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Efficient Air Conditioning Systems in a Modern Shopping Center. How they Work

Heating, ventilation and air conditioning systems consume up to 40% of the country's solid and gaseous fuels and up to 10% of the produced electrical energy. Therefore, particular attention should be paid to energy efficiency at all stages of structures and systems assembling. It is known that quality of designing solutions to a large extent depends on the energy consumption during operation of named above units. One of the most effective interventions is the unit vented windows with double and triple glazing.

The use of ventilated windows can reduce the consumption of energy required to heat the room in winter and in cool in the warm room.

The exhausted air from the room passes behind facing the room glazing; then through ventilated lamps and ventilated heat waste recovery device is released into the atmosphere. Sun blinds are assembled in the space between the glasses. In a cold season vented box serves as a heat waste recovery device. The temperature of the facing the room glazing surface rises, heat loss is reduced, the surface area of heating appliances and metal consumption for heating decreases.

In cold weather, the heat loss through the structure ventilated boxes about three to six times less than traditional constructed window. Additionally, vented windows provide thermal and sound insulation.

Application of ventilated windows is limited by buildings with air heating systems, combined with ventilation, and buildings with air conditioning. Internal air must have high moisture content, as this would lead to condensation in cold weather.

Various schemes of ventilated windows can be proposed. All of them can be divided into groups with respect to the air that passes through the window construction, they are:

- Air from the premises;
- The outside air;
- Supply air;
- The combined air supply.

The constructions of one, two or more air layer windows can be applied for different climatic conditions. Ventilation can be organized in one or more air layers.

The main parameters of ventilated thermal windows that characterize the effectiveness of their work are: surface temperature of glazing, the heat flux through the window, the window heat resistance.