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ECOLOGICAL ENVIRONMENT OF RESIDENTIAL APARTMENTS

ЭКОЛОГИЧЕСКИЕ ПРОБЛЕМЫ ЖИЛЫХ АПАРТАМЕНТОВ

АННОТАЦИЯ. Цель нашей работы — исследовать жилую квартиру как незамкнутую экосистему и предложить меры по созданию экологически безопасной для человека среды обитания. Задачи: рассмотреть влияние пыли на здоровье человека; рассмотреть влияние микроклимата в жилище человека на состояние его здоровья; определить источники электромагнитного излучения в квартире; изучить степень шумового загрязнения, его влияние на здоровье жителей квартиры, определить меры борьбы с ним.

ABSTRACT. The purpose of the study is to investigate a residential apartment as not self-contained ecosystem and to offer measures for ecologically safe habitat creation. The objectives of the study are the following: to review the influence of dust on people's health; to review the influence of microclimate in a person's apartment on his health status; to define sources of electromagnetic radiation in an apartment;

to study the degree of noise pollution, its influence on health of inhabitants of the apartment, to define preventative control measures.

КЛЮЧЕВЫЕ СЛОВА: экосистема, квартира, влияние, микроклимат

KEY WORDS: ecosystem, apartment, influence, microclimate

Pollution of apartment's atmosphere - house dust

The sources of pollution can be poisonous discharge of synthetic resins, which are impregnated chipboard (of them made furniture), evaporation of chemical flooring - linoleum and PVC film, not fully combusted gas in gas ovens and stoves. Tobacco smoke is also harmful for people's health. In each case, specific measures should be taken to reduce the concentration of harmful pollutants in the air of the room. Furniture made of particle board should be covered with paint and varnish, which reduces emissions of harmful substances, linoleum shouldn't be used in bedrooms, exhaust devices should be installed above gas stoves that collect unburnt residues.

The air inside the house is almost always more dusty than in the street.

Experts have measured that we inhale together with air an average of about two tablespoons of dust per day! And the smaller the dust, the deeper it penetrates into our lungs. Dust particles damage the alveolar walls, disturbing the first immune barrier and opening the way to infections and allergens.

The house dust which was examined under a microscope and which hold chemical analysis and biological research, was much more dangerous than the street dust. Pet dander, pollen, a lot of textile fibers of linen and clothes can be found in samples of this dust. But the most unpleasant component of dust is dust mite. Dust mites are microscopic arachnids that live in bedding, carpets and upholstered furniture.

Biological analysis of dust has also revealed dangerous species of fungi, their spores and a wide variety of bacteria.

Furthermore, there are kitchen soot particles, which are considered to be carcinogenic, and tobacco smoke in samples of house dust.

In homes where there are a lot of books and papers, presents great amounts of paper dust, causing a specific allergy, which is often suffered by librarians. Therefore, the book should be cleaned regularly with a vacuum cleaner and, if possible, and should be kept in glazed shelves and cabinets.

Carpets also accumulate dust, particularly if we go in the same shoes as outside. Carpets need to be cleaned regularly with a vacuum cleaner or knocked in the street with a stick. One of the main pollutants is pile, falling from bed, underwear and outerwear in the process of wear. So, it is more likely to get sick from the house dust or at work than in streets, where fine dust is carried away with the wind, washed away and beaten with the rain.

The microclimate residential areas

According to the degree of influence on the heat balance of a man microclimate of residential apartments is divided into a comfortable, neutral and uncomfortable.

The critical role of climate in human life is to maintain thermal homeostasis. It is also important in assessing the microclimate in a residential area is given to the speed and relative humidity. Humidity is due to its importance of ensuring the proper moisture level of human skin, eyes and mucous membranes of the upper respiratory tract. It was also found that the "dry" air contributes to bacterial and chemical air pollution.

The influence of sound on people

Such sounds are called mechanical vibrations of the environment, which are perceived by the human auditory system (from 16 to 20,000 cycles per second). Fluctuations higher frequency are called ultrasound, smaller - infrasound. The noise is loud noises, merged into discordant sound. The sound is one of the environmental influences for live organisms, including humans. In nature loud sounds are rare, the noise is relatively weak and short. Noises cause functional disorders of the cardiovascular system, have a detrimental effect on the visual and vestibular analyzers, reduces reflex activity, which is often the cause of accidents and injuries.

Noise level is measured in units of expressing the degree of sound pressure - decibels. The noise level of 20-30 decibels (dB) are virtually harmless to humans, it is a natural background noise. As for the loud noises, there is allowable limit is about

80 decibels. The sound in 130 decibels can be painful for person, and 150 dB may become unbearable for him. The main source of external noise is the urban transport and domestic - elevators, household appliances, loud speech, and others.

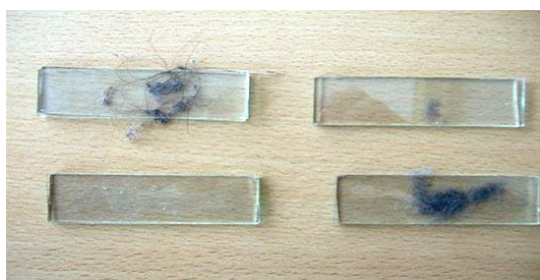
The impact of electromagnetic radiation on human

It's about effects on humans of magnetic fields produced by some electrical appliances, and mainly - a variety of electrical equipment of the building. Electromagnetic field is a special form of matter. By means of an electromagnetic field charged particles interact with each other. Greater importance to environmental and hygienic point of view have a radio frequency electromagnetic waves. Radio waves occupy a small part of the electromagnetic spectrum. Millimeter, centimeter and decimeter waves (300 GHz ... 300 MHz) is usually combined by the term "microwave" (microwave), or "microwave". Radio stations emit electromagnetic energy primarily within the ultrahigh (UHF) and high frequency (HF) frequency.

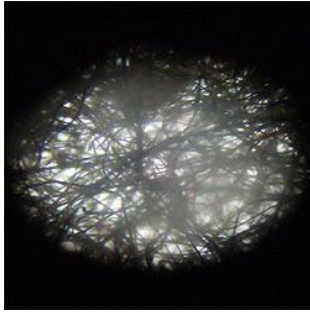
Methods of dust study in a residential area

- Collect the dust from various surfaces of the room (from books, rugs);
- The collected dusts place put on a glass slide and number them;
- Examine dust samples under a microscope and photograph them;
- Provide a detailed description of the sample;
- Process the results and draw conclusions.

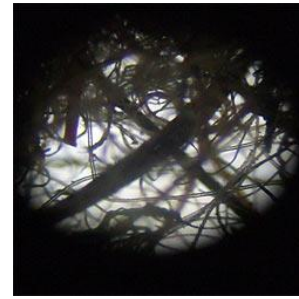
The results of the dust study



The study of dust in the residential premises of the apartment was conducted using a light microscope. The maximum amount of dust is deposited in the accommodation on the surface of the furniture, and also in remote areas for cleaning. Dust has a heterogeneous structure: book dust is gray, it consists of tiny particles (the fine), wood dust is bigger. Dust collected from rugs, contains larger particles, which are connected with fibers, and may include animal hair.



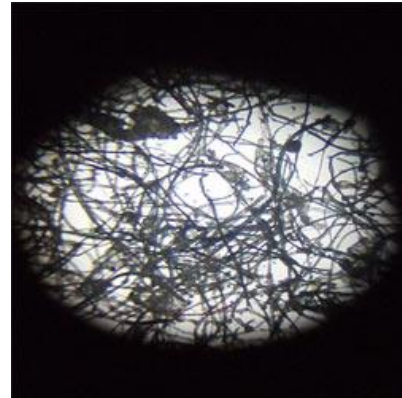
book dust



dust with animal dander



wood dust



dust from rugs

Results of noise pollution study

We measured the noise level in the room of an apartment with the help of the sound level meter and saw: the maximum noise level during the day is up to 55dB, at night it is up to 35 dB, which corresponds to sanitary - hygienic norms.

Conclusions:

1. Maximum amount of dust is deposited in a residential area on the surface of furniture. Having examined the dust particles under a microscope, we found that they are heterogeneous in composition and size.
2. In terms of temperature the results are normal;
3. In terms of the relative humidity in warm season the results are lower than the sanitary - hygienic norms, and in cold season are normal.
4. The noise level in the daytime and in the night time conforms to the norms.

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