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BIM-TECHNOLOGY IN CONSTRUCTION FOR CIVIL ENGINEERS

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Анотація. *У статті розглядається BIM - технологія інноваційного моделювання будівель. Дане рішення дозволяє об'єднати діяльність різноманітних фахівців, чию роботу необхідно виконувати в різних програмних продуктах, що дозволяє проводити моделювання значно дешевше, спрощує процеси візуалізації майбутнього об'єкта. Також незаперечною перевагою BIM перед CAD моделюванням є можливість виявлення набагато більшого відсотка помилок, колізій і невідповідностей всередині єдиного проекту.*

Ключові слова: *BIM-технологія; BIM-моделювання; CAD-технології; інформаційне моделювання будівель; особливості впровадження; проектування; архітектура*.

Abstract. *The article deals with BIM - technology innovation modeling of buildings. This solution will be allowed to combine the activities of various professionals, whose work must be performed in various software products, which allows for much cheaper simulation, simplifies the processes of visualizing the future object. Also, the undeniable advantage between BIM and CAD modeling is the ability to detect a much higher percentage of errors, conflicts and inconsistencies within a single project.*

Keywords: *BIM-technology; BIM modeling; CAD technology; information modeling of buildings; peculiarities of implementation; designing; architecture***.**

Building Information Modeling is a method of construction, equipping and maintaining a building (managing the life cycle of object — from the owner's initial idea and initial work of the architect to operating and maintaining the finished building), which involves the collection and complex processing throughout the design process of the entire architectural design, technological, economic and other information about the building with its dependencies and connections.

In other words, this is a new revolutionary approach to the design of buildings and structures, allowing each design participant to carry out their part of the project and have access to building information, which forms the fundamental basis for all decisions throughout the object's life cycle (from the earliest concepts to detailed design construction, operation and demolition).

The introduction of BIM technology in various areas of design is a revolution in the traditional construction process. In the United States, the process of introducing information modeling of a facility began in 2003. Somewhatlater, EuropeandAsiajoinedtheStatesin 2007. [7]

Any construction organization strives to create a clear project management system. The effectiveness of such a system can be assessed by increasing the level of structuring of project documentation, reducing the time required for the construction of construction objects without losing the quality component, and, consequently, reducing costs.

Despite all the positive aspects of information modeling, its implementation is experiencing some difficulties in many countries. This article considers the main problems of implementation in Ukraine.

In order to understand why companies are switching to new technologies, it is necessary to consider the main advantages of BIM-modeling, namely, what the organization gets in the end:

1. Virtual building model;
2. Individual parameters of the object;
3. High-quality project documentation;
4. The ability to quickly identify inaccuracies and errors in projects, as well as their immediate elimination;
5. Experimental methods for examining an object when setting various conditions;
6. Management and control of the object at all its life stages;
7. Parallel use of the information model of a building or structure by several contractors to carry out the work of each of them;
8. The ability to perform repair and reconstruction works in accordance with the requirements of the operation of the object.

The main problem of introducing BIM technologies into design companies of Ukraine is the lack of interest of the construction organizations themselves. The main reason for this is the lack of readiness of enterprises to sufficiently large initial costs. Especially this issue concerns small companies that focus on current problems and costs, which does not allow them to have free resources, such as time and money.

Having studied the main problems arising in the implementation of BIM-technologies in domestic construction organizations, we can distinguish the following:

1. High initial costs;
2. Costly software;
3. Incorrect work of software systems;
4. The lack of specialists in the field of BIM-modeling.

To partially or fully solve the above problems, we can suggest some steps.

Firstly, construction companies can invest money in the training of personnel already enrolled in the company’s staff, or in the education of students with the aim of attracting them to work in this organization. Thus, itispossibleto “growup” futurespecialists.

Secondly, small project organizations that do not have the necessary reserves can join together for further cooperation, exchange of experience, and also for the possibility of jointly purchasing software.

Construction companies realize that over time, their main competitors will switch to BIM-modeling, so it is necessary to look for solutions to problems when introducing technologies into each specific organization in order to remain on the market in the future.

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