



GEOTECHNICAL REQUIREMENTS AND ADVANCED RESEARCH IN THE FIELD OF CONSTRUCTION IN THE CONSTRUCTION OF MULTI-STOREY BUILDINGS IN THE REPUBLIC OF UZBEKISTAN

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<https://www.doi.org/10.5281/zenodo.8103461>

ARTICLE INFO

Received: 24th June 2023

Accepted: 29th June 2023

Online: 30th June 2023

KEY WORDS

High-rise buildings, construction objects, customer requirements, building dimension drawing, construction innovations, geometric building projection, geotechnical construction.

ABSTRACT

Today in the Republic of Uzbekistan in the field of construction and the construction of multi-storey houses and structures requires modern design. In this field, in the process of building buildings of various designs, approaches and studies have been followed that allow the implementation of high-rise building construction processes. Results based on geotechnical requirements in the field of construction and new approaches to improving the technologies used are becoming important in the implementation of logistics activities. It also brings new developments to the design and construction of the building under construction. High-rise buildings, which are formed based on the construction process and future user requirements, require perfection and modernity in all aspects. Sustainable development is another important issue in the world of high-rise buildings. There are technological innovations all over the world and it is necessary to integrate them into building construction. This article contains the current structural and architectural technological solutions used in the construction of multi-storey buildings and the prospects of technological development opened in this field and several proposals. The high-rise building is constantly relying on technological innovations and achieving the specified results based on engineering works. Practical technological innovations in high-rise building are manifested in various ways: geometric shape, foundation, protection of construction pits, vertical and horizontal construction, materials, vibration damping systems, and determination of energy performance indicators. . In various architectural designs, it determines the relationship between the shapes and form of the building, and its construction quality is an important aspect. A high-

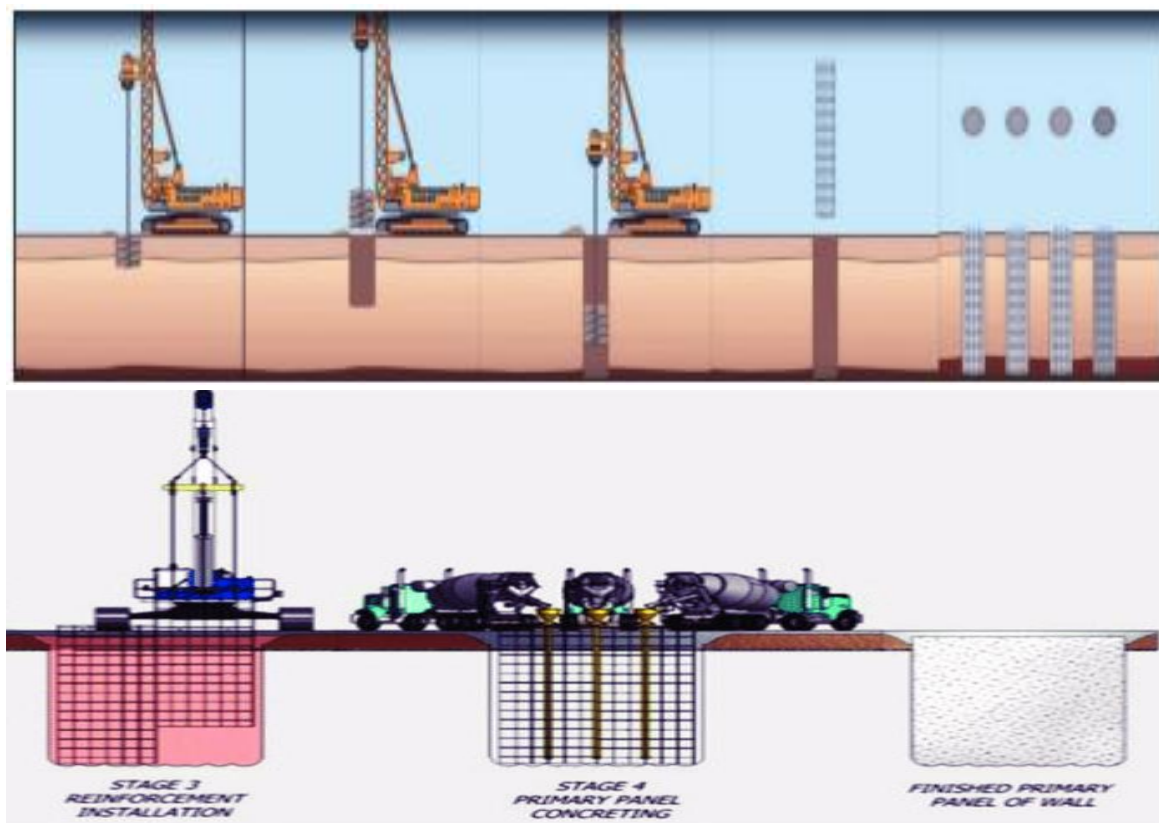


rise building can be very visible and recognizable due to its shape, the scheme of the building under construction is made based on the drawings drawn in the characteristics of the urban layout. Complex shapes and requirements arising from the height of buildings lead to an increase in structural elements. The building is perfect in every way, and earthquake-resistant sinusoidal vibrations are calculated and tested. In addition to building impact forces and wind load stiffness, very advanced technologies of modern vibration measuring instruments are used to counter both.

Introduction

The creation of a construction pit in the specified border area is considered as the space where the foundation is built or the lower part of the object under construction, and it also consists in creating horizontal and vertical elements of the underground floors of the building and increasing the stability. The construction well will need to provide space, comfort for the machine and the workers, but primarily ensure the safety of workers and materials used in the construction process are used. It depends on the choice of the construction pit building, construction site and it will be necessary to look at soil properties, availability of underground water and other various factors. The design and construction of the construction pit should ensure its stability and watertightness. Under construction in working processes, that is, measures to prevent water ingress are considered. Prevention of water ingress is one of the main features. Because the perfection of the construction pit is in the project of protecting the walls of the lower part of the building deep construction pits can be irreversibly affected and by groundwater in the sense of destabilization it will be necessary to ensure the safety of pit walls and workers. The construction pit becomes a geotechnical structure. During the construction work in the case of more unfavorable situations, in this case it will be necessary to develop its own special project. Processes in the field of construction in the article presents and explains several solutions for geotechnician will be the creation and protection of construction pits. In the field of construction presented and explained, that is, in the formation of a geotechnical object: reinforced concrete diaphragm, reinforced concrete piles and the top-down method, cement concrete pouring processes are examples. Permanent protection means that the built structure remains on the ground as a separate structure, but often as a load-bearing part. Build in geotechnical design of construction objects the structure of the future building in the form considered as a type of permanent wall. It depends on the choice of the method of protection of the construction pit geological characteristics of the soil, depth and will consist of digging a pit and studying the level of underground water. Processes involving the excavation of a construction site trench under the protection of bentonite support suspension, installation of the intended fixture basket and geotechnical construction site concrete will need to be placed to form the wall. The designed or constructed reinforced concrete diaphragm must withstand the active load and it will be necessary to take into account the strength of the surrounding soil and hydrostatic pressure. The unit of horizontal

loads is taken and the load is evenly distributed along the wall. The walls are made of consecutive elements with a length of 2.5 to 5 m, therefore the sides are built first, then the odd sides. Diaphragm walls are produced as a waterproofing element and are designed to achieve a lot large depth - is placed in the border area of more than 30 meters. Excavation processes of the lower part of the geotechnical facility construction - excavation - under normal soil conditions digging is done with or by a clam or grab and if there is soil, use a trench drum cutter excavator includes soft stones. Insertion of reinforcement means placement of the building object in order to achieve the strength limit. Designated construction area prefabricated reinforcing cage consisting of a border area the main reinforcing bar is a welded horizontal reinforcing bar. Basic reinforcement mounted on both sides of the cage. Those who are far away must be installed to ensure the protective layer of concrete is the recommended layer to increase the strength limit should be about 10 cm. Concreting - the construction of the object is carried out using the placement of concrete. The pipe initially only touches it the bottom of the excavation to prevent separation is built of concrete. When concrete is poured, bentonite is changed from slag due to its low density and density is stronger than concrete. The concreting stage must be carried out in accordance with and in accordance with the technical instructions. The period of completion of the construction facility - includes cleaning processes. Construction site the upper part of the concreted diaphragm, since α is 0.5 a bad layer up to 0.8 m appears in the upper part of the diaphragm, which must be removed. Sometimes parts of the diaphragm are connected to the cover the building will be restored by replacing it with reinforced concrete.



Picture 1. Technological process of construction of geotechnical structure. Creating a geotechnical object.



The load falling on the support of the construction wall of the building includes the pressures and the performance of the supports reinforced construction and the amount of compressive load falling on the unreinforced surface is tested. Safety in the scheme of the construction object or may not intersect to form protection and the wall, which increases the strength of the wall, acts as a support. This wall can be additionally supported and ground anchors or internal supports are formed. Process the installation guide begins with construction and the patterns for the columns are dropped. After that construction of unreinforced piles with free space later, the distance between them is reduced to build a reinforced pile. A reinforced column is drilled between two unreinforced piles, forming one. Made on the wall interlocking pile wall with and without piles used for strengthening. A retaining wall is best suited a soil profile with a high water table or if there are additional loads on the active sides. Another system of wall piles for support adjacent piles representing a reinforced pile wall piles are close together, but not overlapping. Adjacent pegs are on a matching surface for soil with or without a high water table regulated and lowered with proper drainage. Both systems are additionally reinforced a cover or headlight structure, that a single monolithic reinforced concrete beam unites all piles. Security and permanent walls piles have anchors and supports that provide support for their bracing.

Measurement of the equilibrium state of pressure forces of equal value in geotechnical construction at the facility and attachment to the boundary area of the construction.

Geotechnical or soil anchors are a special element within geotechnical structures used for improvement in the construction of facilities and strengthening the natural ground behind the soil protective structures installed to protect the profile or construction pit with reinforced concrete to determine the equilibrium position of pressure equal to the structure through diaphragms or piles. Anchors transmit compressive stress and construction determined as a result of force effects from the structure to the surrounding soil. To choose the right anchor, it is necessary to determine the main anchoring elements, which are:

- A piece of rock or soil that provides security the transfer of force from anchor to anchor and consists of determining the coefficient of strength in the excavated part of the earth.
- work based on the results of calculation and analysis of the value of the force received by the anchor,
- Type and durability and dimensions / size inducing a state of equilibrium from the selected anchor,
- Anchoring approach/method,
- Pre-strengthening program of anchorage and formation of boundary area of the structure in the case of equal value,
- Implementation of the deliverables and testing program.

Complete geotechnical anchoring / grounding anchoring can be divided into four main operations:

- drilling,
- production, transportation, storage;
including processes such as assembly and installation of anchors
- Implementation of safety in construction in two stages, taking into account pre-stressing.



Picture 2. Stages of construction work based on design-based dimensions in the construction of multi-story buildings.

It should be noted that this method requires high requirements and the accuracy of the construction of steel supports mounted on piles, as well as a clear design diaphragm and constant mounting consists of connecting elements containing sealing lines. A great advantage of the method is the prospect of simultaneous work in the underground and above-ground parts of the building. After the diaphragm works, deep is mined. This method is different in fact, digging deep is the next step piles and columns and drilling for installation is considered. After the installation is completed, the ceiling forms for concreting the slab are added and if necessary with a hole to evacuate the excavated materials are created. The piles sew the whole load and before the foundation slab is built, after that the elements act in synergy. In the underground part holes remain outside the building to aid in the evacuation of excavated materials, however it is also used for transportation of building materials holes also act as ventilation during construction. When concreting the first ceiling slab, works moves down one floor, this is done by machines it is necessary to take into account the equal value of the pressure force through the hole in the constructed plate. Excavate the next underground level/ the floor starts below that ceiling slab. After excavation under the ceiling slab required depth and excavated material transported outside the construction pit, construction with the beginning of the next ceiling tile, the scheme is lowered. It can be it is done in two ways, one way - slab formwork on the ground itself, and the other way - moldings of the ceiling slab are made using suspensions attached to the ceiling is lowered to the slab of the upper floor. After the geotechnical design dimensions of the construction object and the value of pressure balance are fully ensured, the construction processes of the upper floor of the building are carried out.

Conclusion

Taking into account all the peculiarities of the upper floor buildings, processes to achieve low energy consumption is considered a difficult task. High energy consumption high-rise buildings will lead to the search for innovative solutions and the implementation of research results to improve energy efficiency, and there will be a need to consider a wide range of dimensions in this area. This article presents the results of the research and provides an overview major technological advances by providing selected high-rise buildings focusing on their geometry in the last decade, construction and structure system, complex anti-



vibration elements and systems, stability and similar related properties are reviewed and analyzed. The technology of building high-rise buildings is very high is demanding and unique in its own way and technological procedures, and the technical approach will depend on the use of building materials in the construction process. The profitability of the whole project is strong will affect the time required for construction, so careful design and planning is essential. of the object construction site - especially if the object is destroyed in a dense urban and developed area, with difficult access to the site and with selection optimal technologies for various constructions works. One of the multi-storey buildings the advantages are a greater number of total repetitions standardized and enabling floors modular elements installed with regular use procedures are reviewed. Great progress in their construction amenities were created through equipment, development and improvement, as well as the application of technological procedures in the construction method.

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