ENSURING CONSTRUCTION QUALITY IN THE CONSTRUCTION OF ASPHALT CONCRETE PAVEMENTS

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Annotation:

We are talking about the work to be done in the Republic of Uzbekistan to further improve the service life of our roads as a result of the organization of high-quality construction of asphalt roads in the country and the use of foreign technology.

Keywords:

Freight, passenger, road construction, quality, QMQ, BND, agency, asphalt concrete, nobikr, construction, transport, durable, coating, leveler, heat, restoration, heating, technology, regeneration, thermoprofiling.

A material made from a mixture of crushed stone (gravel), natural or crushed sand, mineral powder and bitumen in certain proportions is called asphalt. The materials that make up the asphalt concrete mix are mixed in special devices when heated. Depending on the type of stone materials used as large aggregates in asphalt concrete, they can be gravel, gravel and sand, which are divided into types depending on the viscosity of the bitumen used and the temperature at which asphalt concrete mixes are laid. Coatings made of hot and warm asphalt concrete mix are characterized by faster formation, strength and serviceability even in the compacted state. Cold asphalt concrete pavements are slippery in rainy weather, so they usually require additional surface treatment. Hot and warm asphalt concretes can be large grains up to 40 mm, medium grains up to 20 mm, and grains up to 15 (10) mm, depending on the size of the gravel, cold asphalt concrete can be only fine-grained or sandy. [1]

As a result of the high cost of asphalt pavements, attempts are made to lay them as thin as possible. For the production of quality asphalt concrete, it is advisable to use materials that meet the requirements of QMQ 2.05.03-9. [2]

Prior to laying and compacting the asphalt concrete, the surface of the foundation must be properly prepared. After patching, leveling and cleaning, the surface of the base should be dried naturally with sand heated to 200-250 ℃ or with special drying machines (heaters). Once the foundation is dry, it is treated with bitumen materials. To do this, the bitumen emulsion must be heated to working temperature or diluted with paraffin.

BND 90/130 and BND 60 / (90) viscous bitumen, as well as SG 70/130 liquid bitumen are used. Emulsion or liquid bitumen is poured 3-5 hours before laying the mixture. A thin layer of bitumen is diluted to the appropriate level (8-12% by weight) with paraffin to facilitate even distribution. Asphalt concrete mixture is laid on the built surface after processing. If it is laid on a freshly distributed bitumen emulsion, the mixture will not adhere to the base.

Asphalt mix is transported by dump trucks from the place of preparation to the place of laying. The main requirement for the organization of transportation is to ensure that hot (100-120 ℃) and warm (70-80 ℃) mixtures do not cool down. When the air temperature is above 10 ℃, the transport

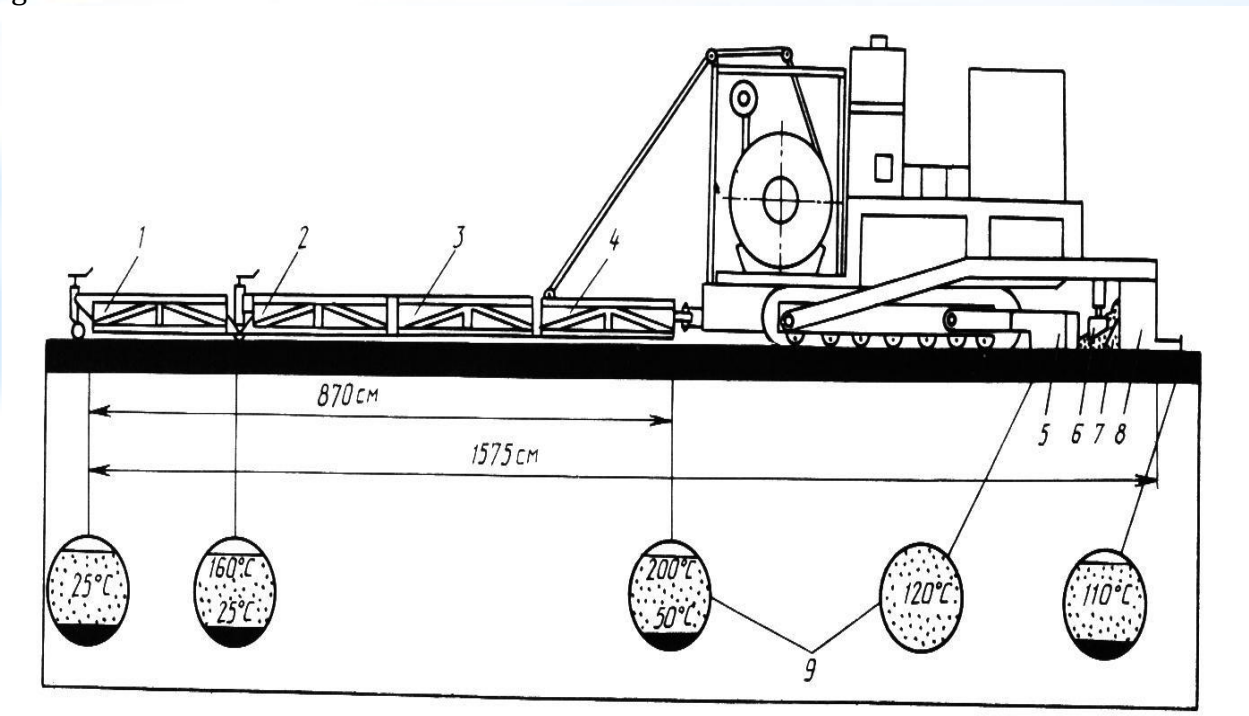
time of the hot mixture should not exceed 1.5 hours. The hot mixture can be transported for 2-2.5 hours.

Asphalt concrete is a building material consisting of a mixture of crushed stone, sand, mineral powder and bitumen. Before mixing, they are heated to 100-160 ℃. Hot bituminous bituminous concrete laid and compacted at a temperature of not less than 120,, compacted asphalt concrete at 40-80 va and low-viscosity hot asphalt concrete, cold bituminous cold asphalt concrete compacted at air temperature (above 10 ℃); It is divided into large, medium, fine-grained and sandy asphalt concrete. Depending on the division, they are used for roads, floors, roofs of industrial buildings and other purposes.

Depending on the quality of the road surface, the technology of road construction works will vary. For example, when laying asphalt concrete, sand is sprinkled on the bottom layer of the foundation, gravel with cement is added on the top layer, and a two-layer mixture of bitumen mineral and asphalt concrete is laid. [3]

It is also more effective to use the regeneration process to further improve the quality of asphalt pavements. To do this, first of all, road construction materials, especially organic binders, wear out quickly, that is, their physical and mechanical properties change over time. As a result, cracks, holes and other deformations are formed in the coating. The process of restoring the original properties of the asphalt pavement is called regeneration. He has different ways.

Prior to the development of technology for the use of obsolete asphalt concrete, its properties are studied in the laboratory. Cylindrical specimens are cut from long-used asphalt concrete. Bitumen, fine and coarse aggregates are separated and tested. Thermoprofiling is widely used in the repair of coatings.



Technological scheme of restoration of asphalt concrete pavements: 1-4- serial numbers of panels of infrared gas heating block; 5- softener; 6- transverse leveling of the coating; 7 hot asphalt concrete mix pile; 8- vibrating brush and leveling plate; 9- The temperature of the asphalt pavement layer during heating.

Flattening without adding new mixture to the heated layer is performed in the following order. The coating is heated to 160 ... 180º C by infrared rays. With a special tool the coating surface is softened to a depth of 3 ... 4 cm. The mixture is then spread again across the width of the coating, leveled with a trowel and slightly compacted using a vibrating brush.

The vibrating roller is compacted using a pair of pneumatic and smooth-rolled rollers (up to 12 passes). This method is used when the physical and mechanical properties of the asphalt concrete in

the pavement have not changed or have changed slightly, when the viscosity of the bitumen is lower than the standard requirement.

The essence of the method of thermoprofiling is to heat the repaired coating with infrared rays, cut it to a depth of 2-5 cm, mix the molded mixture, if necessary, add freshly prepared mixture, spread it in the longitudinal and transverse directions, re-lay and compact.

The method of heating the pavement is widely used to renew asphalt concrete. It is first heated and leveled without adding a new mixture to the surface, and then leveled by adding a plastic material to the asphalt.

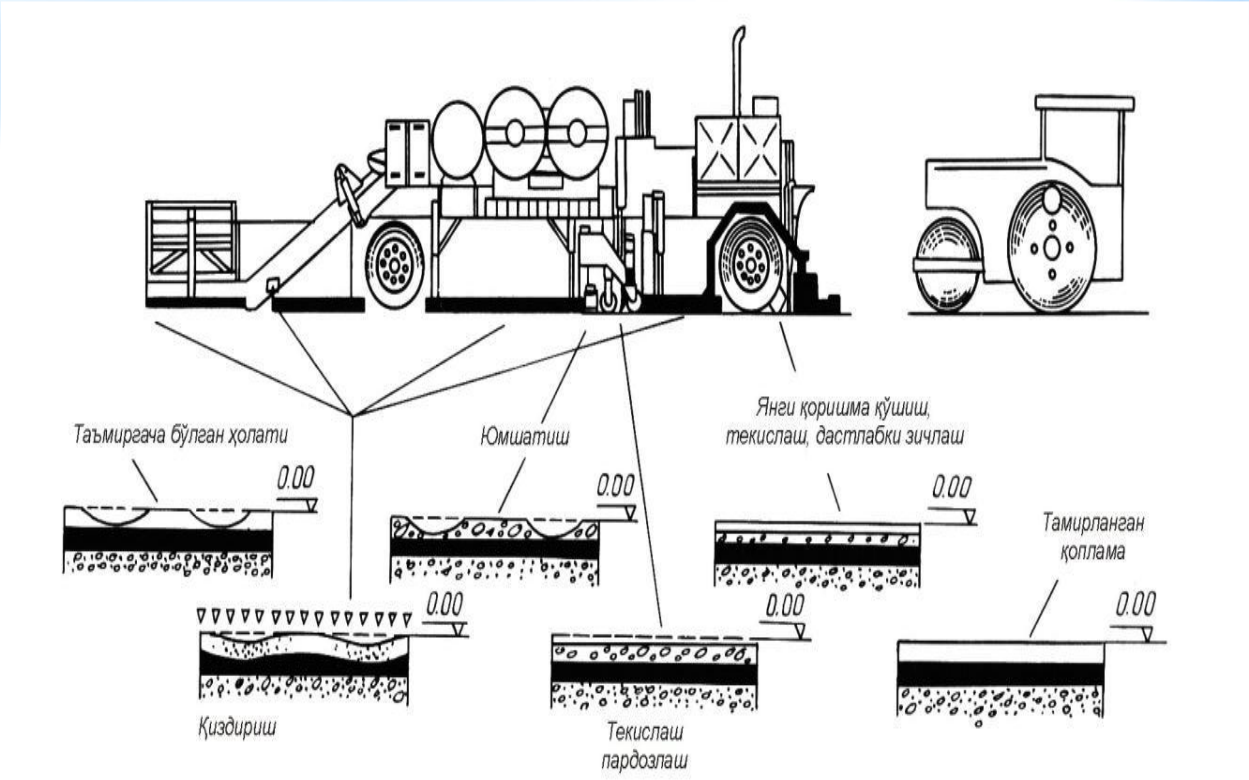
Thermoprofiling is performed in four different modes:

- simple thermoprofiling (heat-leveling) without the addition of new material and in the presence of the integrity of the old asphalt concrete mix;
- thermoprofiling (thermo-smoothing) in the same method to ensure the integrity of the old mixture;
- leveling with the laying of a new layer on top of the old layer (thermo-flattening with the laying of a new layer, short thermal laying);
- in the same way, adding new material to the old mixture, mixing and laying as a single layer (thermoprofiling or thermo-mixing by mixing).

The regeneration process depends on the condition of the existing coating. This complex is made with the help of "Remix". If the depth of the damaged (damaged) coating does not exceed 6 cm, the technology of hot regeneration is advisable. Based on the experience of regeneration of asphalt pavements in Remix in Russia and Belarus, the process of working with the main technology of remix is widely used.

Deep cold regeneration is the most effective restoration technology for the initial strength of a non-slip pavement or its reinforcement technology. Restoring the strength of pavements is a completely new form of hot and cold regeneration technology. It ensures high productivity of high-quality repairs, as well as saves resources and energy. In addition, these technologies allow you to work on the site under repair without stopping. Hot regeneration technology ensures high quality longitudinal welding.

Due to the length of the Remix-4500 complex machine base, it guarantees the highest level of longitudinal and transverse smoothness.



The sequence of technological processes of renewal of the pavement by adding a new asphalt mixture.

Economic efficiency: As a result of the regeneration process, we will be able to save bitumen and other building materials, which are lacking in Uzbekistan and other countries.

Relevance: Repair and repair of obsolete asphalt pavements as a result of regeneration and thermoprofiling will allow us to perform construction work better, as well as to lay asphalt pavements in accordance with the normative documents.

In conclusion,

The application of this foreign technology in the territory of Uzbekistan will improve the quality of road construction, accelerate the construction period and save money, as well as the low level of bitumen in the territory of Uzbekistan. l If we introduce in construction organizations, we will be able to reduce the consumption of road construction materials and build quality. Another advantage of these methods is that we can use them in all seasons of the country.

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