

Key Technology of Mass Concrete Pouring in Construction Engineering

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Abstract: With the continuous advancement of urbanization in China, the large-scale development of construction projects has been promoted. As the key technology of building construction, mass concrete construction technology plays an important role in improving the quality of the project. Based on this situation, in order to ensure the smooth development of construction projects, this paper mainly summarizes the characteristics of large-scale building technology, focusing on the comprehensive application of key technology for mass concrete pouring construction.

1. Introduction

1.1 Large Demand for Concrete Raw Materials

In the mass concrete pouring operation, compared with conventional concrete, mass concrete has a larger surface area and volume. In the actual pouring process, the demand for concrete raw materials is large. In the actual construction process, in order to meet the needs of mass concrete construction and provide sufficient raw materials for it, it is necessary to innovate the mass concrete construction technology and strictly control the speed of pouring.

1.2 High Construction Technology Requirement

In the process of mass concrete construction, because mass concrete is different from conventional ones, in addition to the large surface area and volume, the main thing is that the mass concrete structure is thicker. In this case, many problems such as honeycomb and cracks will inevitably occur in the operation of large-volume concrete. In order to avoid the above-mentioned problems and effectively improve the construction quality, it is necessary to manage the mass concrete construction and ensure the continuity of its operation, which helps to suppress the crack phenomenon to a certain extent. It is effectively guaranteed the quality of large-scale concrete operations.

2. Key Technical Points of Mass Concrete Pouring Construction in Construction

2.1 Construction Preparation

In the process of mass concrete construction, it has higher requirements for construction continuity. In the actual construction process, technical personnel need to ensure the continuity of the construction according to the actual situation. It can not only ensure the successful completion of the pouring operation, ensure that the project is delivered as scheduled, but also largely meet the quality requirements for large-scale construction. First, before the construction of mass concrete pouring construction projects, the construction unit needs to make preliminary preparations for construction, strengthen pre-job training for construction personnel, improve their construction operation level, and rationalize their operation behavior. At the same time, it is also necessary to strengthen the management of materials and equipment, make good preparations in advance, ensure that all work is carried out in place, and provide important guarantees for the subsequent construction. Second, according to the requirements of mass concrete construction, the construction unit needs to do a good job of cement, aggregate and water ratio design, and ensure the scientific rationality of the ratio design. During the concrete matching test, the relevant test personnel must do the field and laboratory test work, and ensure the accuracy of the experimental data. Third, Third,

prepare materials as important as aggregates and cement in the early stage. At the same time, we must strengthen the inspection of materials before admission, strictly control the quality of materials to meet construction standards, and avoid agglomeration phenomenon. In the process of selecting aggregates, select aggregates with low expansion coefficient and good gradation as much as possible. At the same time, the quality of the aggregate needs to be strictly controlled to avoid the presence of stones and debris in the aggregate. In the process of selecting water, select high-quality water sources as much as possible to ensure that the water used is green and pollution-free. The quality of the project can only be guaranteed if the preliminary preparations are fully done.

2.2 Optimize the Concrete Mix Ratio

In the process of mass concrete construction, it is necessary to ensure that the pouring operation is completely completed before relevant technical personnel can be organized for subsequent maintenance management. In the concrete pouring link, if the pouring is interrupted by some reasons, it will have a great impact on the concrete construction, resulting in the construction quality cannot be guaranteed, and then affecting the quality of the entire project. During the layered pouring, the relevant operators must strictly implement the basic operation process, strengthen the management of the vibrating link, grasp the key points of the vibrating operation, strictly control the vibrating speed, and the vibrating link should be fast to ensure the material is evenly vibrated. In addition, during the mass concrete construction process, In addition, in the process of mass concrete construction, the construction unit must control the mix ratio of the concrete pouring according to the construction requirements. Only by ensuring the scientificity and rationality of the mix ratio can the water heating coefficient be reduced. It can effectively control the problem of cracks in the subsequent maintenance stage to ensure the overall quality of the project.

2.3 Select Appropriate Construction Scheme

At present, the mass concrete pouring is mainly divided into two methods: continuous pouring and layered pouring. The two methods are respectively reflected in the following aspects: First of all, in the actual construction process, continuous casting should be guaranteed as much as possible, otherwise it will cause cracks. On the basis of ensuring the current work, it is also necessary to strictly control the thickness of the concrete paving so that it meets the relevant standards. In the process of paving thickness control, it depends on the vibration effect and the concrete workability. In the concrete pouring process, if the pumping method is used for pouring, the paving thickness should be controlled below 60cm. If the artificial pouring method is selected, the paving thickness should be controlled within 40cm at this time. According to specific practical research, large-volume concrete is doped with admixtures, but the amount of cement used is not large. In the actual mixing process, it should be controlled to about 30 minutes. Especially when using additives, they must be guaranteed to comply with relevant standards. Secondly, in the case of selecting the layered pouring method, the second layer of concrete pouring must be performed after the first layer of pouring is completed, and the pouring is carried out layer by layer in accordance with this pouring method.

2.4 Maintenance Management of Mass Concrete Pouring

Whether the maintenance management work is in place directly affects the quality of mass concrete pouring. In the actual pouring process, according to the needs of mass concrete pouring, subsequent maintenance management work can be done to enhance the strength of the concrete, improve the crack resistance of the concrete, and thereby ensure the effect of the concrete operation. As the large volume of concrete has a large volume and a large amount of internal hydration heat release, which puts forward new requirements for concrete maintenance work. In the actual maintenance management process, it is necessary to strengthen the surface temperature control. In order to avoid the influence of internal and external temperature differences, the quality of its maintenance is not up to standard and cannot meet the requirements of the current operation. In the current situation, it is necessary to use an outer cover film to strengthen its heat preservation treatment. By using this insulation method, the problem of the temperature difference between the

inside and outside of the concrete is effectively solved. When the temperature is high, the insulation material needs to be removed in time and sprinkling evenly. Based on guaranteeing the wetness of the concrete surface, it is necessary to ensure that the concrete is reduced. When the concrete begins to set, the relevant operators need to squeeze it to avoid dust on the surface.

Conclusion: In summary, with the continuous rapid development of the construction industry, the effective use of mass concrete construction has been promoted, and the technology has also been widely used. In the actual construction process, if construction enterprises want to ensure the quality of large-volume concrete, they must do a good job of preliminary preparations, strengthen the management of the construction process, pay attention to details, and ensure the quality of mass concrete, thereby improving the overall quality of the construction project .

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