**BUILDING INFORMATION MODELING AND IT IN ARCHITECTURE**

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Information modeling of the building is a comprehensive approach to the construction, equipment, operation and repair of the building, which involves the collection and processing in the design process of architectural, design, technological, financial and other information about the building with all its interconnections. According to the principles of Building Information Modeling, the building object is actually designed as a single whole, and a change in any of its parameters entails an automatic change in other parameters and objects related to it - changes in drawings, visualizations, specifications, construction schedule, etc. others at all stages of the life cycle of the house.

BIM (Building Information Modeling) is information modeling of the completed and constructed building, which creates a three-dimensional 3D model, where each object is connected to the information database of the project and has assignable, interdependent attributes. The use of BIM technologies makes it possible to combine all stages of building construction - from design to commissioning - into one clear and transparent system, where each change is recorded and entails other changes. This approach greatly simplifies joint work on different sections of the project and eliminates "unnoticed errors". With the help of BIM, it is possible to calculate the processes that will take place in an already built object. It happens in the following way: all information about the building, materials, method of its use, climate and other factors is transferred into a digital version, after which the system calculates possible variants of the development of events [1, 2].

According to the concept, solutions based on BIM technologies cover all work processes - from design and construction to repair and operation of construction objects. All design changes and documentation are conducted in a single 3D information space. Among the advantages are two-fold acceleration of work, compliance with quality and safety standards, reduction of construction and maintenance costs, etc. BIM makes it possible to create a model in which architects, designers, engineers and other specialists of engineering networks and communications involved in the project can work in parallel at the same time. Architects and builders can now feel what it's like to be inside their future project by wearing virtual reality glasses and being able to look around. At the same time, they can be located in different parts of the world and create the same object. These are radical innovations for the construction industry [2, 3].

Today, BIM technologies are being quite actively introduced into the educational process. This includes the defense of bachelor's and master's degree theses using Autodesk Revit, Tekla, BUILDING MANAGER, etc. software complexes. Competitions are periodically held and all students who wish to test themselves in communication with real customers, in working with technical tasks, familiarization with the land plot of future construction and clear deadlines for each stage of the competition are invited to participate. A considerable number of students, receiving knowledge, as well as "tools" for future research, show a desire to engage in scientific research, the results of which are highlighted in competitive works, articles, etc. BIM technologies are a tool without which fast and efficient construction and restoration of the country's infrastructure damaged by the war is unthinkable.

With the help of BIM technologies, specialists in architecture and construction can not only plan, design and build more accurately, but also operate buildings and infrastructure objects more efficiently. Let's consider the key difference from ordinary three-dimensional models. BIM models contain not only graphics, but also complete information about the characteristics of structures, engineering systems and all equipment. This is a full-fledged digital double of the object, where every detail is recorded. In addition, different specialists can simultaneously work with the same BIM model. There is no need to have different drawings and then combine them. This seriously reduces the number of errors in the project.

We will analyze the stages of work with BIM models. Firstly, they first create an architectural 3D model of the building with all the necessary plans, views and sections necessary for the division of architectural solutions. Secondly, on the basis of an architectural model, designers and adjacencies create their own models that calculate all possible loads. Based on the models, they make drawings and calculate specifications. Thirdly, on the basis of the assembled BIM model, architectural and structural solutions are compared with models of adjacent sections for discrepancies. At this stage, the BIM model is checked for errors, which are then corrected. Fourthly, on the basis of the ready-made BIM model, specialists develop a construction organization project and a work production project. The program automatically prepares a calendar schedule for their implementation, adds logistical data on what materials and in what terms should be delivered to the object. At the last stage, after the construction of the building, the information model can be used to operate the object with the help of sensors. All modes of engineering communications and possible emergency situations are under control.

We will analyze the advantages of BIM technologies in construction. The project is always at hand. 3D visualization during design allows investors, contractors, future tenants and inspection bodies to judge the condition of the object. The model becomes a centralized repository of all necessary building data. It allows you to quickly and efficiently make changes to the project, tracking the result in all interconnected projections. BIM technologies reduce the likelihood of mistakes and errors in design documentation compared to traditional design methods.

BIM technologies make it possible to identify possible shortcomings in engineering systems and communications at the time of design, and not during the construction or delivery of the object. A low probability of errors allows you to avoid unexpected expenses. In addition, by evaluating the entire project even before construction, it is possible to choose materials that are optimal in terms of the ratio of price and quality. The term of putting the building into operation is also decreasing. The building is easy to rent or sell on more favorable conditions, easier than an object built using traditional methods and technologies. This is explained by the fact that it is much easier and more efficient to use a building with a ready-made operational BIM model. Information modeling brings construction of facilities to a new technological level. BIM technologies allow you to save the budget, quickly identify errors and make changes to the project. Today, the future of the design and construction industry is being formed.

BIM is a modern system of information modeling at all stages of the life cycle of real estate objects. The implementation of BIM technologies ensures the fulfillment of the entire chain of tasks (design-production-logistics-installation-control), allows to improve the quality of control of construction works, implement many modern projects and bring the construction industry to a qualitatively new level. Information modeling technology makes the customer a full participant in construction. It can visualize what the object will be and make adjustments as he works. No 2D drawing will provide such a realistic picture of the future building as is possible with BIM modeling. In general, changes in the regulatory and legal field for the development of BIM technologies will affect technical regulation, attestation of contractors, procurement procedures, tender procedures, development of project documentation and project expertise, construction, operation, reconstruction and liquidation of the object. BIM technologies still need to be tested at all stages of the creation of real estate objects, including the design and construction of objects.

**Literature**

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