Reporting on the ventilative cooling workshop held October23, 2017, Brussels

International workshop on "ventilative cooling in buildings: now & in the future" was attended by 62 persons from 15 countries attended. This workshop aimed at discussing the implementation of ventilative cooling as well as its role to guarantee good thermal summer comfort in commercial, educational and residential buildings. The programme firmly built on the results of IEA-EBC Annex 62:

- The ventilative cooling potential excel tool that allows to assess the effectiveness of ventilative cooling solutions taking into account climate conditions, building envelope thermal properties, occupancy patterns, internal gains and ventilation needs
- A book with design guidelines derived by the expert group which should be under review in the next weeks
- An overview of the ability of national energy performance calculation methods to properly take into account ventilative cooling solutions
- An overview of solutions and technologies that can be implemented, including lessons learnt from 15 case studies analysed within the project
- An analysis of relevant CEN and ISO standards and the identification of gaps to fill to increase the adoption of ventilation cooling solutions

The interaction with the audience after these presentations, reflected the interest and need for such tools. These tools will be gradually available on the venticool website. In the discussions, besides purely ventilative cooling solutions, appropriate solar shading was often mentioned as a pre-requisite. Several participants thought that Phase Change Materials (PCM) and personal comfort solutions (e.g., using micro-evaporators) could be major new elements influencing future design solutions. It was also acknowledged that, while ventilative cooling solutions can be effective on multiple aspects including comfort, energy use, power demand and costs, it also requires more work at design stage, possibly with dynamic simulations including airflow modelling, as well as more post-occupancy care, in particular to inform occupants. Several attendees also stressed the need to learn from user interaction and that "visible" automatic controls (e.g. window opening or solar shading controls) need to be understandable for user.

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Smart readiness indicator

There were debates about the objectives of the smart readiness indicator (https://smartreadinessindicator.eu/) to be included in the future Energy Performance of Buildings Directive. Since only its broad contours are defined at this stage, it is clearly too early to assess the relevance of a single indicator for the scope foreseen and how this could affect the uptake of ventilative cooling; however, in principle, accounting for electricity grid management and indoor climate would converge with the goal sought with ventilative cooling solutions.

Building Information Modelling (BIM)

The development of Building Information Modelling (BIM) could also be seen as an opportunity for ventilative cooling as it could ease thermal comfort evaluation and, thereby, encourage designers to look into efficient solutions to prevent overheating. Nevertheless, the structuring of the huge amount of data to be included in BIM objects to cover possible applications, could be a serious hurdle to make this happen in the near future.

The IEA-EBC project

This workshop was also the occasion to discuss a new IEA-EBC Annex proposal building on the findings of IEA Annex 62, but looking more broadly at the issues of smart overheating prevention and cooling in changing urban environments. The scope goes beyond the boundaries of the building, addressing also heat island mitigation and outdoor comfort, and includes active cooling as a complementary measure to passive techniques. The goal is to foster "resilient" cooling solutions, i.e., solutions that either maintain or adapt to maintain their function as outdoor temperatures rise without augmenting stress on the outdoor environment.

In summary, there is no doubt that overheating prevention and cooling will be high on political agendas with the effects of global warming, which we are just starting to experience. The workshop showed an alternative path to the generalisation of full mechanical cooling capacity implementation which would be both energy demanding and detrimental to urban heat island and the adoption of passive cooling techniques. The discussions further stressed challenges and opportunities for research and technology development on resilient cooling to fight and adapt to climate change, in a constantly evolving context of regulations and information technology. This could be the core theme of a new IEA-EBC project. ■

Post navigation

IEA EBC Annex 62- Ventilative Cooling- 8th Expert Meeting, Gent, Belgium, October 24-25, 2017.
http://venticool.eu/iea-ebc-annex-62-ventilative-cooling-8th-expert-meeting-gent-belgium-october-24-25-2017/

18-19 September 2018, Conference, Juan-les-Pins, France | 5th venticool – 39th AIVC – 7th TightVent Conference, 2018.
http://venticool.eu/18-19-september-2018-conference-juan-les-pins-france-5th-venticool-39th-aivc-7th-tightvent-conference-2018/