MODERN BUILDING MATERIALS AND REQUIREMENTS APPLIED TO THEM.

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The emergence of new construction materials and technologies in the construction market is directly related to the modern requirements for the production of these materials, their use on the construction site, and general requirements for energy efficiency, comfort, ecology, and safety for buildings and structures .

Based on these requirements and the laws of material science, we will try to consider new modern construction materials that have appeared on the market.

It is known that the energy crisis that began in Western Europe in the 80s of the 20th century had an impact on the problems in the construction sector. This, in turn, led to the development and implementation of large-scale national programs for energy efficiency in most countries of the world.

During the last 25 years, major measures aimed at significantly reducing the costs of fuel and energy resources have been implemented within the framework of MDX. Among them, TEZ-1 (related to the production, transportation and assembly of construction materials and products) and TEZ-2 (aimed at increasing the requirements for barrier structures by 2-3 times, improving the autonomous heating system installed in apartments and measurement adjustment

equipment) in the construction sector. released and implemented [1] . A huge amount of fuel and energy resources are consumed every year in the construction industry, housing and communal services of the CIS countries. About 73% of them are used to cover TEZ-1, and the rest to cover TEZ-2.

If we divide all the expenses by the total area of the buildings used in the CIS countries, then 90 kg of conventional fuel will have to be spent to use 1 m^2 of the area in one year. If we compare this indicator with the indicator of Sweden, which is considered one of the most advanced countries in the world, this indicator is almost 3 times less. According to experts, 350 to 600 kW h/m^2 of heat energy is used in the middle regions of Russia to heat multi-storey residential buildings , while only 135 - 150 kW ·h/m^2 of heat energy is used in Scandinavian countries to heat such houses.

This excessive consumption of energy resources is explained by the long-standing absence of the concept of energy saving in the CIS countries, the imperfection of building projects, architectural and construction systems, and the state of emergency of buildings and energy networks.

Therefore, in recent years, a number of serious directives and regulations aimed at solving the issue of energy saving have been adopted in the CIS countries. Such regulatory documents include "II-3-79 QMQ "Construction Thermal Engineering", implemented on the territory of the CIS countries on September 1, 1995, developed by the ITI "Construction Physics" of the Russian Academy of Architecture and Construction and recommended by the General Directorate of Standardization, Technical Standardization and Certification. "changes" can be introduced. In housing and public buildings, TEZ-2 is distributed approximately equally to operational and construction-technological costs. Operating costs (100%) consist of gas loss (30%), water waste (18%), heat carrier losses (42%). Losses occur in all types of energy.

Average daily consumption of hot water per capita - 2 times more than European standards. Lighting lamps consume 4 times more electricity than those

in foreign countries, and at the same time, their service life is 3 times less. Inefficient heat consumption in heating systems is 15-20% due to the lack of adjustment tools.

The spread of heat supply systems from IEMs and large boilers leads to a significant increase in the length of expensive engineering communications and thereby inefficient heat loss.

Calculated constructive-technological losses of heat (100 %) consist of losses through windows and doors (33 %), through attics and technical floor partitions (22 %) and through walls (45 %). But it is also possible to lose more than 80% of the heat from the apartment through windows and balcony doors with poorly placed windows [2] .

In addition, a lot of heat is lost from the windows due to the lack of adjustment equipment in the heating and ventilation system, as well as the irrational configuration of the building in the field. Therefore, in order to drastically reduce thermal energy losses from the building, it is necessary to take a comprehensive approach to solving the problem, taking into account all the primary and secondary losses.

Thermal conductivity - l (W/m^2) is characterized by the coefficient. This coefficient determines the heat flow energy through one square meter of the barrier when the temperature difference between its inner and outer surfaces is equal to one degree.

A sharp increase in the requirements for thermal protection of walls prompts for a large part of the building materials industry to make structural changes, develop new projects, new construction technologies, modernize factories, and retrain their employees. Implementation of these activities without reducing the pace of construction volumes requires spending a lot of time and material resources.

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