



JOANNA POLAK

PhD defence

**A NEW COMBINED VENTILATION
AND HEATING SYSTEM
ENABLING AIR TEMPERATURE
CONTROL ON ROOM LEVEL**

**11 JUNE 2020
at 13:00-17:00**

Due to the Covid-19 situation, the PhD defence
will be carried out via Skype for Business.



DEPARTMENT OF THE BUILT ENVIRONMENT
AALBORG UNIVERSITY

PHD DEFENCE BY JOANNA POLAK

A new combined ventilation and heating system enabling air temperature control on room level
PhD defense organized by Department of the Built Environment, Aalborg University

TIME

Thursday 11 June 2020, 13:00 – approx.17:00

HOW TO PARTICIPATE

Due to the Covid-19 situation, the PhD defence will be carried out via Skype for Business. Please send an email to [Linda Vabbersgaard Andersen](mailto:Linda.Vabbersgaard@bygghuset.aau.dk) no later than 9 June 2020 and you will get an invite for the event or a copy of thesis if requested.

SUMMARY OF THE THESIS

Improving the thermal performance of building envelope as well as the transition from natural ventilation concepts towards mechanical ventilation with heat recovery constitute the major trends in energy-efficiency improvements of the European residential building stock. Combined mechanical ventilation and air heating systems appear a viable and comfortable technical solution for such high energy performing buildings.

Joanna Polak's PhD thesis presents the development, analysis and performance evaluation of a novel combined ventilation and heating system, which enables air temperature control on room level. The ability of the newly developed system to improve the control of thermal conditions in individual rooms in a building is demonstrated through the experimental studies and real-life measurements. Furthermore, using numerical simulations two types of the supply air terminal devices intended for application in the proposed system are evaluated in relation to the provided local thermal comfort. The results exhibit the influence of using the combined ventilation and heating system on the provided thermal conditions as well as the system's energy use.

ASSESSMENT COMMITTEE

- Senior Scientist Ole Michael Jensen, Department of the Built Environment, Aalborg University (chairman)
- Professor Jan-Olof Dalenbäck, Chalmers University, Sweden
- Associate Professor Marcus Keane, National University of Ireland Galway, Ireland

PHD SUPERVISORS

- Professor Alireza Afshari, Department of the Built Environment, Aalborg University

MODERATOR

- Research Director Søren Aggerholm, Department of the Built Environment, Aalborg University

GRADUATE PROGRAMME

- Civil Engineering

PROGRAM

13:00: Welcome by Moderator

13:05: Presentation by PhD student (45 min)

13:50: Break

During the break, participants can email questions to the moderator, Søren Aggerholm soa@build.aau.dk.

If such are received, the questioner puts them forward after the assessment committee has finalized their question and answer round.

14:00: The assessment committee is asking questions to the work

16:00: End of defence. The assessment committee enters another "room", evaluates and writes the final assessment

16:45 (approx.): The assessment committee rejoins the "Defence room" and announces its decision

17:00: End of event