APPLYING THE FOOTPRINT OF DEVELOPED COUNTRIES IN THE LOCALIZATION OF ENERGY-EFFICIENT BUILDING CONSTRUCTION

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Abstract: *This article provides information about the work carried out in many countries on increasing energy efficiency factors in the construction of modern buildings and structures, which are now one of the most pressing issues, and the implementation of this type of work in local conditions and the results expected from it.*

Key word: *Energy efficient, environmental, Passive House, thermal mass, environmental, renewable energy, thermal mass.*

ИСПОЛЬЗОВАНИЕ ОПЫТА РАЗВИТЫХ СТРАН В ЛОКАЛИЗАЦИИ СТРОИТЕЛЬСТВА ЭНЕРГОЭФФЕКТИВНЫХ ЗДАНИЙ

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Аннотация: *В данной статье представлена информация о проводимых во многих странах работах по повышению коэффициентов энергоэффективности при строительстве современных зданий и сооружений, которые в настоящее время являются одним из наиболее актуальных вопросов, а также о выполнении данного вида работ в местных условиях и ожидаемых от этого результатах.*

Ключевые слова: *Энергоэффективный, экологичный, Пассивный дом, тепловая масса, защита окружающей среды, возобновляемая энергия, тепловая масса.*

In our country, today, the issue of building energy-efficient, economical houses is emphasized as one of the most important factors in the development of the construction sector, in particular, the main task is to enrich the buildings of residential, social sphere facilities, which are being built on the

basis of model projects in rural and urban areas within the framework of state programs.

More than three years have passed since the signing of the Paris agreement on climate change by Uzbekistan, a global climate agreement adopted within the framework of the main United Nations climate change convention and urging participants to take measures to reduce the amount of carbon dioxide in the atmosphere from 2020.

The date of signing this international document almost coincided with the approval by the Government of Uzbekistan of a joint project with our GEJ (Global Environmental Fund) and the Ministry of construction of Uzbekistan to promote and build energy-efficient and low-carbon country houses and rural settlements.

Work in this direction has been successfully carried out from 2017 to the present day, and the first high-quality results have determined a positive direction for the entire project.

Work on this area was initially carried out on the basis of the decision of the president of the Republic of Uzbekistan dated October 21, 2016 “on the program for the construction of affordable housing on model projects updated in rural areas in 2017-2021”, the construction of model and energy-efficient rural housing in rural areas continues to this day.

This in turn gave a strong impetus to the study of the microclimate and climate of the building, studying and solving the energy saving problems that arise in the process of building modern buildings. This explains the wide range of buildings based on various concepts of energy-efficient and environmentally friendly technologies.

The design concepts of modern buildings are based on the idea that the quality of the environment directly affects the quality of our life .

The modern building, in terms of efficiency, is characterized by consumer calculations. One of the main systems of consumer construction indicators is the energy efficiency indicator system of the building.

An energy efficient building is a building within a building that is achieved through the use of innovative solutions that are technically based on energy conservation, are economically expedient, environmentally and socially acceptable, and do not change the usual lifestyle. Energy-efficient homes are becoming the European standard .

The following countries have extensive experience in implementing energy-efficient passive house projects:

energy-saving accommodation was built in Western European countries and, first of all, in Helsinki, Finland, in London, United Kingdom, the energy-saving public building project of the municipality was successfully implemented.

Recently, in connection with the intensification of energy conservation and environmental protection problems, interest in the use of unconventional types of energy has increased, such as solar energy, wind energy and renewable energy sources: solar, wind, etc.have been used by man since ancient times. The solar energy used in the design of modern buildings - a passive house and a solar House, has a significant effect on reducing energy consumption from traditional sources - heating and cooling devices.

Separate passive building features are as follows:

compactness and good insulation of the outer surrounding parts of the building, 2-3 times higher than the normative indicators of thermal conductivity;

forced pasting of the southern part of the building and passive use of solar energy, taking into account the peculiarities of the shade;

at least 0.8 m.Energy-saving windows with thermal conductivity of window structures with °C/W;

air permeability, which can flow air through closed connections, does not exceed 0.6 rooms per hour;

The heat carrier used is the thermal mass Passive House, represented by three main types: stones, water and eutectic salts (with variations). A distinctive feature of heat storage materials is that they have a high thermal inertia.

Thermal inertia is the ability of materials or environments to absorb heat and hold it until it heats up. If the ambient temperature drops, the accumulated heat enters the environment and the materials themselves or the environment are cooled. But changing the ambient temperature or cooling will take some time. Solar energy inside the house, from other surfaces illuminated by sunlight, can be transferred to the surface of the mass, where thermal energy accumulates due to reflection and thermal radiation. Try to place the thermal mass on all surfaces illuminated by the sun. When materials that store heat from solar energy are absorbed, an increase in temperature is observed on the surface of the materials. The energy absorbed by the surface is transferred to the material through thermal conductivity.

The absorbency depends on the surfaces of the heat storage materials: The place where the thermal mass is exposed to direct solar radiation should have a large volume without being excessively thick, so thin heat-collecting plates are more efficient than thick ones.

The most effective thickness of the heat-accumulating plate is 100 mm, and the thickness exceeds 150 mm is meaningless. The most effective thickness for Wood is 25 mm. The passive floor of the House should be dark in color, because the dark color, absorbs the sun's rays, but does not reflect it, and makes the floor warmer and easier to clean.

The thermal mass of walls and ceilings should be light, since the dark wall heats up quickly, an air flow of thermosiphon is formed, which leads to overheating of the room.

Experts from the International Energy Agency estimated that by 2050, the widespread introduction of energy-efficient building technologies would lead to carbon dioxide emissions of 2 billion. allows a reduction in metric tons.

The construction of energy-efficient housing provides positivity both constructively and economically. For this reason, measures for the construction of energy-efficient housing in all regions of our country are being carried out on a large scale.

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