



### COMPOSITE ARMATURES IN CONSTRUCTION PROSPECTS FOR APPLICATION

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#### Annotation

This article presents the advantages and disadvantages of using composite reinforcement in construction in comparison with traditional steel reinforcement.

**Keywords:** composite and steel reinforcement, construction, basalt fiber.

Today, construction is unimaginable without concrete and reinforced concrete structures, steel reinforcement. In many countries around the world, a certain proportion of steel fittings used in the construction industry are being replaced by non-steel, composite fittings. The use of non-metallic composite fittings in our country in the construction industry will significantly reduce the demand for steel fittings. This can lead to economic austerity in our country.

A number of enterprises for the production of composite armatures have been launched. The new enterprise, established on the basis of the Decree of the President of the Republic of Uzbekistan dated December 26, 2016 "On measures to continue the implementation of promising projects for the localization of finished products, components and materials in 2017-2019", was another important step in this area. In particular, in the village of Egizbulak, Forish district, Jizzakh region, a joint venture with the British company Liegh Barreir LLP in the form of Mega Invest Industrial LLC produces composite fittings based on basalt fiber.

Composite reinforcement can be called an advanced invention of recent years, as steel is a modern building material that can replace reinforcement and can be widely used in construction. Carrying out various tests of composite fittings in the laboratory, in construction sites, prefabricated structures and improving its technological processes will lead to a sharp reduction in the demand for steel in the construction industry in our country.

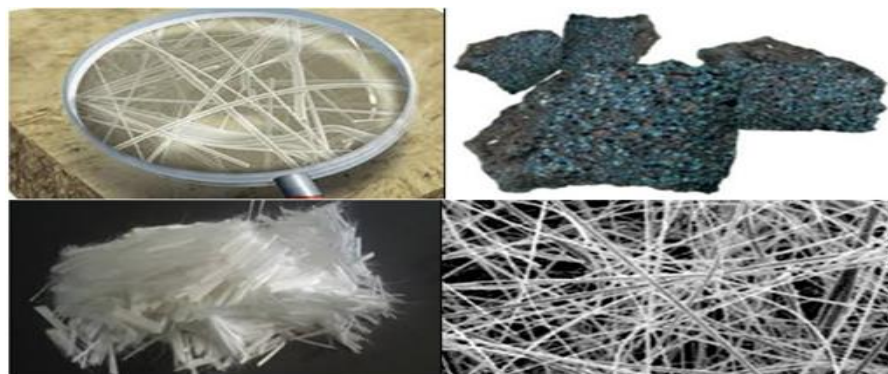


Figure 1. General view of basalt fibers



Composite reinforcement is a non-metallic material that is produced by heat treatment of glass and basalt fibers. The raw material of composite fittings is epoxy resin as a binding material of 80% glass or 20% basalt fiber. Basalt fiber is made from a solution of rock and is used as an effective and reinforcing additive for foam concrete, polystyrene concrete, standard precast concrete.

Basalt fiber has high chemical resistance and reduces the impact resistance of materials, abrasion resistance, cold resistance, corrosion under the influence of water and reduces the formation of cracks. Due to the fact that this material is made of natural stone, it can be widely used in hydraulic structures, high-traffic roads, bridges, nuclear power plants, cast-in-place floors and other places.

Composite fittings are one of the most widely used materials today, the main reasons for which are many. Composite reinforcement, in turn, is replacing steel reinforcement because they can be used gradually in reinforced concrete structures as their strength is sufficient.

use of composite fittings in construction Advantages:

plague armatures begin to rust due to moisture in the air, and as a result of this process continuing uninterrupted, the armature eventually reduces its basic properties. K-composite fittings do not rust, rot, and can be used in damp areas under the influence of moisture;

kompozit armatura  $-70^{\circ}\text{C}$  and  $100^{\circ}\text{C}$  does not change its state in the temperature range;

the mass of composite reinforcement is 9 times lighter than steel reinforcement of the same strength, and reduces the cost of lifting loads by 5 times in transportation costs;

composite reinforcement can drastically reduce reinforcement consumption in constructions used due to its high tensile strength than steel reinforcement;

it has been concluded from the investigations so far that it has been proved by many years of experience that composite fittings have 3 times longer service life than steel fittings.

Disadvantages of using composite fittings in construction:

temperature of the composite reinforcement exceeds  $600^{\circ}\text{C}$ , internal fibers break in it and, of course, as a result, these reinforcements lose their strength;

composite fittings cannot be welded using a simple electric welder like steel fittings, which in turn indicates that special work needs to be done on it.

the use of composite reinforcement in deformable elements in flexible elements must be proved experimentally;

Composite fittings are a modern building material today. It can be used in the construction of low-rise buildings, but the use of this type of fixture in the construction of multi-storey buildings, in turn, requires many years of experience and requires the determination of design parameters. The use of composite fittings in multi-storey buildings is not recommended, as it is recognized that it is relatively dangerous to use in multi-storey buildings as it is resistant to deformation.

### Conclusion

Today, the possibilities of improving the technology of production of composite fittings, improving the properties of raw materials, the use of composite fittings in the construction of load-bearing structures of buildings and structures under construction in Uzbekistan are



identified and significant economic efficiency is achieved. Based on many years of research and experience, their implementation is summarized.

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