UDK 001

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ENERGY-EFFICIENT MODERN CONSTRUCTIONS OF EXTERNAL WALLS

Annotation: In this article highlights of energy-efficient modern constructions of external walls.

Key words: energy, modern construction, external walls.

According to the location of the heater, the barrier construction differs from 3 main types of heat protection systems.

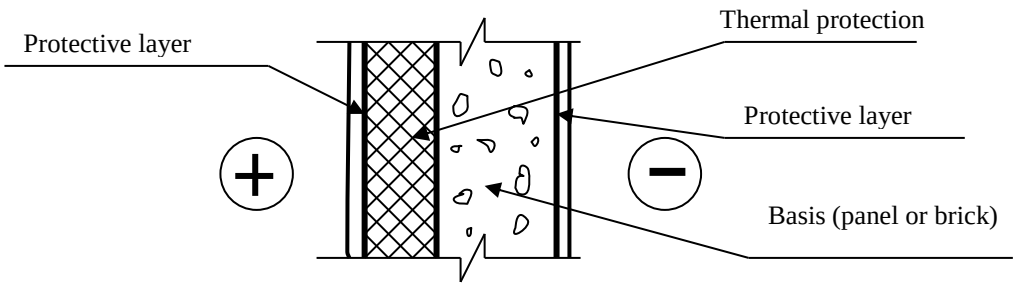
1.The heater-breaker is located on the inner side of the structure.

2.Inside the heater-barrier construction.

3.Heater-outside the barrier construction.

In the latter case, 2 systems are widely used. system of the "wet type" - covering or stuccoing the facade with a coating. Ventilated air exhaust facade system.

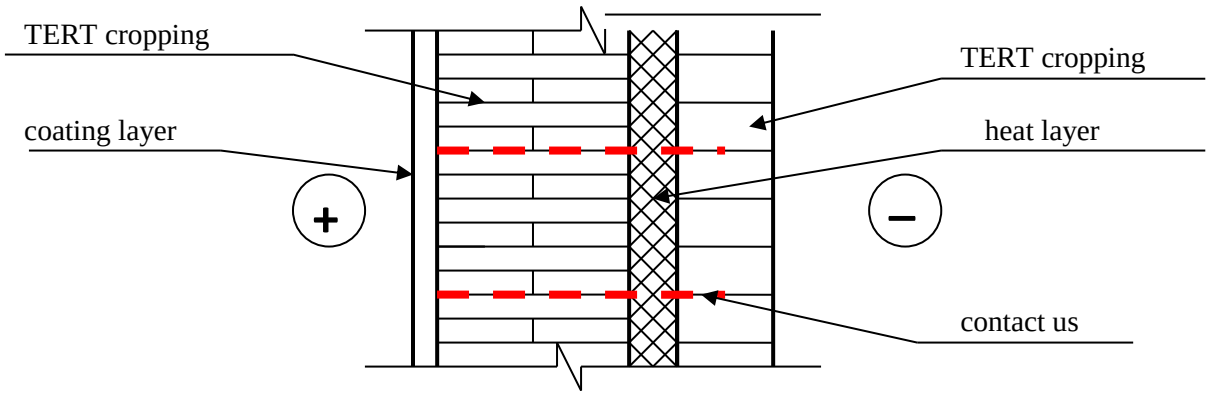
In the case of reconstruction of existing buildings, most often, thermal insulation materials are placed on the inner surface of the wall. Such a location of the heater allows you to maintain the architectural appearance of the building. Only the walls that need heating are heated. It is possible to conduct heating work during the heating of the year.



1-figure. Interior heated wall construction

However, there are 2 disadvantages of heating the walls from the inside. First, the area of the rooms is smaller. Secondly, the well-retaining part of the mass heat of the wall is located in the low charting zone in the winter season. This is a flat decrease in the thermal inertia of blocking structures and worsens the microclimate of the rooms. For proper heating of the walls, it is necessary to pay attention to the function of heat and moisture transfer processes. In the next layer after the heating layer, the barrier construction property is significantly reduced. For this reason, the water vapor formed in the rooms during the winter season condenses on the inner surface of the wall in the next layer of the heater selected moisture during the winter does not even go out in the summer, as a result of which the walls become wet and microorganisms develop in them.

In the construction of multi-storey buildings, multi-layer exterior walls with load-bearing surfaces are widely used. Such a system-blocking structure, located inside the heater-blocking structure, is filled with mutual and anti-slip fasteners. From the point of view of the science of thermal engineering, these connectors are "ice bridges", which reduce the thermal resistance of blocking structures. In this direction, the prospect of glass plastic fasteners. When using them, the heat loss does not exceed 2% such a constructive solution of the heater is used in the "RAROS" system. In it, as a heater, the base-based protective product is used.



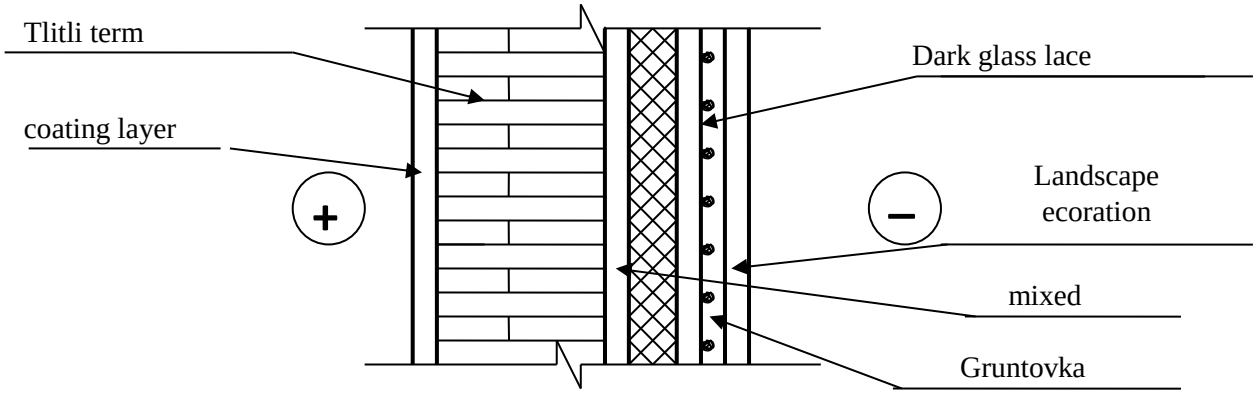
2-figure. Exterior brick coated multi-layer load-bearing exterior wall construction.

Such a system is also not excluded from the shortcomings. First, it is necessary to install a large and expensive foundation with a volume, rather than an ordinary wall base, on the base of blocking structures. Secondly, moisture

condenses on the thermal protection materials between the outer and inner walls, as well as on the inner surface of the outer wall. In this heater will function as a steamer in the hot season of the year, this blocking construction will lead to a decrease in thermal resistance and its faster operation. There are 3 main layers in the external heat protection systems of the type. Thermal protection layer-plates from thermal protection material with low thermal conductivity (for example, mineral flooring or ponepolistyrol plates).

Impregnated layer is a layer of special glue content, which is impregnated with alkali-resistant filaments.

There is also a possibility of painting with a protective landscape layer - grounding and landscape plaster (mineral or polymer), special "breathable" paints. Protection as a landscape layer as well. Plate or natural stone can be applied.



3-figure. Structure of the heating system of the Hoyle type.

Each layer in the system performs its function. The thermal protection material ensures the heating of the barrier construction, the thickness of which is determined by the calculation of thermal techniques. Material type is selected according to fire safety requirements.

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