



Research Article

NEW MATERIALS IN MUNICIPAL ROAD CONSTRUCTION

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Zhao Shuhui

Heilongjiang University, Harbin, China

ABSTRACT

With the development of the world economy, there are more and more engineering projects in various countries, and the scale is getting larger and larger, and municipal road engineering is one of the main engineering projects. The application of new materials in municipal road projects can effectively avoid safety problems, reduce production costs and improve road quality. Based on this, this paper first expounds the important role of new materials in municipal road construction, analyzes the safety problems existing in municipal road construction, and studies the application of new materials in municipal road construction, so as to play a certain reference significance for the use of new materials in municipal road construction.

KEYWORDS

Municipal road; new material; engineering construction; application.

INTRODUCTION

Municipal road engineering has a large number of construction works, and the construction is complicated. Therefore, there are also many hidden safety problems in the construction of the

project, to a certain extent affecting people's normal travel. Application of new materials in municipal road construction can effectively improve the construction quality of the project. Therefore, we should increase the variety of new



materials. The research and development of materials is to ensure that they obtain better application in engineering construction and provide a strong guarantee for the construction of the project.

1 The important role of using new materials in municipal road construction

In recent years, transportation industry has developed rapidly, and the scale of municipal road engineering is also gradually expanding. In a sense, this is also in line with the development of the times. In order to effectively improve the quality of municipal engineering construction, it is necessary to increase the application of new materials. According to the actual development of road engineering construction, the role of new materials in municipal roads is mainly reflected in the following three aspects:

1.1 Save project cost investment

The scale of municipal road projects is relatively large, and the requirements for construction technology are relatively higher, in this case, it will need to invest a lot of capital costs. In addition, in the construction of road projects, it is also often encountered that the building construction materials do not meet the requirements and cannot be used together. The situation also increases the cost input to a certain extent, can't effectively guarantee the construction quality of the project. The application of materials in the construction of municipal road projects can not only effectively ensure the construction quality of the project, but

also, at the same time, the project cost can be greatly reduced. Most notably, the application of new materials such as asphalt mixing can effectively reduce the emission of harmful substances such as carbon monoxide. Therefore new material not only saves the project cost to a certain extent, but also plays an important role in protecting the environment.

1.2 Guarantee the construction progress of the project

Regarding the construction of municipal road projects, not only the amount of engineering is large, but also the construction period is relatively short. In order to ensure that the construction of the project can be completed on time, it is usually necessary to consider many factors, such as whether the design of engineering construction drawings is scientific, whether the construction environment meets the requirements and whether the capital investment is guaranteed. Among them, the use of construction materials occupies a more important position, The vigorous use of new materials can effectively avoid the modification of engineering construction drawings, and the use of some new materials can also control the cost of project construction more reasonably. In short, the application of new materials avoid the occurrence of some problems and effectively ensure that the construction can be completed on schedule.

1.3 Play a role in protecting the environment

Municipal road works are carried out in the city, which will damage the green vegetation of the



city, and it is extremely prone to noise pollution, which will have certain influence over the lives of nearby residents. The new material has the characteristics of green and environmental protection, supplemented by some new technology, can reduce the noise pollution generated by the construction to a certain extent, it will reduce the impact on nearby people accordingly. At the same time, according to the construction practice, we can know that the use of new materials can reduce the bad impact on the surrounding environment and protect it. Therefore, it is necessary to pay great attention to the application of new materials in the construction of municipal road projects, which will not only improve the engineering quality, but also protect the environment.

2 Analysis of safety problems existing in municipal road construction

In terms of the current development status, there are still many hidden security problems in the construction of municipal road projects. If these hidden security problems cannot be reasonably eliminated, the safety of municipal road construction will be affected to some extent. Safety hazards in municipal road construction are as follows:

2.1 Pavement cracks

After municipal roads are put into practical use for a period of time, various types of cracks will appear. According to the actual shape and the cause, the cracks can be divided into several different types, among which the more common is the following 4 types: a, longitudinal cracks; b,

reflection cracks; c, horizontal cracks; d, comprehensive cracks.

2.2 Hidden danger of rutting

In the construction of municipal road engineering, rutting is one of the more common hidden dangers. Vehicle climbing positions and bus stops are places where ruts are more likely to occur. The road surface will be deformed, especially in the case of higher temperature. In this case, the elastic modulus of the asphalt mixture will gradually become weaker, the road surface has a permanent deformation. Obviously, these hidden problems in the municipal road pavement greatly affect the safety of the road.

2.3 The hidden danger of loose

In order to achieve effective bonding between various raw materials, asphalt glue is widely applied on municipal roads. However, the construction of municipal road is more complicated, especially in the section with relatively large traffic flow, the road surface needs to bear a large load. Under long-term load, the adhesion of asphalt glue will be reduced, due to the action of rolling, the aggregate will gradually fall off from the top, so that many pits on the road surface will appear. Under the joint influence of these conditions, road driving safety will definitely be affected.

2.4 Factors of water damage

After the municipal road is put into actual long-term application, it will inevitably appear crack problem. In rainy weather, rainwater will seep into the roadbed through cracks. In addition to



the influence of air and passing vehicles, the internal structure of the roadbed is extremely prone to damage, resulting in the peeling of the asphalt membrane, etc.

To sum up, at present, there are still many safety problems in the construction of municipal roads. We should have a comprehensive understanding of these security risks and apply corresponding measures to solve it, so as to ensure the safety of municipal road engineering construction.

3 Application of new materials in municipal road construction

3.1 Application of new SEAM materials

SEAM new material is a kind of asphalt mixture modifier, sulfur is in which occupies a large proportion. During the construction of municipal road works, it is necessary to add SEAM into the mixing bin of the asphalt mixture according to a certain proportion. The road performance and the rutting resistance of the road surface can be greatly improved. In addition, compared with the general base asphalt material, the temperature of SEAM new material is Lower, the actual consumption of energy is relatively low, which can save engineering costs investment and extend the service life of municipal roads.

3.2 Application of slurry mixture on micro-surface

In recent years, the micro-surface slurry mixture has been vigorously developed, which is a mixture of sand slurry, polymer modified emulsified asphalt and stone and many other raw materials according to a certain proportion. It is

widely used in municipal road engineering construction. At the same time, this material the material can be quickly put into construction, so there is no need to worry about its negative affect on the construction schedule. After the construction of the municipal road is completed, the road can also be used in the shortest time.

3.3 Application of polystyrene foam

In essence, polystyrene foam is a kind of high molecular polymer, its actual service life is relatively long, it has relatively significant economic advantages, and its chemical properties are good, which makes the problem of serious pavement solved in municipal road construction. In the actual construction process, this material needs to be paved to the lower layer of the road surface, and then the load of the upper layer position is evenly transferred to the subgrade, which reasonably reduces the load on the subgrade per unit area, and at the same time plays a better settlement control. Under normal circumstances, polystyrene foam will be widely used in the construction of airport runways and parking platforms. Compared with other engineering construction materials, its cost input is relatively small, so it will be used in future road engineering construction. This material has a very broad space for development.

3.4 Application of warm mix asphalt

In traditional municipal road construction, hot mix asphalt is often used because of its good road performance. However, this material also has certain shortcomings. In actual use, it is easy to generate some harmful gases such as asphalt



smoke, which will cause adverse effects on the health of staff and surrounding people to a certain extent. With the increasing economic development, people's requirements for the environment are gradually increasing, and hot mix asphalt can no longer satisfy people's actual needs. The use of warm mix asphalt technology can control the temperature in the mixing and actual production process at 30~60 °C, effectively reducing the emission of harmful gases during construction. In addition, under normal circumstances, warm mix asphalt mixtures are mixed in a lower temperature environment, which can effectively avoid the aging of asphalt and meet social economic and environmental requirements. In terms of road performance, warm mix asphalt is similar to hot mix asphalt, so the practical application of warm mix asphalt has certain practical significance.

CONCLUSION

All in all, new materials play a very important role in the construction of municipal road projects. Municipal road construction is not only related to the overall image of the city, but also closely related to people's personal safety. Therefore, the application of new materials is an inevitable development trend in the future. In the construction of a specific project, new materials should be used reasonably according to the actual situation of the project construction, to improve the quality of project construction, to extend the actual service life of municipal roads, to provide convenience for people's travel, to promote rapid economic growth, to protect the environment, to

realize the harmonious development of society and nature.

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