Newsletter
Air Infiltration and Ventilation Centre

Foreword

Welcome to the September 2026 issue of the AIVC newsletter.

As we move into the final months of 2026, there is plenty happening across the AIVC community. In this issue, we share updates on upcoming activities, including the 46th AIVC Conference in Incheon on 30 September–1 October and our October webinar dedicated to Indoor Air Quality databases.

We are also pleased to announce the dates for two major AIVC events in 2027: the AIVC Workshop in Thessaloniki on 20–21 April and the AIVC Conference in Milan on 8–9 September.

This newsletter also highlights several new AIVC publications, a new International Journal of Ventilation article collection featuring papers from recent AIVC conferences, and an article examining the growing potential of passive cooling technologies. Finally, we look back at our recent webinars and the strong participation and continued engagement of the AIVC community..

We hope you enjoy this edition andlook forward to your continued participation in AIVC activities. For regular updates, visit our website, follow us on LinkedIn and Bluesky, and explore our monthly newspaper, Energy Efficiency and Indoor Climate in Buildings.

Arnold Janssens & Peter Wouters, Operating Agents, AIVC

no 30
September 2026

30 September - 1 October 2026, Incheon, Korea – 46th AIVC conference

The 46th AIVC conference "Innovations in Smart Ventilation and IEQ for Resilient and Adaptive Buildings" will take place on September 30 & October 1, 2026 at the Songdo International District in Incheon, Republic of Korea. This international event will be held jointly with the 14th TightVent Conference and the 12th venticool Conference.

The conference is organized by INIVE on behalf of the AIVC, TightVent and venticool in collaboration with the Korean Institute of Civil Engineering and Building Technology (KICT) and the Korean Institute of Architectural Sustainable Environment and Building Systems (KIAEBS).

The conference will feature a mixture of presentations selected from the call for papers & topical sessions as well as invited contributions, all organized into well-prepared and structured sessions aligned with the conference theme and topics. In addition, the event will include an exhibition from industry, offering attendees the opportunity to engage with leading partners showcasing innovative solutions and technologies.

Keynote Presentations

• Future-Proof Ventilation: Health, Sustainability, Resilience - Chandra Sekhar (Professor, Department of the Built Environment, National University of Singapore)

• AI-enabled Advanced Building Ventilation Controls for the Health and Energy Nexus - Bing Dong (Traugott Professor, Mechanical and Aerospace Engineering, Syracuse University)

• The Heat-Cooling Paradox: Science, Gaps, and Urgency - Radhika Khosla (Associate Professor, Smith School of Enterprise and the Environment, University of Oxford)

• South Korea's Great Energy Transition Strategy: A Blueprint for an Electro-State - Il-Young Oh (Director General, Deputy Minister for Climate and Energy Policy Office, Ministry of Climate, Energy and Environment)

For further information please visit the conference website.

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Save the Dates: AIVC 2027 Workshop & Conference

Mark your calendars for two major AIVC events taking place in 2027. The AIVC community will meet in Thessaloniki, Greece, on 20–21 April 2027 for the AIVC Workshop, followed by the AIVC 2027 Conference in Milan, Italy, on 8–9 September 2027.

1. AIVC 2027 Workshop | 20–21 April 2027 – Thessaloniki, Greece

The 2027 AIVC Workshop will take place on 20–21 April 2027 at KEDEA AUTh in Thessaloniki, Greece.

A call for presentations will be launched soon, providing an opportunity for researchers and practitioners to contribute to the programme and share their latest work. Keynote speakers from Greece and other countries will also be invited to present and contribute to the discussions.

- **Dates**: 20–21 April 2027
- **Location**: Thessaloniki, Greece
- **Venue**: KEDEA AUTh

More information on the programme, topics, call for presentations, and registration will follow.

2. AIVC 2027 Conference | 8–9 September 2027 – Milan, Italy

The AIVC 2027 Conference will take place on 8–9 September 2027 at the Politecnico di Milano – Campus Bovisa in Milan, Italy.

The conference will be organized in collaboration with AiCARR, TightVent and venticool, bringing together researchers, engineers, practitioners, policymakers, and other building-sector professionals.

- **Dates**: 8–9 September 2027
- **Location**: Milan, Italy
- **Venue**: Politecnico di Milano – Campus Bovisa

Further details on the conference theme, programme, calls for contributions, and registration will be announced in due course. Save the dates and stay tuned for more information on both AIVC 2027 events.

20 October 2026, AIVC Webinar – Indoor Air Quality (IAQ) databases

Indoor air quality (IAQ) and ventilation critically influence health, comfort, and energy performance of buildings. Over the past decades, numerous studies and initiatives have produced and studied indoor pollutant concentrations, respective emission rates, and applicable regulations. Yet this knowledge remains fragmented: datasets are dispersed, often not accessible, variably documented, and rarely harmonized, hindering synthesis, comparability, and practical uptake.

This webinar will present existing IAQ related databases and the ongoing efforts to overcome these barriers

This webinar is organised by the AIVC. The event is facilitated by INIVE.

AGENDA (CEST)

- 13:30 | Welcome & Introduction
- 13:35 | “Pandora” - an open-access database of indoor pollutant emission rates for IAQ modeling, Marc Abadie (University of La Rochelle, France)
- 13:50 | Q & A
- 13:55 | “R package annex” - aggregating and harmonizing IAQ measurement data compatible with an existing repository containing IAQ data from >10.000 residential homes, Gabriel Rojas (University of Innsbruck, Austria)
- 14:10 | Q & A
- 14:15 | “Global IAQ database” - the development of an online, interactive database with IAQ data from around the world, Dusan Licina (EPFL, Switzerland)
- 14:30 | Q & A
- 14:35 | “Indoor Environmental Quality guidelines database” - consolidating guidelines and standards, Ulla Haverinen-Shaughnessy (University of Oulu, Finland)
- 14:50 | Q & A
- 15:00 | End of Webinar

The webinar is free to attend, but registration is required. You can register via the link provided here.

AIVC’s new publications

The AIVC is pleased to announce the release of four new AIVC publications!

AIVC’s Ventilation Information Paper no 48.5: Trends in building ventilation requirements and inspection in Belgium (April 2026).

This paper summarizes current knowledge on trends in building ventilation requirements and inspection in Belgium.

AIVC’s Technical Note (TN) no 76: Overheating assessment & ventilative cooling in national building codes regarding indoor environmental quality and energy performance (May 2026).

This document provides practitioners with an overview of the current status of national building codes regarding indoor environmental quality (IEQ) and energy performance, with a focus on how they address overheating and ventilative cooling in buildings.

AIVC’s Technical Note (TN) no 77: AIVC projects 2011-2025 | Objectives-deliverables-collaborations-outreach (June 2026).

This technote aims to provide a clear overview of the various AIVC projects and their associated deliverables.

AIVC’s Ventilation Information Paper no 48.6: Trends in building ventilation requirements and inspection in Korea (September 2026).

This paper summarizes current knowledge on trends in building ventilation requirements and inspection in Korea.

All documents are freely accessible here.

New IJV Collection Featuring Papers from the 2023 & 2024 AIVC Conferences

A new article collection of the International Journal of Ventilation (IJV) features a selection of papers from the peer-reviewed tracks of the 2023 and 2024 AIVC Conferences.

The collection brings together selected papers addressing recent advances and research in ventilation, IEQ, and health in sustainable buildings. The article collection is available through the IJV here.

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Keeping Cool Without Air Conditioners: The Future of Passive Cooling

Mat Santamouris (High Performance Architecture, School of Built Environment, UNSW, Sydney, Australia)

As temperatures rise across the world, keeping our homes, offices and cities cool is becoming one of the biggest challenges of the 21st century. Air conditioning has helped protect millions of people from dangerous heat, but it also consumes enormous amounts of electricity, increases greenhouse gas emissions and can even make cities hotter by releasing waste heat outdoors. A recent review published in Nature Reviews Clean Technology explores how passive cooling technologies could provide a more sustainable solution.

Cooling demand is growing rapidly. Today, cooling accounts for almost 10% of global electricity consumption, and the number of air conditioners worldwide is expected to rise from about 2.3 billion units today to nearly 5.6 billion by 2050. At the same time, heatwaves are becoming more frequent, longer and more intense because of climate change. While air conditioning saves lives and improves comfort, it has major drawbacks. It increases electricity demand during hot periods, places stress on power grids and contributes to greenhouse gas emissions. In many cities, waste heat released from air conditioners can raise local temperatures by 1 to 2.5°C, creating a cycle in which hotter conditions lead to even greater cooling demand.

Passive cooling refers to technologies and design strategies that reduce heat gains or remove heat from buildings without relying heavily on mechanical systems. Instead of generating cold air, passive cooling works with natural processes such as shading, airflow, evaporation and radiation

These solutions can lower building temperatures, reduce energy bills and provide cooling access to people who cannot afford air conditioning. The simplest way to keep a building cool is to stop heat from entering in the first place.

Modern solar control technologies include reflective roofs, external shading devices, adaptive blinds and smart facades that automatically respond to sunlight. Cool roofs are particularly effective because they reflect much of the sun's energy rather than absorbing it. Studies show that cool roofs can reduce cooling energy consumption by 10% to 60%, depending on climate and building type. Indoor temperatures in non-air-conditioned buildings can fall by as much as 10°C. Trees, green spaces and shading structures also play a major role in reducing outdoor temperatures and protecting people from direct solar radiation.

Ventilative cooling uses outdoor air to remove heat from buildings. This can occur naturally through windows and openings, mechanically through fans, or through hybrid systems that combine both approaches. Modern ceiling fans and personal cooling devices have become highly efficient. By increasing air movement around occupants, they improve comfort without lowering room temperatures significantly. In many cases, energy savings of 20% to 50% can be achieved compared with conventional air conditioning systems. However, ventilative cooling works best when outdoor temperatures are moderate and air quality is good. During very hot or polluted conditions, its effectiveness decreases.

One of the most exciting recent developments is passive daytime radiative cooling. Specially engineered materials can reflect almost all incoming sunlight while emitting heat through a part of the atmosphere that allows thermal radiation to escape directly into space. As a result, surfaces can become cooler than the surrounding air even under direct sunlight. These materials are already appearing as paints, coatings and films for roofs and building facades. They can lower roof temperatures by up to 10°C and reduce cooling energy demand by 10% to 50%. Large-scale deployment could also reduce urban temperatures and save thousands of lives during extreme heat events.

Evaporative cooling uses the natural process of water evaporation to remove heat. Everyone experiences this effect when sweat evaporates from the skin. Advanced evaporative cooling materials, especially hydrogel-based systems, can absorb water from the atmosphere and release it gradually during the day. Some experimental systems have reduced surface temperatures by as much as 20 to 25°C under sunny conditions.

Researchers are now combining evaporative and radiative cooling into hybrid materials. These systems can deliver up to three times more cooling power than either technology alone and have shown temperature reductions of up to 15°C in experimental studies.

Despite their promise, passive cooling technologies are not a universal solution. Their effectiveness depends on local climate conditions. High humidity reduces evaporative cooling performance, while clouds, pollution and atmospheric moisture can limit radiative cooling. Rising global temperatures may also reduce the effectiveness of some passive cooling strategies in the future.

For this reason, it is recommended to combine passive cooling with efficient air conditioning, smart controls and urban heat mitigation measures such as greenery and reflective surfaces.

Passive cooling could become a critical component of future climate adaptation. By reducing cooling energy demand, lowering urban temperatures and improving comfort for vulnerable populations, passive cooling offers a pathway toward healthier, more sustainable and more equitable cities. In some cases, integrated passive strategies can reduce building cooling demand by up to 80%.

As the planet warms, learning how to cool buildings without relying solely on air conditioners may prove to be one of the most important innovations for creating cooler, cleaner and fairer cities

The article was based on the following review paper:

M. Santamouris and K. Vasilakopoulou: (2026). Passive Cooling Technologies: Principles, Performance, and Future Opportunities. Nature Reviews Clean Technology.

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Feedback from AIVC Webinars – March 2026 to September 2026

Between March and September 2026, the AIVC, in collaboration with TightVent and venticool, organized four webinars, bringing together researchers, practitioners, and other experts from around the world to share knowledge and discuss recent research and practical developments:

17 March 2026: Airtightness in Practice: Long-Term Performance, Field Evidence, and Innovative Detection Methods

- 108 participants
- Organizer: AIVC & TightVent
- Recordings & Slides

16 June 2026: Ensuring Reliable Airtightness Measurements: Airtightness Tester Qualification Across Countries

- 155 participants
- Organizer: AIVC & TightVent
- Recordings & Slides

7 September 2026: EBC Annex 97 "Sustainable Cooling in Cities": Learnings from the State-of-the-Art Report

- 150 participants
- Organizer: AIVC & venticool
- Recordings & Slides

18 September 2026: Personalised Environmental Control Systems (PECS): State of Research and Development

- XX participants
- Organizer: AIVC & venticool
- Recordings & Slides

Missed a webinar or would like to revisit a presentation? The full collection of recordings and presentation slides from past AIVC webinars is available on the AIVC website.

You can also subscribe to our YouTube channel to stay informed about the latest video content and webinar updates.

AIVC • List of board members

Australia: Nigel Goodman, University of Canberra • Shamila Haddad, the University of Sydney

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