学术报告

室内环境设计：从公共到个别室内环境

Indoor Environment Design: From Communal to Individual Indoor Environment

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Abstract

Indoor environment affects occupants' health, comfort and performance. Energy used for heating, cooling, ventilating, and air conditioning of buildings is substantial. Large individual differences exist between people with regard to preferred indoor environment. The used at present strategy to design uniform indoor environment can not satisfy every occupant in spaces. This talk justifies the need for improving the present air distribution design in spaces, and in general the need for a paradigm shift from the design of collective environments to the design of individually controlled environments. The focus is on advanced air distribution in spaces, its guiding principles and its advantages and disadvantages. The microenvironment around human body and its importance for providing each occupant with the optimal thermal environment and inhaled air quality is discussed. Examples of advanced air distribution solutions in spaces for different use are presented. The potential of advanced air distribution, and individually controlled micro-environment in general, for achieving shared values, that is, improved health, comfort, and performance, energy saving, reduction of healthcare costs and improved well-being of people is demonstrated. Performance criteria are defined and further research in the field is outlined.

Short Bio of Professor Arsen K. Melikov

Professor Melikov is leading the advanced air distribution and microenvironment research at the International Centre for Indoor Environment and Energy, Technical University of Denmark. His teaching and research areas cover advanced air distribution, airborne cross-infection, impact of indoor environment on peoples' health, comfort and performance, personally controlled environment, smart control of human body microenvironment, indoor climate measurements and instruments. The results of his research are included in engineering handbooks and guidelines as well as in International, European, ASHRAE and national standards. New HVAC technologies and measuring instruments have been developed based on his collaboration with industry. Prof. Melikov is author and co-author of 4 books, 32 technical reports and more than 300 scientific papers published in 15 languages. He is serving as associate editor of the Building and Environment journal. He has received numerous awards, including the Rydberg Gould Medal of the Scandinavian Federation of Heating, Ventilation and Sanitary Engineering Associations (SCANVAC). He is ASHRAE Fellow and Fellow of ISIAQ. He is Honorary Member of SHASE (The Society of Heating, Air Conditioning and Sanitary Engineers of Japan) and BULSHRAE (The Bulgarian Society of Heating, Refrigerating and Air-Conditioning Engineers.