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Construction Technology and Quality Control Strategy of Asphalt Pavement in Highway Engineering

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Abstract: ***Today's infrastructure construction plays an important role in promoting China's economic development, and the construction of highway projects is more important. The relevant departments involved in road engineering construction pay much attention to the construction technology and quality of asphalt pavement in highway construction. Because, the quality of road engineering construction technology and asphalt road control technology will greatly affect the overall quality and safety of road engineering. In this paper, the significance of construction technology and quality control of asphalt pavement in highway engineering, several common construction techniques of asphalt pavement and quality control measures of asphalt pavement in highway engineering are studied.***

Keywords: highway engineering; Asphalt pavement; Construction technology; Quality control.

1. INTRODUCTION

In China's infrastructure construction, highway engineering construction is one of its key, highway construction for China's economic growth and urbanization development to provide comprehensive support. In the construction of road equipment, construction technology and asphalt pavement construction quality have a very obvious impact on the overall quality and safety of the highway. Therefore, it is necessary for the relevant construction departments to carefully study the quality control measures, so that the road management departments continue to explore the level of asphalt pavement construction technology, so as to make the road construction safer and more reliable.

2. SIGNIFICANCE OF ASPHALT PAVEMENT CONSTRUCTION TECHNOLOGY AND QUALITY CONTROL IN HIGHWAY ENGINEERING

The gradual expansion of road construction in China has effectively eased the situation of excessive traffic tension in China. In the construction of asphalt pavement, the relevant construction personnel need to strictly control the construction technology and quality, so as to provide a safe and stable road for vehicles. Traffic accidents directly affect people's life and property safety. However, the causes of traffic accidents are not only subjective factors of drivers, but also have a direct relationship with road quality and safety. Therefore, it is necessary for us to concentrate on strict management of highway asphalt pavement construction technology and quality to ensure the construction quality of road projects and reduce the possibility of various traffic accidents [1].

3. SEVERAL COMMON CONSTRUCTION TECHNIQUES OF ASPHALT PAVEMENT IN HIGHWAY ENGINEERING

3.1 Raw material selection technology of asphalt pavement

Choosing the right asphalt material is very important. In the specific selection process, the relevant buyer must take into account the physical geographical environment, the specific highway design parameters and the human environment around the highway to select the best raw materials. In addition, the selection of asphalt must be based on factors such as climatic conditions. During construction, when selecting the next rough joint, the construction personnel need to consider the size, shape, strength and wear of the material, etc. The selection of fine aggregate should pay more attention to the selection of adhesion and side Angle to maximize the friction of asphalt material. In addition, stone, natural sand, and artificial sand can be used to ensure that the filling is suitable for the thickness of the mineral powder. Usually, very coarse mineral powder will affect the viscosity between bitumen and mineral to some extent. In addition, some mineral powders can also cause problems of low water stability during construction.

3.2 Asphalt pavement material mixing ratio technology

Before the asphalt mixture ratio, it must be added in the corresponding sequence. Into the material so that the material can be better fused together. In addition, we also need to pay attention to the time or temperature of preparation in order to properly adjust the mixture and the corresponding composition of the material, so as to achieve the best results in the amount of asphalt. At some stage of construction, we need to use a mixer. When the mixture is up to standard, the construction personnel will also

test the mixture to ensure that the asphalt content used meets the construction requirements. Employees can also evaluate the specific compression effect of the mixture based on the holes and caulking in the pavement and ensure that the construction work is carried out smoothly.

3.3 Asphalt pavement paving technology

When the mixing work is done, we usually use vehicle transport to bring the materials to the construction site. In order to avoid separation of the mixture, it is necessary to control the transport time properly. After being transported to the asphalt pavement construction site, the relevant transport vehicles need to exit in an orderly manner in accordance with regulations to ensure the safety of the pavement mixture. Builders also need to pay attention to the need for a reasonable evaluation of the quality of the asphalt mix before laying asphalt. After passing the test, the asphalt mixture can be laid. The laying process should be slow, uniform and continuous, ensuring that the laying speed is within 2~6m/min. In addition, in order to improve the quality of asphalt paving, we must ensure that the laying work is carried out in strict accordance with the relevant requirements, and emergency braking is strictly prohibited. When we need to lay at intervals, we must manually level the mechanical coating as a basic step, thus laying the foundation for future laying work [2].

3.4 Concrete compaction and rolling technology of asphalt pavement

In the case of the original asphalt mix, we need to recover the work, and must use scientific and reasonable condensation methods during the condensation process. In a particular work process, it is necessary to highlight the recompressed part and the final crushed part. If it comes off or the pressure is too high, then we need to attach all the connections tightly to the operation of the rotating tube. Generally, the rolling speed should be maintained at 2~4 km/h. If the crush path is changed, we must find a suitable path to walk on and not destroy the paved road. During the cycle rolling process, some refining work must also be performed in the mixing conditions of certain asphalt mixtures and various methods. Mixing distances between materials also need to be as short as possible to increase the hardness of the entire mixture and increase the pressure on the road surface. In this process, we also need to pay attention to calculate the condensation rate of the mixed material, because if the condensation times increase, then the quality of the mixed material will be reduced to some extent.

3.5 Joint technology of asphalt pavement

Because asphalt pavement often cracks in daily use, so the relevant construction personnel should be careful to deal with this problem. The edge of the crack and the crack of the long road have a very obvious relationship with the quality of the road construction technology. Once construction is complete, we can create a measurement pattern of road quality by finally subtracting the parts supporting the floor in relation to the cuts. For vertical cracks, long used cracks can be removed in a uniform combination. Some processes to remove cracks require the retention of drugs without the need for condensation. The hot needle technique is then used to rotate to help eliminate the defects in the pavement cracks.

4. QUALITY CONTROL MEASURES FOR ASPHALT PAVEMENT OF HIGHWAY ENGINEERING

4.1 Strict control of asphalt mixing

Before we start manufacturing the mixed asphalt materials, we need to conduct a detailed inventory, check the proportion and quality of the materials selected, and ensure that they meet the regulations on the quality of the mixed pavement and the standards issued by China Road Construction. At the same time, in the process of manufacturing mixed materials, we also need to determine the mixing ratio of materials to meet the relevant requirements and standards. Field conditions should be used as the basis for scientific temperature control exclusions only if the mixing process meets the requirements. If the asphalt temperature is too high and no temperature is specified, then the relevant personnel should be prepared to condense the asphalt mixture. During the manufacturing process, the stirring operator must input relevant data and complete the stirring operation as required. At the completion of the mixing operation, the tester shall assess the quality of the asphalt mixture and shall dispose of it in a reasonable manner if the test results of the mixture are found not to meet the requirements. This will ensure that the construction quality and efficiency of asphalt pavement can be effectively improved, and provide good conditions for the construction process [3].

4.2 Reasonable control and restriction of construction materials

The relevant building department must have a thorough understanding of the actual state of the project. The purchasing staff should also understand the market situation of building materials, select qualified long-term partners and reasonably evaluate whether the materials they provide meet the design requirements. Only materials of the right quality can enter the building. In addition, we need to carry out regular sampling inspection of the building materials. If building materials are damaged or improperly stored, they must be replaced with a qualified product.

4.3 Establish and improve the technical control and management mechanism

In order to correctly improve the quality of highway construction projects, we must implement the monitoring mechanism fairly and scientifically. At the same time, it is necessary to carefully monitor all engineering processes related to asphalt construction. After asphalt is laid and tamped, a careful, thorough review of the quality level of the road must be carried out, with emphasis on controlling the cracked portion of the road. In addition, in order to improve the level of technology development and quality control, it is necessary to monitor the safety and stability of drivers and improve management efficiency from all aspects. After the supervision mechanism is established, it is necessary to reasonably adjust and strengthen it, revise the duties and appropriate systems, clarify the duties of employees in each case, promote the effective implementation of administrative contractors, and clarify the skills and scope of management.

5. CONCLUSION

Asphalt pavement is currently one of the most important parts of road construction projects. In the asphalt paving process, the relevant construction personnel must strictly abide by the technical specifications and functional requirements to ensure the quality of asphalt pavement. Reasonable quality control measures should also be formulated, such as strict control of the amount of asphalt, control of the temperature of asphalt mixture, in order to improve the quality of asphalt pavement and increase the service life of road engineering.

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