CLASSIFICATION OF ENERGY EFFICIENT BUILDINGS

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Abstract. This article focuses on how energy efficiency (energy saving) is understood in developed foreign countries and focuses on the continuous replacement of existing production, utility technologies, energy-consuming equipment with energy-efficient technology and equipment, and emphasizes problems and solutions in the electricity and heat generation dam based on renewable and unconventional energy sources.

Key words: energy-efficient, energy consumption, magnitude, comparison, energy resources, greenhouse effect.

Introduction. An energy-efficient residential building in relation to residential buildings is a building in which advanced materials, products, structures, technologies, devices and devices, technical and economic solutions are applied, which ensure the optimal energy consumption of all its objects in the construction and use process. Types and sources of production, sanitary and hygienic requirements, safety and ease of living requirements are high, energy savings in such a house can reach 90%. According to the information and reference portal" Modern Construction Center", the annual need for heating an energy-efficient house should not exceed 15 kWh per square meter. According to the energy consumption parameters, energy-efficient houses can be divided into four types (Table 1). At the same time, the energy efficiency class is defined by:

- determination of the magnitude of deviations in the actual and standard values of indicators reflecting the specific consumption of thermal energy for heating and ventilation, to bring the actual values to the calculated climatic conditions for comparison with the standard;
- comparison with analogues and taking into account the technical, technological, design and operational characteristics of the building.

Main Body. For each energy efficiency class, the permissible range of values of the annual comparative consumption indicators of energy resources corresponding to this class and the necessary requirements for the energy efficiency of houses are established. The specified energy efficiency class is included in the energy passport of the House. Table 1 below lists the types of energy-saving houses and their energy consumption parameters.

Types of energy-efficient houses 1 Table

№	Type	Features / parameters of energy consumption
1	Low energy homes	50% less energy than standard buildings built according to current energy regulations
2	Ultra - low energy houses (passive houses)	70% less energy than standard buildings built according to current energy regulations
3	Energy generating houses (active houses)	energy production for own needs and commercialization
4	Houses with zero CO_2 emission	renewable resources are self-sufficient, including heating/cooling, hot water, ventilation, lighting, cooking and electrical appliances.

The level of energy efficiency of buildings is influenced by many different organizations involved in the design, construction and use of buildings. All of them have the ability to influence energy consumption, unfortunately, many are not motivated to change anything. An example of an energy-efficient building is a small number of built-up buildings in the CIS, which are distinguished by:

- improved insulation and sealing of the building;
- insulation of basements, walls, attic, roofs;

- installation of sealed double-glazed windows;
- equipping with vestibules with entrance doors and movement sensors installed in common areas of use;
- heat recovery supply and exhaust ventilation system;
- to equip yard lamps with a traffic light, apartments with economical lamps, turn off the electricity in the apartments with one button;
- horizontal wires of the Heat Supply System of the building;
- bivalent heating system (heat pump) using the low potential heat of the lower layers of the Earth;
- solar photovoltaic batteries;
- backup power generation;
- vacuum solar collectors for water heating;
- automated control and monitoring system.

The architectural and planning solution is that the largest glazed area of the house is located on the south side. The main influence on energy conservation policies is related to environmental factors, including the so-called "greenhouse effect". In world practice, energy efficiency tools include:

Mandatory phenomena are norms and initiatives reinforced by legislation that is carried out" from above". These solutions are most popular in European countries where law-abiding populations and producers support mandatory state programs. For example: from 2009 to 2012, incandescent lamps have completely disappeared from the trade and import of EU countries. In 2009-2017, a program was implemented to reduce sales of household appliances with a high level of electricity consumption. Since 1997, the United States has launched the National million sunroof program, which provides for the installation of solar power systems. As of 2010, solar systems have been installed on the roofs of 1 million houses in 13 “solar cities” of our country.

Germany is a recognized leader in the field of wind energy - at least 20 thousand wind turbines are located in the country and successfully operate. The total capacity of German wind turbines is 24 thousand MGW. Educational methods include directly influencing the consumer, forming a new consumer culture based on Environmental Protection and conscious choice of energy-saving technologies.

Since 1992, the U.S. DA has implemented the Energy Star program, developed by the Environmental Protection Agency and the Department of energy. Under the program, devices with an average power consumption of 20-30% lower than their peers are marked with the prestigious Energy Star logo. Today, the Energy Star logo can be seen on more than 60 categories of products. Licensing and cooperation agreements are valid with construction companies (over 6,000) and other business areas.

Conclusions. It is impossible to save real energy without the presence of state legislation that should provide financial support for energy conservation activities. Based on the extensive experience accumulated since 1974, the UN Commission formulated the following rule: “cooperation between the state and energy-consuming systems, such as housing and communal services, should be based on the recognition by both parties that there is significant capital. Energy savings need investments and the state needs to provide them.” The first step towards improving energy efficiency in any country in the world where energy saving issues are being addressed was work to improve the thermal insulation of buildings. The state provided loans for such works, and on the condition of the introduction of energy-saving equipment and technologies, the owner of the building had the right to return only half of the borrowed funds to the state or not return them at all. The introduction of energy conservation measures should not violate environmental safety. In particular, the environmental safety of the House.

According to the results of the work of the United Nations Commission, the "priority of technical solutions that simultaneously contribute to improving the microclimate of buildings" is formed when choosing energy-saving technologies. New hermetic windows are being installed everywhere in Uzbekistan, and our ventilation system is being developed in such a way that fresh air must enter through the leaky holes in the windows.

Referance

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