



Foreword

Welcome to the December 2020 issue of the venticool newsletter! Despite the COVID-19 pandemic, we adapt to the situation and our work continues uninterrupted.

As many as 194 participants attended the webinar Resilient Ventilative Cooling in practice on December 9th. You'll find a short article on the webinar below. In this newsletter, we provide feedback on CEN & ISO standardization projects on Ventilative cooling and ventilation systems, updates on the November 2020 expert meeting of the IEA EBC annex 80 on resilient cooling as well as the new Dutch energy performance of buildings regulation - the NTA8800- coming into force in 2021. This newsletter also contains the final call for abstracts papers for the rescheduled 41st AIVC & 9th TightVent - ASHRAE IAQ joint conference IAQ 2021: Indoor Environmental Quality Performance Approaches Transitioning from IAQ to IEQ, which can hopefully take place physically in Athens, Greece in September next year. Submit an abstract before the December 21st deadline!

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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13 -15 September 2021 – 41st AIVC & 7th venticool -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", organized by ASHRAE and AIVC, 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 9th TightVent and 7th 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, 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). 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;

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- 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;
- Filtration and disinfection options to control COVID19;
- Face-covering impacts on indoor air quality;
- HVAC and IEQ in a post-COVID world

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

IEA EBC Annex 80 Resilient Cooling of Buildings proceedings from the third Expert Meeting

Philip Stern, Institute of Building Research & Innovation, Austria

The EBC Annex 80 held its third Expert Meeting on November 5th and 6th which also indicates half-time. Over 50 participants from 15

countries took part in three online sessions scheduled to take on the large time lag between the Americas, Europe, Asia and Australia.

Results. Several task groups have pushed the Annex 80 agenda since the last Expert Meeting in April. The weather data task group has recently held workshops to generate Typical Meteorological Years (TMY) as well as representations of heat wave events for future time periods (2050s, 2090s). 25 cities have been selected to cover each climate zone from the ASHRAE classification (ANSI/ASHRAE Standard 169). The generation of weather data sets is still in progress and will be finished by the end of the year. Together with the definition of thermal boundaries conditions, which is being carried out by another task group, led by Shady Attia and Mohamed Hamdy, the generated weather files form the basis for numerical technology assessments which will be carried out by the group of scientists in the second half of the annex's working phase. Furthermore, the first official Annex 80 deliverable, the State-of-the-Art Review (SOTAR) has been submitted for review to the EBC Executive Committee. It consists of an extensive review of the quality of resilience in cooling, a wide range of existing cooling technologies and the identification of future research and developing needs. It will be published in early 2021.

Board of Professionals. To put results of scientific research into action by establishing strong ties to practitioners is a declared goal of Annex 80. Therefore, the Operating Agent in cooperation with AIVC and venticool created a format for regular exchange between Annex 80 scientists, practitioners and planners as well as representatives from building cooling associated industry. Quarterly web meetings will be held to pool competences to advance low energy and low carbon cooling systems and to make them the mainstream and preferred solutions for cooling and overheating issues in buildings.

The first web meeting will be held on February 3rd at 15:00 (UTC) 2021. For

further details and registration please refer to Philipp Stern at philipp.stern@building-research.at

Lecture Series. During the course of Annex 80 a huge amount of knowledge is generated by its members through international collaboration and national research. Due to the current situation with solely remote Expert Meetings exchange and transfer of knowledge is limited. Therefore, the Annex 80 Lecture Series has been established to provide a platform for making this knowledge visible and easily accessible. The first lectures have already been held and proved to be beneficial for all participants. It is planned to make this lectures on resilient cooling publicly available in the upcoming second semester. On April 15th and 16th all Annex 80 members will meet again for their 4th Expert Meeting. As from present-day perspective it will again be held as remote meeting.

Developing resilient ventilative cooling for better comfort and energy savings in buildings

In line with the broadening of its scope towards resilient ventilative cooling (<https://venticool.eu/venticool-home/>), venticool has released its 2020 position paper "Developing resilient ventilative cooling for better comfort and energy savings in buildings".

The paper gives a brief overview of opportunities and challenges for ventilative cooling solutions both:

- To contribute to the 2050 objectives of the EU for a decarbonized building sector.
- To anticipate future heat waves and other shocks and thus limit the overheating risk, which is an increasing concern in low-energy buildings.

venticool partners believe policy makers and standard bodies should take steps together with the implementation of the EPBD recast to accelerate the uptake of this technology.

Feedback from the December 9th webinar on Resilient Ventilative Cooling in practice

venticool with support from the [IEA EBC Annex 80 Resilient Cooling of Buildings](#), the [IEA-EBC Annex 62 Ventilative Cooling](#) and in cooperation with the [Air Infiltration and Ventilation Centre](#) organized the webinar “Resilient Ventilative Cooling in practice” held on December 9th. The webinar presented solutions of ventilative cooling in practice in residential and non-residential buildings. 194 people from 36 countries attended the webinar.

Presentations and Speakers:

- Introduction to resilient ventilative cooling and venticool, *Hilde Breesch -KU Leuven, BE*
- Ventilative cooling components: An overview, *Peter Holzer – Operating Agent EBC Annex 80, Institute of Building Research & Innovation, AT*
- Application of louvres to support ventilative cooling, *Ivan Pollet – Renson, BE*
- Examples of air flow enhancing and natural cooling components, *Nick Hopper – Monodraught, UK*
- Controlled windows for ventilative cooling, *Peter Foldbjerg – Velux, DK*
- Ventilative cooling integrated design, *Jannick Roth – WindowMaster, DK*

For further information please visit: <https://venticool.eu/venticool-events/webinars/>

Update on standardization projects on Ventilative cooling and Ventilation systems in CEN and ISO

Christoffer Plesner, VELUX-Denmark & Jannick Roth, WindowMaster-Denmark

There has been an overall lack of ventilative cooling integration in existing European technical documents regarding “system design” and “performance” aspects, and therefore work relevant to

ventilative cooling applications started up in CEN/TC 156 and ISO/TC 205 in various working groups since 2017.

These CEN and ISO projects have the scope of making technical documents focusing on setting design aspects to achieve the set ventilation requirements for Ventilative cooling systems (natural, mechanical, hybrid) as well as Ventilation systems (natural, mechanical, hybrid). The target groups are both national committees and regulators/designers. The aim is that precise requirements for design are to be put in open templates to be filled in by the countries to ensure compliance with national legislation on e.g. ventilative cooling.

Ventilative cooling is an air system that cools a building using ventilation air from outside at its actual temperature and humidity. Air transfer may be by natural, mechanical or hybrid means. Generally ventilative cooling reduces the energy consumption of mechanical cooling systems while maintaining thermal comfort. Generally, there is good development in these projects, with a plan to coordinate among the working groups in CEN and ISO to eliminate overlaps, like for example on ventilation definitions and type of requirements.

The following projects relevant to ventilative cooling applications will be developed within 2-3 years in CEN:

- **"Ventilative cooling systems"** (covers both residential and non-residential buildings)
 - Main focus: Thermal comfort (reduce cooling loads and prevent overheating)
 - Document type: A CEN Technical specification (CEN/TS)
 - Work started up in WG/21 in CEN/TC 156
- **"Natural and Hybrid ventilation systems in non-residential buildings"**
 - Main focus: Indoor air quality
 - Document type: A CEN Technical specification
 - Work started up in WG/20 in CEN/TC 156
- **"Ventilation for buildings –**

Ventilation systems in residential buildings – Design"

-- Main focus: Indoor air quality
-- Document type: A CEN European EN standard (merging EN 15665 and CEN/TR 14788)
The aim is also to expand the sections on Natural and Hybrid ventilation systems by fully supporting the Performance based design methodology
-- Work started up in WG/2 in CEN/TC 156

And the following project will be developed within 2-3 years in ISO:

- **"Design process of natural ventilative cooling systems in interaction with mechanical cooling systems in non-residential buildings"**
 - Main focus: Thermal comfort (reduce cooling loads and prevent overheating)
 - Document type: ISO standard
 - It has been decided to update the scope to also include hybrid solutions (interaction of natural ventilative cooling and mechanical cooling systems)
 - Work started up in ISO/TC 205, WG/2, SC/2

These technical documents will describe design aspects to achieve the set ventilation requirements of ventilative cooling systems. The documents will likely include a simple to use design method to estimate the “Ventilative cooling potential” (IEA EBC Annex 62) [3] to thereby find the amount of time per year ventilative cooling could be used for the given project depending on building and location. This method will be updated with relevant equations from EN ISO 52016-1 (to include thermal mass) for full alignment across the CEN projects. The initiated projects are foreseen to be released hopefully in late 2023 and of course support but not overlap the content of the EPB(D) standards [1]. The technical documents are a good opportunity to define design aspects of ventilative cooling and natural and hybrid ventilation systems on the European and International scene by applying findings from the Venticool platform [2] and the final deliverables of the IEA EBC Annex 62 reports [3].

NTA8800 regulation in the Netherlands

Ivan Pollet, Renson, Belgium

From 2021, a new energy performance of buildings regulation, the so-called NTA8800, comes into force in the Netherlands. 4 indicators are used: BENG1 represents the energy demand, BENG2 the fossil primary energy consumption, BENG3 the fraction of renewable energy production and TOJuly is an overheating indicator (only in residential sector).

Instead of the designed ventilation system, a fixed standard ventilation system is supposed when calculating BENG1. In that way, the regulation stays technologically neutral by focusing on the envelope characteristics in BENG1. Energy efficient ventilation systems using sensor based demand control or heat recovery can be valorized via the BENG2 indicator.

Electricity driven HVAC installations are stimulated due to a low primary energy factor (PEF) of 1.45 to calculate the BENG2 indicator.

Passive as well as active cooling measures are taken into account. Active cooling is stimulated by the low PEF value and the absence of an overheating risk (TOJuly = 0) in houses when using active cooling. This means that passive cooling based on ventilative cooling or solar shading has theoretically no impact on the overheating risk in houses, in case of active cooling. When no active cooling is applied, passive cooling measures can considerably reduce the overheating risk. When a cooling demand is present, summer night ventilation based on operable windows has a positive effect on the following 2 indicators: the fossil primary energy consumption (BENG2) when active cooling is present and the overheating risk when no active cooling is present (TOJuly = 0). Several requirements are set on the devices for summer night ventilation: rain tight, insect proof and no risk on burglary. The application of louvres or the right location and design of operable windows is of importance to guarantee the correct use of night cooling and to maximize its effect on the indicators.

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. 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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Platform facilitator

To join venticool please visit: <https://venticool.eu/venticool-contact/>

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venticool
the platform for resilient ventilative cooling