



# EBC Annex 5: Air Infiltration and Ventilation Centre

**Peter Wouters**

Operating Agent of AIVC

Manager of INIVE EEIG



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# Athens, 41st AIVC - ASHRAE IAQ joint conference

13 - 15 September 2021

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**POSTPONED - 41st AIVC - ASHRAE IAQ 2020 joint conference in Athens**

New dates soon to be announced!

[read more](#)

Smart Ventilation

Resilient Ventilative Cooling

Building & Ductwork airtightness

Indoor Environmental Quality

## Publications



VIP 40: Ductwork airtightness - A review

Ventilation Information Paper no40

"Ductwork airtightness - A review"

## Events

13  
Sep

13-15 September 2021, Conference, Athens, 41st AIVC - ASHRAE IAQ joint conference

## AIRBASE

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AIVC COLLABORATIONS



AIVC



AIVC Countries



AIVC Board



Collaborations

- AIVC was launched in 1979
- 2019: Celebration of 40 years of AIVC
- The present operating period covers the period 2017-2021





AIVC



AIVC Countries



AIVC Board



Collaborations

## AIVC Countries



Australia



Belgium



China



Denmark



France



Greece



Ireland



Italy



Japan



Netherlands



New Zealand



Norway



Republic of Korea



Spain



Sweden



United Kingdom



United States of  
America



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Collaborations

# AIVC Board Composition

## AUSTRALIA



**Mat Santamouris**  
University of New South Wales



**Wendy Miller**  
Queensland University of Technology



## BELGIUM



**Arnold Janssens**  
University of Ghent



**Samuel Caillou**  
Belgian Building Research Institute



## CHINA



**Guoqiang Zhang**  
Hunan University



**Weijun Chen**  
Hunan Shinilion Energy Saving Sci. and Tech. Corp. Ltd

## DENMARK



**Alireza Afshari**  
Danish Building Research Institute, Aalborg University



**Bjarne Olesen**  
Technical University of Denmark





AIVC



AIVC Countries



AIVC Board



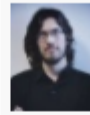
Collaborations

# AIVC Board Composition

## Representatives of organisations



Peter Holzer - IEA EBC Annex 80  
IEA EBC Annex 80



Jelle Laverge - IEA EBC Annex 86  
IEA EBC Annex 86



Carsten Rode - IEA EBC Annex 68  
IEA EBC Annex 68



Pawel Wargocki - IEA EBC Annex 78  
IEA EBC Annex 78



Takao Sawachi - IEA EBC  
IEA-EBC



Jaap Hogeling - REHVA  
REHVA



Jan Hensen - IBPSA  
IBPSA



Ben Hughes - International Journal of Ventilation



Don Weekes - IEQ-GA  
IEQ-GA





AIVC



AIVC Countries



AIVC Board



Collaborations

## Collaborations

### Umbrella and network organisations



TightVent



venticool



IEQ-GA



QUALICheck



REHVA



ISIAQ



IBPSA



EVIA



ASHRAE



IEA TCP EBC





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## Events



Conferences



Workshops



Webinars



## Events



Conferences

### Past Conferences



13

Sep

2021

#### 13-15 September 2021, Conference, Athens, 41st AIVC - ASHRAE IAQ joint conference

After careful consideration by the Steering Committee and from input by authors, ASHRAE and AIVC have decided to postpone the conference, which was initially scheduled for September 14-16, 2020 in Athens, Greece. The IAQ 2020 conference is being postponed by one year to September 13-15, 2021 as a face-to-face conference in Athens, Greece.

[View More](#)[View More](#)

## Events



### Past Workshops

27

Mar

2019

27-28 March 2019, Symposium, Dublin, "Quality ventilation is the key to achieving low energy healthy buildings"

Sustainable Energy Authority of Ireland (SEAI) together with the Air Infiltration and Ventilation Centre (AIVC) organised a symposium entitled " Quality ventilation is the key to achieving low...

[View More](#)

23

Mar

2018

23 March 2018, Workshop, Sydney (AU) - Ventilation for Indoor Air Quality and Cooling

Aiming to inform Australian researchers and engineers on recent developments in the field of ventilation technologies, the workshop gave international experts visiting Australia the opportunity to...

[View More](#)

19

Mar

2018

19-20 March 2018, Workshop, Wellington (NZ) - Towards higher-performing buildings: The role of airtightness and ventilation

The objective of this AIVC workshop was to discuss and identify ways to improve the quality of our homes with respect to airtightness and ventilation, as well as discussing the impact suboptimal...

[View More](#)



## • Past webinars

- 19 May: Moisture control
- 13 May: Ventilation requirements, trends and thermal comfort
- 6 May: kitchen ventilation
- 26 March: Ventilative cooling – design and examples

## • Future webinars

- **20 November:** COVID-19 Ventilation related guidance by ASHRAE and REHVA
- **30 November:** Better Quantifying and Locating Building Leakages
- **9 December:** Implementation of ventilative cooling in practice.
- **.. January:** Improvements in building airtightness of the building stock - Analysis of European databases







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# Resources



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AIVC Publications



AIVC Conference Proceedings



Collections of publications



Multimedia



News



Newsletters



FAQ

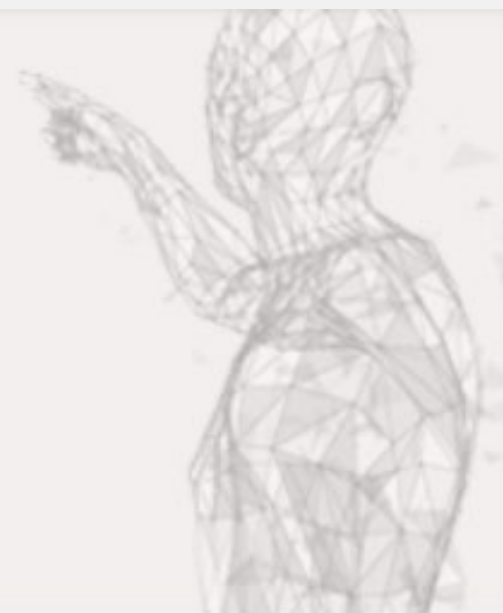




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## AIRBASE

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publications with **16241**  
**pdf documents**





AIVC Publications

## Ventilation Information Papers

- VIP 39 - What is smart ventilation?
- VIP 37 - Impact of energy policies on buildings and ductwork airtightness
- VIP 36 - Metrics of health risks from indoor air

## Technical reports

- TN 68 – Residential ventilation and health
- TN 67 – Building airtightness: a critical review of testing, reporting and quality schemes in 10 countries

## Literature lists

- LL 35 – Building and ductwork airtightness
- LL 34 – Ventilative cooling



Multimedia

20:24

Moisture buffering in modern timber constructions...

21:35

Considerations on IAQ metrics from regulatory and...

19:34

Indoor Carbon Dioxide as Metric Of Ventilation and...

15:12

Extract cooker hoods – possibilities and challenges...

14:54

Ventilative cooling design (Guilherme Carrilho da Graç...

2020.02.21

11:20

Durability of building airtightness: Assessment...



# Newsletters



## Foreword

Interest & awareness in the field of building and ductwork airtightness continues to grow. The TightVent Airtightness Associations Committee is continuously increasing its members and broadening its scope in line with their activities in the field. There is a major role and an inarguable commitment for the TightVent Europe platform to continue disseminating information on these fields. The May 2020 edition of the TightVent newsletter informs you on our latest achievements (events, publications, projects etc.) throughout selected initiatives.

Please visit our [website](#), follow us on [twitter](#) and [LinkedIn](#) and [subscribe](#) to our monthly newspaper "Energy Efficiency and Indoor Climate in Buildings" to find out more about our activities. We wish you a pleasant reading!

The TightVent team

## 14 -16 September 2020 – 41<sup>st</sup> AIVC & 9<sup>th</sup> TightVent - ASHRAE IAQ joint conference in Athens, Greece

[COVID-19 update] AIVC and ASHRAE continue to monitor the COVID-19 outbreak. At this time, preparations for the Athens IAQ 2020 Conference are moving forward as planned – authors are writing papers to be reviewed, workshops are being organized and the conference schedule is being developed. AIVC and ASHRAE are following the recommendations of the World Health Organization and the Centers for Disease Control and Prevention and will comply with relevant national and local laws and regulations.

The conference "IAQ 2020: Indoor Environmental Quality Performance Approaches Transitioning from IAQ to IEQ", organized by ASHRAE and AIVC will take place September 14-16, 2020 in Athens, Greece. The conference will also be the 9<sup>th</sup> TightVent and 7<sup>th</sup> venticool conference.

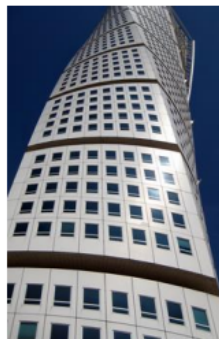
Indoor Air Quality (IAQ) has been the core of ASHRAE'S IAQ series of conferences for the past 30 years. This conference will expand from Indoor Air Quality to Indoor Environmental Quality (IEQ). IEQ includes air quality, thermal comfort, acoustics, and illumination and their interactions. The particular focus of this conference is on performance approaches including the metrics, systems, sensors and norms necessary to implement them.

**Conference topics:** Health and Well-being: Appropriate technical and

operational definitions; Performance Metrics: For all aspects of IEQ; Interactions: Interactions between IEQ parameters; Occupant Behavior: How behavior impacts IEQ and how IEQ impacts behavior - psychological dimensions of IEQ; Smart Sensors and Big Data: Sensor properties, data management, cybersecurity, applications; Smart Controls: Equipment properties, commissioning, equivalence; Resilience and IEQ: Responding to climate change and disasters; Ventilation: Mechanical, passive, natural and hybrid systems; Air Tightness: Trends, methods and impacts; Thermal Comfort: Dynamic approaches, health impacts and trends; Policy and Standards: Trends, impacts, implications

**Keynote speakers:** Philomena Bluyssen, Professor of Indoor Environment, TU Delft; Richard de Dear, Ph.D., Director, Indoor Environmental Quality Laboratory, University of Sydney; Mariana Figueroa, Director of the Lighting Research Center, Rensselaer Polytechnic Institute; Benjamin Jones, Associate Professor, University of Nottingham; Cath Noakes, PhD, FIMechE, FHEEM, Professor of Environmental Engineering for Buildings, University of Leeds; Stephanie Taylor MD, M Architecture, CIC, FRSPH(UK), MCABE, Taylor Healthcare Consulting, Inc.

For more information, please visit the [conference website](#) or contact [meetings@ashrae.org](mailto:meetings@ashrae.org)



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- TAAC news
- TightVent-AIVC Webinars on durability of airtightness – Recordings available
- AIVC-TightVent project: Integrating uncertainties due to wind and stack in declared airtightness results
- DurableAIR project: Feedback and follow up
- Guidelines for airtightness measurements of high-rise buildings
- Product news from our partners



## Foreword

Welcome to the AIVC September 2020 newsletter!

We hope you are keeping safe and healthy during this challenging period.

This edition of our bi-annual newsletter includes information on upcoming and past events, recent publications, our involvement and collaboration with the recently approved IEA-EBC annex 86 and a focus article on the importance of ventilation in the COVID-19 context.

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 subscribe to our monthly newspaper "Energy Efficiency and Indoor Climate in Buildings".

Peter Wouters, Operating Agent AIVC

@AIVCNews



no 18  
September 2020

## 13 -15 September 2021 – 41<sup>st</sup> AIVC - ASHRAE IAQ joint conference in Athens, Greece

After careful consideration by the Steering Committee and from input by authors, ASHRAE and AIVC have decided to postpone the conference, which was initially scheduled for September 14-16, 2020 in Athens, Greece.

The conference "IAQ 2020: Indoor Environmental Quality Performance Approaches Transitioning from IAQ to IEQ", is being postponed by one year to September 13-15, 2021 as a face-to-face conference in Athens, Greece. The conference will also be the 9<sup>th</sup> TightVent and 7<sup>th</sup> venticool conference.

Indoor Air Quality (IAQ) has been the core of ASHRAE'S IAQ series of conferences for the past 30 years. This conference will expand from Indoor Air Quality to Indoor Environmental Quality (IEQ). IEQ includes air quality, thermal comfort, acoustics, and illumination and their interactions. The particular focus of this conference is on performance approaches including the metrics, systems, sensors and norms necessary to implement them. The Steering Committee has decided to make environmental impacts of COVID19 a part of the conference. See the Topics list below. Because of the postponement, a new call for submissions has been opened. Already accepted abstracts and submitted papers will be kept valid for the new conference dates.

### Conference topics

• Health and Well-being: Appropriate technical and operational definitions • Performance Metrics: For all aspects of IEQ • Interactions: Interactions between IEQ parameters • Occupant Behavior: How behavior impacts IEQ and how IEQ impacts behavior - psychological dimensions of IEQ • Smart Sensors and Big Data: Sensor properties, data management, cybersecurity, applications • Smart Controls: Equipment properties, commissioning, equivalence • Resilience and IEQ: Responding to climate change and disasters • Ventilation: Mechanical, passive, natural and hybrid systems • Air Tightness: Trends, methods and impacts • Thermal Comfort: Dynamic approaches, health impacts and trends • Policy and Standards: Trends, impacts, implications • Role of ventilation and building airtightness in epidemic preparedness-NEW • Filtration and disinfection options to control COVID19-NEW • Face-covering impacts on indoor air quality-NEW • HVAC and IEQ in a post-COVID world-NEW

### Call for new abstracts & papers

• Submission of new abstract: December 21, 2020 • Notification of decision of abstract: February 15, 2021 • Submission of complete manuscript: April 19, 2021 • Final paper acceptance: June 14, 2021.

For more information, please visit:

<https://www.ashrae.org/conferences/topical-conferences/indoor-environmental-quality-performance-approaches>

or contact: [hblauridson@ashrae.org](mailto:hblauridson@ashrae.org)

In line with the European General Data Protection Regulation, you can verify and modify the data we keep in our database for mailing as well unsubscribe. See <http://subscriptions.inive.org/>



## Foreword

The venticool platform was inaugurated in September 2012 to increase awareness on ventilative cooling and to foster exchanges in the field. From 2013 to 2019, venticool was the main communication and dissemination partner of IEA-EBC Annex 62 Ventilative Cooling and hosted the combined venticool-EBC annex 62 website. Following the official launch of the working phase of IEA EBC Annex 80 Resilient cooling of buildings in June 2019, venticool decided to broaden its scope in line with this new annex. An agreement was reached with the Annex 80 participants to implement an Annex 80 section on the venticool website, in addition to the Annex 62 dedicated section. Venticool aims to play a major role in the ventilative and resilient cooling community with respect to the dissemination of information, either with its conferences, workshops & webinars, or with the material available on its website.

Please visit our [website](#), follow us on [twitter](#) and [LinkedIn](#) and subscribe to our monthly newspaper "Energy Efficiency and Indoor Climate in Buildings" to find out more about our activities. We wish you a pleasant reading!

The venticool team

@venticool

## Postponement of 41<sup>st</sup> AIVC - ASHRAE IAQ - 9<sup>th</sup> TightVent & 7<sup>th</sup> venticool joint conference in Athens, Greece

ASHRAE and AIVC, decided to postpone the IAQ 2020 Conference. It will be rescheduled in 2021 as a face-to-face conference in Athens, Greece. At this time, the 31 May deadline for submitting papers is suspended.

The decision to postpone the conference was made in large part by the results of the survey completed by some 170 authors: – a majority (53%) said they are 'unsupportive' of attending the September 2020 conference in Athens and –77% said they are 'supportive' of postponing the conference until next year.

The Steering Committee will be meeting in the next two weeks to determine the new date for the postponed conference and to develop a revised planning schedule for the papers. Stay tuned!

The conference "IAQ 2020: Indoor Environmental Quality Performance Approaches Transitioning from IAQ to IEQ", organized by ASHRAE and AIVC will take place in 2021 in Athens, Greece. The conference will also be the 9<sup>th</sup> TightVent and 7<sup>th</sup> venticool conference.

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- > IEA EBC Annex 80 Resilient Cooling for Buildings proceedings from the second Expert Meeting
- > Selected papers from the AIVC – TightVent- venticool 2019 Conference published at the April 2020 edition of the REHVA Journal
- > The REHVA & IEQ-GA Covid-19 taskforces
- > Recordings & Slides from the webinar on Ventilative Cooling Design and Examples
- > AIVC Literature List 34 on "Ventilative Cooling"
- > IEA EBC annex 86 "Energy Efficient Smart IAQ Management for residential buildings"





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## Focus Fields & Projects

This section includes information on AIVC's main focus fields and projects. Click on the links below to know more.



[Smart Ventilation](#)



[Resilient Ventilative Cooling](#)



[Building & Ductwork airtightness](#)



[Indoor Environmental Quality](#)



[AIVC Projects](#)



## 40 Years of AIVC

Duration: 2018-2021

Status: On-going

This project deals with reviewing EBC's Annex 5: "Air Infiltration and Ventilation Centre" activities & contributions on the occasion of the project's 40th year of operation.



## Smart Ventilation

Duration: 2017-2018

Status: Completed

The trend to increasingly complex ventilation controls (particularly for residences) is leading to r



## Rationale behind ventilation requirements and regulations

Duration: 2016-2021

Status: On-going

Internationally there are many different requirements and regulations for ventilation. Sometim



## Indoor Air Quality-IAQ metrics

Duration: 2017-2021

Status: On-going

There have been many new sensors introduced on the market claiming that they can perform accurate measurements of Indoor Air Quality.



## Integrating uncertainties due to wind and stack effect in declared airtightness results

Duration: 2017-2021

Status: On-going

Building airtightness tests have become very common in several countries, either to comply with minimum requirements of regulations or programmes, or to justify input values in calculation methods.



AIVC Projects

# New AIVC project: COVID-19 and ventilation



## Editorial

We hope you are keeping safe and healthy during this challenging period. The COVID-19 pandemic has an unprecedented impact on all of us, both personally and professionally. As researchers and practitioners we also have a role to play in developing solutions to provide healthy indoor spaces to reduce disease transmission, and in informing the public. Based on developing scientific knowledge it has become clear that, although close contact transmission is the dominant transmission route, long-range airborne transmission through small size infected aerosols plays an important role in spreading COVID-19 in indoor spaces. As a consequence, increasing outdoor air change rates, or applying other technical measures to remove infected aerosols are necessary to avoid infection indoors.

The AIVC board decided in their last (online) meeting of September 2020 to start a project to collect, discuss and disseminate information about COVID-19 in relation to ventilation and airtightness. A working group was created to define the activities and outputs of the project with the title 'Ventilation, airtightness and COVID-19'. The working group members are listed at the last page of this newsletter.

This newsletter is a first outcome of the project. It presents a number of questions and answers developed and reviewed by working group members. The collection of relevant questions and the development of clear answers in line with most recent scientific understanding is a continuing process, to which we also invite you, as a reader, to participate. Let us know if you have a question that the working group should look into. This way we hope to expand the FAQ-section, also on the AIVC-website. Many other international organizations in the domain of HVAC, health care or prevention have developed information and guidance documents to support decision makers and public about the COVID-19 pandemic. This newsletter therefore contains an overview of frequently asked questions in relation to COVID-19 and building ventilation, developed by a number of those organizations. The ventilation related guidelines by REHVA and ASHRAE will receive specific attention during the upcoming AIVC webinar, to be held on November 20th, 2020. This webinar is a second outcome of the project, and is announced in more detail in this newsletter and on the AIVC website. We wish you a pleasant reading and look forward to seeing you in our future events.

Arnold Janssens, chair of AIVC Working Group on COVID-19



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## 20 November 2020 (16:00-17:30 CET) – AIVC Webinar – COVID-19 Ventilation related guidance by ASHRAE and REHVA

Ventilation is recognized as a major element in strategies for minimizing the risk of COVID infection. REHVA and ASHRAE have developed guidelines, insisting on existing evidence of long-range aerosol-based transmission and emphasizing the importance of ventilation.

The Air Infiltration and Ventilation Centre with support from ASHRAE and REHVA are organizing the webinar "COVID-19 Ventilation related guidance by ASHRAE and REHVA" to be held on Friday November 20th, 2020 at 16:00-17:30 (CET).

The webinar will present the COVID-19 related guidelines by REHVA and ASHRAE and will also have a closer look to the similarities and differences in both guidelines.

### Presentations and Speakers

- Introduction, *Arnold Janssens, chair of AIVC WG COVID-19*
- REHVA guidance regarding ventilation, *Jarek. Kurnitski – chair of REHVA COVID-19 task force*
- ASHRAE guidance regarding ventilation, *William P. Bahnfleth, chair of ASHRAE's Epidemic task force*
- Similarities and differences between REHVA's & ASHRAE's guidance, *Valérie Leprince, member AIVC COVID-19 working group & ASHRAE's Epidemic task forces*

Participation to the webinar is FREE but requires you to REGISTER for the event. For further information please visit our website.

## Call to readers

The AIVC's COVID-19 Working Group members researched and provided responses to the frequently asked questions (FAQ), in this special issue.

Have a question for the FAQ? Email us at [info@aivc.org](mailto:info@aivc.org)

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# Collaboration with other IEA EBC Annexes

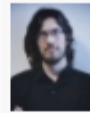
- Operating Agents of several IEA EBC Annexes are member of the board.
- AIVC can play a role in the identification of possible annexes, programme development.
- AIVC is also actively involved in dissemination activities (conferences, workshops, webinars, publications)

## AIVC Board Composition

### Representatives of organisations



Peter Holzer - IEA EBC Annex 80  
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Jaap Hogeling - REHVA  
REHVA



Jan Hensen - IBPSA  
IBPSA



Ben Hughes - International Journal of Ventilation  
AIVC



Don Weekes - IEQ-GA  
IEQ-GA







## The mission of IEQ-GA

To provide an acceptable indoor environmental quality (thermal environment-indoor air quality-lighting-acoustic) to occupants in buildings and places of work around the world and to make sure the knowledge from research on IEQ get to be implemented in practice

**AIVC is one of the founding members**



# AIVC future?



AIVC



AIVC Countries



AIVC Board



Collaborations

- The present activities are part of the operating period 2017-2021
- New operating period in preparation 2022-2026
- **Arnold Janssens** and **Peter Wouters** will be co-operating agents



Thank you for your  
attention!

