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APPLICATION OF PLASTIC PRODUCTS IN CONSTRUCTION AND DESIGN

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Abstract
In this article, we will examine the pros and cons of the use of building structures made of plastic. This topic is very interesting for modern construction, as the application of plastics allows you to solve many problems, thanks to its properties.

Keywords: plastics, building structures, polymer concrete.

Plastic is a lightweight, flexible element, especially resistant to corrosion and moisture, and can be cast and inserted into complex shapes. Although this material is relatively new to the construction industry, it is extremely widely used in the construction industry. Many synthetic plastics are made from distilled crude oil. This is offset by about 8% of the world's oil reserves. All plastics contain carbon that can chemically bond to other atoms in the form of chains or circles. The long chain of molecules is called a polymer and the short chain is called a monomer. A polymer is a chain of molecules that can be opaque, transparent, or translucent. It is a material that can be cast, shaped, and made into fibers.

There are two main types of plastics: thermoplastics and thermoactive plastics. This is determined by the temperature at which they enter their shape. Thermoplastics change their shape under the influence of temperature or pressure and can re-enter new shapes several times. Once a thermoactive plastic is molded, it cannot be reshaped using temperature.

Synthetic polymer or plastic does not have a long history. They have not yet been able to revolutionize industry, such as medicine, electronics, fashion, engineering, and construction. In construction, plastic was first used as an ornament or as a secondary part of a grid system. They began to be widely used in industry and construction only after they began to gain respect and high value as a promising primary material. Compared to other building materials, plastics have very low fire safety performance and are used in high-risk areas. Other advantages are that the plastic is lightweight, inexpensive, resistant to abrasion and moisture. A material that is relatively hard and easy to shape. The short-lived tendency of plastics to thin and lose their color quickly is one of the most pressing issues facing plastic technology. Now, as a result of the development of material property, high-quality materials, the increase in the level of

manufactured products and, in part, the design and completion of construction, the industry is creating unprecedented new product options in collaboration with designers. Since the material is artificial, its character is unlimited and growing. Its high flexibility and variability, as well as the brightness and opacity of the color, are equated. Plastic has been the preferred design tool in many architectural structures.

There are many references to the architectural potential of plastic. Plastic offers its customers a world of open and endless possibilities due to the freedom to melt, cast and shape. Manufacturers and sponsors are burning with the hope of opening up new markets, innovating and introducing new materials that will satisfy designers and architects. Just as many products focus on fire safety, so does the safety system in the construction of buildings.

However, despite their ever-increasing efficiency and capabilities, designers cannot deny the fact that oil-based plastic products are sometimes harmful to the environment. Any type of plastic will decompose due to microorganisms. On the other hand, the glass industry and transportation, for example, require more energy. In addition, plastic products can reduce the demand for timber, which in the future will reduce deforestation.

The advantages and disadvantages of using plastic are obvious. Significant plastic research is also underway as a result of developments in the construction industry. The focus is on how to produce plastic products using alternative fuels and renewable materials. The reduction of available energy resources and the release of CO_2 are directly related to the production of any industrial product. With the help of plastics, we need to reduce the safety and environmental damage associated with their production process, as well as the emissions during their operation.

Plastic is a general concept that explains several chemical components, mainly polyethylene, polyurethane, polystyrene, polycarbonate, polyvinyl and polypropylene. As a separate group, they share many characteristics, in particular their different levels of transparency and color. Plastic has a high coefficient of thermal expansion. In addition, the construction details must allow the amount of plastic to expand or shrink as the temperature changes. Plastics are divided into classes such as easy-to-cut, shaped, flexible, and some refractory or slow-heating.

The construction and building industry is the second largest buyer, slightly behind the packaging industry for plastics. Plastics play an important role in construction due to their durability, high efficiency, ease of use and low cost. They are being expanded to be used in all types of buildings in construction, especially in residential construction. We often see plastic in construction as vertical fixtures, fences, floors, insulation, doors, windows, walls, and plaster. However, the list is growing. They are squeezing

out other traditional building materials as well. Recently, however, plastics have overtaken traditional materials in many respects, including low cost, corrosion resistance, lightness, and displacement in construction. In addition, one of the biggest advantages of plastics is that they can be molded into an unlimited number of shapes. Although plastic has a high coefficient of strength relative to weight, it cannot compete with other building materials in terms of density. Plastics are generally less susceptible to water, corrosion, heat and electricity. Many plastics can be combined with other materials to form and replace them. In this case, they can be fastened with mechanical screws (screw nails), or with bolts. Plastics can also be softened by heat or melt and bonded more tightly to other compatible materials.

The biggest weakness of plastics in construction is that they can melt under the influence of fire and emit toxic gases. While acrylic, polystyrene, polyethylene and cellulose plastics burn slowly, silicone has a much higher fire resistance property. Hard polyvinyl chloride (PVC) plastic is also flammable, but it is self-extinguishing, so it is not flammable. The degree of fire depends on the type and thickness of the plastic. Most plastics have flame retardant properties, or the resin coated on their surface helps with fire resistance. Prior to the installation of any plastic, the flame expansion rating, the development of smoke, and the toxicity of the burned products must be taken into account, especially when used for the interior of the building.

Other disadvantages of plastics are: high degree of deformation (expansion) and expansion (expansion of shape), shrinkage due to temperature changes, control of joints, expansion of joints. Compared to other building materials, plastics are not rigid enough and cannot withstand heavy load pressures, especially over a long period of time. Plastics can also be scratched or thinned without the use of a protective layer or skin on the outside. Time, natural phenomena (rain, sunlight) and ultraviolet light cause the color of the plastic to fade. Discoloration or opacity of plastics is one of the factors hindering their widespread use.

References:

1. Makhmudova M., Makhmudova M. THE ROLE OF RESTORATION AND SCIENTISTS IN THE PRESERVATION OF ARCHITECTURAL MONUMENTS OF THE TEMURID PERIOD //SOCIETY. INTEGRATION. EDUCATION. Proceedings of the International Scientific Conference. – 2021. – T. 4. – C. 575-587.
2. kizi Sultanova M. F. The Role Of Tour Bases In The Development Of Tourism In Uzbekistan //INTERNATIONAL SCIENTIFIC AND CURRENT RESEARCH CONFERENCES. – 2021. – C. 1-5.

3. Malika Makhmudova. RESTORATION OF MONUMENTS OF UZBEKISTAN ARCHITECTURE. Look to the past. 2021, vol. 4, issue 6, pp.53-59
4. Kamalova F. K. Q. ARXITEKTURA VA INTERYER MAKETINI YASASHDA XOM-ASHYO VA MATERIALLARNING ORNI //Scientific progress. – 2021. – T. 1. – №. 5.
5. Akhunova N. K. K. Possibilities of using virtual reality technologies in education //Asian Journal of Multidimensional Research (AJMR). – 2021. – T. 10. – №. 3. – C. 549-555.
6. Isakova Mukaddas Badirovna, & Rasulova Azizakhon Alisher kizi. (2021). The specificities of creating and developing modern campuses. International Journal on Orange Technologies, 3(3), 318-323. https://doi.org/10.31149/ijot.v3i3.1551
7. Mannopova N., Mannapov A. Influence of "Thematic Parks" to the development of tourism in Uzbekistan //ASIAN JOURNAL OF MULTIDIMENSIONAL RESEARCH. – 2021. – T. 10. – №. 4. – C. 696-704.
8. Mannopova N. R., Kamolkhodjaeva M. B. Features of designing interiors of restaurant establishments //ASIAN JOURNAL OF MULTIDIMENSIONAL RESEARCH. – 2021. – T. 10. – №. 4. – C. 711-715.
9. Marufovich M. Y. Some Features Of The Connection Between The Interior And The Environment //International Journal of Progressive Sciences and Technologies. – 2021. – T. 26. – №. 1. – C. 97-101.
10. Makhmudova M. T. Features of a country house in hot countries //ACADEMICIA: An International Multidisciplinary Research Journal. – 2021. – T. 11. – №. 3. – C. 2167-2173.
11. Makhmudova M. T. A masterpiece of the avant-garde era in Russia-melnikov's house //ASIAN JOURNAL OF MULTIDIMENSIONAL RESEARCH. – 2021. – T. 10. – №. 4. – C. 642-647.
12. Takhirovna M. M. ART NOUVEAU MASTERPIECE-RYABUSHINSKY MANSION //ResearchJet Journal of Analysis and Inventions. – 2021. – T. 2. – №. 05. – C. 133-139.
13. Sh, Saipova D. "Modern museums cultural heritage for future youth." ASIAN JOURNAL OF MULTIDIMENSIONAL RESEARCH 10.4 (2021): 733-737.
14. Tursunova S. F. Light in the modern world //ASIAN JOURNAL OF MULTIDIMENSIONAL RESEARCH. – 2021. – T. 10. – №. 4. – C. 750-756.
15. Roziqberdiev M. I. The time has come to move from stereotypes to creativity: In the example of mosques //Asian Journal of Multidimensional Research (AJMR). – 2021. – T. 10. – №. 3. – C. 564-571.
16. Latifovich T. A. Large-span structures and architectural form //ACADEMICIA: AN INTERNATIONAL MULTIDISCIPLINARY RESEARCH JOURNAL. – 2021. – T. 11. – №. 1. – C. 397-401.

17. Sultanova, Muhayyo. "Use of Cultural Plants in Desert Cities in Creating the Landscape of Recreation Zones in Uzbekistan." International Journal on Orange Technologies, vol. 2, no. 10, 20 Oct. 2020, pp. 102-104, doi: 10.31149 / ijot.v2i10.738.
18. Tursunova, Sh F. "HISTORY OF ADVERTISING IN UZBEKISTAN." International Engineering Journal For Research & Development 5.9 (2020): 10-10.
19. Sultanova, Muhayyo. "Use of Cultural Plants in Desert Cities in Creating the Landscape of Recreation Zones in Uzbekistan." International Journal on Orange Technologies, vol. 2, no. 10, 20 Oct. 2020, pp. 102-104, doi: 10.31149 / ijot.v2i10.738.
20. Qizi, A. N. X., & Nazokatkhon, A. (2020). Factors influencing the creation of a comfortable microclimate and environmental control of zone by landscape design. ACADEMICIA: An International Multidisciplinary Research Journal, 10(5), 2040-2049.
21. Razikberdiev, M. I. (2020). Southern mesopotamia in the first half of the 3rd millennium bc. Asian Journal of Multidimensional Research (AJMR), 9(5), 211-216.
22. MANNAPOVA N. R. et al. Organization And Basic Requirements For Restaurant Design Interior //International Journal of Innovations in Engineering Research and Technology. – 2020. – Т. 7. – №. 05. – С. 5-12.
23. Mukaddas Isakova.(2020).Influence Of Colors On Children's Mentality In Children's Institutions, Research And Analysis Of Psychologists And Designers. International Journal of Scientific & Technology Research, 9(2), 5549-5551.
24. Nazokatkhon A. INNOVATIVE TECHNOLOGIES TO REDUCE CLIMATIC EFFECTS IN HOT AND DRY CLIMATIC TERRITORIES //Архитектурада инновациялар журнали. – 2020. – Т. 1. – №. 1.
25. Makhmudova M., Makhmudova M. ISLAMIC STYLE IN LANDSCAPE DESIGN ON THE EXAMPLE OF ANCIENT GARDENS OF THE TEMURID PERIOD //SOCIETY. INTEGRATION. EDUCATION. Proceedings of the International Scientific Conference. – 2020. – Т. 5. – С. 706-718.
26. “THE ROLE OF FURNITURE IN THE FORMATION OF THE RESTAURANT’S INTERIOR`”. 2020. International Engineering Journal For Research & Development 5 (9):5. https://doi.org/10.17605/OSF.IO/2PDTC.
27. Kasimov O. S. Formation of Landscape Design in Japan //European Journal of Business and Social Sciences. – 2018. – Т. 6. – №. 12. – С. 30-35.
28. Kasimov O. S. FORMATION OF LANDSCAPE DESIGN IN CHINA //Zbiór artykułów naukowych recenzowanych. – С. 20.