



INCREASING ENERGY EFFICIENCY OF BUILDINGS AND STRUCTURES

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Annotatsiya: This article is about the environmental impact of increasing the energy efficiency of buildings and structures. Thermal-physical properties of substances, materials and products properties (IFX) or thermal-physical characteristics (IFT) - heat conductivity, temperature conductivity, heat transfer, heat transfer coefficients, thermal resistance of heat transfer, specific volume or weight heat capacity, blackness level, saturation temperature. The biggest concern in the construction of buildings is environmental damage. The article presents information about the development and use of electricity in Uzbekistan, energy analysis in buildings and structures, and mainly about energy-efficient buildings currently being developed for buildings and structures. Current modern houses have low impact on the environment and information about measures to prevent ecological damage.

Key words: ecology, energy analysis, insulated buildings, energy audit, environment.

Increasing the energy efficiency of buildings and structures has a great impact on the environment. This can be done by reducing energy consumption in buildings and structures and applying technologies and methods that include energy use [1-2]. For example, it is possible to increase energy efficiency through amenities and automated systems, optimize heating and cooling systems in facilities, and expand processes such as the use of electricity with recommended technologies. Such actions increase the energy efficiency of buildings and structures and help protect the living environment [3-5].

Light energy consumption: More electricity can be produced by switching to energy methods that derive from light sources (such as solar, wind, water and sound). This energy consumption may be related to energy performance in ecologically advanced species. Increase electricity efficiency: Energy consumption can be



increased by obtaining electricity from the most energy-efficient sources available through transmitters. These different methods can also be prioritized to increase energy consumption for buildings, electric machines and planetary machinery. Faster devices and optimal constructions: Energy consumption can be increased through the use of energy and careful construction and equipment in the manufacturing and production process [6-8]. This can be related to the construction of desired products and services with caution and under the influence of these products. Increasing the energy efficiency of buildings and structures can be good for the environment, as these methods have an environmental impact, and each building and structure with increased energy consumption can be offset by weight and energy costs. Increasing the energy efficiency of buildings and structures has a great impact on the environment. This can be done by reducing energy consumption in buildings and structures and applying technologies and methods that include energy use. For example, it is possible to increase energy efficiency through amenities and automated systems, optimize heating and cooling systems in facilities, and expand processes such as the use of electricity with recommended technologies. Such actions increase the energy efficiency of buildings and structures and help protect the living environment [9-10].

Information on calculated outdoor air temperatures in the cities of the Republic of Uzbekistan and rural areas adjacent to them 1 КМК 2.01.01. - 9 is located in the table of 7. The calculated temperature t_s of the hot attic is assumed to be equal to 14°C based on the calculation of the heat balance of the system, including the rooms located below the hot attic. The design temperature of the roof without an attic is assumed to be equal to the design temperature of the outside air. Today, in our Republic, the development of the way of living of the population in rural areas, the construction of houses based on model projects is inextricably linked with the development of rural infrastructures and the construction of infrastructure facilities. Many houses and apartments were built on the basis of model projects in accordance with the "Program for construction of affordable housing according to updated model projects in rural areas in 2017-2021", approved by the decision of the President of the Republic of Uzbekistan No. PQ2639 dated October 21, 2016, and a family in need of improvement of living conditions was provided with housing. 800 low-carbon three-room energy-efficient houses were built in Samarkand, Surkhandarya, Fergana, Khorezm and Bukhara regions within the framework of the project "Supporting the development of energy-efficient rural housing construction in Uzbekistan". Photoelectric plants (FES) with a capacity of 300 Watts are installed



and working in each of these houses for lighting needs. Ten such houses are equipped with solar water heaters with a capacity of 200 liters of water. One of the modern trends in housing construction is to carry out design and construction works taking into account the convenience, environmental and energy efficiency of the houses that are planned to be built. As we know, reserves (oil, gas and coal) are the main sources of energy in the world. According to experts' calculations, energy sources can last up to 100 years. In many developed countries, almost half of the energy consumption falls on houses. Therefore, one of the main ways to save resources is to improve the energy efficiency of buildings. A slightly different approach to energy conservation has developed in commercial real estate construction. Here, the client seeks to improve the thermal properties of the building and reduce utility costs. At the same time, the additional costs incurred to increase the energy efficiency of the building will be returned within 7-10 years. Therefore, energy-saving technologies are quite common in the construction of commercial real estate: banks, administrative buildings, office and commercial buildings. Today, the energy consumption of residential and public buildings in Uzbekistan is about 3 times higher than in the technically developed Scandinavian countries with similar natural and climatic conditions. The absurdity of the current situation is that, in fact, increasing the energy efficiency of buildings is not only environmentally desirable, but also economically useful. Uzbekistan's planned membership in the World Trade Organization (WTO) will lead to the convergence of heat tariffs to the level of prices in Western countries and a decrease in 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 equal to 20% annually. Since 2011, wholesale prices for natural gas are calculated according to the formula equal to the profitability of its export trade. It should be noted that the main reason for the introduction of energy-saving technologies in local construction is that our climate is more severe than the European climate. In confirmation, it is possible to bring such indicators as the degree-days of the heating period, which is the main criterion for assessing the severity of the climate.

Knowing the reasons for the deterioration of the environmental situation, it is possible to organize measures to prevent them, for example: use of effective dust collection devices and systems; introduction of the wet method of production; mutual placement of emission sources and settlements, taking into account wind directions; organization of sanitary protection zones; greening of technological processes and, first of all, creation of closed technological cycles, low-waste and



zero-waste technologies, etc. Such measures, of course, do not exclude all negative effects of construction on the atmosphere, but help to significantly reduce its impact. In the second half of the 20th century in the territory of Uzbekistan, almost all large and medium to the standard projects of the industrial series of mass residential construction in cities done according to Most of these houses have been built over the past 40-50 years morally and materially obsolete and now urgently needs to be reconstructed. Energy in operation of existing residential and public buildings in Uzbekistan The consumption is natural and the characteristics of the climate are roughly similar to the technical development compared to other countries, it is 3 times higher. In addition, of the last century Many buildings built in the late 50s and 60s are now dilapidated and dilapidated in the situation. Over the past 10-15 years, theoretical developments have been carried out. Energy saving programs were actively discussed and a number of experimental buildings were built [11-13]. Academic Under the scientific guidance of S.N.Bulgakov, Russia, Belarus and other countries of the CIS on the reconstruction of residential buildings of the first industrial series in cities scientists, architects and project specialists, studying foreign experience and some examples groups of quarters and microdistricts without disturbing or existing buildings minimally by demolishing it and rebuilding it by increasing the residential area by 2-3 times the concept of rehabilitation of residential buildings with five floors and less, technical developed solutions and socio-economic justification. At the moment this There are lively discussions around the topics, in which buildings and structure develop a number of specific recommendations that will help reduce energy consumption developed. In particular, the following recommendations have been developed in the field of urban planning policy. brief conclusions are given. Their specific heat losses of residential and public buildings volume-planning solutions and, in particular, the following indicators have a significant impact:

- the total area of the building and the area of external barrier wall structures proportion;
- the ratio of the area of window seats to the area of external walls;
- the configuration of the buildings on the plan, in relation to the relief and the horizon placing In terms of planning, 1-3-story houses and their facades reduce the area of walls (glazing) and thereby prevent heat loss. At the same time, the main thing is the design of the drum at the entrance and the house. It should be built facing south, because the main heat for heating the house. The source is solar energy. Houses are shaded by other buildings and trees. The heat transfer resistance of the



walls is from 0.15 kW/m² should not exceed, for this internal or bilateral (internal and external) heat insulation is used [14-19]. Today, the population in rural areas in our Republic development of lifestyle, construction of houses based on model projects development of rural infrastructures and construction of infrastructure facilities is inextricably linked. 21 of 2016 of the President of the Republic of Uzbekistan "In 2017-2021, rural to the program of construction of low-cost housing on the basis of updated model projects Many houses and apartments have been built on the basis of appropriate model projects and accommodation a family in need of improvement was provided with housing. Also in our country, today we build energy-efficient, economical houses as one of the most important factors in the development of the construction industry attention is drawn, in particular, within the framework of state programs in rural and urban areas residences, social sphere objects being built on the basis of model projects Enriching the buildings with these features is the main task is being determined [20-23].

Energy audit - by economic entities costs of consumed energy resources to determine the possible reduction potential and implementation, taking into account the priority of implementation technical and economic basis recommended for increase type of activity aimed at developing proposals. Energy audit anyone who wants to control energy costs is a key part of an organization's energy management program. Creating an accurate and detailed energy audit program from energy the main types of production processes used complex and time-consuming to define, but necessary is a procedure. At the same time, the energy audit is in the enterprise is the first step in the organization of energy management. Energy audit of the arrival, transfer, beneficial use and output of energy includes drawing up reflective balance sheets. Energy audit is a complex and expensive event necessity and usefulness are always clear for company managers it's not. That's why the management of the enterprise at every stage [24-25]. It is recommended to carry out a step-by-step process with finding a consensus will be done. These are certain requirements for the energy audit algorithm puts The results of each previous stage with the representatives of the client ending with discussion, mutual understanding need Only then can you move to the next stage is increased. An important aspect of conducting an energy audit is not only the presentation of the results, but all the energy auditor works is the confidentiality of the documents because it represents a commercial secret possible Energy auditor and energy audit special requirements are placed on the company's qualifications.



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