MATERIALS USED FOR WATER PROTECTION OF REINFORCED CONCRETE STRUCTURES USED IN MODERN BRIDGES.

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Annotation: *This article covers issues such as water protection of reinforced concrete structures used in modern highway bridges and improvement and effective use of products and materials used for joining concrete.*

Key words*: Hydrosol, bitumen, asbestos, cellulose, hydrostecloisol, epoxy adhesives, polymerization, Portland cement, quartz sand, andesite or debase.*

Introductions. Modern roads and bridges serve to improve the well-being of our people. This was another clear proof that the reforms being carried out in our country are aimed primarily at people and their interests, and people's comfortable living [1]. As the President said, building modern bridges, adapting roads to the requirements of the times will serve to create comfort for the population and increase the well-being of our people. Our country is becoming more prosperous year by year, and people's living standards are also rising. This can be seen in the example of the increase in the number of private cars and the increasing traffic of vehicles in our city.

The main part. The concrete of the intermediate device and supports of the bridge is protected from environmental moisture and leaking water, as a result of which there are no distortions in the concrete, it prevents the reinforcement from rusting.

Waterproofing materials used in bridge construction are divided into applied and glued types. In applied protection, cold painting and hot liquid application are carried out. In cold painting, grade III and IV bitumen burned in heavy gasoline or kerosene, as well as resin varnishes are used. Cold painting is the first layer, after which 2-3 mm thick hot coating is applied. As a special hot-applied waxy material - a mixture of fine asbestos fibers of bitumen is used[3].

Ruberoid is a simple bitumen-based wrapping material. It has an average protective quality and does not work much because the paper is compressed on a

bitumen basis. Hydroizol has high waterproofing properties. Bitumen is also the basis of hydroisolation, and it is made from asbestos or cellulose cardboard[2]. Hydroisol is widely used in bridge construction due to its long service life and high waterproofing capacity. A glass layer (hydrostecloizol) waterproofing wrap is also used, the base of which is reinforced with glass gauze. Its strength is very low in an alkaline environment. Folgoizol, which has the best waterproofing properties and technological growth, is a 3mm-thick flat and taut aluminum base roll. Aluminum is superior to folgoizol, liquid wax with bituminous resin is used for gluing. It surpasses all other materials in terms of waterproofing ability and has a higher value than other materials. Folgoizol is used only in constructions of great responsibility: in larger bridges and tunnels[6].

The main way to work with bituminous waterproofing materials is to paint the concrete once and glue it without mastic. Heating heaters covering the width of the material to be glued are used to melt the surface painted with bitumen[5].

When bituminous waterproofing materials are used, there is a need to develop new waterproofing materials to limit the heat. Butgisol material was developed for the protection of car bridges - an elastic frost-resistant (down to -70℃) rubber-like material based on butyl rubber. Rubber wrap materials are glued with cold mastic or glue[9].

In the future, it will be appropriate to use layers of paper-like polyvinyl chloride, polypronylene, and polyethylene synthetic material as protection. The new technology of isoplast, mostoplast and dol'mostoplast packaging materials produced in Russia has been experimentally tested and is widely used[7].

Materials and methods. In the preparation of the article, the methods of comparative analysis, study and nationalization of the experiences of foreign countries, study of the possibilities of computer programs and orientation to the field, historicity, rationality and generalization were used.Tavsif ko’rsatkichlar va takliflar.

The results. Adhesives used for joining structural elements. Adhesives are considered a structural material, and when joining concrete parts by gluing, it is economically effective if its joint strength is not less than the strength of the

structural concrete being glued, and the bending modulus is close to that of the concrete being glued in the direction of the hardened state and expansion coefficients. Glued connections must work for a long time and be resistant to the effects of the external environment during operation. Such requirements include adhesives based on enoxide resin. In addition to glue, hardeners, plasticizers, fillers, and modifying (sorting) additives are used in them. EE5, EE 6, and EE 40 brands of epoxy glues produced in Russia were mainly used in bridge construction, and since 1973, new EE 22, EE 20, EE 16, and EE 14 epoxy glues with some technological advantage have been produced[8].

Polymerization (preparation) is carried out by solidification of waxy resins. Depending on the type of hardener, epoxy adhesives can be prepared in a normal or heated state. Hardeners used in cold process in bridge construction: hexamethylenediamine, polyethylene polyamine and triethanoldiamine. The technological properties of the glue are determined by the type and size of the hardener by adding plasticizers and additives. The amount of hardener is 10...15% of the weight of epoxy glue. Dibutyl phthalate and polyetheracrylate are used as plasticizers. 5...30% of them are added in relation to the weight of epoxy glue. If the plasticizer is added excessively, the strength of the glued area will decrease and its deformation will increase.

The filler does not affect the elasticity of the glue during polymerization and mainly causes a change in the temperature expansion coefficient of the glue and a decrease in the consumption of the epoxy glue. Portland cement, crushed quartz sand, andesite or diabase flour are used as fillers in bridge construction.

In order to create a joint using high-quality glue, the surfaces to be joined must be well prepared for gluing. The surface of the concrete should be clean, dry and solid. Cleaning of surfaces is carried out with sandblasting equipment and mechanical brushes.

The viability of adhesives in enoxide resin is 2...2.5 hours at a temperature of 20℃ to 25℃. At a lower temperature, the viability of the glue is extended.

Adhesives used for joining concrete are heated at low temperatures and cold. Adhesives have also been developed to bond old hardened concrete with newly poured concrete.

The conclusion is in place. It is advisable to use high-strength concrete in load-bearing, mainly prestressed bridge structures. If the concrete of the intermediate device and supports of the bridge is protected from environmental moisture and leaking water, as a result, there will be no damage to the concrete, and it will protect the reinforcement from rusting. By using bituminous waterproof materials, it is possible to protect concrete from environmental moisture and increase its service life by two times. Adhesives are considered a structural material, and when joining concrete parts by gluing, if the strength of the joint is not less than the strength of the construction concrete being glued, it is considered economically effective and extends the service life of the furnace.

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