GEODETIC WORKS IN CONSTRUCTION . TYPES , COMPOSITION, ORGANIZATION AND CONTROL OF GEODETIC WORKS IN CONSTRUCTION .

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Abstract: *The implementation of any project begins with a set of geodetic engineering studies, and it plays a key role . Without geodetic data, it is impossible to transfer the project of buildings and structures to their place. None of the modern structures can be built without geodetic measurements. Engineering geodesy participates in all processes of construction of modern structures. In a general sense, engineering geodesy deals with topographic-geodetic research, drawing up projects of buildings and structures and their relocation, providing them with geodetic materials during their construction, determining the deformation of buildings and structures, etc.*

Key words: *Engineering geodesy, building and structures, research, geodetic search, geodetic reference network, project, laser device, electronic devices, GPS, topographic plan, construction, control.*

GEODETIC WORKS IN CONSTRUCTION

Geodetic work in construction consists of a set of measurements, calculations and requirements of regulatory documents in drawings and in kind, which ensure the correct and accurate placement of buildings and structures, as well as the installation of their structural and planning elements in accordance with the geometric parameters of the project. .Geodesic work is an integral part of the process of designing and manufacturing buildings. It follows that their content and technological sequence should be determined by the main production stages and technology.

includes the collection, analysis and summarization of materials necessary for design . In addition, for especially complex physical-geological processes and high-precision structures, geodetic observations are sometimes carried out to monitor deformations of the earth's surface. Topographic and geodetic surveys for construction are carried out directly, and other types of surveys are also provided.

Currently, geodetic measurements are widely used in engineering research, surveying the planned construction site, designing construction and buildings and

structures, installing equipment, and monitoring deformations during the operation of buildings and various engineering structures.

Today, geodetic surveys are widely used in various industries. This is due to the need for high measurement accuracy in the design and construction of industrial facilities and civil buildings. Therefore, the importance of engineering geodetic works in construction is very important. Various geodetic equipment is used in the mathematical processing of measurement methods and results, as well as in the construction and planning of geodetic base networks. Nowadays, modern computing techniques, laser devices, electronic devices, and GPS systems are widely used to perform engineering geodetic works.

Geodetic work at the construction site is one of the priorities of the general research complex. Based on the large-scale topographic plan obtained as a result of the ban, a master plan of the construction site will be drawn up, in which the design of buildings, structures, transport routes , engineering networks, etc. will be carried out. In the design of the construction master plan, where the entire complex of auxiliary and temporary buildings and structures is located, the topographic plan, as well as the working drawings of the vertical frame, serve as source material for the preparation of architectural and construction drawings of buildings, structures and various engineering branches.

A geodetic network created in the form of a polygonal network or a construction network is used on the construction site to move the projects of buildings and structures to their place. Using the points of the geodetic reference grid bases , the main axes of buildings and structures are relocated, after which the detailed distribution of parts of the buildings is carried out.

Construction projects , an important stage of development is engineering-geological research, on the basis of which the assessment of hydrogeological and soil conditions of the place is carried out. According to the results of this study, the type and construction of the foundation is selected . During the construction process, various control measurements are carried out, which ensure the installation of buildings and structures in accordance with the design dimensions and forms at the same time as the design work.

Geodetic works are of particular importance in the process of using prefabricated reinforced concrete structures in industrial and civil construction . In such conditions, it is necessary to check the correctness of the elements of the installed structure daily and constantly. After the construction is completed, an executive control will be carried out, which will determine all the heavy work from the geometrical parameters specified in the project. Control of the geometric parameters of the object is also carried out during the construction process itself. Modern methods of production of geodetic works allow to create execution plans and diagrams in electronic form or in the form of 3D models.

Types of geodetic works in construction

Any geodetic work performed in construction is carried out in three main stages. The first stage of the work (preparation) is the formation of the necessary technical conditions to include the list of the most important offers. Next, the location of the object in the area and its size will be determined. Below is a list of geodetic works to be performed .

- topographic planning,
- division of territory,
-executive research,
- measuring works,
- control work.

At the preparatory stage of the work, the necessary technical documents are collected and prepared. They include copies of existing topographic maps, boundaries of plots and construction sites, defined plot plans, master plans showing the contours of future objects. Next, information on the results of engineering work previously carried out at the construction site is collected. Based on the technical assignment, the ordering organization will develop a plan of future activities taking into account all existing conditions and restrictions.

The second of the case In the first phase, geodesists conduct field surveys in the area. This is a very complicated process, because often the actual situation can be significantly different from what is shown in the projects. The most responsible process of this stage is called topographic planning. It is one of the most basic and necessary types of engineering research, and it is made in different scales from 1:500 to 1:5000. Based on its results, researchers make a topographic plan. Search works are also carried out using the latest technical means such as modern electronic tachyometers and optical theodolites, laser levels, etc. Their use not only facilitates the hard work of surveyors, but also increases the accuracy of measurements indicated on the project. A topographical plan shows all details on the ground , buildings , surface relief, all existing surface and underground communications, such as gas and water pipelines or electric cables . Topographical plans are very accurate and should be perfectly structured. If they are not paid enough attention, serious errors will occur in the topographical plan. Therefore, drawing up a topographic plan is the task of a highly qualified specialist. Thus, when it comes to land management procedures, topographic map data is required almost everywhere.

The third of the case The final stage of geodetic work is called camera work. In it, they determine the data obtained during field work and all calculated values. The technical report on the work performed in the field of geodesy is called the explanation. The technical report includes mathematical processing of all the results of the performed work, drawings , diagrams and other information. All formalized documents are submitted to the project department.

Composition of geodetic works

- creation of a geodetic network base for construction ; including the construction of the central network of the construction site and the creation of a central base for the installation of the main or main central axes of buildings and structures, main and external linear structures, as well as technological equipment;

- highway, linear structures or their parts, with the exception of temporary buildings (structures), on-site installation;

-if this is provided for in the geodetic work production project, as well as in the production of detailed centralization work, the internal central network of buildings (structures) and the centralized single network for installation of technological equipment in the initial and installation horizons Create;

of buildings (structures) and the correctness of geometrical parameters and completed geodetic documents preparation or their individual parts;

of foundations, buildings (structures) and their parts, if this is provided for in the design documents, are determined by field control or state control bodies.

The geodetic work mentioned above is a necessary part of the technology of construction and assembly work and is carried out according to one schedule related to the construction process and the period of completion of special works. During the construction process, the creation of the basis of geodetic measurements of deformations of buildings and structures and their parts is carried out by the customer. The contracting organization undertakes to carry out geodetic work during the construction process, geodetic control of the accuracy of the geometric parameters of buildings (structures), and conduct performance tests . Development of production projects of geodetic works for large and complex objects and buildings is developed in accordance with the procedure established for the production plan (PPR) . According to the instructions of the customer, the PPGR can be developed both by the contractor and by specialized design organizations .

Before starting geodetic work on the construction site, the working drawings used in geodetic work must be checked for compatibility of dimensions, coordinates and heights and allowed to be executed by the customer's technical control. Geodetic work should be carried out using the necessary accurate measuring instruments. Measuring instruments must be adjusted in the prescribed manner and checked regularly before starting work.

Organization of geodetic works in construction

Geodetic work in construction consists of a set of measurements, calculations and requirements of regulatory documents in drawings and in kind, which ensure the correct and accurate placement of buildings and structures, as well as the installation of their structural and planning elements in accordance with the geometric parameters of the project. .

Geodetic works are an integral part of the process of designing and manufacturing buildings. It follows that their content and technological sequence should be determined by the main production stages and technology.

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and geodetic surveys for construction are carried out directly, and other types of surveys from the geodetic point of view are provided.

In the production of construction structures, they control compliance with the geometric parameters of the forming equipment and carry out statistical control of the geometric parameters of the construction structures.

In the period of preparation for construction, the basis for geodetic surveying is created, engineering preparation of the area is carried out, and the main and main axes are laid out in kind.

Axes of structural and planning elements are established on the construction site, geodetic support of construction and installation works is carried out, a step-by-step executive survey is carried out on completed objects and, if necessary, deformations are controlled. After the construction is completed , the construction a technical report will be drawn up on the results of the geodetic work performed during the process and an executive master plan will be drawn up.

Under construction geodetic control

a regulated system of measurements and calculations that allows to control the correctness of the main geometric parameters during the construction process . The main goal of these measures is to ensure all the necessary norms and standards specified in the project documents . Within the framework of geodetic research for the construction industry, a complex of various geodetic works and related tasks is carried out. In the process of geodetic works, the term engineering geodesy is often used to designate all works. Geodetic monitoring requires the permanent presence of a geodetic engineer at the object, continuous work with appropriate analysis and measurements. Also, if necessary, provision of local geodetic control may be offered after completion of a certain stage of construction and assembly works for small objects. At the same time, it is necessary to ensure step-by-step control to make timely decisions on deviations or changes in the project. Geodetic monitoring during construction can be continuous, the geodist must be constantly on the construction site . deals with relevant measurements and data analysis. The size of the work and its content are determined by the customer in the technical assignment.

SUMMARY

The implementation of any project begins with a set of engineering studies : (geodesic, geological and ecological). This on the ground geodetic studies main role he plays Given reports of the terrain configuration , its features about data own into received topographical symka are descriptions . Later on they are construction of the platform head of the plan basis organize does Geodetic without data building and of structures projects to the place transfer possible it's not .

Modern constructions never one geodetic without dimensions dry it wo n't be . Engineering geodesy , modern constructions to build all processes participation enough .. General no sense engineering geodesy topographic - geodetic search , building and structures projects make up and them to the place Move them to build in the process geodetic materials with provision , building and structures deformation determination and etc affairs with is engaged . That's why for construction their work geodetic services with provision , construction industry indispensable and the most responsible part is considered and she is mu him important have

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