IEA EBC Annex 68 – Subtask 2,

Pollutant Loads in Buildings

Menghao Qin[*1], Jianshun Zhang[2], Xudong Yang[3], Carsten Rode[4]

[1] *School of Architecture and Urban Planning*
Nanjing University
Nanjing, China
Email: mqin@nju.edu.cn

[2] *Building Energy & Environmental Systems Laboratory (BEESL)*
Syracuse University
Syracuse, NY, USA

[3]*Department of Building Sciences*
School of Architecture
Tsinghua University
Beijing, China

[4]*Indoor Environment and Building Physics Section*
Department of Civil Engineering
Technical University of Denmark
Lyngby, Denmark

INTRODUCTION

One obstacle to integrating energy and IAQ strategies for buildings is the lack of reliable method and data for estimating pollutant loads in buildings in the way heating/cooling loads are routinely estimated. Subtask 2 of IEA EBC Annex 68 is to collect existing data and to a limited extent provide new data about properties for transport, retention and emission of chemical substances in new and recycled materials under the influence of indoor heat and moisture conditions. Formaldehyde, benzene and other harmful volatile organic compounds (VOCs) are of main concern. Collection of results from lab tests on material and room level will be part of this study. Specifically, results will be collected and analysed from tests of emission of harmful compounds under various temperature, humidity and air flow conditions, since such data under combined exposures generally do not exist today.

ACTIVITIES

First the Subtask will organize a literature survey and make researcher contacts to gather relevant data and existing knowledge on major pollutant sources and loads in buildings, including models.

Laboratory testing and model setup to provide examples of new types of data which shall be beneficial to improve knowledge on combined effects that must be taken into consideration in order to achieve new paradigms for energy optimal operation of buildings. It is anticipated that the Subtask will gather data about combined effects describing how temperature and moisture conditions influence the emission and sorption of various pollutants in materials.

STAKEHOLDERS INVOLVED

It is anticipated that manufacturers of building materials, furniture, and inventory products shall be involved regarding testing and possible co-development of products that have minimal emission of harmful substances or which may have function to absorb indoor pollutants. In addition, architects, HVAC engineers and developers will also be possibly involved in different stages of “high IAQ, low energy” building projects.

DELIVERABLES

The Subtask will end with some mechanistic emission source/sink models and IAQ simulation tools for estimating the net loads of pollutions over time under realistic environmental conditions. This will be published in scientific journal articles and in a project report.

Furthermore, the Subtask will produce a database of emission and transport properties of materials for use in the models that will be developed and used in the project's Subtask 3.

Finally, the Subtask will produce a database of common pollution loads in new and existing buildings.

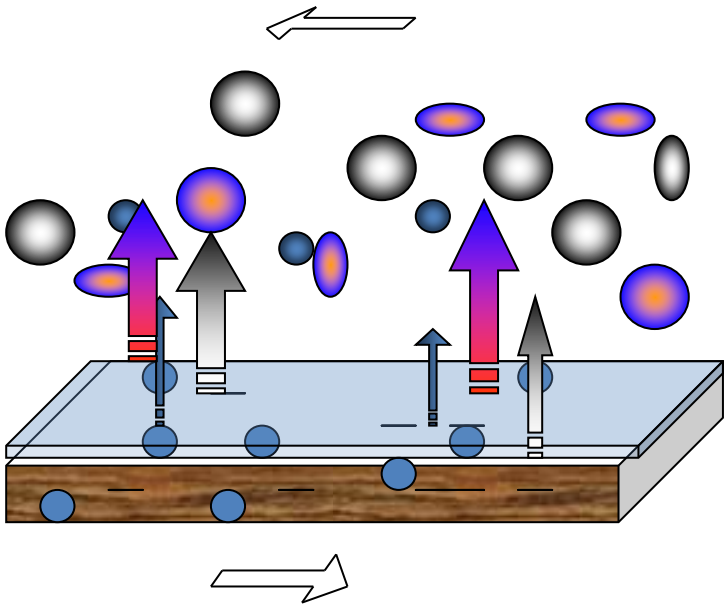

Figure 1 Pollutant emission from materials

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