

Issues To Increase Energy Efficiency Of Exterior Walls Of Modern Buildings

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Annotation: This article shows the usage of new materials in the interior and exterior main load-bearing walls and interior decoration walls in order to reduce the load on the main load-bearing structures of the building. In particular, it is discussed what advantages "ECOPLIT" coatings attached in the external walls have.

Keywords: Interior and exterior main load-bearing walls, "ECOPLIT" coatings, saving fuel and energy resources, eco-friendly and energy saving materials.

I. INTRODUCTION

Currently, one-storey and multi-storey buildings and structures of various shapes are being built in different cities and regions of the country. In addition, it is no exaggeration to say that in the future we will build many more new buildings in all regions of the country. Mankind is implementing various plans to improve their lifestyles. As an example, we can cite modern buildings and structures that can be seen with the naked eye. Currently, industrial buildings, public buildings, residential buildings and many other buildings and structures are being built to meet world standards. Many modern buildings and structures under construction show that our country is moving forward.

Now a lot of research is being done in the construction of buildings and structures, including the area of the building, the shape of the building, the number of floors, the plan of the building and the use of different materials in the building.

II. METHODS

Buildings and structures of various shapes are being built in our country using many new materials, which is a great innovation in the world of mankind. In order to reduce the load on the main load-bearing structures of the building, it is planned to use new materials in the interior and exterior main load-bearing walls and interior decoration walls. The exterior of the buildings, built using brick and reinforced concrete structures, is additionally decorated with various panels and various stones. This leads to an increase in the load on the main load-bearing structures of the building and an increase in the cost of the building.

Using frame structures instead of the main load-bearing walls, if the outer perimeter walls are made of lightweight materials (such as gas blocks, foam concrete blocks), the weight of the building is reduced, so is the cost. The problem of protecting buildings and structures built in this way from external variable temperatures arises, the solution of which is the use of energy-saving materials. We can introduce energy-saving products such as "Sandwich Panel", "METAL-APEX", and "ECOPLIT". High-energy "ECOPLIT" coatings are widely used in design work. In particular, a project is being developed to cover the exterior walls of two hospitals in Namangan (Uzbekistan) with "ECOPLIT".

"ECOPLIT" is a high-quality, eco-friendly and versatile fiber cement board, which contains materials that are safe for human health: cement, reinforcing cellulose fibers, mineral fillers.

"ECOPLIT" coatings with high energy efficiency have the following parameters:

Thickness - 6 mm, 8 mm and 10 mm

Weight - 29 kg, 39 kg and 48 kg

Density - 1520 kg / m³

Bending strength - from 19.9 MPa

Tensile strength should not be less than 1.65 MPa

Impact viscosity - 2 kJ / m²

Water absorption - not more than 21% by weight

Swelling by thickness - not more than 0.08

Thermal conductivity - does not exceed 0.25 W (m • K)

Frost resistance - at least F150

III. RESULTS

Once the "ECOPLIT" coatings are attached to the exterior wall, a ventilated structure is formed between the walls, resulting in air circulating freely along the space between the cladding and the wall, which reduces moisture in the structures.

The advantage of a ventilated structure is that it significantly extends the service life of the main, load-bearing walls of any building or structure. Reliable fiber cement slabs for the facade serve as an additional barrier against external noise and moisture.

ECOPLIT products can be made and used in any size; separate panels are used for wrapping the foundation and walls of the building, which are visible from the outside. It provides good protection from external moisture and noise affecting the foundation and wall, no need to re-equip the facade of the building for several years.

IV. CONCLUSION

The use of energy-efficient ECOPLIT coatings in the design of buildings and structures not only ensures the energy efficiency of the building, but also plays an important role in saving fuel and energy resources and ensuring environmental friendliness.

V. REFERENCES

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