

# AIVC Literature List 37

## Overview of Webinars

*in cooperation with TightVent Europe and  
venticool platforms*

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**2012-2023**

**January 2024**



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Published by INIVE, int-Pietersnieuwstraat 41, B-9000 Ghent, Belgium.

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ISBN 978-2-930471-66-2

Participating countries in the EBC TCP: Australia, Austria, Belgium, Brazil, Canada, P.R. China, Czech Republic, Denmark, Finland, France, Germany, India, Ireland, Italy, Japan, Republic of Korea, the Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, Turkey, United Kingdom and the United States of America.

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### Editors

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# Preface

## The International Energy Agency

The International Energy Agency (IEA) was established in 1974 within the framework of the Organisation for Economic Co-operation and Development (OECD) to implement an international energy programme. A basic aim of the IEA is to foster international cooperation among the 30 IEA participating countries and to increase energy security through energy research, development and demonstration in the fields of technologies for energy efficiency and renewable energy sources.

## The IEA Energy in Buildings and Communities Programme

The IEA co-ordinates international energy research and development (R&D) activities through a comprehensive portfolio of Technology Collaboration Programmes (TCPs). The mission of the IEA Energy in Buildings and Communities (IEA EBC) TCP is to support the acceleration of the transformation of the built environment towards more energy efficient and sustainable buildings and communities, by the development and dissemination of knowledge, technologies and processes and other solutions through international collaborative research and open innovation. (Until 2013, the IEA EBC Programme was known as the IEA Energy Conservation in Buildings and Community Systems Programme, ECBCS.)

The high priority research themes in the EBC Strategic Plan 2019-2024 are based on research drivers, national programmes within the EBC participating countries, the Future Buildings Forum (FBF) Think Tank Workshop held in Singapore in October 2017 and a Strategy Planning Workshop held at the EBC Executive Committee Meeting in November 2017. The research themes represent a collective input of the Executive Committee members and Operating Agents to exploit technological and other opportunities to save energy in the buildings sector, and to remove technical obstacles to market penetration of new energy technologies, systems and processes. Future EBC collaborative research and innovation work should have its focus on these themes.

At the Strategy Planning Workshop in 2017, some 40 research themes were developed. From those 40 themes, 10 themes of special high priority have been extracted, taking into consideration a score that was given to each theme at the workshop. The 10 high priority themes can be separated in two types namely 'Objectives' and 'Means'. These two groups are distinguished for a better understanding of the different themes.

Objectives: The strategic objectives of the EBC TCP are as follows:

- reinforcing the technical and economic basis for refurbishment of existing buildings, including financing, engagement of stakeholders and promotion of co-benefits;
- improvement of planning, construction and management processes to reduce the performance gap between design stage assessments and real-world operation;
- the creation of 'low tech', robust and affordable technologies;
- the further development of energy efficient cooling in hot and humid, or dry climates, avoiding mechanical cooling if possible;– the creation of holistic solution sets for district level systems taking into account energy grids, overall performance, business models, engagement of stakeholders, and transport energy system implications.

Means: The strategic objectives of the EBC TCP will be achieved by the means listed below:

- the creation of tools for supporting design and construction through to operations and maintenance, including building energy standards and life cycle analysis (LCA);
- benefitting from 'living labs' to provide experience of and overcome barriers to adoption of energy efficiency measures;
- improving smart control of building services technical installations, including occupant and operator interfaces;
- addressing data issues in buildings, including non-intrusive and secure data collection;
- the development of building information modelling (BIM) as a game changer, from design and construction through to operations and maintenance.

The themes in both groups can be the subject for new Annexes, but what distinguishes them is that the 'objectives' themes are final goals or solutions (or part of) for an energy efficient built environment, while the 'means' themes are instruments or enablers to reach such a goal. These themes are explained in more detail in the EBC Strategic Plan 2019-2024.

## The Executive Committee

Overall control of the IEA EBC Programme is maintained by an Executive Committee, which not only monitors existing projects, but also identifies new strategic areas in which collaborative efforts may be beneficial. As the Programme is based on a contract with the IEA, the projects are legally established as Annexes to the IEA EBC Implementing Agreement. At the present time, the following projects have been initiated by the IEA EBC Executive Committee, with completed projects identified by (\*) and joint projects with the IEA Solar Heating and Cooling Technology Collaboration Programme by (☼):

Annex 1: Load Energy Determination of Buildings (\*)

Annex 2: Ekistics and Advanced Community Energy Systems (\*)

Annex 3: Energy Conservation in Residential Buildings (\*)

Annex 4: Glasgow Commercial Building Monitoring (\*)

Annex 5: Air Infiltration and Ventilation Centre

Annex 6: Energy Systems and Design of Communities (\*)

Annex 7: Local Government Energy Planning (\*)

Annex 8: Inhabitants Behaviour with Regard to Ventilation (\*)

Annex 9: Minimum Ventilation Rates (\*)

Annex 10: Building HVAC System Simulation (\*)

Annex 11: Energy Auditing (\*)

Annex 12: Windows and Fenestration (\*)

Annex 13: Energy Management in Hospitals (\*)

Annex 14: Condensation and Energy (\*)

Annex 15: Energy Efficiency in Schools (\*)

Annex 16: BEMS 1- User Interfaces and System Integration (\*)

Annex 17: BEMS 2- Evaluation and Emulation Techniques (\*)

Annex 18: Demand Controlled Ventilation Systems (\*)

Annex 19: Low Slope Roof Systems (\*)

Annex 20: Air Flow Patterns within Buildings (\*)

Annex 21: Thermal Modelling (\*)

Annex 22: Energy Efficient Communities (\*)

Annex 23: Multi Zone Air Flow Modelling (COMIS) (\*)

Annex 24: Heat, Air and Moisture Transfer in Envelopes (\*)

Annex 25: Real time HVAC Simulation (\*)

Annex 26: Energy Efficient Ventilation of Large Enclosures (\*)

Annex 27: Evaluation and Demonstration of Domestic Ventilation Systems (\*)

Annex 28: Low Energy Cooling Systems (\*)

Annex 29: ☼ Daylight in Buildings (\*)

Annex 30: Bringing Simulation to Application (\*)

Annex 31: Energy-Related Environmental Impact of Buildings (\*)

Annex 32: Integral Building Envelope Performance Assessment (\*)

Annex 33: Advanced Local Energy Planning (\*)

Annex 34: Computer-Aided Evaluation of HVAC System Performance (\*)

Annex 35: Design of Energy Efficient Hybrid Ventilation (HYBVENT) (\*)

Annex 36: Retrofitting of Educational Buildings (\*)

Annex 37: Low Exergy Systems for Heating and Cooling of Buildings (LowEx) (\*)

Annex 38: ☼ Solar Sustainable Housing (\*)

Annex 39: High Performance Insulation Systems (\*)

Annex 40: Building Commissioning to Improve Energy Performance (\*)

Annex 41: Whole Building Heat, Air and Moisture Response (MOIST-ENG) (\*)

Annex 42: The Simulation of Building-Integrated Fuel Cell and Other Cogeneration Systems (FC+COGEN-SIM) (\*)

Annex 43: ☼ Testing and Validation of Building Energy Simulation Tools (\*)

Annex 44: Integrating Environmentally Responsive Elements in Buildings (\*)

Annex 45: Energy Efficient Electric Lighting for Buildings (\*)

Annex 46: Holistic Assessment Tool-kit on Energy Efficient Retrofit Measures for Government Buildings (EnERGo) (\*)

Annex 47: Cost-Effective Commissioning for Existing and Low Energy Buildings (\*)

Annex 48: Heat Pumping and Reversible Air Conditioning (\*)

Annex 49: Low Exergy Systems for High Performance Buildings and Communities (\*)

Annex 50: Prefabricated Systems for Low Energy Renovation of Residential Buildings (\*)

Annex 51: Energy Efficient Communities (\*)

Annex 52: ☼ Towards Net Zero Energy Solar Buildings (\*)

Annex 53: Total Energy Use in Buildings: Analysis and Evaluation Methods (\*)

Annex 54: Integration of Micro-Generation and Related Energy Technologies in Buildings (\*)

Annex 55: Reliability of Energy Efficient Building Retrofitting - Probability Assessment of Performance and Cost (RAP-RETRO) (\*)

Annex 56: Cost Effective Energy and CO<sub>2</sub> Emissions Optimization in Building Renovation (\*)

Annex 57: Evaluation of Embodied Energy and CO<sub>2</sub> Equivalent Emissions for Building Construction (\*)

Annex 58: Reliable Building Energy Performance Characterisation Based on Full Scale Dynamic Measurements (\*)

Annex 59: High Temperature Cooling and Low Temperature Heating in Buildings (\*)

Annex 60: New Generation Computational Tools for Building and Community Energy Systems (\*)

Annex 61: Business and Technical Concepts for Deep Energy Retrofit of Public Buildings (\*)

Annex 62: Ventilative Cooling (\*)

Annex 63: Implementation of Energy Strategies in Communities (\*)

Annex 64: LowEx Communities - Optimised Performance of Energy Supply Systems with Exergy Principles (\*)

Annex 65: Long-Term Performance of Super-Insulating Materials in Building Components and Systems (\*)

Annex 66: Definition and Simulation of Occupant Behavior in Buildings (\*)

Annex 67: Energy Flexible Buildings (\*)

Annex 68: Indoor Air Quality Design and Control in Low Energy Residential Buildings (\*)

Annex 69: Strategy and Practice of Adaptive Thermal Comfort in Low Energy Buildings (\*)

Annex 70: Energy Epidemiology: Analysis of Real Building Energy Use at Scale

Annex 71: Building Energy Performance Assessment Based on In-situ Measurements (\*)

Annex 72: Assessing Life Cycle Related Environmental Impacts Caused by Buildings (\*)

Annex 73: Towards Net Zero Energy Resilient Public Communities (\*)

Annex 74: Competition and Living Lab Platform (\*)

Annex 75: Cost-effective Building Renovation at District Level Combining Energy Efficiency and Renewables (\*)

Annex 76: ☼ Deep Renovation of Historic Buildings Towards Lowest Possible Energy Demand and CO<sub>2</sub> Emissions (\*)

Annex 77: ☼ Integrated Solutions for Daylight and Electric Lighting (\*)

Annex 78: Supplementing Ventilation with Gas-phase Air Cleaning, Implementation and Energy Implications

Annex 79: Occupant-Centric Building Design and Operation

Annex 80: Resilient Cooling

Annex 81: Data-Driven Smart Buildings

Annex 82: Energy Flexible Buildings Towards Resilient Low Carbon Energy Systems

Annex 83: Positive Energy Districts

Annex 84: Demand Management of Buildings in Thermal Networks

Annex 85: Indirect Evaporative Cooling

Annex 86: Energy Efficient Indoor Air Quality Management in Residential Buildings

Annex 87: Energy and Indoor Environmental Quality Performance of Personalised Environmental Control Systems

Annex 88: Evaluation and Demonstration of Actual Energy Efficiency of Heat Pump Systems in Buildings

Annex 89: Ways to Implement Net-zero Whole Life Carbon Buildings

Annex 90: EBC Annex 90 / SHC Task 70 Low Carbon, High Comfort Integrated Lighting

Annex 91: Open BIM for Energy Efficient Buildings

Working Group - Energy Efficiency in Educational Buildings (\*)

Working Group - Indicators of Energy Efficiency in Cold Climate Buildings (\*)

Working Group - Annex 36 Extension: The Energy Concept Adviser (\*)

Working Group - HVAC Energy Calculation Methodologies for Non-residential Buildings (\*)

Working Group - Cities and Communities (\*)

Working Group – Building Energy Codes

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# Context

The [AIVC](#) (Air Infiltration and Ventilation Centre), [TightVent Europe](#) (the building and ductwork airtightness platform) and [venticool](#) (the platform for resilient ventilative cooling) have organised during the past 11 years 49 webinars around a wide range of topics. The main topics of the events held include:

- Ventilation & IAQ: smart ventilation, smart materials, ventilation control, IAQ metrics, kitchen ventilation, big data, inspection, COVID-19
- Building airtightness: durability, air leakage databases, building airtightness solutions, airtightness testing, impact of wind
- Ductwork airtightness: ductwork airtightness measurements, ductwork airtightness standardization/protocols
- Ventilative cooling: ventilative cooling design, ventilative cooling in EP regulations, resilient cooling, summer comfort

AIVC Literature List 37 is an overview of all webinars held since 2012, including information on each event with links to the online recordings and the pdfs to the presentations.

## Interaction with the TightVent platform

The TightVent Europe “Building and Ductwork Airtightness Platform” ([www.tightvent.eu](http://www.tightvent.eu)) was launched in January 2011. It aims at facilitating exchanges and progress on building and ductwork airtightness issues, including the production and dissemination of policy-oriented reference documents and the organization of conferences, workshops, webinars, etc. The target audience of the TightVent Europe activities ranges from the research community over designers, practitioners, supply industry to European, national and regional government policy makers. It includes policy makers, training centres, designers, engineers and builders, air leakage testers, local and national airtightness associations, research and technical centres.

Since 2011, TightVent Europe holds a joint annual conference together with the Air Infiltration and Ventilation Centre in September/October in one of the AIVC participating countries, with a track devoted to building and ductwork airtightness. Besides the publications and conferences TightVent Europe key activities include the organization of workshops and webinars. Some of the webinars are targeted at a specific region, some at the specific topic (e.g., sharing national experience on air leakage databases), some at training and some at industry.

TightVent Europe has been initiated by INIVE (International Network for Information on Ventilation and Energy Performance) with at present the financial and/or technical support of the following partners: Acin Instrumenten, BCCA, BlowerDoor GmbH, BUILD TEST SOLUTIONS, dooApp, Eurima, Gonal, Lindab, MEZ-TECHNIK, Retrotec, SIGA, Soudal, Buildings Performance Institute Europe and the Covenant of Mayors for Climate & Energy.

## Interaction with the venticool platform

venticool (<https://venticool.eu/>) 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. In 2020, venticool decided to broaden its scope towards resilient 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.

Since 2013, venticool holds a joint annual conference together with the Air Infiltration and Ventilation Centre in September/October in one of the AIVC participating countries, with a track devoted to ventilative cooling. Besides the publications and conferences venticool key activities include the organization of workshops and webinars. From 2012 to 2018, the platform had been the key partner in the communication and dissemination activities of IEA EBC Annex 62 “Ventilative Cooling”. Since 2018, venticool has been supporting the communication and dissemination activities of IEA EBC Annex 80 “Resilient cooling for buildings”. Since 2023, venticool has been supporting the communication and dissemination activities of IEA EBC Annex 87 “Energy and Indoor Environmental Quality Performance of Personalised Environmental Control Systems”. The platform facilitates the organization of meetings & topical sessions at workshops and AIVC-venticool joint conferences, as well as webinars.

venticool has been initiated by INIVE (International Network for Information on Ventilation and Energy Performance) with the financial and/or technical support of the following partners: Agoria-NAVENTA, Reynaers Aluminium, Velux, WindowMaster, Active House, CIBSE nvg, the Covenant of Mayors for Climate & Energy, Eurowindoor and REHVA.

# Ventilation & IAQ

## On the quest for indices defining Indoor Air Quality. What is a reasonable approach?

13 January 2017

### Presentation & Speaker

- On the quest for indices defining Indoor Air Quality. What is a reasonable approach? | *Pawel Wargocki, DTU, DK* | [Recordings](#), [Slides](#)

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## IAQ sensors for smart ventilation of buildings

6 March 2018

### Presentations & Speakers

- Evaluating particulate sensors for IAQ controls | *Iain Walker, LBNL, USA* | [Recordings](#), [Slides](#)
- Assessment of low-cost particulate and VOC sensors | *Laure Mouradian, CETIAT, FR* | [Recordings](#), [Slides](#)

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## Using Metal Oxide Semiconductor (MOS) sensors to measure Volatile Organic Compounds (VOC) for ventilation control

4 September 2018

### Presentations & Speakers

- Can the TVOC-sensors be used for ventilation control? | *Nadja Lynge Lyng, Danish Technological Institute (DTI), DK* | [Recordings](#), [Slides](#)
- MOS VOC sensors' properties and suitability for DCV control: analysis based on laboratory measurements | *Jakub Kolarik, DTU, DK* | [Recordings](#), [Slides](#)
- VOC vs. CO2 controlled DCV: A case study | *Jelle Laverge, Ghent University, BE* | [Recordings](#), [Slides](#)

A paper summarizing the presentations at the webinar is available here: <https://www.aivc.org/resource/metal-oxide-semiconductor-sensors-measure-volatile-organic-compounds-ventilation-control>.

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## New Perspectives on Kitchen Ventilation

23 May 2019

### Presentations & Speakers

- Assessing the health risks of exposure to cooking pollutants | *Benjamin Jones, University of Nottingham, UK* | [Recordings](#), [Slides](#)
- Evaluating cooker hood effectiveness | *Iain Walker, LBNL, USA* | [Recordings](#), [Slides](#)
- Empirical and theoretical investigations of fine particle emission from cooking | *Catherine O'Leary, University of Nottingham, UK* | [Recordings](#), [Slides](#)
- From range hood capture efficiency to human exposure | *Willem De Gids, VentGuide, NL* | [Recordings](#), [Slides](#)

## Urban Home Ventilation – Kitchen ventilation

6 May 2020

### Presentations & Speakers

- Documentation of cooker hood performance, a laboratory perspective | *Svein Ruud, RISE, SE* | [Recordings](#), [Slides](#)
  - Recirculating cooker hoods – possibilities and challenges | *Martin Oberhomburg, BSH, DE* | [Recordings](#), [Slides](#)
  - Experiences from assessing in-situ effectiveness of cooker hoods | *Iain Walker, LBNL, USA* | [Recordings](#), [Slides](#)
  - Extract cooker hoods – possibilities and challenges | *Håvard Augensen, Røros Metall, NO* | [Recordings](#), [Slides](#)
- 

## Urban Home Ventilation – Ventilation requirements, trends and thermal comfort

13 May 2020

### Presentations & Speakers

- Ventilation and IAQ in Nordic countries – Status, trends and opportunities | *Kari Thunshelle, SINTEF, NO* | [Recordings](#), [Slides](#)
  - A developer's perspective on urban home ventilation issues | *Ole Petter Haugen, Selvaag Bolig, NO* | [Recordings](#), [Slides](#)
  - Temperature Zoning in Highly-Insulated Buildings | *Laurent Georges, NTNU, NO* | [Recordings](#), [Slides](#)
- 

## Urban Home Ventilation – Moisture Control

19 May 2020

### Presentations & Speakers

- Strategies for avoiding too high or too low relative humidity in dwellings | *Sverre Holøs, SINTEF, NO* | [Recordings](#), [Slides](#)
  - Moisture buffering in modern timber constructions | *Dimitrios Kraniotis, OsloMet, NO* | [Recordings](#), [Slides](#)
  - Understanding moisture recovery in heat/energy recovery ventilation as the basis for new market solutions | *Peng Liu, SINTEF, NO* | [Recordings](#), [Slides](#)
- 

## COVID-19 Ventilation related guidance by ASHRAE and REHVA

20 November 2020

### Presentations & Speakers

- REHVA guidance regarding ventilation | *Jarek Kurnitski, REHVA, EE* | [Recordings](#), [Slides](#)
  - ASHRAE guidance regarding ventilation | *William P. Bahnfleth, ASHRAE, USA* | [Recordings](#), [Slides](#)
  - Similarities and differences between REHVA's & ASHRAE's guidance | *Valérie Leprince, INIVE, FR* | [Recordings](#), [Slides](#)
-

## Building ventilation: How does it affect SARS-CoV-2 transmission?

1 April 2021

### Presentations & Speakers

- The Role of Building Ventilation in Indoor Infectious Aerosol Exposure | *Andrew Persily, NIST, USA* | [Recordings](#), [Slides](#)
  - Modelling uncertainty in the relative risk of exposure to the SARS-CoV-2 virus by airborne aerosol transmission | *Cath Noakes, University of Leeds, UK* | [Recordings](#), [Slides](#)
  - Field measurements of aerosol exposure in indoor environments | *Roberto Traversari, TNO, NL* | [Recordings](#), [Slides](#)
  - Ventilation system design and the risk areas for spreading airborne contaminants in office buildings | *Alireza Afshari, Aalborg University, DK* | [Recordings](#), [Slides](#)
- 

## IAQ and Ventilation Metrics

8 April 2021

### Presentations & Speakers

- Annex 68 IAQ metrics: what was proposed, what works, what not, what are the remaining questions? | *Marc Abadie, University of La Rochelle, FR* | [Recordings](#), [Slides](#)
  - DALY as an integrated IAQ metric: methodological updates | *Benjamin Jones, University of Nottingham, UK* | [Recordings](#), [Slides](#)
  - TAIL a new rating scheme of indoor environmental quality | *Pawel Wargocki, DTU, DK* | [Recordings](#), [Slides](#)
- 

## Big data, IAQ and ventilation – part 1

13 April 2021

### Presentations & Speakers

- Improving IAQ with BIM based Predictive Twins | *Wouter Borsboom, TNO, NL* | [Recordings](#), [Slides](#)
  - Online personal IAQ monitoring | *Benjamin Hanoune, University of Lille, FR* | [Recordings](#), [Slides](#)
  - Brains for buildings: where to find all the relevant smart building data? | *Pieter Pauwels, Eindhoven University of Technology (TU/e), NL* | [Recordings](#), [Slides](#)
- 

## Big data, IAQ and ventilation – part 2

21 April 2021

### Presentations & Speakers

- Data analytics at Renson: From airflows to dataflows | *Steven Delrue, Renson, BE* | [Recordings](#), [Slides](#)
  - CO2: A reference point for ventilation standards | *Sandra Chochod, Netatmo, FR & Marcin Mezynski, Netatmo, FR* | [Recordings](#), [Slides](#)
  - Remote Data Logging with Retrotec DM32 SmartGauges and leveraging rCloud | *Ben Walker, Retrotec, USA* | [Recordings](#), [Slides](#)
  - Using sensors and machine learning to improve HVAC control | *Inouk Bourgon, Foobot, LX* | [Recordings](#), [Slides](#)
-

## Smart materials for energy efficient IAQ management

12 October 2021

### Presentations & Speakers

- Metal-organic Frameworks for indoor environment control | *Menghao Qin, DTU, DK* | [Recordings](#), [Slides](#)
  - Passive Removal Materials for Indoor Air Improvement: Performance Evaluation and Modeling | *Doyun Won, NRC, CA & Mitra Bahri, NRC, CA* | [Recordings](#), [Slides](#)
  - Electrospun fibers for Supply Air Filtration in residential buildings | *Alireza Afshari, Aalborg University, DK* | [Recordings](#), [Slides](#)
  - Impact of VOC and moisture buffering capacities of bio-based building materials on IAQ and indoor RH: the case of hemp concrete | *Anh Dung Tran Le, University of Picardie Jules Verne (UPJV), FR* | [Recordings](#), [Slides](#)
- 

## Emerging smart ventilation strategies for energy efficient IAQ management

23 November 2021

### Presentations & Speakers

- Investigation of natural ventilation control with regard to indoor and outdoor environments: First results | *Evangelos Belias, EPFL, CH* | [Recordings](#), [Slides](#)
  - Implementation of a MPC for an all-air system in an educational building | *Bart Merema, KU Leuven, BE* | [Recordings](#), [Slides](#)
  - Draft for a health related performance assessment framework for smart ventilation | *Klaas De Jonge, Ghent University, BE* | [Recordings](#), [Slides](#)
  - Residential Applications of Smart Ventilation Controls | *Iain Walker, LBNL, USA* | [Recordings](#), [Slides](#)
- 

## Inspection of ventilation systems in new regulations in European countries

30 November 2021

### Presentations & Speakers

- Overview of international protocols for the inspection of ventilation systems | *Valérie Leprince, INIVE, FR* | [Recordings](#), [Slides](#)
  - Inspection of ventilation systems in Irish regulation: Technical Guidance Document (TGD) to Part F of the Irish Building Regulations | *Gary O'Sullivan, National Standards Authority of Ireland, IE* | [Recordings](#), [Slides](#)
  - Inspection of ventilation systems in German regulation: Gebäudeenergiegesetz (GEG) 2020 | *Dan Hildebrandt – TGA-Effizienz, DE* | [Recordings](#), [Slides](#)
  - Inspection of ventilation systems in French regulation: RE2020 | *Sandrine Charrier, CEREMA, FR* | [Recordings](#), [Slides](#)
-

## IEA EBC Annex 78: Substituting Ventilation by Gas Phase Air Cleaning. An industry webinar

7 November 2022

### Presentations & Speakers

- Description of gas phase Air Cleaning Technologies | *Alireza Afshari, Aalborg University, DK* | [Recordings](#), [Slides](#)
  - Existing standards for testing gas phase air cleaners | *Paolo Tronville, Politecnico di Torino, IT* | [Recordings](#), [Slides](#)
  - Measuring Perceived Air Quality for testing air cleaners | *Pawel Wargocki, DTU, DK* | [Recordings](#), [Slides](#)
  - Results of a new testing method including perceived air quality | *Fang Lei, DTU, DK* | [Recordings](#), [Slides](#)
  - Proposed plan for developing a new testing standard | *Bjarne W. Olesen, DTU, DK* | [Recordings](#), [Slides](#)
- 

## IEA EBC Annex 87: Energy and Indoor Environmental Quality Performance of Personalised Environmental Control Systems (PECS)

12 December 2022

### Presentations & Speakers

- Desk mounted Personalized ventilation systems | *Ongun Berk Kazanci, DTU, DK* | [Recordings](#), [Slides](#)
  - Footwarmers providing efficient heating | *Hui Zhang, UC-Berkeley, USA* | [Recordings](#), [Slides](#)
  - Heated and cooled chairs | *Sabine Hoffmann, Technical University of Kaiserslautern, DE* | [Recordings](#), [Slides](#)
  - Wearable heating and cooling technology | *Joon-Ho Choi, USC, USA* | [Recordings](#), [Slides](#)
- 

## Sleeping Environment IAQ and Sleep Quality

12 January 2023

### Presentations & Speakers

- An overview of Ventilation and IAQ Standards for sleeping environments | *Chandra Sekhar, NUS, SG* | [Recordings](#), [Slides](#)
  - Thermal environment and sleep quality | *Li Lan, Shanghai Jiao Tong University, CN* | [Recordings](#), [Slides](#)
  - Ventilation and IAQ in bedrooms | *Jelle Laverge, Ghent University, BE* | [Recordings](#), [Slides](#)
  - ASHRAE Research Project - 1837-TRP "The Effects of Ventilation in Sleeping Environments" | *Pawel Wargocki, DTU, DK* | [Recordings](#), [Slides](#)
- 

## Smart ventilation in non-residential buildings. How to assess? How to design?

12 December 2023

### Presentations & Speakers

- An (Economic) Indicator for Assessment of Smart Ventilation Systems | *Klaas De Jonge, Ghent University, BE* | [Recordings](#), [Slides](#)
  - Quantitative Assessment Framework of IAQ Resilience in Buildings | *Douaa Al-Assaad, KU Leuven, BE* | [Recordings](#), [Slides](#)
  - Simulation Based Design of Smart Ventilation Systems | *Zakarya Kabbara, University of Antwerp, BE* | [Recordings](#), [Slides](#)
  - Improving the Supplied Ventilation Air Quality through Filtration | *Joris Van Herreweghe, Buildwise, BE* | [Recordings](#), [Slides](#)
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# Building airtightness

## The need for structured air leakage databases in energy conservation in buildings policies

25 May 2012

### Presentations & Speakers

- Opportunities and Challenges for Developing a Building Airtightness Database in the UK | *Chris Knights, BSRIA, UK & Dave Stephens, BSRIA, UK* | [Recordings](#)
  - Reasons Behind the Development of WEB@SET | *Andrés Litvak, CDPEA & Fabrice Richieri, CETE, FR* | [Recordings](#)
  - Experience with the Development of an Air Leakage Database in Germany | *Oliver Solcher, FLiB, DE* | [Recordings](#)
  - Experience with the Development of an Air Leakage Database in the Czech Republic | *Jiří Novák, Czech Technical University/ A.BD.CZ, CZ* | [Recordings](#)
  - Building Airtightness in Canada | *Anil Parekh, NRC* | [Recordings](#)
  - Reasons Behind the LBNL Residential Leakage Database (RESDB)) Update V2011 | *Rengie Chan, LBNL, USA*, [Recordings](#)
  - U.S. Commercial Building Airtightness | *Steven Emmerich, NIST, USA & Andrew Persily, NIST, USA*, [Recordings](#)
- 

## Building Airtightness Solutions: Recent Research and Characterisation of Sealants and Tapes

4 June 2013

### Presentations & Speakers

- Airtightness of window-wall interfaces in masonry brick walls and wood-frame construction | *Nathan Van den Bossche, Ghent University, BE* | [Recordings](#), [Slides](#)
  - Airtightness of sealants and expanding foams: Characterization and VOC emissions | *Filip Van Mieghem, Soudal, BE* | [Recordings](#), [Slides](#)
  - Impregnated tapes: Applicable standards and properties | *Stefan Tenbuss, Tremco illbruck, DE* | [Recordings](#), [Slides](#)
- 

## Building Airtightness Solutions: System approach and characterization of air barrier and moisture management systems

8 October 2013

### Presentations & Speakers

- Hygrothermal aspects of building airtightness solutions | *Staf Roels, KU Leuven, BE* | [Recordings](#), [Slides](#)
  - Evaluation of the long term durability of adhesive tapes and its substrates, requirements and testing | *Armin Weissmueller, Knauf Insulation, BE & Frédéric Delcuve, Knauf Insulation, BE* | [Recordings](#), [Slides](#)
  - Evaluation of an interior air barrier system with dynamic water vapour control | *Guillaume Pandraud, Isover Saint Gobain, FR* | [Recordings](#), [Slides](#)
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## Airtightness testing part 1: status and trends in competent tester schemes in the UK, Denmark and Belgium

14 November 2013

### Presentations & Speakers

- Status in the UK and the Air Tightness Testing and Measurement Association (ATTMA) | *Rob Coxon, ATTMA, UK* | [Recordings](#), [Slides](#)
  - Status in Belgium and the inauguration of TightVent Belgium | *Clarisse Mees, Buildwise, BE* | [Recordings](#), [Slides](#)
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## Airtightness testing part 2: status and trends in competent tester schemes in Germany, the Czech Republic and France

22 November 2013

### Presentations & Speakers

- Status in Germany and activities of the German association on airtightness FLiB (Fachverband Luftdichtheit im Bauwesen e.V.) | *Oliver Solcher, FLiB, DE & Stefanie Rolfsmeier, FLiB, DE* | [Recordings](#), [Slide](#)
  - Status in the Czech Republic and activities of Association Blower Door CZ (A.BD.CZ) | *Jiří Novák, Czech Technical University/ A.BD.CZ, CZ* | [Recordings](#), [Slide](#)
  - Status in France and Syneole activities | *Cédric D'Haene, Syneole, FR* | [Recordings](#), [Slide](#)
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## Airtightness testing part 3: status and trends in competent tester schemes in Denmark, Ireland and Sweden

20 November 2014

### Presentations & Speakers

- Status in Denmark and Klimaskaerm's certification for airtightness testers | *Walter Sebastian, Klimaskaerm, DK* | [Recordings](#), [Slides](#)
  - Status in Ireland and NSAI'S certified airtightness tester scheme | *Mark A. Shirley, 2evia.ie, IE* | [Recordings](#), [Slides](#)
  - Status in Sweden and its new diploma for airtightness testers | *Eva Sikander, SP, SE* | [Recordings](#), [Slides](#)
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## Building airtightness and initiatives to improve the quality of the works

12 January 2016

### Presentations & Speakers

- Laboratory investigation on the durability of taped joints in exterior air barrier applications | *Jelle Langmans, KU Leuven, BE* | [Recordings](#), [Slides](#)
  - Guidelines for designers and workers: the Etanch'air project | *Clarisse Mees, Buildwise, BE & Xavier Loncour, Buildwise, BE* | [Recordings](#), [Slides](#)
  - Market drivers for the development and use of new building airtightness products | *Filip Van Mieghem, Soudal, BE* | [Recordings](#), [Slides](#)
  - System approach and on-site quality control for good building airtightness | *Katherine Sauvet, Saint Gobain/ ISOVER, FR* | [Recordings](#), [Slides](#)
-



## Durability of building airtightness: Assessment through field measurements

30 January 2020

### Presentations & Speakers

- Field measurement of the durability of building airtightness- review and analysis of existing studies | *Valérie Leprince, INIVE, FR* | [Recordings](#), [Slides](#)
  - Durability and measurement uncertainty of airtightness in extremely airtight dwellings | *Wolf Bracke, Ghent University, BE* | [Recordings](#), [Slides](#)
  - Assessment of long-term and mid-term building airtightness durability: field study of 61 French low energy single-family dwellings | *Bassam Moujalled, Cerema, FR* | [Recordings](#), [Slides](#)
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## Durability of building airtightness: Assessment through laboratory testing

21 February 2020

### Presentations & Speakers

- Laboratory testing of the durability of airtightness products- review and analysis of existing studies | *Valérie Leprince, INIVE, FR* | [Recordings](#), [Slides](#)
  - Assessment of the durability of airtightness products in laboratory controlled conditions: development and presentation of the protocol | *Andrés Litvak, Cerema, FR* | [Recordings](#), [Slides](#)
  - Determination of durability of adhesive tapes and adhesive masses for the establishment of airtight layers – new project at ISO/TC 89 | *Sebastian Tremel, FIW Munich, DE* | [Recordings](#), [Slides](#)
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## Better Quantifying and Locating Building Leakages

30 November 2020

### Presentations & Speakers

- Building component performances as an answer for airtightness issues –existing quantification methods | *Martin Prignon, UCLouvain, BE* | [Recordings](#), [Slides](#)
  - Uncertainty of effective leakage areas determination through reductive sealing technique | *Vitor Cardoso, FEUP, PT* | [Recordings](#), [Slides](#)
  - Bias and precision errors in the measurement of building component airtightness with direct component test | *Martin Prignon, UCLouvain, BE* | [Recordings](#), [Slides](#)
  - Comparison of airflow and acoustic measurements for evaluation of building air leakage paths in a laboratory test apparatus | *Benedikt Kölsch, DLR, DE* | [Recordings](#), [Slides](#)
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## Building airtightness improvements of the building stock- Analysis of European databases

19 January 2021

### Presentations & Speakers

- Building airtightness improvements in the UK building stock, analysis of ATTMA database | *Barry Cope, ATTMA, UK* | [Recordings](#), [Slides](#)
  - Building airtightness improvements in the Flemish building stock, analysis of BCCA database | *Maarten De Strycker, BCCA, BE* | [Recordings](#), [Slides](#)
  - Building airtightness improvements in the French building stock, analysis of CEREMA database | *Adeline Mélois, Cerema, FR* | [Recordings](#), [Slides](#)
  - Residential buildings airtightness frameworks: A review on the main databases and setups in Europe and North America | *Irene Poza-Casado, UVA, ES* | [Recordings](#), [Slides](#)
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## Impact of wind on airtightness test results

8 November 2021

### Presentations & Speakers

- AIVC's Ventilation Information Paper on the impact of wind on the airtightness test results | *Valérie Leprince, INIVE, FR* | [Recordings](#), [Slides](#)
  - Field evaluation of techniques to reduce wind pressure fluctuations | *Gary Nelson, Energy Conservatory, USA* | [Recordings](#), [Slides](#)
  - In-situ investigation of the impact of dynamic wind on fan pressurization method | *Dimitrios Kraniotis, OsloMet, NO* | [Recordings](#), [Slides](#)
- 

## Building and ductwork airtightness trends and regulations in France, Belgium and Greece

4 May 2023

### Presentations & Speakers

- Building and ductwork airtightness in France: National trends and requirements | *Bassam Moujalled, Cerema, FR & Adeline Mélois, Cerema, FR* | [Recordings](#), [Slides](#)
  - Building and ductwork airtightness in Belgium: National trends and requirements | *Liesje Van Gelder, BCCA, BE* | [Recordings](#), [Slides](#)
  - Building and ductwork airtightness in Greece: National trends and requirements | *Theodoros Sotirios Tountas, F.U.V., GR* | [Recordings](#), [Slides](#)
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## Building and ductwork airtightness trends and regulations in the Czech Republic, Latvia and Spain

9 May 2023

### Presentations & Speakers

- Building and ductwork airtightness in the Czech Republic: National trends and requirements | *Jiří Novák, CTU, CZ* | [Recordings](#), [Slides](#)
  - Building and ductwork airtightness in Latvia: National trends and requirements | *Nolwenn Hurel, INIVE, FR* | [Recordings](#), [Slides](#)
  - Building and ductwork airtightness in Spain: National trends and requirements | *Irene Poza-Casado, UVA, ES & Sergio Melgosa, eBuilding, ES* | [Recordings](#), [Slides](#)
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## Alternative methodologies to evaluate airtightness

19 June 2023

### Presentations & Speakers

- The pulse technique | *Christopher Wood, University of Nottingham, UK & Luke Smith, Build Test Solutions, UK* | [Recordings](#), [Slides](#)
  - The Air Tightness Tester (ATT) | *Niek-Jan Bink, ACIN Instrumenten, NL* | [Recordings](#), [Slides](#)
  - Novel IR and acoustic methods | *Benedikt Kölsch, Cerema/DLR, FR* | [Recordings](#), [Slides](#)
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# Ductwork airtightness

## Ductwork airtightness: Standardisation's on- going work and an overview of status and trends in Sweden, Japan, Spain and Portugal

25 January 2018

### Presentations & Speakers

- Ductwork Airtightness: Why Should We Care? | *Valérie Leprince, INIVE, FR* | [Recordings](#), [Slides](#)
  - Status of Ductwork Airtightness in Japan and on-Going Work at ISO on Ductwork Airtightness | *Masaki Tajima, KUT, JP* | [Recordings](#), [Slides](#)
  - European Ductwork Airtightness Classes, on-Going Standardization Work and Status in Sweden | *Lars-Åke Mattsson, CEN/TC 156/WG3, SE* | [Recordings](#), [Slides](#)
  - Market Trends in Spain and Portugal. An Industry Point of View | *Rodrigo Sanz, Gonal Driving Air, ES* | [Recordings](#), [Slides](#)
- 

## Ductwork airtightness measurements: protocols

25 April 2019

### Presentations & Speakers

- On site ductwork airtightness tests in standardization (revision of EN 12599) | *Frank Bitter, CEN/TC156 WG8, WSPLab, DE* | [Recordings](#), [Slides](#)
  - Ductwork airtightness tests in France: the FD 51-767 | *Laurent Bonnière, Air-efficiency, FR* | [Recordings](#), [Slides](#)
  - Ductwork airtightness tests in UK: The DW 143 | *Peter Rogers, BESA, UK* | [Recordings](#), [Slides](#)
  - Ductwork airtightness tests in Sweden: AMA VVS & Kyl | *Erik Osterlund, Swedish standardization committee for ventilation, SE* | [Recordings](#), [Slides](#)
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## Building and ductwork airtightness trends and regulations in France, Belgium and Greece

4 May 2023

### Presentations & Speakers

- Building and ductwork airtightness in France: National trends and requirements | *Bassam Moujalled, Cerema, FR & Adeline Mélois, Cerema, FR* | [Recordings](#), [Slides](#)
  - Building and ductwork airtightness in Belgium: National trends and requirements | *Liesje Van Gelder, BCCA, BE* | [Recordings](#), [Slides](#)
  - Building and ductwork airtightness in Greece: National trends and requirements | *Theodoros Sotirios Tountas, F.U.V., GR* | [Recordings](#), [Slides](#)
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## Building and ductwork airtightness trends and regulations in the Czech Republic, Latvia and Spain

9 May 2023

### Presentations & Speakers

- Building and ductwork airtightness in the Czech Republic: National trends and requirements | *Jiří Novák, CTU, CZ* | [Recordings](#), [Slides](#)
- Building and ductwork airtightness in Latvia: National trends and requirements | *Nolwenn Hurel, INIVE, FR* | [Recordings](#), [Slides](#)
- Building and ductwork airtightness in Spain: National trends and requirements | *Irene Poza-Casado, UVA, ES & Sergio Melgosa, eBuilding, ES* | [Recordings](#), [Slides](#)

# Ventilative Cooling

## Assessing ventilative cooling potential in Energy Performance regulations. Status and perspectives in Austria, Denmark, France

8 December 2015

### Presentations & Speakers

- Ventilative cooling in the Danish regulation | *Per Heiselberg, University of Aalborg, DK* | [Recordings](#), [Slides](#)
- Ventilative cooling in the Austrian regulation | *Peter Holzer, IBR&I ZT GmbH, AT* | [Recordings](#), [Slides](#)
- Ventilative cooling in the French regulation | *Charles Pelé, CSTB, FR* | [Recordings](#), [Slides](#)

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## Ventilative cooling potential and compliance in Energy Performance regulations — Status and perspectives in Belgium, Estonia, Greece

17 December 2015

### Presentations & Speakers

- Energy consumption in the European built environment and the role of cooling | *Mat Santamouris, NKUA, GR* | [Recordings](#), [Slides](#)
- Ventilative cooling in the Belgian regulation | *Geoffrey Van Moeseke, UC Louvain, BE* | [Recordings](#), [Slides](#)
- Compliance to summer thermal comfort criteria in Estonia | *Jarek Kurnitski, Tallinn University of Technology, EE* | [Recordings](#), [Slides](#)
- Quality of works, compliance with existing legislation and reliability of EPC data in Greece | *Theoni Karlessi, NKUA, GR* | [Recordings](#), [Slides](#)

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## Ventilative cooling and summer comfort: Freevent project in France

25 April 2018

### Presentations & Speakers

- Assessment of thermal and comfort performance | *Andres Litvak, Apebat, FR* | [Recordings](#), [Slides](#)
- On site measurements and feedback | *Anne Marie Bernard, Allie'Air, FR* | [Recordings](#), [Slides](#)
- Guidelines to achieve an effective ventilative cooling | *Nicolas Piot, EGE, FR* | [Recordings](#), [Slides](#)

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## Ventilative Cooling – design and examples

26 March 2020

### Presentations & Speakers

- Ventilative cooling design | *Guilherme Carrilho da Graça, University of Lisbon, PT* | [Recordings](#), [Slides](#)
  - Ventilative cooling potential & operational strategies | *Annamaria Belleri, EURAC, IT* | [Recordings](#), [Slides](#)
  - Example ventilative cooling: CML Kindergarten (Portugal) | *Guilherme Carrilho da Graça, University of Lisbon, PT* | [Recordings](#), [Slides](#)
  - Example ventilative cooling: University Seminar Room | *Maria Kolokotroni, Brunel University London, UK* | [Recordings](#), [Slides](#)
  - Lessons learnt from ventilative cooling cases | *Paul O' Sullivan, Cork Institute of Technology, IE* | [Recordings](#), [Slides](#)
-

## Resilient Ventilative Cooling in practice

1 June 2021

### Presentations & Speakers

- Ventilative cooling components: An overview | *Peter Holzer, IBR&I ZT GmbH, AT* | [Recordings](#), [Slides](#)
  - Application of louvres to support ventilative cooling | *Ivan Pollet, Renson, BE* | [Recordings](#), [Slides](#)
  - Examples of air flow enhancing and natural cooling components | *Nick Hopper, Monodraught, UK* | [Recordings](#), [Slides](#)
  - Controlled windows for ventilative cooling | *Peter Foldbjerg, Velux, DK* | [Recordings](#), [Slides](#)
  - Ventilative cooling integrated design | *Jannick Roth, WindowMaster, DK* | [Recordings](#), [Slides](#)
- 

## Indicators to Assess Resilience of Cooling in Buildings

10 May 2022

### Presentations & Speakers

- Definitions of resilient cooling of buildings & overview of indicators to assess resilience | *Philipp Stern, IBR&I ZT GmbH, AT* | [Recordings](#), [Slides](#)
  - Thermal resilient buildings: How to be quantified? A novel benchmarking framework and labelling metric | *Mohamed Hamdy, NTNU, NO* | [Recordings](#), [Slides](#)
  - Example of indicators and application to vulnerable buildings | *Abdelaziz Laouadi, NRC, CA* | [Recordings](#), [Slides](#)
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## Future weather data and heatwaves

31 May 2022

### Presentations & Speakers

- Motivation & determination of world-wide future weather data and heatwaves | *Agnese Salvati, UPC, ES* | [Recordings](#), [Slides](#)
  - Practical Applications 1: Mitigation and adaptation strategies in building design | *Anaïs Machard, University of La Rochelle, FR* | [Recordings](#), [Slides](#)
  - Practical Applications 2: Evaluation and sizing of cooling technologies in future climates | *Ronnen Levinson, LBNL, US & Sang Hoon Lee, LBNL, US* | [Recordings](#), [Slides](#)
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## Examples of resilient cooling solutions

13 September 2022

### Presentations & Speakers

- Overview of resilient cooling technologies | *Peter Holzer, IBR&I ZT GmbH, AT* | [Recordings](#), [Slides](#)
  - Recent progress on building products for heat mitigation | *Mat Santamouris, UNSW, AU* | [Recordings](#), [Slides](#)
  - Adsorption Chiller and its Applications | *Gamze Gediz Ilis, Gebze Technical University, TR* | [Recordings](#), [Slides](#)
-

## Resilient cooling of buildings. Case studies and policy recommendations

20 September 2022

### Presentations & Speakers

- Key Findings from Annex 80 Policy Actions | *Ronnen Levinson, LBNL, US* | [Recordings](#), [Slides](#)
  - Overview of Annex 80 Field Studies | *Dahai Qi, Université de Sherbrooke, CA & Gerhard Hofer, e7 energy innovation & engineering, AT* | [Recordings](#), [Slides](#)
  - Natural Ventilation in Two Indian Case Studies | *Pierre Jaboyedoff, Effin'Art, CH* | [Recordings](#), [Slides](#)
  - Summer comfort in Belgian dwellings without active cooling: a case study | *Margot De Pauw, Thomas More, BE* | [Recordings](#), [Slides](#)
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## Dumb buildings with smart users? Linking building performance & human well being

15 November 2022

### Presentations & Speakers

- Rethinking comfort within human-building resilience | *Marcel Schweiker, UK Aachen, DE* | [Recordings](#), [Slides](#)
  - Cognitive buildings & active houses | *Marco Imperadori, Politecnico di Milano, IT* | [Recordings](#), [Slides](#)
  - An occupant voting system for continuous feedback | *Donya Sheikh Khan, Ramboll, DK* | [Recordings](#), [Slides](#)
  - Active House Comfort score | *Bas Hasselaar, DGMR, NL* | [Recordings](#), [Slides](#)
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## Use of Super Cool Materials for Efficient Building Ventilation and Heat Mitigation

29 November 2022

### Presentations & Speakers

- Results of the Cool Roofs Study in Australia | *Riccardo Paolini, UNSW, AU* | [Recordings](#), [Slides](#)
  - Recent developments of Super Cool Materials | *Jie Feng, UNSW, AU* | [Recordings](#), [Slides](#)
  - Recent developments on Fluorescent super cool materials | *Samira Garshasbi, Arup, AU* | [Recordings](#), [Slides](#)
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