reduced energy and water consumption during building operations, increased facility capitalization, low financial and insurance costs, tenant interest, global recognition, corporate competition, openness and availability of green building technologies. Social benefits include: indoor comfort in terms of air quality, thermal and acoustic performance, better living conditions, health and well-being for residents and tenants.

However, along with the above benefits, there is also the infamous phenomenon of greenwashing in the field of green building. Today, it is quite obvious that green technologies are still more expensive than traditional ones, although their use also decreases the cost of all subsequent operation of buildings, reducing costs in the long term. Accordingly, the price for the consumer (user) of green buildings is significantly higher. Green building projects are very attractive for investors (and the interest of investors, including institutional ones, in the investing in green building projects is growing every year). In addition, green building developers in many regions and countries are entitled to some legislatively fixed preferences (in particular, in the field of taxes, etc., participation in tenders under public-private partnerships, etc.), which gave more rise to greenwashing. This applies not only to the construction of business real estate, but even to a greater extent - residential real estate, which is very often groundlessly positioned as eco-projects or high-quality business and elite class objects. In general, greenwashing (“green camouflage”) represents a sound problem in the development of green building and requires careful study and development of measures to combat it.

Literature:

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