

Research on Bridge Engineering Construction and Quality Control

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Abstract: During the construction of municipal roads, municipal roads play an important role in the development of urban traffic, and play an important role in the development of municipal roads. They also highlight the overall image of a city. This article on the one hand describes the main construction content and uniqueness of the construction of municipal roads and bridges; on the other hand, based on this construction content, it briefly analyzes the problems existing in the construction process and how to improve the construction quality.

1. Introduction

The huge urban traffic flow in China's cities has severely challenged the quality and service life of previously built municipal roads and bridges, which has also made the quality control of municipal projects under construction more and more important. In addition, the construction quality management of municipal engineering is also one of the core issues that road and bridge engineering enterprises pay most attention to during construction, and it is also the lifeline and fundamental guarantee for the survival and development of construction enterprises. Since the reform and opening up, China's road and bridge engineering technology and construction equipment have made great progress. This has provided a good technical guarantee for improving the quality of construction and the durability of roads and bridges. However, at present, enterprises will still encounter construction quality problems during construction. As a result, people's lives and property are threatened. Therefore, in the following article, the importance of construction quality control of municipal road and bridge engineering is first explained, and then the problems existing in the construction of municipal engineering by road and bridge enterprises are briefly analyzed, and measures to strengthen construction quality control are proposed to better guarantee Construction quality of municipal roads and bridges.

2. Importance of Quality Control in Construction of Municipal Roads and Bridges

Road and bridge construction quality control is the basis for ensuring the quality of municipal road and bridge engineering. In municipal road and bridge engineering, by doing a good job of construction management and control, it can effectively reduce the occurrence of road and bridge cracks and avoid more serious engineering quality problems. During the construction period, the construction enterprise attaches importance to the quality control and management of the construction and improves the quality assurance system, which is conducive to avoiding a series of hidden safety hazards in the construction project and to bring personal safety threats to the construction personnel, which can effectively reduce the accident rate. For the construction personnel in the project, it is helpful for them to better understand the importance of construction management, and to ensure that the construction quality of municipal roads and bridges is better controlled from the basic construction level. It is beneficial to urge the construction management personnel to communicate well with the construction supervision personnel, strengthen the standardized supervision and management of construction quality and processes, and ensure that the construction management and control schemes in the project are effectively implemented. Strengthening construction quality control is conducive to improving the economic efficiency of the construction unit, and ensuring the quality and efficiency of construction. At the same time, strengthening construction quality control and management is also conducive to saving construction

costs, ensuring that construction schedules are carried out as planned, ensuring road and bridge structure safety, improving road bridge landscaping projects and value, and effectively improving the overall construction quality and performance of road and bridge projects. In addition, if the municipal road and bridge project is damaged due to construction quality problems, it needs to invest a large amount of cost for maintenance, which increases the construction or operation and maintenance costs to a certain extent. Strengthening construction quality control is conducive to improving the social benefits of road and bridge engineering.

3. Factors Affecting Bridge Construction Control

Construction process. Because bridge engineering construction is relatively complicated, the implementation of construction control is mainly to solve various problems that occur in the construction of bridge engineering, so as to ensure the smooth progress of bridge engineering construction activities. And the bridge construction quality finally affects the realization of the project construction control goal. Therefore, in bridge engineering construction, it must be ensured that the construction process meets the requirements and standards of engineering construction control. Construction technology is an important factor affecting the realization of construction control goals. The goal of construction control also needs to ensure the orderly execution of construction activities in other links, and control engineering construction errors, etc. within a reasonable range.

Structural parameters In bridge engineering construction control and quality management, structural parameters are the focus of control and management, so structural parameters directly affect the effect of bridge engineering construction control. As far as the structural parameters of bridge engineering are concerned, it is mainly the basic resources and data after structural construction simulation analysis in construction control. Therefore, in a certain sense, the accuracy of structural parameters directly affects the effectiveness of engineering analysis structures. In general, the structural parameters of bridge engineering construction and the structural parameters of engineering design are often difficult to achieve uniformity, and there will basically be certain errors. Therefore, the construction quality control and management must fully consider the calculation of these errors, so that the structural errors are as much as possible. Consistent with design, this issue requires designers to address it from a design perspective.

Material shrinkage and creep At present, many bridges are concrete structures. For concrete bridge construction, material shrinkage and creep have a greater impact on the stress and deformation of the bridge structure. The main reason is that during the concrete construction process, the concrete loading age is short, and the age of each stage varies greatly. It is necessary to strengthen the control of creep parameters and the like during concrete construction.

Construction Management For bridge engineering construction control, the control object is the bridge itself. The level of construction management is closely related to the quality of the bridge project. The better the construction management, the better the bridge construction quality. In short, the implementation of construction management has effectively achieved progress, cost, and quality management in bridge construction. If there are construction delays in bridge construction, it will increase the difficulty of construction control and management. For example, during the cantilever construction process of concrete continuous beams and continuous rigid frame bridges, different beams will cause different construction progress of the cantilever. At this time, the waiting time of the two cantilever pipes before closing is different, and the creep stresses generated are different. Seriously affected the overall quality of the project construction.

4. Construction Status of Municipal Road and Bridge Engineering

At present, there are still problems that China's construction enterprises need to improve in terms of construction quality control of municipal roads and bridges, including: poor awareness of construction quality control, quality of construction materials, and low professional quality of construction personnel.

Low awareness of construction quality management control During the construction process, due to the different regional environments, the construction quality of municipal roads and bridges has an important impact, but the personnel of some construction companies did not pay attention to the impact of these factors on the construction quality And only pursue the duration. Some construction managers have weak quality awareness, and the responsibilities of quality management and control positions in construction companies are unclear. Due to the emergence of nepotism, managers and construction workers lack effective communication, and construction personnel lack awareness of quality control during construction. Construction steps are not standardized, delaying the normal progress of the construction period.

The quality of construction materials In the construction management of municipal roads and bridges, construction materials and equipment are the prerequisites and basic guarantees for the successful completion of the project. However, at present, some construction enterprises lack scientific management of construction materials and equipment during construction. There are certain loopholes in the quality control of raw materials. For example, construction materials and materials procurement departments have neglected the quality of construction materials. Quality inspection departments and construction departments have not strictly controlled the quality inspection of construction materials, and have neglected the requirements of material quality specifications. In particular, the purchasing unit and the construction unit cannot agree on the specifications, models, and quality requirements of the construction materials, which wastes money and leads to inferior materials that do not meet the requirements of the construction specifications to enter the construction site. As a result, it has an impact on the overall quality of municipal roads and bridges, and also poses a threat to the safety of construction workers.

The professional quality of the construction personnel is low. The professional quality of the construction personnel has a great impact on the construction quality of municipal roads and bridges. On the one hand, the construction personnel of municipal road and bridge projects have different levels of knowledge on construction-related links, quality and safety requirements, and the standardized use of facilities and equipment. On the other hand, construction enterprises lack technical guidance, training, and assessment of construction personnel. These cause construction personnel to directly affect the construction quality due to improper construction technology. Low professional quality of construction personnel, operation errors or neglect of duty lead to frequent construction quality problems.

5. Bridge Engineering Construction and Quality Control Strategies

Strengthening project management quality awareness and formulating a project construction quality management project that complies with the actual construction plan requires high quality management awareness. During the entire construction process, every link and every process must be regularly reviewed by construction and maintenance personnel according to the operator's website. Not only assess their expertise against standards. Targeted inspection of unqualified personnel training is also needed to improve the quality of employees. To improve the awareness of project quality management, we can start from the following aspects: First, before the bridge process is constructed, we must strengthen the quality awareness education for all employees, and all employees must conduct a thorough quality management study to establish quality The first consciousness is to implement quality management into every process and every link in the construction process; secondly, to strengthen the irregular assessment of construction workers and operators, the assessment mainly depends on whether their operations conform to the process and whether the technology is sufficient Hard, whether the professional knowledge is solid, at the same time, they must be trained and managed regularly to improve their own quality. We should firmly reject those employees who are not qualified for the job. Third, establish a scientific project management system. It is necessary to standardize all employees with regulations and systems, and there is no privilege. Establishing a scientific and operable quality management system can ensure the continuous and rapid development of construction work, and can also timely and find problems during construction. .

The purpose of unified bidding for bridge engineering construction is to unify the quality management of building materials. At the same time, it can also achieve centralized and unified management during the construction process, strengthen work processes, improve construction progress, and at the same time can greatly reduce costs. The unified bidding portfolio provides a broad platform for project development, and there is a close relationship between design and construction, which gives full play to the advantages of the bidding enterprise and its complex technology, personnel and equipment. The unified bidding has the following advantages: first, the technical standards and quality management standards are unified, and the uniformity of the process is achieved, which is conducive to strengthening management and control of construction projects; It provides a broader platform for competition and cooperation of enterprises, which is conducive to giving play to the linkage effect and group benefits of the enterprise, making full use of the human, material and financial resources of the enterprise; third, strengthening the risk awareness and project quality management of responsible persons Awareness mobilized their enthusiasm for adopting advanced equipment and advanced technology in the construction process, so that the enterprise is the real subject of the market; fourth, saving resources and social costs, thereby achieving an optimal allocation of resources.

In the process of bridge construction, each project of the bridge project will use a variety of machinery and materials. The quality of materials on the market is high and low, and the specifications are different. It is difficult to be perfect. Therefore, the procurement of materials must be strictly controlled. Inferior quality materials and equipment cannot meet the requirements of the project. The use of purchased cement and steel bars should strictly adhere to the quality transfer process, severe punishment, good speculation, and seeking for personal interests. Strengthen the inspection during the bridge construction process to do the following: First, the quality of the materials entering the construction area must be strictly controlled to prevent speculators from filling up with inferior products. The inspectors of the second project must often check the equipment and machinery to ensure The normal operation of the machine; Third, make detailed records and registrations of inspections and strengthen the inspection process. To control the procurement of materials and materials, we must: first, assign special procurement personnel to carry out procurement and strengthen their supervision; unqualified materials must not be applied to engineering; second, strictly control the quality barrier to prevent speculators from using The second time is sufficient, from which the phenomenon of private gain is sought; third, the reward and punishment measures are well established, and strict procurement and related material systems are established to severely punish speculative personnel.

The environmental conditions of bridge construction affect the progress of bridge construction. Therefore, to ensure the environmental conditions of bridge construction, it is mainly reflected in the following aspects: First, to do a good job of lighting and lighting during construction, The surrounding environment should be marked with different colors. The red warning sign must be very eye-catching. The safety net must use green signs and set up protective railings. Do a good job of lighting during the construction process to ensure that the construction progress is on schedule. A good external environment, such as ensuring that workers work at the appropriate temperature to avoid accidents; third, to do a good job of environmental work at the construction site, regular cleaning of unnecessary equipment and debris around the site to reduce the construction site Noise, noise, powder, etc., to create a safe and comfortable working environment for construction workers.

6. Conclusion

Bridge engineering is an important infrastructure, and its construction quality directly affects the economic and social benefits of bridge engineering. Therefore, it is necessary to strengthen the construction management during the bridge project construction to solve various quality and safety problems in the construction, so that each link can meet the standards and requirements of the project construction and improve the overall construction quality.

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