CLIMATE AND BUILDING ENERGY EFFICIENCY

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Abstract: *Consistent economic growth in our country has a positive effect on the lifestyle and living conditions of the population, and their demand for the quality and functionality of residential buildings is also changing. Now our compatriots are paying special attention to the quality and modernity of the building they are building today, thinking that it will serve many generations. According to the calculations of some experts, almost half of the country's energy consumption, or 17 million tons of oil equivalent per year, falls on buildings. Therefore, it means that it is necessary to pay great attention to the energy efficiency of buildings under construction and reconstruction. When we say energy-efficient houses, it is necessary to understand that energy resources, including thermal energy, are used effectively through structural and dimensional planning solutions of the building.*

Keywords: *Energy efficient buildings, Design of external barriers, Heat transfer resistance, Dimensional plan, Orientation.*

Construction of energy-efficient buildings is currently being carried out on a large scale all over the world. According to QMQ, an average of 100 кВт· с/($м^2$йил) of thermal energy per year should be used for heating newly constructed buildings. By now, Sweden and Denmark are behind other countries in the world in designing and building energy-efficient buildings by almost 20 years.

In this regard, a number of projects have been implemented and are being developed in cooperation with international organizations in our Republic. One such organization is the United Nations Development Program (UNDP).

In the development of concepts for the development of architectural design of the 21st century, it is required to use design solutions that take into account the preservation of natural resources and the efficient use of newly created energy sources and, first of all, solar energy in the working projects of the city structure and individual buildings.

Known renewable energy sources include solar energy and wind energy, geometric waters (rivers), currents, floods, etc.

Nowadays, the production of heat and electricity from non-conventional energy sources, especially from solar energy (helio-plant), is rapidly developing all over the

world. Even a 2-story house built in countries located near the equator can provide itself with electricity and prepare a reserve for the winter. For this, the roof surface is equipped with solar batteries.

In this regard, the law of 1997 "On the rational use of energy" in our Republic. accepted. This law allows to determine the issues of conservation of energy resources and their rational use, improvement of the efficiency of environmental protection, protection of human health and wide use of alternative energy sources. In addition, the law defines relations between producers and consumers of equipment intended for the use of alternative energy sources, as well as preferences.

In order to design and construct energy-efficient buildings, the following factors should be taken into account, in addition to the improvement of the external barrier structures of the building and the extensive use of non-conventional energy sources. These factors are directly related to each other. In order for the volume-plan solution of the building to be optimal, the plan solutions and sizes of the rooms in it should be optimal, the relative perimeter of the external walls should be as small as possible, and the orientation of the building should be chosen correctly. Low-heated rooms (closets, warehouses, santuguns, garages, etc.) are recommended to be placed transversely to the north side as buffer elements. It is important to plan the area of the building and correctly direct them. In order to effectively use solar radiation, the southern wall or roof of the residence should be exposed to sunlight from 9:00 a.m. to 3:00 p.m., even when the weather changes, for this the facade of the building should be oriented to the south at an angle of no more than 10...20 degrees, and measures should be taken against the southern part of the facade of the building becoming a shadow.

Therefore, the energy efficiency of the building, its volume-planning solution, (length, width, number of floors, room height, correct location of rooms, etc.) correct orientation, relative perimeter of the external walls also depend on such factors as the climate of the construction site.

Conclusion.

The energy crisis that started in the 70s of the last century led to a great attention being paid to the design and construction of energy efficient buildings all over the world. One of the main tasks of the design and construction of such buildings is to increase the overall resistance of external barrier structures to heat transfer. The heat transfer resistance of external barrier constructions was determined based on sanitary and hygienic requirements, and the value of the required total resistance was assumed to be around 0,6-1,5 $м^2 \cdot ^0 C / Bm$ depending on the climatic zones. One of such external barrier constructions is the roof, and its share in heat loss in traditional houses is 10-18%. In order to ensure the energy efficiency of residential and public buildings under construction and reconstruction in Uzbekistan, a number of QMQs have been newly developed and implemented.

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