THEORETICAL ASPECTS OF INSTALLING RELIABLE WATERPROOFING

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Abstract
Waterproofing materials in structures and buildings are exposed to ultraviolet rays, temperature changes, oxygen and ozone in the air, wind force, precipitation in the form of rain and snow, microorganisms, aggressive liquid media and gases, mechanically contaminated pumps, stress and other external influences factors. As a result of these factors, waterproofing materials become unusable.

Keywords: construction, waterproofing, material, variable temperature, aggressive liquid medium, mechanical contamination, coefficient, hydrophobic surface, capillary absorption, degree of hydrophilicity, wettability, absorption height.

In the construction of housing, social and commercial facilities built under the state program "New Uzbekistan", renewable energy sources, devices that produce electricity and heat are widely used. Model projects have been developed for the introduction of renewable energy sources at the facilities of the private sector, social sphere and local government [1].

Waterproofing materials in structures and buildings are exposed to ultraviolet rays, temperature changes, oxygen and ozone in the air, wind force, precipitation in the form of rain and snow, microorganisms, aggressive liquid media and gases, mechanically contaminated pumps, stress and other external influences. factors. In addition, heat and mass transfer, moisture gradient, diffusive motions, chemically active reagents, syneresis and many other internal factors have a great negative impact. As a result of these external and internal factors, waterproofing and roofing materials fall into disrepair during the operational period [2,3].

At arrangement of waterproofing operational, technological and economic factors are taken into account, the main of which are the following: the permissible degree of wetting of wrapped structures; crack resistance of the insulated structure; the height of capillary rise of water depending on soil density; the value of hydrostatic pressure; mechanical impact on waterproofing (compression due to the mass of span structures, soil splashing and groundwater pressure, stretching due to relative displacements of moving elements of the structures, and also due to the relative displacement of moving elements of the structures).

Taking into account the preliminary data, the main aspects of reliable waterproofing device are proposed [6, 7]:

1) poor wetting of the surface of the used material with water;

2) to exclude free movement of water through capillaries and holes of the insulation material;

3) minimizing diffusion penetration of water;
4) ensuring a given strength, service life and deformation of the installed waterproofing.

To fulfill the first aspect, the hydrophobic materials must be hydrophobic, that is, non-wetting by water. Creating a non-wetting or poorly wetting surface of the waterproofing layer is a difficult task [6, 7].

The selection of waterproofing materials is done by changing the selection of their constituent materials and components and measuring the angle of the wetted boundary each time. If the insulating material does not give a negative wetting angle with water when tested, a thin layer of a film-like hydrophobic substance should be applied to the surface of the structural material beforehand [7].

Creating a hydrophobic surface (external and internal pores) is one of the main conditions for good waterproofing.

Non-wetting of the surface of the waterproofing layer is a necessary but not sufficient condition for effective protection of structures from water. Water can penetrate the material by capillary suction. Depending on the degree of hydrophilicity of capillary walls and their ability to be wetted by water, the height or depth of water absorption changes. If the capillary walls are hydrophobic, no water enters the capillaries and the water in the capillaries sinks below the level of the surrounding aqueous medium [7].

Thus, based on the analysis of theoretical aspects of the device of reliable waterproofing can be concluded that, although the demand for oil bitumen continues to grow, scientific research aimed at expanding the resources of oil bitumen on the basis of local raw materials is practically not carried out in our Republic. Therefore, it is urgent to expand the resources of oil bitumen on the basis of local raw materials and the development of reliable waterproofing materials on their basis.

References

1.Khamidov B.N., Urinov A.A. "Classification of materials for waterproofing of pipes, bridges and foundations" Modern problems of chemistry of complex compounds and analytical chemistry. Republican Scientific and Practical Conference. 2022-y. 19-21 May Termiz. 327-328 pp.

2. Liakhovich G.D. Technology of production of waterproofing works. Textbook. "Bridges, transport tunnels and subways". - Minsk. BNTU, 2013. - 140 c.

3. Khamidov B.N., Urinov A.A., Tursunalieva D.T. " Structure and classification of waterproofing materials" Scientific Bulletin of Namangan State University ISSN:2181-0427, 2022 (4). -103-107 pp.

4. Urinov A.A. "Theoretical factors and aspects of a reliable waterproofing device" International Conference on Multidimensional Innovative Research and Technological Analyses http://www.conferenceseries.info/index.php/ICMRITA 2022. pp. 77-79.

5. Khrulev V.M., Bezverkhaya L.M., Zinovieva S.I. Waterproofing and sealing materials: Manual. Novosibirsk: NISI edition, 1985. -75 c.
6. Khamidov B.N., Urinov A.A. "Theoretical analysis of the dielectric resistance of bitumen for the needs of waterproofing" International Scientific and Practical Conference of Students and Young Scientists "Sustainable Development: Problems, Analysis, Prospects". http://www.openconference.us/ 2022. pp. 8-10.
7. Khamidov B.N., Urinov A.A. "Structure and classification of waterproofing materials" Asian Journal of Multidimensional Research ISSN: 2278-4853 SJIF 2022 = 8.179. Vol. 11, Issue 4, April 2022.