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CHARACTERISTICS, EFFICIENCY OF LIGHT-STRENGTH CONCRETE

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Annotation
In this article, the construction of tall, multi-story, complex buildings and structures based on ordinary heavy concrete, the construction use of lightweight concrete, as well as the efficiency of light and strong concrete in the field of construction. Detailed information is provide on structural solutions to reduce the labor force as much as possible in the preparation of structures, and at the same time to use lightweight strong concrete instead of heavy concrete.

Keywords: Construction, construction materials, heavy concrete, lightweight concrete, technological solution, concrete fillers, expanded clay, agloporite, comporite, light strong concrete, project, constructions.

The construction industry around the world is developing rapidly day by day. It was in our Republic that big changes in the building materials industry began with the initiatives of our President. including, on the basis of Presidential Decree PQ-4198 dated February 20, 2019 ("On measures for fundamental improvement and comprehensive development of the construction materials industry"), further reducing the state's participation in the economy, managing the construction materials industryincreasing the efficiency of the system, encouraging the organization of deep processing of local raw materials, introducing advanced technologies, diversifying the types of manufactured products and expanding the volume of exports, attracting investments to the industryimplementation of the decision and PQ-4335 dated May 23, 2019 ("On additional measures for the rapid development of the construction materials industry") Sustainable growth in the production and export of competitive products in our republic to ensure the paceAlso, systematic work is being carried out to further deepen the structural changes in the construction materials industry aimed at modernization of enterprises, technical and

technological updating, and a number of reforms in this regard are currently showing their resultsin the development of the construction industry, in particular, the construction of high-rise buildings and various structures continues to grow day by day. The demand for types of concrete and reinforced concrete as the main construction material has increased. Accordingly, light concrete has a great role in this regard. In the history of the development of construction, the introduction of concrete served as the main impetus for the growth of the architecture and construction industry and the world of building materials. It is not difficult to imagine innovations in the field of architecture now and in the coming years.

Lightweight reinforced concrete can be a structurally perfect solution for ensuring the durability of skyscrapers, their long-term durability and increasing their functions. The main task of our technologists is to form light and strong concrete that meets the requirements of their architectural project.

In addition to the above, another tactic is used in the construction of reinforced concrete structures. These are lightweight concretes based on pore fillers. today, it is required to use pore fillers as a filler in the preparation of concrete structures, including light concrete (reinforced). As a result of such a construction, we need to get lightweight high-strength concrete.

If we talk about the concrete composition and structural structure of light-strength concrete, water and cement are the main active constituents of concrete and perform the function of combining large and small fillers.

In recent sources, in the construction industry, artificial fillers have been added to the composition of lightweight concrete. Among them, lightweight concretes based on expanded clay, expanded clay, agloporide, and comporite are widely used.

Preparation of concrete on the basis of these fillers can be a solution to the problem of obtaining lightweight high-strength concrete. not only a solution, but such constructions are also a solution to reduce the weight of concrete by 20-30% in the construction of high-rise buildings and multi-storey buildings. when analyzing this in the case of Japan, it can be seen that the use of light strong concrete instead of heavy concrete is used to reduce the labor force in the construction and assembly work. As an example of this type of constructions, we can cite the following: Reinforced cement constructions (works well against stretching and bending, has high seam resistance, elasticity), porous (cellular) concrete

Different concretes have their own structure. Heavy concretes have a dense structure, lightweight construction concretes have a dense structure with a porous mixture, porous concretes have a porous structure, and those with large voids have a granular structure. Of course, the division into types in the given forms is conditional, in fact, the structure of concrete differs by its complexity, for example, in the dense structure of heavy concrete, cement stone has a large number of pores, in the dense structure of light concrete, pores not just in the fillerit is also observed in cement stone, individual

cells in a porous structure may be connected with each other by capillaries and others. but it is possible to have an idea about the types of structure with the help of specific characteristics of the concrete composition in each case, and then design it.

The relative strength of light (500-1800 kg/m3) concrete is determined by sinking the piston by 2 cm during compression of a piece of material with a height of 10 cm.

The pores of the densification structure of lightweight reinforced concrete are observed not only in the filler, but also in the cement stone. It is necessary to keep in mind that the structure of cement stone is also of special importance. the higher the strength of the pore filler and the smaller its share in concrete, the higher the rate of increase in the strength of lightweight concrete. to achieve the specified strength, light concrete needs to be heat-treated for less time than heavy concrete.

Interestingly, the impetus for the development of self-compacting concrete came from the desire to minimize the use of skilled labor in Japan. There is no doubt that self-reinforcing concrete will become widespread in the near future, even lightweight concrete. according to the results of testing of the obtained samples, Rb and Rbt (flexural and compressive strength) are equally suitable for lightweight concrete and normal concrete. at very low strengths (say 2 MPa (300 psi)) the Rb/Rbt ratio can reach 0.3, but at higher strengths it is about the same as normal concrete. However, drying reduces this ratio by about 20 percent, so a reduced value of Rb/Rbt is used in the design of lightweight concrete. as can be seen from the above, the requirements of high sound absorption and high transmission loss are significantly conflicting.

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