

This technology allows you to create products of various shapes, with an unlimited number of internal cavities, and fill the entire working area of the printer. Parts printed on SLS printers, due to their strength, can be used in practice, and not only as prototypes and decorative elements.

To create an object, the device aims a laser at a layer of fine powder, fusing the particles together to form a layer of product. Then the device sprays the next portion of the powder onto the surface of the previous layer and smoothes it, and the laser melts it. Thus, the subsequent layers of the product are obtained. This operation is repeated until printing is complete.

The model produced by the SLS printer does not require removal of the feet and can be created without the need for post-processing, it only needs to be cleaned of excess powder.

**Polyjet** The main advantage of Polyjet technology is its multimateriality – many Polyjet printers are capable of simultaneously printing an object from a large number of different materials, which makes it possible to create products consisting of areas with different physical properties, which are, different strengths and colors.

Polyjet 3D printers spray tiny droplets of photopolymer resin onto the surface and cure them with ultraviolet light.

This repeats until the 3D object is fully completed.

**Conclusion.** Knowledge of the technologies and principles of functioning of various types of 3D printers allows us to produce architectural layouts taking into account the basic requirements of design, optimize the manufacturing process, and also improve the quality of layouts.

## **PROJECT OF IMPROVEMENT AND GREEN SPACE EXPANSION OF THE DVINA RIVER TERRITORY**

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Park areas and recreation areas are an important component in the life of townspeople and modern megacities, where people actively spend their free time, relax from the bustle of the city and just enjoy nature. Park spaces contribute to improving air quality, solving many environmental problems, and are a habitat and development of flora and fauna. They also generally have a beneficial effect on the appearance of urban space and improve the quality of life of the population.

The aim of the work is to develop a design project for the improvement of the park zone of the territory of the Dvina River, which meets the trends

of modern architectural and landscape design, taking into account territorial features, functional, color–graphic, ergonomic. and other aspects.

**1. Pre–design analysis.** When designing a new object, you should always rely on the experience gained over the centuries, on the knowledge and theory of architecture, design and landscape art. It is necessary to know all the nuances, to responsibly study the problem, which consists in the collision of contradictions between the circumstances of the future life of the object and the operational characteristics of its structures. Therefore, the design of a park environment should begin with the identification of existing and future contradictions (conflicts), which can subsequently be taken into account and resolved in the process of designing a park: artistic, functional, social, aesthetic, communication, etc. [1].

**2. Project setting (design concept and design scenario).** The design concept is to create an emotionally expressive and memorable stylistic solution, taking into account all the features of the area.

The design scenario is the main function of the park: providing safe rest and leisure, where visitors can sit on comfortable benches, relax, have a snack, get information in the information accessibility zone, visit the art territory, take children to the play area.

**3. Design solution.** The design concept of the "Supremotus" project is based on the idea of transferring the Suprematist direction in art. UNOVIS and Suprematism are the national treasure of our country. It was the city of Vitebsk that became the place that largely determined the development of world art of the twentieth century. [2].

At all stages of the development of the project, all the conceptual features of the theme were taken into account, from philosophical attitudes to color–graphic compositions.

During the work on the exterior, all the features of the landscape and the area as a whole were taken into account. New recreation areas were created: coastal area, art space, food court area, abstract alley. The furniture was created in accordance with all ergonomic requirements, meeting the best qualities of the artistic image of a given theme. (Figure 1 and 2).



Figure 1 – Improvement of the embankment



Figure 2 – Inner park area

The use of modern technologies of landscape design allows transforming the imperfections of the area into functionally usable zones.

Competent and logical zoning of the area, placement of accents give the exterior all the necessary physical and psychological qualities that contribute to a comfortable stay and convenience.

The applied design solutions make it possible to declare with confidence that the finished product fully complies with the current standards, is endowed with a full set of necessary functions, is relevant, practical and modern.

**Conclusion.** As a result of the work carried out, it can be concluded that a systematic and creative approach, study and knowledge of the development trends of the chosen topic and the principles of effective planning will make it possible to create a park zone as functional and convenient as possible. It is also worth noting that the chosen topic is relevant for the city of Vitebsk.

The principles of developing a design project for the landscaping and landscaping environment of the Dvina River territory can be implemented in the urban space.

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