venticool
the international platform for ventilative cooling

IEA EBC
Annex 62
The IEA project
on ventilative cooling
EBC

Ventilative cooling - Industry view on quality and compliance issues

1st international QUALICHeCK Conference

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- Why ventilative cooling?
- Status of ventilative cooling
- How shall it succeed?

What is ventilative cooling?

- Ventilative cooling refers to the use of natural or mechanical ventilation strategies to cool indoor spaces by means of outdoor air.
- Ventilative cooling is relevant in a wide range of buildings and may even be critical to realize renovated or new NZEB.

- Ventilative cooling solutions shall range from simple window openings to sophisticated systems depending on actual
  - Climate
  - Security
  - Pollution outdoor
  - Noise outdoor
  - Insects
- One size will not fit all!

WHY ventilative cooling?

- Very well insulated
- Very airtight

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- Low heating demand
- Overheating

→

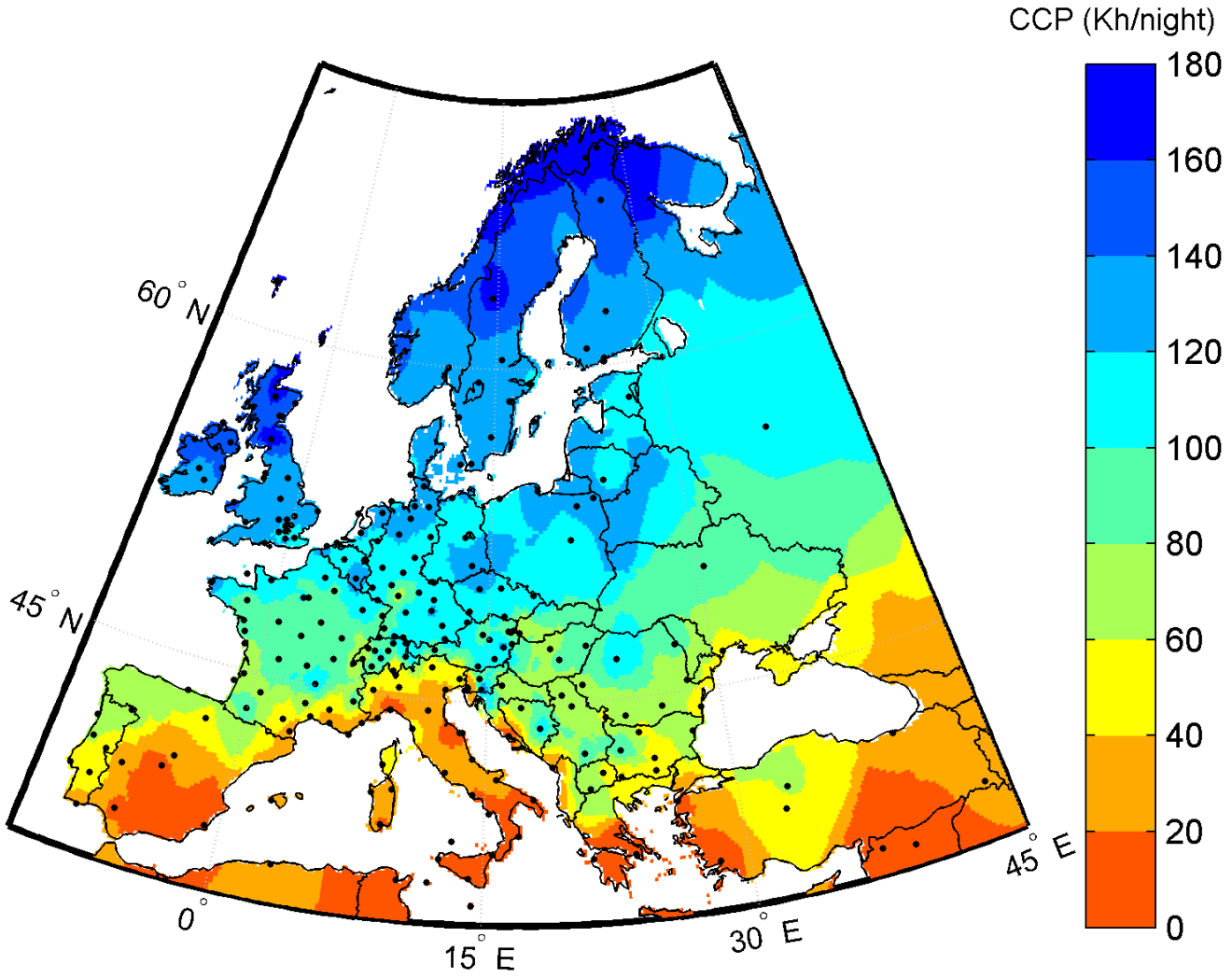
- Need for cooling

- **Air condition:**
- Air conditioners use about 5% of all the electricity produced in the US, at an annual cost of more than $11 billion to homeowners [*]
- Air conditioning units for post-mounting are available in any DIY store in Europe

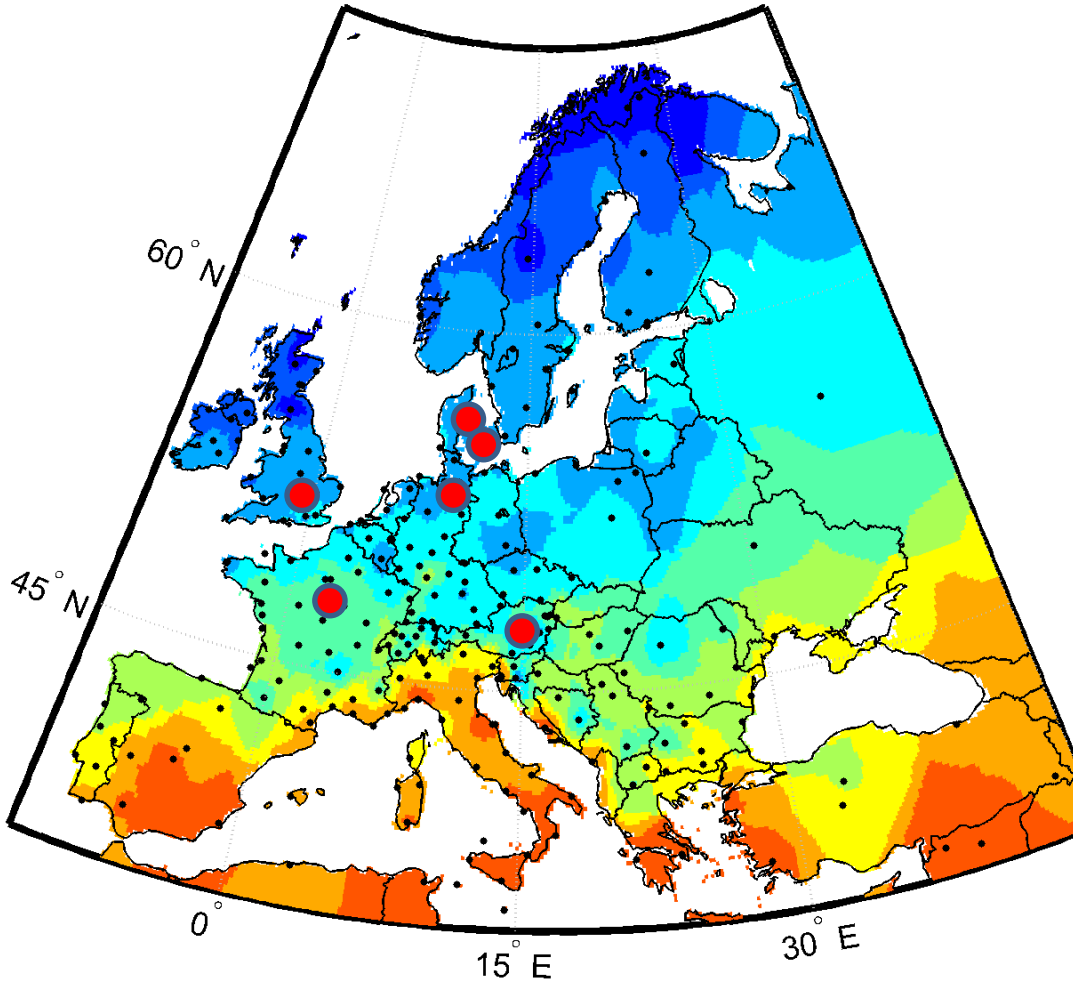
- **Ventilative cooling**
- Ventilative cooling is relevant during night time and - depending on climate - daytime. Ventilative cooling can eliminate or bring down significantly the need for mechanical cooling
- Ventilative cooling shall work together with other passive cooling techniques such as the thermal mass of the building and solar protection.

* U.S. Department of Energy, Washington DC. 2013. http://energy.gov/energysaver/articles/air-conditioning]

Climate cooling potential



For office buildings – non-adaptive thermal comfort [Artmann et al. 2007]



VELUX ModelHome

33-40% window-to-floor area ratio. All with specific use of ventilative cooling

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No overheating discovered during two years of monitoring

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No risk of post-mounting of air-conditioners

WHY ventilative cooling?

- EPBD requires focus on all-year performance – overheating issues (all year) will become critical for realising NZEB ambitions
- Energy renovation will increase overheating issues in the existing building stock
- Ventilative cooling is needed for Europe to realise the foreseen energy savings in buildings

Status of ventilative cooling

- Passive cooling used “always”
- Ventilative cooling is simple - but difficult to quantify with present compliance tools

Classical CATCH 22 – we need to break that

Regulations are the key!

How shall it succeed?

SOME HIGHLIGHTS

- *Venticool* – the international platform for ventilative cooling since 2012
- IEA EBC Annex 62, international research project on ventilative cooling, 2013-2017
- France, Denmark, Switzerland among countries who have started including VC in building regs and compliance tools.
- Improved CEN standards are under way (2016)
- More and more demonstrations of successful implementation of VC – and of “disasters” without!

How shall it succeed?

- AWARENESS
  - Among designers, regulators, standards writers, industry
- PRODUCTS
  - From simple systems to automated
- GUIDELINES
  - What to do in practice
- REGULATION
  - Better EN and national standards
  - Clear EPBD requirements
  - Better national building regulations
  - Better national compliance tools

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Industry

Eg REHVA/IEA/venticool

CEN

EU and MS Regulators

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Thank you for your attention

Further info and keep track on venticool.eu