

IEA EBC Annex 62 Ventilative Cooling

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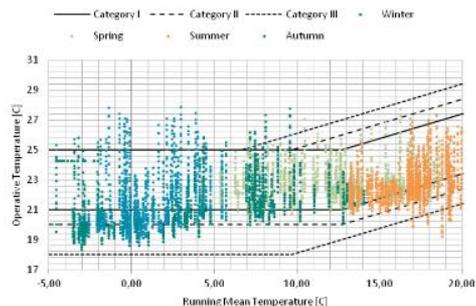
Background

Development towards nearly-zero energy buildings -> increased need for cooling all year

Elevated temperature levels = one of most reported problem in post-occupancy studies, in residences in “heating season”

large focus on reducing heating need in buildings

Need to address cooling need & develop energy-efficient cooling solutions



Ventilative cooling

Attractive & energy efficient passive solution to cool buildings & avoid overheating.

- Ventilation already present in most buildings through mechanical and/or natural systems
- Ventilative cooling: remove excess heat gains & increase air velocities -> widen thermal comfort range.
- cooling need not only in the summer period -> increased possibilities free cooling potential of low temperature outdoor air



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Annex Objectives

- To analyse, develop and evaluate suitable **methods and tools** for prediction of cooling need, ventilative cooling performance and risk of overheating in buildings that are suitable for design purposes
- To give guidelines for integration of ventilative cooling in **energy performance calculation** methods and regulations including specification and verification of key performance indicators
- To extend the boundaries of existing ventilation **solutions and their control strategies** and to develop recommendations for flexible and reliable ventilative cooling solutions that can create comfortable conditions under a wide range of climatic conditions
- To **demonstrate** the performance of ventilative cooling solutions through analysis and evaluation of well-documented case studies

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Annex Leadership

Participating countries

- Australia, Austria, Belgium, China, Denmark, Finland, Ireland, Italy, Japan, Netherlands, Norway, Portugal, Switzerland, UK, USA

Operating Agent:

- Denmark, represented by Per Heiselberg, Aalborg University

Subtask A:

- Leader: Switzerland, represented by Fountzoucos Flourentzou, ESTIA
- Co-leader: Italy, represented by Annamaria Belleri, EURAC

Subtask B:

- Leader: Austria, represented by Peter Holzer, IBRI
- Co-leader: Denmark, represented by Theofanis Psomas, AAU

Subtask C:

- Leader: China, represented by Guoqiang Zhang, Hunan University
- Co-leader: Ireland, represented by Paul O’Sullivan, CIT

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Deliverables

- **Project Summary Report**

- **Editors**

- Per Heiselberg, Denmark

- **Published June 2019**



<https://www.iea-ebc.org/projects/project?AnnexID=62>

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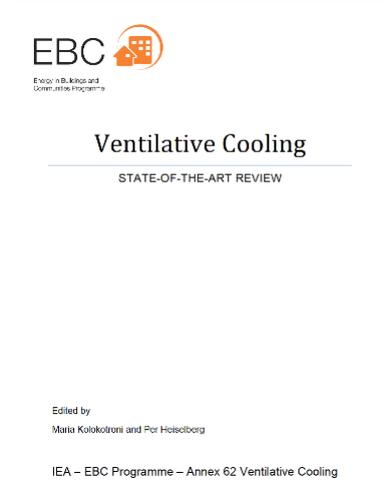
Deliverables

- State-of-the-art Report

- Editors

- Maria Kolokotroni, UK
- Per Heiselberg, Denmark

- Published in 2015



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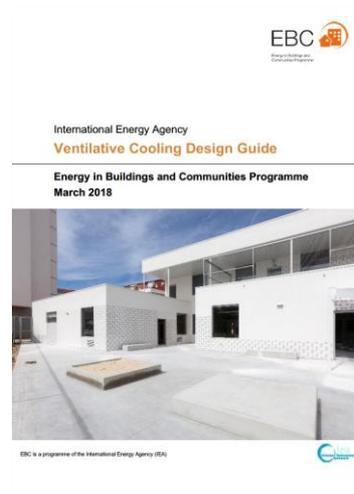
Deliverables

- Design Guide

- Editors

- Per Heiselberg, Denmark

- Published March 2018

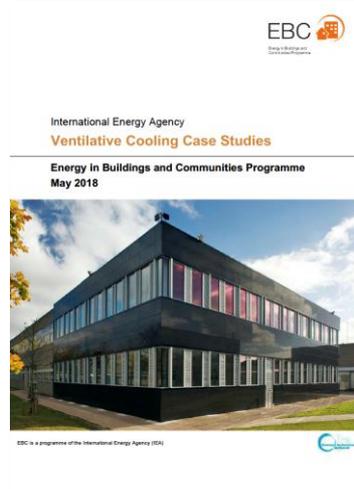


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Deliverables

- Book of Case Studies
 - Editors
 - Paul O’Sullivan, Ireland
 - GuoQiang Zhang, China
 - Published April 2018

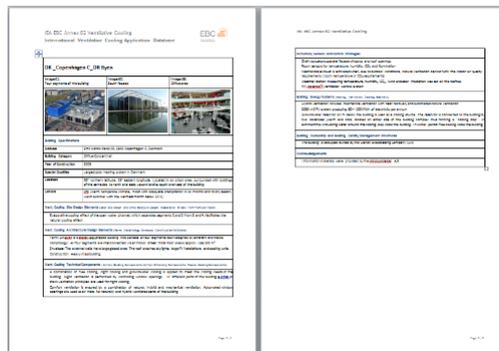


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Buildings & Systems Database

- 91 built examples from Europe



<https://venticool.eu/annex-62-publications/ventilative-cooling-application-database/>

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Deliverables

- Standards Recommendations
 - Editors
 - Karsten Duer, Christoffer Plesner, Denmark
 - Published September 2018

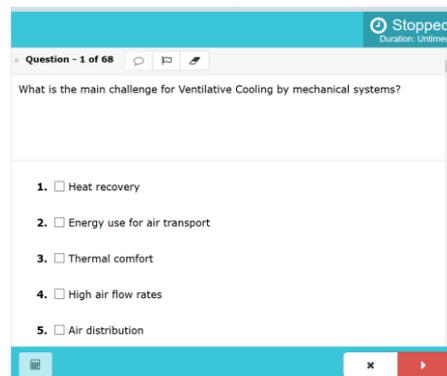


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Deliverables

- Online tutorial
 - Published in 2018



<https://venticool.eu/annex-62-publications/ventilative-cooling-tutorial/>

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