

DESIGN TECHNOLOGY OF BUILDINGS AND STRUCTURES

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Abstract: This article provides information about the project, experimental projects, and the technology of designing buildings and structures.

Key words: Project, document, conditions, complex, building, structure, urban planning, geodetic project.

A project is a set of technical documents that includes all the work performed during the construction of a building, structure or their complex. Buildings and structures can be built on the basis of standard, private and experimental projects. A standard project is intended for repeated use. In its development, economic and operational requirements, natural and climatic conditions of the construction area, as well as high-level size-planning and structural requirements should be fully taken into account. (kindergarten, hospitals, etc.). In the process of application of model projects, a connecting project for the construction site (that is, relief for the exact location of the model project, based on the situation of urban planning of land) is developed. Such a connecting working project includes the foundation, basement, plinth part redefined projects, building engineering network connection drawings to the external network. The special project is developed in the design of buildings and their complexes, which are rare and complex, of significant urban planning importance. Experimental projects are introduced in order to design new types of buildings and test them in different conditions for the purpose of popularization. Projects are developed in design organizations and design institutes. It is created by the customer in cooperation with the design organization. The task for designing includes all the necessary information about the function, capacity (size) of the building being designed, the details of the construction area, the geodetic project of the area, the start and completion period of the construction of the object, the construction structures and materials used. The task and On the basis of construction norms and rules, a design program is developed that incorporates the main requirements for the composition of rooms, their area and the volume-planning, structural, and architectural-artistic solutions for them and the building as a whole. Civil and industrial design of buildings can be two-stage and one-stage. Two-stage design is carried out in the design of model projects, complex individual buildings and structures.

At the first stage, the project of the building is developed together with the completed estimate document. It serves to review and evaluate the architectural and

structural solutions of the building, the estimated value of the building, the main technical and economic indicators. , situation (situational) plan, main drawings of the building - basement, typical and unrepeatable floor plans, facade, characteristic cuts, necessary materials for construction organization and technology. In order to carry out all construction and assembly works based on the approved project at the second stage is developed together with the estimate of the working documents that will be the basis. The working documents include complex working drawings of the building with detailed estimate calculations, assembly schemes of structures and elements, drawings for knots and details, sanitary-technical devices, landscaping and engineering preparation of the area. It is used in designing and connecting typical projects to construction site conditions. In this case, based on the task for the project, the working project is drawn up together with the estimate. Unlike the two-stage design process, the working project is intended for approval, on the basis of which all construction and installation work is carried out.

The structures supporting the building, i.e. foundations, walls, separate supports, inter-floor coverings are connected to each other in space and form the foundation of the building. can be divided into types:

— frameless buildings consist of interconnected external walls and inter-floor coverings. The external and internal walls of the building receive the weight of the beams and the roof. This constructive type is common in the construction of residences, schools and other public buildings:

— in frame buildings, the system of columns together with horizontal beams forms the skeleton of the building. The frame of the building receives all the forces and weights acting on the building. Frame building constructions differ from each other according to their function and are divided into supporting and protective groups. In this case, the outer walls perform only a protective function, they can be self-supporting or suspended;

— if, instead of internal longitudinal or transverse walls, a system of columns is installed, and inter-floor coverings are placed on the horizontal beams resting on them, such buildings are called half-frame buildings. In this type of buildings, together with the internal frame, the external walls also receive the load from the roof and the roof. According to the nature of operation, the frames are frame, link and frame-link. In a frame frame, the column and beam are connected with a single knot, forming a transverse and longitudinal frame that receives all the vertical and horizontal loads. since the nodes between them are not identical, it is necessary to install additional connections that receive horizontal forces. The function of such connections is often performed by inter-floor coverings, which form a diaphragm and transmit horizontal force to a single vertical diaphragm. Recently, in construction practice, combined, that is, frames with frame-connections are more common. In this case, connections are

made in one direction, and frames are inserted in the other direction. It should be said that it is more beneficial to use frame buildings in the construction of large panel public and residential buildings. In addition to these, large volume blocks made in factories are widely used in the construction of residential buildings. In general, as well as frame structures, panel, large panel, monolithic, reinforced concrete, and combined structures are used as constructions of buildings and structures. is used.

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