MODERN TECHNOLOGIES IN ARCHITECTURE AND PLANNING

Viktoriia Otrosh

Academic and Research Institute of Architecture, Design and Fine Art,

O.M. Beketov National University of Urban Economy in Kharkiv

Technologies play important role in modern architectural process. They allow architects to influence building design, effectively and accurately reflect their ideas and ensure safety and sustainability. Innovative and sustainable facilities, created with the help of modern technologies, are designed to meet the needs of modern society.

There are two important stages for architects: planning and layout.

One of the most significant advancements in architectural technology is computer-aided design (CAD). CAD software allows architects to create detailed and precise digital models of their designs. This speeds up the design process and enables architects to visualize their ideas more effectively. Autodesk's software is currently the most popular and largest in the architectural world. It includes such programs as Revit 3D Max, ArchiCad and others. Lira is popular among other developers. This program is used in particular for the development of building structures. There are also fewer professional programs. Among their shortcomings, the choice of interior, exterior or structural elements is limited, however, in such programs as Revit, the user can independently create elements from the smallest to the largest, as well as load different components.

With virtual reality (VR) headsets, architects can immerse themselves in a virtual representation of their designs. Additionally, VR allows clients and architects

see constructions that do not yet exist.

Building information model (BIM) software allows architects to create comprehensive digital representations of buildings, including every detail from floor plans to electrical systems. This collaborative approach brings together various professionals involved in a project, such as engineers and contractors, ensuring better coordination and reducing errors during construction.

Generally, architects can use specialized software to analyse the environmental impact of their designs at each stage of the project. This includes assessing factors such as energy consumption, material selection and waste management. By integrating sustainability into their designs from the start, architects can create buildings that are energy-efficient, economic and environmentally friendly.

Modelling is an integral part of architecture. It also helps in correcting errors and contacting customers. Currently, such modern technologies are used in the layout which perform various functions.

For example, plotter cutting is the process of cutting out images on self-adhesive material. Milling helps to quickly produce complex surfaces on various materials. Rapid prototyping technology is also used for the most accurate execution of the layout. It is divided into many subspecies. When using scrap technology in making a model, layers of objects are created by laminating a sheet of paper. The contour of the layer is cut with a laser (Kozhukhovskyi, 2013, p.305-311). Also, architects often use the technology of casting according to molten models and engraving. The most famous modern means of modelling is a 3D printer. The basis for 3D printing is the BIM digital model of the building.

Therefore, smart technologies help a lot in the profession of an architect. They save much time because the machine will draw perfect lines or correct mistakes easier and faster. Also, if an error is appeared on stage of designing, fixing it will be cheaper and safer. So, new technologies and programs establish communication between architects, engineers, managers, builders and clients.

References

1.   Kozhukhovskyi A. N. Application of modern innovative technologies in the process of making an architectural model. Scientific bulletin of the National Forestry

University of Ukraine, 23.18, 2013, p. 305-311. http://nbuv.gov.ua/UJRN/nvnltu_2013_23.18_50

2. The Diplomatic Insight. Role of Technology in Modern Architecture. 2020. https://thediplomaticinsight.com/role-of-technology-in-modern-architecture/