

basis once a year. It is mandatory to review in the event of the appearance of new equipment, production, technological, other changes that have taken place at the enterprise.

Competent employees who are well versed in all the nuances of the operation of mechanisms, equipment, and other objects of evaluation, who are able to see comprehensively, deeply and recognize dangers, should be involved in reviewing the evaluation results. [2] Competence is critical, so when necessary, third-party qualified experts are involved in the evaluation.

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## ENSURING NORMAL MICROCLIMATE CONDITIONS TAKING INTO ACCOUNT MATHEMATICAL MODELING OF HEAT EXCHANGE PROCESSES

Human health and performance are greatly influenced by indoor environmental conditions that affect heat exchange with surrounding surfaces. These conditions are determined by a combination of temperature, relative humidity, air velocity, surface temperature around humans, and thermal (infrared) radiation intensity [1].

Building envelopes play a crucial role in creating the indoor microclimate. Similar to clothing, they protect individuals from adverse environmental influences and allow them to live in almost any climatic conditions on the globe [2].

Heat exchange through radiation occurs between surfaces at different temperatures [3, 4,]. The geometric characteristics of shape and their mutual arrangement play a significant role in calculating the radiative heat exchange between heated surfaces. The influence of these characteristics is taken into account by scope coefficients  $\varphi$ , determining the geometric conditions for direct energy exchange between two surfaces in a non-absorbing medium. In accordance with the terminology of Y.A. Surinov [5], this coefficient is referred to as the generalized angular coefficient in certain publications.

It is convenient to use the concept of the irradiance coefficient  $\varphi$ , which is a geometric property.

The spectral composition and intensity of the radiation are also important for evaluating the influence of thermal radiation. Since the intensity of thermal radiation is spatially non-uniform, its evaluation should be done separately for each point. The irradiance of a given part of the body depends on its spatial orientation with respect to the source of thermal radiation. This quantity is vectorial in nature and multivalued at each point in space.

Various alternatives need to be considered to select the most appropriate human body model for further experimentation and mathematical modeling.

The problem of ensuring normal microclimate conditions will be considered, taking into account the mathematical modeling of the heat exchange process.

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## **THE IMPORTANCE OF USING AND SAVING WATER RESOURCES**

Water plays a central role in economic and social development; it is vital to maintain health, grow food, manage the environment, and create jobs. Despite its significance, water resources face increasing threats from pollution, overexploitation, and climate change. But, a staggering 2 billion people worldwide lack access to safely managed drinking water, and 3.6 billion people lack access to safely managed sanitation. A lack of clean water and proper sanitation facilities spreads diseases, with millions of deaths each year linked to contaminated water sources. The scarcity of water has emerged as one of the most pressing issues confronting humanity. When water is scarce or polluted, or when people have unequal, or no access to water, tensions can rise between communities and countries. [2,3,5]

Something needs to be done to either render water usage more effective or make more water available. There is an urgent need, within and between countries, to unite around protecting and conserving our most precious resource [1,4]

Conserving water contributes to environmental preservation by lowering the energy needed for processing and distributing water to households, businesses, farms, and communities, thereby aiding in the reduction of pollution and the conservation of fuel resources. [5]

By using water-saving techniques, we can divert less water from rivers, bays, and estuaries, which helps preserve aquatic ecosystems. It also reduces water and wastewater treatment costs and the amount of energy used to treat, pump, and heat water, thus lowering energy demand and preventing air pollution. [5]

We must act upon the realization that water is not only a resource to be used and competed over – it is a human right, intrinsic to every aspect of life.[3]

By promoting knowledges, fostering collaboration, and implementing evidence-based policies, societies can ensure the availability and accessibility of water resources for future generations.

Responsible water usage is not only a local concern but also a global imperative. It is common knowledge that there is urgent necessity to safeguard our planet’s freshwater resources for generations to come.

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