



## AIVC April Workshop



Jelle Laverge  
Operating Agent  
IEA-EBC Annex 86

### Series of four webinars

Organised in collaboration with IEA-EBC Annex 86 'Energy efficient IAQ management'

April 1, Building ventilation: How does it affect SARS-CoV-2 transmission?

**April 8, IAQ and ventilation Metrics**

April 13, Big data, IAQ and ventilation -part 1

April 21, Big data, IAQ and ventilation -part 2

**Register at [www.aivc.org](http://www.aivc.org)**



## Introduction: context of the webinar

- The IEA-EBC ExCo approved the start of the preparation year of 'Annex 86' in June 2020
- AIVC TechNote 68 'Ventilation and Health'
- AIVC CR 17 and 19



# Energy Efficient IAQ Management in residential buildings

ExCo meeting November 2020

Provide a framework to improve energy efficiency of IAQ management for

both new construction and refurbishment

To improve the acceptability, control, installation quality and long-term reliability of IAQ management strategies by proposing specific metrics for these quality issues

To identify or further develop the tools that will be needed to assist designers and managers of buildings in assessing the performance of an IAQ management strategy using the rating method

To benefit from recent advances in sensor technology and cloud-based data storage to systematically

To improve the availability of these data sources by exploring use cases for their providers  
To disseminate about each of the above findings.

## Partners

42 institutes from 24 countries

Active participation by companies encouraged!

### List of annex participants per country:

Australia: CSIRO  
Austria: University of Innsbruck  
Belgium: UGent, KUL, BBRI, University of Antwerp  
Brazil: Pontifical Catholic University of Parana  
Canada: NRC  
Chile: PUC  
China: Nanjing University, BUCE and Tsinghua University  
Denmark: DTU and Aalborg University Copenhagen  
Finland: Aalto University  
France: La Rochelle University, ENS PSL, CEREMA, Université de Lille, UPJV and CETIAT  
Germany: TH Rosenheim  
Ireland: NUIG  
Italy: EURAC research center  
New Zealand: BRANZ  
Netherlands: Technical University of Eindhoven, BBA/TU Delft and Zehnder  
Norway: Oslo Metropolitan University and SINTEFF  
Portugal: University of Coimbra, Polytechnic Institute of Viseu and University of Porto  
Singapore: National University of Singapore  
Spain: Eduardo Torroja Institute for Construction Sciences – CSIC  
Sweden: Chalmers University and KTH  
Switzerland: ETH  
Turkey: TTMD  
United Kingdom: University of Strathclyde, Lancaster University and University of Nottingham  
USA: Syracuse University, UMD, UTexas and LBL

## Workplan

6 Subtasks

ST 1 and 2: methodology

ST 3 and 4: application to technology

ST 5: new opportunities through IoT

ST 6: dissemination and management

### Subtask 1 Metrics and development of an IAQ management strategy rating method

This subtask is devoted to the development of a general rating method for the benchmarking of the performance of IAQ management systems. In addition to relevant metrics, a set of appropriate tools, consistent modeling assumptions and monitoring protocols are also proposed.

### Subtask 2 Source characterization and typical exposure in residential buildings

This ST creates consistent input values for the assessment method developed in ST 1 and control strategies in ST 4. It starts from information available in literature, adding new experimental results where needed and reviewing and developing models (empirical, semi-empirical or physical models) for characterizing relevant residential sources.

### Subtask 3 Smart materials as an IAQ management strategy

This ST identifies opportunities to use the building structure and (bio-based) building materials (focussing on hemp concrete) and the novel functional materials inside it to actively/passively manage the IAQ, for example, through active paint, wallboards, textiles coated with advanced sorbents or hemp concrete, and quantifies their potential based on the assessment framework developed in ST 1.

### Subtask 4 Ensuring performance of smart ventilation

This subtask focuses on practical conditions that assure reliable, cost effective and robust implementation of smart ventilation. This includes both installation and operation. A poor performance of smart ventilation systems can not only lead to waste of energy and aggravated IAQ. It can also create a bad reputation of smart ventilation among relevant stakeholders - designers, installers as well as occupants. This, in the end, can lead to adoption of more primitive, less efficient (in terms of energy use) and less effective (in terms of IAQ) forms of IAQ management. The subtask defines a smart ventilation according to the AIVC.

### Subtask 5 Energy savings and IAQ: improvements and validation through cloud data and IoT connected devices

This subtask is exploring the potential of the new generation of IoT connected devices (both standalone and embedded in eg. AHU's) for smart IAQ management. What can we learn from big data? Can we benchmark system energy and IAQ performance based on this data? How can we make sure that the data is available and can be accessed? Can we update what we think we know about what happens in dwellings based on what we see in big data rollouts? What are the best protocols and ontologies? How to create viable services out of the data/business plans? How can we integrate data with smart grids?

### Subtask 6 Dissemination, management and interaction

The final subtask assures the close alignment of the activities within the annex and the interaction with the AIVC. This subtask includes the outreach of the annex, eg. by managing the dedicated section of the IEA EBC webpage. It uses the different platforms that the AIVC provides to interact with the broader target audience. This task will also ensure the continuation of the link with (the results from) other ongoing and ended annexes, especially annex 68.

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## IAQ and Ventilation Metrics

webinar  
2021.04.08

### Objectives:

- To discuss the road towards a robust comprehensive IAQ metric for the assessment of the performance of ventilation
- To set the starting stage for subtask 1 of IEA EBC Annex 86

09:00 | Introduction, **Jelle Laverge – EBC Annex 86 Operating Agent, Ghent University, Belgium**

09:10 | Annex 68 IAQ metrics: what was proposed, what works, what not, what are the remaining questions? **Marc Abadie – University of La Rochelle, France**

09:30 | DALY as an integrated IAQ metric: methodological updates, **Benjamin Jones – University of Nottingham, UK**

09:50 | TAIL a new rating scheme of indoor environmental quality, **Pawel Wargocki – DTU, Denmark**

10:10 | Questions and Answers

10:30 | Closing & End of webinar



# IAQ and Ventilation Metrics

webinar  
2021.04.08



Marc Abadie  
La Rochelle Université,  
France



Benjamin Jones  
University of Nottingham,  
UK



Pawel Wargocki  
Danmarks Tekniske  
Universitet, Denmark

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webinar  
2020.04.08

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Locate the **Q&A** box

Select **All Panelists** | Type your question | Click on Send

**Note:** Please **DO NOT**  
use the chat box to ask  
your questions!

Q&A

All (0)

Ask: All Panelists

What is the percentage of non compliant buildings?

Send



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