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HYGIENIC PARAMETERS CHARACTERIZING THE MICROCLIMATE OF THESE ENCLOSED SPACES

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Abstract

Human health and work capacity are largely determined by microclimatic conditions and air quality in residential, public, and industrial buildings.

The importance of this issue is further emphasized by the fact that people spend a significant portion of their time indoors—according to some data, up to 95% of the day. An analysis of the current regulatory and methodological documents in the field of indoor microclimate, along with a review of laboratory and instrumental testing reports submitted to the Inspection Body for evaluation, identified the following key issues: The regulatory and methodological documents (RMDs) currently in force in the field of indoor microclimate are focused solely on ensuring compliance with permissible microclimate parameters. These documents contain inconsistencies and shortcomings, including the absence of a regulated lower limit for acceptable relative humidity, the representation of the standardized humidity range by a single value, discrepancies between the requirements of different sections of the document, and issues related to requirements for measuring instruments, among others. There is no clear description of the methodology for determining the resultant indoor temperature and, consequently, the local asymmetry of the resultant temperature. The issue of regulating microclimate parameters in preschool educational institutions requires particular attention and discussion. The sanitary norms and regulations specify only the ranges of air temperature and relative humidity (without indicating optimal and permissible values) and do not provide standards for air velocity or resultant room temperature, which makes it

impossible to conduct a comprehensive assessment of microclimate parameters.

Discussion

SanPiN of the Republic of Uzbekistan No. 0324-16 was the first document to implement a comprehensive approach to the regulation of microclimate indicators, making it possible to measure and assess the microclimate in virtually any residential or public building.

This document regulates the microclimate parameters of the occupied zone (living zone) of indoor spaces according to their functional purpose (which differ in activity intensity and duration of occupancy). It establishes requirements for optimal and permissible microclimate indicators for both warm and cold seasons, as well as requirements for monitoring procedures and measurement methods.

The parameters characterizing the microclimate in these premises include not only air temperature, air velocity, and relative humidity, but also the resultant room temperature and the local asymmetry of the resultant temperature. The resultant temperature is a composite indicator that combines air temperature and the mean radiant temperature of the room. The resulting temperature can be calculated by measuring the air temperature and the temperatures of all surfaces facing the room, or it can be measured using a globe thermometer. Both methods are valid. However, the first method presents certain difficulties, as the standard does not specify how to measure the temperature and area of the surfaces, and not all laboratories have the necessary instrumentation. The general approach to the hygienic assessment of indoor thermal conditions was formulated by V. N. Bogoslovsky, who identified two main conditions for human thermal comfort indoors: A person located in the center of the room should not experience either overheating or overcooling.

"The second criterion defines thermal comfort for a person located at the boundary of the occupied zone of a room near heated or cooled surfaces."

Conclusion

Ensuring thermal comfort near heated or cooled surfaces is an important aspect of indoor environmental quality. The second criterion makes it

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possible to assess the influence of surface temperatures on occupants located at the boundary of the occupied zone. Compliance with this criterion contributes to creating comfortable indoor conditions, reducing local thermal discomfort, and improving the overall effectiveness of the building's thermal environment.