

# Newsletter



Air Infiltration and Ventilation Centre

## Foreword

We are pleased that Spain decided to join the AIVC. Moreover, the September 2015 AIVC conference will be held in Madrid.

Indoor air quality and energy efficiency in buildings remain very hot topics on the agenda of many governments, while they are growing as such in others. We are now in front of the AIVC Poznan Conference September 24-25. With the 116 contributions from 27 countries as well as a series of topical sessions, this will again be a major annual meeting point for building professionals, experts and scientists to exchange their views and share their results.

Finally, we are pleased that the Indoor Environmental Quality – Global Alliance (IEQ GA) has been launched with AIVC as one of its founding members. More information is given further in the newsletter.

We wish you a pleasant reading.

Peter Wouters, Operating Agent AIVC



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## Spain joins the AIVC!



*Pilar Linares Alemparte,  
IETcc-CSIC, Spain*

The AIVC is very pleased to welcome Spain as new participating country!

The AIVC now counts 17 countries, a significant number which reflects the concern for air infiltration and ventilation issues in new and renovated buildings.

*“There has been in Spain for many years an interest in ventilation and air quality issues from the point of view of hygiene and health but, before 2006, when the first national building IAQ regulations were enforced, this interest focused predominantly on the services and industrial area.*

*Since the approval of the IAQ regulation,*

*interest has extended to include residential buildings and continues to grow, currently including consideration of energy-efficient ventilation systems. In turn, the IAQ regulations are being revised to take into account the more comprehensive view.*

*With the aim of improving knowledge a Spanish group has been created, comprising research organizations across academia and industry: Torroja Institute for building sciences (IETcc-CSIC), Sevilla University, The Building Energy and Environment Group of CIMNE-UPC, Alder Venticontrol SA and Siber Zone SL.*

*The IETcc, as a representative of this group, aspires to become a member of AIVC, being a very important leading international association in the field. The Spanish group offers significant knowledge and experience in the domain of air quality and energy efficiency assessment both in cold and warm Mediterranean climate conditions and is currently working on setting up of quality levels and implementation of highly efficient ventilation systems.”*

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## International Societies Form Indoor Environmental Quality – Global Alliance

ATLANTA – A newly formed alliance seeks to serve as a global source for information, guidance and knowledge on indoor environmental quality.

A memorandum of understanding creating the Indoor Environment Quality Global Alliance was signed Sunday, June 29, at ASHRAE's 2014 Annual Conference in Seattle, Wash. Other groups joining the Alliance are the American Industrial Hygiene Association (AIHA), Air Infiltration and Ventilation Centre (AIVC), the Air & Waste Management Association (AWMA), the Indoor Air Quality Association (IAQA) and the Federation of European Heating and Air-Conditioning Associations (REHVA).

More information can be found at [www.ieq-ga.net](http://www.ieq-ga.net).

The Alliance was formed by an ad hoc committee appointed by ASHRAE 2013-14 President Bill Bahnfleth to explore ways in which industry groups could work together to address all aspects of indoor environmental quality and health.

"In the built environment, indoor environmental quality must be our first concern," Presidential Member Bahnfleth said. "Before we address impacts of buildings and transportation systems on energy consumption and the environment – which, make no mistake, are also critically important – we must ensure that we are providing indoor environments that are safe, healthy, productive and comfortable for occupants. Today, and for some time, we have strongly emphasized energy conservation and protection of the environment to such an extent that the need for progress in indoor

environmental quality has been obscured. A broad, coordinated effort is needed to fill gaps in research, transfer the results of science to practice, advocate for higher standards and better educate both the built environment professions and the public. I believe that formation of this Alliance is a key to meeting those objectives. ASHRAE is eager to contribute its expertise to this group and to once again be a leader in the field of indoor environmental quality, beginning with a focus on indoor air quality"...

... "While substantial progress in the energy efficiency of our building stock is crucial, we must guarantee at the same time a good indoor climate in these buildings, including air quality, thermal comfort, visual comfort and acoustics. Given the complexity of the issue and the various challenges, we are very pleased to see the creation of this alliance," AIVC Operating Agent Peter Wouters said...

Read the full article here <http://www.aivc.org/news/international-societies-form-indoor-environmental-quality-global-alliance-ieq-ga>

## Feedback on the Indoor Air 2014 Conference in Hong Kong

*Pawel Wargocki, Past President of ISIAQ*

Indoor Air 2014 was held in the Centennial Campus of the University of Hong Kong on 7-12 July 2014. Prof. Yuguo Li was the President of the conference. Indoor Air conference is the flagship conference of the International Society for Indoor Air Quality and Climate (ISIAQ). This is the largest conference dealing with indoor air sciences.

The conference attracted 1065 researchers, academics, policy makers and industry R&D personnel; 324 were students. The participants were from more than 550 organizations in 45 countries. 964

papers were presented in the conference, together with 12 plenary speeches, 20 keynote talks, 15 workshops, 3 forums, 2 frontier symposiums and 2 training courses. 679 papers were presented in form of oral presentations and 285 as posters. Selected papers from the conference will be published in *Topical Issues of Building and Environment*, *HVAC&R Research*, *Building Simulation* and *International Journal of Ventilation*. The target of publication is early 2015. All papers presented at the conference are included in the proceedings available for purchase at [www.isiaq.org](http://www.isiaq.org).

Among the comprehensive program of the conference, there were the unique keynote sessions delivered by leading scientists providing overview of the current state-of-the art knowledge and the research directions pertaining to several topics related to indoor air sciences, from thermal environment to ventilation, exposure measurements, chemistry, air cleaning and a like. The keynotes will all be published in the special issue of *Indoor Air Journal*. All keynotes and plenary have been recorded and will be available for viewing at [www.isisq.org](http://www.isisq.org) website, though only for the members; some videos will be made public.

Special attention was given to emerging technologies in the conference. New findings were reported in the areas of smart and mobile technologies, wireless sensors and smartphone monitoring for thermal comfort, gene-sequencing and bio-informatics for building microbiology studies, new bio-monitoring technologies for indoor applications, and wearable and wireless physiological sensors.

The conference attracted the Alfred Sloan Foundation, and Sustainable Built Environment Foundation to organize dedicated symposiums on built environment microbiomes and sustainable building development in China respectively.



IA2014 was a great success thanks to the efforts of the organizing committee and Hong Kong team and diligent and careful leadership of the conference President.

The next Indoor Air conference will be held in Europe in 2016 in Ghent, Belgium, and will be held biannually. In the off-years ISIAQ will hold Healthy Buildings conferences. There will be two HB conferences in 2015: HB2015 America in Boulder Colorado, US and HB2015 Europe in Eindhoven, Europe. The concept and high quality level of HB conferences remains the same: they will discuss practical applications and solutions for achieving healthy buildings by translating science of indoor air, presented also at IA2014, into practical applications. The only difference, from next year, will be that HB conferences will be organized in different world regions to better address the regional context, needs and requirements, though preserving the international perspective.

## Brief outcome of the “Quality of Methods for Measuring Ventilation and Air Infiltration in Buildings” workshop

On behalf of AIVC, and with the support of TightVent and venticool, INIVE organized a workshop entitled “Quality of Methods for Measuring Ventilation and Air Infiltration in Buildings” which was held in Brussels, March 18- 19 2014. 70 participants exchanged their views on the basis of presentations given by 22 experts representing 10 countries, covering the following main topics:

- Impact of measurement uncertainties on energy performance calculations and IAQ
- Challenges for measurements of ventilation and air infiltration in low-energy buildings

- Measurement of air exchange rates with tracer gas
- Measurements of airflow rates in ducts and at air terminal devices
- Measurements solutions and integrated measurement devices
- Schemes to address the quality of measurements
- Building and ductwork airtightness

The closing session of the workshop was an open discussion with the audience, based on a questionnaire distributed to the participants before the start of the workshop and addressing 4 key questions concerning the needs for: 1) New sensors, new measuring instruments, new measuring techniques, 2) better knowledge of accuracy/ uncertainty and the way to use them in conformity assessment, 3) new measuring procedures, guidelines, standards, operating manuals, 4) more training and certification and a platform to exchange information for large scale implementation.

The discussion with the attendants on new sensors, measuring instruments and techniques highlighted, among others, the needs for more « robust » measuring devices and a standard test protocol to assess the measuring instruments capability in various measuring conditions. In respect to accuracy/uncertainty, contributions from the audience stressed the needs for more systematic and more frequent calibrations as well as the systematic announcement of a measuring result together with its uncertainty. Moreover, it was underlined that new measuring protocols are needed, especially for onsite measurements (with a compromise between easiness and accuracy). Further input from the audience pointed out the need to implement new training programs, develop and apply qualification schemes and establish a platform for information exchange.

*The proceedings & presentations of the “Quality of Methods for Measuring Ventilation and Air Infiltration in Buildings” workshop will be made available for download on the AIVC website in February 2015.*

## Formaldehyde transfer in residential energy recovery ventilators

Researchers at Lawrence Berkeley National Laboratory have investigated the fraction of formaldehyde transferred from the exhaust to the supply side of a specific model of an energy recovery ventilator with a rotary heat exchanger. Based on laboratory and field analyses, they obtained formaldehyde transfer efficacy (fraction of formaldehyde transferred from the exhaust stream to the supply stream) between about 10 and 30%. This study suggests that this transfer should not be neglected when comparing ventilation strategies or designs.

Download the full article at:  
<http://eetd.lbl.gov/sites/all/files/lbnl-6580e.pdf>

## QUALICHeCK in relation to ventilation and airtightness

The QUALICHeCK project, co-funded by the European Commission under the Intelligent Energy Europe Programme, started in March 2014. It aims primarily at determining best cases and tackling bottlenecks to improve the reliability of energy performance certificates (EPC) and the quality of the works.

QUALICHeCK addresses more specifically ventilation and airtightness issues, which are known to be areas where significant progress can be made. The consortium has started to identify issues in existing procedures and to critically review examples of solutions implemented in several member states.



These preliminary results will be presented and discussed during the first international conference on compliance and quality for energy efficiency in buildings, organized by the QUALICHeCK consortium in Brussels on 30 September 2014.

More details on the programme and location are available at

[www.qualicheck-platform.eu](http://www.qualicheck-platform.eu)

## Information on TightVent Europe & venticool platforms

AIVC has been in close collaboration with the TightVent Europe platform ([www.tightvent.eu](http://www.tightvent.eu)) for all airtightness related projects, as well as with the venticool platform ([www.venticool.eu](http://www.venticool.eu)) for all activities related to ventilative cooling. This increases significantly the resources for project coordination and results in increased quality output, for example for the organization of workshops on specific topics or topical sessions at conferences and webinars.

**TightVent Europe:** The platform is operational since January 2011 and focusing on building and ductwork airtightness. In September, 2012 the TightVent Airtightness Associations Committee was launched with the primary goal to promote reliable testing and reporting procedures (<http://tightvent.eu/partners/taac>). Several activities are held in collaboration with AIVC along with the joint AIVC-TightVent-venticool annual conference (<http://aivc2014conference.org/>).

**venticool platform:** venticool is operational since autumn 2012 with a strong focus on ventilative cooling. There is a close interaction with IEA EBC Annex 62, an initiative which was taken in the context of the preparation phase of the platform. There is a common website for the venticool platform and for IEA EBC Annex 62 (<http://venticool.eu/annex-62-home/>).

There is a synergy with several AIVC related activities with the joint AIVC-TightVent-venticool annual conference, among others (<http://aivc2014conference.org/>).

## AIVC • List of board members

**Belgium:** Arnold Janssens, *University of Ghent* • Jean Lebrun, *University of Liege*

**Czech Republic:** Miroslav Jicha, *Brno University of Technology* • Karel Kabele, *Czech Technical University*

**Denmark:** Bjarne Olesen, *Technical University of Denmark* • Alireza Afshari, *Danish Building Research Institute, Aalborg University*

**Finland:** Hannu Koskela, *Finnish Institute of Occupational Health* • Risto Kosonen, *Halton*

**France:** François Durier, *CETIAT* • Pierre Hérant, *ADEME*

**Germany:** Hans Erhorn, *Fraunhofer Institute for Building Physics* • Heike Erhorn-Kluttig, *Fraunhofer Institute for Building Physics*

**Greece:** Mat Santamouris, *NKUA University of Athens*

**Italy:** Lorenzo Pagliano, *Politecnico di Milano*

**Japan:** Shigeki Nishizawa, *NILIM* • Takao Sawachi, *Building Research Institute*

**Netherlands:** Kees De Schipper, *VLA* • Wouter Borsboom, *TNO*

**New Zealand:** Manfred Plagmann, *BRANZ*

**Norway:** Peter Schild, *SINTEF Byggforsk*

**Poland:** Tomasz Mróz, *Poznan University of Technology* • Andrzej Górka, *Poznan University of Technology*

**Republic of Korea:** Yun Gyu Lee, *Korea Institute of Construction Technology* • Jae-Weon Jeong, *Hanyang University*

**Spain:** Pilar Linares Alemparte, *The Eduardo Torroja Institute for Construction Science - CSIC* • José Antonio Tenorio Ríos, *The Eduardo Torroja Institute for Construction Science - CSIC*

**Sweden:** Carl-Eric Hagentoft, *Chalmers University of Technology* • Paula Wahlgren, *Chalmers University of Technology*

**USA:** Andrew Persily, *NIST* • Max Sherman, *LBNL*

### Operating agent

INIVE EEIG, [www.inive.org](http://www.inive.org), [info@aivc.org](mailto:info@aivc.org)

Peter Wouters, *operating agent* • Rémi Carrié, *senior consultant* • Maria Kapsalaki, *consultant* • Samuel Caillou • Stéphane Degauquier

### AIVC board guests

Francis Allard • Morad Atif • José Maria Campos • Willem de Gids • Laszlo Fulop • Maria Kolokotroni • Zoltan Magyar • Hiroshi Yoshino

### Representatives of organisations

Andreas Eckmanns, *IEA EBC*, [www.iea-ebc.org](http://www.iea-ebc.org)

Jaap Hogeling, *REHVA*, [www.rehva.eu](http://www.rehva.eu)

Jan Hensen, *IBPSA*, [www.ibpsa.org](http://www.ibpsa.org)

Martin Liddament, *IJV*, [www.ijvent.org.uk](http://www.ijvent.org.uk)