

Indoor Environmental Quality, Climate Change, and Life Quality

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The Indoor Environmental Quality (IEQ) affects physical-mental health and well-being of people. Lighting, air quality, thermal comfort, and acoustic comfort are the most crucial factors in IEQ, directly influencing the quality of life (1).

The significance of IEQ has gained public attention in recent years, primarily due to the impact of global climate change and the emergence of green building designs (2). The adverse effects of climate change have adversely affected the habitability of public spaces, thereby necessitating the adoption of design and technical measures to improve the well-being and health of low-income communities (3).

Most studies have focused on exploring the connection between physical and occasionally psychological environmental factors. As per the WHO definition of "Health", it is recommended to analyse the interplay between a range of physical, social, and psychological factors, and how their interactions contribute to the perception of mutual comfort (4).

It is suggested that discussions should include climate change, along with the impact on the quality of life of the people studied. Control measures should be implemented based on the obtained

results.

Overall human comfort is impacted by various environmental factors simultaneously, however, technical standards and design guidelines often focus on specific factors exclusively (5).

Contemporary high-performance structures aim to reduce their environmental carbon footprint while ensuring a healthy and comfortable indoor environment that promotes human well-being. However, the current methods for evaluating IEQ are often expensive, fragmented, and limited in their scope to only a few parameters. Moreover, access to these procedures is primarily restricted to professionals (6).

IEQ plays a crucial role in the architectural planning of energy-efficient structures, as it directly influences the health and overall welfare of individuals residing within them. Presently, the primary objective is to effectively tackle the concept of Zero Energy Buildings (ZEBs) by adopting a holistic approach that ensures exceptional levels of IEQ and energy efficiency are attained (7).

Thermal, lighting, and acoustic comforts, as well as indoor air quality, play a vital role in establishing the overall environmental conditions within indoor spaces. Nevertheless, there is currently a lack of a

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standardized approach to assess the comprehensive IEQ level of a building by effectively monitoring and integrating all the individual elements of comfort (7).

This review presents an overview of the research obstacles that need to be addressed in order to enhance our comprehension, modeling, and optimization of the intricate relationship between various environmental factors and the overall well-being of individuals. To conduct more precise and effective investigations, it becomes imperative to implement measures that guarantee human comfort and health. Although challenging, this can potentially be achieved in the foreseeable future with the aid of "Artificial Intelligence".

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