

energy consumption. The use of such methods can significantly increase the energy monitoring reliability.

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CONSTRUCTIVE FEATURES OF INSULATION SYSTEMS IN MODERN CONSTRUCTION

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In modern construction, significant attention is paid to developing and implementing energy-efficient solutions, one of which is the use of thermal insulation systems for walls. An insulation system typically consists of the following primary components: the load-bearing structure, the thermal insulation layer, and the external protective covering. These elements function together to ensure the required level of thermal comfort in buildings.

The load-bearing structure is usually made of durable materials, such as construction bricks, reinforced concrete, aerated concrete, or other block materials. It serves as the base for attaching insulation materials and bears the weight of the entire system. Modern construction frequently employs porous blocks, which additionally reduce heat losses due to their structural properties.

To achieve building energy efficiency, materials such as mineral wool, expanded polystyrene, or extruded polystyrene foam are most commonly used. The choice of material depends on climatic conditions, the building's functional purpose, and insulation requirements. For instance, mineral wool provides high vapor permeability, preventing moisture accumulation in walls, while polystyrene offers low thermal conductivity and high mechanical resistance.

The final layer is the external covering, which performs decorative and protective functions. This is usually plaster, facade tiles, or ventilated facade panels. Specialized fastening systems are used to securely bind all layers, ensuring the structure's durability and resistance to mechanical impacts and temperature variations.

Fasteners play a crucial role in the functioning of the insulation system. These are made from stainless steel, polymers, or composite materials. Polymer fasteners minimize the risk of "thermal bridges," positively impacting the overall insulation level of the building. The placement and number of fasteners depend on the structural features of the wall. Typically, fasteners are spaced at 400–600 mm intervals.

The external covering is subjected to climatic conditions such as temperature fluctuations, UV radiation, humidity, and wind. Flexible connectors are used to mitigate the adverse effects of these factors, compensating for material deformations.

The use of insulation systems significantly reduces building energy consumption, lowers heating and cooling costs, and increases the comfort of interior spaces. Composite materials employed for insulation are characterized by high strength, longevity, and environmental safety.

Modern technologies and a wide range of materials make it possible to create efficient, economical, and durable insulation systems that meet contemporary energy efficiency standards in construction.

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TENT CONSTRUCTION AS AN INNOVATIVE STEP IN ARCHITECTURE

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The tent form is an architectural typology that spans centuries and borders, serving as a staple across cultures. Early nomads used skins pulled over wooden poles, animal bones, antlers, and tusks to protect themselves from cold and windy conditions. Today, modern architects use basic physics and engineering to design large-scale contemporary buildings. The tent is a complex architectural language – one that straddles the line between the temporary and the permanent, while also functioning as a symbol of modernity and the depth of simplicity. Architects have employed versatile materials and often moved beyond the straightforward teepee structure (commonly used by American Indians) to create inspiring tents. Today, tents are made from glass-reinforced fibers and self-cleaning Teflon coatings, which enhance the fabrics' strength, fire resistance, insulation, and reflective properties. Moreover, these contemporary projects often feature programs that extend beyond conventional tent uses, offering new possibilities for architectural applications.

A membrane structure is a term commonly used to refer to roof constructions that use a membrane supported by steel cables. Their main characteristics are the way they work in tension, their ease of manufacture, their ability to cover large spans, and their flexibility. This structural system requires a