Analysis of Construction Technology Based on Concrete Structure in Civil Engineering

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Abstract: With the rapid development of our country's economy, the process of urbanization is accelerating, which brings a lot of civil engineering construction. In the construction of civil engineering, the construction technology of concrete structure is an important link to ensure the quality of construction. This paper discusses the construction technology of concrete structures in civil engineering buildings to provide reference for the development of related work.

1. Introduction

Concrete structure construction is an important link in civil engineering construction, it is very widely used in civil engineering projects, concrete structure construction contains many links, if there are technical problems in the construction process, it is easy to bury certain safety hidden danger to the construction work of concrete structure, affect the stability and safety of concrete structure, and even bring some influence to the construction of civil engineering project. Therefore, the construction unit should pay attention to the technical optimization and site management of concrete structure construction, and ensure the smooth development of concrete structure construction by constantly improving the construction technology and management level.

2. Construction Technology of Concrete Structure in Civil Engineering Construction

2.1. Selection of Concrete and Configuration

If there are quality defects in the selection of concrete materials, or if there is no strict control and related quality inspection for the purchase channel of concrete materials, it is easy to make some unqualified materials mixed into the construction, and to bury the safety hidden danger to the construction work. Therefore, the strict material selection and preparation work is the foundation of concrete structure construction, the selection of concrete materials should pay attention to meet the national quality and environmental protection standards, combined with the construction requirements for the proportion of concrete mix, and then through the proportion of concrete ready-mixed, ready for the next construction, as shown in figure 1.

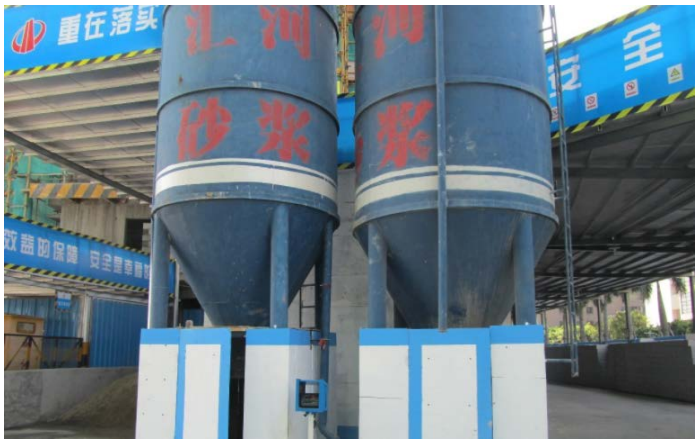

Figure 1 Concrete Mortar with Stir Figure.1 concrete mortar and mixing

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2.2. Pre-mix and Transport of Concrete

In addition, the water-cement ratio is also one of the important factors in the construction of concrete structures. If the water-cement ratio cannot meet the prescribed requirements, it will cause the concrete to crack dry or solidify too slowly, which will affect the construction quality. Therefore, it is necessary to strictly control the strength and water-cement ratio of concrete in accordance with the requirements of concrete ready-mixing and the actual needs of construction projects to ensure the stability of concrete structures; in addition, the transportation of concrete should go through rigorous planning, be familiar with the route and carry out continuous stirring in the course of transportation, avoid surface water loss and dry cracking, pay attention to the protection of concrete during transportation, strengthen the transportation management, and ensure the smooth transportation of concrete according to time, quantity and quality.

2.3. Concrete Pouring

Concrete pouring is the core link in the construction of concrete structure in the whole civil engineering building, which is directly related to the quality and level of the construction work of the concrete mechanism. When the concrete structure is poured, the quality inspection of the formwork and steel bar of the civil engineering building should be carried out first to ensure that the steel bar is tightly bound, the position is accurate, and the position of the formwork installation meets the requirements. When concrete is poured, checking the concrete ready-mixed quantity is sufficient, the concrete pouring equipment is running well, the concrete ready-mixed quantity must be well prepared according to the actual construction situation, if the concrete supply is insufficient in the concrete pouring process, it will bring the big influence to the construction, if the concrete ready-mixed condition is insufficient in the concrete pouring, the method of reducing the pumping speed should be adopted, and the concrete should be continuously stirred to prevent the surface from drying; the concrete pouring operation should adopt the corresponding construction method according to the concrete construction content, as shown in figure 2, the construction of the beam slab concrete structure should keep the direction of pouring concrete and the direction of pouring according to the principle of far and near, to prevent the flow and influence of the construction operation on the opposite direction of concrete pouring. [1]In addition, if the quantity of concrete pouring is large, attention should be paid to the proper cooling of the pumping pipe, and the cooling treatment of the parts such as orthopedics, formwork and so on can be carried out before pouring, and the water injection treatment of the cooling water pipe in the concrete structure should be carried out after the completion of the pouring, so as to reduce the steady inside of the concrete structure, increase its stress and reduce the cracking of the concrete.

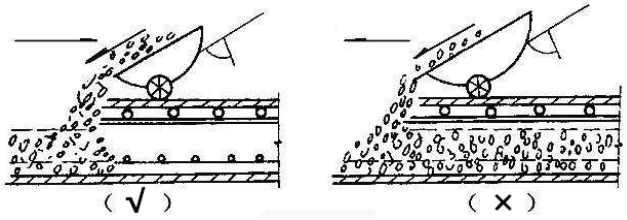

Figure 2 Correct method for construction of beam-slab concrete structure

2.4. Vibrating Concrete

After the concrete construction is completed, the constructors should vibrate the concrete to ensure that the cracks and gases in the concrete can be discharged through the vibration, the filling of the concrete structure is tight, and the compactness and strength of the concrete structure are enhanced by effective vibration. The concrete vibration can be used either by large or small equipment for machine vibration (as shown in figure 3 is a large mechanical vibration equipment), or by manual vibration, each layer of concrete should be poured with sufficient vibration before the next layer can be poured. In the process of vibration, the process of inserting the vibrating rod should be as fast and accurate as possible to make it perpendicular or inclined to the concrete plane

about 45°, the vibration should be uniform, the action should be slow when the vibration equipment is pulled out, the vibration equipment should not touch the surface of the concrete structure, and the bubble should be reduced.

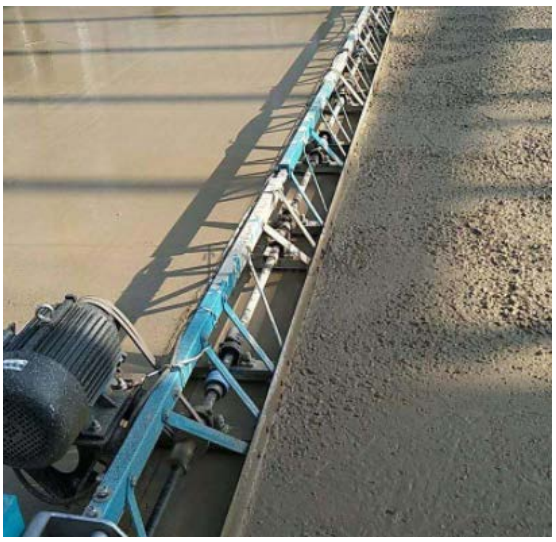

Figure 3 Mechanical vibration of concrete structures

2.5. Treatment of Cracks in Concrete Structures

In the process of construction, if the cracks of concrete structure cannot be dealt with in time, it will lay a certain safety hidden danger to the stability of the project structure. In particular, when the concrete cracks in the initial setting stage, it is necessary to compact the surface of the concrete to ensure that the surface of the concrete is smooth and smooth; if the surface of the concrete is uneven, the method and speed of the upper layer of concrete pouring should be adjusted in time to prevent the fracture of the concave part. [2]In addition, in the construction process of concrete structure, the construction unit should continuously improve the construction level, analyze the reasons for the concrete situation of the crack formation in depth, comprehensively analyze the material, concrete preparation, transportation, pouring, vibration, technical problems of the construction personnel, and take effective measures to deal with it.

3. Site Management of Concrete Structure Construction in Civil Engineering

3.1. Establish and Improve the Management System for the Construction of Concrete Structures in Civil Engineering

The construction management system is the premise and guidance of the construction of concrete structure in civil engineering construction. In the construction operation of concrete structure, if there is no standard construction management process and system as the guidance, it is easy to bring difficulty to the work of construction management. Therefore, the construction unit should make perfect and meticulous construction management process and system when carrying out the construction of concrete structure, start from the actual situation of construction project, strengthen the management and execution of safety and quality, strengthen the management and supervision of the construction personnel, strictly follow the relevant laws and regulations of the state, clarify the post responsibility, improve the management level of the construction unit, strengthen the concept of quality and safety management, and promote the smooth development of the construction of concrete structure in civil engineering construction.

3.2. Strengthening Quality and Safety Management

The construction site of concrete structure in civil engineering construction is complex, and there are many construction materials and construction machinery and equipment, so the consciousness of quality and safety management is of great significance to the construction workers, and the

construction department should improve the quality and safety management means to promote the implementation of the construction site management work. On the one hand, in the field management of construction equipment, according to the equipment use standards for the selection of concrete construction equipment, equipment use process should pay attention to safety compliance operation, equipment after the use of equipment should be timely put back to the special location of equipment storage; on the other hand, in the field management of concrete materials, strictly control the quality of concrete materials, select materials in accordance with the national quality and safety standards, the use of concrete should conform to the construction work standards, avoid waste materials, timely cleaning of garbage and do a good job of garbage sorting, to ensure that the construction site is clean and tidy, materials and equipment storage should be arranged according to the special location, and clear management personnel to ensure the use and storage of standardized.

3.3. Improving the Professionalism and Professionalism of the Construction Staff

The professional level and professional accomplishment of the construction personnel directly affect the overall level of the concrete structure construction in civil engineering construction, many construction personnel because of the lack of technical level and professional responsibility, once the safety hidden danger is buried in every link of the concrete structure construction, it is easy to cause the concrete structure crack, fracture, concave and convex inequality, which will not only affect the stability of the concrete structure, but also bury the serious safety hidden danger for the construction personnel and users. Therefore, the construction department should pay attention to the management of the construction personnel on the spot, strengthen the professional construction level of the construction personnel, strictly require the construction personnel to carry out the work according to the construction code of concrete structure, strengthen the consciousness of safety and quality management, strengthen the on-site inspection and management work in the process of construction work, deal with the construction quality and safety problems in time and carry out effective preventive measures; strengthen the professional quality of the construction personnel, clarify the responsibility of the post, strengthen the communication with the construction personnel, and promote the effective connection of the construction links, so as to promote the smooth development of the concrete construction of civil engineering construction.

4. Conclusion

The construction of concrete structure in civil engineering construction should strictly follow the construction requirements, strictly control the construction quality during the construction process, improve the construction level and quality management consciousness of the construction personnel, and improve the technical level of the concrete construction operation, so as to ensure the smooth development of the construction operation of the anti-mis-control building, enhance the stability of the concrete structure, and ensure the overall construction level of the civil engineering construction.

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