

Foreword

Welcome to the June 2022 issue of the venticool newsletter. In this edition we present some of the highlights of the 7th venticool conference (in combination with AIVC & TightVent), held on 4-6 May 2022 in Athens. You will also be informed on the April 2022 expert meeting of the IEA EBC annex 80 on resilient cooling of buildings as well as the 5th meeting of the Advisory Board of Practitioners, an initiative of Annex 80 - venticool & AIVC.

Also don't forget to mark your agenda for the following upcoming major events:

- venticool/AIVC – Annex 80 – Active House webinar “Dumb buildings with smart users? - *The impact of users on the building performance & human wellbeing*” – 15 November, 2022 (15:30-17:00 CET)
- 42nd AIVC - 10th TightVent - 8th venticool conference on October 5-6, 2022, in Rotterdam, the Netherlands
- venticool/AIVC & Annex 80 webinar “Case studies and policy recommendations” – 20 September, 2022 (15:00-16:15 CET)
- venticool/AIVC & Annex 80 webinar “Examples of resilient cooling solutions” - 13 September, 2022 (15:00-16:15 CET)

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

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Feedback from the 41st AIVC – ASHRAE IAQ joint Conference – Summary of the topical session on ventilative cooling

The 41st AIVC – ASHRAE IAQ joint Conference, co-organized by ASHRAE & AIVC, was held on 4-6 May 2022 in Athens. The event drew around 185 participants (in person and remotely) – academic researchers, engineering and consulting firms, industry representatives, people involved in standardisation, policy makers, manufacturers & stakeholders and international organizations.

During the event, the topical session “**Ventilative Cooling to Reduce Overheating in Buildings to Achieve Good Well-Being: Framing, New Design Approaches and Cases - It Works!**” organized by Christoffer Plesner (VELUX, DK) & Jannick Roth (WindowMaster, DK) took place. The session included 7 presentations by international experts and focused on ventilative cooling and its importance and showed documented case studies. New developments were revealed such as the implementation of ventilative cooling in international standards, findings of recently finished research projects, etc. Furthermore, the workshop highlighted the aspects to be aware of to get a well-performing ventilative cooling system and some recommendations going along with this.

The article available [here](#) provides a summary of the trends, ideas, considerations and conclusions that emerged from the topical session.

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5 -6 October 2022 –8th venticool- 42nd AIVC - 10th TightVent conference in Rotterdam, Netherlands

The 8th venticool conference: "Ventilation Challenges in a Changing World" will be held in Rotterdam, the Netherlands together with the 42nd AIVC and the 10th TightVent conferences on October 5-6, 2022. More than ever in the past, climate change and the transition to carbon neutrality are at the center of many countries' policies and research programs. The building sector plays a crucial role in achieving these goals, considering the carbon emissions attributed to buildings' construction and operation, and its potential for better energy performance. At the same time the COVID-19 crisis has emphasized the need to improve indoor air quality (IAQ) and ventilation in our buildings to reduce the risks of airborne virus transmission. All these challenges require a transformation of the existing building stock that at the same time achieves better IAQ and lowers environmental impact. In 2022 the Air Infiltration and Ventilation Centre organizes its first international conference since the beginning of the COVID-19 crisis. Therefore, the conference organizers want to pay specific attention to the role of ventilation and infiltration in building decarbonization, and improvement of indoor air quality including epidemic preparedness. How can design, construction and renovation practices, innovative and digital technologies help in today's challenges?

Conference Topics

Smart ventilation, IAQ and health:

- o Role of ventilation in building decarbonization and epidemic preparedness
- o Ventilation reliability: performance verification and durability
- o IAQ impacts from outdoor pollutants, indoor cooking and combustion
- o Combining ventilation and air

- cleaning for acceptable IAQ
- o The role of consumer IAQ sensors
- o Model based data analytics and control strategies for smart ventilation
- o Building Information Modelling (BIM), Life Cycle Assessment (LCA) and ventilation systems

Building and ductwork airtightness

- o Role of airtightness in building decarbonization and epidemic preparedness
- o Energy and IAQ impact of envelope and ductwork leakage
- o Innovative measurement and airtightness techniques
- o Compliance schemes
- o Long-term performance: durability of airtightness

Ventilative cooling - Resilient cooling

- o Role of ventilative and resilient cooling in building decarbonization and epidemic preparedness
- o Ventilative and resilient cooling in a changing climate
- o Implementation in standards, legislation and compliance tools
- o Control strategies and personal comfort control

Specific topical sessions focusing on ventilative cooling - resilient cooling include:

- o Ventilative cooling in urban environment
- o Ventilative cooling to reduce overheating in buildings in ventilation related standards and legislation in the context of well-being, sustainability and energy
- o EBC Annex 80: Resilient cooling of buildings

For more information, please visit the conference website at:

<https://aivc2022conference.org/>

Save the dates for the upcoming venticool webinars (in collaboration with Annex 80 & AIVC)

Well-insulated and air-tight buildings are known to be vulnerable to overheating. An increase in the severity and duration of heatwaves is expected, resulting in more severe

overheating risks, affecting on their turn the health and mortality of building users. To achieve more future-proof buildings, it is crucial to design buildings that are "resilient" to overheating in future climate conditions.

It is the motivation of IEA EBC Annex 80 "Resilient Cooling of Buildings" to develop, assess and communicate active and passive solutions of resilient cooling and overheating protection. Resilience was defined and indicators were developed to assess the resilience of cooling technologies in subtask A "Fundamentals". Moreover, shocks like heatwaves, were defined for all climate zones around the world. Subtask B "Solutions" systematically assessed the benefits, limitations, and performance indicators of resilient cooling solutions. In addition, specific R&D towards new developments and improvements of resilient cooling and overheating protection solutions was carried out. Subtask C "Field Studies" showed the opportunities and benefits of resilient cooling through the analysis and evaluation of well-documented applications. Finally, subtask D "Policy Actions" dealt with policy related endeavors, promoting energy efficiency and resilience in cooling. This series of 4 webinars will present the results of IEA EBC Annex 80 on:

- Indicators to assess resilience of cooling in buildings [Completed – [Recordings available](#)]
- Future weather data and heatwaves [Completed – [Recordings available](#)]
- **Examples of resilient cooling solutions** [September 13th, 2022 – 15:00-16:15 CET]
- **Case studies and policy recommendations** [September 20th, 2022 – 15:00-16:15 CET]

This series of webinars is organized by [INIVE EEIG](#) with the support of the IEA [EBC Annex 80](#) Resilient Cooling of Buildings and the [venticool](#) platform, and in cooperation with the [Air Infiltration and Ventilation Centre](#).



IEA EBC Annex 80 6th Expert Meeting in Copenhagen

IEA EBC Annex 80 Resilient Cooling of Buildings - Proceedings from the 6th Expert Meeting

Philip Stern, Institute of Building Research & Innovation, Austria

The IEA EBC Annex 80 held its sixth Expert Meeting on 25-26 April, 2022 at Aalborg University in Copenhagen. 21 participants from 7 countries attended the meeting in person. The meeting was held as a hybrid meeting.

Results

Annex 80 enters its reporting phase this June. However, key tasks such as the technology assessment in the simulation task group and field study evaluations are still ongoing. These tasks will be finished before the next Expert Meeting in October 2022. The reporting of the composition of technology profiles and recommendations for policy actions, start as planned and will be carried out simultaneously.

The generation of weather data files for present and future time periods (2010s, 2050s, 2090s) as well as for the longest, most intense, and severest heatwave events in these periods have been completed. Typical meteorological year (TMY) files for several cities of different climate zones for building simulations will be available for download on the EBC Annex 80 website once their publication in Nature as “Data Descriptor” has been accepted. The development of a definition on long term Key Performance Indicators (KPI)s has been in the focus of the

annex 80 working group since the beginning of the working phase and consensus has been widely reached. However, for short term events such KPIs and boundary conditions have not been defined yet. It has been agreed that in terms of extreme events, such as extreme heat waves, evaluation shall be carried out regarding “thermal safety” rather than “thermal comfort”. The scale and duration for the evaluation of such disruptive events has yet to be decided. It has been advocated that evaluations should consider heatwaves and concurrent power outages.

Dissemination

Members of the annex actively contributed to the CLIMA 2022 conference in Rotterdam last month, were present at the AIVC conference in Athens and will participate in numerous upcoming gatherings like the AIVC conference in Rotterdam as well as the COBEE conference in Montreal.

During the month of May 2022, Annex 80 together with AIVC, venticool and INIVE held two webinars on “Indicators to assess resilience of cooling in buildings” and “Future weather data and heatwaves” for the general interested public. The meetings were well attended and the feedback received very positive. This series of webinars will continue on September 13th with “Case studies and policy recommendations” and September 20th with “Examples of resilient cooling solutions”.

On 20-21 October, 2022 Annex 80 members will meet again for their 7th Expert Meeting. It will take place in Florianopolis, Brazil.

For further Annex 80 related information please refer to Philipp Stern at: philipp.stern@building-research.at.

Feedback from the 5th meeting of the Advisory Board of Practitioners for Annex 80 & venticool & AIVC

Philip Stern, Institute of Building Research & Innovation, Austria

On March 30th, Annex 80 scientists, practitioners, and planners as well as representatives from the building cooling associated industry gathered for the 5th meeting of the Advisory Board of Practitioners. This board, an initiative of Annex 80, AIVC and venticool, was founded to put results of scientific research into action by establishing strong ties to practitioners and to include their practical experience in future research projects.

17 participants attended the meeting which dealt with the topic of “Advances of Cooling Technologies (part 1)”. After two short impulse presentations on “Innovations in Radiant Heating and Cooling Systems: Use of Phase Change Materials (PCM)” by Dragos-Ioan Bogatu – DTU and “Personalized Environmental Control Systems (PECS)” by Ongun Berk Kazanci – DTU, participants discussed questions and statements in smaller groups of 4-6 persons. The outcomes of these break-out sessions were then presented and summarised in the plenary session. During the break-out sessions, questions such as the following were discussed:

- Do you have personal experience with radiant cooling?
- Do you have personal experience with PECS?
- Thinking of resiliency, which of the following technologies would you consider more resilient to heat waves, why?
- Do you think the relevance of these technologies will increase in the future?
- Which other new cooling technologies do you think will be important in the future?

All participants from the Board have experience with radiant cooling systems, while experience with PECS is limited. They concluded that both

technologies are efficient ways to ensure indoor environmental comfort. PECS have potential, but one of the barriers is investment costs. Another conclusion could also be that the implementation of PECS should remain simple, rather complementary than as substitute. If trying to solve too many issues with such systems, they are believed to become too complicated and difficult to use, leading to reverse effects.

The **next meeting** of the advisory board of practitioners will be held on **23 November 2022, 15:00-16:30 CET**. The focus will be on “Advances of cooling technologies” including examples of technologies to:

- Reduce heat loads to people and indoor environments
- Remove sensible heat from indoor environments

If you are interested to join the board, please contact Philipp Stern at philipp.stern@building-research.at.

Recordings from the venticool/AIVC & Annex 80 Webinars of May 2022

The recordings and the slides of the recent venticool/AIVC & Annex 80 Webinars "**Indicators to Assess Resilience of Cooling in Buildings**" held on May 10th & "**Future weather data and heatwaves**" held on May 31st are now available online!

The full collection of past events' recordings and slides can be found at: <https://www.aivc.org/events/webinars> as well as in [AIVC Literature List 36: Overview of Webinars in cooperation with venticool & TightVent platforms](#) [an overview of all webinars held since 2012, including information on each event with links to the online recordings and the pdfs to the presentations]. Check them out and subscribe to our [YouTube channel](#) to receive our latest video updates!

What is venticool?

venticool is the international ventilative cooling platform launched in October 2012 to accelerate the uptake of ventilative cooling by raising awareness, sharing experience and steering research and development efforts in the field of ventilative cooling. In 2020, venticool decided to broaden its scope towards resilient ventilative cooling.

The platform supports better guidance for the appropriate implementation of resilient ventilative cooling strategies as well as adequate credit for such strategies in building regulations. The platform philosophy is to pull resources together and to avoid duplicating efforts to maximize the impact of existing and new initiatives. venticool joins forces with international projects (in particular IEA EBC annexes 62 (ventilative cooling) and, more recently, annex 80 (Resilient cooling for buildings)) and organizations with significant experience and/or well identified in the field of ventilation and thermal comfort like AIVC (www.aivc.org) and REHVA (www.rehva.eu).

The platform has been initiated by INIVE EEIG with (International Network for Information on Ventilation and Energy Performance) with the financial and/or technical support of its partners.

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