



Foreword

To our pleasure, IEA EBC Annex 62 continues to build on activities in synergy with venticool. As illustration, IEA EBC Annex 62 accomplished a major milestone last November with the publication of the state-of-the-art review on ventilative cooling, now available on the venticool website. The Annex results were intensively discussed during the 36th AIVC-3rd venticool joint conference. Several annex participants gave significant contributions to activities run in collaboration with venticool such as the new webinar series on ventilative cooling in Energy Performance (EP) regulations or the 2nd QUALICHeCK Workshop to be held in March 2016. Finally, venticool's overview paper on 8 European countries as well as our feedback to the Energy Performance of Buildings Directive (EPBD) review benefited from valuable input of several Annex 62 researchers.

We are also very happy to announce that the CIBSE Natural Ventilation Group has now joined venticool as associate partner.

We hope this newsletter will give you a good overview of our collaborations, achievements and future work.

The venticool team



venticool new paper: “Overview of provisions for ventilative cooling within 8 European building energy performance regulations”

The venticool platform paper: “Overview of provisions for ventilative cooling within 8 European building energy performance regulations” is now available online. This study focusses on regulatory measures taken or missing regarding ventilative cooling in several countries, which could either inspire developments in other countries or point out specific problems for the market uptake of this technology. The paper is now available to download at:
<http://venticool.eu/annex-62-publications/>

Webinar series on "Assessing ventilative cooling potential in Energy Performance regulations"

venticool has initiated a new webinar series on ventilative cooling in cooperation with AIVC, EBC IEA Annex 62, INIVE, and QUALICHeCK. The principal objective of this webinar series is to give the status, needs, and perspectives on developments to consider ventilative cooling in energy performance assessment methods in several countries.

Two webinars were held in December 2015 with contributions from Austria, Belgium, Denmark, Estonia, France and Greece. The recordings will soon be available on the venticool website. Additional webinars on this topic will soon be announced so stay tuned at:
<http://venticool.eu/>.

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Summary of the ventilative cooling track of the 36th AIVC conference in Madrid, September 2015

by Maria Kolokotroni, Brunel University, UK

The joint 36th AIVC, 5th TightVent and 3rd venticool Conference on 'Effective ventilation in high performance buildings' was held in Madrid, Spain 23-24 September 2015. The programme consisted of plenary sessions and 3 parallel tracks on Airtightness, IAQ & Health, and Ventilative Cooling with more than 120 presentations from 27 countries and international organisations. In the plenary session of the conference, Per Heiselberg presented a mapping of active ventilation projects within the IEA EBC programme (Figure 1) and focussed on those addressing specifically ventilative cooling; he highlighted that:

- Few projects on specific technology as we focus on whole systems/ building performance;
- Most on-going IEA-EBC projects provide new knowledge relevant and valuable for the ventilation industry;
- There is a need for cooperation to harvest synergies between the projects;
- There is a need for coordination and dissemination of this knowledge;
- AIVC can (and should) play a key role in realizing the potential in cooperation with the projects.

The ventilative cooling track of the conference consisted of five sessions with 20 papers and one poster session with 15 papers. This article summarizes the presentations and attempts to group them according to Technology Readiness Levels (TRL) - Figure 2.

1.Low TRL: 11 papers were presented on performance assessment of concept and design of

strategy/component through simulation. The papers presented focus on schools, residential buildings and offices in a variety of climates and examine the impact of ventilation strategies on energy use and thermal comfort as well as IAQ. A common thread is that each design is different indicating that we might need standardised strategies although many will argue that this is not possible or even desired. Standardised assessment tools is another option since in many cases only boundary conditions are different – ie external conditions (weather data) and internal conditions (use of space).

2.Mid TRL: 10 papers presented performance assessment of prototype through laboratory experiments and/or simulation. These papers presented testing with plans for installations for a variety of components such as thermal mass and phase change materials combined with ventilation, trigeneration systems, electrothermal actuators, heat

pumps and solar systems in combination with ventilation strategies.

3.High TRL - 10 papers presented performance verification with data from operational buildings. Case-studies included a variety of buildings types such as residential buildings, offices, schools/lecture rooms, large spaces and supermarkets. A common thread was that currently measurements do not usually include ventilation/air flow but parameters related to environmental and thermal comfort performance (temperature, humidity, CO2, energy use, occupants' assessment, costs – capital and operational).

In addition, four papers focussed on policy and feasibility studies for the application of ventilative cooling. These papers highlighted that intensive work is required towards more explicit reference to cooling using ventilation within the building energy performance regulations. Such recommendations is one of the focus of IEA EBC Annex 62.

No.	Annex title	Ventilation Strategies	IAQ	Ventilative Cooling	Airtightness	Energy Legislation	Peak Power Demand	Occupancy
69	Strategy and Practice of Adaptive Thermal Comfort in Low Energy Buildings			X		X	X	X
68	Design and Operational Strategies for High IAQ in Low Energy Buildings	X	X			X	X	X
67	Energy Flexible Buildings		X	X		X	X	X
66	Definition and Simulation of Occupant Behavior in Buildings	X		X		X		X
62	Ventilative Cooling	X		X		X	X	X
61	Business and Technical Concepts for Deep Energy Retrofit of Public Buildings	X		X	X			X
60	New Generation Computational Tools for Building & Community Energy Systems	X	X	X	X	X	X	X
59	High Temperature Cooling & Low Temperature Heating in Buildings			X				
5	AIVC	X	X	X	X	X	X	X

Figure 1: Active IEA EBC Annexes relating to ventilation

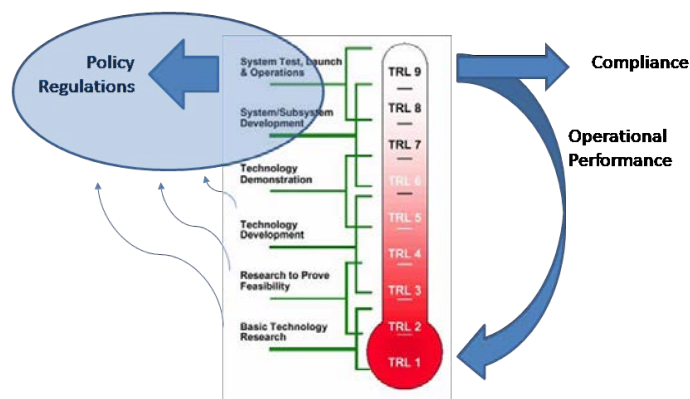


Figure 2: Technology Readiness Levels; adapted from: NASA Technology Readiness Levels

CIBSE Natural ventilation group (NVG) joins venticool as associate partner

venticool is very pleased to announce that CIBSE Natural Ventilation Group (NVG) has joined venticool as an associate partner.

CIBSE Natural ventilation group is an international group comprising some 30 committee members from industry and academia serving a wider membership of over 10,000. Its aims are fivefold:

- 1) to ensure natural ventilation is properly considered at the design stage equally with mechanical ventilation or air conditioning;
- 2) to disseminate knowledge via seminars, publications, and the internet;
- 3) to recommend research projects;
- 4) to be at the forefront of knowledge of the low energy, environmental, and economic performance of natural ventilation;
- 5) to work with consultants, contractors, manufacturers, and researchers in pursuing these aims.

If you are considering joining the exclusive partner club of venticool please contact us at: info@venticool.eu.

At the moment we have the following companies/organisations joining venticool:

Diamond partners:



Gold partners:



Associate partners:



IEA EBC Annex 62 releases new report on the state of the art in ventilative cooling

The Annex 62 report: "Ventilative Cooling. State-of-The-Art Review" is now available.

The report summarises the work of the initial working phase of IEA ECB Annex 62 Ventilative Cooling and is based on the findings in the participating countries. The report is an official Annex report that describes the state-of-the-art ventilative cooling potentials and limitations, its consideration in current energy performance regulations, available building components and control strategies and analysis methods and tools. In addition, the report provides twenty six examples of operational buildings using ventilative cooling ranging from domestic to offices and other non-domestic buildings such as schools and exhibition spaces and located in different outdoor climates. The report is available to download at: <http://venticool.eu/annex-62-publications/>

venticool contributes to the public consultation on the implementation of the Energy Performance of Buildings Directive (EPBD)

venticool has sent a contribution to the European Commission's consultation on the Energy performance of Buildings Directive. Based on the experience of its partners and the findings of the IEA EBC Annex 62, venticool has put forward some elements that should be taken into account when the European Commission analyses the implementation of the Directive. venticool's input to the EPBD review structured by answers to several questions of the questionnaire of the public consultation document is

available to read and download at: http://venticool.eu/wp-content/uploads/2015/11/venticool_EPBDreview_PositionPaper.pdf
The final synthesis report on the public consultation of the EPBD which is based on 308 contributions is now available at: <https://ec.europa.eu/energy/sites/ener/files/documents/MJ-02-15-954-EN-N.pdf>

IEA EBC Annex 62 "Ventilative cooling" met in Boston

24 experts attended the 4th annex meeting in Boston, on 12-13 October 2015.

The meeting focussed on the following objectives:

- Present and discuss research work performed since last expert meeting;
- Plan research work for the coming half year in all subtasks;
- Review and discussion on Annex deliverables (see list of deliverables foreseen at: <http://venticool.eu/annex-62-publications/>)

The 5th annex expert meeting will be held in Cork, Ireland on 18-19 April 2016.



Photos: IEA EBC Annex 62 – Ventilative Cooling – 4th Expert Meeting, 12-13 October 2015, Boston, USA

09-10 March 2016, Workshop, Athens – 2nd QUALICHeCK Workshop: Voluntary and regulatory frameworks to improve quality and compliance of solar control, cool roofs and ventilative cooling

The 2nd QUALICHeCK Workshop will take place in Athens, Greece, on 9-10 March 2016, and will focus on sustainable summer comfort technologies.

Within the context of compliance and quality, topics to be covered include solar control, developments in cooling technologies and potential for advanced cooling, status on ventilative cooling, cool roofs and more.

In addition, summer comfort will be examined from the perspectives of energy, climate change and energy poverty.

Confirmed speakers include:

- Nikos Fintikakis (International Union of Architects)
- Per Heiselberg (Aalborg University)
- Margarita Karavasili (Citizens Inspectorate for Sustainable Development)
- José Molina (University of Seville)
- Mattheos Santamouris (University of Athens)
- Peter Wouters (Belgian Building Research Institute)

For further information on registration, programme etc., please visit the QUALICHeCK website at:
<http://qualicheck-platform.eu/>

CLIMA 2016 – Aalborg, Denmark

The 12th REHVA World Congress CLIMA 2016 will be a central event in 2016 for presentation of recent international research activities and their research achievement.

Many researchers from IEA and EU projects will present their latest research results and in workshops discuss findings and future directions. CLIMA 2016 will cover topics related to Building and HVAC Systems Design, Sustainable Energy for Buildings, Smart Building Operation and Management and Efficient HVAC Systems.

The congress will consist of a mixture of keynote, scientific and technical sessions as well as workshops, industry forums, student activities, technical tours and training courses. For more information please visit the congress website at:
<http://www.clima2016.org/>

New book on adaptive thermal comfort

The: "Adaptive Thermal Comfort: Foundations and Analysis" book covers all aspects of Adaptive Thermal Comfort; it is the second part of a three volume set. The first part of the current volume discusses the development of the adaptive approach to thermal comfort since the 1960s. It presents recent work in the field and suggests ways to develop and model it. The second part deals with the practical and theoretical problems encountered in field studies and their statistical analysis, while providing guidance to overcome these problems and draw valid conclusions. For further information please visit:
<https://goo.gl/6wUwrH>

What is ventilative cooling?

Ventilative cooling refers to the use of natural or mechanical ventilation strategies to cool indoor spaces. This effective use of outside air reduces the energy consumption of cooling systems while maintaining thermal comfort. The most common technique is the use of increased ventilation airflow rates and night ventilation, but other technologies may be considered as well. Ventilative cooling is relevant in a wide range of buildings and may even be critical to realize renovated or new NZEB.

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.

Disclaimer

Conclusions and opinions expressed in contributions to the venticool Newsletter represent the author(s)' own views and not necessarily those of venticool partners.

venticool

the international platform for ventilative cooling

