Research on the Quality and Safety Issues in Design and Construction of Municipal Road Bridges

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Abstract: with the Development and Progress of Society, the Construction of the Municipal Sector is Becoming More and More Important At This Stage. in Particular, the Construction of Municipal Roads and Bridges, As the Focus of Social Road Traffic, Escorts the Development of Society. This Shows the Importance and Necessity of the Construction of Municipal Roads and Bridges. among Them, the Design and Construction Quality, Safety of Municipal Road Bridges is the Top Priority. Only by Guaranteeing the Quality of Design and Construction Can Road Bridges Play an Important Role. Therefore, This Paper is Based on the Discussion of Quality and Safety Issues in the Design and Construction of Municipal Road Bridges, and Proposes Effective Solutions to the Problems for Reference.

1. Current Status of Design and Construction of Municipal Roads and Bridges

The design and construction of municipal roads and bridges is one of the important tasks in the process of social development and urban construction at present, and to a certain extent can directly affect the development of society and the construction of cities. Therefore, in the process of design and construction of municipal roads and bridges, quality should be the first priority, and quality assurance should be the basis of design and construction, so that it can play its biggest role. Among them, scientific and rational planning and design is a necessary process. Although the process of urbanization in the current stage of our society has been continuously promoted, there are still many quality problems worthy of attention in the design and construction of similar municipal roads and bridges.

For all building construction, quality is the life of engineering. However, at this stage, in view of the actual construction situation, there are still very serious quality problems in the construction of municipal roads and bridges, which directly affects the safety and stability of the use of roads and bridges. For example, some slag projects continue to emerge, which not only endangers social stability, but also poses a great personal safety threat to actual users. And so on, these practical questions reflect a message – how should the quality of the design and construction of construction work be guaranteed? Therefore, these problems are also true for the design and construction of municipal road bridges. Therefore, for the design and construction of municipal roads and bridges, how to improve quality, to ensure quality and safety has become the top priority of municipal construction, and also a very big challenge in the design and construction process. Therefore, in order to grasp the quality and safety of design and construction and the stability of quality, it is important to grasp the lifeline of municipal road and bridge construction, and it has become the basic development guarantee of the construction and construction team.

2. The Analysis of the Existence of Quality Problems

2.1 Bridge Crack Problem

For the design and construction of municipal road bridges, there will be more serious crack problems in the bridges. When the crack problem occurs, it will not only affect the quality of the bridge and the stability of its use, but also cause the bridge to collapse, thus creating a safety accident. Therefore, the problem of actual bridge cracks has become an issue and phenomenon that

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various construction units and enterprises are paying close attention to during the construction of municipal roads and bridges. Therefore, in order to solve such problems and avoid further emergence of these problems, it is necessary to pay attention to the rationality and feasibility of design and planning in the actual construction process, and strengthen quality control and management.

2.2 Steel Corrosion Problem

Steel bar is one of the essential materials for all building construction, and the steel bars bear the skeleton of the building. Therefore, for the service life of the steel bar, it will directly determine the quality of use and service life of the building. At this stage, during the construction of municipal roads and bridges, many construction and construction units did not do a good job of anti-oxidation treatment of steel bars used in road and bridge construction, which caused premature corrosion of steel bars and directly affected the use of roads and bridges. Safe and stable use. Compared with the crack problem in the bridge, the existing steel corrosion problem is relatively simple. Specifically, the combination of external factors such as the environment and construction technology ultimately causes the corrosion of the steel bars, while the internal factors are caused by other materials used, such as cement, admixtures, and the like. Although external factors and internal factors can cause corrosion of steel bars, as long as attention is paid to avoiding these factors during the design and construction phase, the probability of occurrence of corrosion problems will be reduced.

2.3 Alkali Corrosion Problems

For the design and construction of municipal road bridges and the specific use process, the problem of alkali corrosion is also one of the serious quality and safety issues. The problem of alkali corrosion refers to the influence of the alkali material existing in the reinforced concrete structure on the overall construction, such as the reaction of alkali materials and the corrosion of various steel bars caused by halogen ion erosion. Therefore, for this problem of alkali corrosion, the failure speed of road bridges will be greatly accelerated, which will seriously affect its normal use. And if the problem of alkali corrosion is not solved in time, the overall load capacity of the road bridge structure will be reduced, and in the case of encountering some vehicles such as overload, the bridge body will be greatly damaged.

3. Quality and Safety Issues, Control Measures and Methods

For the design and construction of municipal roads and bridges, quality and safety issues are of paramount importance, and it is necessary to improve the quality of their construction. On the one hand, do a good job of analyzing and solving problems; on the other hand, according to the actual construction needs and construction planning, formulate corresponding design and construction specifications, so that the design can be reasonable and feasible, and the quality of the construction be improved . This ultimately leads to the resolution of quality and safety issues.

3.1 Quality Control in Measurement

For the design and construction of municipal road and bridge engineering, it is generally characterized by a linear arrangement, and the planar control points are usually laid in accordance with the composite wire. Therefore, for the design and construction of municipal roads and bridges, because the overall structure of the building is dense, and the underground pipelines are more complicated, and the positioning accuracy of the drainage pipelines is higher, it is necessary to promptly urge the construction and construction units to do well before the construction design. The corresponding measurement work. Therefore, it is possible to better understand and analyze the underground situation. So far, the research design and construction plan can provide a relatively scientific, feasible and reasonable basis for constructing the bridge, and finally help the construction to make correct decisions.

3.2 Strengthening the Repeated Acceptance of Municipal Roads and Bridges

After the actual construction is completed, the relevant specific acceptance units shall undergo repeated acceptance. Scientific calculations and reasonable analysis are made for the use of materials and the ratio of materials. This ensures that the actual construction meets the established design requirements and construction standards. At the same time, for the contractor whose acceptance is unqualified, the contractor who has not been qualified within the specified time period will be punished and controlled accordingly, and will be included in the blacklist of the municipal engineering hypothetical bidding. Put an end to its participation in the construction of municipal projects. Through repeated acceptances, the contractor can increase their attention and avoid some fraudulent behavior. In addition, during the construction of municipal roads and bridges, the corresponding assessment team should also conduct irregular inspections and visits. If it is found that there are substandard constructions, it will be ordered to rectify, so as to make possible quality and safety. The problem can be solved in a timely manner in the bud, and finally guarantee the quality and safety of the construction of the municipal project.

3.3 Enhancing the Review of Engineering Construction Materials

For the construction of municipal roads and bridges, the amount of materials used in the preliminary design and planning can be clearly defined, so that the actual amount of materials used in the actual construction process will be extremely large. This means that the funds used to purchase materials will be very large, so that some companies will lower the overall cost of the project in order to obtain the winning bid, so it is difficult to ensure that some lawless elements will make opportunistic use of materials. Therefore, in order to avoid such problems and to resolutely combat the actual harm and impact of such problems. Before and after the actual construction of the municipal road and bridge project, the municipal unit can send special personnel to supervise and control the process of purchasing and using the construction materials, and assign professionals to identify the authenticity of the materials to ensure the municipal road bridge. The whole process of design and construction can meet the requirements and specifications of the bidding documents and design drawings. Ultimately ensuring the quality and stability of the construction of municipal roads and bridges.

4. Conclusion

With the development of society and the advancement of urbanization, there are more and more projects in the municipal construction, especially in the design and construction of municipal roads and bridges. On the basis of clarifying the status quo, there are cracks such as bridges problems, steel corrosion problems and alkali corrosion problems, do a good job in quality control of measurement, and strengthen the repeated acceptance of municipal roads and bridges, as well as improve the review of engineering construction materials, and finally make the design of roads and bridges meet the required quality and also meet the regulations to ensure quality and safety.

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