Preface

The 16th ROOMVENT Conference, ROOMVENT 2022 is to be held in Xi’an, China from September 16 to 19, 2022, organized by Xi’an University of Architecture and Technology, and co-organized by Umeå University. As is well known, the ROOMVENT Conference is a well-established conference series within the discipline of ventilation research in the area of ventilation and air distribution in rooms, initiated by the SCANVAC and first held in 1987 in Stockholm.

At the end of 2019, COVID-19 broke out and swept the world. As the virus continues to mutate, hundreds of millions of infected cases have been reported. Up to now, the World Health Organization is still reminding the world that the outbreak is far from over. The ROOMVENT 2022 is held in this special occasion. The ROOMVENT 2022 proceedings consist of over 320 peer-reviewed papers presented at the ROOMVENT 2022. We sincerely hope that the 16th ROOMVENT Conference will provide an exclusive opportunity, and an excellent forum for researchers, engineers, designers, policy-makers, and other professionals to share their experience, disseminate technical information, and new ideas, and discuss the latest developments and future direction in the fields of HVAC and built environment.

It is the fact, that the pandemic has changed the way people live, learn and work. People wear masks, practice social distancing, and avoid gatherings. The ROOMVENT 2022 also has to be moved online. In the process of fighting the epidemic, researchers have also deepened their understanding of the way the virus is transmitted. Although the aerosol transmission of COVID-19 is controversial, the role of ventilation has never
been denied. On the contrary, it has drawn more attention to ventilation issues. Researchers and academic organizations in related fields have been dedicated to emphasizing the importance of ventilation and providing the strategic guidance on reasonable ventilation to the public. For example, in China, the *Design Guideline for Epidemic Prevention and Control of Indoor Air Environment* has come into being.

In fact, in addition to epidemic prevention, ventilation is also widely used in residential, commercial, entertainment, sports, and even industrial buildings. The expectation for a better indoor environment is still on the rise in China and other developing countries as the living standard increases. Buildings consume a large proportion of energy in the world. Continuing urban warming, more extreme weather, and emerging infectious diseases are frequently observed. Crises in climate and environment are reminding people that a more environmentally friendly way should be chosen. Efficient ventilation and HVAC are the keys to healthy and energy-efficient buildings. What can HVAC engineers and researchers do to keep the safety, health, and comfort of personnel and the normal, economic, and efficient operation of equipment with minimum energy and environmental costs? This is the goal of the ventilation.

Finally, the conference organizing and the high quality of the proceedings are the result of many people’s hard work, dedication, and support. The first appreciation goes to the members of the International Scientific Committee. Great appreciation should also go to many people who worked tirelessly on the Organizing Committee. We greatly appreciate the special contributions of all the sponsors and cooperators. Additionally, special thanks go to Dr. Ying Zhang and Dr. Bingye Song.
We also express our thanks to the authors who enthusiastically presented their work, ideas, and results.

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