

## Important aspects of the air ventilation system

All living beings need clean air, because their quality and life expectancy depend on it. **Ventilation** of air masses is carried out in order to purify the air with special equipment and devices. Their separate and no less important task is **air conditioning** and ensuring the required state of the air environment. Such devices create a whole system with which you can maintain the desired meteorological parameters in rooms for different purposes. In addition, there are certain hygiene standards and technological requirements that must be met when using ventilation equipment.

We are constantly trying to [save energy](#), looking for different ways to save resources, but do not think about how clean and quality air we breathe.

Question: How can you determine the quality of the air in the room?

Answer: There are several parameters that determine air quality.

1. The level of oxygen and carbon dioxide in the air. Decreasing oxygen levels and increasing carbon dioxide means a lack of **ventilation**, which can lead to suffocation in the room.
2. Content in air masses of dust and harmful substances. Increasing the concentration of dust particles, tobacco smoke and other harmful substances has a negative effect on the human body and can lead to the development of various diseases related to the skin and lungs.
3. Air temperature. Indoor air temperature is 21-23 degrees, if it is lower or higher - in this case, **air conditioning** will help. Without it, a person's mental and physical activity, as well as his health, can deteriorate.
4. The presence of odors. Odors of different saturation and structure can cause discomfort and irritate the human nervous system.
5. Humidity. Increased or decreased humidity can cause discomfort, and in people who are prone to skin and lung diseases - exacerbation of the disease.
6. The movement of air masses. While in the room, you can feel the very rapid movement of air masses or its stagnation, so the balance of these two factors is important.

A properly equipped **ventilation** system will help to create the right and comfortable conditions in the room.

## Organization of coordinated operation of the ventilation system

The ventilation system helps to create ideal conditions inside the room - it filters the air in summer and heats it in winter, removing polluted air from the room outside. For the smooth operation of the equipment, the *electrical network* must operate at a high level.

In any case, the air is ventilated on the principle of supply of fresh air masses and hoods already used, so it provides a comfortable stay in the room. If one of these factors does not work or does not function properly, then the oxygen level in the room reaches the lowest levels, and dust and humidity increase. In addition, polluted air masses, as well as excess moisture, odors and harmful substances are not removed without **ventilation**.

When properly organizing the ventilation system, it is important to keep in mind that the inflow and exhaust of air masses do not function separately. That is, having made only an extract, for example in a bathroom only the fan is established, air inflow is carried out by receipt through door and window cracks, etc. Such an uncontrolled flow of air is complemented by dust, unknown and unpleasant odors and, of course, blowdown.

The real source of organized inflow of air masses will be installed in the door ventilation grilles, wall or window ventilators, and open windows. **Air conditioning** is also carried out by a system of forced **ventilation**, in which case the air masses enter the room centrally.

### Why is an air conditioning system installed?

Air conditioners are used to maintain all or specific air parameters - temperature, cleanliness, humidity or speed. This is necessary in order to:

- create optimal working conditions conducive to the well-being of employees;
- create optimal conditions for conducting certain technological processes;
- ensure the safety of equipment or keep products fresh.

**Air conditioning** systems are closely linked to ventilation and heating equipment, they can work together or separately. When creating a joint system, you can get the maximum energy savings in general.

Recently, split systems are increasingly used, among them multi-split systems and VRF systems. They can serve several rooms with support for different temperatures, while reducing costs and [reducing energy losses](#). In such cases, heat pumps and chillers are often used, which supply cold to the indoor units.

Question: What are the optimal temperature regimes?

Answer: Traditional **ventilation** and air conditioning systems can provide a room temperature of up to 18 degrees Celsius. Often in the food industry it requires maintaining a temperature range of 12-14 degrees, in which case ceiling air coolers are used. The possibility of harmful emissions should be mentioned separately, so the exhaust air purification system is also important here.

### Varieties of air conditioning systems

In rooms for various purposes, **air conditioning** systems are used, which are selected according to the direction of activity and parameters of the device. This also applies to the ability of the device to provide comfortable conditions for optimal operation of employees or equipment.

1. Air conditioners for placement on the roof. They are installed on the roofs of buildings, which provides a full and uninterrupted supply of air masses to the premises for industrial purposes.
2. VRF systems. Air conditioning and **ventilation** with such equipment provides optimal temperature in rooms with a large area. They have a complex structure, and work in remote parts of the building.
3. Chiller-fan coil. The system consists of an evaporator and several fan coils, and the number of indoor units directly depends on the capacity of the chiller. It is important that the distance between the individual blocks of this system can reach several hundred meters, so this option is perfect for large productions.

4. Ceiling-exhaust installations with recuperation. Such an **air conditioning** system is considered to be multifunctional, as it consists of several sections, for which a separate room is usually allocated or they are installed outside the building. The device cleans the air coming from the outside, maintaining the required temperature, this is possible thanks to the heat recuperator.

### How is the utilization of secondary energy resources?

The operation of the ventilation system encourages the formation of exhaust air heat and, consequently, the subsequent **utilization of secondary energy resources**. This technology provides solutions to many issues, directly with energy efficiency and comfort in the home. Therefore, the use of such approaches to solving global problems is important, because it depends on the comfort and health of man.

The **ventilation** system requires the use of various methods of its modernization and maintenance for its better operation. Also, several factors are considered important:

- **utilization of secondary energy resources** provides a significant reduction in thermal energy consumption;
- the relative humidity in the room will not exceed 65%, which corresponds to the most comfortable living conditions;
- The average room temperature will fluctuate within 21.6 degrees, which is considered optimal for staying or living indoors.

In addition, **air conditioning** provides the best performance to ensure optimal living and working conditions.

The issue of **recycling of secondary energy resources** is currently acute in residential and industrial buildings, where many people live or work. Therefore it is necessary to think over creation of favorable conditions before the beginning of [warming of facades](#).

### Energy saving when using ventilation systems and air conditioning

**Ventilation** plays an important role in the process of building an apartment, the quality of life and comfortable stay in the room depends on its proper design.

Question: How to create optimal living conditions?

Answer: Properly install a ventilation system and **air conditioning**.

This work should be done by professionals, because the wrong design or the absence of one of the elements of the system can negatively affect the result. In addition, it is important to consider the **utilization of secondary energy resources** as part of the optimal energy saving of the whole structure. Therefore, the construction of these two systems should be done by a team of specialists who will be able to quickly and efficiently perform all the work on the arrangement of housing, office or industrial premises.

Worth noting are the aspects that are in some way important for building a functional **air conditioning** system. Among them: the choice of the best option for placement in the room, taking into account its size and intensity of the installation itself. In addition, it is important to create favorable conditions for high-quality and unhindered **utilization of secondary energy resources** in order to have an excellent result of a well-coordinated common system.

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