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## Summary of Discussion Ideas for Construction Concrete Pouring Technology

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# Summary of Discussion Ideas for Construction Concrete Pouring Technology

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**Abstract:** With the rapid development of urbanization construction, China's construction concrete technology is constantly improving, and construction techniques have been fully optimized. In the whole construction operation, the construction concrete pouring technology plays an important role in improving the construction quality and prolonging the service life of the construction project. This article will briefly analyze construction concrete pouring construction techniques and present personal insights.

## 1. Introduction

The application effect of construction concrete construction technology is related to the final construction quality and service life, it meets the construction standard requirements, and maintains the safety quality of construction engineering. Construction technicians should pay attention to grasping the correct construction process, comprehensively optimize the construction concrete pouring construction technology, and overcoming the concrete structure cracks continually is good to enhance the seismic performance of concrete. This paper will briefly introduce the standard requirements of concrete pouring construction materials and construction concrete pouring construction types, and this article will systematically discuss the construction concrete pouring construction points, and pay attention to how to improve the construction concrete pouring construction technology.

## 2. Standard Requirements for Concrete Pouring Construction Materials

From the perspective of the overall structure, the concrete pouring construction materials are composed of high-quality concrete, water, coarse sand, aggregate, cement, mixture and water reducing agent. In the concrete pouring construction, the quality of these construction materials needs to be strictly controlled according to different stages. In terms of water, if there are no special requirements, you can use clean water in daily life, and not abuse industrial wastewater, domestic sewage and sea water. For cement, it is necessary to combine different pouring structures and different stages, select the appropriate cement ash number and brand, scientifically control the water-cement ratio according to the requirements of construction standards, and prevent the cement water from heating up which is effective in the storage of cement, and avoid it being damp or eroded by water. In addition, when the construction materials are added to the aggregate, the high-quality river sand and river sand should be selected to scientifically change the admixture inside the concrete structure, so as to comprehensively strengthen the quality inspection of the concrete material [1].

## 3. Construction Concrete Pouring Construction Type

At present, there are three types of construction concrete pouring construction, namely large-diameter



thin-walled prestressed steel pipe method, small-diameter thin-walled prestressed steel pipe method and revetment double pipe method. Among them, the bank reinforcement double pipe method is generally widely used in underwater. For concrete pouring work, construction technicians should pay attention to maintaining complete isolation of water and concrete aggregates during the concrete pouring process. When using the small-diameter thin-walled prestressed steel pipe method, it is necessary to pay attention to the scientific allocation of concrete aggregates and implement effective vibration. When using large-diameter thin-wall prestressed steel pipe method, construction technicians should pay attention to strengthening the quality control of large-diameter thin-walled prestressed steel pipe to prevent cracks. First, we must focus on optimizing the welding process of large-diameter thin-wall prestressed steel pipe and complete the pressing. After the operation, the high-quality steel mesh of 0.3 m wide is welded to the inner wall and the outer wall of the steel pipe at the socket end to ensure that the specifications of the steel bar meet the standard requirements of  $\phi 3 - 30 \times 30$  mm, which can prevent the steel pipe from being lifted and loaded into the pipe. During the process of the mold, it is cracked by the collision, so that the connection between the steel pipe and the socket ring is stronger, thereby effectively enhancing the extension value of the pipe and avoiding cracks in the inner wall of the pipe. In addition, it is necessary to rationally select the vibrator frequency and amplitude of the concrete structure, and improve the internal and external pipe mold attachment methods to optimize the vibration effect of the concrete. At the same time, it is necessary to scientifically design the proportion and parameters of the core concrete, and add an appropriate amount of coal powder to reduce the peak of cement hydration and enhance the strength of the concrete. On the other hand, it is necessary to do steam maintenance work, according to the actual situation, control the external temperature during the processing, to ensure that the concrete pipe is in the optimal constant temperature state, and effectively release the hydration heat energy. Moreover, it is necessary to properly do the watering maintenance work to avoid cracks in the concrete pipe.

#### **4. Construction Concrete Pouring Construction Points**

##### *4.1 Prepare The Construction of The Pouring Formwork*

In the construction concrete pouring construction work, the construction preparation work of the pouring formwork must be done, and the formwork should be thoroughly cleaned, which helps to ensure the firmness of the later splicing of the formwork. Secondly, it is necessary to scientifically select the bracket to ensure that the bracket can match the template. Once again, it is necessary to do a good job of template selection, conduct a comprehensive survey of the construction site environment, strictly review the construction drawings, and scientifically design the template construction plan.

##### *4.2 Optimized Pouring Formwork Installation Process*

In the installation process of the pouring formwork, it is necessary to scientifically control the installation direction of the formwork, first do the horizontal installation work of the formwork, and then carry out the vertical installation. In the specific installation process, the tower crane and the crowbar should be accurately ahead of time, which helps to decrease the late rate of template hoisting work. In addition, the plastic sleeve and the ruler should be used to adjust the accuracy of the template. After the preliminary installation of the template, it is forbidden to carry out the pouring in the first time. It is essential to strictly check whether the parts of the template are tight and firm, and the inspection results of the acceptance report can only be poured.

##### *4.3 Do A Good Job in Steel Bar Construction*

To complete the steel bar construction work, the steel structure must be strengthened to avoid the problem of steel corrosion. In the concrete construction, the construction technicians must first pay attention to improving the steel pipe, when there is a conflict between ordinary steel bars, steel strands and vertical prestressing tendons. In the future, we must do a partial adjustment work. In the adjustment process, the ordinary steel bars should be adjusted first, then the adjustment work of the

finishing rolled thread bars should be done, and the longitudinal prestressing tendons should be fixed. Secondly, for longitudinally prestressed pipes, materials should be selected to ensure the quality of the bellows and ensure that the surface of the bellows is smooth and free of holes. Before installing the prestressed pipe, the coordinates should be scientifically located in conjunction with the standard construction drawings. During the installation process, the wire-shaped positioning bar and the pipe body must be tied together with the wire, and then the main ribs and the positioning bar are welded, and the average is In the 60 cm area, a positioning bar is placed. In the curved section, a positioning bar is required for an area of 30cm on average. Secondly, it is necessary to pay attention to maintaining the vertical relationship between the pad and the axis of the pipe to avoid the problem of floating and displacement of the pipe during concrete pouring. Moreover, it is necessary to provide a high-quality plastic pipe with a small inner diameter for the longitudinal bellows, and to make the bellows into a hole. Thirdly, in the lengthening work of the metal bellows, a bellows of the same size with a larger size should be used as the joint pipe, and the length of the joint should be controlled to be more than 30cm. For joint turns, seal with tape so that the steel structure is tighter.

#### *4.4 Complete Removal of Debris*

Before performing concrete pouring on the joints, it is necessary to completely remove the debris inside the nodes to ensure that these impurities can be completely removed. Then, sprinkle a sufficient amount of clean water for the joint concrete, and scientifically implement the sealing mold, so as to ensure the smooth progress of the concrete pouring work.

### **5. How to Improve Construction Concrete Pouring Construction Technology**

#### *5.1 Controlling The Proportion of Concrete Materials\*

In the process of configuring building concrete materials, construction technicians should pay attention to the standard configuration parameters to calculate the proportion of concrete aggregates. When selecting materials, it is necessary to ensure that the strength of the concrete aggregate can meet the strength standard of the base material. At the same time, it is necessary to carefully check whether the strength of the concrete is higher than 500 MPa. If the strength is insufficient, it cannot be used. Secondly, the diameter of the coarse sand should not be low. At 0.38 mm, the content of coarse sand must be between 0.5% and 0.95%. Moreover, the sand content of high-quality concrete should be higher than that of ordinary concrete materials [2]. Once again, it is necessary to control the mixing time and add a sufficient amount of water reducing agent to the concrete material to improve the composite performance of the aggregate. On the other hand, in the process of calculating the bending parameters and compressive parameters of concrete materials, it is necessary to accurately calculate the thickness of the building structure layer to ensure the safety quality and practical performance of the construction project. In addition, during the mixing process of concrete materials, construction technicians should pay attention to the proportion of high-quality concrete, coarse sand, aggregate, cement, mixture and water reducer in precise budget, add these materials according to the input order, and according to the construction stir in the standard to avoid too long or too short agitation.

#### *5.2 Optimized Construction Concrete Pouring Process*

To improve the quality of concrete pouring construction, it is necessary to optimize the concrete pouring process, and use the vibrating rod to make the concrete evenly vibrate up and down. Then, insert and pull out the vibrating rod quickly, accurately calculate the inserted interval, and insert the The spacing is set between 0.3 and 0.4 meters. After the initial concrete has been initially solidified, the spacing is adjusted to between 0.05 and 0.1 meters, and then the vibration is performed in sequence. At the same time, it is necessary to pay attention to the average vibration time of about 30 seconds. In addition, for large-volume concrete construction work, it is necessary to pay attention to optimize the surface structure, complete the secondary wiping work in time, and maintain the smoothness and flatness of the surface by mechanical means or wooden trowel. On the other hand,

construction technicians should pay attention to the scientific control of the vibrating compactness of the concrete structure, and set up a spare vibrating bar and three main vibrating bars for the concrete discharge port. At the same time, it is necessary to scientifically adjust the material transportation process, first transport the concrete to the discharge position, and maintain the natural fluency of the slope. In the lower concrete pouring construction, the middle part of the slope is treated to maintain the integrity of the concrete structure. In addition, construction technicians should try to avoid pouring in the hot summer, because it is the most prone to concrete structure cracks in summer. If the temperature is relatively high, it is necessary to adopt a variety of auxiliary cooling measures to effectively control the concrete pouring temperature, so as to ensure the concrete structure has a good and stable stiffness, thereby effectively improving the overall performance of the building concrete structure.

### *5.3 Optimize The Shape of Building Concrete Structures*

Optimizing the shape of the concrete structure of the building can ensure the uniformity of the force of the concrete structure layer and prevent the concrete structure from being too weak. In the application process of building concrete structure shaping, construction technicians should pay attention to strengthening the rigidity of concrete structure to ensure that the quality of concrete siting can meet the requirements of seismic standards. Generally speaking, for the quality of concrete siting, it is first necessary to control the thickness of the sitting pulp to avoid the thick or too thin sitting layer. It should be noted that if the thickness of the sitting layer exceeds the standard, the block will be cheap; on the contrary, if the thickness is not up to standard, it will cause voids in the joint surface, which seriously affects the overall quality of the concrete structure. Secondly, it is necessary to select high-quality sitting material, control the mixing ratio and mixing frequency, and ensure the adhesion of the sitting slurry [4].

### *5.4 Full Introduction of Steel Fiber Reinforced Concrete Technology*

From the manufacturing method analysis, the steel fiber materials used in the steel fiber reinforced concrete technology can be divided into four types, namely, circumscribed fibers, compressive fibers, melted steel fibers and shear fibers. Although the four fibers have different resistance to each other, the bearing properties are similar. The test results show that the strength effect obtained by using steel fiber reinforced concrete technology for construction work is five times higher than that of ordinary concrete, and the tensile strength of steel fiber reinforced concrete technology is also three times higher than that of ordinary concrete. In addition, the tensile properties of the four fibers are extremely good. In general, the circum-cut fiber technology uses an iron knife to cut the steel plate, and then combines the cut steel plate with the concrete to enhance the bonding effect of the concrete. It should be noted that the steel fibers used in the reduction process must be sheets having a width of between 0.25 mm and 0.9 mm and a thickness of between 0.2 mm and 0.5 mm. Compressive fiber is a steel fiber with excellent elongation and elasticity and has good pressure resistance. The molten steel fiber is a steel fiber produced by processing molten steel, and its bonding strength is extremely high. Shear fibers have significant shear strength and prevent cracks in concrete structures [3].

In addition, steel fiber reinforced concrete technology has six major advantages: First, steel fiber reinforced concrete has better strength than ordinary concrete materials of the same weight. Second, steel fiber concrete has much higher bending resistance and pressure bearing capacity than ordinary concrete. Third, the impact properties of steel fiber reinforced concrete are quite good. Fourth, if the steel fiber reinforced concrete structure is offset and deformed, the repair operation is simpler. Fifth, steel fiber concrete has a strong environmental adaptability, can cope with large temperature changes, and avoid cracks in concrete structures. Sixth, steel fiber concrete has extremely high seismic resistance, and wear resistance and frost resistance are extremely remarkable.

### *5.5 Handling Concrete Drowning Problems*

Large-volume concrete structures usually have a high cement layer, which is prone to drowning

problems. For this, construction technicians should correctly use the three-pressure three-level process to solve this problem. In the specific construction work, the construction technician should strictly refer to the elevation, use a standard scraper to scrape the surface of the concrete, and then flatten it with a wooden mold. Secondly, it is necessary to repeatedly crush the concrete before the concrete is first solidified. Once again, the wooden wedge is used for leveling and compaction to eliminate the hydrophobic gap of the concrete structure. In addition, for the surface drowning problem, the pump should be used to extract the upper part of the water in time, and then the surface is smoothed and compacted [5].

## **6. Conclusion:**

In summary, to comprehensively improve the construction technology of building concrete and maintain the safety quality of construction, construction technicians must attach importance to the scientific control of construction concrete pouring construction points, do a good job in the construction preparation of the pouring formwork, optimize the pouring formwork installation process, and do the steel bar construction work. In addition, the construction technicians should control the proportion of concrete materials, scientifically introduce steel fiber concrete technology, continuously optimize the construction concrete structure and construction concrete pouring technology, and deal with the concrete drowning problem.

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