

An Analysis of Foundation Treatment Technology in Housing Building Construction

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Abstract: In recent years, with the rapid development of China's construction industry, the number and scale of housing constructions are also increasing, and people have higher and higher quality requirements for housing constructions. In the building construction, the foundation treatment construction is an important part, and its construction quality will directly affect the quality of the housing building construction. Therefore, in building construction, the application of foundation treatment technology should be strengthened to ensure the quality of foundation construction. This article analyzes the characteristics of the foundation treatment construction and explores the application measures of the foundation treatment technology, hoping to help improve the quality of the building construction.

1. Introduction

Introduction: Housing construction projects are directly related to people's daily lives. As the number and scale of housing construction projects increase, people pay more attention to the quality of housing construction projects. Foundation treatment technology is one of the key technologies for building construction, and it has a very important role and significance in improving the stability and bearing capacity of the foundation. In the course of foundation construction, the actual needs of the construction should be combined with reasonable selection of foundation treatment technology to ensure the quality of the foundation.

2. Characteristics of Foundation Treatment Construction

2.1 Large Differences

China is a vast country with different geological structures and geological characteristics in different regions., and there are also large differences in climatic conditions in different regions. The foundation treatment construction needs to be carried out in accordance with the actual situation of the location of the building, so that it can be adapted to the local conditions. Therefore, the foundation treatment construction has large differences.

2.2 Great Hidden Dangers

Building construction projects are highly complex, and there are multiple professional areas involved in the construction process, as well as many factors. Which is greatly increased the complexity and difficulty of building construction. In order to ensure the quality of housing construction, we need to pay attention to controlling all construction links. The foundation treatment link is the basis of the entire building construction project. If there is a leak in the foundation treatment process, it will definitely have an adverse impact on the entire building construction project, which will not only affect the quality of the building construction, but also affect the use function and service life of the building, What's more can even threaten people's personal safety. Therefore, the foundation treatment has the characteristics of great hidden danger.

2.3 High Difficulty

Foundation treatment belongs to underground engineering. During the foundation treatment, it is easily affected by geological conditions and geological environment. Before the foundation

processing construction, a comprehensive and detailed survey of the geographical structure of the project site is required, and a scientific and reasonable plan is formulated in conjunction with the survey data. Therefore, the construction plan is non-repeatable and every new building construction project needs to be re-planned in accordance with the geological environment characteristics of the project location, so the foundation treatment is difficult.

3. Application Measures of Foundation Treatment Technology in Building Construction

3.1 Construction Preparation

Construction preparation is an important foundation to guarantee the foundation treatment of buildings. Through the preparation work, it is possible to formulate countermeasures for problems that may occur during the construction process and lay the foundation for the subsequent construction. First of all, we must make preparations for materials and ensure the quality of construction materials. The construction materials should be reasonably selected according to the specific requirements of the construction and the factors such as the geological environmental conditions of the project location. Secondly, it is necessary to make preparations for related facilities, such as the tools and mechanical equipment used in the construction process shall be kept in good condition to avoid the construction quality and progress being affected by the construction equipment problems. Finally, a comprehensive inspection of the geological conditions of the project site is required to ensure that the geological conditions meet the requirements of the foundation construction. Therefore, it is necessary to apply professional surveying technology to investigate the viscosity of the foundation and the properties of the soil before the construction of the foundation, and combining survey data to develop specific ground treatment technologies. Only in this way, the advantages of foundation treatment technology would be better utilized and the quality of the foundation would be improved.

3.2 Foundation Reinforcement Technology

In the foundation treatment technology, the foundation reinforcement technology will be applied to the soft foundation, which can effectively improve the firmness of the soft foundation, and has a very important role and significance in improving the stability of the foundation structure. The foundation reinforcement technology mainly includes concrete reinforcement technology, grouting method, pre-compression method and dynamic compaction method. Different reinforcement technologies have different functions and advantages. In the actual construction process, the foundation reinforcement technology should be reasonably selected in accordance with the actual situation of the project. As far as concrete reinforcement technology is concerned, the nature of concrete materials is used to strengthen the foundation and improve the durability and stability of the foundation. Concrete can be used not only for foundation reinforcement, but also for foundation treatment, which can effectively improve the quality of foundation construction. In order to ensure the quality of concrete, it is necessary to strictly control the preparation of concrete, the mixing of concrete, the transportation of concrete, the placement of concrete, and the maintenance of concrete. Strictly control the quality of concrete to lay the foundation for foundation construction. In terms of grouting method, in order to prevent the slurry from rising, an unreinforced layer is usually set, and an unreinforced layer with a thickness of about 1 m is retained in the silicified soil layer [1]. To further enhance the function and effect of grouting, it is also possible to use the method of ashing into the soil or tamping the plain soil. During the initial grouting process, the pressure should be controlled at 0.2-0.4MPa. At the end of grouting, the pressure needs to be controlled at 0.8-1 MPa. In the process of strengthening the soil layer, the reinforcement is usually performed in a top-down order. It is worth noting that during the grouting construction process, it is necessary to carry out spot checks on the indicators of the slurry ratio and the performance of the slurry, and to strengthen the monitoring of the depth, position and diameter of the grouting hole. Once a quality problem is found during construction, grouting should be stopped at once, and effective measures should be taken to resolve the problem in accordance with the cause of the problem. As far as the preloading

method is concerned, the foundation soil is squeezed by increasing the load to discharge the water in the volume, make the soil more compact, and improve the bearing capacity and stability of the foundation. The preloading method is widely used in cohesive soil foundation. The preloading method mainly includes a vacuum preloading method and a stacking preloading method. The vacuum preloading method is usually applied to deep foundations, and a drainage well needs to be set at the same time to discharge the pre-pressed water in time. As far as the preloading method is concerned, if the thickness of the soil layer is less than 4m, the natural foundation preloading method is usually used. If the thickness of the soil layer is greater than 4m, the vertical drainage preloading method such as a sand well is usually used. As far as the dynamic compaction method is concerned, it refers to compacting the foundation to improve the bearing capacity and stability of the foundation. In the process of applying the dynamic compaction method, a trial ramming should be performed first. The trial ramming can help the construction personnel understand the geological situation, and can help the construction staff determine the location of the compaction point. Secondly, the foundation soil should be compacted and leveled to ensure the flatness of the foundation soil. Finally, in the process of dynamic compaction, in order to ensure the quality of construction, the construction method should be adopted in sections. Construction is usually performed from the edge to the middle, and the leveling process is performed again after the dynamic compaction is completed.

4. Conclusion

The application of foundation treatment technology in building construction can provide a strong guarantee for the quality of building construction. The foundation treatment has the characteristics of large differences, great hidden dangers, and high difficulty. Therefore, it is necessary to apply the foundation treatment technology reasonably to improve the stability and bearing capacity of the foundation, ensuring the overall quality of the house building, making better use of the house building function and extending the service life of the house building.

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