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ENERGY SAVING TECHNOLOGIES

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Energy saving technologies play an important role in modern society.

Since the prices for energy resources are showing an increase every year: the prices for gas, coal, oil have increased significantly compared to last year. Energy saving mainly concerns heating of buildings. It is important not only to reduce the cost of heating buildings, but also to use the heat obtained efficiently with the help of geothermal installations and heat pumps. The main source of heat leakage in a building is not the walls, but the roof. Therefore, the main task of energy saving is to insulate the roof accurately.

It also matters what type of glass unit is installed, whether it is energy-saving. An additional plus is the absence of cold bridges throughout the building and in the places where windows are attached, in window openings in particular.

The backbone energy-saving technology is the passive house technology, which was invented by the Passive House Institute Darmstadt. Energy consumption for heating in a passive house should not exceed 15 kW*h/g per square meter of the building. Thanks to its unique construction concept, the passive house no longer needs a traditional heating system consisting of a boiler, piping system, heating appliances, a storage for combustible material and a chimney. Additional heating, for example, a heat pump in such a house is only necessary on very cold days. At the same time, a passive house protects the environment from an average of 4000 kg of harmful CO2 emissions per year.

Such a building uses about 80% less energy for heating than a conventional home (Energy saving and passive house similarities and differences, 2021). Good insolation and additional space heating with solar energy is achieved through the use

of special frames and double-glazed windows with an increased area on the south side. This solution is good in terms of ergonomics and architecture.

An advanced energy saving technology is the use of air recuperation. Special recuperation systems provide a good flow of fresh air, oxygen, which at the same time heats up when passing through the recuperator, provides improved ventilation in the building, prevents an increase in humidity, improves the microclimate of the room, and prevents the appearance of mold on the walls.

Underfloor heating technology is an important component of energy saving. Its indisputable advantage is the provision of heating a room with water or electricity over a large area since the floor area is much bigger than the total area of the heating batteries. Also, the coolant heats the floor to an operating temperature of 29 degrees Celsius. And the heating batteries must be warmed up to the operating temperature of the coolant of 60 degrees Celsius.

Energy saving technologies are a new stage in technological development, as well as an absolute necessity for the life of mankind in the future with modern energy prices and stricter environmental requirements (Energy-saving technologies. Understanding, analyzing, 2019).

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