

Municipal Road Quality Control and Testing

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Abstract: As the infrastructure project in the city, municipal road is the quality of urban transportation service, which determines the city image and government image. Therefore, the relevant units and personnel must strengthen the efforts of municipal road quality control, management of municipal road test in order to ensure the quality of municipal roads can satisfy the stability and bearing requirements.

Keywords: Municipal roads; quality; detection

Introduction

The construction quality of municipal road works is often influenced by various factors, which leads to a certain gap between the quality of municipal road works and the expected effect. Therefore, relevant units and staff must make clear the importance of quality control of municipal road construction. Comprehensively understand the testing and testing procedures and methods, and make reasonable use of them in order to achieve effective control of the construction quality of municipal roads.

1. The significance of test testing on the construction quality control of municipal road engineering

It is an important part of the road engineering quality assurance system that the test of road engineering can form a complete system from construction materials to construction control to completion acceptance^[1]. More and more attention is paid to highway and municipal road construction, and test detection has become a necessary condition for road construction. The test data becomes a necessary part of the engineering data. On the one hand, the test data can comprehensively reflect the quality of project construction, and on the other hand, it can be used to guide construction, timely detect problems and timely fix them. At the same time, the construction unit clearly defines the construction unit, material supplier and other parties to provide the basis for quality responsibility.

2. Analysis of test flow of road engineering test

2.1 Standard test

Standard test refers to the collection and testing of relevant data before the construction of municipal road works. It includes the quality inspection test and aggregate gradation test and mixture ratio test. It can be seen from this that standard test can provide accurate guidance for municipal road engineering construction. The test items of standard test

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are mainly based on current construction technical specifications and design documents^[2].

2.2 Inter-labor test

Inter-laboratory testing is often referred to as testing during construction. During construction, the construction site for raw materials, semi-finished products and finished products and technical indexes of engineering quality sampling frequency, as stipulated in the specification is in the process of construction quality management and control of one of the important measures^[2].

2.3 Completion acceptance inspection

Completion acceptance inspection means that the construction of roadbed engineering and pavement engineering shall be completed in accordance with the design requirements. After the application by the construction unit and the approval of the construction unit, the professional inspection unit formulated by the construction unit or the quality supervision department shall carry out the inspection and acceptance inspection of the completed project. The inspection unit shall conduct comprehensive evaluation and appraisal on the construction of the project according to the acceptance content, sampling inspection method, sampling frequency, evaluation method and marking standard^[3].

3. Common detection methods for municipal road works

3.1 Direct observation method

Direct observation method refers to a method that the staff directly relies on their own quality control experience to detect the actual construction quality of municipal roads. The advantages of direct observation method are convenience and convenience, low cost and timely feedback, while the disadvantages are more subjective and lack of quantitative analysis. Therefore, the staff should try to avoid simple using direct observation method to test the municipal roads, but direct observation method shall be as an auxiliary method, cooperate with other detection methods in quality inspection^[4].

3.2 Beckman beam method

The Beckman beam method is one of the main methods for detecting the deflection of municipal roads in China. It can effectively detect the pavement deflection value of municipal roads, and the results are more objective and reliable than the direct observation method, and the method of using beckman beam method is relatively simple. Therefore, the staff can use the beckmann beam method in the detection of deflection value of municipal road surface.

3.3 Raw material sampling test

Sampling of raw materials is one of the important methods for testing the overall construction quality of municipal roads. Staff shall be the municipal road construction materials in a timely manner to carry out the sampling inspection, detection indices such as dry density, water content of the construction materials, construction to ensure raw materials meet the design requirements^[5].

4. Analysis of main points for construction of municipal road engineering

4.1 Basal processing

The first task in the construction of the roadbed of municipal road works is to clean up the base. After the completion of the base cleaning, the construction of roadbed construction can be carried out. This requires the staff to deal with the surface debris removal, and to control the surface clearance depth to 30cm, and the cleaned surface should be clean and smooth. At the same time, should also check basal soil pressure situation, in view of the weak soil layer can not meet the design demand, response to soil to fill in, riprap and foundation reinforcement treatment, the entities of the pit, to clean up and fill compaction, to meet the specifications and design requirements^[6]. In addition, if the project of underground water level is rich, want to undertake construction draining water to reduce the underground

water level, with the construction operation of distance is less than 50 cm, to avoid adverse effects on the construction of groundwater, affect construction quality.

4.2 Fill the subgrade

The roadbed is the load-bearing layer of the municipal road, which carries all the load on the road. The integrity and stability of roadbed will affect the capacity and service life of municipal roads. When filling the roadbed, it is necessary to start from the lower level, the horizontal backfill, the thickness of the backfill soil, 30cm is suitable, and the filling slope is controlled between 2 ~ 4%, which is convenient for drainage. When the filling width is determined, the height calculation width of the filling layer is increased by 50cm on each side to prevent the slope problem due to insufficient width. As subgrade filling freely in any direction in the slope is steep in 1:1 on the inclined plane of should also set gradient was 4%, the width of 2 meters, slope on lap to the outside of the steps, to ensure the overall stability of roadbed. When the filling depth exceeds the existing pipeline height of 50cm, the loose soil near the pipeline shall be excavated and cleansed again with the implement. Within the vicinity of the pipeline, medium coarse sand may be used to ensure the safe operation of the pipeline and the stability of the roadbed^[7].

4.3 Supporting pipeline

All kinds of supporting pipeline construction are needed in municipal road construction. Different pipelines are carried out by different construction teams. Different pipelines have different construction requirements, standards and processes. The distance between the pipelines is generally close, the management is not at that time, it is easy to have various problems. Therefore, a reasonable arrangement should be made to coordinate the layout of each supporting pipeline and direction, the position of the well, the base of the rod, the equipment, the construction time and the order of the construction procedures, so as to do a good job of coordinating the work. At the same time, it is necessary to avoid the construction quality of the backfill part near the pipeline and the line well due to pipeline construction, and the quality problems will be discussed with each other, which will affect the project progress and increase the construction cost^[8].

4.4 Pavement engineering

4.4.1 Material mix ratio

The quality of asphalt concrete will be improved according to the design specification. The asphalt used in municipal road construction shall be of high consistency and viscosity, and the aggregate shall be clean and coarse, and slag material shall be strictly prohibited^[9].

4.4.2 Material mixing

According to the design requirements, the material is mixed to ensure the mixing quality of asphalt concrete. According to the requirements, the mixing time should be determined. When mixing, ensure that the mixture is uniform and the color is the same. The asphalt should be uniformly covered on all the surface of the ore, and the temperature should meet the design and construction requirements.

4.4.3 Paving compaction

Before asphalt is sent to the construction site for construction, it is necessary to test its oil temperature to ensure that it complies with the regulations. Paved asphalt should be operated in a uniform and slow way. The paving speed should be consistent during paving and continuous paving, so as to prevent halfway stoppage. During the spread, the temperature should be monitored in a timely manner, and the operation should be carried out according to the following principles. The paving operation is light and heavy, first inside and outside, first inside and then later. The rolling speed is generally controlled at 1.5 ~ 2.5km/h. After the road is finished, the protective measures should be taken to prevent the roller from turning or braking on the road. To monitor changes in the temperature of asphalt pavement, open traffic when the temperature is below 50°C^[10].

4.5 Ancillary works

Municipal road works, in addition to the main road construction, many supporting facilities and ancillary works need to be constructed, such as sidewalk paving, greening, communication engineering, etc. The construction quality of these ancillary projects will affect the appearance quality and overall quality of road engineering. Therefore, on the basis of guaranteeing its functionality and practicality during construction, attention should be paid to the appearance effect, and the visual appearance, linear smoothness and coordination with the urban landscape should be guaranteed. Pay attention to the construction materials, including the quality of semi-finished products, appearance size, color difference and other indicators to meet the construction requirements. The quality control of the construction site should be completed, the details should be improved to ensure the construction quality and appearance effect of the attached project, and improve the overall quality of the road^[9].

5. Measures to strengthen the quality control and inspection of municipal roads

5.1 Pay full attention to road quality inspection

The staff should make clear the practical significance of the municipal road quality inspection, and give high attention to it, details as follows: First, optimize the test equipment configuration, and the enterprise should carry out the reasonable configuration of testing equipment and equipment according to the actual situation of municipal roads and test requirements. Ensure that the equipment configuration level can meet the requirements of test and test, and avoid unnecessary waste. Second, pay attention to the control of the key factors of construction, will be a key element in the design of highway engineering as a focus of test work, ensure each link of highway engineering construction to effectively control the construction quality. Third, pay attention to the implementation of the operation process and principle, the staff should strictly follow the test procedure requirements and test and test related principles to carry out specific operation. Through the standardized management and process management of highway engineering test and test, the influence of human factors on the test work is reduced, and the accuracy of test detection is improved. Fourth, the routine inspection and surprise inspection combined, the staff in addition to the municipal road works in different stages of construction quality routine inspection. At the same time, it should pay attention to the combination of the method of surprise inspection to ensure the accuracy and authenticity of the test results. Once the construction quality problem is found, the relevant staff should be immediately asked to rectify or rework to ensure that the construction quality of municipal road works can meet the design requirements^[9]. Fifth, to strengthen the quality inspection of engineering acceptance, completion acceptance is the last link of the municipal road project, which is also the key to quality inspection. In the acceptance stage, the staff should pay attention to the inspection of the concealed project quality, so as to avoid potential safety hazards and hidden dangers for the municipal road project.

5.2 Strengthening engineering design audit control

Before the construction of municipal roads, the staff shall timely carry out the construction and design activities of the municipal roads, strengthen the links with the designers, and actively carry out inspections and measurements at the construction site. In order to accurately grasp the actual data of the construction site, provide accurate and reliable information support for municipal road construction design. During the construction site survey, the geological conditions, climatic conditions, and hydrological conditions at the construction site should be grasped to accurately analyze the possible impact of various external conditions on the actual construction activity. In addition, the emergency prevention measures should be carried out in a timely manner, and the external conditions should be actively utilized and modified to ensure that the construction and construction units of municipal roads can carry out construction activities smoothly. In the process of measuring the construction site, it is necessary to keep in contact with the management personnel of the urban underground management system in a timely manner to clarify the location of the urban underground piping system. The location of underground pipeline should be marked on the construction site in time to prevent the accident of underground pipeline during construction. Finally, the design plan should be strictly

implemented in the concrete construction stage, and the construction process should be compared with the design plan in a timely manner to accurately grasp the overall direction of the construction process. When there are some unreasonable aspects of the design scheme, the staff should timely provide feedback and adjust the design plan according to the actual situation, so as to maintain the guiding significance of the design plan^[10].

5.3 Strengthen construction personnel management control

Municipal road construction personnel management is one of the key tasks of municipal road quality control. Municipal road quality control personnel shall timely carry out the management of municipal road construction and construction personnel in the construction of municipal roads, and ensure the overall construction quality of municipal roads through scientific and reasonable personnel management^[11]. In order to strengthen the management of municipal road construction personnel, efforts should be made from the following aspects: First, a scientific and reasonable personnel management system should be established to constrain and manage construction personnel through the system. When formulating the personnel management system, the municipal road quality control personnel may invite the relevant management personnel and front-line staff to jointly establish the system construction team. Analyze and discuss the behavior of employees in the process of construction of municipal roads, and accurately grasp the types of construction procedures, so as to formulate an instructive and scientific personnel management system. Secondly, the municipal road quality control personnel should divide the responsibility of all kinds of construction construction posts. The actual quality responsibility of different construction construction posts is clearly defined, and the construction quality responsibility is implemented by the method of signature confirmation to the individual, so as to stimulate the quality consciousness of the construction staff and ensure the effective improvement of the construction quality of the municipal road^[11]. Third, municipal road quality control personnel shall raise their legal awareness and quality consciousness, actively participate in the municipal road quality control activities, to better play to the positive role of quality control.

5.4 Strengthen management control of construction materials

Construction materials of municipal road construction are the key factors that affect the construction quality of municipal roads. The staff shall strictly control the construction materials of municipal roads, thereby improving the overall construction quality of municipal roads from the source. The control of municipal road construction materials can be carried out in the following aspects: First, improve the science and rationality of construction materials procurement. Second, improve the detection strength of entry materials. We can improve the overall quality of the construction materials by strengthening the methods of screening work and qualification of qualified material suppliers. In the aspect of material testing, the staff shall strictly compare the specifications and quality of the materials to ensure that the entry materials can meet the requirements of the construction design scheme. Third, the construction materials should be transported and stored to ensure the overall quality of construction materials^[12].

Conclusion

To sum up, with the increasing of urban modernization, urban economic circulation and the demand of People's Daily life in traffic is also increasing, this is for the city's municipal road engineering brings bigger bearing pressure. In this situation, the government also gradually increased the construction of municipal road works to meet the urban traffic demand. In view of the practical significance of municipal road engineering quality control, relevant units and staff should actively carry out the quality control and inspection management of municipal roads. In order to improve the quality of municipal road works, we can provide efficient and safe transportation service for urban economic development and residents' life.

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