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THE STATE OF CONSTRUCTION OF ENERGY-EFFICIENT BUILDINGS IN UZBEKISTAN

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ABSTRACT

*Speaking of the introduction of energy-saving technologies in the construction of Uzbekistan, first of all, it should be noted that the energy consumption in older buildings will reach 300 kW / (m2 x years). At the same time, the energy consumption of buildings commissioned after QMQ 2.01.04-97 * exceeds 250 kW / (m2 x years), which is slightly higher than the German buildings built in the late 70s and early 80s of the twentieth century. First of all, this situation occurred due to insufficient attention paid to the problems of energy saving in the USSR. Because it was very important to reduce capital expenditures for construction.*

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At the initial stage of development of energy-efficient housing in Uzbekistan, there is a lack of incentives and concepts of energy saving in construction, similar to the German standard passive houses (Passivhaus). One of the main factors limiting the introduction of energy-saving technologies is the 1 m ^{2} living space of an energy-efficient residential building at an average cost of construction, more than 8-12% of the 1 m^2 construction area of a traditional residential building value. Therefore, many companies finance the construction of "energy-wasting" residential buildings, thereby ensuring high profits.

There is a slightly different approach to energy saving in commercial real estate construction. Here, the customer strives to improve the thermal properties of the building and reduce utility costs. At the same time, the additional costs of improving the energy efficiency of the building will be reimbursed in 7-10 years. Therefore, energy-saving technologies are more common in the construction of commercial real estate: banks, office buildings, offices and commercial buildings.

Today, the energy consumption of residential and public buildings in Uzbekistan is about 3 times higher than in the technically advanced Scandinavian country, which is similar to the natural and climatic conditions. The absurdity of the current situation is that, in fact, increasing the energy efficiency of buildings is not only environmentally feasible, but also

economically viable. Uzbekistan's planned membership in the World Trade Organization (WTO) will bring heat tariffs closer to the level of prices in Western countries and reduce the domestic interest rate, which is currently 15-20%. The government of the Republic of Uzbekistan has since confirmed that the increase in utility tariffs will be 20% per year. From 2011, wholesale prices for natural gas will be calculated according to a formula equal to the profitability of its export sales. It should be noted that the main reason for the introduction of energy-saving technologies in local construction is that our climate is worse than in Europe. In the confirmation, it is possible to cite indicators such as the degree-days of the heating period, which are the main criteria for assessing the severity of the climate. Its average value is 2,000 degrees Celsius per day for Western Europe and 3,000 degrees Celsius per day for the Republic of Uzbekistan.

For these reasons, the construction of energy-efficient houses has begun in Uzbekistan over the past 10 years. For example: Kashkadarya, №20 schools; Andijan, a new school for 315 students; Fergana, №2 schools; Republic of Karakalpakstan, №5 schools; Navoi, Nurata, new school for 216 students; Navoi, Khatirchi, №35 school and others.

The main reasons for the irrational use of thermal energy;

- Deficiencies in the architectural-planning and engineering solutions of heated stair-lift blocks and staircases;

- Insufficient quality of thermal insulation of external walls, windows, roofs and basements;

- imperfections of unregulated natural ventilation systems;

- Inconsistency and poor quality of balcony doors and wooden window sills;

- Lack of measuring, control and regulation devices in heating and hot water supply systems;

- Insufficient or damaged thermal insulation of external heating mains;

- obsolete and inefficient types of boiler equipment;

- Insufficient use of non-conventional renewable energy sources that can be used to power buildings.

Overcoming these shortcomings, implementing energy saving policies, increasing the overall energy efficiency of the economy is one of the central tasks of the modern stage of economic development.

If we analyze the prospects for the introduction of energy-saving technologies in the construction of Uzbekistan, it is impossible not to take into account the large number of houses commissioned before the mid-90s of the twentieth century. According to statistics, in some cities the share of old buildings reaches 80-85%. Thus, along with the use of energy-saving technologies in the construction of new housing, improving the energy efficiency of existing buildings and structures is a priority.

Almost every day, the citizens of the Republic of Uzbekistan feel the problems caused by the crisis in the country's heat and energy sector. Energy tariffs are constantly rising. Unfortunately, our society has not studied the economic use of

available resources and has not properly coordinated the activities of all relevant structures in Uzbekistan. Therefore, the urgent task of today is to significantly reduce the actual energy consumption in construction, transport and housing through the introduction of energy-saving technologies.

In the second half of the twentieth century, mass housing construction in the territory of Uzbekistan, in almost all major and medium-sized cities, was carried out in accordance with the standard projects of the industrial series. Over the past 40-50 years, most of these houses have become obsolete, both spiritually and materially, and now need to be reconstructed immediately. Energy consumption in the operation of existing residential and public buildings in Uzbekistan is about 3 times higher than in countries with similar natural and climatic characteristics. In addition, many buildings built in the late 50s and 60s of the last century are now obsolete and in a state of disrepair.

Theoretical developments have taken place over the past 10-15 years. Energy-saving programs were actively discussed and a number of experimental buildings were built. Under the scientific guidance of Academician SNBulgakov, teams of scientists, architects and project specialists studied foreign experience and some examples of reconstruction of the first industrial series in Russia, Belarus and other CIS cities without demolishing neighborhoods or neighborhoods or minimizing existing buildings. , developed a concept, technical solutions and socio-economic justification for the reconstruction of five- and less-storey residential buildings by the method of reconstruction by increasing the living space by 2-3 times. There are currently lively discussions around these topics, with a number of specific recommendations developed to help reduce the energy consumption of buildings and structures. In particular, the following recommendations have been developed and brief conclusions have been made in the field of urban policy

- It is necessary to stop the expansion of city borders for 20-30 years. During this period, urban development should be carried out at the expense of rational use of existing areas, compaction of construction to the normative level without development in new suburban areas and regulation without increasing the length of main heating pipes, other energy networks and roads.

- Development of a feasibility study for the integrated operation of traditional central and non-traditional heating systems, including local heating systems, using container boilers located on the roofs or near heated buildings.

- Develop programs to complete the construction of residential neighborhoods and neighborhoods by eliminating wind gaps and creating indoor courtyards and indoor areas.

- Development of master plans, programs and business plans for the reconstructed building of low-rise residential areas under reconstruction. Development of issues related to the insulation of barrier structures of existing residential buildings in accordance with the standards of new heating techniques.

- Development of plans for the transition to separate automated heating

systems and plans for the reconstruction of heating networks.

- Transition to the use of roof boilers for heating and hot water, taking into account the growth of residential areas.

- Implement comprehensive measures to save electricity by creating energy-efficient areas of the economy on the basis of these quarters.

- Development of programs for the use of underground areas for parking, storage and utility rooms, using natural sources of natural heat or heating the air to a positive temperature.

Certain heat losses of residential and public buildings are significantly affected by their volumetric solutions and, in particular, the following indicators:

- the ratio of the total area of the building and the area of the external barrier wall structures;

- the ratio of the area of windows and the area of external walls;

- the configuration of the planned buildings, their placement in relation to the relief and horizon.

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