



# Newsletter

## Air Infiltration and Ventilation Centre



## Foreword

Welcome to the September 2023 issue of our newsletter!

The past few months, since the release of the March newsletter edition, have been quite productive regarding the organization of events, the development and release of new publications and more.

The AIVC 2023 workshop: "Towards high quality, low-carbon ventilation in airtight buildings" held on May 18-19 in Tokyo Japan attracted over 100 participants from 16 countries. If you missed it, you can always check the recordings which are available on our website.

The AIVC 2023 Conference: "Ventilation, IEQ and health in sustainable buildings" is now a few days away and more than 190 people have already booked their seats for the event!

Complementing our physical events, we also hosted three webinars dedicated to building & ductwork airtightness; as always the presentations have been recorded and are available online.

We are also pleased to announce the release of four new AIVC publications as well as the publication of papers from the AIVC 2022 Conference in the IJV and E&B Journals.

Last but not least, in this edition we also provide a reporting of the activities of the AIVC's Industry Advisory Committee including feedback from the September 2023 meeting.

We wish you a pleasant reading and look forward to seeing you in our future events. We would also like to encourage you to visit our [website](#), follow us on [twitter](#) and [LinkedIn](#) and read our monthly newspaper "[Energy Efficiency and Indoor Climate in Buildings](#)".

Arnold Janssens & Peter Wouters, Operating Agents, AIVC



*no 24*  
September 2023

## 4-5 October 2023 – 43<sup>rd</sup> AIVC - 11<sup>th</sup> TightVent- 9<sup>th</sup> venticool conference in Copenhagen, Denmark

The 43<sup>rd</sup> AIVC conference "Ventilation, IEQ and health in sustainable buildings" will be held on 4 & 5 October 2023 in Copenhagen, Denmark together with the 11<sup>th</sup> TightVent conference and the 9<sup>th</sup> venticool conference. The conference will take place at Aalborg University Copenhagen.

The conference will consist of a mixture of presentations from the call for papers and presentations upon invitation, organized in well prepared and structured sessions focused on the conference theme and topics. Some sessions will consist of presentations from the call for papers only, other sessions will be topical sessions with presentations proposed by a session organizer and by the organizing committee. The conference is combined with an exhibition by industry partners.

The conference is an initiative from the International Network on Ventilation and Energy Performance (INIVE) on behalf of the Air Infiltration and Ventilation Centre (AIVC), [TightVent Europe](#) (the Building and Ductwork Airtightness Platform), and [venticool](#) (the international platform for ventilative cooling); and [Aalborg University Copenhagen](#).

More than 190 people have booked their seats for the event!

Online registration is now closed.

On-site registration will be possible during the whole event.

Please note that the event will open with a welcome reception on Tuesday October 3, 2023 at 19:00.

The conference will start on Wednesday October 4, 2023 at 09:00. On-site registration will be open from 08:00.

The detailed programme is now available [here](#).

For further information and updates visit us at: <https://aivc2023conference.org/>

We are looking forward to welcoming you to Copenhagen!

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## AIVC Industry Advisory Committee Meeting: Strategy Document Feedback among highlights

Simon Jones, AIVC Industry Advisory Committee (IAC) Chair

On September 11<sup>th</sup>, 2023, the [AIVC Industry Advisory Committee](#) convened its second online meeting. Among the agenda items, the feedback on the AIVC's 2022-2026 strategy document stood out, offering deeper insights into the organisation's direction and priorities.

The discussion acknowledged the unique global footprint of the AIVC, emphasising its capability to bridge international boundaries. Participants voiced a desire to see this international emphasis strengthened and more prominently highlighted in the organisation's activities and mission.

Health and sustainability also emerged as crucial themes. The committee wished for the AIVC's mission and goals to reflect more than energy efficiency. Recognising this sentiment, it was proposed to consider emphasising "health" and "sustainability" more distinctly in the organisation's mission statement in the subsequent board meeting.

Discussion on the building industry's key drivers revealed a collective push towards climate-neutral building stocks. There was a pronounced interest in retrofitting existing structures for energy and sustainability. Challenges associated with retrofitting multi-family buildings were spotlighted, and the frequent sidelining of ventilation during renovations, especially in educational institutions, was also highlighted.

In light of recent global events, the importance of preparing buildings and systems for epidemics and disasters took centre stage. The committee underscored the need for a unified stance post-pandemic, referencing prominent industry standards.

Further discourse revolved around the performance gap observed in ventilation and envelope systems. The importance of inspecting and assessing ventilation systems in new constructions was emphasised. The emerging role of performance data in influencing future strategies was identified,

and discussions touched upon the potential of establishing databases to track performance in ventilation.

The meeting also ventured into the territory of ventilation standards and regulations. Participants felt that the AIVC could play more of an influential role here. The relationship between various industry standards, especially indoor air quality, was deemed worthy of clarification.

Lastly, there was an acknowledgement of the increasing importance of performance indicators for energy and sustainability. A sentiment was expressed regarding the need for more rapid adoption of energy-efficient ventilation technologies.

The feedback on the strategy document painted a comprehensive picture of the potential challenges and opportunities facing the AIVC, setting the stage for the organisation's future endeavours.

Current and future AIVC-projects were also reviewed at the meeting, giving a good summary of the status of each project.

The Industry Advisory Committee will meet again in early 2024, and the minutes and feedback from this meeting will be passed to the board for their meeting in October.

## Collection of papers from the AIVC 2022 Conference published in the IJV Journal

We are happy to inform you that a collection of papers from the AIVC 2022 conference has just been published in the International Journal of Ventilation. This article collection presents a selection of papers from the peer reviewed track of the 42<sup>nd</sup> AIVC conference - 10<sup>th</sup> TightVent - 8<sup>th</sup> venticool conference: "Ventilation Challenges in a Changing World", held in Rotterdam, the Netherlands on October 5-6, 2022 addressing issues raised by the conference topics of smart ventilation in relation to indoor air quality and health, building and ductwork airtightness, and ventilative and resilient cooling.

Specific articles include:

- Guest editorial: Ventilation challenges in a changing world - Selected papers from the 42<sup>nd</sup> AIVC Conference, 5-6 October 2022, *Arnold Janssens & Maria Kapsalaki*
- Evaluation of thermal resilience to

overheating for an educational building in future heatwave scenarios, *Abantika Sengupta, Hilde Breesch, Douaa Al Assaad & Marijke Steeman*

- Air leakage detection in building façades by combining lock-in thermography with blower excitation, *Benedikt Kölsch, Johannes Pernpeintner, Björn Schiricke & Eckhard Lüpfer*

- The effect of airflow guiding components on effective ventilation rates in single-sided ventilation applications, *Nima Najafi Ziarani, Malcolm Cook & Paul D. O'Sullivan*

- The indoor environmental quality and energy savings potential of room ventilation units compared to exhaust-only ventilation systems in France, *Vasileios Filis, Kevin Michael Smith, Jakub Kolarik, Frédéric Kuznik & Lucie Merlier*

- A preliminary assessment of the health impacts of indoor air contaminants determined using the DALY metric, *Gioberti Morantes, Benjamin Jones, Max Sherman & Constanza Molina*

- Assessing the "sufficient ventilation" requirement for Austrian buildings: development of a Monte Carlo based spreadsheet calculation to estimate airing intervals and mould risk in window ventilated buildings, *Gabriel Rojas, Andreas Greml, Rainer Pfluger & Peter Tappler*

- Effectiveness of personalized ventilation in reducing airborne infection risk for long-term care facilities, *Marloes M. A. de Haas, Marcel G. L. C. Loomans, Marije te Kulve, Atze C. Boerstra & Helianthe S. M. Kort*

- Impact of ventilation type on indoor generated PM and VOC levels for different indoor activities, *Kevin Verniers, Frederik Losfeld, Ivan Pollet & Jelle Laverge*

Please follow the link [here](#) to access the published papers.



## Energy & Buildings special issue: “Resilient Ventilation in Relation to Health, Safety, and Climate Change”

We are happy to inform you that the Energy and Buildings special issue: “Resilient Ventilation in Relation to Health, Safety, and Climate Change”, including also further developed papers from the AIVC 2022 conference, has been published.

In this special issue, the role of ventilation and infiltration in building decarbonization, and improvement of indoor air quality including epidemic preparedness is highlighted. How can design, construction and renovation practices, innovative and digital technologies contribute in creating resilient ventilation strategies that help tackle today’s challenges in health, safety and climate change?

The following articles have already been published as part of this special issue:

- CFD modelling of infection control in indoor environments: A focus on room-level air recirculation systems, *Shipeng Xu, Guangwei Zhang, Xiaoping Liu & Xiaoping Li*
- Influence of outdoor air pollution on European residential ventilative cooling potential, *Evangelos Belias & Dusan Licina*
- Energy savings and exposure to VOCs of different household sizes for three residential smart ventilation systems with heat recovery, *Klaas De Jonge, Janneke Ghijssels, Jelle Laverge*
- Urban microclimate and climate change impact on the thermal performance and ventilation of multi-family residential buildings, *Agnese Salvati & Maria Kolokotroni*
- Multi-objective optimization of window configuration and furniture arrangement for the natural ventilation of office buildings using Taguchi-based grey relational analysis, *Xin Yin, Mohammed W. Muhieldeen, Ruzaimah Razman, Jonathan Yong Chung Ee*
- Post-COVID ventilation design: Infection risk-based target ventilation rates and point source ventilation effectiveness, *Jarek Kurnitski, Martin Kiil, Alo Mikola, Karl-Villem Võsa, Amar Aganovic, Peter Schild & Olli*

## Seppänen

- Would sneezing increase the risk of passengers contracting airborne infection? A validated numerical assessment in a public elevator, *Huiyi Tan, Mohd Hafiz Dzarfan Othman, Hong Yee Kek, Wen Tong Chong, Syie Luing Wong, Garry Kuan Pei Ern, Guo Ren Mong, Wai Shin Ho, Pau Chung Leng, Mohamad Nur Hidayat Mat & KengYinn Wong.*

Please follow the link [here](#) to access the published papers.

## AIVC's latest publications

The AIVC is pleased to announce the release of 4 new AIVC publications!

**AIVC's Technical Note no 72: Ventilation Requirements and Rationale behind. Standards and Regulations of dwellings, office rooms and classrooms** (April 2023).

This document provides insight into the reasons for ventilation requirements across different countries to provide policy makers and standardization committees information for the discussions about ventilation.

**AIVC's Ventilation Information Paper no 45.7: Trends in building and ductwork airtightness in Greece** (May 2023).

This paper summarizes current knowledge on trends in building and ductwork airtightness in Greece.

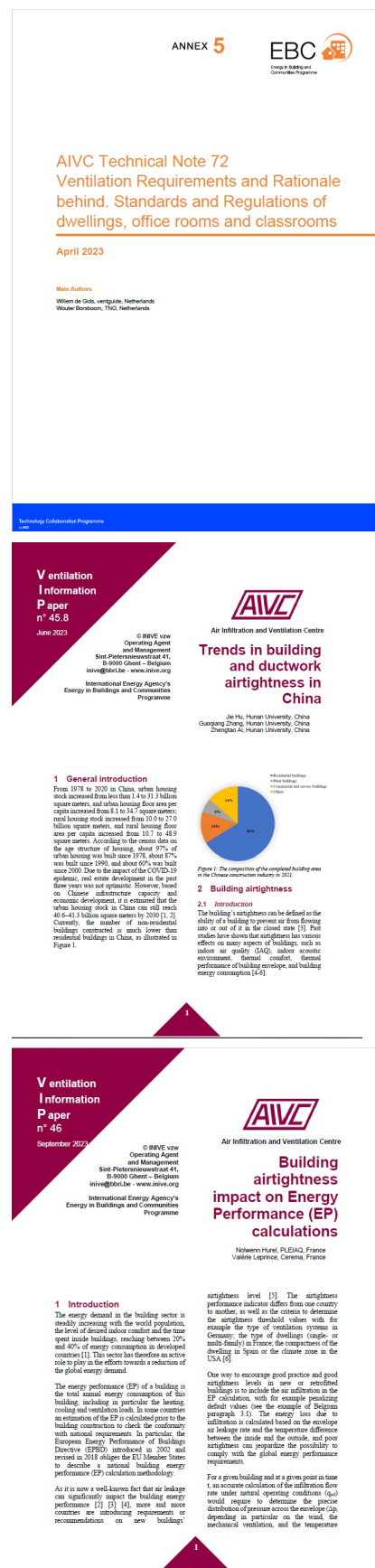
**AIVC's Ventilation Information Paper no 45.8: Trends in building and ductwork airtightness in China** (June 2023).

This paper summarizes current knowledge on trends in building and ductwork airtightness in China.

**AIVC's Ventilation Information Paper no 46: Building airtightness impact on Energy Performance (EP) calculations** (September 2023).

This paper aims to explain simplified models developed and used around the world to estimate the infiltration rate for Energy Performance (EP) calculations and give some examples of methodologies applied in various countries.

All documents are freely accessible [here](#).







# Air Infiltration and Ventilation Centre

## Feedback from the AIVC 2023 Workshop: "Towards high quality, low-carbon ventilation in airtight buildings"

The AIVC 2023 workshop "Towards high quality, low-carbon ventilation in airtight buildings" organized in collaboration with NILIM and BRI of Japan was held on 18-19 May 2023 in Tokyo, Japan.

Participation was possible online and in person and the event drew over 100 participants - researchers, engineers & architects, industry representatives and international organizations from 16 countries.

The programme included 30 presentations grouped into 5 sessions: "Opening", "IEA-EBC Annexes", "Quality assurance of ventilation and heat recovery systems", "Airtightness" & "Role of ventilation in infection control".

The recordings and slides of the workshop are now available online [here](#).

## Feedback from AIVC Webinars: May-June 2023

During the period May-June 2023, the Air Infiltration and Ventilation Centre (AIVC) organized 3 webinars:

### 4 May 2023: Building and ductwork airtightness trends and regulations in France, Belgium and Greece

- 145 participants
- Organizer: AIVC & TightVent
- Recordings & Slides available [here](#)

### 9 May 2023: Building and ductwork airtightness trends and regulations in the Czech Republic, Latvia and Spain

- 60 participants
- Organizer: AIVC & TightVent
- Recordings & Slides available [here](#)

### 19 June 2023: Alternative methodologies to evaluate airtightness

- 148 participants
- Organizer: AIVC & TightVent
- Recordings & Slides available [here](#)

The full collection of past events' recordings and slides can be found [here](#). Check them out and [subscribe](#) to our YouTube channel!

## AIVC • List of board members

Australia: Riccardo Paolini, University of New South Wales

Belgium: Hilde Breesch, KU Leuven • Samuel Caillou, Buildwise

China: Guoqiang Zhang, Hunan University • Zhengtao Ai, Hunan University

Denmark: Bjarne Olesen, Technical University of Denmark • Alireza Afshari, Danish Building Research Institute, Aalborg University

France: Laure Mouradian, CETIAT • Gaëlle Guyot, CEREMA

Italy: Michele Zinzi, Enea • Marco Simonetti, Politecnico di Torino

Ireland: James McGrath, Maynooth University • Marie Coggins, NUI Galway

Japan: Takao Sawachi, Building Research Institute • Yoshihiko Akamine, NILIM

Netherlands: Wouter Borsboom, TNO

New Zealand: Manfred Plagmann, BRANZ • Yu Wang, BRANZ

Norway: Kari Thunshelle, SINTEF Byggforsk

Republic of Korea: Yun Gyu Lee, Korea Institute of Construction Technology • Dong Hwa Kang, University of Seoul

Spain: Pilar Linares Alemparte, The Eduardo Torroja Institute for Construction Science - CSIC • Sonia García Ortega, The Eduardo Torroja Institute for Construction Science - CSIC

Sweden: Jan-Olof Dalenbäck, Chalmers University of Technology

UK: Benjamin Jones, University of Nottingham • Maria Kolokotroni, Brunel University London

USA: Andrew Persily, NIST • Iain Walker, LBNL

### Operating agent

INIVE vzw, [www.inive.org](http://www.inive.org), [info@aivc.org](mailto:info@aivc.org)

Arnold Janssens and Peter Wouters, operating agents • Maria Kapsalaki, senior consultant

### AIVC board guests

Francis Allard • Willem de Gids • Laszlo Fulop • Zoltan Magyar • Max Sherman • Hiroshi Yoshino

### Representatives of organisations

Takao Sawachi, IEA EBC, [www.iea-ebc.org](http://www.iea-ebc.org)

Pawel Wargocki, IEA EBC Annex 78, <https://annex78.iea-ebc.org/>

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Simon Jones, AIVC Industry Advisory Committee chair

Jaap Hogeling, REHVA, [www.rehva.eu](http://www.rehva.eu)

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